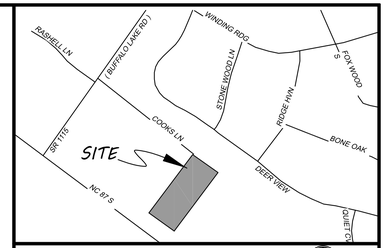
PHALANX CROSS FIT

SPOUT SPRINGS, NORTH CAROLINA



VICINITY MAP
NOT TO SCALE

GENERAL NOTES:

1. ALL WORK SHALL COMPLY WITH HARNETT COUNTY AND NCDOT STANDARDS AND SPECIFICATIONS.
2. THIS PROJECT IS SERVED BY PUBLIC WATER OWNED, MAINTAINED AND OPERATED BY HARNETT REGIONAL WATER.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UTILITIES AND REPAIRING ANY DAMAGE TO SAME. UTILITY LOCATIONS AS SHOWN ON PLANS ARE APPROXIMATE AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
4. PROVISIONS SHALL BE MADE TO ENSURE POSITIVE DRAINAGE ON THE SITE AT ALL TIMES. NATURAL DRAINAGE FEATURES DISTURBED BY CONSTRUCTION MUST BE RE-ESTABLISHED. NO PONDING DUE TO SPOILS STOCKPILING OR OTHER ACTIVITIES SHALL BE PERMITTED.
5. WORK IN PUBLIC RIGHT-OF-WAYS OR PRIVATE EASEMENTS SHALL BE ACCOMPLISHED BY THE CONTRACTOR ACCORDING TO THE REQUIREMENTS OR CONDITIONS OF THE ENCROACHMENT PERMIT OR OTHER LEGAL DOCUMENTS AS THOUGH DOCUMENTS WERE ISSUED IN THE CONTRACTOR NAME. THE CONTRACTOR SHALL MAINTAIN COPIES OF THESE DOCUMENTS ON THE SITES AT ALL TIMES.
6. WHEN THE CONTRACTOR IS UNABLE TO COMPLETE HIS WORK AS SHOWN ON THE PLANS BECAUSE OF AN EXISTING UTILITY, CONTRACTOR SHALL STAKE THE LOCATION OF THE UTILITY PRIOR TO PROCEEDING AND CONTACT THE ENGINEER.
7. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AGENCIES, THE OWNER, THE ENGINEER AND ALL OTHER CONCERNED PARTIES WHEN CONSTRUCTION IS TO COMMENCE. PRIOR TO ANY CONSTRUCTION A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE MUNICIPALITY / AUTHORITY, THE CONTRACTOR, THE ENGINEER AND ANY OTHER INTERESTED PARTY.
8. DATA REQUIRED FOR PREPARATION OF RECORD DRAWINGS SHALL BE OBTAINED BY THE CONTRACTOR AT THE TIME FOR INSTALLATION. DATA SHALL BE ACCUMULATED BY THE CONTRACTOR DURING THE CONSTRUCTION PERIOD AND PROVIDED TO THE ENGINEER UPON COMPLETION OF THE PROJECT
9. INSPECTIONS SHALL BE CONDUCTED IN ACCORDANCE WITH ALL APPLICABLE HARNETT COUNTY, NCDNER AND NCDOT STANDARDS.
10. ALL EXCAVATED EXCESS OR WASTE SOILS AND MATERIAL SHALL BE REMOVED FROM THE SITE BY CONTRACTOR EXCEPT AS SPECIFICALLY APPROVED IN WRITING BY BOTH THE ENGINEER AND OWNER.
11. WHEN CONCRETE SIDEWALKS, CURB AND GUTTER SECTIONS OR ASPHALT PAVEMENT ARE DAMAGED DUE TO CONSTRUCTION ACTIVITIES, THEY SHALL BE REPLACED IN A TIMELY MANNER BY THE CONTRACTOR TO ASSURE THE CONTINUED USE OF THESE FACILITIES BY ALL CONCERNED.
12. CONTRACTOR IS TO COMPLY WITH ALL PROVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES WHEN WORKING ADJACENT TO AN EXISTING PUBLIC HIGHWAY RIGHT OF WAY.
13. THE CONTRACTOR WILL MAINTAIN ALL EXISTING ROADS IN A NEAT AND CLEAN CONDITION THROUGHOUT THE COURSE OF THE PROJECT CONSTRUCTION.
14. CERTIFICATION OF THIS SET OF PLANS DOES NOT INCLUDE STRUCTURAL DESIGN OF RETAINING WALLS. SUCH DESIGN SHALL BE BY OTHERS. WALLS DEPICTED ON THESE PLANS ARE ONLY SHOWN FOR THE PURPOSED OF DETERMINING HEIGHTS NEEDED TO RETAIN SOIL.

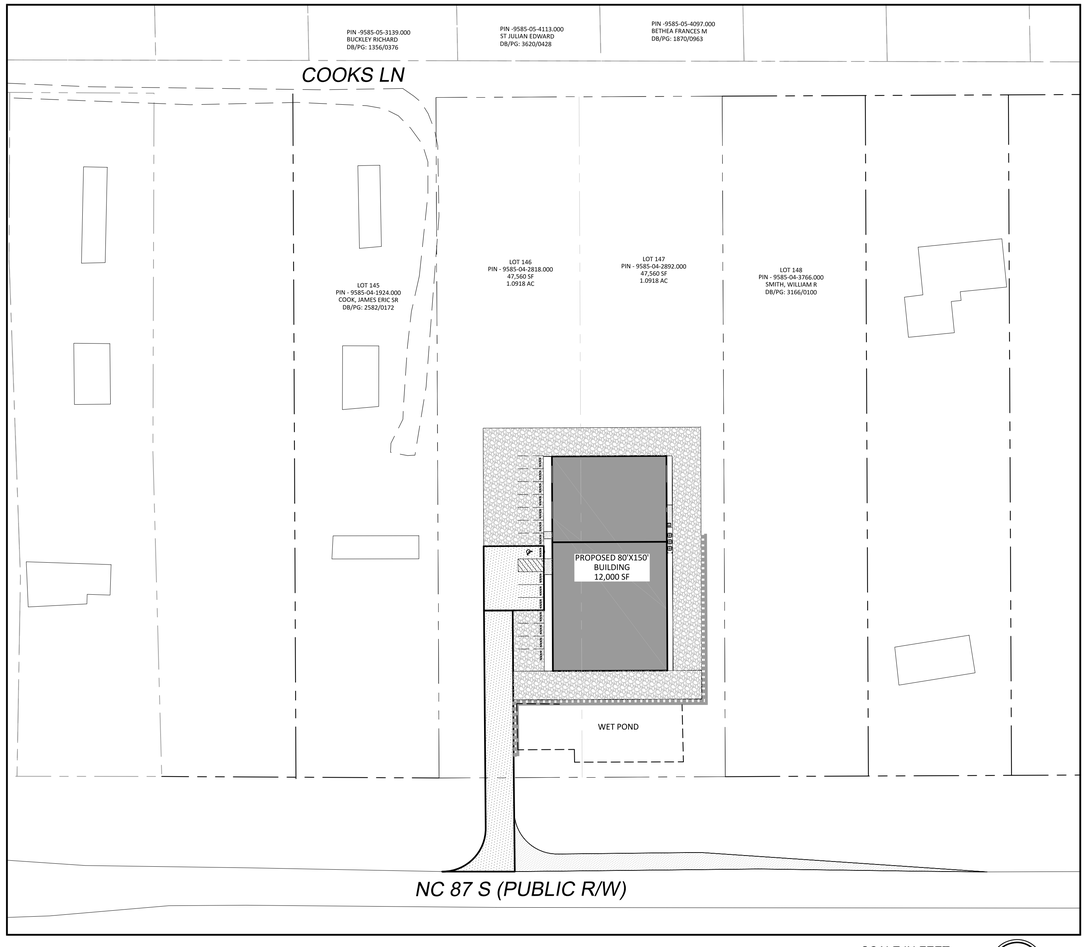
WATER/SEWER CAPACITY NOTE:

APPROVAL OF THE PLAT/PLAN DOES NOT GUARANTEE WATER OR SEWER TREATMENT CAPACITY. CURRENT/FUTURE CAPACITY MAY NOT BE AVAILABLE. THIS DEVELOPMENT MAY REQUIRE ADDITIONAL IMPROVEMENTS TO THE EXISTING WATER SYSTEM OR SEWER SYSTEM TO MEET FUTURE WATER AND SEWER DEMANDS PRIOR TO A PRELIMINARY PLAY, CONSTRUCTION PLAN AND/OR FINAL PLAT APPROVAL.

AS THE 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

_____
OWNER SIGNATURE

_____
DATE



OVERALL PLAN

SCALE IN FEET
0' 25 50 100

NORTH

SHEET SCHEDULE			
SHEET TITLE	**SHEET NO:**	**ORIGINAL DATE**	**LATEST REVISION DATE**
COVER SHEET	01	-	01/09/2023
EXISTING CONDITION	C 1.0	-	-
SITE PLAN	C 2.0	-	-
EROSION CONTROL PLAN - INITIAL PHASE	C 3.0	-	-
EROSION CONTROL PLAN - CONSTRUCTION PHASE	C 3.1	-	01/09/2023
EROSION CONTROL PLAN - FINAL PHASE	C 3.2	-	-
EROSION CONTROL GROUND STABILIZATION AND SELF INSPECTION NOTE	C 3.3	-	01/09/2023
EROSION CONTROL NOTE	C 3.4	-	01/09/2023
EROSION CONTROL DETAIL	C 3.5	-	01/09/2023
EROSION CONTROL DETAIL	C 3.6	-	01/09/2023
GRADING AND DRAINAGE PLAN	C 4.0	-	-
STORMWATER MANAGEMENT DETAIL	C 4.1	-	-
UTILITY PLAN AND DETAILS	C 5.0	-	-
HRW UTILITY NOTES	C 5.1	-	-
SITE DETAIL	C 6.0	-	-
LANDSCAPE PLAN AND DETAIL	L 1.0	-	-
DRAINAGE AREA MAP	D1.0	-	-

REVISION OCCURRENCE LIST

1	*1/9/2023*	*NCDNER COMMENTS*	
REVISION NO.	DATE		BY

THIS SET IS CURRENT THROUGH SHEET DATED: JANUARY, 2023

OWNER

PHALANX CROSS FIT
359 SUNRIDGE DRIVE
CAMERON, NC 28326
919-352-6608

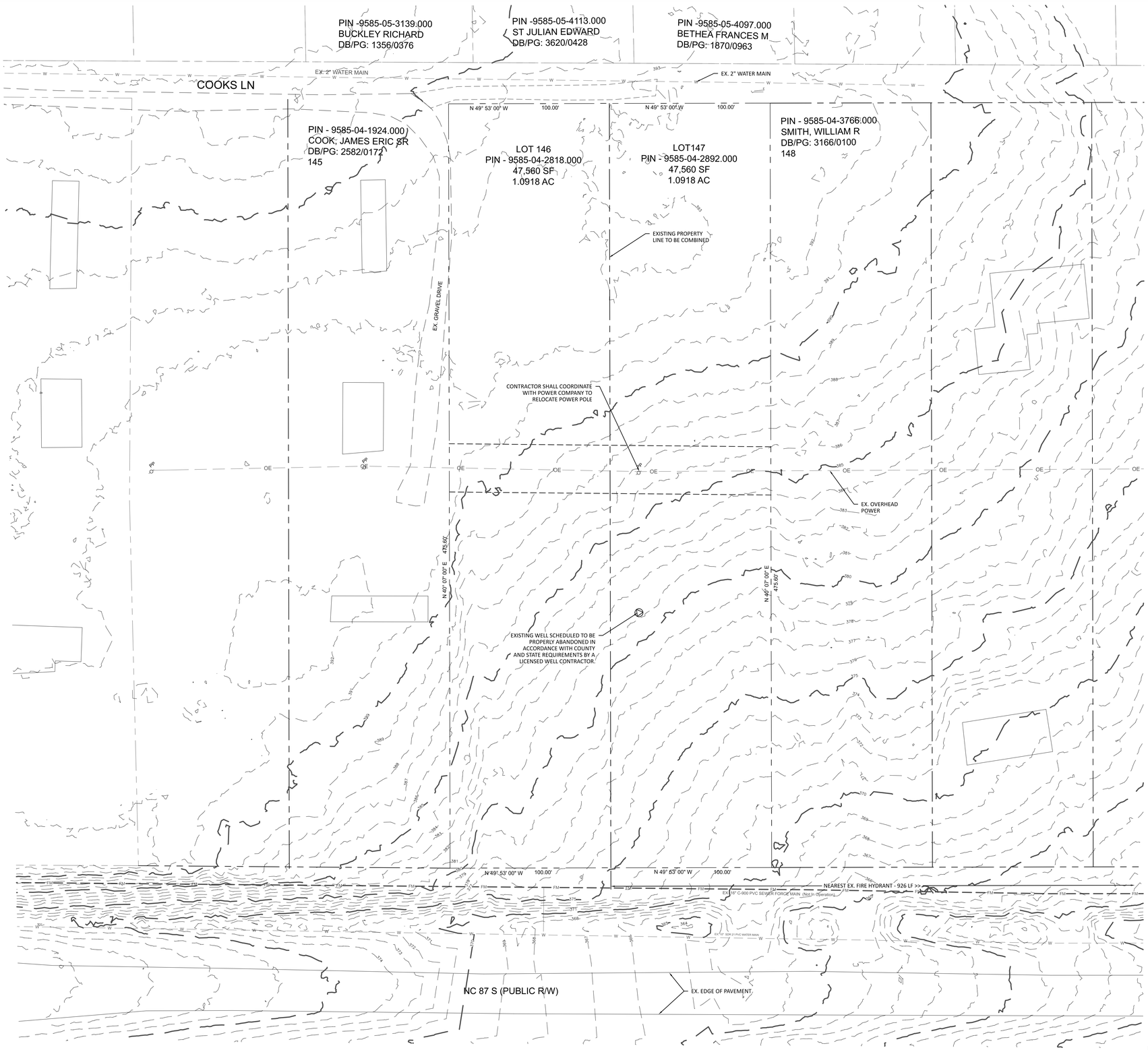
As the owner of record, I hereby formally consent to the proposed development shown on this site plan and all regulations and requirements of the Harnett County ordinances

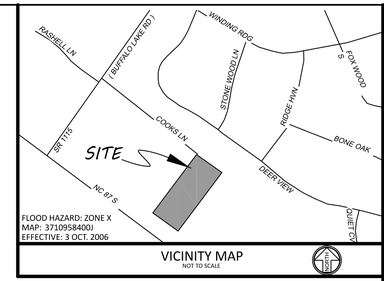
_____ / 1/11/2023
signature date

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035670 JAMES C. HILLIARD
1/13/23

PRELIMINARY
NOT FOR CONSTRUCTION
FOR REVIEW ONLY

HILLIARD ENGINEERING, PLLC
3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836





PRELIMINARY
NOT FOR CONSTRUCTION
FOR REVIEW ONLY

SITE NOTE:

1. THIS SITE IS WITHIN THE FIVE MILE MILITARY CORRIDOR OVERLAY ZONE, AND MAY BE SUBJECT TO MILITARY TRAINING ACTIVITIES.
2. THIS SITE IS WITHIN ONE MILE OF A VOLUNTARY AGRICULTURAL DISTRICT.
3. LAND USE CLASSIFICATION IS LOW DENSITY RESIDENTIAL

SURVEY NOTE:

1. SITE NFORMATION FROM HARNETT COUNTY, NC GIS
2. TOPOGRAPHY FROM GIS LIDAR

SCALE IN FEET
0' 15 30 60

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

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037270 JAMES HILLIARD 1/13/23

3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

HILLIARD ENGINEERING, PLLC

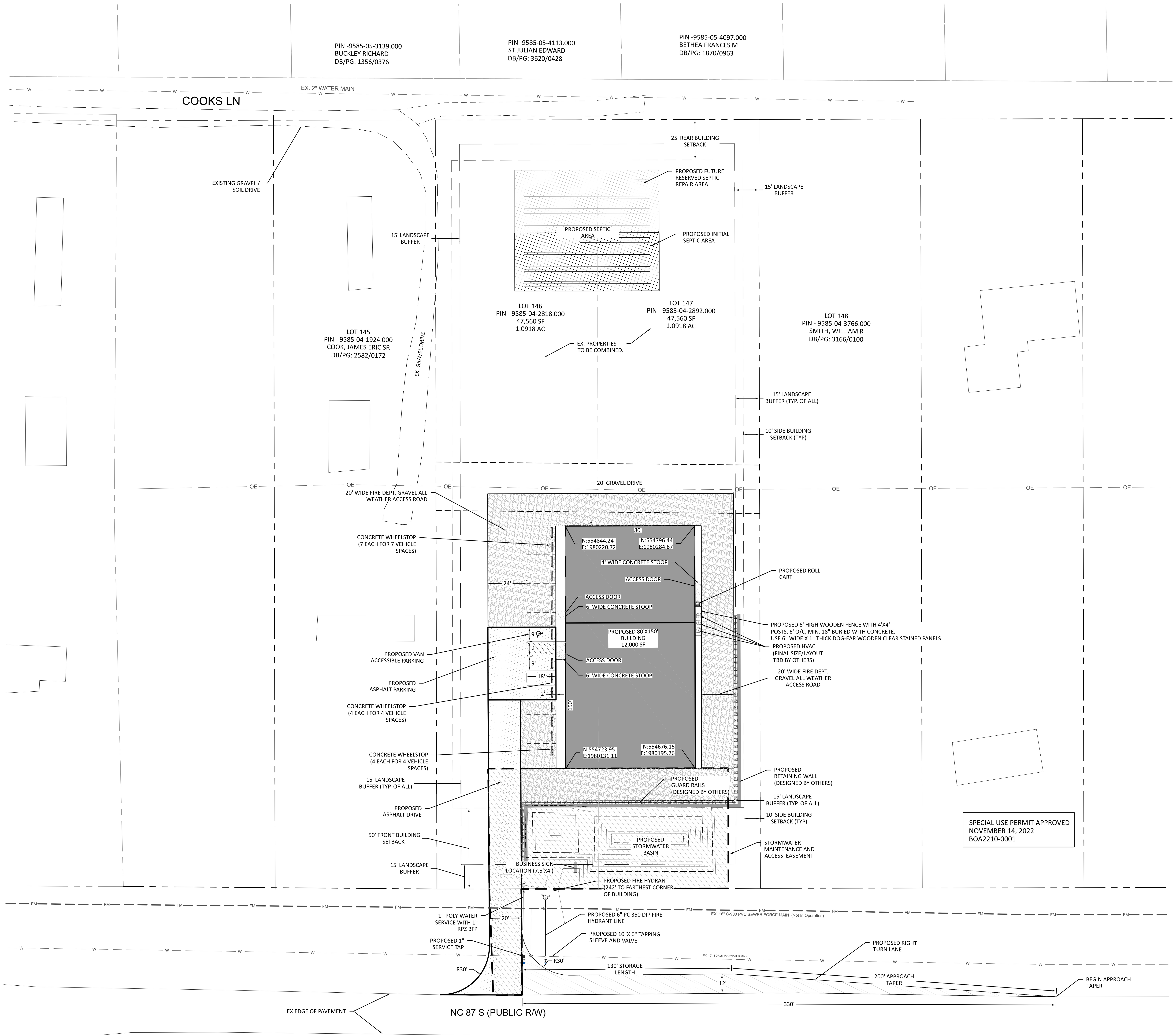
EXISTING CONDITION

PHALANX CROSSFIT
CAMERON, NORTH CAROLINA

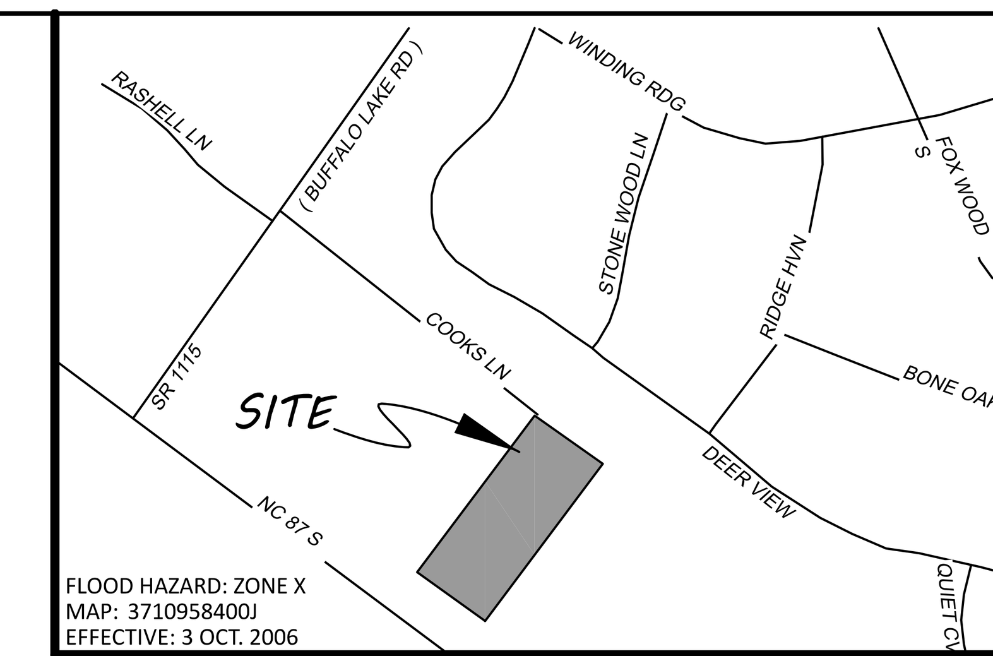
DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH

SHEET:
C1.0
CIVIL

PRELIMINARY
NOT FOR CONSTRUCTION
FOR REVIEW ONLY



SPECIAL USE PERMIT APPROVED
NOVEMBER 14, 2022
BOA2210-0001



VICINITY MAP
NOT TO SCALE

SITE DATA:

PROJECT:	PHALANX CROSS FIT
APPLICANT/OWNER:	PHALANX FITNESS, LLC 359 Sunridge Drive CAMERON, NC 28326 919-352-6608
TOWNSHIP/COUNTY/STATE:	SPOUT SPRINGS, HARNETT, NC
WATERSHED:	PHASE II TIPPED
ZONED:	RA-20M
OWNER:	PHALANX CROSS FIT
PROPERTY LOCATION:	NC 87
PIN #:	9585-04-2818 9585-04-2892
PROPOSED USED:	RECREATIONAL FACILITY
TOTAL PROPERTY AREA:	2.18 AC (2 TRACTS)
DEED REFERENCE:	BOOK 2858, PAGE 140
SETBACKS PROPOSED:	FRONT: 50', REAR: 25', SIDE: 10'

PROJECT DATA:

PROJECT AREA:	2.18 AC = 94,961 SF
PROJECT IMPERVIOUS AREA:	29,038 SF TOTAL (30.58% OF PROJECT)
PROJECT IMPERVIOUS AREA BREAKDOWN:	
BUILDING:	12,000 SF
ASPHALT PAVING:	1,896 SF
GRAVEL PAVING:	14,983 SF
CONCRETE STOOP:	159 SF
HAZARDOUS MATERIALS:	N/A
WATER SYSTEM:	HRW (PUBLIC)
SEPTIC SYSTEM:	PRIVATE (TBD BY OTHERS)
PARKING REQUIRED:	

RECREATIONAL FACILITY = 1 SPACE PER 4 PERSON CAPACITY
15 PERSONS TOTAL PER SESSION
4 SPACES MINIMUM REQUIRED
15 SPACES PROVIDED (14 STANDARD, 1 VAN ACCESSIBLE)

THE SUBJECT PROPERTY LIES IN A ZONE X ACCORDING TO FIRM 3710958400J
EFFECTIVE DATE 10/03/2006

HOURS OF OPERATION: MONDAY - FRIDAY, 5:00 AM - 6:00 PM
(VARIES BY APPOINTMENT AND SEASONALLY)
SATURDAY, 9:00 AM - 11:00 AM

NOTES:

- THIS DEVELOPMENT IS WITHIN THE FIVE MILE MILITARY CORRIDOR OVERLAY ZONE, AND MAY BE SUBJECT TO MILITARY TRAINING ACTIVITIES.
- THIS DEVELOPMENT IS WITHIN ONE MILE OF A VOLUNTARY AGRICULTURAL DISTRICT.
- LAND USE CLASSIFICATION IS COMPACT MIXED USE
- PROJECT PROPERTY OWNER WILL BE RESPONSIBLE FOR MAINTENANCE OF THE PARKING AREAS, DRIVE AISLES, AND LANDSCAPE BUFFERING, DRAINAGE EASEMENTS, STORM WATER POND, PRIVATE FIRE/SPRINKLER LINES, AND DRAINAGE SWALES.
- ALL MECHANICAL AREAS LOCATED ON, BESIDE, OR ADJACENT TO ANY BUILDING OR DEVELOPMENTS SHALL BE SCREENED FROM THE VIEWS OF STREETS AND ADJACENT PROPERTY.
- MAXIMUM IMPERVIOUS SURFACE: 29,038 SF
- ANY PROJECT SIGNS WILL BE PLACED AT LEAST 10' FROM THE NCDOT R/W AND A SEPARATE PERMIT WILL BE REQUIRED BEFORE CONSTRUCTION
- A CERTIFIED FOUNDATION SURVEY, OR SETBACK VERIFICATION SURVEY, IS REQUIRED TO BE SUBMITTED AT THE COMPLETION OF FOUNDATION CONSTRUCTION
- CLEARING LIMITS SHALL BE TO THE PROPERTY LINE WHERE LANDSCAPING IS PROPOSED. FOR ALL OTHER AREAS, THE CLEARING LIMITS SHALL BE UP TO, BUT NOT INCLUDING, THE 15' LANDSCAPING BUFFER WHERE NECESSARY FOR GRADING OPERATIONS, AND LEFT AS IS IN AREAS WHERE NO WORK IS PROPOSED. EXISTING TREES SHALL REMAIN WITHIN THE 15' LANDSCAPE BUFFER. (TYP. ENTIRE PROJECT)
- NC 87 is on the Harnett County Comprehensive Transportation Plan
- Sidewalks and street trees are to be maintained by the Home Owners Association ("HOA"), Property Owners Association ("POA"), Condominium Owner's Association ("COA"), or any other association responsible for the maintenance and/or upkeep of the residential community. Sidewalk or street tree installations that are damaged and/or removed by Harnett County/ Department of Public Utilities/Harnett Regional Water or its representatives, agents, or contractors as a result of repair/maintenance of the public water and/or sewer line will be replaced or repaired by the Home Owners Association ("HOA"), Property Owners Association ("POA"), Condominium Owner's Association ("COA"), or any other association responsible for the maintenance and/or upkeep of the residential community.

SITE LEGEND

- CONCRETE SIDEWALK/PAD (SEE DETAIL)
- STANDARD DUTY ASPHALT PAVEMENT (SEE DETAIL)
- GRAVEL PAVEMENT (SEE DETAIL)
- #57 COMPACTED GRAVEL

SURVEY NOTE:

1. SITE INFORMATION FROM HARNETT COUNTY, NC GIS
2. TOPOGRAPHY FROM GIS LIDAR

GEOTECHNICAL NOTE:

CONTRACTOR SHALL RETAIN THE SERVICE OF A GEOTECHNICAL ENGINEER TO PROVIDE SOIL TESTING TO ENSURE SUITABLE SOIL COMPACTION PRIOR TO PLACING PAVEMENT.

SCALE IN FEET
0 15 30 60

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

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

HILLIARD ENGINEERING, PLLC
3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

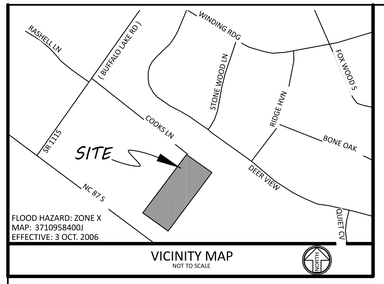
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035670 JARROD E. HILLIARD
1/13/23

SITE PLAN

PHALANX CROSSFIT
CAMERON, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH

SHEET:
C2.0
CIVIL



VICINITY MAP
NOT TO SCALE

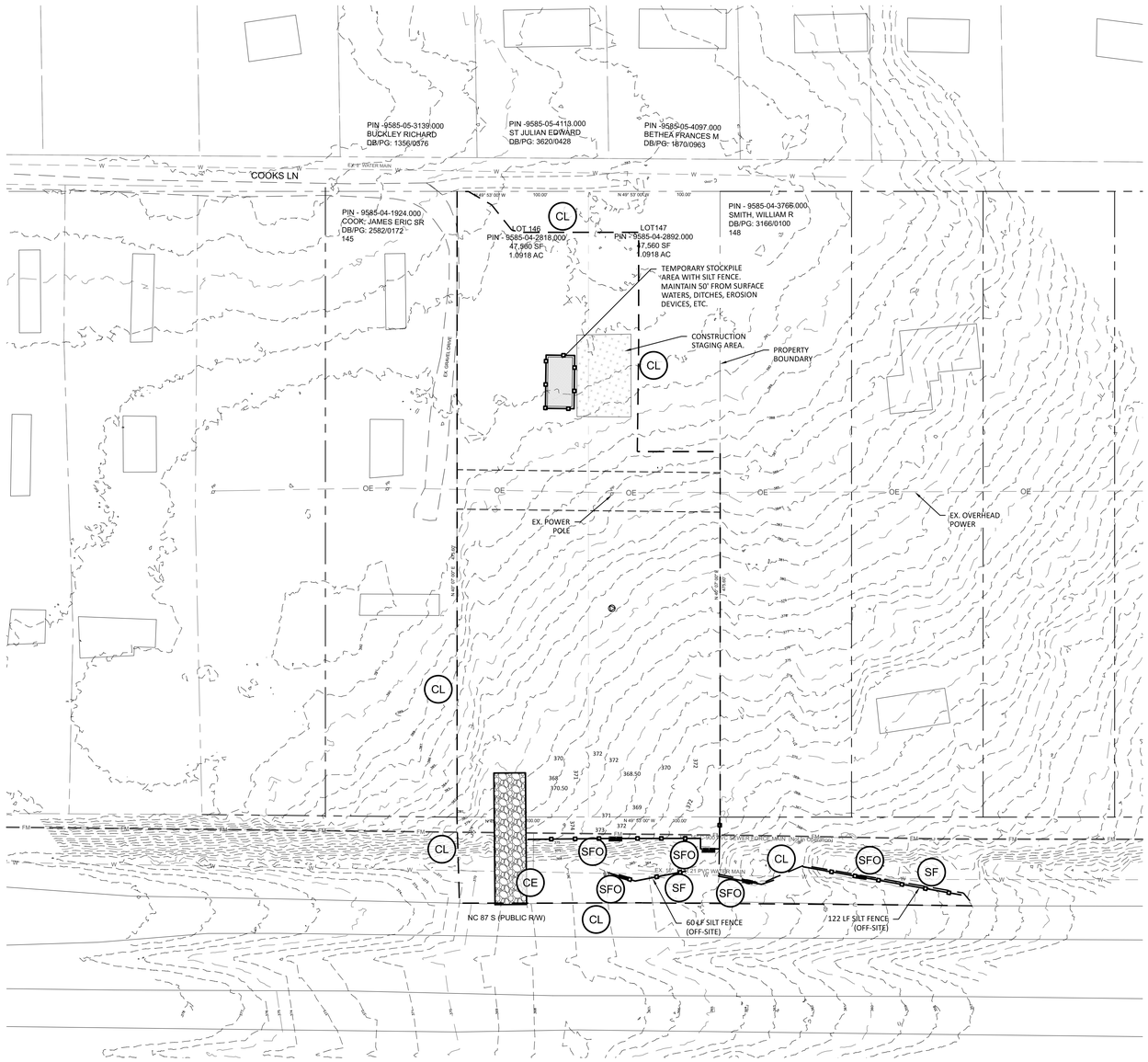
GROUND STABILIZATION REQUIREMENTS

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.			

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)*
CL	CONSTRUCTION LIMITS	*A DEFINED AREA THAT ALL LAND DISTURBANCE WILL OCCUR DURING CONSTRUCTION.*

PRELIMINARY
NOT FOR CONSTRUCTION
FOR REVIEW ONLY



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 NC 87.
5. FLAG LIMITS OF ALL DISTURBED AREA AS SHOWN ON THE PLANS FOR INSTALLATION OF PERIMETER EROSION CONTROL DEVICES - SILT FENCE AND SILT FENCE OUTLETS AS SHOWN ON THE PLANS.
6. INSTALL TEMPORARY STOCKPILE AREA WITH SILT FENCE AND CONSTRUCTION STAGING AREA.
7. INSTALL OFF-SITE SILT FENCE AS SHOWN ON THE PLANS.
8. CHECK WEATHER FORECAST TO ENSURE NO RAIN EVENTS ARE FORECAST TO OCCUR WITHIN A 72 HOUR PERIOD. DO NOT BEGIN ANY CONSTRUCTION OF CLEAN WATER DIVERSION SWALES UNLESS A CLEAR 72 HOUR FORECAST IS PREDICTED AND IMMEDIATELY CEASE ALL CONSTRUCTION OF SWALES AND IMMEDIATELY STABILIZE SHOULD RAIN EVENTS BE PREDICTED.
9. "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 PERMIT'S 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.
10. 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.
11. 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 PART III SECTIONS A AND B).
12. CLEAR AND GRUB SITE (WHERE REQUIRED) AND LEGALLY DISPOSE OF ALL DEBRIS OFF SITE.
13. "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.
14. TOTAL SITE DISTURBED AREA = 2.21 AC.

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.

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.

SCALE IN FEET
0' 25 50 100

NORTH

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

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

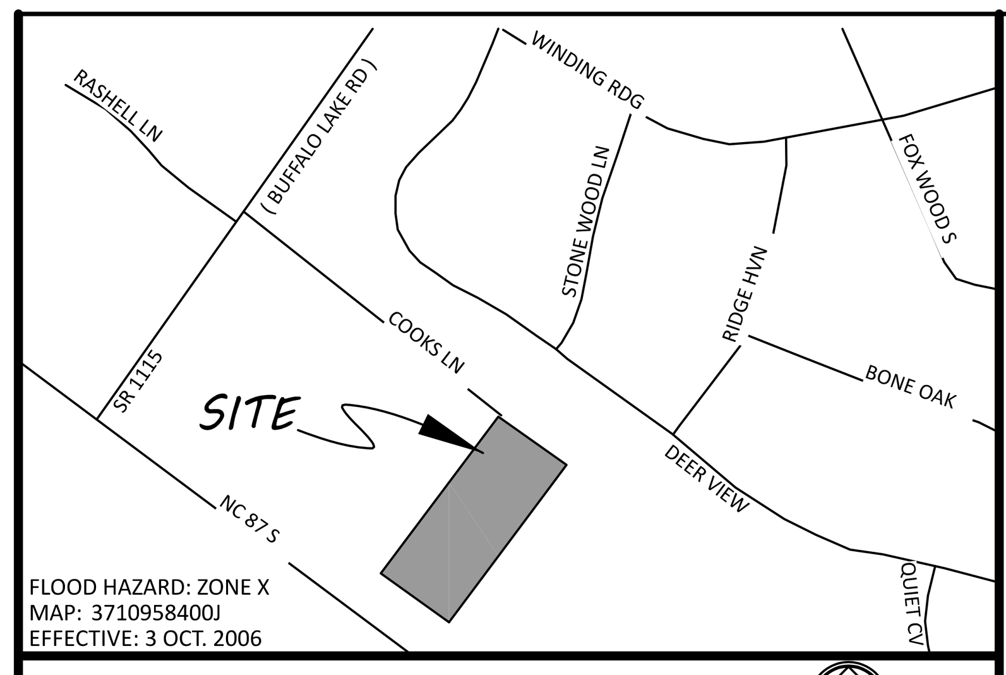
HILLIARD ENGINEERING, PLLC

EROSION CONTROL PLAN - INITIAL PHASE

PHALANX CROSSFIT
CAMERON, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH

SHEET: C3.0
CIVIL



VICINITY MAP
NOT TO SCALE

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.

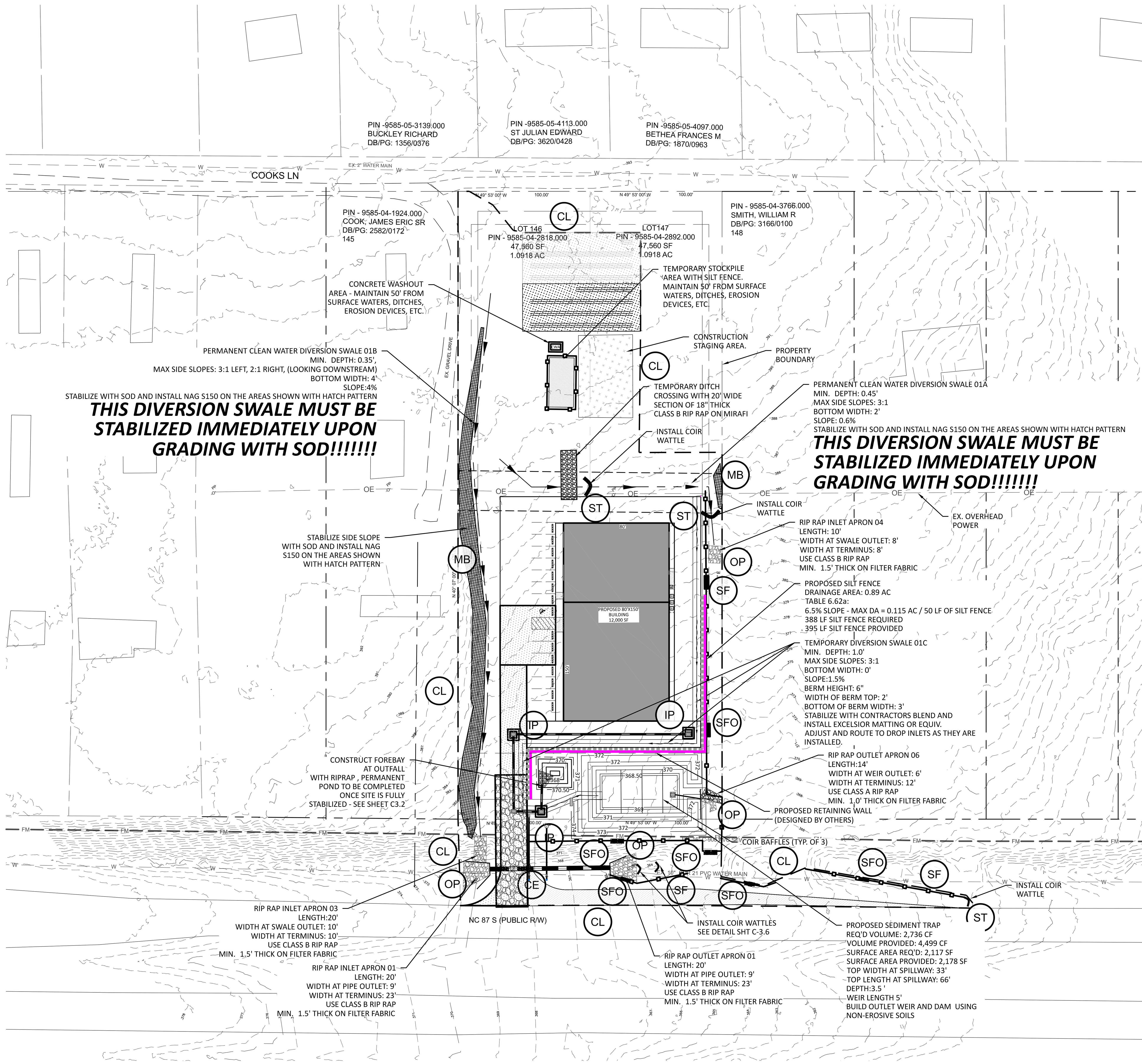
SYMBOL	PRACTICE	DESCRIPTION
CE	CONSTRUCTION ENTRANCE	A STONE STABILIZED PAD LOCATED AT ANY POINT THAT TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE TO A PUBLIC RIGHT-OF-WAY, STREET, ALLEY, SIDEWALK, OR PARKING PLOT WHICH WILL REDUCE OR ELIMINATE THE TRANSPORT OF MUD FROM THE CONSTRUCTION SITE.
SF	SILT 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)
CL	CONSTRUCTION LIMITS	A DEFINED AREA THAT ALL LAND DISTURBANCE WILL OCCUR DURING CONSTRUCTION.
IP	INLET PROTECTION	A TEMPORARY SEDIMENT BARRIER LAID AROUND A STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
CWA	CONCRETE WASHOUT AREA	TEMPORARY FACILITY PROVIDED ONSITE FOR CONCRETE TRUCKS TO WASHOUT PRIOR TO LEAVING CONSTRUCTION SITE. CONTRACTOR MAY RELOCATE ONSITE AS DEEMED NECESSARY THROUGH-OUT CONSTRUCTION
MB	EROSION CONTROL MATTING	INSTALLATION OF A PROTECTIVE BLANKET ON A PREPARED PLANTING OF A SLOPE OR CHANNEL.
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.
ST	COIR WATTLES	SEDIMENT TUBES ARE ELONGATED TUBES OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH. STRAW, PINE NEEDLES AND LEAF MULCH-FILLED SEDIMENT TUBES ARE NOT PERMITTED UNDER THIS SPECIFICATION.

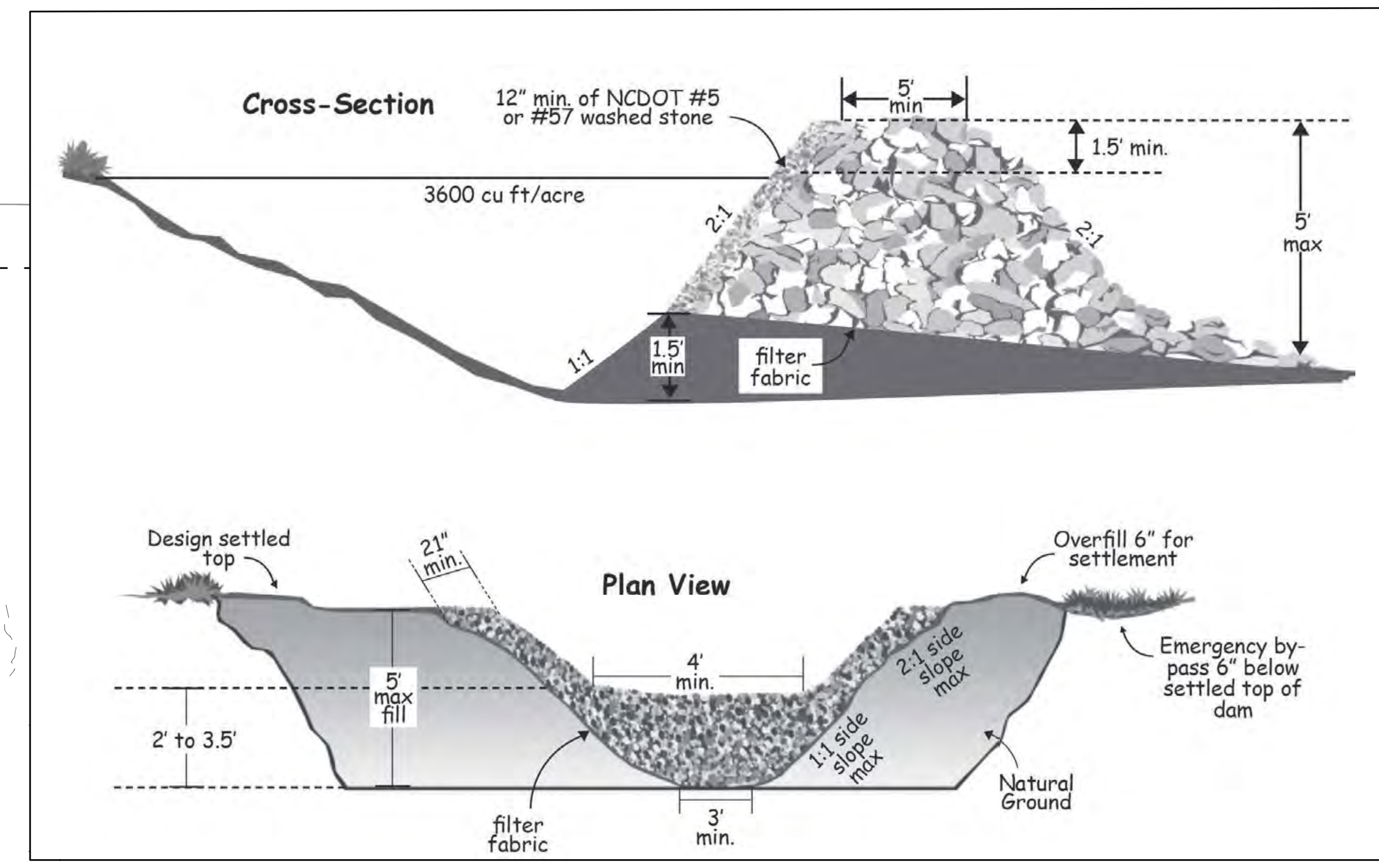
CONSTRUCTION SEQUENCE & EROSION CONTROL MEASURES - CONSTRUCTION PHASE:

1. INSTALL CONSTRUCTION ENTRANCE, CONCRETE WASHOUT, TEMPORARY STOCKPILE AREA WITH SILT FENCE, AND CONSTRUCTION STAGING AREA.
2. CHECK WEATHER FORECAST TO ENSURE NO RAIN EVENTS ARE FORECAST TO OCCUR WITHIN A 72 HOUR PERIOD. DO NOT BEGIN ANY CONSTRUCTION OF CLEAN WATER DIVERSION SWALES UNLESS A CLEAR 72 HOUR FORECAST IS PREDICTED AND IMMEDIATELY CEASE ALL CONSTRUCTION OF SWALES AND IMMEDIATELY STABILIZE SHOULD RAIN EVENTS BE PREDICTED.
3. CONSTRUCT CLEAN WATER DIVERSION SWALE 01A, INCLUDING RIP RAP OUTLET APRON, AND IMMEDIATELY STABILIZE WITH SOD AND EROSION CONTROL MATTING AS SPECIFIED AT THE END OF EACH WORKING DAY FOR THE COMPLETED AREAS. DO NOT BEGIN ANY ADDITIONAL WORK ON THE SWALES UNLESS A CLEAR 72 HOUR FORECAST CONTINUES.
4. CONSTRUCT CLEAN WATER DIVERSION SWALE 01B, INCLUDING RIP RAP OUTLET APRON, AND IMMEDIATELY STABILIZE WITH SOD AND EROSION CONTROL MATTING AS SPECIFIED AT THE END OF EACH WORKING DAY FOR THE COMPLETED AREAS. DO NOT BEGIN ANY ADDITIONAL WORK ON THE SWALES UNLESS A CLEAR 72 HOUR FORECAST CONTINUES.
5. ONCE BOTH CLEAN WATER DIVERSION SWALES ARE INSTALLED AND COMPLETED STABILIZED, INSTALL SEDIMENT TRAP, TEMPORARY DIVERSION SWALE 01C, ALL ONSITE SILT FENCE AND SILT FENCE OUTLETS. CLEAR AND GRUB AS NECESSARY.
6. INSTALL WATTLES, SILT FENCE, AND SILT FENCE OUTLETS DOWNSTREAM OF PROPOSED DRIVEWAY CULVERT.
7. INSTALL DRIVEWAY CULVERT AND ENDWALLS INCLUDING ENDWALL GRADING.
8. IMMEDIATELY STABILIZE ALL DISTURBED AREAS WITH CONTRACTORS BLEND SEED MIX AND EXELSIOR OR EQUIVALENT EROSION CONTROL MATTING.
9. COMPLETE CONSTRUCTION OF SITE GRADING, PARKING AREAS, BUILDING, RETAINING WALLS, STORM WATER MANAGEMENT AREAS, AND SEPTIC AREA.
10. REMOVE AND REPLACE SILT FENCE AND SILT FENCE OUTLETS AS REQUIRED NEAR THE SOUTHEAST AREA OF THE CONSTRUCTION ENTRANCE ONCE GRADING OCCURS IN THAT AREA.

PRELIMINARY
NOT FOR CONSTRUCTION
FOR REVIEW ONLY

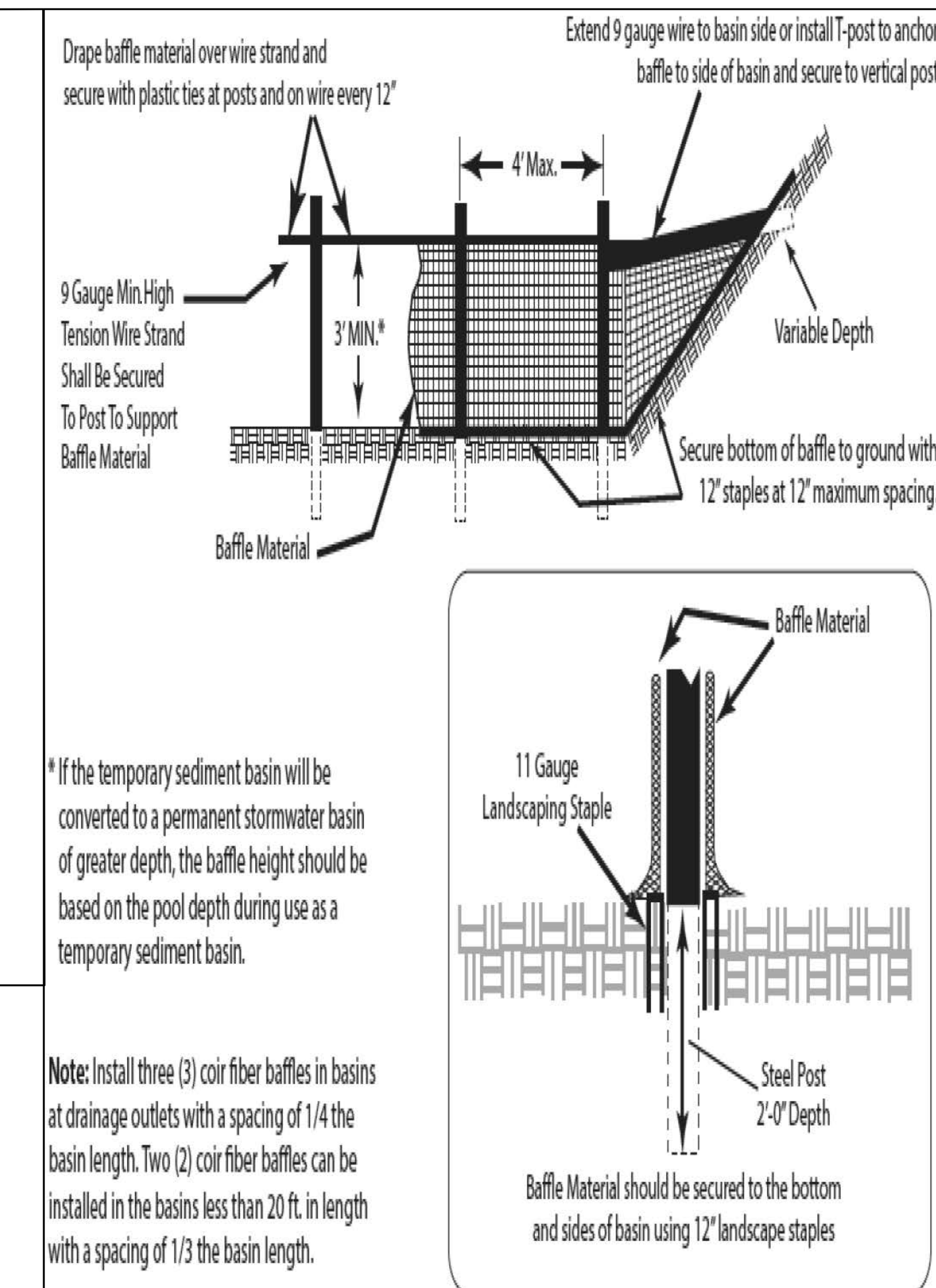
1/13/23





Maintenance	Inspect temporary sediment traps at least weekly and after each significant (½ inch or greater) rainfall event and repair immediately. Remove sediment, and restore the trap to its original dimensions when the sediment has accumulated to one-half the design depth of the trap. Place the sediment that is removed in the designated disposal area, and replace the part of the gravel facing that is impaired by sediment. Check the structure for damage from erosion or piping. Periodically check the depth of the spillway to ensure it is a minimum of 1.5 feet below the low point of the embankment. Immediately fill any settlement of the embankment to slightly above design grade. **Any riprap displaced from the spillway must be replaced immediately.** After all sediment-producing areas have been permanently stabilized, remove the structure and all unstable sediment. Smooth the area to blend with the adjoining areas, and stabilize properly (*References: Surface Stabilization*).

SEDIMENT TRAP DETAIL AND MAINTENANCE REQUIREMENTS
N.T.S.



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 reaches half full, to provide adequate storage volume for the next rain and to reduce pressure on the baffles. Take care to avoid damaging the baffles during cleanout, and replace if damaged during cleanout operations. Sediment depth should never exceed half the designed storage depth. After the contributing drainage area has been properly stabilized, remove all baffle materials and unstable sediment deposits, bring the area to grade, and stabilize it.

BAFFLES DETAIL AND MAINTENANCE REQUIREMENTS
N.T.S.

SCALE IN FEET
0' 25 50 100

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

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

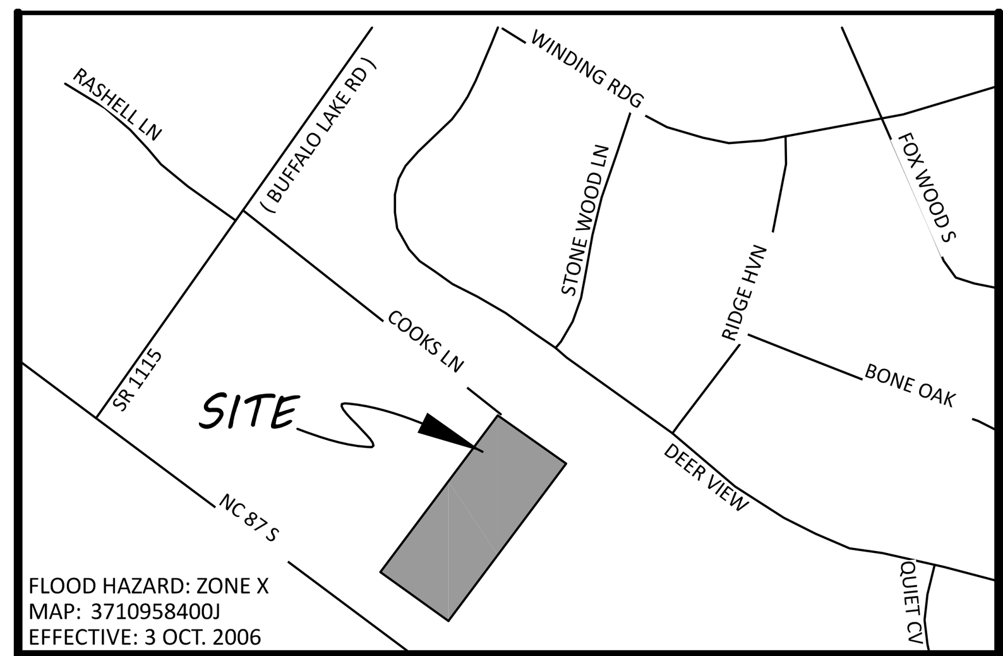
HILLIARD ENGINEERING, PLLC
3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

EROSION CONTROL PLAN - CONSTRUCTION PHASE

PHALANX CROSSFIT
CAMERON, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH

SHEET:
C3.1
CIVIL



VICINITY MAP
NOT TO SCALE

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.			

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
1	TALL FESCUE	140	MARCH 16 TO AUG. 31
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.

PRELIMINARY
NOT FOR CONSTRUCTION
FOR REVIEW ONLY

CONSTRUCTION SEQUENCE & EROSION CONTROL MEASURES - FINAL PHASE:

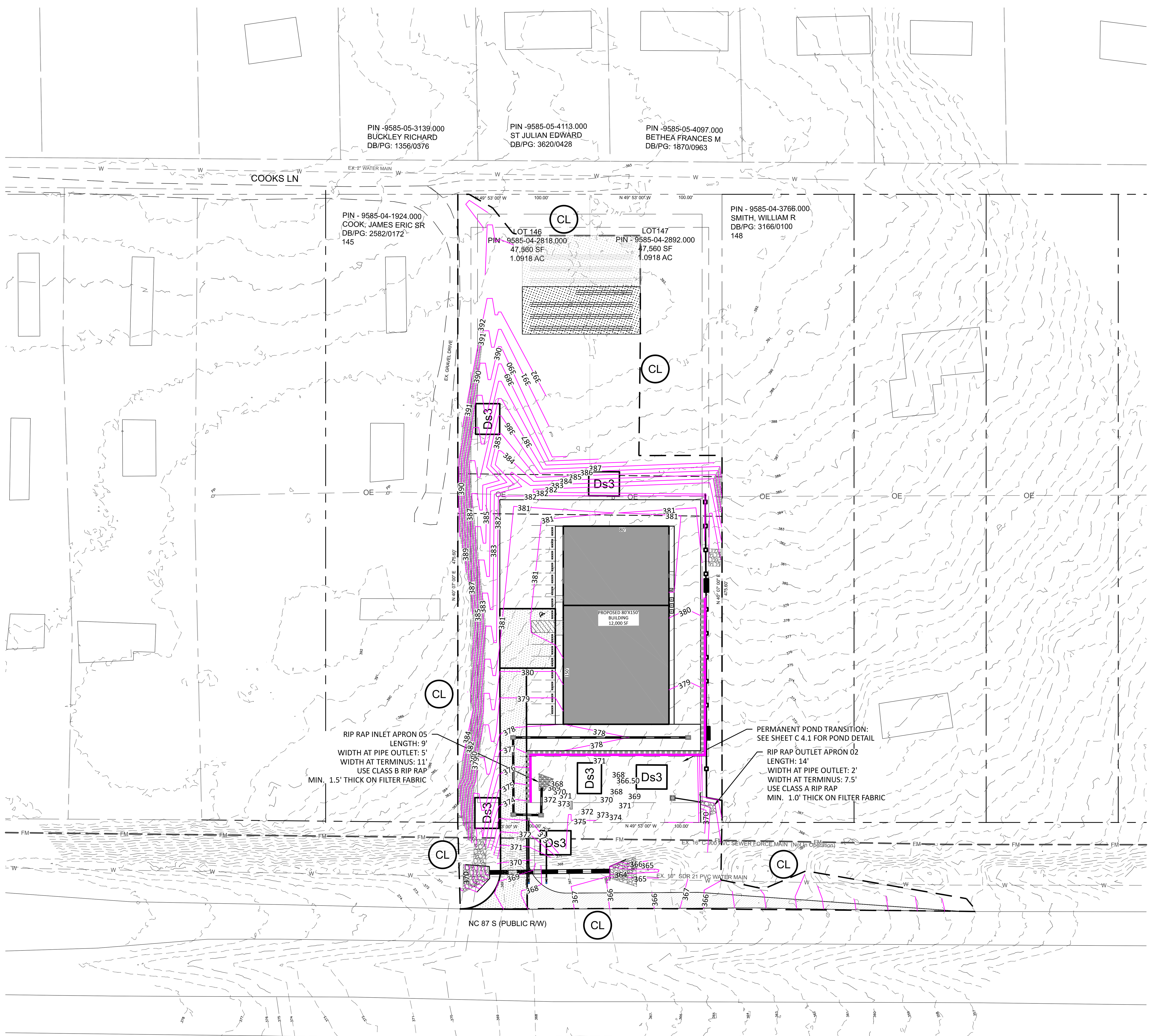
1. UPON COMPLETING ALL SITE IMPROVEMENTS AND FINAL GRADING, STABILIZE ALL DISTURBED AREAS PER LANDSCAPE PLAN. WATER AND MAINTAIN ALL LANDSCAPED AREAS TO ENSURE PROPER GROUND COVERAGE PRIOR TO FINAL APPROVAL

2. PERIMETER MEASURES, SILT FENCE AND TEMPORARY DIVERSION MUST BE LEFT INPLACE UNTIL ALL UPLAND AREAS ARE STABILIZED WITH PERMANENT VEGETATION.

3.SEE SEEDING SCHEDULE PROVIDED IN EROSION CONTROL DETAIL.

4. 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.



SCALE IN FEET
0' 25 50 100

NORTH

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

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836
HILLIARD ENGINEERING, PLLC

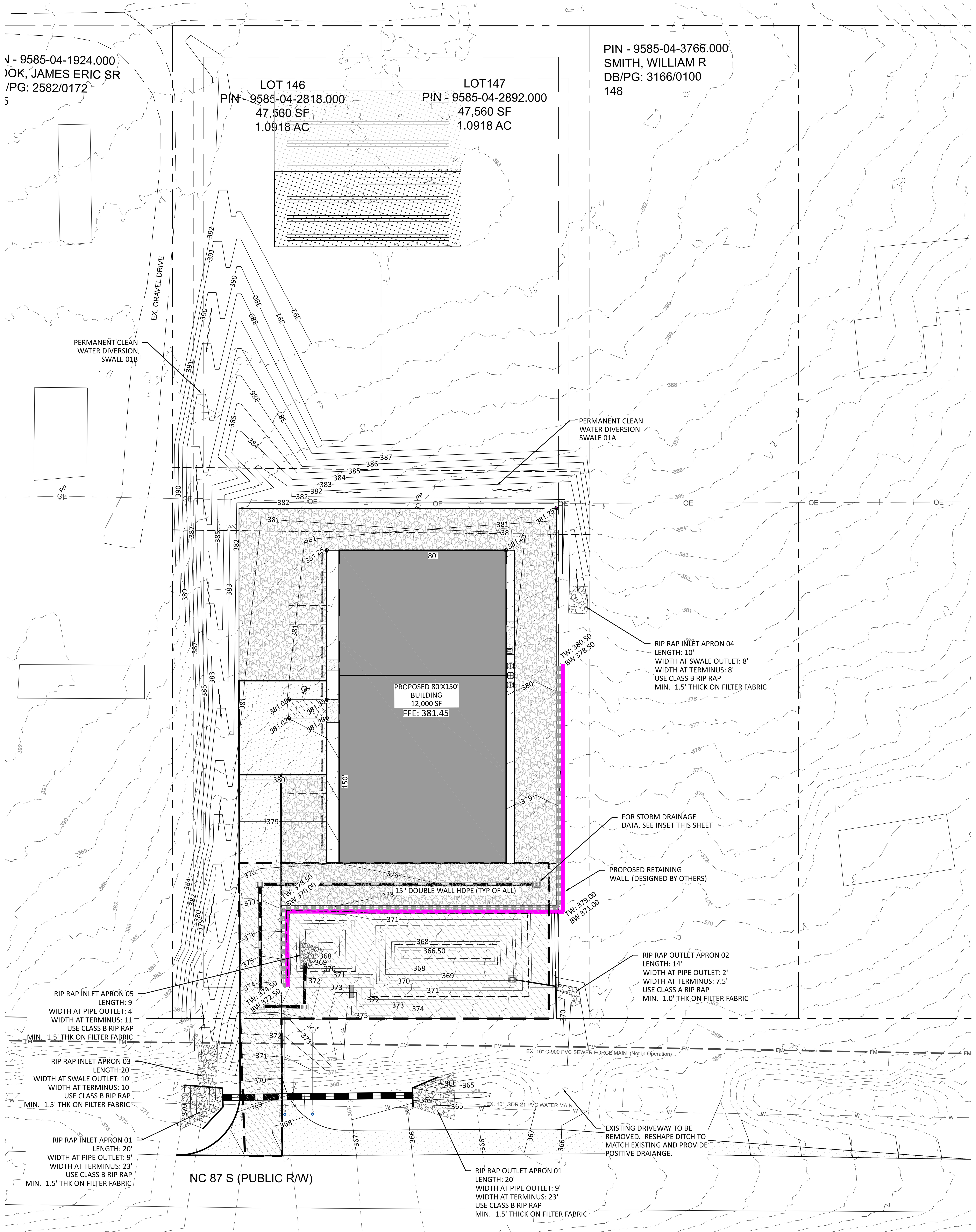
1/13/23

EROSION CONTROL PLAN - FINAL PHASE

PHALANX CROSSFIT
CAMERON, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH

SHEET:
C3.2
CIVIL

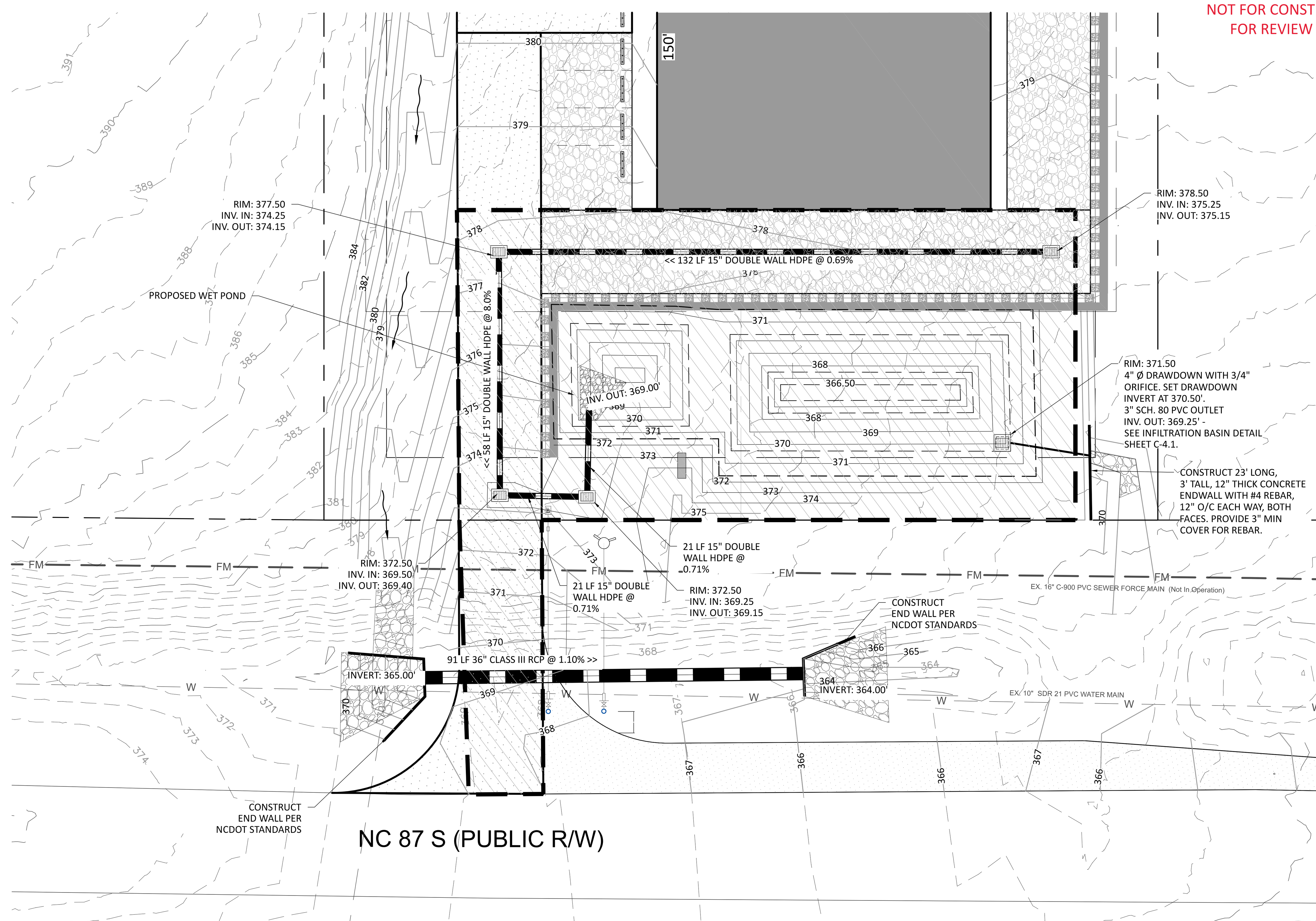


SITE GRADING PLAN

SCALE: 1" = 30'

SCALE IN FEET 0' 15 30 60

NOTE:
1) SPOT GRADES ARE EDGE OF PAVEMENT OR GRAVEL AS SHOWN ON THE PLANS



STORM DRAINAGE PLAN

SCALE: 1" = 20'

SCALE IN FEET 0' 10 20 40

3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836
HILLIARD ENGINEERING, PLLC

1/13/23

GRADING AND DRAINAGE PLAN

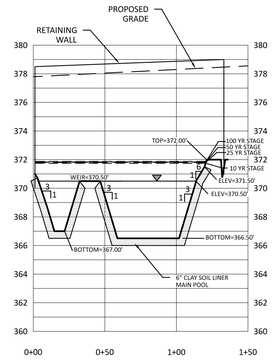
PHALANX CROSSFIT
CAMERON, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH
SHEET:	C4.0
	CIVIL

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

PRELIMINARY
NOT FOR CONSTRUCTION
FOR REVIEW ONLY

INSPECTION AND MAINTENANCE PROVISIONS		
BMP ELEMENT	POTENTIAL PROBLEM	HOW TO REMEDIATE THE PROBLEM
THE ENTIRE BMP	TRASH/DEBRIS IS PRESENT.	REMOVE THE TRASH/DEBRIS.
THE PERIMETER OF THE WET DETENTION BASIN	AREAS OF BARE SOIL AND/OR EROSIVE GULLIES HAVE FORMED.	REGRADE THE SOIL IF NECESSARY TO REMOVE THE GULLIY, AND THEN PLANT A GROUND COVER AND WATER UNTIL IT IS ESTABLISHED. PROVIDE LIME AND A ONE-TIME FERTILIZER APPLICATION.
	VEGETATION IS TOO SHORT OR TOO LONG.	MAINTAIN VEGETATION AT A HEIGHT OF APPROXIMATELY SIX INCHES.
THE INLET DEVICE: PIPE OR SWALE	THE PIPE IS CLOGGED.	UNCLOG THE PIPE. DISPOSE OF THE SEDIMENT OFF-SITE.
	THE PIPE IS CRACKED OR OTHERWISE DAMAGED.	REPLACE THE PIPE.
	EROSION IS OCCURRING IN THE SWALE.	REGRADE THE SWALE IF NECESSARY TO SMOOTH IT OVER AND PROVIDE EROSION CONTROL DEVICES SUCH AS REINFORCED TURF MATTING OR RIPRAP TO AVOID FUTURE PROBLEMS WITH EROSION.
THE FOREBAY	SEDIMENT HAS ACCUMULATED TO A DEPTH GREATER THAN THE ORIGINAL DESIGN DEPTH FOR SEDIMENT STORAGE.	SEARCH FOR THE SOURCE OF THE SEDIMENT AND REMEDY THE PROBLEM IF POSSIBLE. REMOVE THE SEDIMENT AND DISPOSE OF IT IN A LOCATION WHERE IT WILL NOT CAUSE IMPACTS TO STREAMS OR THE BMP.
	EROSION HAS OCCURRED.	PROVIDE ADDITIONAL EROSION PROTECTION SUCH AS REINFORCED TURF MATTING OR RIPRAP IF NEEDED TO PREVENT FUTURE EROSION PROBLEMS.
	WEEDS ARE PRESENT.	REMOVE THE WEEDS, PREFERABLY BY HAND. IF PESTICIDE IS USED, WIPE IT ON THE PLANTS RATHER THAN SPRAYING.
THE VEGETATED SHELF	BEST PROFESSIONAL PRACTICES SHOW THAT PRUNING IS NEEDED TO MAINTAIN OPTIMAL PLANT HEALTH.	PRUNE ACCORDING TO BEST PROFESSIONAL PRACTICES.
	PLANTS ARE DEAD, DISEADED OR DYING.	DETERMINE THE SOURCE OF THE PROBLEM: SOILS, HYDROLOGY, DISEASE, ETC. TAKE THE NECESSARY STEPS TO REPLACE PLANTS. PROVIDE A ONE-TIME FERTILIZER APPLICATION TO ESTABLISH THE GROUND COVER IF A SOIL TEST INDICATES IT IS NECESSARY.
	WEEDS ARE PRESENT.	REMOVE THE WEEDS, PREFERABLY BY HAND. IF PESTICIDE IS USED, WIPE IT ON THE PLANTS RATHER THAN SPRAYING.
THE MAIN TREATMENT AREA	SEDIMENT HAS ACCUMULATED TO A DEPTH GREATER THAT THE ORIGINAL DESIGN SEDIMENT STORAGE DEPTH.	SEARCH FOR THE SOURCE OF THE SEDIMENT AND REMEDY THE PROBLEM IF POSSIBLE. REMOVE THE SEDIMENT AND DISPOSE OF IT IN A LOCATION WHERE IT WILL NOT CAUSE IMPACTS TO STREAMS OR THE BMP.
	ALGAL GROWTH COVERS OVER 50% OF THE AREA.	CONSULT A PROFESSIONAL TO REMOVE AND CONTROL THE ALGAL GROWTH.
	CATTAILS, PHRAGMITES OR OTHER INVASIVE PLANTS COVER 50% OF THE BASIN SURFACE.	REMOVE THE PLANTS BY WIPING THEM WITH PESTICIDE (DO NOT SPRAY).
THE EMBANKMENT	SHRUBS HAVE STARTED TO GROW ON THE EMBANKMENT.	REMOVE SHRUBS IMMEDIATELY.
	EVIDENCE OF MUSKRAT OR BEAVER ACTIVITY IS PRESENT.	USE TRAPS TO REMOVE MUSKRATS AND CONSULT A PROFESSIONAL TO REMOVE BEAVERS.
	A TREE HAS STARTED TO GROW ON THE EMBANKMENT.	CONSULT A DAM SFETY SPECIALIST TO REMOVE THE TREE.
	AN ANNUAL INSPECTION BY AN APPROPRIATE PROFESSIONAL SHOWS THAT THE EMBANKMENT NEEDS REPAIR.	MAKE ALL NEEDED REPAIRS.
THE OUTLET DEVICE	CLOGGING HAS OCCURRED.	CLEAN OUT THE OUTLET DEVICE. DISPOSE OF THE SEDIMENT OFF-SITE.
	THE OUTLET DEVICE IS DAMAGED.	REPAIR OR REPLACE THE OUTLET DEVICE.
THE RECEIVING WATER	EROSION OR OTHER SIGNS OF DAMAGE HAVE OCCURRED AT THE OUTLET.	CONTACT THE NC DIVISION OF WATER QUALITY WASHINGTON REGIONAL OFFICE, OR THE 401 OVERSIGHT UNIT, 919-733-1786.



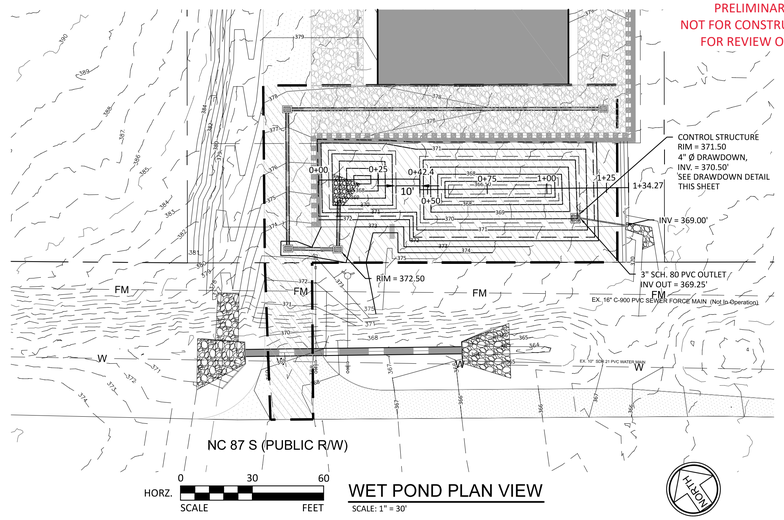
STORMWATER MANAGEMENT DESIGN WET POND

DESIGN STORM	*STORM STAGE*
10-YEAR	371.75 FT-MSL
25-YEAR	371.81 FT-MSL
50-YEAR	371.84 FT-MSL
100-YEAR	371.87 FT-MSL

HORZ. SCALE 0 50 100 FEET

WET POND PROFILE VIEW

SCALE: 1" = 50'



HORZ. SCALE 0 30 60 FEET

WET POND PLAN VIEW

SCALE: 1" = 30'

NOTE:

STORMWATER BASIN ARE TO BE CONSTRUCTED FOR USE AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION. ONCE CONSTRUCTION IS COMPLETED THE TEMPORARY SEDIMENT BASIN IS TO BE CLEANED UP AND SHAPED PRIOR TO BE USED AS A INFILTRATION BASIN.

STORM WATER MANAGEMENT NOTES:

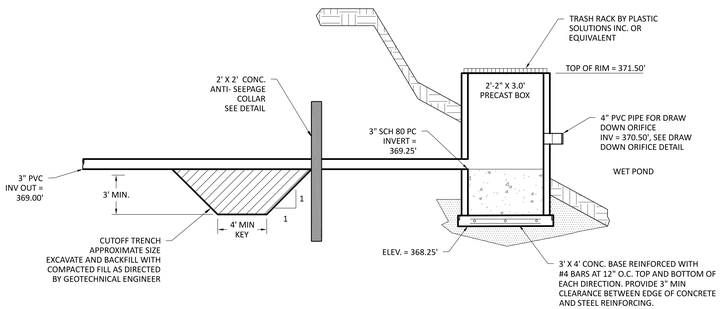
1. THE DEVELOPER OR HIS AGENT SHALL CONTACT THE DESIGN ENGINEER WHEN THE BEST MANAGEMENT PRACTICES ARE CONSTRUCTED AND ABOUT TO BECOME OPERATIONAL SO THAT A FINAL INSPECTION CAN BE PERFORMED TO DETERMINE COMPLIANCE WITH THE APPROVED PLAN.
2. ANNUAL MAINTENANCE INSPECTION AND REPORT REQUIRED. THE OWNER OF A PERMITTED STRUCTURAL STORM WATER BMP SHALL ANNUALLY SUBMIT A MAINTENANCE AND INSPECTION REPORT FOR EACH BMP TO THE STORM WATER ADMINISTRATOR. ANNUAL INSPECTIONS SHALL BEGIN WITHIN ONE YEAR OF THE RECORDATION OF ANY DEED(S) SHOWING STORM WATER BMPS.
3. UPON COMPLETION OF THE PROJECT, THE ENGINEER OF RECORD SHALL CERTIFY THAT THE COMPLETED PROJECT IS IN ACCORDANCE WITH THE APPROVED STORM WATER MANAGEMENT PLANS AND DESIGNS.
4. A FINAL INSPECTION OF THE SITE AND STORM WATER BMP SHALL BE SCHEDULED WITH AND COMPLETED BY THE PROJECT ENGINEER.
5. NCDEQ AND THEIR ASSIGNS HAVE RIGHT TO ACCESS THE STORM WATER CONTROLS FOR INSPECTIONS OR MAINTENANCE AS NECESSARY.
6. THE PROPERTY OWNER IS RESPONSIBLE FOR MAINTANING THE STORM WATER CONTROLS ACCORDING TO THE APPROVED MAINTENANCE PLAN AND DIRECTION OF NCDEQ.

BMP MAINTENANCE:

Important operation and maintenance procedures:

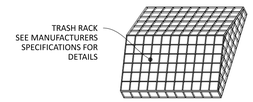
1. **Immediately after the wet pond is established, the plants on the vegetated shelf and perimeter of the basin will be watered twice weekly if needed, until the plants become established (commonly six weeks).**
2. **No portion of the wet pond will be fertilized after the first initial fertilization that is required to establish the plants on the vegetated shelf.**
3. **Stable ground cover will be maintained in the drainage area to reduce the sediment load to the wet pond.**
4. **If the pond must be drained for an emergency or to perform maintenance, the flushing of sediment through the emergency drain will be minimized as much as possible.**
5. **Once a year, a dam safety expert should inspect the embankment.**
6. **The measuring device used to determine the sediment elevation shall be such that it will give an accurate depth reading and not readily penetrate into accumulated sediments.**

After the wet pond is established, it should be inspected quarterly and within 24 hours after every storm event greater than 1.0 inches (or 1.5 inches if in a Coastal County). Records of operation and maintenance will be kept in a known set location and shall be available upon request.
Inspection activities shall be performed as follows. Any problems that are found shall be repaired immediately.



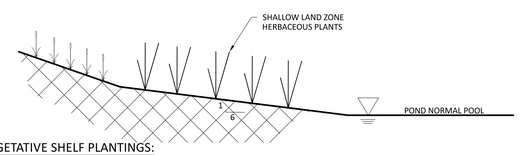
CUTOFF TRENCH - OUTFALL DETAIL

SCALE: N.T.S.



NOTE:

1. CONTRACTOR TO PROVIDE A PEAKED ROOF STRUCTURE TRASH RACK BY PLASTIC SOLUTIONS INC. (877-87775727) OR EQUIVALENT. 6" x 6" MAXIMUM GRATE OPENING
2. PROVIDE STEPS IN ALL DRAINAGE STRUCTURES DEEPER THAN 54". LOCATE STEPS WITHIN REASONABLE PROXIMITY TO ACCESS POINT (MANHOLE OR GRATE OPENING) WITHOUT INTERFERING WITH PIPE ORIENTATIONS.



VEGETATIVE SHELF PLANTINGS:

AREA OF VEGETATIVE SHELF: 1,060 SF
MIN. PLANTS REQUIRED: 50 PLANTS PER 200 SF OF VEGETATIVE SHELF = 265 PLANTS

PLANT TYPE:

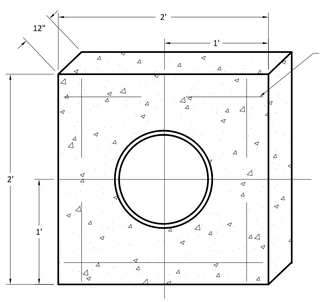
SCIENTIFIC NAME:	COMMON NAME:	QUANTITY:	NURSERY CONTAINER:	SPACING:	PLANTING SEASON:
EUPATORIADELPHUS MACULATUS	SPOTTED TRUMPETWEED	88	PEAT POT	6' O.C.	SPRING/SUMMER
EUPATORIUM PURPUREUM	JOE-PYE WEED	88	PEAT POT	6' O.C.	SPRING/SUMMER
RHYNCHOSPORA COLORATA	STARRUSH WHITETOP	88	PEAT POT	6' O.C.	SPRING/SUMMER

TYPICAL VEGETATIVE SHELF DETAIL

SCALE: N.T.S.

BMP LANDSCAPE NOTES:

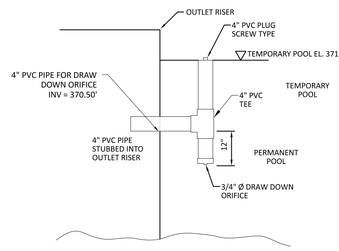
1. THE BMP LANDSCAPING SHALL BE IN COMPLIANCE WITH THE NCDEQ BMP REQUIREMENTS.
2. LANDSCAPE CONTRACTOR SHALL PROVIDE A TWO-YEAR WARRANTY PERIOD. ALL PLANTS THAT DO NOT SURVIVE MUST BE REPLACED.
3. AT THE END OF THE FIRST YEAR AND AT THE END OF THE TWO-YEAR WARRANTY PERIOD, ALL PLANTS THAT DO NOT SURVIVE MUST BE REPLACED.
4. ESTABLISHMENT PROCEDURES SUCH AS CONTROL OF INVASIVE WEEDS, ANIMAL AND VANDAL DAMAGE, MULCHING, AND WATERING SHALL BE IMPLEMENTED TO THE EXTEND NEEDED TO ENSURE PLANT SURVIVAL.
5. SOD WITHIN BMP AND SURROUNDING AREAS TO BE CENTIPEDE GRASS.
6. GRASS OR WILDFLOWER SEED MUST BE APPLIED AT THE RATES SPECIFIED BY THE SUPPLIERS. IF PLANT ESTABLISHMENT CANNOT BE ACHIEVED WITH SEEDING BY THE TIME OF SUBSTANTIAL COMPLETION OF THE STORM WATER FACILITY PORTION OF THE PROJECT, THEN THE CONTRACTOR SHALL PLANT THE AREA WITH WILDFLOWER SOD, PLUGS, CONTAINER PLANTS, OR OTHER MEANS TO COMPLETE THE SPECIFIED PLANTING AND PROJECT AGAINST EROSION BEFORE WATER IS ALLOWED TO ENTER THE STORM WATER BMP FACILITY.
7. ALL MATERIALS SHALL BE ACQUIRED FROM AN APPROVED NCDEQ PLANT VENDOR. PLANT MATERIAL SHOULD BE PURCHASED FROM A LOCAL SOURCE TO ENSURE SURVIVABILITY.
8. IMMEDIATELY AFTER THE WET DETENTION BASIN IS ESTABLISHED, THE PLANTS ON THE VEGETATED SHELF AND PERIMETER OF THE BASIN SHOULD BE WATERED TWICE WEEKLY IF NEEDED UNTIL THE PLANTS BECOME ESTABLISHED (COMMONLY SIX WEEKS).
9. NO PORTION OF THE WET DETENTION POND SHOULD BE FERTILIZED AFTER THE FIRST INITIAL FERTILIZATION THAT IS REQUIRED TO ESTABLISH THE PLANTS ON THE VEGETATED SHELF.
10. BMP PLANT SUBSTITUTIONS ARE NOT PERMITTED.
11. ONLY NON-CLUMPING TURF GRASSES SHALL BE USED. TREES AND WOODY SHRUBS SHALL NOT BE ALLOWED ON THE DAM OR TOP OF SLOPE AREA/10' MAINTENANCE AREA OF THE BMP.



NOTES:
1) ALL CONCRETE TO BE 3000 PSI NON-FLY ASH
2) APPLY 1/2" THICK WRAP OF ASPHALTIC CEMENT AROUND DISCHARGE PIPE 6" BEYOND PLANNED SEEPAGE COLLAR ON BOTH SIDES
3) APPLY ADDITIONAL ASPHALTIC CEMENT AT PIPE/SEEPAGE COLLAR INTERFACE ON UPSTREAM FACES
4) TO BE FIELD INSPECTED BY GEOTECHNICAL ENGINEER. ASPHALTIC CEMENT TO MEET OR EXCEED FEDERAL SPECIFICATION SS-153 TYP1: ASTM-D-2822-75 TYPE 1.

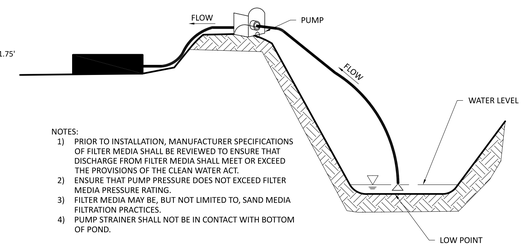
CONCRETE ANTI- SEEPAGE COLLAR

SCALE: N.T.S.



DRAW DOWN ORIFICE DETAIL

SCALE: N.T.S.



NOTES:
1) PRIOR TO INSTALLATION, MANUFACTURER SPECIFICATIONS OF FILTER MEDIA SHALL BE REVIEWED TO ENSURE THAT DISCHARGE FROM FILTER MEDIA SHALL MEET OR EXCEED THE PROVISIONS OF THE CLEAN WATER ACT.
2) ENSURE THAT PUMP PRESSURE DOES NOT EXCEED FILTER MEDIA PRESSURE RATING.
3) FILTER MEDIA MAY BE, BUT NOT LIMITED TO, SAND MEDIA FILTRATION PRACTICES.
4) PUMP STRAINER SHALL NOT BE IN CONTACT WITH BOTTOM OF POND.

WET POND BASIN DEWATERING

SCALE: N.T.S.

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

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

HILLIARD ENGINEERING, PLLC

1/13/23

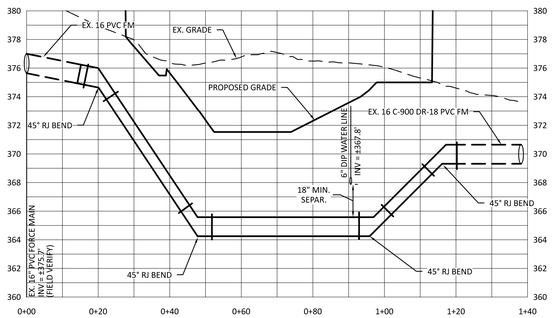
STORMWATER MANAGEMENT DETAIL

PHALANX CROSSFIT
CAMERON, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH

SHEET: C4.1
CIVIL

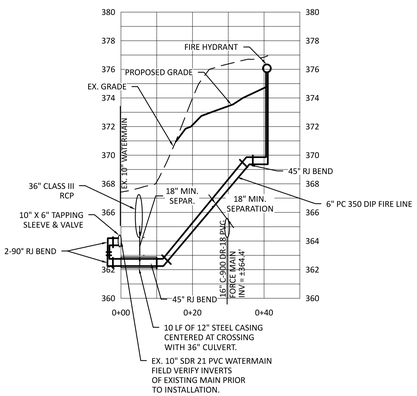
CONTRACTOR SHALL POT-HOLE EXISTING FORCE MAIN AND VERIFY DIAMETER, MATERIAL AND CLASS PRIOR TO DOING ANY OTHER WORK ON THIS PROJECT.



EXISTING FORCE MAIN:
TO BE PERFORMED ONLY IF 3' COVER IS NOT MAINTAINED WITH CONSTRUCTION OF DRIVEWAY.

16" FORCE MAIN RELOCATION

SCALE: HORIZ. 1"=20' VERT. 1"=5'



FIRE LINE PROFILE

SCALE: HORIZ. 1"=20' VERT. 1"=5'

EXISTING UTILITIES NOTES:

CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

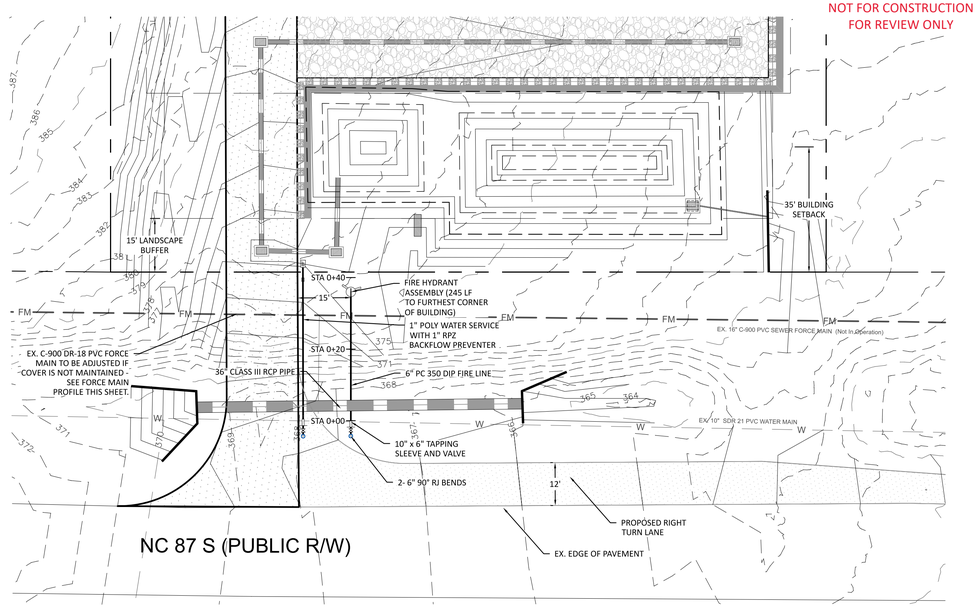
ALL EXISTING UTILITIES WITHIN THE VICINITY OF THE PROPOSED FIRE LINE SHALL BE RELOCATED OR SECURED DURING CONSTRUCTION.

HORIZONTAL AND VERTICAL SEPARATIONS:

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 eighteen (18") 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 eighteen (18") 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, both the potable water main and the non-potable water line must be cast iron or ductile iron pipe (DIP). 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.

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.

PRELIMINARY
NOT FOR CONSTRUCTION
FOR REVIEW ONLY



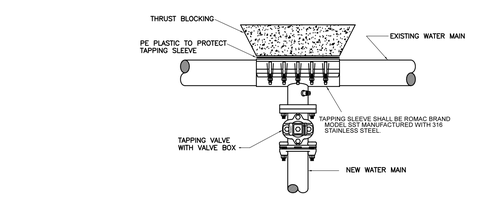
WATER LINE PLAN VIEW

SCALE: 1"=20'

SCALE IN FEET
0' 10 20 40

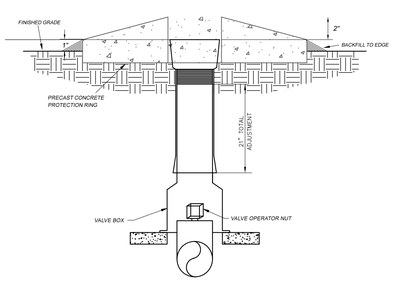
DAILY EXPECTED WATER USAGE:

550 Gal/Day = 1.375 REU



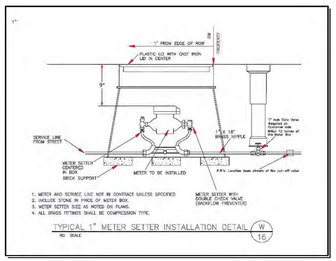
TYPICAL TAPPING SLEEVE AND VALVE ASSEMBLY DETAIL

NO SCALE



TYPICAL VALVE BOX DETAIL

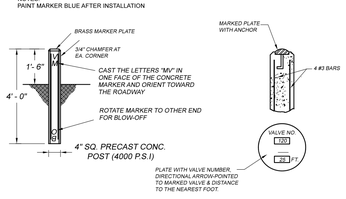
NO SCALE



TYPICAL 1" METER SETTER INSTALLATION DETAIL W-16

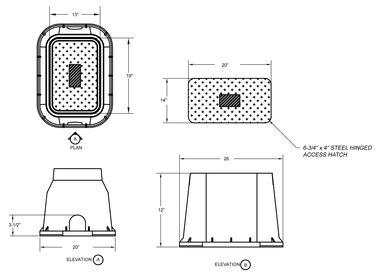
NO SCALE

NOTES:
PAINT MARKER BLUE AFTER INSTALLATION



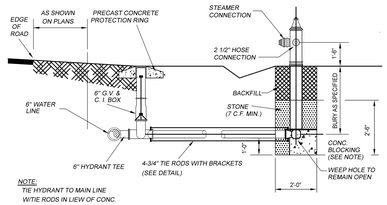
TYPICAL VALVE MARKER DETAIL

NO SCALE



TYPICAL METER BOX DETAIL FOR 1" SERVICE

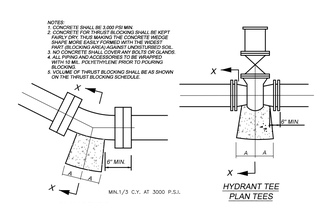
NO SCALE



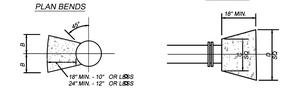
TYPICAL FIRE HYDRANT INSTALLATION DETAIL

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 INSIDE SHAPE MORE EASILY FORMED WITH THE WIDEST PART (BLOCKING AREA) AGAINST UNDISTURBED SOIL.
3. NO CONCRETE SHALL COVER ANY PART OF THE JOINTS.
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.



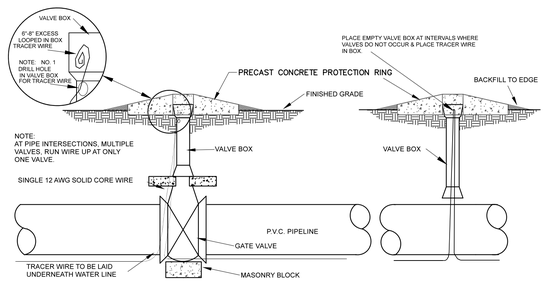
PLAN BENDS



PIPE SIZE	90° BEND		45° BEND		22½° BEND		11¼° BEND		TEE		PLUG
	A	B	A	B	A	B	A	B	A	B	C
4"	8"	12"	8"	8"	8"	8"	8"	8"	8"	8"	10"
6"	10"	12"	8"	10"	8"	8"	8"	8"	10"	10"	12"
8"	15"	13"	10"	10"	8"	8"	8"	8"	10"	12"	12"
10"	10"	14"	10"	12"	8"	10"	8"	10"	11"	14"	14"
12"	20"	16"	14"	8"	12"	8"	12"	14"	16"	16"	16"
14"	22"	18"	14"	16"	10"	14"	10"	14"	16"	18"	24"
16"	20"	20"	16"	18"	12"	16"	12"	16"	18"	20"	20"

TYPICAL THRUST BLOCK DETAIL

NO SCALE



TYPICAL TRACER WIRE 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.

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

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

HILLIARD ENGINEERING, PLLC

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035670 JAMES E. HILLIARD 1/13/23

UTILITY PLAN AND DETAIL

PHALANX CROSSFIT
CAMERON, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH
SHEET:	C5.0
	CIVIL

PRELIMINARY
NOT FOR CONSTRUCTION
FOR REVIEW ONLY

2022 HRW REQUIRED UTILITY NOTES
(Revision 10- April 19, 2022)

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.*

**All fire hydrants listed above must have "American National Fire Hose Connection Screw Threads" NST/NH hose threads.*

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 service 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. Chad Everette, 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.

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.

A. 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.

B. 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.

C. Prior to acceptance, all services will be inspected to ensure 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 9" below the meter box lid. Meter setters shall be centered in the meter box and supported by brick, block or stone.

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. Chad Everette, 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. 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.

G. 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.

H. 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.

I. 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.

J. 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.

K. 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.

L. 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.

M. The Utility Contractor must conduct a pre-construction 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.

N. 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.

O. 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.

P. 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 on 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.

Q. 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.

R. 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.

S. The Utility Contractor shall spot dig to expose each utility pipe or line which may conflict with construction of proposed water lines as 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.

T. 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.

U. 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.

V. 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 ensure 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 assessed to the Developer.

SANITARY SEWER

A. The Professional Engineer (PE) shall obtain and supply a copy of the sewer permit for the construction and operation of the wastewater collection system to the Utility Contractor before the construction of the sanitary sewer line, sewer lift station and associated force main shall begin. The Utility Contractor must post a copy of the sewer 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 during the construction of the sewer system improvements.

B. 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. Chad Everette, 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 wastewater 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.

C. The Professional Engineer (PE) shall provide HRW with a set of NCDEQ approved plans marked "Released for Construction" at least two days prior to construction commencing. HRW will stamp the approved plans as "Released for Construction" and provide copies to the utility contractor. The Registered Land Surveyor (RLS) shall stake out all lot corners and establish grade stakes for the proposed finish grade for each street and sewer line before the Utility Contractor begins construction or installation of the manholes, sanitary sewer gravity line(s), sewer lift stations and/or sanitary sewer force main(s). The grade stakes should be set with a consistent offset from the street centerline so as not to interfere with the street grading or utility construction.

D. 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 gravity sewer line(s), manhole(s), sewer lift station(s) and associated force main(s) 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.

E. The sanitary sewer lateral connections should be installed 90° (perpendicular) to the sanitary sewer gravity lines with schedule 40 PVC pipe. HRW requires the Utility Contractor to provide the Professional Engineer (PE) with accurate measurements for locating sanitary sewer service lateral and associated each sanitary sewer clean-out. These measurements should be taken from the nearest downstream manhole up along the sanitary sewer main to the in-line wye fitting (or tapping saddle) and then another measurement from the in-line wye fitting (or tapping saddle) to the 4" x 4" long sweep combination wye fitting at the bottom of the sewer clean-out stack. These field measurements must be provided to the Professional Engineer (PE) in the red line drawings from the Utility Contractor for proper documentation in the As-Built Record Drawings submitted to HRW.

F. The Utility Contractor shall be responsible to locate the newly installed sanitary sewer gravity line(s), sanitary sewer force main(s), sanitary sewer service lateral(s) and all associated sewer clean-out(s) in the proposed sanitary sewer system for other utility companies and their contractors until the new sanitary sewer line(s) and associated appurtenances have been approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW. All new sanitary sewer lines must have at least three (3 ft.) feet of cover and extend under all existing water main and storm water lines with a least 24" of vertical clearance below the bottom of the existing water main and storm water lines. ALL ductile iron sanitary sewer system(s) for other utility companies and their contractors until the new sanitary sewer system(s) have been approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW.

K. HRW requires that the Utility Contractor install tracer wire in the trench with all sanitary sewer force mains. 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. The tracer wire is not required for the gravity sewer line(s) between manholes.

L. The Utility Contractor shall provide the Professional Engineer (PE) and HRW Utility Construction Inspector with a set of red line drawings identifying the complete sewer system installed for each project. The red line drawings should identify the materials, pipe sizes and approximate depths of the sewer lines as well as the installed locations of the manhole(s), sanitary sewer gravity line(s), sanitary sewer service laterals, clean-outs, sewer lift station(s) and associated force main(s). 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.

M. Prior to the commencement of any work within established utility easements or NCDOT right-of-ways the Utility Contractor is required to 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 by the P.E. (i.e. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL GAS, ETC.).

N. The Utility Contractor shall spot dig to expose each existing utility pipe or line which may conflict with construction of proposed sanitary sewer 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 sanitary sewer 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.

O. When making a tap on an existing sewer force main, the Utility Contractor must have a permit from the North Carolina Department of Environmental Quality (NCDEQ) prior to begin the tap work. The Utility Contractor shall conduct a pneumatic pressure test using compressed air or other inert gas on the stainless steel tapping sleeve and gate valve prior to making the tap on an existing sanitary sewer force 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 on sanitary sewer force mains in Harnett County. The Utility Contractor shall use Romac brand Style "CB" sewer saddles with stainless steel bands or approved equal for all taps made on existing sanitary sewer gravity lines in Harnett County.

P. The Utility Contractor shall provide a grease trap for each sanitary sewer service lateral that will be connected to a restaurant, food processing facility and any other commercial or industrial facility as required by the Harnett County Fat, Oil & Grease Ordinance. The grease trap must be rated for a minimum capacity of at least 1,000 gallons unless otherwise approved in writing by the HRW Pre-Treatment Coordinator. Garbage disposals should not be installed in homes and businesses that discharge wastewater to the Harnett Regional Water's Sanitary Sewer System as they are not approved by HRW.

Q. Each sewer lift station must be provided with three phase power (at least 480 volts) and constructed to meet the minimum requirements of the latest version of the National Electrical Code (NEC) and Harnett Regional Water standard specifications and details. If three phase power is not available from the power company other arrangements must be approved by HRW Engineering prior to the start of construction.

R. Where a new sanitary sewer force main is connected to an existing manhole in the Harnett Regional Water sewer collections system, the Utility Contractor must provide a protective coating (epoxy) for the interior surfaces of the manhole to protect it against corrosion, erosion and deterioration from the release of sewer gases such as methane and hydrogen sulfide.

S. The sewer lift station design and associated equipment must meet or exceed the MINIMUM REQUIREMENTS FOR HARNETT COUNTY SEWER LIFT STATIONS. Each sanitary sewer lift station must be constructed with an all-weather access road that is at least 20 feet wide. The lift station site must be covered with weed blocking material and at least six (6") inches of ABC stone (crush and run).

T. Once a sewer lift station has been installed, the Utility Contractor is responsible to schedule a draw down test with HRW Engineering and Collections staff, the Professional Engineer (PE), the Electrician, the original equipment manufacturers (OEM) representatives [For both the Pumps and the Generator]. This draw down test must be completed with power supplied from the electrical utility company and with power supplied by the emergency generator with satisfactory results before final inspections are conducted by the HRW Utility Construction Inspector.

U. Once the Utility Contractor completes the installation of a sewer lift station, the Professional Engineer (PE) must submit the sewer permit certification and As-Built Record Drawings to the North Carolina Department of Environmental Quality (NCDEQ) and HRW for final approval. The Utility Contractor must supply HRW Engineering staff with three original Operation & Maintenance (O&M) Manuals along with the associated pump curves and electrical schematics for the associated sewer lift station equipment including all warranty information and documentation.

V. Once the Utility Contractor completes the installation of a sewer lift station, the Developer must pay HRW the established System Control and Data Acquisition (SCADA) fees before the SCADA system will be installed at the new sewer lift station. The SCADA system must be installed and operational before the utilities may be accepted by HRW and placed into operation.

W. HRW requires the Utility Contractor to provide all necessary equipment and devices for the testing and inspection of the sanitary sewer system. The equipment and devices may include but not limited to lamping with mirrors, mandrels, sewer balls, plugs, air compressors and associated compressed air lines. If the HRW Utility Construction Inspector deems that a closed circuit video camera inspection of the newly constructed sewer system is necessary, then all costs for the closed circuit camera inspection will be the responsibility of the Utility Contractor. All closed circuit video camera inspections must be recorded on VHS tapes that will released to HRW for record keeping, review and approval of the sewer system.

X. Any use of sewer plugs to temporarily block Harnett Regional Water's existing sanitary sewer lines must be coordinated with the HRW Collections Supervisor at least two (2) days in advance of installing the plugs. The sewer plugs must be removed as soon as possible once the new sanitary sewer lines have been inspected, pressure tested, mandrel tested, approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW to allow the sewer to flow as designed in Harnett Regional Water's existing sanitary sewer lines or when so ordered by the HRW Collections Supervisor to limit interruptions to the normal flow of the sanitary sewer collection system(s). The Utility Contractor must provide the pumps hoses and necessary connectors for a temporary pump around setup if required by the HRW Collections Supervisor. Mr. Randolph Clegg, HRW Collections Supervisor may be contacted between 8:00 am and 5:00 pm Monday through Friday at (910) 893-7575 extension 3241.

Y. The Utility Contractor will be responsible for any and all repairs due to leakage or damage resulting from poor workmanship during the one (1) year warranty period once the sewer system improvements have been approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW. The Utility Contractor will be responsible for any and all repairs due to damages resulting from failure to locate the new sanitary sewer lines and associated appurtenances for other utilities and their contractors until the sanitary sewer lines have been approved by NCDEQ and accepted by HRW. HRW will provide maintenance and warranty repairs if necessary due to lack of response within 48 hours of notification of warranty work. HRW will invoice the Developer and/or Utility Contractor for materials and labor in such cases.

Z. In developments and projects that require utility easements to be established for future HRW right-of-way, the Registered Land Surveyor (RLS) must provide the HRW Right-of-Way Agent with an official copy of the recorded plat and legal description of the said easement as recorded with the Harnett County Register of Deeds. The recorded documents must be provided to the HRW Right-of-Way Agent before the utility improvements within the said easement can be placed into operation. Any and all easements that must be obtained from adjoining property owners must be provided to HRW by the Developer at no cost to Harnett County. The final inspection of all sanitary sewer 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 ensure 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 assessed to the Developer.

3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035670 JOSEPH E. HILLIARD
1/13/23

HILLIARD ENGINEERING, PLLC

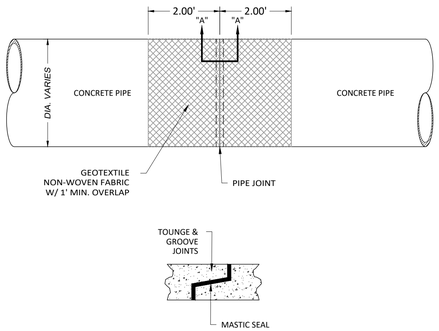
HARNETT COUNTY UTILITY NOTES

PHALANX CROSSFIT
CAMERON, NORTH CAROLINA

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

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

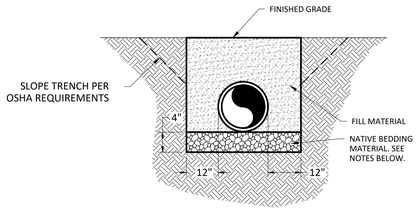
DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH
SHEET:	C5.1
	CIVIL



SECTION "A"-"A"

PIPE JOINT

SCALE: N.T.S.

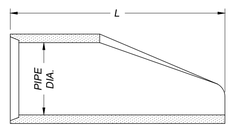


NOTES:

1. MIN. 6" #57 STONE BEDDING SHALL BE REQUIRED IF TRENCH BOTTOM IS BELOW THE GROUND WATER TABLE.
2. FILL SHALL BE NATIVE MATERIAL FREE OF LARGE ROCKS, DEBRIS OR ORGANICS PLACED IN 6" LIFTS AND COMPACTED TO 95% OF THE SOIL'S MODIFIED PROCTOR.

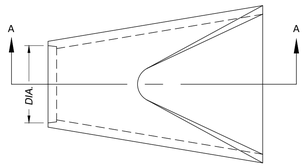
REINFORCED CONCRETE PIPE BEDDING

SCALE: N.T.S.



SECTION A-A

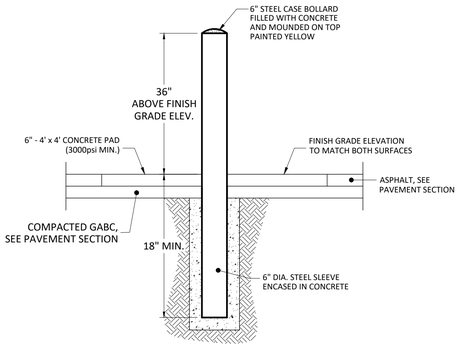
DIMENSIONS	
DIA.	L
15"	6'-1"
18"	6'-1"
24"	6'-1"
30"	6'-1 3/4"
36"	8'-2"



TOP VIEW

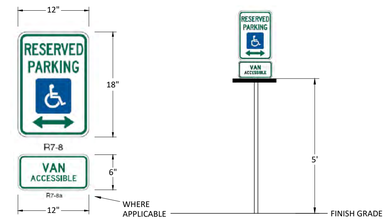
FLARED END SECTION

SCALE: N.T.S.



CONCRETE BOLLARD

SCALE: N.T.S.

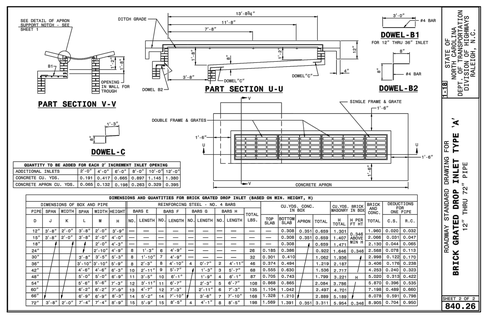


NOTE:
HANDICAP SIGN TO CONFORM WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" LATEST EDITION

LOCATION: HANDICAPPED PARKING SIGNS SHALL BE LOCATED 4 FT MIN. OFF OF BACK OF CURB ON CENTER WITH THE WHEEL STOP.

HANDICAP PARKING SIGN (R7-8 8a)

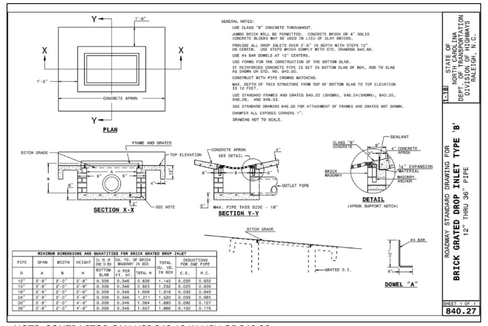
SCALE: N.T.S.



NOTE: CONTRACTOR CAN USE 840.17 IN LIEU OF 840.26

NCDOT - DROP INLET - TYPE 'A'

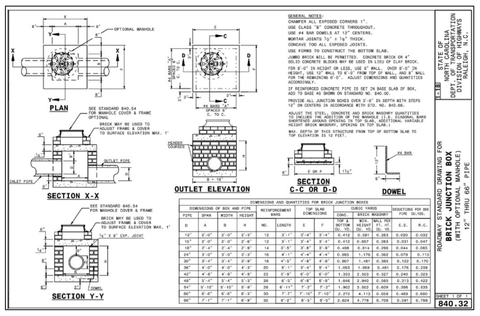
NOT TO SCALE



NOTE: CONTRACTOR CAN USE 840.19 IN LIEU OF 840.28

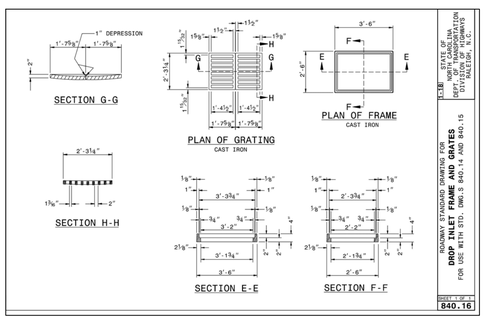
NCDOT - DROP INLET - TYPE 'B'

NOT TO SCALE



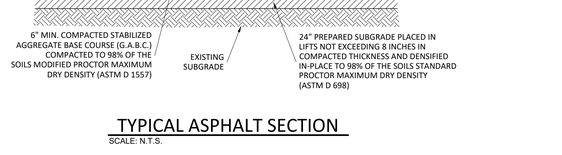
NCDOT JUNCTION BOX DETAIL

NOT TO SCALE



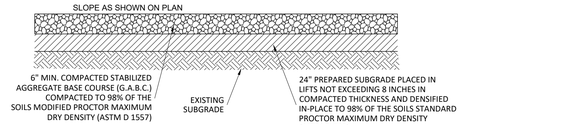
NCDOT FRAME AND GRATE DETAIL

NOT TO SCALE



TYPICAL ASPHALT SECTION

SCALE: N.T.S.



TYPICAL GRAVEL SECTION

SCALE: N.T.S.

PRELIMINARY - FOR REVIEW ONLY - NOT FOR CONSTRUCTION
3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836
HILLIARD ENGINEERING, PLLC

12/13/22

SITE DETAIL

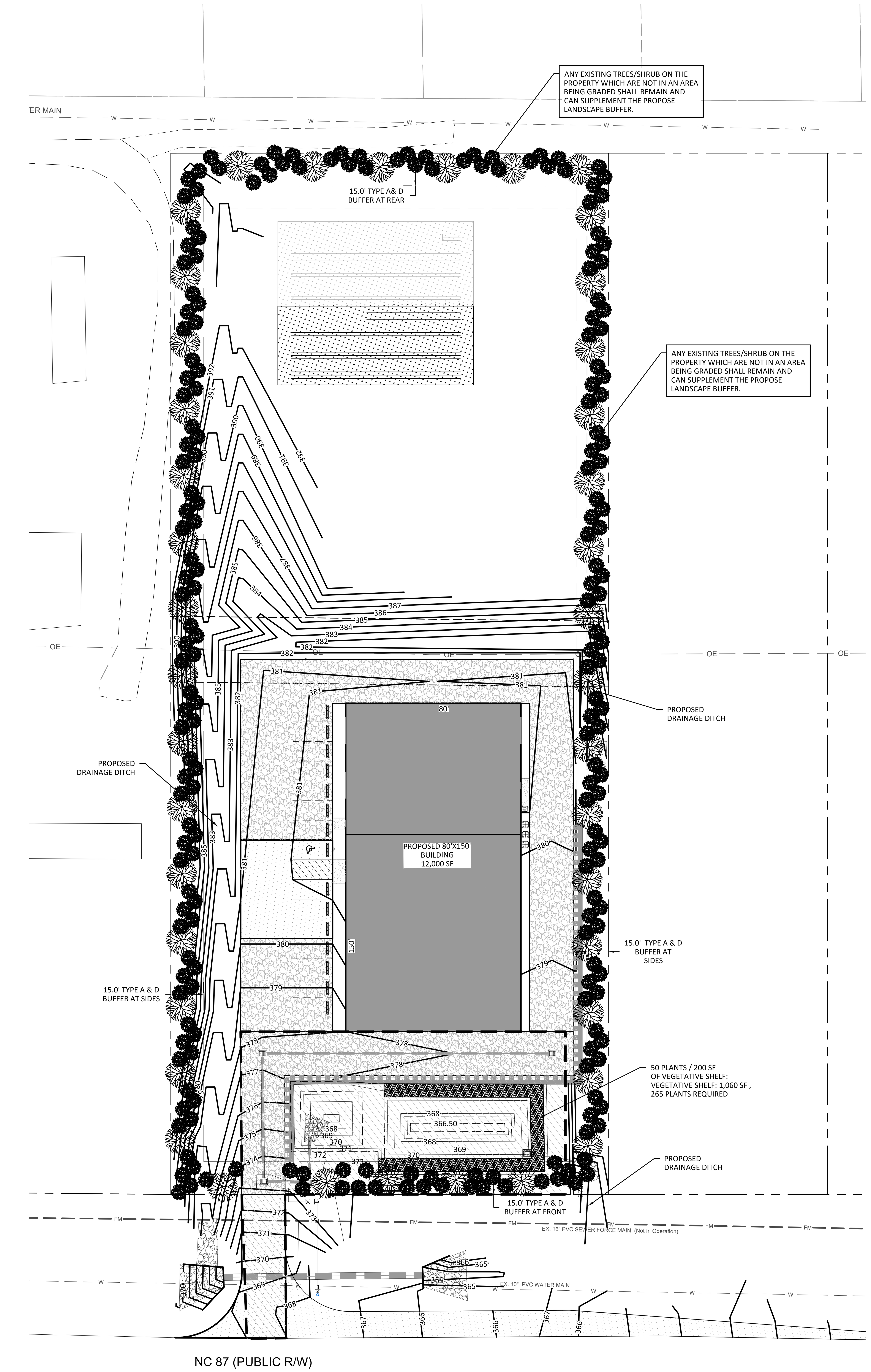
PHALANX CROSS FET
CAMERON, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH

SHEET:
C6.0
CIVIL

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

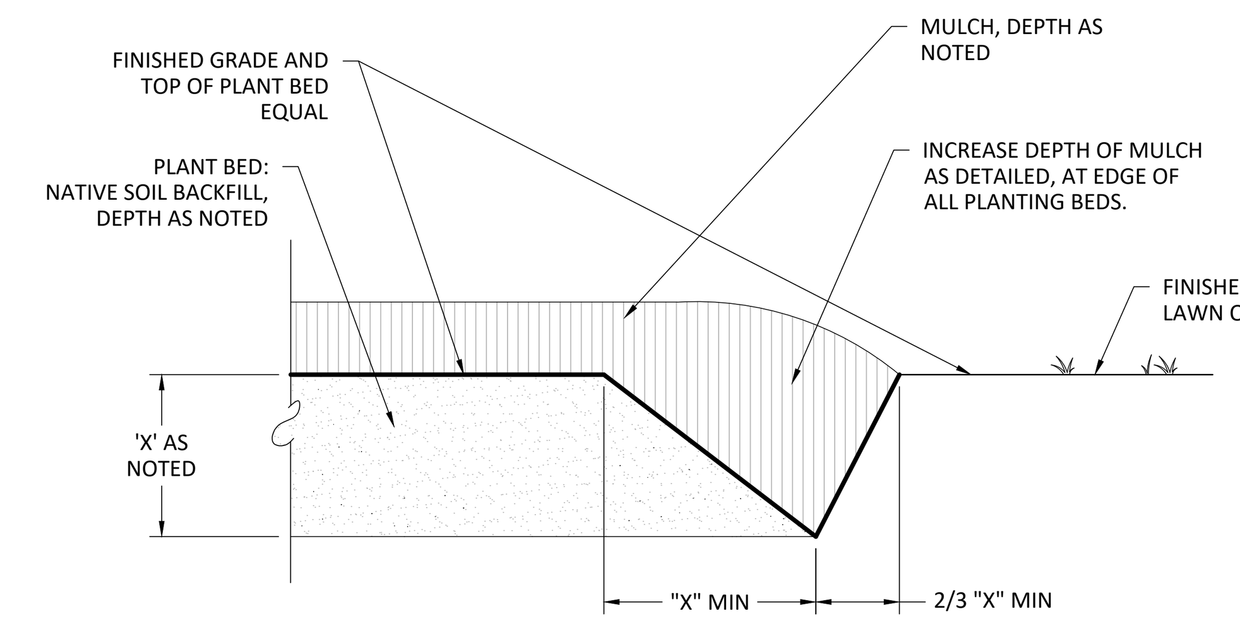
811 Know what's below Call before you dig. Dial 811 Or Call 800-632-4949



SCALE IN FEET

0 15 30 60

NORTH



PLANT BED EDGING DETAIL

SCALE: N.T.S.

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.

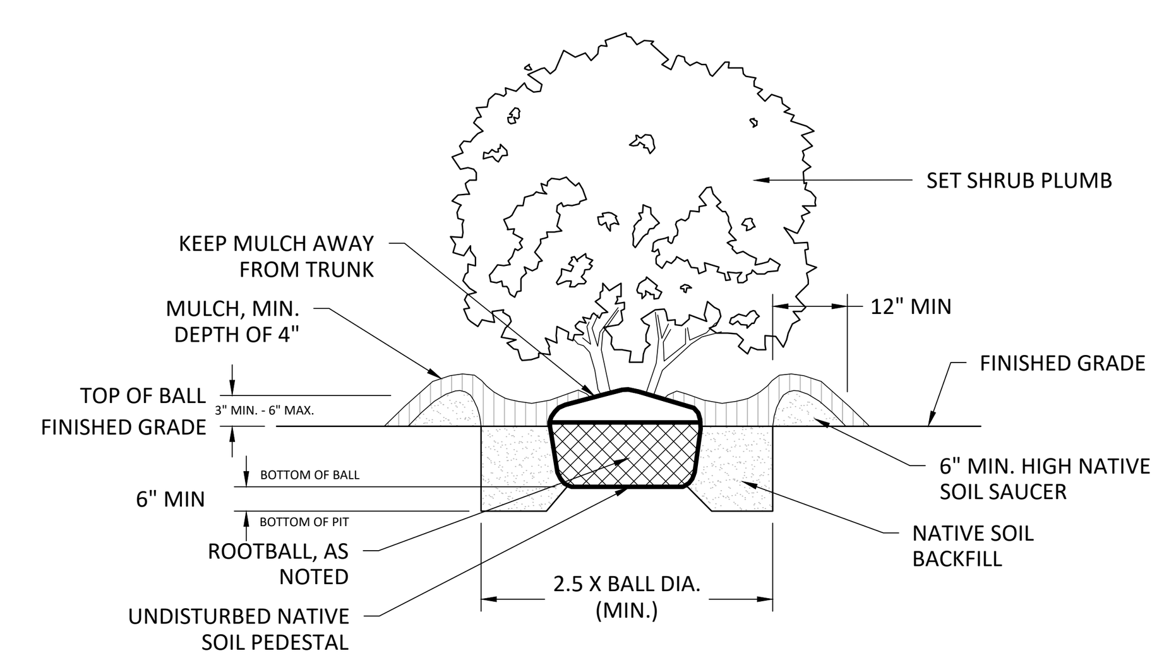
1.12 INSTALLED UNIT PRICES FOR ALL PLANT MATERIAL SHALL BE SUPPLIED TO THE OWNER AND LANDSCAPE ARCHITECT AT THE TIME OF BIDDING.

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. 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.

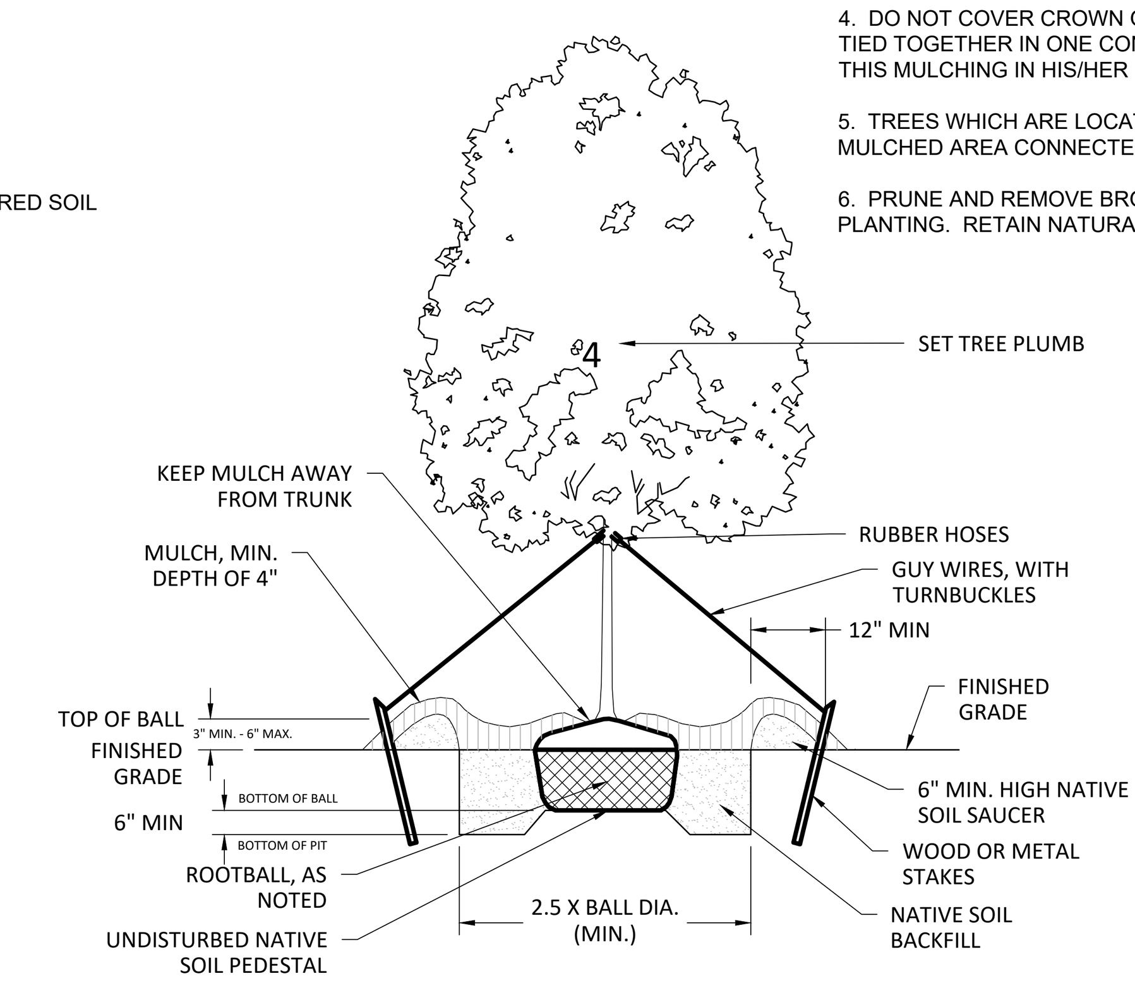


SHRUB PLANTING

SCALE: N.T.S.

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.



SHADE AND UNDERSTORY TREE PLANTING

SCALE: N.T.S.

TREE/SHRUB PLANT LIST:	BOTANICAL NAME:	SIZE:	COUNT:	SYMBOL:
RED MAPLE	ACER RUBRUM	2" CAL., 6' HT.	41	
PRIVET	LIGUSTRUM JAPONICUM	3 GAL.	210	●

ALL TREES SHALL BE AT LEAST TWO (2) INCHES IN CALIPER AND A MINIMUM OF SIX (6) FEET IN HEIGHT AT THE TIME OF PLANTING.

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

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

PRELIMINARY - FOR REVIEW ONLY - NOT FOR CONSTRUCTION

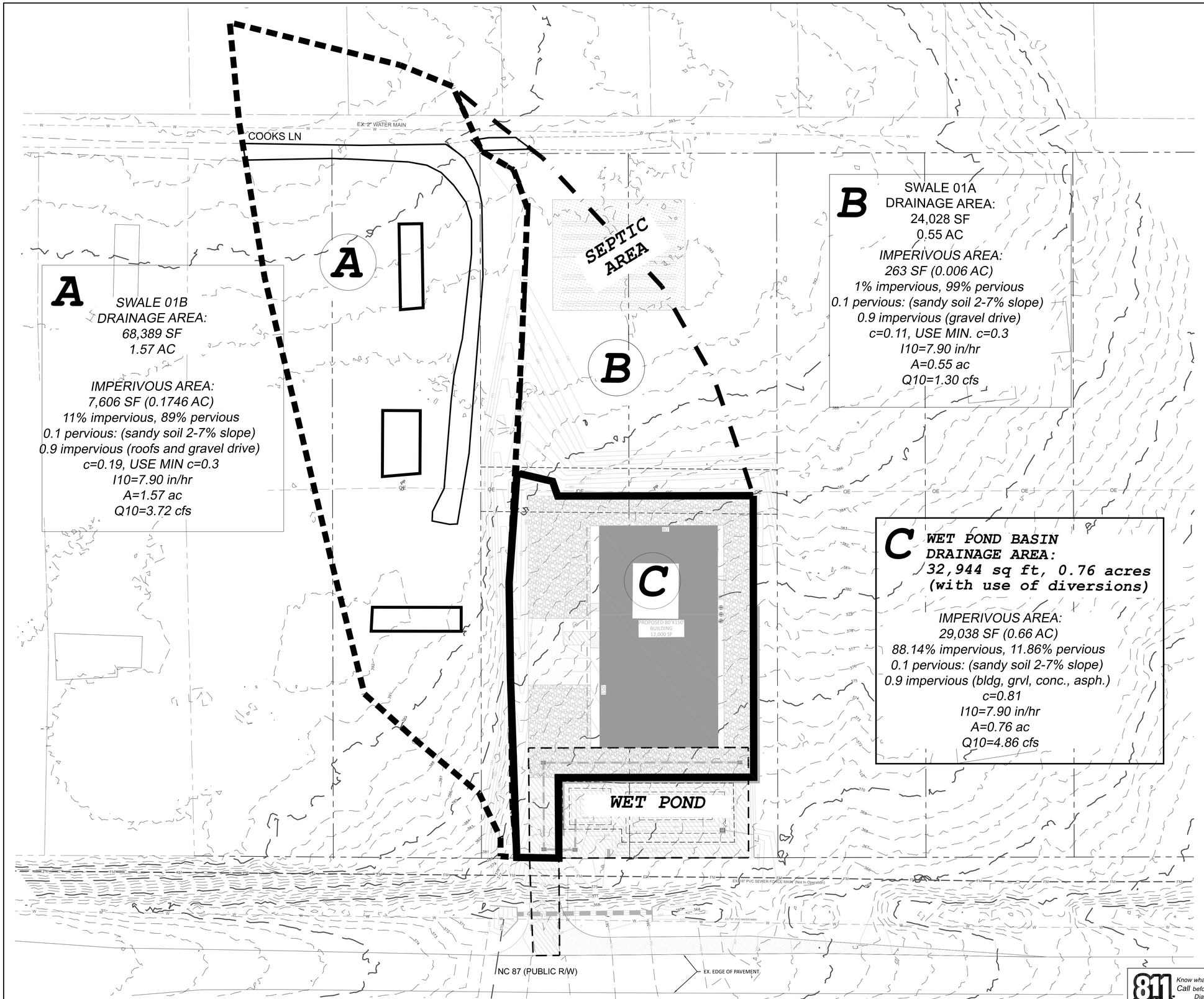
12/13/22

HILLIARD ENGINEERING, PLLC
3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

LANDSCAPE PLAN AND DETAIL

PHALANX CROSS FET
CAMERON, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH
SHEET:	L 1.0
	CIVIL



A

SWALE 01B
DRAINAGE AREA:
68,389 SF
1.57 AC

IMPERIVOUS AREA:
7,606 SF (0.1746 AC)
11% impervious, 89% pervious
0.1 pervious: (sandy soil 2-7% slope)
0.9 impervious (roofs and gravel drive)
c=0.19, USE MIN c=0.3
I10=7.90 in/hr
A=1.57 ac
Q10=3.72 cfs

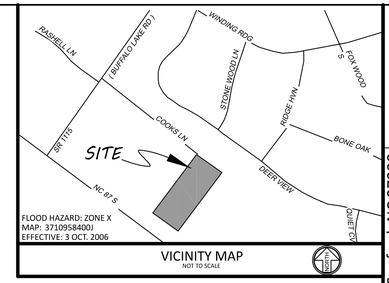
B

SWALE 01A
DRAINAGE AREA:
24,028 SF
0.55 AC

IMPERIVOUS AREA:
263 SF (0.006 AC)
1% impervious, 99% pervious
0.1 pervious: (sandy soil 2-7% slope)
0.9 impervious (gravel drive)
c=0.11, USE MIN. c=0.3
I10=7.90 in/hr
A=0.55 ac
Q10=1.30 cfs

C ***WET POND BASIN DRAINAGE AREA:***
32,944 sq ft, 0.76 acres (with use of diversions)

IMPERIVOUS AREA:
29,038 SF (0.66 AC)
88.14% impervious, 11.86% pervious
0.1 pervious: (sandy soil 2-7% slope)
0.9 impervious (bldg, grvl, conc., asph.)
c=0.81
I10=7.90 in/hr
A=0.76 ac
Q10=4.86 cfs



PRELIMINARY
NOT FOR CONSTRUCTION
FOR REVIEW ONLY

SCALE IN FEET
0' 15 30 60

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

NO.	REVISION DESCRIPTION:	DATE:
1		
2		
3		
4		

3417 Winterwind Circle, Sanford, NC 27330
PO Box 249, Sanford, NC 27331
Phone: (919) 352-2834
e-mail: jhilliard@hilliardengineering.com
NC License #: P-0836

HILLIARD ENGINEERING, PLLC

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037270 JOSEPH E. HILLIARD 1/13/23

DRAINAGE AREA MAP

PHALANX CROSS FET
CAMERON, NORTH CAROLINA

DESIGNED BY:	JEH
DRAWN BY:	-
APPROVED BY:	JEH

SHEET:
D1.0
CIVIL