GENERAL NOTES:

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE OFFICE OF STATE CONSTRUCTION, DEPARTMENT OF INSURANCE, NCDENR, AND ALL OTHER APPLICABLE LOCAL, STATE AND FEDERAL GUIDELINES. ALL UTILITY CONSTRUCTION SHALL COMPLY WITH APPLICABLE LOCAL JURISDICTIONAL STANDARDS AND SPECIFICATIONS.
2. EXISTING SURVEY INFORMATION INCLUDING TOPOGRAPHIC INFORMATION PROVIDED BY STEWART , UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING, COORDINATING AND PAYMENT FOR ALL NECESSARY LOCATING SERVICES INCLUDING INDEPENDENT LOCATING SERVICES. THE CONTRACTOR SHALL PROVIDE NOTICE OF EXCAVATION TO NOTIFICATION CENTER AND FACILITY OWNERS (PER NC STATUTE) NO LESS THAN 3 BUSINESS DAYS AND NO MORE THAN 12 WORKING DAYS PRIOR TO BEGINNING DEMOLITION, EXCAVATION OR ANY OTHER FORM OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS. NO EXCAVATION OR DEMOLITION SHALL BE STARTED WITHOUT ALL UTILITIES BEING LOCATED.
4. ALL SUB-SURFACE UTILITIES IDENTIFIED ON THE CONSTRUCTION DOCUMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATION BASED ON SURVEY INFORMATION GATHERED FROM FIELD INSPECTION AND/OR ANY OTHER APPLICABLE RECORD DRAWINGS WHICH MAY BE AVAILABLE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
5. EXISTING IMPROVEMENTS DAMAGED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED OR REPLACED TO ORIGINAL CONDITION AND TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COORDINATING PERMITS, INSPECTIONS, CERTIFICATIONS AND OTHER REQUIREMENTS WHICH MUST BE MET UNDER THIS CONTRACT.
7. THE CONTRACTOR SHALL MAINTAIN “AS-BUILT” DRAWINGS TO RECORD THE ACTUAL LOCATION OF ALL PIPING PRIOR TO CONCEALMENT, VALVE AND MANHOLE CHANGES, AND HARDSCAPE OR LANDSCAPE CHANGES. DRAWINGS SHALL BE PROVIDED TO THE OWNER'S REPRESENTATIVE AT MONTHLY INTERVALS, OR AS REQUESTED THROUGHOUT THE PROJECT FOR RECORD KEEPING.
8. IF DEPARTURES FROM THE PROJECT DRAWINGS OR SPECIFICATIONS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THERE OF SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE THROUGH THE DESIGNER FOR REVIEW AND APPROVAL. NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER'S REPRESENTATIVE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELOCATION OF ANY EXISTING UTILITY LINES REQUIRED TO COMPLETE ANY PORTION OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE COORDINATION AND COSTS OF THE RELOCATION AND ASSOCIATED WORK.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS AND RUBBISH CAUSED BY THE CONTRACTOR. ALL DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE ON A DAILY BASIS.
11. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND/OR METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
12. ROADWAYS (TEMPORARY OR PERMANENT) MUST BE CAPABLE OF SUPPORTING FIRE FIGHTING APPARATUS (85,000 LBS) DURING ALL PHASES OF CONSTRUCTION ONCE VERTICAL CONSTRUCTION HAS BEGUN.

EXISTING CONDITION NOTES:

1. THIS SURVEY MAP IS INTENDED TO REPRESENT THE EXISTING CONDITIONS/TOPOGRAPHY ON A PORTION OF THE PROPERTY AND ALL ENCUMBRANCES UPON THE PROPERTY MAY NOT BE SHOWN.
2. HORIZONTAL DATUM IS NAD 83-2011 AND VERTICAL DATUM IS NAVD88.
3. THIS DRAWING DOES NOT CONFORM TO N.C. GS47-30 AND THEREFORE IS NOT FOR RECORDATION.
4. UTILITIES SHOWN HEREON ARE BASED ON ABOVE GROUND VISIBLE EVIDENCE AND UTILITY DESIGNATION / MARKING SERVICES PERFORMED BY STEWART INC, AND THE AVAILABLE RECORD INFORMATION. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UTILITIES PRIOR TO COMMENCING CONSTRUCTION.

OR

5. SURVEY INFORMATION BASED ON FIELD SURVEY BY DURWARD S. LEGGETT COMPLETED ON 01/29/2020 .
6. TREES SHOWN HEREON MAY NOT REPRESENT ALL VEGETATION ON THE SUBJECT PROPERTY.
7. THE SUBJECT PROPERTY LIES IN ZONES X (AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE AND FUTURE CONDITIONS 1% ANNUAL CHANCE FLOODPLAIN). BASED ON THE FLOOD INSURANCE RATE MAP COMMUNITY MAP NUMBER 372017370J DATED MAY 2, 2006.
8. NO WETLANDS OR SURFACE WATERS HAVE BEEN IDENTIFIED WITHIN THE PROJECT OR PARCEL SHOWN.

DEMOLITION NOTES:

1. REFER TO THIS SHEET FOR GENERAL NOTES.
2. THE CONTRACTOR SHALL REMOVE CONCRETE (WHERE REQUIRED) TO THE FIRST COLD JOINT OR SAW CUT TO OBTAIN A CLEAN EDGE.
3. THE CONTRACTOR SHALL SAWCUT EXISTING ASPHALT (WHERE REQUIRED) TO OBTAIN A CLEAN EDGE.
4. CLEANOUTS AND WATER VALVES LOCATED IN AREAS OF DEMOLITION OR SUBSEQUENT CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND RAISED TO BE FLUSH WITH NEW GRADE.
5. ANY UTILITY SERVICES SHOWN TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY PROVIDER. CONTRACTOR IS RESPONSIBLE FOR APPROPRIATE SEQUENCING OF UTILITY DEMOLITION WITH THE RESPECTIVE UTILITY AGENCIES. DYE TEST OR OTHER APPROVED ALTERNATE TO BE PROVIDED ON ALL SEWER SERVICES TO CONFIRM LOCATION AND ROUTING PRIOR TO DEMO.
6. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UTILITIES PRIOR TO BEGINNING DEMOLITION OPERATIONS. NOTIFY "NORTH CAROLINA ONE CALL" (TELEPHONE 1-800-632-4949) AT LEAST 48 HOURS PRIOR TO START OF DEMOLITION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL."
7. CLEAN SOILS SHALL BE UTILIZED FOR BACKFILL. COMPACTION OF THESE SOILS SHALL BE PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
8. ALL ITEMS DESIGNATED TO BE REMOVED SHALL BE REMOVED COMPLETELY, INCLUDING ALL SUBGRADE MATERIALS DIRECTLY ASSOCIATED WITH ITEMS TO BE REMOVED.
9. ALL ITEMS DESIGNATED TO BE REMOVED SHALL BE DISPOSED OF LEGALLY OFF-SITE UNLESS OTHERWISE NOTED ON THIS PLAN.
10. REFER TO LANDSCAPE AND EROSION CONTROL DRAWINGS FOR TREE PROTECTION PLAN AND REQUIREMENTS.
11. ALL DEMOLITION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL JURISDICTIONAL CODES OR REQUIREMENTS.
12. TREE PROTECTION FENCING SHALL BE IN PLACE PRIOR TO BEGINNING DEMOLITION
13. EROSION CONTROL PERMIT SHALL BE OBTAINED AND ONSITE PRIOR TO BEGINNING DEMOLITION.
14. ITEMS DESIGNATED TO BE SALVAGED AND/OR RE-USED SHALL BE REMOVED BY THE CONTRACTOR AND PROVIDED TO THE OWNER. COORDINATE STORAGE LOCATION WITH OWNER'S REPRESENTATIVE.
15. WHERE UTILITIES ("TO BE REMOVED") IMPACT THE FOOTPRINT OF THE NEW BUILDING, THE CONTRACTOR SHALL EXECUTE AND REMOVE AN ADDITIONAL 2 FEET OF SOILS TO EITHER SIDE OF THE PIPE, AND 1 FOOT BELOW. CLEAN SUITABLE SOIL SHALL BE UTILIZED FOR BACKFILL AND COMPACTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
16. DEMOLITION AND SUBSEQUENT CONSTRUCTION OF STORM DRAINAGE PIPING SHALL BE PERFORMED IN SUCH A MANNER THAT THE OLD PIPE AND STRUCTURES REMOVED DO NOT IMPACT DRAINAGE UPSTREAM OF THE SYSTEM. PROVISIONS SHALL BE MADE TO MAINTAIN STORM WATER DRAINAGE PATTERNS DURING CONSTRUCTION.
17. DEMOLITION AND SUBSEQUENT CONSTRUCTION OF UTILITIES (WATER, SEWER, ETC) SHALL BE PERFORMED IN SUCH A MANNER THAT THE OLD PIPE AND STRUCTURES REMOVED DO NOT IMPACT OR MINIMIZE SERVICE INTERRUPTION TO EXISTING FACILITIES TO REMAIN. PROVISIONS SHALL BE MADE TO MAINTAIN SERVICE DURING CONSTRUCTION.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL DAMAGES TO THE EXISTING DRIVEWAY, PARKING LOT, SIDEWALK AND CURB AND GUTTER AS A RESULT OF CONSTRUCTION ACTIVITY AND TRAFFIC. CONTRACTOR SHALL MAINTAIN A PRE-CONSTRUCTION VIDEO OR PHOTO DOCUMENTATION TO SHOW NO DAMAGES OCCURRED.
19. ALL MATERIALS, FURNISHINGS, UTILITIES, AND PAVEMENT THAT ARE NOT SCHEDULED TO BE DEMOLISHED AND ARE DAMAGED BY THE CONTRACTOR AS A RESULT OF THE DEMOLITION OR CONSTRUCTION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
20. WHERE UTILITIES ARE SHOWN TO BE "REMOVED", CONTRACTOR SHALL INCLUDE NECESSARY PLUG OR VALVES TO ENSURE UTILITY LINES TO REMAIN WILL CONTINUE TO BE IN SERVICE. COORDINATE NECESSARY SHUT DOWN AND REMOVAL WITH THE LOCAL JURISDICTION OR UTILITY OWNER.
21. CONTRACTOR SHALL PROVIDE PEDESTRIAN INGRESS / EGRESS TO ALL EXISTING BUILDINGS, PARKING LOTS, AND PATHS OF PEDESTRIAN TRAVEL THROUGHOUT THE CONSTRUCTION PERIOD

SITE NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF THE CONSTRUCTION LAYDOWN AREA, PERIMETER FENCE, AND ASSOCIATED GATES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE REMOVAL OF THE CONSTRUCTION LAYDOWN AREA PERIMETER FENCE AND ASSOCIATED GATES AT THE COMPLETION OF THE PROJECT.
2. THE CONTRACTOR SHALL REFERENCE THE ARCHITECTURAL PLANS FOR DIMENSIONS, JOINTS AND INLAY SPECIFICATIONS NEAR THE BUILDING AND COURTYARD. THE CONTRACTOR SHALL PROVIDE JOINTS IN WALKWAYS EVERY TEN (10) FEET MAXIMUM, OR AS INDICATED ON ARCHITECTURAL PLANS SHEETS..
3. ALL CONSTRUCTION TRAFFIC SHALL ENTER SITE FROM THE EASTERN ACCESS ROAD (SEE SHEET C4.00) UNLESS OTHERWISE APPROVED IN WRITING FROM THE OWNER'S REPRESENTATIVE FOR AN ALTERNATE POINT OF ACCESS.
4. REFER TO ARCHITECTURAL PLANS FOR BUILDING INFORMATION.
5. ALL DIMENSIONS ARE IN DECIMAL FEET TO OUTSIDE FACE OF BUILDINGS, TO CENTERLINES, AND/OR FACE OF CURB UNLESS OTHERWISE NOTED.
6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATES AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO ANY CONSTRUCTION.
7. ALL WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE FROM DRAWINGS.
8. ALL UTILITIES WITH SURFACE ACCESS SHALL BE LOCATED WITHIN THE PAVING PATTERN AND SHALL BE COORDINATED WITH LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION. REFER TO LAYOUT DRAWINGS.
9. ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE NOTED.
10. ALIGN ALL JOINTS, CORNERS, AND EDGES AS SHOWN
11. CONTRACTOR SHALL REFER TO AND COORDINATE WITH ARCHITECTURAL, STRUCTURAL, AND MEP DRAWINGS AT ALL TIMES PRIOR TO AND DURING CONSTRUCTION.
12. ALL CURB TAPERS ARE SIX (6') FEET LONG UNLESS OTHERWISE SHOWN ON PLAN.
13. WHERE NEW SIDEWALK ADJOINS EXISTING WALK, PROVIDE EXPANSION JOINT BY DRILLING INTO THE FACE OF THE EXISTING WALK FOR PLACEMENT OF DOWELS. TIE NEW SIDEWALKS INTO NEAREST EXISTING PAVEMENT JOINT; MATCH WIDTH OF EXISTING WALKWAY.
14. WHERE SIDEWALK OR WALKWAYS ARE ADJACENT TO PARKING SPACES THE WALKWAY SHALL BE A MINIMUM 6.5' WIDE AS MEASURED FROM THE FACE OF CURB.
15. MAXIMUM RUNNING SLOPE FOR WALKING SURFACES CANNOT BE GREATER THAN 1:20 AND CROSS SLOPES CANNOT BE GREATER THAN 1:48. HANDICAP SPACES SURFACE SLOPES SHALL NOT EXCEED 1:48 IN ALL DIRECTIONS.
16. SIGHT TRIANGLES - NOTHING OVER 30" HIGH SHALL BE ALLOWED WITHIN THE SIGHT DISTANCE TRIANGLES.
17. THE SITE SHALL BE FULLY STABILIZED (90% COVERAGE) PRIOR TO ISSUANCE OF A BUILDING CERTIFICATE OF OCCUPANCY OR PROJECT APPROVAL
18. HANDICAP RAMPS SHALL BE INSTALLED PER LATEST EDITION OF THE NC BUILDING CODE AND ANSI 117.11 WITH DETECTABLE WARNING DOMES WITH A COLOR CONTRAST OF 70% MINIMUM. SEE DETAILS AND GRADING SPOT ELEVATIONS, IF THE EXISTING CONDITIONS PRECLUDE THE ABILITY TO PROVIDE A MAXIMUM SLOPE 1/12 FOR 6-FEET OR A MAXIMUM CROSS SLOPE OF 1:48 AND A 36” MINIMUM LANDING, THE CONTRACTOR SHALL NOTIFY ENGINEER OR OWNER REPRESENTATIVE PRIOR TO INSTALLATION.
19. THE TESTING AGENCY SHALL BE RESPONSIBLE FOR PROVIDING THE ASPHALT AND CONTRACTOR CERTIFICATION MEMO TO NCDOT FOR ALL ROADWAY IMPROVEMENTS WITHIN THE PUBLIC RIGHT-OF-WAY.

GRADING AND STORM DRAINAGE NOTES:

1. REFER TO THIS SHEET FOR GENERAL NOTES.
2. CONTRACTOR SHALL REPORT ANY GRADE DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING CONSTRUCTION OPERATIONS.
3. THE MAXIMUM SLOPE ALONG ANY HANDICAP ACCESSIBLE PATHWAY SHALL NOT EXCEED 5.0% AND SHALL NOT EXCEED A 2.0% CROSS SLOPE. HANDICAP RAMPS INDICATED ON PLANS SHALL BE A MAXIMUM OF 1/12 SLOPES WITH A MAXIMUM RISE OF 30” BETWEEN LANDINGS. NON-CURB CUT RAMPS SHALL HAVE HANDRAILS AND GUARDS PER DETAILS WITH 5' LANDINGS AT THE BOTTOM AND TOP OF RAMP.
4. ALL PROPOSED ELEVATIONS SHOWN ARE EDGE OF PAVEMENT ELEVATIONS UNLESS OTHERWISE SPECIFIED.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL NEWLY CONSTRUCTED STORM DRAINAGE IMPROVEMENTS AND RECEIVING STORM DRAINAGE SYSTEMS REMAIN CLEAN OF SEDIMENT AND DEBRIS. PRIOR TO OWNER ACCEPTANCE OF SYSTEM, THE CONTRACTOR SHALL COORDINATE AND PROVIDE A VISUAL OBSERVATION VIDEO OF ALL STORM DRAINAGE IMPROVEMENTS 12" AND LARGER. THE VISUAL OBSERVATION SHALL BE PERFORMED IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE TWO (2) DVD COPIES OF THE ENTIRE DRAINAGE VISUAL OBSERVATION.
6. PRIOR TO ISSUANCE OF A BUILDING CERTIFICATE OF OCCUPANCY THE CONTRACTOR SHALL PROVIDE THE OWNER WITH THE VIDEO INSPECTION OF THE STORM SEWER SYSTEM. (BOTH PUBLIC AND PRIVATE). THIS SUBMITTAL MAY NEED TO BE REVIEWED AND ACCEPTED BY THE LOCAL JURISDICTION PRIOR TO THE ISSUANCE OF THE BUILDING CO.
7. REFER TO THE EROSION CONTROL DETAILS SHEET FOR THE SEQUENCE OF CONSTRUCTION
8. INTERIM GRADING SHALL BE PROVIDED THAT ENSURES THE PROTECTION OF STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, AND WASHOUT.
9. INTERIM GRADING SHALL BE PROVIDED TO DIRECT WATER AWAY FROM BUILDINGS AND PREVENT PONDING.
10. TIE ROOF LEADERS WHERE POSSIBLE TO UNDERGROUND STORM SYSTEM. CONTRACTOR TO FIELD VERIFY LOCATE AND INSTALL WHERE POSSIBLE OR AS SHOWN ON PLANS. WHERE ROOF LEADERS DAYLIGHT AT GRADE A SPLASH BLOCK APPROVED BY THE OWNER'S REPRESENTATIVE SHALL BE INSTALLED.
11. MAXIMUM SLOPE ACROSS ANY HANDICAPPED PARKING SPACE AND AISLE SHALL NOT EXCEED 2% IN ANY DIRECTION.
12. PROPOSED CONTOURS ARE APPROXIMATE. SPOT ELEVATIONS AND ROADWAY PROFILES SHALL BE USED IN CASE OF DISCREPANCY.
13. PLACE BACKFILL AND FILL MATERIALS IN LAYER NOT MORE THAN 8 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4 INCHES IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS. PLACE BACKFILL AND FILL MATERIALS EVENLY ON ALL SIDES TO REQUIRED ELEVATIONS, AND UNIFORMLY ALONG THE FULL LENGTH OF EACH STRUCTURE. COMPACT SOIL TO NOT LESS THAN 95 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 FOR EACH LAYER OF BACKFILL OR FILL MATERIAL UP TO TWO FEET OF FINISHED GRADE. COMPACT SOIL TO NOT LESS THAN 98 PERCENT OF MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 FOR EACH LAYER OF BACKFILL OR FILL MATERIAL FOR THE FINAL TWO FEET.
14. SITE GRADING IMMEDIATELY ADJACENT TO FOUNDATION OF BUILDING SHALL SLOPE NOT LESS THAN 1/20 AWAY FOR MINIMUM DISTANCE OF 10 FEET. ALTERNATIVE METHOD SHALL BE PROVIDED TO DIVERT WATER AWAY FROM FOUNDATION VIA SWALES SLOPED AT A MINIMUM OF 2% OR IMPERVIOUS SURFACES SLOPED AWAY A MINIMUM OF 2% AWAY FROM BUILDING.
15. CONTRACTOR SHALL ADJUST RIM ELEVATIONS OF EXISTING MANHOLES, METERS, VALVES, ETC. AS REQUIRED TO MEET NEW FINISHED GRADES.
16. CONTRACTOR SHALL SLOPE GRADES TO ASSURE POSITIVE STORMWATER FLOW TO KEEP WATER FROM POOLING ALONG CURBS AND WALLS.
17. TOP OF WALL ELEVATIONS INDICATE THE ELEVATION AT THE TOP OF THE CAP, UNLESS OTHERWISE NOTED.
18. BOTTOM OF WALL ELEVATIONS INDICATE THE ELEVATION OF THE FINISHED GRADE.

UTILITY NOTES:

1. REFER TO THIS SHEET FOR GENERAL NOTES.
2. UNLESS OTHERWISE NOTED, ALL MANHOLES SHALL BE PRE-CAST CONCRETE STRUCTURES.
3. THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF UNDERGROUND UTILITIES (WATER, SEWER, STORM, ELECTRICAL, GAS, OR OTHER) FOR THIS PROJECT WITH THE BUILDING PLANS. THE UTILITY CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE INSTALLATION OF ALL UTILITY SERVICES TO WITHIN FIVE (5) FEET OF THE BUILDING CONNECTION POINT.
4. THE CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS ON SITE AND UTILITY PROVIDERS DURING CONSTRUCTION TO ENSURE SMOOTH TRANSITION BETWEEN DISCIPLINES.
5. THE CONTRACTOR SHALL COORDINATE ALL PEDESTRIAN AND VEHICULAR INTERRUPTIONS WITH OWNER'S REPRESENTATIVE AT LEAST 72 HOURS PRIOR TO BEGINNING WORK.
6. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK INSIDE THE PUBLIC RIGHT OF WAY PRIOR TO RECEIPT AND COMPLIANCE WITH ALL APPLICABLE NCDOT PERMITS. ADDITIONALLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY FLAGGERS AND TRAFFIC CONTROL DURING ALL WORK INSIDE THE PUBLIC RIGHTS OF WAY.
7. THE CONTRACTOR SHALL NOT RE-USE ANY FIRE HYDRANT REMOVED AS PART OF THIS PROJECT. ANY FIRE HYDRANT SHOWN TO BE REMOVED OR RELOCATED SHALL BE REPLACED WITH A NEW FIRE HYDRANT MEETING THE LOCAL JURISDICTIONAL REQUIREMENTS AND STANDARDS.
8. ALL EXISTING SUB-SURFACE UTILITIES IDENTIFIED ON THE CONSTRUCTION DOCUMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATION BASED ON SURVEY INFORMATION GATHERED FROM FIELD INSPECTION AND/OR ANY OTHER APPLICABLE RECORD DRAWINGS WHICH MAY BE AVAILABLE. DEPTHS OF EXISTING UTILITIES SHOWN IN PROFILE VIEWS ARE BASED ON STANDARD ASSUMPTIONS. THE CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATION, DEPTH, SIZE AND MATERIAL OF ANY AND ALL SUB-SURFACE CONDITIONS REFERENCED IN THESE PLANS PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
9. ELEVATIONS OF UTILITIES ARE GIVEN TO THE EXTENT OF INFORMATION AVAILABLE, WHERE ELEVATIONS ARE NOT GIVEN AT POINTS OF EXISTING UTILITY CROSSINGS, SUCH ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR AND REPORTED TO THE ENGINEER, WHEN UNKNOWN LINES ARE EXPOSED, THEIR LOCATIONS AND ELEVATIONS SHALL ALSO BE REPORTED TO THE ENGINEER.
10. UNDERGROUND UTILITIES SHOWN ON THIS PLAN SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION OF PARKING AREA, DRIVES, CURB AND GUTTER OR CONCRETE WALKS / PADS. IF UTILITIES SHOWN ON THIS PLAN CANNOT BE INSTALLED PRIOR TO INSTALLATION OF IMPERVIOUS (ASPHALT / CONCRETE) CONDUIT SHALL BE INSTALLED FOR THE “FUTURE” UTILITY INSTALLATION.
11. AS-BUILT DOCUMENTATION REQUIREMENTS: PRIOR TO APPROVAL FROM LOCAL JURISDICTION OR ENGINEER THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS (IN BOTH PAPER AND ELECTRONIC FORMAT (CAD / PDF) PREPARED AND SEALED BY A PROFESSIONAL LAND SURVEYOR SHOWING ALL UTILITY INSTALLATION. HORIZONTAL AND VERTICAL INFORMATION SHALL BE PROVIDED FOR WATER, SEWER, STORM INCLUDING ALL STRUCTURES, VALVES, HYDRANTS, AND OTHER APPURTENANCES.

PROPOSED UTILITY SEPARATION:

1. WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT HORIZONTAL SEPARATION IN WHICH CASE;
   a. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER; OR
   b. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE OF A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP TO THE SEWER.
2. CROSSING A WATER MAIN OVER A SEWER. WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION, IN WHICH CASE BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
3. CROSSING A WATER MAIN UNDER A SEWER. WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
4. SEPARATION OF SANITARY SEWERS AND STORM SEWERS:
   a. A 24" VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN STORM SEWER AND SANITARY SEWER LINES OR BOTH THE SANITARY AND THE STORM LINES SHALL BE CONSTRUCTED OF FERROUS MATERIALS.

SEWER NOTES:

1. SANITARY SEWER CLEANOUTS LOCATED IN PAVEMENT AREAS SHALL BE HEAVY DUTY TRAFFIC BEARING CASTINGS.
2. UNLESS OTHERWISE NOTED, ALL SANITARY SEWER MANHOLES ARE 4' DIA.
3. MANHOLES LOCATED IN PAVEMENT, CONCRETE OR OTHER TRAFFIC AREAS SHALL BE SET AT GRADE. MANHOLES LOCATED IN OTHER AREAS (I.E. GRASS OR WOODED AREAS) SHALL HAVE THEIR RIMS RAISED SIX INCHES ABOVE THE SURROUNDING GRADE. MANHOLES SUBJECT TO POSSIBLE WATER INFILTRATION SHALL HAVE WATERTIGHT, BOLTED LIDS.
4. MINIMUM REQUIRED SLOPES FOR SEWER SERVICES:
   4" SEWER SERVICE - 2.00% SLOPE
   6" SEWER SERVICE - 1.00% SLOPE
   8" SEWER SERVICE - 0.50% SLOPE
5. UNLESS OTHERWISE NOTED, LOCATE SANITARY SERVICE CLEANOUTS AT ALL HORIZONTAL OR VERTICAL CHANGES IN DIRECTION. MAXIMUM SPACING BETWEEN CLEANOUTS SHALL BE 75 FEET.
6. SEWER LINES LESS THAN 3 FEET OF COVER SHALL BE CLASS 50 DUCTILE IRON PIPE. SEWER LINES WITH GREATER THAN 3 FEET OF COVER SHALL BE AS NOTED BELOW:
   4" SEWER SERVICE - SCH 80
   6" SEWER SERVICE - SCH 80
   8" SEWER SERVICE - SDR-35
7. SEWER LINES UNDER CONSTRUCTION SHALL BE PROTECTED FROM DIRT, DEBRIS OR OTHER CONTAMINANTS ENTERING THE NEW SYSTEM. A MECHANICAL PLUG SHALL BE UTILIZED BOTH IMMEDIATELY UPSTREAM OF THE NEW CONSTRUCTION AND AT THE FIRST MANHOLE DOWNSTREAM IN THE EXISTING SYSTEM. EXISTING STRUCTURES, PIPING AND APPURTENANCES SHALL BE PROTECTED FROM ANY INFLOW OF WATER, DIRT OR DEBRIS DUE TO NEW CONSTRUCTION CONNECTING TO OR IN THE VICINITY OF THE EXISTING SYSTEM. CONTRACTOR TO REMOVE DEBRIS AND PLUG PRIOR TO OCCUPANCY.
8. ALL MANHOLES COVERS SHALL BE PAINTED TO LOCAL JURISDICTIONAL REQUIREMENTS.

WATER NOTES:

1. AS INDICATED, ALL WATERLINES SHALL BE DUCTILE IRON PIPE MEETING THE REQUIREMENTS OF ANSI-AWWA C151 PRESSURE CLASS 350 OR SOFT COPPER TYPE K PIPE PER ASTM B88. IF PVC WATERLINE IS INDICATED ON THE PLANS IT SHALL MEET THE REQUIREMENTS OF AWWA C-900; CLASS 200.
2. ALL WATERLINES SHALL HAVE A MINIMUM OF 3.5 FEET OF COVER.
3. TESTING NOTES:
   PRESSURE:
   LEAKAGE SHALL NOT EXCEED THE MAXIMUM ALLOWABLE LEAKAGE SPECIFIED IN AWWA C 600. MINIMUM TEST PRESSURE SHALL BE 150 PSI FOR DOMESTIC AND 200 PSI FOR FIRE PROTECTION.
   BACTERIOLOGICAL:
   TWO SAMPLES FOR BACTERIOLOGICAL SAMPLING SHALL BE COLLECTED AT LEAST 24 HOURS APART. IF CONTAMINATION IS INDICATED, THEN THE DISINFECTION PROCEDURE AND TESTING SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.
4. THE CHLORINE IN HEAVILY CHLORINATED WATER FLUSHED FROM MAINS NEEDS TO BE NEUTRALIZED BEFORE DISCHARGE. CONTRACTORS SHALL NEUTRALIZE HEAVILY CHLORINATED WATER FLUSHED FROM MAINS PRIOR TO DISCHARGE OR TRANSPORT ALL HEAVILY CHLORINATED WATER OFFSITE FOR PROPER DISPOSAL.
5. PAINT VALVE COVERS, FIRE HYDRANTS AND OTHER WATER APPARATUS TO MEET THE LOCAL JURISDICTIONAL REQUIREMENTS.

MATERIALS AND FURNISHINGS NOTES:

1. ABBREVIATIONS FOR SPECIFIC HARDSCAPE MATERIALS AND FURNISHINGS ARE LISTED IN THE LEGEND AND ARE USED THROUGHOUT THE DRAWING SET'S HARDSCAPE & FURNISHINGS PLANS, PAVING PATTERN PLANS AND SITE DETAILS.
2. REFER TO RELATED SPECIFICATION SECTION FOR SPECIFIC SUBMITTALS OF PRODUCT DATA, SAMPLES, SHOP DRAWINGS, QUALITY ASSURANCE REQUIREMENTS, EXECUTION REQUIREMENTS, AND FOR FURTHER PRODUCT INFORMATION NOT INCLUDED IN THIS SCHEDULE
3. CONTRACTOR TO SUBMIT COLOR SAMPLES AND PROVIDE MOCK-UPS FOR ALL CAST IN PLACE CONCRETE FOR APPROVAL BY LANDSCAPE ARCHITECT.

PAVING PATTERN NOTES:

1. END ALL UNIT PAVING PATTERNS WITH A FULL OR HALF SIZE PAVER UNLESS OTHERWISE NOTED. USE OVERSIZE PAVERS WHERE PATTERN ENDS ON A UNIT SMALLER THAN HALF SIZE.
2. LAYOUT OF UNIT PAVING PATTERNS AND CONCRETE JOINTS AS INDICATED ON THIS PLAN. REFERENCE LAYOUT PLANS FOR FURTHER PAVING LAYOUT INFORMATION.
3. PAVERS ABUTTING TRUNCATED DOMES SHALL BE A CONTRASTING COLOR.
4. ALIGN ALL TRUNCATED DOME PAVER JOINTS WITH ABUTTING PAVER JOINTS.
5. PROVIDE CONTINUOUS EXPANSION JOINTS BETWEEN BACK OF CURB AND ADJOINING PAVEMENT.
6. PROVIDE CONTINUOUS EXPANSION JOINT BETWEEN ALL VERTICAL SURFACES AND ADJOINING PAVEMENT.
7. ALL DIMENSIONS MEASURED TO CENTERLINE OF JOINTS.
8. ALL WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE FROM DRAWINGS.
9. ALL ANGLES 90 DEGREES UNLESS OTHERWISE NOTED.
10. ALIGN ALL JOINTS, CORNERS AND EDGES AS SHOWN.
11. FINAL LAYOUTS TO BE APPROVED BY LANDSCAPE ARCHITECT.

SIGNAGE, STRIPING AND MARKING NOTES:

1. ALL INTERNAL SIGNAGE SHALL BE COORDINATED WITH OWNER FOR ACTUAL LOCATION AT TIME OF INSTALLATION. SIGNAGE LEADING ONTO PUBLIC THOROUGHFARE SHALL BE INSTALLED AT RIGHT OF WAY PER DOT STANDARDS
2. ALL PAVEMENT STRIPING (EXCEPT INDIVIDUAL PARKING BAY STRIPING) SHALL BE THERMOPLASTIC REFLECTIVE PAINT. MATERIALS AND DIMENSIONS SHALL CONFORM TO NCDOT STANDARDS AND SPECIFICATIONS. PARKING BAY STRIPING SHALL BE WHITE REFLECTIVE PAINT.
3. CROSSWALKS SHALL BE CONSTRUCTED OF THERMOPLASTIC MATERIALS AND CONSTRUCTED IN ACCORDANCE WITH STATE DOT SPECIFICATIONS. CONTRACTOR TO INSTALL CROSSWALKS IN SUCH A MANNER THAT CROSSWALKS ARE ALIGNED BETWEEN HANDICAP/WALKWAY ACCESS POINTS OR PERPENDICULAR TO THE ROADWAY / DRIVE LANE.
4. ADA SYMBOLS SHOWN THESE DRAWINGS ARE FOR LOCATION PURPOSES ONLY AND NOT INTENDED TO BE PAINTED. CONTRACTOR RESPONSIBLE FOR INSTALLING ALL REQUIRED ADA SIGNAGE

LANDSCAPE NOTES:

1. VERIFY ALL QUANTITIES AND REPORT ANY DISCREPANCIES OR INACCURACIES IN THE PLANS TO THE OWNER'S REPRESENTATIVE PRIOR TO PLANTING.
2. LANDSCAPE WORK SHALL INCLUDE THE FURNISHING, INSTALLATION, AND WARRANTY OF ALL PLANTING MATERIALS WITHIN THE PROJECT AREA.
3. THE LANDSCAPE CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL EXISTING AND NEW UNDERGROUND UTILITIES PRIOR TO EXCAVATION FOR PLANTING. DAMAGES TO UTILITIES CAUSED BY THE LANDSCAPE OPERATION SHALL BE CORRECTED BY THE LANDSCAPE CONTRACTOR AT NO COST TO THE OWNER.
4. LANDSCAPING SHALL REMAIN CLEAR FROM ANY FIRE HYDRANTS ON THE SITE.
5. ALL TREES TO BE A MINIMUM OF 2" IN CALIPER AND MUST MEET THE AMERICAN STANDARD FOR NURSERY STOCK.
6. TREE PROTECTION NOTE: TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE OR ISSUANCE OF A GRADING PERMIT AND SHALL INCLUDE WARNING SIGNS POSTED IN BOTH ENGLISH AND SPANISH, AS FOLLOWS: "NO TRESPASSING/TREE PROTECTION AREA/PROHIBIDO ENTRAR / ZONA PROTECTORA PARA LOS ÁRBOLES."
7. PROTECTION OF EXISTING VEGETATION: AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE AROUND A TREE OR STRIPPING OF TOPSOIL, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE OF THE TREE SAVE AREA AT THE SAME TIME AS OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THE CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE. NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED AREA.
8. ROOT ZONE PROTECTION AREA: VARIES BASED ON LOCAL JURISDICTION HAVING AUTHORITY. CONTRACTOR SHALL COMPLY WITH LOCAL JURISDICTIONAL REQUIREMENTS. NO DISTURBANCE ALLOWED WITHIN THIS AREA. AREA MUST BE PROTECTED WITH BOTH TREE PROTECTION FENCING AND WARNING SIGNS.
9. SEED BED PREPARATION: ALL AREAS TO BE SEEDED ARE TO BE RECEIVE A MINIMUM OF 2" OF APPROVED TOPSOIL. ALL DEBRIS, ROCKS, ETC. LARGER THAN .5" ARE TO BE REMOVED. ALL LARGE CONCENTRATIONS OF GRAVEL & DEBRIS REGARDLESS OF SIZE ARE TO BE REMOVED PRIOR TO SEEDING OR PLANTING.
10. ALL PLANT BED AREAS ARE TO RECEIVE A MINIMUM OF 6" OF APPROVED TOPSOIL.
11. SOIL SHOULD BE TESTED AND AMENDED WITH LIME AND FERTILIZER FOR HARDWOOD TREES ACCORDING TO NCDA PROCEDURES. SCARIFY PLANT PIT WALLS. CONSULT LANDSCAPE ARCHITECT FOR ALTERNATE COMPLIANCE.
12. DELAWARE RIVER ROCK OR OWNER APPROVEDC ALTERNATE 4-6" DEEP EXCEPT AT CROWN OF PLANT UNLESS OTHERWISE NOTED. FLARE AT CROWN SHOULD BE REVEALED. BACKFILL CONSISTS OF THOROUGHLY BROKEN UP NATIVE SOIL. TOTAL VOLUME OF BACKFILL SHOULD BE AMENDED WITH UP TO ONE THIRD PINE BARK MULCH. PIECES SHOULD BE NO LARGER THAN WHAT PASSES THROUGH A ONE INCH SCREEN. IF ADDITIONAL SOIL IS REQUIRED FOR BACKFILL DUE TO DETRIMENTAL SUBSOIL DRAINAGE CONDITIONS, USE SOIL SIMILAR TO EXISTING NATIVE SOIL. ADDITIONAL SOIL TO BE APPROVED BY LANDSCAPE ARCHITECT. MAXIMUM SAUCER HEIGHT IS 6 INCHES.
13. TOP OF ROOTBALL TO BE RAISED 2-3 INCHES ABOVE EXISTING GRADE.
14. FOR B&B PLANTS, NATURAL FIBER BURLAP SHOULD BE TURNED DOWN BY 1/3 TOTAL HEIGHT OF ROOT BALL. PLASTIC FIBER BURLAP AND WIRE BASKETS SHOULD BE REMOVED TO 2/3'S OF TOTAL HEIGHT OF ROOT BALL.
15. CONTRACTOR IS RESPONSIBLE FOR KEEPING THE TREE UPRIGHT AND PLUMB THROUGHOUT THE WARRANTY PERIOD. IF STABILIZATION IS NECESSARY SEE STAKING IN TREE DETAIL, ORANGE FLAGGING TAPE SHOULD BE ATTACHED TO SUPPORT WIRE. STAKING SHOULD BE REMOVED BY CONTRACTOR AT END OF ONE YEAR WARRANTY PERIOD OR AS DIRECTED BY GROUNDS MANAGEMENT.
16. USE STANDARD "GATOR" BAGS FOR WATERING TREES IN AREAS NOT UNDER IRRIGATION. INCORPORATE TERRA-SORB (OR EQUAL) AS PER MANUFACTURERS RECOMMENDATIONS, FOR AREAS NOT UNDER IRRIGATION.
17. USE "BIO-BARRIER" OR EQUIVALENT ACCORDING TO MANUFACTURER'S RECOMMENDATION FOR TREES THAT WILL BE PLANTED WITHIN 10' OF PAVEMENT
18. LANDSCAPING/C.O. STANDARDS NOTE: ALL LANDSCAPING MUST BE IN PLACE PRIOR TO REQUEST FOR A CERTIFICATE OF COMPLIANCE.
19. TREE TAGS TO REMAIN ON TREES AND SHRUBS UNTIL VISUALLY INSPECTED BY THE DESIGNER. VIOLATIONS REQUIRE VEGETATION REPLACEMENT WITH NEW SPECIES AT THE CONTRACTOR'S EXPENSE.
20. WATERING IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL FINAL BO OF THE PROJECT.

Program of Requirements

Item	Requested	Proposed	Delta (REQUESTED - PROPOSED)	Delta	Alt. #3
Access Road Length (LF)	1000	591	409	59.1%	
No. of Refuse Collection/Dumpster Sites	2	1	1	50.0%	
No. of Generator Pads	2		2	0.0%	
Total Exterior Organization Vehicle Parking (SY)	550	0	550	0.0%	
Rigid Pavement Other Than Parking (SY)	600	*1708*	-1108	284.7%	45
Refuse Collection/Dumpster Pad (SY)	300	60	240	20.0%	
Privately owned vehicle parking (SY)	9450	3916	5534	41.4%	1604
Access Road and Entrance Throat (SY)	1000	0	1000	0.0%	
Parking for Training Center Functions	0	0	0	0.0%	
Sidewalks (LF)	432	*1861*	-1429	430.8%	
Curbs (LF)	1262	*1940*	-678	153.7%	1063
Security Fencing	412	0	412	0.0%	
Flagpoles	2	2	0	100.0%	
Outside Security Lighting	Yes	Yes			
Gas	Yes				
Electric	Yes	Yes			
Chilled/Heated Water	No	No			
Water	Yes	Yes			
Waste Water/Sewer	Yes	Yes			
Storm Water Drainage	Yes	No			

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North Carolina National Guard
Always Ready - Ready Team

MILCON PROJECT NUMBER: 94360-371901

NC SCO PROJECT NUMBER: 19-21526-01BA

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SEAL 53676 BRIAN A. HARRIS

023121
2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.09.28
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:

GENERAL NOTES

DATE: 06.10.2022
DRAWN BY: BFH
CHECKED BY: BAH

SHEET:

C0.10

CONSTRUCTION DOCUMENTS

NOTES:

1. THE UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE LOCATIONS AND ARE BASED ON ABOVE GROUND FEATURES, PHYSICAL EVIDENCE, PAINT MARKINGS PROVIDED BY STEWART. THE SURVEYOR DOES NOT GUARANTEE THAT ALL EXISTING UNDERGROUND STRUCTURES SUCH AS UTILITIES, TANKS, PIPES, ETC. ARE LOCATED HEREON, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. NO EXCAVATIONS WERE MADE BY THE SURVEYOR TO LOCATE ANY BURIED UTILITIES OR STRUCTURES.
2. CONTACT NC 811 REGARDING UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION OR CONSTRUCTION.
3. NO DETERMINATION HAS BEEN MADE BY THE SURVEYOR AS TO THE FOLLOWING: UNDERGROUND STORAGE FACILITIES; HAZARDOUS WASTE DEPOSITS OR MATERIALS OR WETLANDS OR BURIAL SITES.
4. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.
5. THE HORIZONTAL DATUM IS N.C. GRID NAD 83/2011.
6. THE VERTICAL DATUM IS NAVD 88 IN U.S. SURVEY FEET. THE CONTOUR INTERVAL IS ONE FOOT.
7. THE PROPERTY LINES SHOWN HEREON ARE FROM NEW HANOVER COUNTY GIS. PROPERTY DATA SHOWN HEREON FROM TAX DATA.
8. THIS MAP WAS PREPARED WITHOUT THE BENEFIT OF A CERTIFIED TITLE REPORT AND THEREFORE THE PROPERTY SHOWN HEREON MAY BE SUBJECT TO RECORDED OR UNRECORDED RIGHT-OF-WAYS, EASEMENTS, RESTRICTIONS OF RECORD, OR OTHER ENCUMBRANCES NOT OBSERVED OR SHOWN HEREON.
9. DATE OF SURVEY: 01/29/2020 THRU 03/12/2020 AND 01/14/21.
10. THIS SURVEY IS IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND ZONE AE (EL 13) (0.2% ANNUAL CHANCE FLOOD HAZARD) ACCORDING TO FEMA FLOOD MAP NUMBER 3720302800K, MAP REVISED AUGUST28/2018.

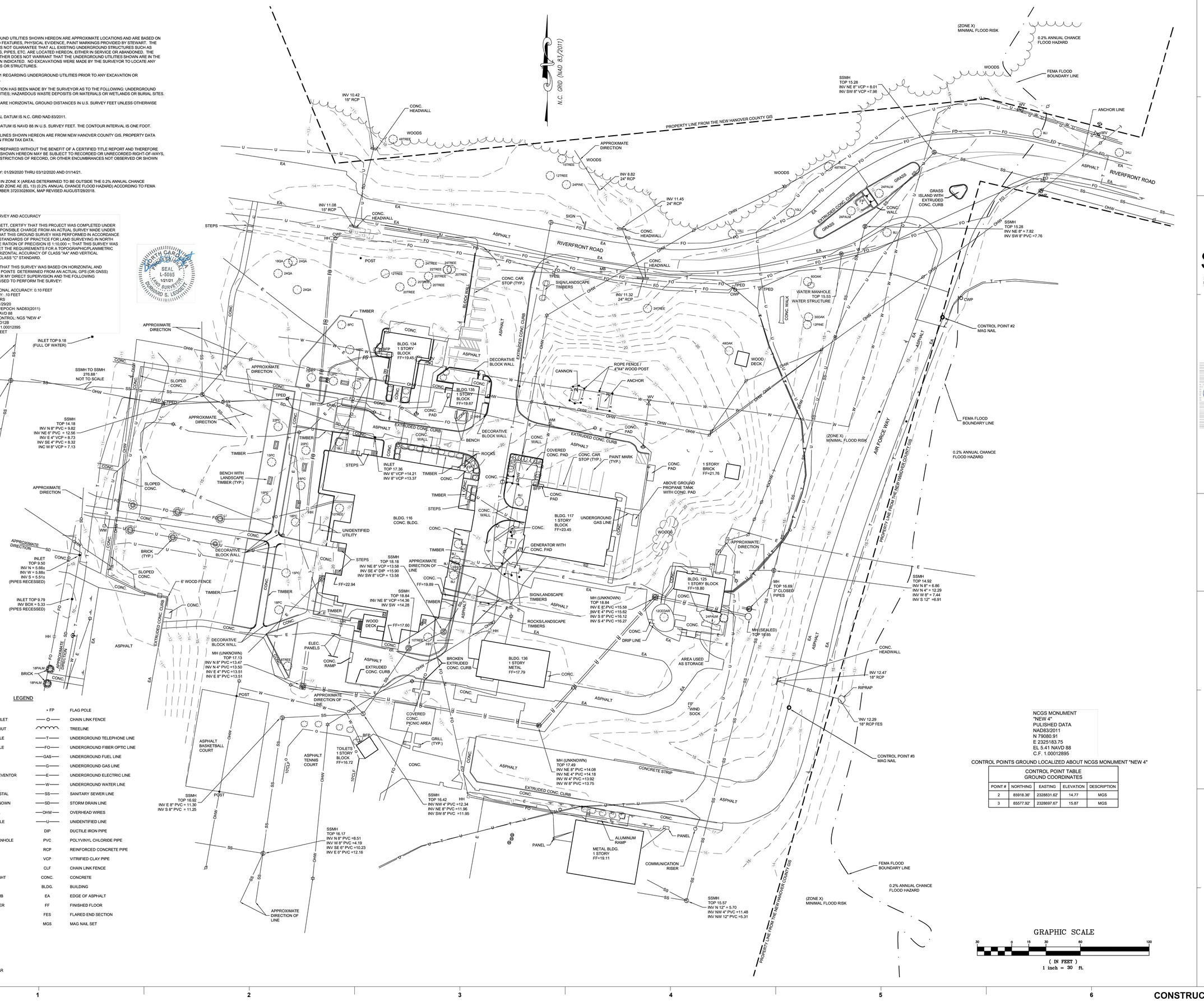
CERTIFICATE OF SURVEY AND ACCURACY

I, DURWARD S. LEGGETT, CERTIFY THAT THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT THIS GROUND SURVEY WAS PERFORMED IN ACCORDANCE WITH THE MINIMUM STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA; THAT THE RATION OF PRECISION IS 1:10,000 +; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS FOR A TOPOGRAPHIC/PLANIMETRIC SURVEY TO THE HORIZONTAL ACCURACY OF CLASS "AA" AND VERTICAL ACCURACY TO THE CLASS "C" STANDARD.

I FURTHER CERTIFY THAT THIS SURVEY WAS BASED ON HORIZONTAL AND VERTICAL CONTROL POINTS DETERMINED FROM AN ACTUAL GPS (OR GNSS) SURVEY MADE UNDER MY DIRECT SUPERVISION AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

HORIZONTAL POSITIONAL ACCURACY: 0.10 FEET
VERTICAL ACCURACY: .10 FEET
TYPE OF GPS: RTKVRS
DATE OF SURVEY: 01/29/20
HORIZONTAL DATUM/EPOCH: NAD83(2011)
VERTICAL DATUM: NAVD 88
PUBLISHED/FIXED-CONTROL: NGS "NEW 4"
GEOID MODEL: GEOID12B
COMBINED FACTOR: 1.00012895
UNITS: US SURVEY FEET

NORTH CAROLINA PROFESSIONAL SEAL L-5085 1/21/21 LAND SURVEYOR DURWARD S. LEGGETT



CONTROL POINTS GROUND LOCALIZED ABOUT NCGS MONUMENT "NEW 4"

CONTROL POINT TABLE GROUND COORDINATES				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
2	85918.36'	2328831.62'	14.77	MGS
3	85577.92'	2328697.67'	15.87	MGS

LEGEND

SIGN	FP	FLAG POLE	
STORM YARD INLET	CHAIN LINK FENCE		
SEWER CLEANOUT	TREELINE		
SEWER MANHOLE	UNDERGROUND TELEPHONE LINE		
WATER MANHOLE	UNDERGROUND FIBER OPTIC LINE		
WATER VALVE	UNDERGROUND FUEL LINE		
FIRE HYDRANT	UNDERGROUND GAS LINE		
BFP	BACKFLOW PREVENTOR	UNDERGROUND ELECTRIC LINE	
WM	WATER METER	UNDERGROUND WATER LINE	
TPED	TEL-COM PEDESTAL	SANITARY SEWER LINE	
CWP	MANHOLE UNKNOWN	STORM DRAIN LINE	
	CABLE MARKER	OVERHEAD WIRES	
	POWER MANHOLE	UNIDENTIFIED LINE	
	TRANSFORMER	DIP	DUCTILE IRON PIPE
	TELEPHONE MANHOLE	PVC	POLYVINYL CHLORIDE PIPE
HH	HANDHOLE	RCP	REINFORCED CONCRETE PIPE
	GUY WIRE	VCP	VITRIFIED CLAY PIPE
	LIGHT POLE	CLF	CHAIN LINK FENCE
	LANDSCAPE LIGHT	CONC.	CONCRETE
	UTILITY POLE	BLDG.	BUILDING
	HANDI-CAP SYMB	EA	EDGE OF ASPHALT
	AIR CONDITIONER	FF	FINISHED FLOOR
	BOLLARD	FES	FLARED END SECTION
MB	MAILBOX	MGS	MAG NAIL SET
__PALM	PALM		
__PINE	PINE		
__OAK	OAK		
__LI	CREPE MYRTLE		
__PC	BRADFORD PEAR		
	BUSH		

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NC SCO PROJECT NUMBER: 19-21526-01BA

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NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HISTRICK 2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:

TOPOGRAPHIC SURVEY

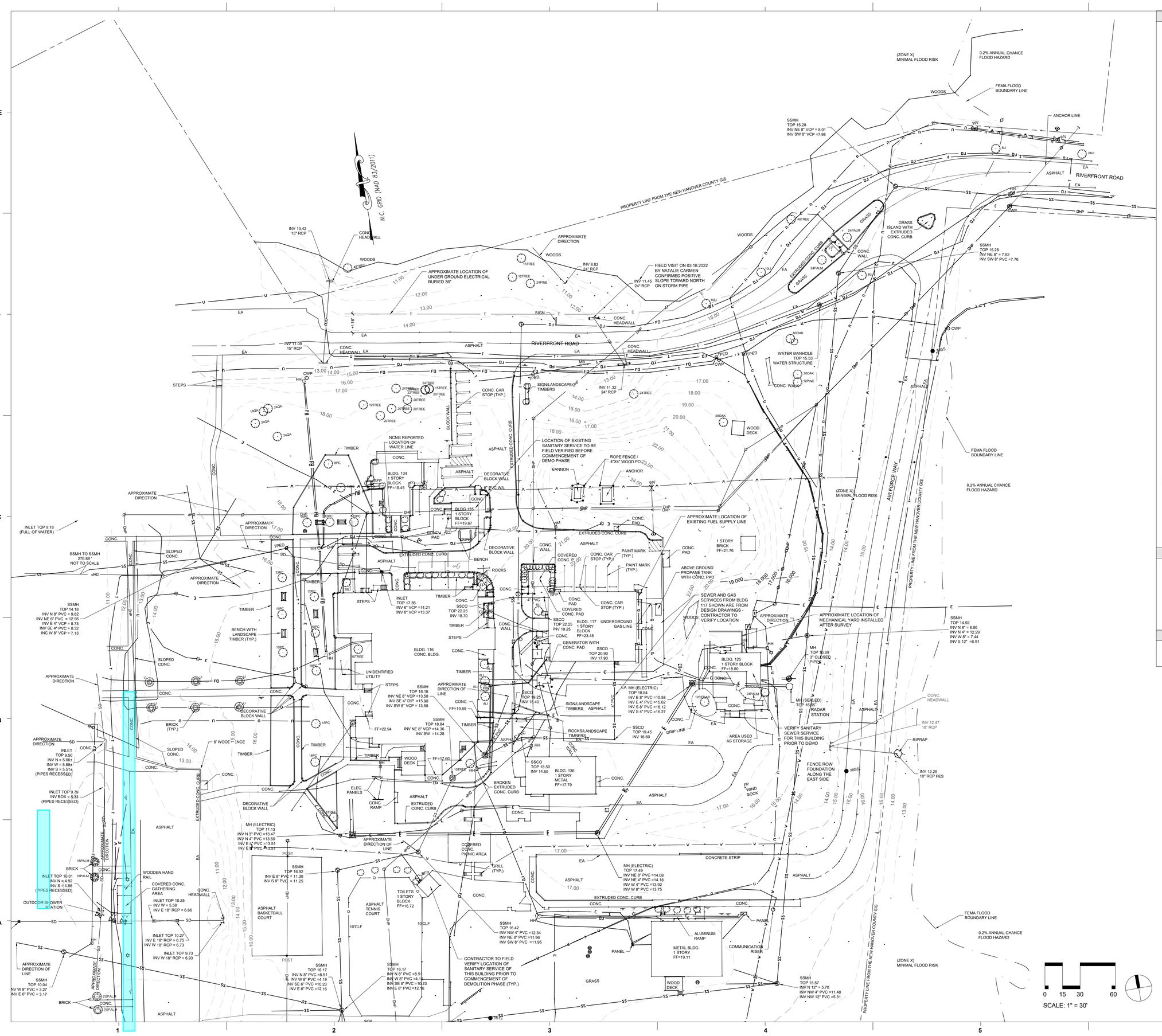
DATE: 06.10.2022
DRAWN BY: RM
CHECKED BY: SL

SHEET:

C1.00

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C1.00 Existing Conditions Plan.dwg Feb 07, 2024 - 8:55am



SURVEY LEGEND:

△	SURVEY CONTROL POINT
EIP	EXISTING IRON PIPE
ECM	EXISTING CONCRETE MONUMENT
▲	COMPUTED POINT
	STORM DRAIN MANHOLE
	STORM DRAIN CURB INLET
	SANITARY SEWER MANHOLE
	SANITARY SEWER CLEANOUT
	SANITARY FORCEMAIN VALVE
	HYDRANT
WV	WATER VALVE
WM	WATER METER
	WATER MANHOLE
	WATER VAULT
	WELL
GV	GAS VALVE
GM	GAS METER
	TELEPHONE MANHOLE
TPED	TELEPHONE PEDESTAL
	TV MANHOLE
CATV	TV PEDESTAL
FOWP	FIBER OPTIC WITNESS POST
FO	FIBER OPTIC BOX
	ELECTRIC MANHOLE
EM	ELECTRIC METER
EB	ELECTRIC BOX
	UTILITY POLE
	GUY POLE
	GUY WIRE
	LIGHT POLE
	MANHOLE
TS	TRAFFIC SIGNAL BOX
	TRAFFIC SIGNAL POST
MW	MONITORING WELL
BOR	BORING LOCATION
	BOLLARD
	SIGN
FF=267.18'	FINISHED FLOOR ELEVATION
	DECIDUOUS TREE
	EVERGREEN TREE
	BUSH
—X—	WIRE FENCE
—O—	CHAIN LINK FENCE
—T—	UNDERGROUND TELEPHONE LINE
—FO—	UNDERGROUND FIBER OPTIC LINE
—G—	UNDERGROUND GAS LINE
—E—	UNDERGROUND ELECTRIC LINE
—W—	UNDERGROUND WATER LINE
—SS—	SANITARY SEWER LINE
----SD----	STORM DRAIN LINE
—OHW—	OVERHEAD WIRES
—U—	UNIDENTIFIED LINE
	UNKNOWN DESTINATION
	CONCRETE SURFACE
DIP	DUCTILE IRON PIPE
PVC	POLYVINYL CHLORIDE PIPE
HDPE	HIGH-DENSITY POLYETHYLENE PIPE
RCP	REINFORCED CONCRETE PIPE
CMP	CORRUGATED METAL PIPE
CB	CATCH BASIN

TREE LEGEND:

IO	AMERICAN HOLLY
JV	EASTERN RED CEDAR
LI	CREPE MYRTLE
MG	SOUTHERN MAGNOLIA
PO	EASTERN SYCAMORE
PT	LOBLOLLY PINE
QR	RED OAK

EXAMPLE: 10QR = 10" RED OAK

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND EXISTING CONDITIONS NOTES.
2. NO SURFACE WATERS ARE LOCATED WITHIN 50' OF THE PROJECT BOUNDARY.

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NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE NEWHART

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
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LS3P PROJECT: 8302-195530

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KEY PLAN:

SHEET NAME:

EXISTING CONDITIONS PLAN

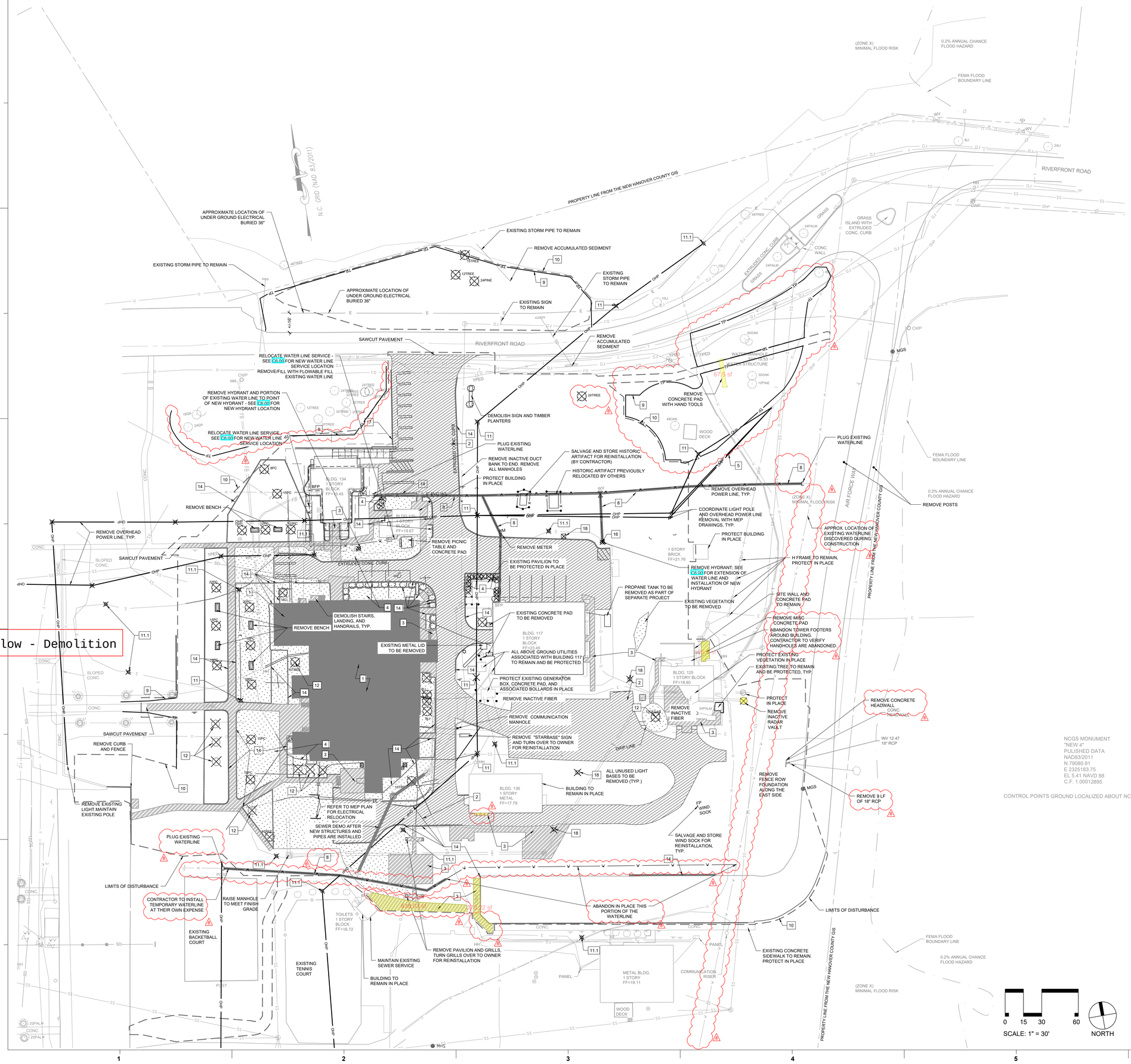
DATE: 06.10.2022
DRAWN BY: BFH
CHECKED BY: NBC

SHEET:

C1.01

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C1.00 Existing Conditions Plan.dwg Feb 07, 2024 - 8:56am



DEMOLITION LEGEND:

KEY NOTE	SYMBOL	DESCRIPTION	DETAIL REFERENCE
1		REMOVE BUILDING	N/A
2		REMOVE ASPHALT	N/A
3		REMOVE CONCRETE	N/A
4		REMOVE VEGETATION	N/A
5	OHP	REMOVE OVERHEAD POWER LINE	N/A
6	SS	REMOVE SANITARY SEWER LINE	N/A
7		REMOVE STORM DRAINAGE	N/A
8	W	REMOVE WATERLINE	N/A
9	TP	TREE PROTECTION FENCE	N/A
10		LIMITS OF DISTURBANCE	N/A
11		LIGHT POLE/UTILITY POLE REMOVAL. REFER TO ELECTRICAL SITE PLAN FOR DETAILS	N/A
11.1		REMOVE LIGHT	N/A
12		REMOVE TREE	N/A
13		REMOVE WHEEL STOP	N/A
14		REMOVE CURB/TIMBERS	N/A
15		REMOVE SIGN	N/A
16		REMOVE FIRE HYDRANT	N/A
17		REMOVE RETAINING WALL	N/A
18		REMOVE LIGHT PEDESTALS, LOCATIONS NOTED ARE APPROXIMATE	N/A
19		REMOVE BOLLARD	N/A

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND DEMOLITION NOTES.
2. EXISTING BUILDING TO BE PROVIDED WITH THE REQUIRED FIRE PROTECTION DURING DEMOLITION PHASE.

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2/7/2024

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KEY PLAN:

SHEET NAME:

DEMOLITION PLAN

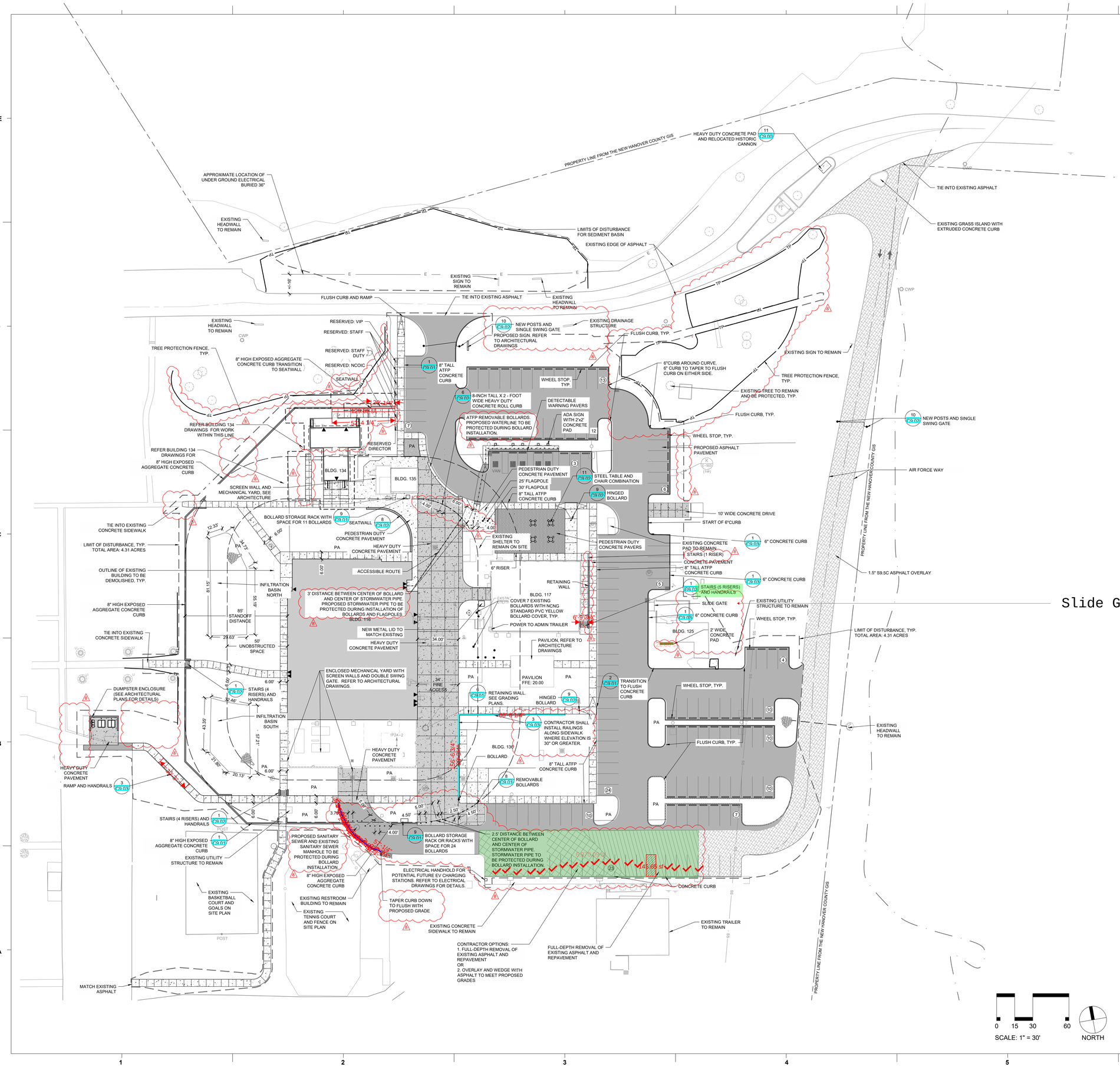
DATE: 06.10.2022
DRAWN BY: BFH
CHECKED BY: NBC

SHEET:

C2.00

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C2.00 Demolition Plan.dwg Feb 07, 2024 - 8:56am



SITE LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
	PROPOSED BUILDING	SEE ARCH. PLANS
	PROPOSED CONCRETE SIDEWALK	3/C9.00
	PROPOSED CONCRETE PAVERS	5/C9.00
	PROPOSED ASPHALT	1/C9.00
	PROPOSED HEAVY DUTY CONCRETE	3/C9.00
	PROPOSED HEAVY DUTY CONCRETE PAVERS	6/C9.00
	PROPOSED RIVER ROCK	7/L6.00
	PROPOSED 8" CURB	1/C9.01
	PROPOSED FLUSH CURB	2/C9.01
	EXPOSED AGGREGATE CURB	7/C9.02
	PROPOSED CROSSWALK	N/A
	ASPHALT OVERLAY	1/C9.00
	PROPOSED SIGN	4/C9.01
H/C	PROPOSED ADA PARKING SPACE	4&5/C9.01
	PROPOSED SEATWALL	8/C9.02
	PROPOSED CIP WALL	6/C9.01
	PROPOSED WHEEL STOP	3/C9.01
	ACCESSIBLE ROUTE	N/A
	SINGLE SWING VEHICULAR GATE	10/C9.02
	PROPOSED LIGHT	REFER TO ELECTRICAL DRAWING
	ATFP REMOVABLE BOLLARD	8/C9.01
	BOLLARD AND SLEEVE	10/C9.01
	TABLE AND CHAIR	11/C9.02
	FLAGPOLE	7/C9.01
TP	TREE PROTECTION FENCE	N/A
	LIMITS OF DISTURBANCE	N/A
PA	PLANTING AREA	N/A

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND SITE NOTES.
2. ALL EXTERIOR PARKING SIGNAGE TO MEET NCDOT SPECIFICATIONS.
3. PARKING LOT STRIPING TO BE THERMOPLASTIC.
4. STORMWATER PIPES, WATERLINE PIPES, SANITARY SEWER PIPES AND MANHOLE SHALL BE PROTECTED DURING BOLLARD AND FLAGPOLE INSTALLATION.

SITE ANALYSIS NARRATIVE:

- THE NC NATIONAL GUARD LEASES BUILDINGS FROM SEYMOUR JOHNSON AIR FORCE BASE, WHICH OWNS THE SITE. THE PROJECT PROPOSES REPLACEMENT OF AN EXISTING BUILDING THAT WAS DAMAGED DURING A HURRICANE.
- THE PROPOSED BUILDING IS REQUIRED TO FIT WITHIN THE LIMITS OF THE EXISTING BUILDING 116 IT IS REPLACING.
- NEW PARKING AREAS AND DRIVEWAYS ARE PROPOSED IN THE LOCATIONS OF EXISTING PAVED AREAS. EXISTING PAVEMENT SUBBASE IS ANTICIPATED TO BE REUSED.

144 PARKING SPACES
5 ACCESSIBLE SPACES

TOTAL SPACES 144 + 5

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
WWW.LS3P.COM

MILCON PROJECT NUMBER: 94360-371901
NC SCO PROJECT NUMBER: 19-21526-01BA

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223 S. WEST ST., #1100
RALEIGH, NC 27603
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FIRM LICENSE #: C-1051
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NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER STEWART & ASSOCIATES

NORTH CAROLINA PROFESSIONAL SEAL 033121 ENGINEER PAULA-ANNE HERNDON

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:

SITE PLAN

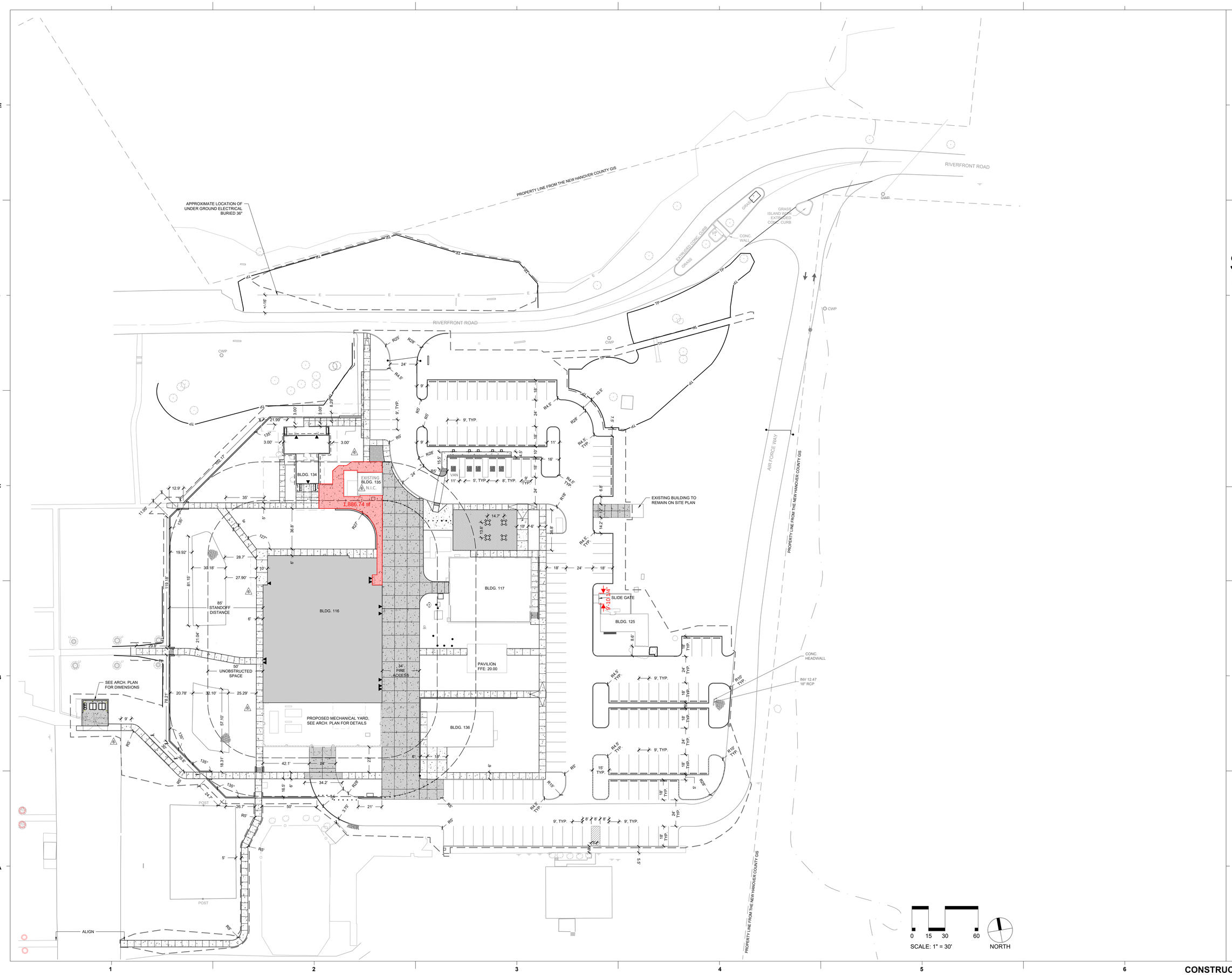
DATE: 06.10.2022
DRAWN BY: BFH
CHECKED BY: NBC

SHEET:

C3.00

CONSTRUCTION DOCUMENTS

L:\Projects\20201\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C3.00 Site Plan.dwg Feb 07, 2024 - 8:56am



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KEY PLAN:

SHEET NAME:

LAYOUT PLAN

DATE: 06.10.2022
DRAWN BY: JP
CHECKED BY: DB

SHEET:

C3.01

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C3.01 Layout Plan.dwg Feb 07, 2024 - 8:57am

SEEDING PREPARATION:

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONED, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY ALL AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW).
5. CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FIRM, REASONABLY UNIFORM 4 TO 6 INCHES DEEP SEEDBED IS PREPARED.
6. SEED ON A FRESHLY PREPARED SEED BED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESENDING WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED , REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESENDING WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 50% DAMAGED , REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES AND LANDSCAPING PLANS.
10. SEE LANDSCAPING PLANS FOR PERMANENT SEEDING, MULCHING, AND FERTILIZING RATES. ALL AREAS NOT DESIGNATED TO RECEIVE PLANTS SHALL BE SEEDED PER THE LANDSCAPING PLANS.

TEMPORARY SEEDING PREPARATION:

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL THREE INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO SIX INCHES DEEP.
3. REMOVE ALL LOOSE ROCK, ROOTS AND OTHER OBSTRUCTIONS, LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER AND SUPER PHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE ADMIXTURE BELOW).
5. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED FOUR TO SIX INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RE-SEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE MORE THAN 60% DAMAGED, RE-ESTABLISH FOLLOWING THE ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9. CONSULT S&EC ENVIRONMENTAL ENGINEERS ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

SEEDING SCHEDULE

SHOULDERS, SIDE DITCHES, SLOPES (MAX 3:1)

DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE & ABRUZZI RYE	300 LBS/ACRE 25 LBS/ACRE
MAR 1 - APR 15	TALL FESCUE	300 LBS/ACRE
APR 15 - JUN 30	HULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUL 1 - AUG 15	TALL FESCUE	120 LBS/ACRE
	***BROWNTOP MILLET	35 LBS/ACRE
	***OR SORGHUM-SUDAN HYBRIDS	30 LBS/ACRE
ENDSTATE:	BERMUDA REQUIRED AT ALL LOCATIONS	

SLOPES (3:1 TO 2:1)

DATE	TYPE	PLANTING RATE
MAR 1 - JUN 1	***BROWNTOP MILLET	50 LBS/ACRE
(MAR 1 - APR 15)	ADD TALL FESCUE OR ADD HULLED COMMON BERMUDAGRASS	120 LBS/ACRE (MAR 1 - JUN 30) 25 LBS/ACRE
JUN 1 - SEP 1	***TALL FESCUE AND ***BROWNTOP MILLET ***OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE
SEP 1 - MAR 1	ANNUAL RYE AND TALL FESCUE ADD ABRUZZI RYE	70 LBS/ACRE 120 LBS/ACRE (NOV 1 - MAR 1) 25 LBS/ACRE

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

***TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING, OTHERWISE FESCUE MAY BE SHADED OUT.

ADMIXTURES:

AGRICULTURAL LIMESTONE: 2 TONS/ACRE

FERTILIZER: 1,000 LBS/ACRE - 10-10-10

SUPERPHOSPHATE: 500 LBS/ACRE - 20% ANALYSIS

MULCH: 2 TONS/ACRE - SMALL GRAIN STRAW

ANCHOR: ASPHALT EMULSION AT 300 GALS/ACRE

EROSION CONTROL NOTES:

1. REFER TO C0.00 FOR GENERAL NOTES.
2. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN BEST LOCATION BASED ON FIELD CONDITIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF CONSTRUCTION ENTRANCES AS NECESSARY TO PREVENT THE TRACKING OF SEDIMENT OFF-SITE. THE OWNER IS RESPONSIBLE FOR MAINTENANCE OF ALL PERMANENT EROSION CONTROL METHODS AFTER CONSTRUCTION IS COMPLETE, IF ANY PERMANENT METHODS ARE REQUIRED.
5. APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
6. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR AND ESC SUPERVISOR UNTIL ALL CONSTRUCTION IS APPROVED.
7. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE LIMITS OF DISTURBANCE (L.O.D.) SHALL BE PERMITTED. THE L.O.D. SHALL BE MAINTAINED BY THE ESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION.
8. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.
9. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G., ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.).
10. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE ESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT. COPIES OF THE WRITTEN INSPECTION REPORTS SHALL BE PROVIDED TO THE OWNER'S REPRESENTATIVE TWICE PER WEEK AND AFTER RAINS OF GREATER THAN 0.5". RAIN GAUGE REQUIRED ON SITE.
11. ANY AREAS OF EXPOSED SOILS THAT WILL NOT BE DISTURBED FOR FOURTEEN DAYS SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).
12. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN FORTY EIGHT (48) HOURS FOLLOWING A STORM EVENT.
13. AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
14. STABILIZED CONSTRUCTION ENTRANCES AND ROADS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
15. WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED, IT SHALL BE A MINIMUM THICKNESS OF 2 TO 3 INCHES.
16. INTERIM SLOPES MAY BE GRADED TO A MAXIMUM SLOPE OF 2:1 (HORIZONTAL: VERTICAL); CUT SLOPES SHALL BE LIMITED TO A MAXIMUM SLOPE OF 1.5:1.
17. THE SURFACE OF AREAS SLOPES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL THAT ARE TO RECEIVE INTERIM FILL SHALL BE PLOWED, FURROWED, TILLED OR BROKEN UP PRIOR TO PLACING FILL SO THAT FILL MATERIAL WILL BOND WITH EXISTING . " SURFACE. INTERIM FILL SHALL BE PLACED AS SPECIFIED FOR PERMANENT FILLS AND IN LIFTS NOT GREATER THAN 6".
18. PROVIDE DUST CONTROL MEASURES INCLUDING, BUT NOT LIMITED TO, WETTING DOWN TO CONTROL DUST ON SITE, IN ORDER TO PREVENT ANNOYANCE/AND OR DAMAGE TO ADJACENT SITES. CALCIUM CHLORIDE OR ANY OTHER CHEMICAL MATERIAL MAY NOT BE USED ON SUBGRADES OF AREAS TO BE SEEDED OR PLANTED.
19. SEDIMENT LADEN RUNOFF FROM EXCAVATIONS SHALL NOT BE PUMPED DIRECTLY TO STORM DRAINAGE.
20. INSPECTOR REFERS TO LOCAL JURISDICTIONAL (NCDENR OR LOCAL) LAND QUALITY INSPECTOR OR HIS REPRESENTATIVE. FIELD INSPECTIONS MAY REQUIRE ADDITIONAL SEDIMENTATION AND EROSION CONTROL MEASURES AS DEEMED NECESSARY BY THE INSPECTOR.
21. CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL DEVICES SHALL CONFORM TO THE STANDARDS SET FORTH IN THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES LAND QUALITY SECTION EROSION AND SEDIMENT CONTROL PLANNING LAND DESIGN MANUAL.
22. NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM: THE PERSON RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES IS REQUIRED TO INSPECT THE PROJECT AFTER EACH PHASE OF THE PROJECT AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCAC 4B.0131 TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FORM HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML

SEQUENCE OF CONSTRUCTION ACTIVITIES:

1. OBTAIN GRADING PERMIT.
2. DETERMINE AND MARK LIMITS OF DISTURBANCE.
3. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD 48 HOURS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES. THE EROSION CONTROL INSPECTOR, ARCHITECT, ENGINEER, AND CONTRACTOR SHALL BE PRESENT TO SATISFY REQUIREMENTS.
4. INSTALL CONSTRUCTION ENTRANCE, TREE PROTECTION FENCING, SILT FENCE, PERIMETER EROSION CONTROL DEVICES AND ALL REQUIRED BASINS AND TRAPS.
5. SCHEDULE SITE INSPECTION.
6. UPON APPROVAL TO PROCEED BY THE EROSION CONTROL INSPECTOR, HARVEST ANY TIMBER.
7. CONSTRUCT REMAINING EROSION CONTROL MEASURES AS REQUIRED.
8. REMOVE AND/OR STORE TOPSOIL.
9. BEGIN GRADING OPERATIONS.
10. CLEAN SEDIMENT BASINS/TRAPS WHEN ONE-HALF FULL.
11. ALL STREETS SURROUNDING THE PROJECT SHALL BE KEPT CLEAN AT ALL TIMES.
12. PLACE TEMPORARY SEEDING ON ALL DISTURBED AREAS THAT WILL BE IDLE 14 DAYS OR LONGER.
13. PERMANENT SURFACE STABILIZATION SHALL BE INSTALLED FOR ALL AREAS WITHIN 14 DAYS AFTER FINAL GRADE HAS BEEN REACHED, AS NECESSARY, FERTILIZE, WATER AND RESEED AS REQUIRED TO ESTABLISH AND MAINTAIN A VIGOROUS STAND OF GRASS.
14. AFTER COMPLETION OF CONSTRUCTION AND THE SITE IS STABILIZED, REMOVE ALL ACCUMULATED SEDIMENT FROM SEDIMENT TRAPPING MEASURES AND DISPOSE BY MEANS DEEMED ACCEPTABLE BY THE ENGINEER. SCHEDULE SITE INSPECTION. UPON APPROVAL BY THE EROSION CONTROL INSPECTOR, REMOVE TEMPORARY EROSION CONTROL MEASURES, SMOOTH AREA AND APPLY APPROPRIATE STABILIZATION.
15. STORMWATER PERMIT INSPECTION REPORTS SHALL BE PERFORMED BY THE CONTRACTOR UNTIL NOTIFIED OTHERWISE BY THE EROSION CONTROL INSPECTOR.

NOTES:

1. INSPECTOR REFERS TO LOCAL JURISDICTIONAL (NCDENR OR LOCAL) LAND QUALITY INSPECTOR OR HIS REPRESENTATIVE. FIELD INSPECTIONS MAY REQUIRE ADDITIONAL SEDIMENTATION AND EROSION CONTROL MEASURES AS DEEMED NECESSARY BY THE INSPECTOR.
2. CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL DEVICES SHALL CONFORM TO THE STANDARDS SET FORTH IN THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES LAND QUALITY SECTION EROSION AND SEDIMENT CONTROL PLANNING LAND DESIGN MANUAL.
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TREE PROTECTION NOTES:

1. TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE OR ISSUANCE OF A GRADING PERMIT. OR OBTAIN A GRADING PERMIT THEN TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE
2. TREE PROTECTION FENCING SHALL INCLUDE WARNING SIGNS POSTED IN BOTH ENGLISH AND SPANISH, AS FOLLOWS: "NO TRESPASSING/TREE PROTECTION AREA/PROHIBIDO ENTRAR / ZONA PROTECTORA PARA LOS ÁRBOLES."
3. PROTECTION OF EXISTING VEGETATION: AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE AROUND A TREE OR STRIPPING OF TOPSOIL, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE ON THE TREE ROOTS OUTSIDE OF THE TREE SAVE AREA. THIS SHALL OCCUR AT THE SAME TIME THAT OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THE CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE.
4. NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED TREE AREA.
5. TREE PROTECTION AREA: EQUALS ONE FOOT OF RADIUS FOR EVERY INCH OF DIAMETER OF EXISTING TREES, OR SIX FOOT RADIUS, WHICHEVER IS GREATER. NO DISTURBANCE ALLOWED WITHIN THIS AREA.

TOTAL AREA OF DISTURBANCE
4.785 AC / 208,422F

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NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER BRIAN A. TARR

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HERNDON
2/7/2024

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LS3P PROJECT: 8302-195530

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*****	*****	*****
*****	*****	*****
*****	*****	*****
*****	*****	*****
*****	*****	*****

KEY PLAN:

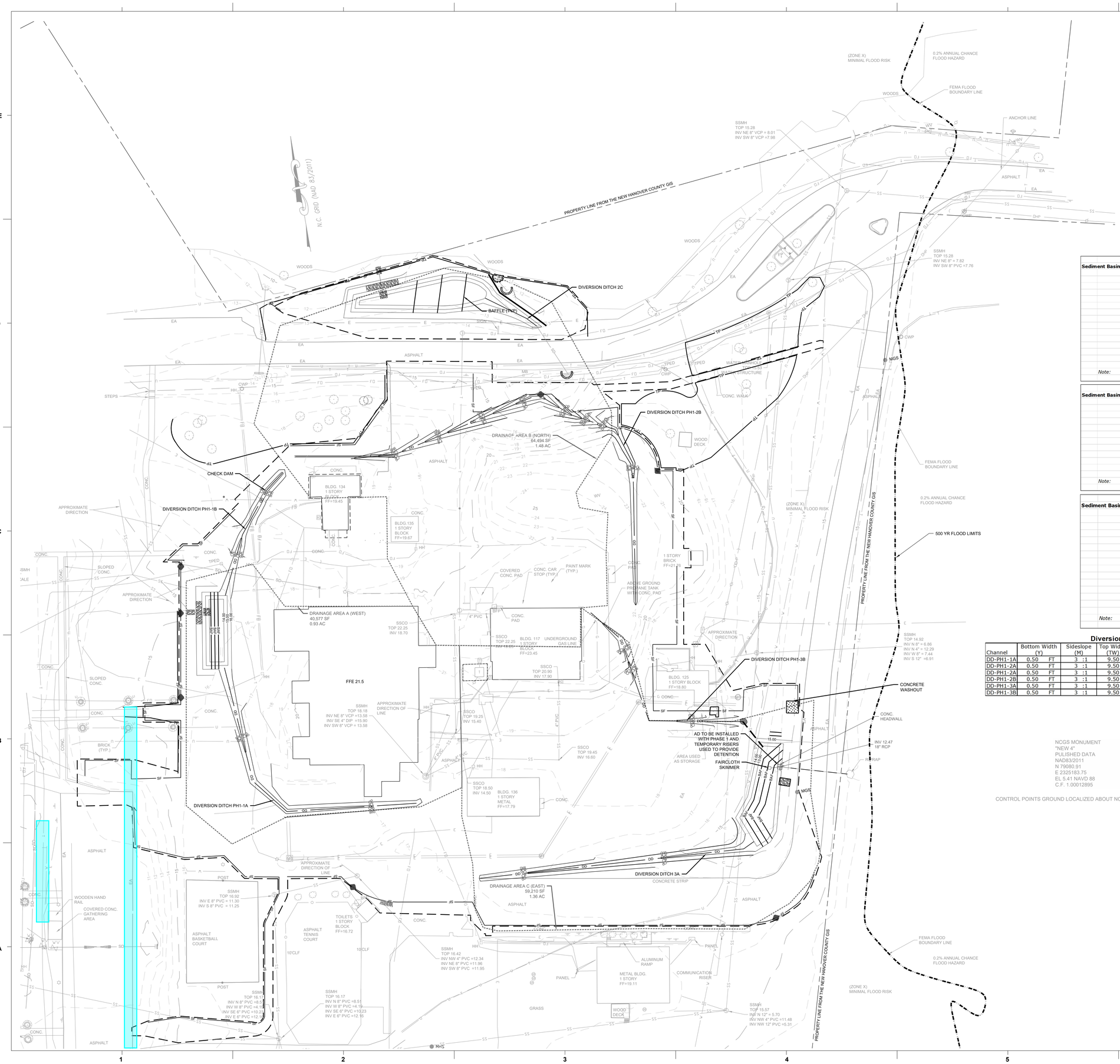
SHEET NAME:

EROSION CONTROL NOTES

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:

C4.00



EROSION CONTROL LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
	NO CUT / NO FILL LINE	N/A
SF	SILT FENCE	1 C9.10
TP	TREE PROTECTION	#/C9.XX
	DIVERSION DITCH	4 C9.10
	100 YR FLOOD ELEV.	N/A
	LIMITS OF DISTURBANCE	N/A
IP	BLOCK & GRAVEL INLET PROTECTION	#/C9.XX
IP	SILT FENCE AND WIRE INLET PROTECTION	#/C9.XX
	HORSE SHOE INLET PROTECTION	2 C9.10
	SILT FENCE OUTLET	5 C9.10
	CHECK DAM	#/C9.XX
	FLOW ARROW	#/C9.XX
	EXCAVATED STORAGE	#/C9.XX
	RIPRAP DISSIPATER	#/C9.XX
CE	TEMPORARY CONSTRUCTION ENTRANCE	3 C9.10

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA EROSION CONTROL SPECIFICATIONS

NOTES:

1. FOR EROSION CONTROL DETAILS SEE SHEET C9.10

Sediment Basin Summary:	Basin ID	=	BASIN 1	
	Bottom Width	=	12	ft
	Bottom Length	=	52	ft
	Surface Width	=	24	ft
	Surface Length	=	64	ft
	Top Width	=	33	ft
	Top Length	=	73	ft
	Stone Outlet Width	=	4	ft
	Outlet Sideslopes	=	2 :1	
	Storage Depth	=	2	ft
	Dam Height	=	3.5	ft
	Sideslopes	=	3 :1	
	Skimmer Size	=	2	in
	Head on Skimmer	=	0.125	ft
	Orifice Size	=	1.00	in

Note: All Calculations are based on a 25 year return rainfall and in accordance with the North Carolina Erosion and Sedimentation Planning and Design Manual.

Sediment Basin Summary:	Basin ID	=	BASIN 2A	
	Bottom Area (irregular shape)	=	1,409	ft
	Surface Area (irregular shape)	=	2,879	ft
	Top Area (irregular shape)	=	4,968	ft
	Stone Outlet Width	=	6	ft
	Outlet Sideslopes	=	2 :1	
	Storage Depth	=	2	ft
	Dam Height	=	3.5	ft
	Sideslopes	=	3 :1	
	Skimmer Size	=	2	in
	Head on Skimmer	=	0.125	ft
	Orifice Size	=	1.25	in

Note: All Calculations are based on a 25 year return rainfall and in accordance with the North Carolina Erosion and Sedimentation Planning and Design Manual.

Sediment Basin Summary:	Basin ID	=	BASIN 3	
	Bottom Area (irregular shape)	=	1,565	ft
	Surface Area (irregular shape)	=	2,052	ft
	Top Area (irregular shape)	=	3,240	ft
	Surface Length	=	0	ft
	Top Width	=	9	ft
	Top Length	=	9	ft
	Stone Outlet Width	=	6	ft
	Outlet Sideslopes	=	2 :1	
	Storage Depth	=	2	ft
	Dam Height	=	3.5	ft
	Sideslopes	=	3 :1	
	Skimmer Size	=	2	in
	Head on Skimmer	=	0.125	ft
	Orifice Size	=	1.25	in

Note: All Calculations are based on a 25 year return rainfall and in accordance with the North Carolina Erosion and Sedimentation Planning and Design Manual.

Diversion Channel Dimension Table

Channel	Bottom Width (Y)		Sideslope (M)	Top Width (TW)	Bottom Width	Lining	Channel Depth (D)	Velocity
DD-PH1-1A	0.50	FT	3 :1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	2.85 FT/S
DD-PH1-2A	0.50	FT	3 :1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	3.02 FT/S
DD-PH1-2A	0.50	FT	3 :1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	4.69 FT/S
DD-PH1-2B	0.50	FT	3 :1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	4.04 FT/S
DD-PH1-3A	0.50	FT	3 :1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	3.05 FT/S
DD-PH1-3B	0.50	FT	3 :1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	4.07 FT/S

NCGS MONUMENT
"NEW 4"
PULISHED DATA
NAD83/2011
N 79080.91
E 2325183.75
EL 5.41 NAVD 88
C.F. 1.00012895

CONTROL POINTS GROUND LOCALIZED ABOUT NCGS MONUMENT "NEW 4"

TOTAL AREA OF DISTURBANCE
4.785 AC / 208,422 SF

0 15 30 60
SCALE: 1" = 30'
NORTH

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
WWW.LS3P.COM

MILCON PROJECT NUMBER: 94360-371901

NC SCO PROJECT NUMBER: 19-21526-01BA

STEWART
223 S. WEST ST., #1100
RALEIGH, NC 27603
T 919.380.8750
FIRM LICENSE #: C-1051
www.stewartinc.com
PROJECT #: L20001

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER PAULA-ANNE HERMES STEWART

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:

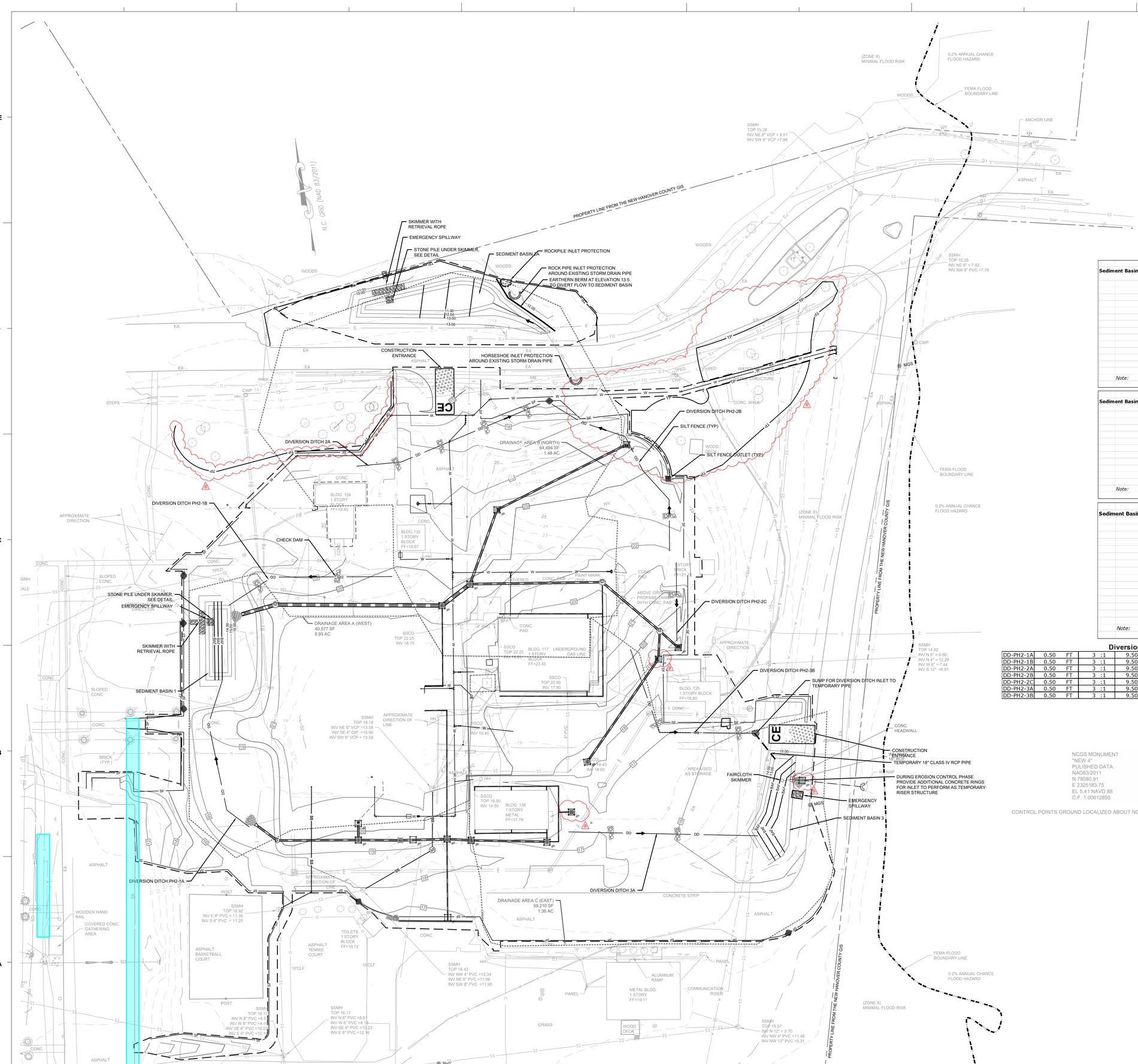
EROSION CONTROL PLAN - PHASE 1

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:
C4.01

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C4.00 Erosion Control Plan.dwg Feb 07, 2024 - 8:57am



EROSION CONTROL LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
	NO CUT / NO FILL LINE	N/A
SF	SILT FENCE	1 C9.10
TP	TREE PROTECTION	#/C9.XX
	DIVERSION DITCH	4 C9.10
	100 YR FLOOD ELEV.	N/A
	LIMITS OF DISTURBANCE	N/A
IP	BLOCK & GRAVEL INLET PROTECTION	#/C9.XX
IP	SILT FENCE AND WIRE INLET PROTECTION	#/C9.XX
	HORSE SHOE INLET PROTECTION	2 C9.10
	SILT FENCE OUTLET	5 C9.10
	CHECK DAM	#/C9.XX
	FLOW ARROW	#/C9.XX
	EXCAVATED STORAGE	#/C9.XX
	RIPRAP DISSIPATER	#/C9.XX
CE	TEMPORARY CONSTRUCTION ENTRANCE	3 C9.10

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA EROSION CONTROL SPECIFICATIONS

NOTES:

1. FOR EROSION CONTROL DETAILS SEE SHEET C9.10

Sediment Basin Summary:	Basin ID	=	BASIN 1	
	Bottom Width	=	12	ft
	Bottom Length	=	52	ft
	Surface Width	=	24	ft
	Surface Length	=	64	ft
	Top Width	=	33	ft
	Top Length	=	73	ft
	Stone Outlet Width	=	4	ft
	Outlet Sideslopes	=	2	:1
	Storage Depth	=	2	ft
	Dam Height	=	3.5	ft
	Sideslopes	=	3	:1
	Skimmer Size	=	2	in
	Head on Skimmer	=	0.125	ft
	Orifice Size	=	1.00	in

Note: All Calculations are based on a 25 year return rainfall and in accordance with the North Carolina Erosion and Sedimentation Planning and Design Manual.

Sediment Basin Summary:	Basin ID	=	BASIN 2A	
	Bottom Area (irregular shape)	=	1,409	ft
	Surface Area (irregular shape)	=	2,879	ft
	Top Area (irregular shape)	=	4,968	ft
	Stone Outlet Width	=	6	ft
	Outlet Sideslopes	=	2	:1
	Storage Depth	=	2	ft
	Dam Height	=	3.5	ft
	Sideslopes	=	3	:1
	Skimmer Size	=	2	in
	Head on Skimmer	=	0.125	ft
	Orifice Size	=	1.25	in

Note: All Calculations are based on a 25 year return rainfall and in accordance with the North Carolina Erosion and Sedimentation Planning and Design Manual.

Sediment Basin Summary:	Basin ID	=	BASIN 3	
	Bottom Area (irregular shape)	=	1,565	ft
	Surface Area (irregular shape)	=	2,052	ft
	Top Area (irregular shape)	=	3,240	ft
	Surface Length	=	0	ft
	Top Width	=	9	ft
	Top Length	=	9	ft
	Stone Outlet Width	=	6	ft
	Outlet Sideslopes	=	2	:1
	Storage Depth	=	2	ft
	Dam Height	=	3.5	ft
	Sideslopes	=	3	:1
	Skimmer Size	=	2	in
	Head on Skimmer	=	0.125	ft
	Orifice Size	=	1.25	in

Note: All Calculations are based on a 25 year return rainfall and in accordance with the North Carolina Erosion and Sedimentation Planning and Design Manual.

Diversion Channel Dimension Table

DD-PH2-1A	0.50	FT	3	:1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	3.12 FT/S
DD-PH2-1B	0.50	FT	3	:1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	2.74 FT/S
DD-PH2-2A	0.50	FT	3	:1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	4.14 FT/S
DD-PH2-2B	0.50	FT	3	:1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	4.29 FT/S
DD-PH2-2C	0.50	FT	3	:1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	3.62 FT/S
DD-PH2-3A	0.50	FT	3	:1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	2.34 FT/S
DD-PH2-3B	0.50	FT	3	:1	9.50 FT	0.50 FT	STRAW SINGLE NET BLANKET	1.50 FT	4.07 FT/S

NCGS MONUMENT
"NEW 4"
PULISHED DATA
NAD83/2011
N 79080.91
E 2325183.75
EL 5.41 NAVD 88
C.F. 1.00012895

CONTROL POINTS GROUND LOCALIZED ABOUT NCGS MONUMENT "NEW 4"

TOTAL AREA OF DISTURBANCE
4.785 AC / 208,422 SF

0 15 30 60
SCALE: 1" = 30'
NORTH

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
WWW.LS3P.COM

MILCON PROJECT NUMBER: 94360-371901
NC SCO PROJECT NUMBER: 19-21526-01BA

STEWART
223 S. WEST ST., #1100
RALEIGH, NC 27603
T 919.380.8750
FIRM LICENSE # C-1051
www.stewartinc.com
PROJECT #: L20001

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEERING STEWART

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HERMES STEWART
2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07

KEY PLAN:

SHEET NAME:
EROSION CONTROL PLAN - PHASE 2

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:
C4.02

CONSTRUCTION DOCUMENTS

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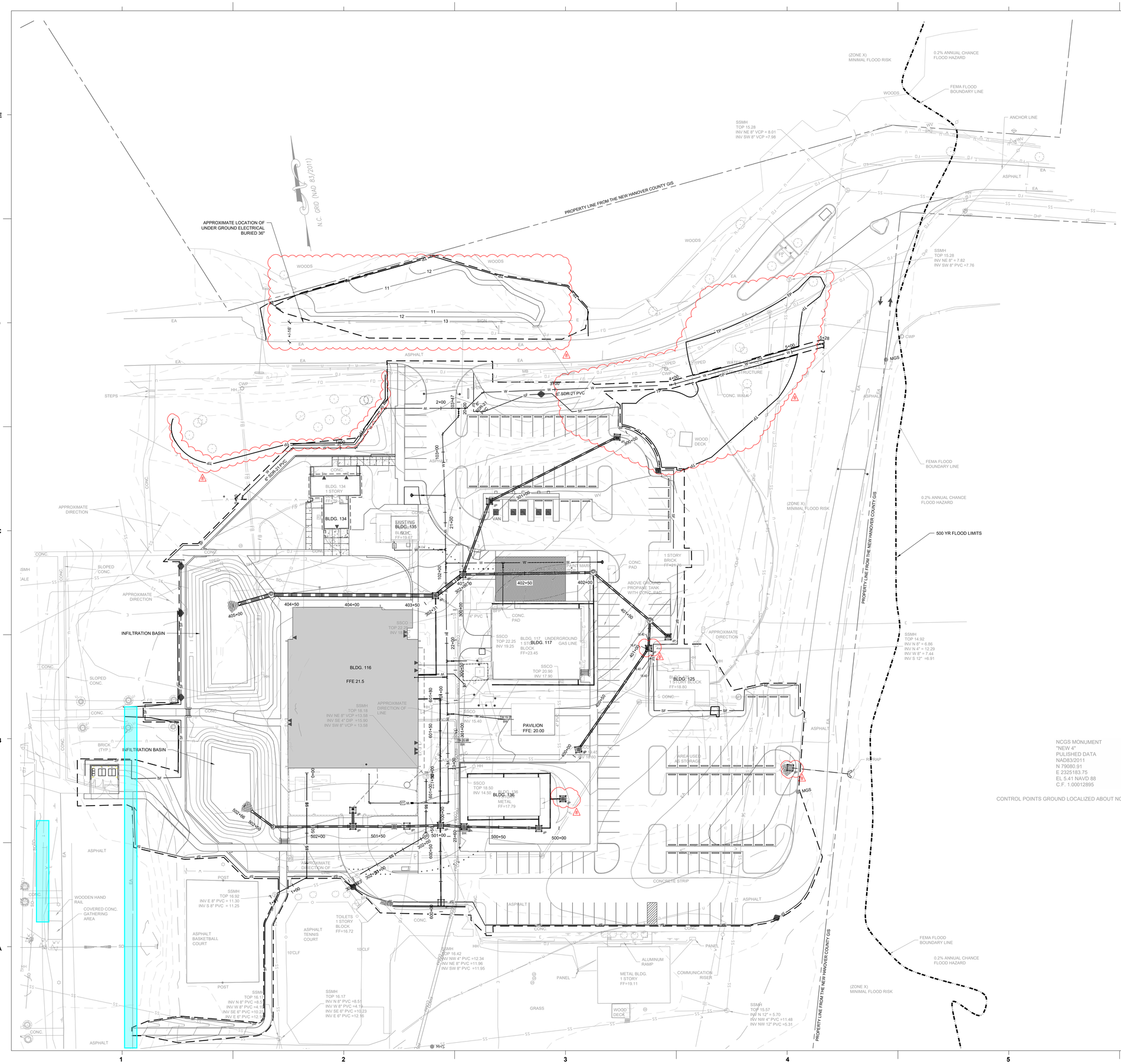

EROSION CONTROL LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
	NO CUT / NO FILL LINE	N/A
SF	SILT FENCE	1 C9.10
TP	TREE PROTECTION	#/C9.XX
	DIVERSION DITCH	4 C9.10
	100 YR FLOOD ELEV.	N/A
	LIMITS OF DISTURBANCE	N/A
IP	BLOCK & GRAVEL INLET PROTECTION	#/C9.XX
IP	SILT FENCE AND WIRE INLET PROTECTION	#/C9.XX
	HORSE SHOE INLET PROTECTION	2 C9.10
	SILT FENCE OUTLET	5 C9.10
	CHECK DAM	#/C9.XX
	FLOW ARROW	#/C9.XX
	EXCAVATED STORAGE	#/C9.XX
	RIPRAP DISSIPATER	#/C9.XX
CE	TEMPORARY CONSTRUCTION ENTRANCE	3 C9.10

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA EROSION CONTROL SPECIFICATIONS

NOTES:

1. FOR EROSION CONTROL DETAILS SEE SHEET C9.10

TOTAL AREA OF DISTURBANCE
4.785 AC / 208,422 SF

0 15 30 60
SCALE: 1" = 30'
NORTH

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
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MILCON PROJECT NUMBER: 94360-371901
NC SCO PROJECT NUMBER: 19-21526-01BA

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www.stewartinc.com
PROJECT #: L20001

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER PAULA-ANNE HERMES-WATTS

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HERMES-WATTS
2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/VXL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:
EROSION CONTROL PLAN - PHASE 3

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:
C4.03

CONSTRUCTION DOCUMENTS

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EROSION CONTROL LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
	NO CUT / NO FILL LINE	N/A
SF	SILT FENCE	1 C9.10
TP	TREE PROTECTION	#/C9.XX
	DIVERSION DITCH	4 C9.10
	100 YR FLOOD ELEV.	N/A
	LIMITS OF DISTURBANCE	N/A
IP	BLOCK & GRAVEL INLET PROTECTION	#/C9.XX
IP	SILT FENCE AND WIRE INLET PROTECTION	#/C9.XX
	HORSE SHOE INLET PROTECTION	2 C9.10
	SILT FENCE OUTLET	5 C9.10
	CHECK DAM	#/C9.XX
	FLOW ARROW	#/C9.XX
	EXCAVATED STORAGE	#/C9.XX
	RIPRAP DISSIPATER	#/C9.XX
CE	TEMPORARY CONSTRUCTION ENTRANCE	3 C9.10

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA EROSION CONTROL SPECIFICATIONS

NOTES:

1. FOR EROSION CONTROL DETAILS SEE SHEET C9.10

	Area	SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTION
	1	Perimeter dikes, swales, ditches and slopes	7 days	None
	2	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
	3	Slopes 3:1 or flatter	14 days	7-days for slopes greater than 50 feet in length
	4	All other area with slopes flatter than 4:1	14 days	None (except as shown in chart)

TOTAL AREA OF DISTURBANCE
4.785 AC / 208,422 SF

0 15 30 60
SCALE: 1" = 30'
NORTH

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
WWW.LS3P.COM

MILCON PROJECT NUMBER: 94360-371901
NC SCO PROJECT NUMBER: 19-21526-01BA

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223 S. WEST ST., #1100
RALEIGH, NC 27603
T 919.380.8750
FIRM LICENSE #: C-1051
www.stewartinc.com
PROJECT #: L20001

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HERMES STEWART
2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:
NPDES PLAN - PHASE 1

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:
C4.10

CONSTRUCTION DOCUMENTS

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EROSION CONTROL LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
	NO CUT / NO FILL LINE	N/A
SF	SILT FENCE	1 C9.10
TP	TREE PROTECTION	#/C9.XX
	DIVERSION DITCH	4 C9.10
	100 YR FLOOD ELEV.	N/A
	LIMITS OF DISTURBANCE	N/A
IP	BLOCK & GRAVEL INLET PROTECTION	#/C9.XX
IP	SILT FENCE AND WIRE INLET PROTECTION	#/C9.XX
	HORSE SHOE INLET PROTECTION	2 C9.10
	SILT FENCE OUTLET	5 C9.10
	CHECK DAM	#/C9.XX
	FLOW ARROW	#/C9.XX
	EXCAVATED STORAGE	#/C9.XX
	RIPRAP DISSIPATER	#/C9.XX
CE	TEMPORARY CONSTRUCTION ENTRANCE	3 C9.10

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA EROSION CONTROL SPECIFICATIONS

NOTES:

1. FOR EROSION CONTROL DETAILS SEE SHEET C9.10

	Area	SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTION
	1	Perimeter dikes, swales, ditches and slopes	7 days	None
	2	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
	3	Slopes 3:1 or flatter	14 days	7-days for slopes greater than 50 feet in length
	4	All other area with slopes flatter than 4:1	14 days	None (except as shown in chart)

LS3P
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MILCON PROJECT NUMBER: 94360-371901

NC SCO PROJECT NUMBER: 19-21526-01BA

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223 S. WEST ST., #1100
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FIRM LICENSE #: C-1051
www.stewartinc.com
PROJECT #: L20001

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER PAULA-ANNE HISTINE

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HISTINE

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:

NPDES PLAN - PHASE 2

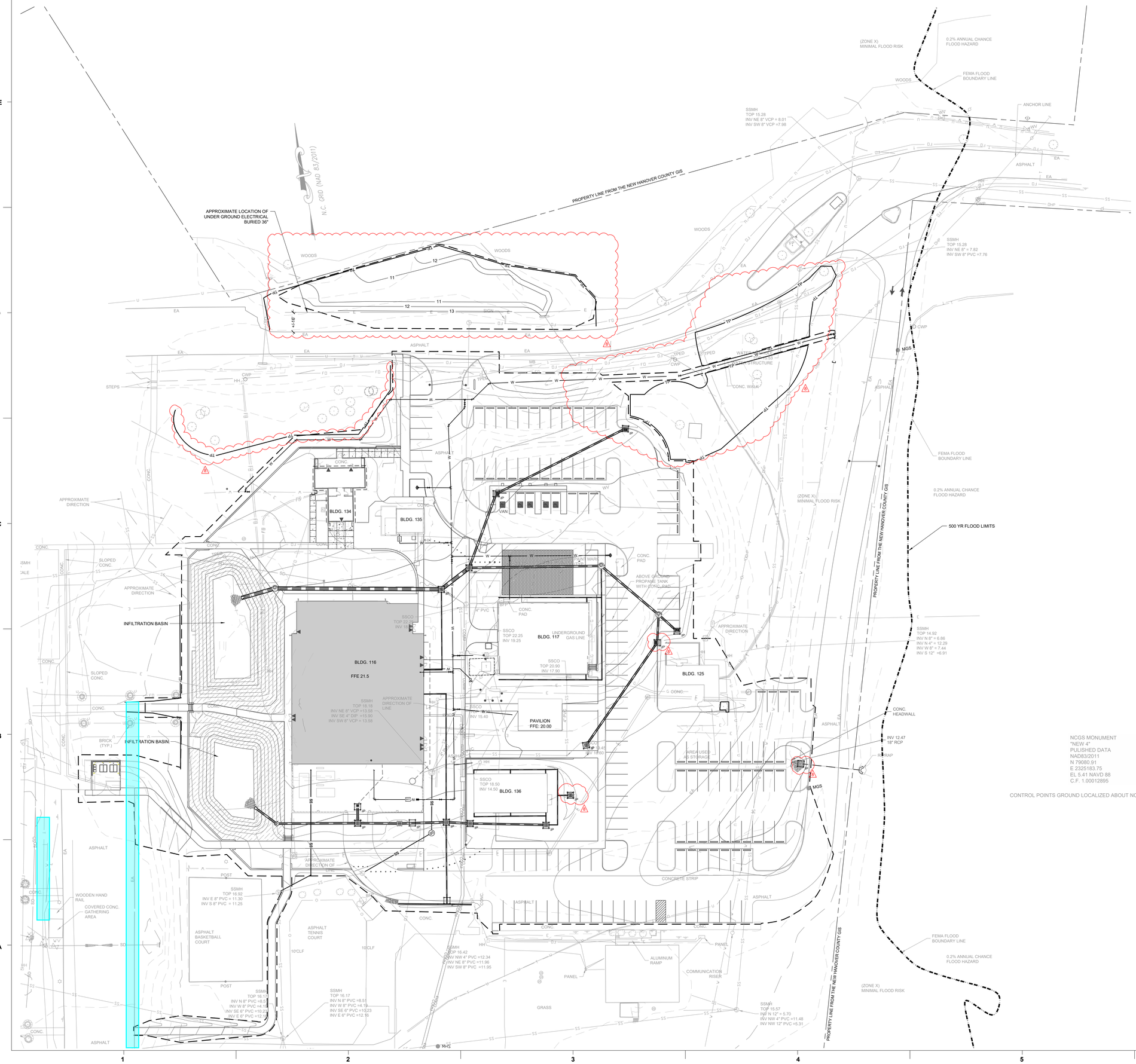
DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:

C4.11

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C4.00 Erosion Control Plan.dwg Feb 07, 2024 - 8:58am



EROSION CONTROL LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
	NO CUT / NO FILL LINE	N/A
SF	SILT FENCE	1 C9.10
TP	TREE PROTECTION	#/C9.XX
	DIVERSION DITCH	4 C9.10
	100 YR FLOOD ELEV.	N/A
	LIMITS OF DISTURBANCE	N/A
IP	BLOCK & GRAVEL INLET PROTECTION	#/C9.XX
IP	SILT FENCE AND WIRE INLET PROTECTION	#/C9.XX
	HORSE SHOE INLET PROTECTION	2 C9.10
	SILT FENCE OUTLET	5 C9.10
	CHECK DAM	#/C9.XX
	FLOW ARROW	#/C9.XX
	EXCAVATED STORAGE	#/C9.XX
	RIPRAP DISSIPATER	#/C9.XX
CE	TEMPORARY CONSTRUCTION ENTRANCE	3 C9.10

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA EROSION CONTROL SPECIFICATIONS

NOTES:

1. FOR EROSION CONTROL DETAILS SEE SHEET C9.10

	Area	SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTION
	1	Perimeter dikes, swales, ditches and slopes	7 days	None
	2	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
	3	Slopes 3:1 or flatter	14 days	7-days for slopes greater than 50 feet in length
	4	All other area with slopes flatter than 4:1	14 days	None (except as shown in chart)

TOTAL AREA OF DISTURBANCE
4.785 AC / 208,422 SF

0 15 30 60
SCALE: 1" = 30'
NORTH

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
WWW.LS3P.COM

MILCON PROJECT NUMBER: 94360-371901
NC SCO PROJECT NUMBER: 19-21526-01BA

STEWART
223 S. WEST ST., #1100
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T 919.380.8750
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www.stewartinc.com
PROJECT #: L20001

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER PAUL A. HOWARTH

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HOWARTH
2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/VIL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:
NPDES PLAN - PHASE 3

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:
C4.12

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C4.00 Erosion Control Plan.dwg Feb 07, 2024 - 8:58am

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

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

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

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

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

GROUND STABILIZATION SPECIFICATION

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

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

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

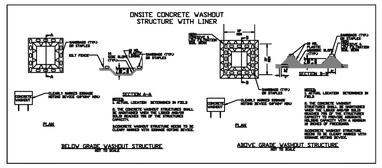
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled,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

PORTABLE TOILETS

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

EARTHEN STOCKPILE MANAGEMENT

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



CONCRETE WASHOUTS

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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

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

NORTH CAROLINA *Environmental Quality*

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

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

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

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

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

2. Additional Documentation to be Kept on Site

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

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

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

3. Documentation to be Retained for Three Years

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

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

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

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

(d) Anticipated bypasses and unanticipated bypasses.

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

2. Reporting Timeframes and Other Requirements

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

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

NORTH CAROLINA *Environmental Quality*

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

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

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

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

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MILCON PROJECT NUMBER: 94360-371901

NC SCO PROJECT NUMBER: 19-21526-01BA

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FIRM LICENSE # C-1051
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PROJECT #: L20001

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER PAMELA A. HARRIS

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAMELA ANNE HARRIS

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:

NCG01 PLAN

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:

C4.20

CONSTRUCTION DOCUMENTS

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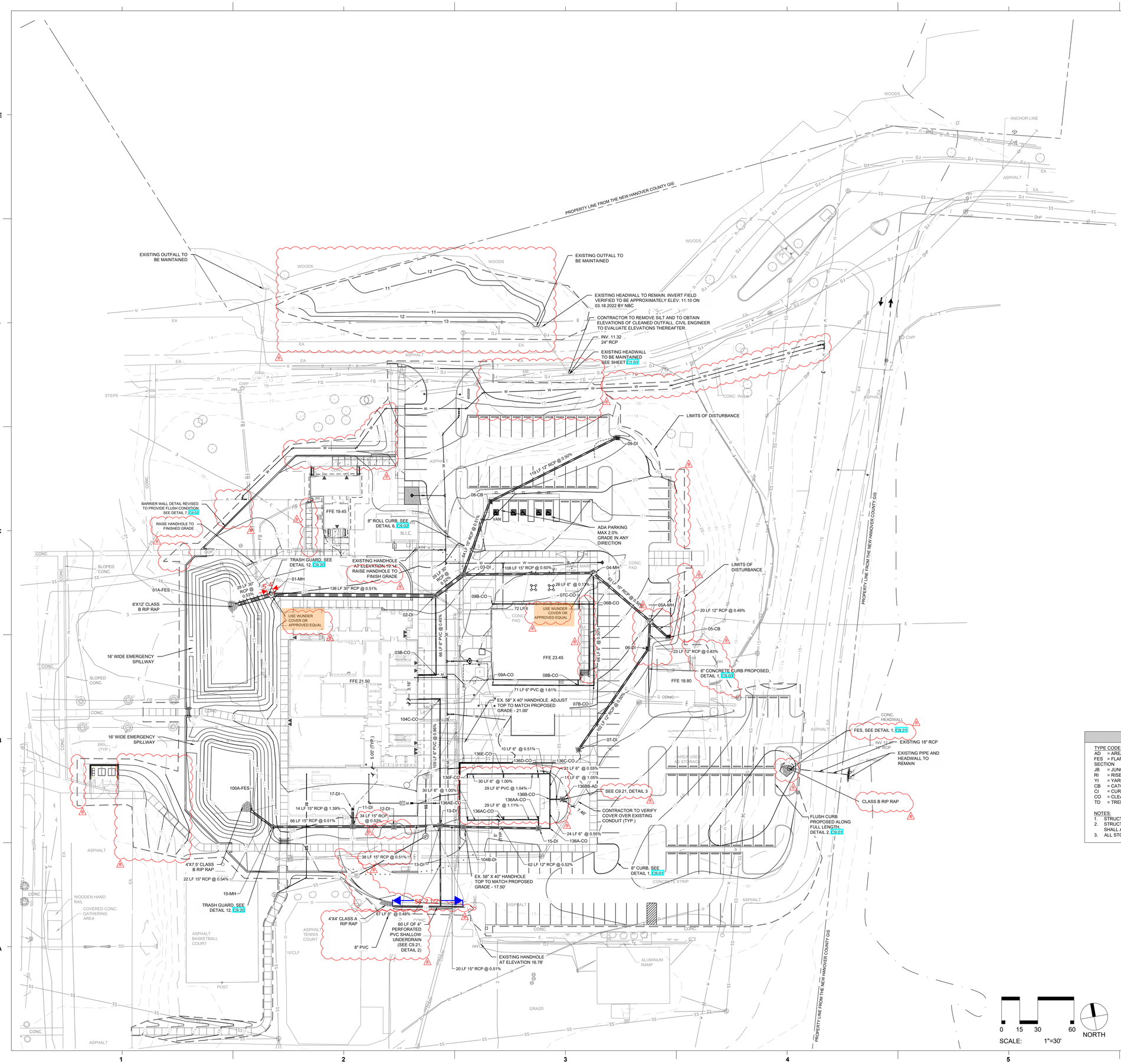

GRADING LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
	LIMITS OF DISTURBANCE	N/A
200	PROPOSED MAJOR CONTOUR	N/A
	PROPOSED MINOR CONTOUR	N/A
200	EXISTING MAJOR CONTOUR	N/A
	EXISTING MINOR CONTOUR	N/A
	PROPOSED STORM DRAINAGE	#/C9.XX
	PROPOSED JUNCTION BOX	#/C9.XX
CO	PROPOSED CLEANOUT	#/C9.XX
	PROPOSED CATCH BASIN	#/C9.XX
	PROPOSED AREA DRAIN	#/C9.XX
	FLARED END SECTION	#/C9.XX
	RIPRAP DISSIPATOR	#/C9.XX
	FLOW DIRECTION	N/A
44.50	PROPOSED ELEVATION	N/A
TC 44.50 / BC 44.00	TOP/BOTTOM OF CURB	N/A
TW 46.00 / BW 44.00	TOP/BOTTOM OF WALL	N/A
MEG	MATCH EXISTING GRADE	N/A

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND GRADING NOTES.
2. NO SURFACE WATERS ARE LOCATED WITHIN 50' OF THE PROJECT BOUNDARY.
3. ALL EXISTING ELECTRICAL HANDHOLDS SHALL BE ADJUSTED TO FINAL GRADE.
4. STORMWATER, WATERLINE, AND SANITARY SEWER SHALL BE PROTECTED DURING BOLLARD AND FLAGPOLE INSTALLATION.

STORM DRAINAGE NETWORK

TYPE CODE:
AD = AREA DRAIN
FES = FLARED END SECTION
JB = JUNCTION BOX
RI = RISER
YI = YARD INLET
CB = CATCH BASIN
CI = CURB INLET
CO = CLEANOUT
TD = TRENCH DRAIN

TYPE CODE:
L-AD = AREA DRAIN
L-JB = JUNCTION BOX
L-TD = TRENCH DRAIN
L-CO = CLEANOUT

UPSTREAM STRC
UPSTREAM GRD. ELEV.
FLOW
UPSTREAM INVERT
DOWNSTREAM INVERT
DOWNSTREAM STRC
DOWNSTREAM GRD. ELEV.

NOTES:
1. STRUCTURES WITHIN NCDOT RIGHT-OF-WAY SHALL BE TO NCDOT STANDARDS.
2. STRUCTURES NOT WITHIN RIGHT OF WAY SHALL EITHER ALL BE TO NCDOT STANDARDS OR SHALL ALL BE TO LOCAL JURISDICTIONAL STANDARDS.
3. ALL STORM PIPES TO BE CLASS III RCP UNLESS OTHERWISE NOTED.

LS3P
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FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
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KEY PLAN:

SHEET NAME:

GRADING & STORM DRAINAGE PLAN

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:
C5.00

CONSTRUCTION DOCUMENTS

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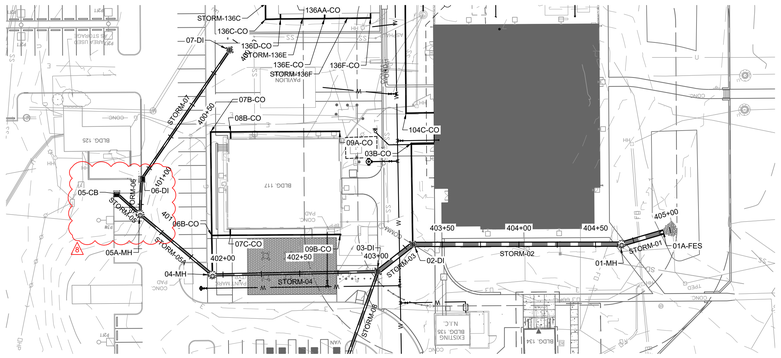
UTILITY LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
—— W ——	EXISTING WATER LINE	N/A
—— W ——	PROPOSED WATER LINE	#/C9.XX
—— SS ——	EXISTING SANITARY SEWER LINE	N/A
—— SS ——	PROPOSED SANITARY SEWER LINE	#/C9.XX
	PROPOSED FIRE HYDRANT	#/C9.XX
	PROPOSED WATER VALVE	#/C9.XX
S	EXISTING SANITARY SEWER MANHOLE	N/A
S	PROPOSED SANITARY SEWER MANHOLE	#/C9.XX
CO	PROPOSED CLEANOUT	#/C9.XX
FDC	PROPOSED FDC	#/C9.XX
	PROPOSED BACKFLOW METER	#/C9.XX
PIV	PROPOSED POST INDICATOR VALVE (PIV)	#/C9.XX
	GREASE INTERCEPTOR	#/C9.XX
	300' HYDRANT COVERAGE CIRCLE	N/A
	LIMITS OF DISTURBANCE	N/A

NOTES:

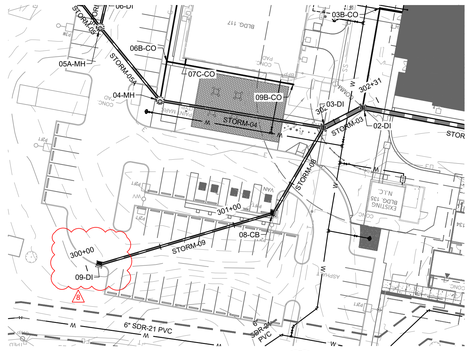
1. SEE SHEET C0.10 FOR GENERAL AND UTILITY NOTES.

ALL UNDERGROUND LINES OUTSIDE BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6 INCHES TO 24 INCHES BELOW FINISHED GRADE DIRECTLY OVER PIPING.



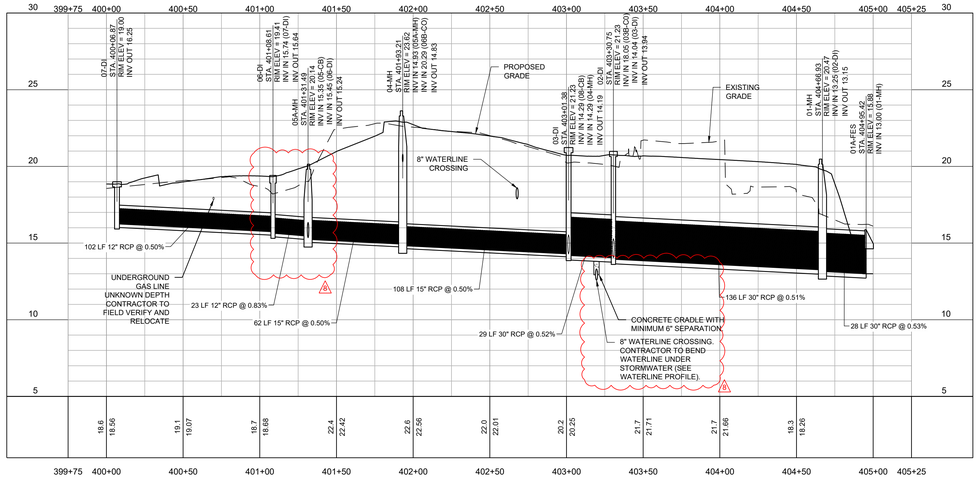
PROPOSED STORM PLAN VIEW
SCALE: 1"= 40'

NORTH

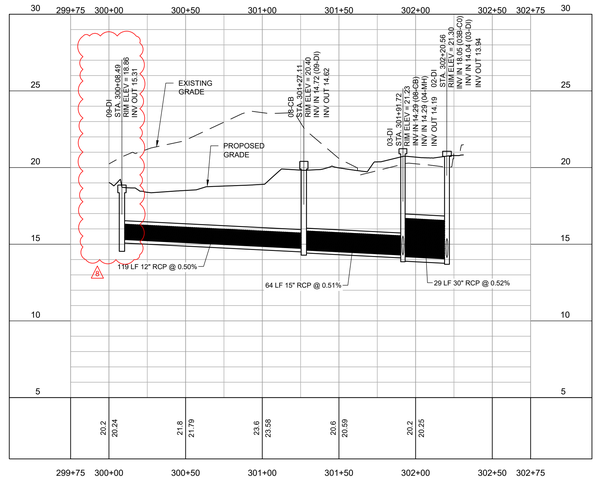


PROPOSED STORM PLAN VIEW
SCALE: 1"= 40'

NORTH



STORM PROFILE VIEW
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)



STORM PROFILE VIEW
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
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MILCON PROJECT NUMBER: 94360-371901
NC SCO PROJECT NUMBER: 19-21526-01BA

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223 S. WEST ST., #1100
RALEIGH, NC 27603
T 919.380.8750
FIRM LICENSE # C-1051
www.stewartinc.com

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER JEFFREY A. TARTAS

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HERMES
2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Date	Description
RESPONSE TO COMMENTS 10.10.		
2	2023.02.06	RESPONSE TO COMMENTS.
3	2023.04.06	GRADE/PAVER/WL CHANGES
4	2023.08.02	WATERLINE CHANGES
5	2023.10.04	SW PERMIT
6	2023.10.18	UTILITY/GRADING/STORM SE
7	2023.11.08	DEQ SW ADD'L INFO
8	2024.02.07	GRADING/SW CHANGES
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KEY PLAN:

SHEET NAME:
STORM PROFILES - NORTH

DATE: 06.10.2022
DRAWN BY: JP
CHECKED BY: NBC

SHEET:
C5.01

CONSTRUCTION DOCUMENTS

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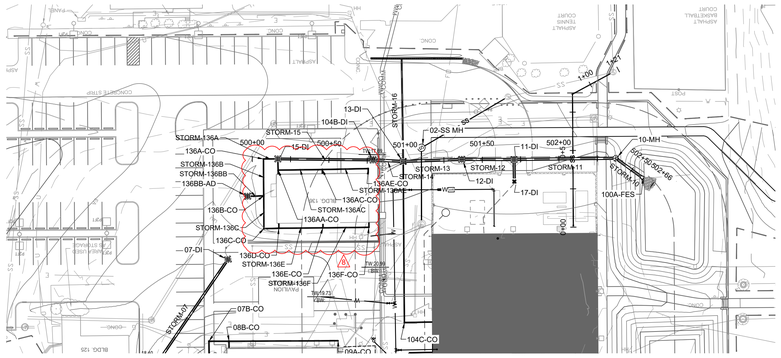
UTILITY LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
—— W ——	EXISTING WATER LINE	N/A
—— W ——	PROPOSED WATER LINE	#/C9.XX
—— SS ——	EXISTING SANITARY SEWER LINE	N/A
—— SS ——	PROPOSED SANITARY SEWER LINE	#/C9.XX
	PROPOSED FIRE HYDRANT	#/C9.XX
	PROPOSED WATER VALVE	#/C9.XX
S	EXISTING SANITARY SEWER MANHOLE	N/A
S	PROPOSED SANITARY SEWER MANHOLE	#/C9.XX
CO	PROPOSED CLEANOUT	#/C9.XX
FDC	PROPOSED FDC	#/C9.XX
	PROPOSED BACKFLOW METER	#/C9.XX
PIV	PROPOSED POST INDICATOR VALVE (PIV)	#/C9.XX
	GREASE INTERCEPTOR	#/C9.XX
	300' HYDRANT COVERAGE CIRCLE	N/A
	LIMITS OF DISTURBANCE	N/A

NOTES:

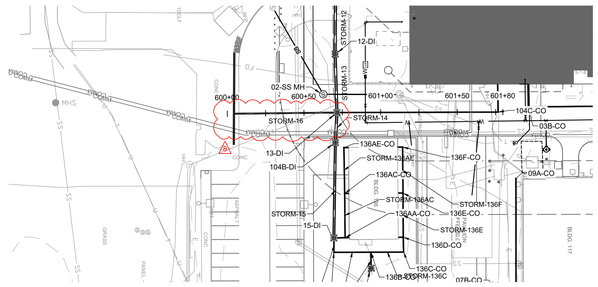
1. SEE SHEET C0.10 FOR GENERAL AND UTILITY NOTES.

ALL UNDERGROUND LINES OUTSIDE BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6 INCHES TO 24 INCHES BELOW FINISHED GRADE DIRECTLY OVER PIPING.



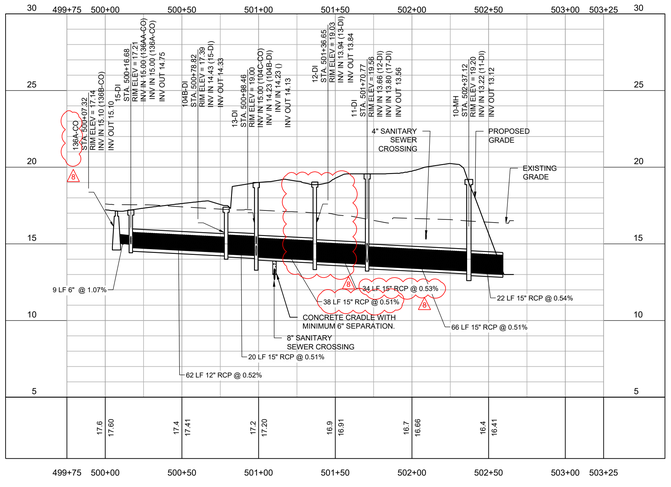
PROPOSED STORM PLAN VIEW
SCALE: 1"= 40'

NORTH

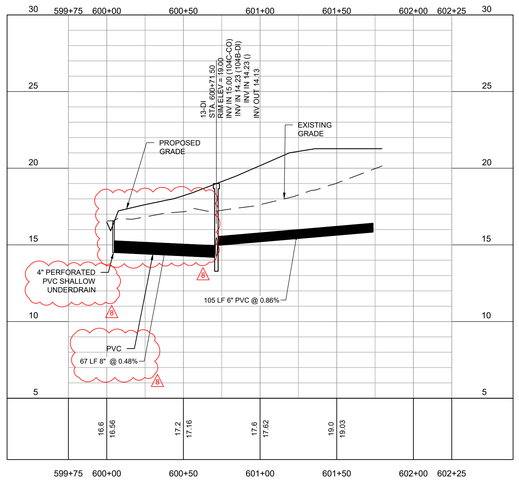


PROPOSED STORM PLAN VIEW
SCALE: 1"= 40'

NORTH



STORM PROFILE VIEW
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)



STORM PROFILE VIEW
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)

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NC SCO PROJECT NUMBER: 19-21526-01BA

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www.stewartinc.com

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER JAMES A. WATTS

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE INGRAHAM BENNETT
2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Date	Description
		RESPONSE TO COMMENTS 10.10.
2	2023.02.06	RESPONSE TO COMMENTS.
3	2023.04.06	GRADE/PAVER/WL CHANGES
4	2023.08.02	WATERLINE CHANGES
5	2023.10.04	SW PERMIT
6	2023.10.18	UTILITY/GRADING/STORM SE
7	2023.11.08	DEQ SW ADD'L INFO
8	2024.02.07	GRADING/SW CHANGES
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KEY PLAN:

SHEET NAME:
STORM PROFILES - SOUTH

DATE: 06.10.2022
DRAWN BY: JP
CHECKED BY: NBC

SHEET:
C5.02

CONSTRUCTION DOCUMENTS

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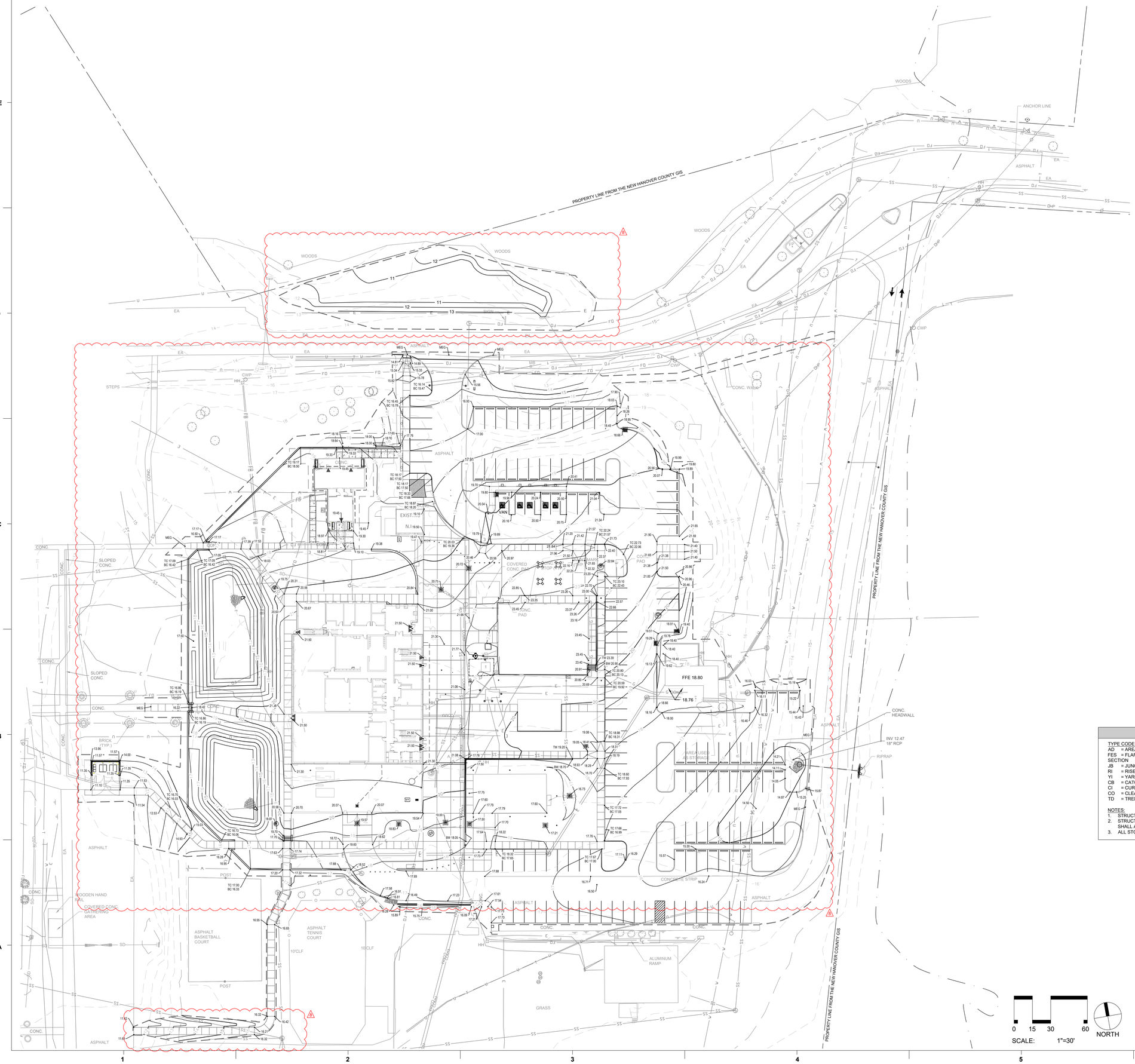

GRADING LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
	LIMITS OF DISTURBANCE	N/A
200	PROPOSED MAJOR CONTOUR	N/A
	PROPOSED MINOR CONTOUR	N/A
200	EXISTING MAJOR CONTOUR	N/A
	EXISTING MINOR CONTOUR	N/A
	PROPOSED STORM DRAINAGE	#/C9.XX
	PROPOSED JUNCTION BOX	#/C9.XX
CO	PROPOSED CLEANOUT	#/C9.XX
	PROPOSED CATCH BASIN	#/C9.XX
	PROPOSED AREA DRAIN	#/C9.XX
	FLARED END SECTION	#/C9.XX
	RIPRAP DISSIPATOR	#/C9.XX
	FLOW DIRECTION	N/A
44.50	PROPOSED ELEVATION	N/A
TC 44.50 / BC 44.00	TOP/BOTTOM OF CURB	N/A
TW 46.00 / BW 44.00	TOP/BOTTOM OF WALL	N/A
MEG	MATCH EXISTING GRADE	N/A

NOTES:

1. SEE SHEET C9.10 FOR GENERAL AND GRADING NOTES.
2. NO SURFACE WATERS ARE LOCATED WITHIN 50' OF THE PROJECT BOUNDARY.
3. ALL EXISTING ELECTRICAL HANDHOLDS SHALL BE ADJUSTED TO FINAL GRADE.

STORM DRAINAGE NETWORK

TYPE CODE:
AD = AREA DRAIN
FES = FLARED END SECTION
JB = JUNCTION BOX
RI = RISER
YI = YARD INLET
CB = CATCH BASIN
CI = CURB INLET
CO = CLEANOUT
TD = TRENCH DRAIN

TYPE CODE:
L-AD = AREA DRAIN
L-JB = JUNCTION BOX
L-TD = TRENCH DRAIN
L-CO = CLEANOUT

UPSTREAM STRC — UPSTREAM GRD. ELEV. — FLOW — UPSTREAM INVERT — DOWNSTREAM INVERT — DOWNSTREAM STRC — DOWNSTREAM GRD. ELEV.

NOTES:
1. STRUCTURES WITHIN NCDOT RIGHT-OF-WAY SHALL BE TO NCDOT STANDARDS.
2. STRUCTURES NOT WITHIN RIGHT OF WAY SHALL EITHER ALL BE TO NCDOT STANDARDS OR SHALL ALL BE TO LOCAL JURISDICTIONAL STANDARDS.
3. ALL STORM PIPES TO BE CLASS III RCP UNLESS OTHERWISE NOTED.

0 15 30 60
SCALE: 1"=30'
NORTH

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
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MILCON PROJECT NUMBER: 94360-371901
NC SCO PROJECT NUMBER: 19-21526-01BA

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www.stewartinc.com
PROJECT #: L20001

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER PAUL A. HARRIS

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HERMES
2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07

KEY PLAN:

SHEET NAME:
SPOT GRADES PLAN

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:
C5.10

CONSTRUCTION DOCUMENTS

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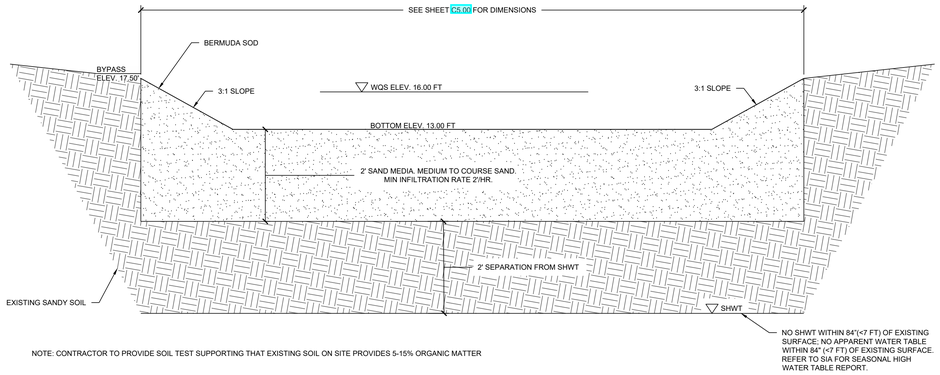
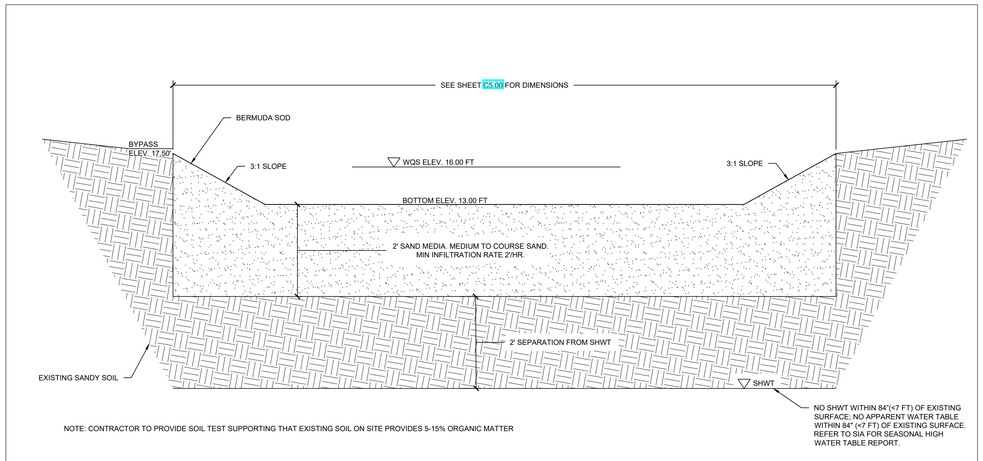


4 INFILTRATION BASIN DETAIL NO. 1 (NORTH) NTS
SECTION



5 INFILTRATION BASIN DETAIL NO. 2 (SOUTH) NTS
SECTION

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434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
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MILCON PROJECT NUMBER: 94360-371901
NC SCO PROJECT NUMBER: 19-21526-01BA

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RALEIGH, NC 27603
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FIRM LICENSE # C-1051
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PROJECT #: L20001

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
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3	GRADE/PAVER/WL CHANGES	2023.04.06
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5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:

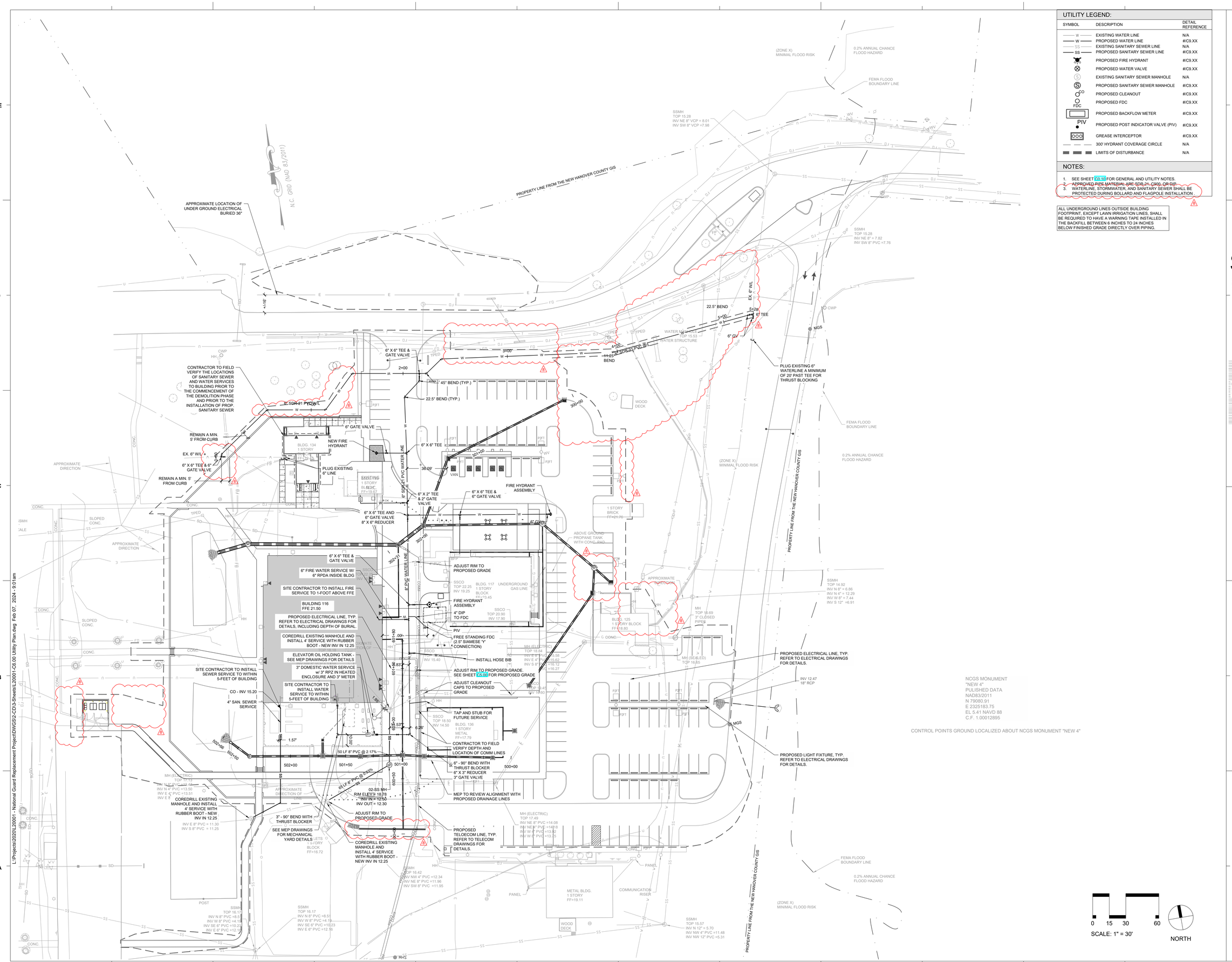
GRADING & STORM DRAINAGE DETAILS

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

SHEET:
C5.20

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C5.00 Grading & Storm Drainage Plan.dwg Feb 07, 2024 - 9:01am



UTILITY LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
W	EXISTING WATER LINE	N/A
W	PROPOSED WATER LINE	#/C9.XX
SS	EXISTING SANITARY SEWER LINE	N/A
SS	PROPOSED SANITARY SEWER LINE	#/C9.XX
	PROPOSED FIRE HYDRANT	#/C9.XX
	PROPOSED WATER VALVE	#/C9.XX
S	EXISTING SANITARY SEWER MANHOLE	N/A
S	PROPOSED SANITARY SEWER MANHOLE	#/C9.XX
CO	PROPOSED CLEANOUT	#/C9.XX
FDC	PROPOSED FDC	#/C9.XX
	PROPOSED BACKFLOW METER	#/C9.XX
PIV	PROPOSED POST INDICATOR VALVE (PIV)	#/C9.XX
	GREASE INTERCEPTOR	#/C9.XX
	300' HYDRANT COVERAGE CIRCLE	N/A
	LIMITS OF DISTURBANCE	N/A

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND UTILITY NOTES.
2. APPROVED PIPE MATERIAL ARE SDR-21, C900, OR DIP.
3. WATERLINE, STORMWATER, AND SANITARY SEWER SHALL BE PROTECTED DURING BOLLARD AND FLAGPOLE INSTALLATION.

ALL UNDERGROUND LINES OUTSIDE BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6 INCHES TO 24 INCHES BELOW FINISHED GRADE DIRECTLY OVER PIPING.

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NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER RAMESH NATHAN

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE IRONSTRIDE

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Date	Description
1	2022.10.10	RESPONSE TO COMMENTS
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7	2023.11.08	DEQ SW ADDLINFO
8	2024.02.07	GRADING/SW CHANGES
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KEY PLAN:

SHEET NAME:

UTILITY PLAN

DATE: 06.10.2022
DRAWN BY: DB
CHECKED BY: RM

SHEET:

C6.00

CONSTRUCTION DOCUMENTS

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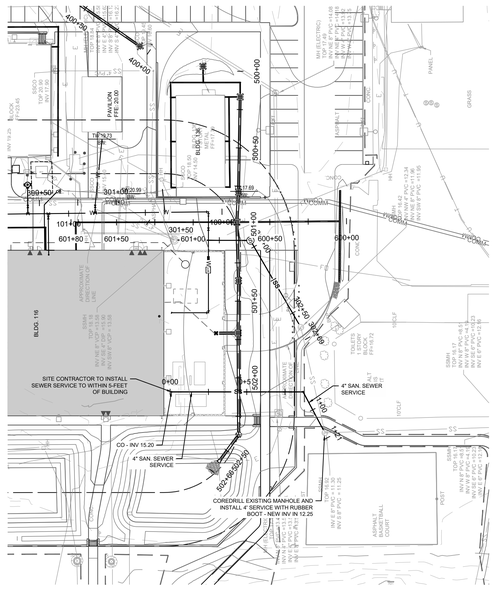
UTILITY LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
—— W ——	EXISTING WATER LINE	N/A
—— W ——	PROPOSED WATER LINE	#/C9.XX
—— SS ——	EXISTING SANITARY SEWER LINE	N/A
—— SS ——	PROPOSED SANITARY SEWER LINE	#/C9.XX
	PROPOSED FIRE HYDRANT	#/C9.XX
	PROPOSED WATER VALVE	#/C9.XX
S	EXISTING SANITARY SEWER MANHOLE	N/A
S	PROPOSED SANITARY SEWER MANHOLE	#/C9.XX
CO	PROPOSED CLEANOUT	#/C9.XX
FDC	PROPOSED FDC	#/C9.XX
	PROPOSED BACKFLOW METER	#/C9.XX
PIV	PROPOSED POST INDICATOR VALVE (PIV)	#/C9.XX
	GREASE INTERCEPTOR	#/C9.XX
— — —	300' HYDRANT COVERAGE CIRCLE	N/A
▬ ▬ ▬	LIMITS OF DISTURBANCE	N/A

NOTES:

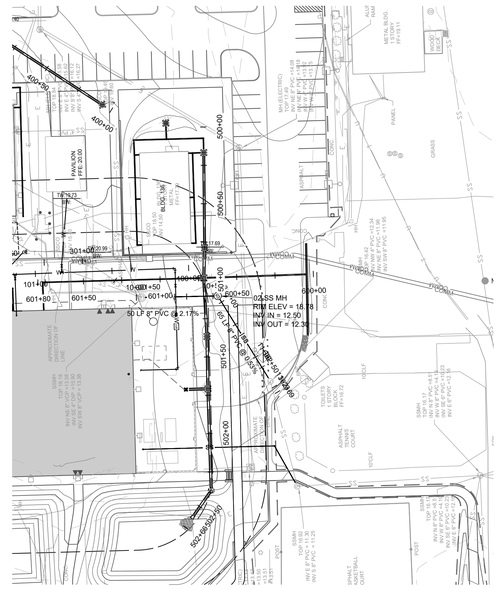
1. SEE SHEET C0.10 FOR GENERAL AND UTILITY NOTES.

ALL UNDERGROUND LINES OUTSIDE BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6 INCHES TO 24 INCHES BELOW FINISHED GRADE DIRECTLY OVER PIPING.



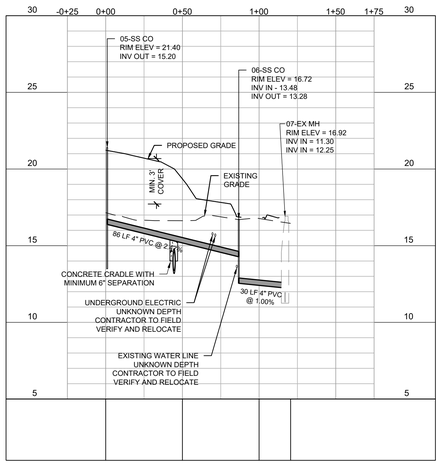
SANITARY SEWER PLAN VIEW - MECHANICAL YARD
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)

NORTH

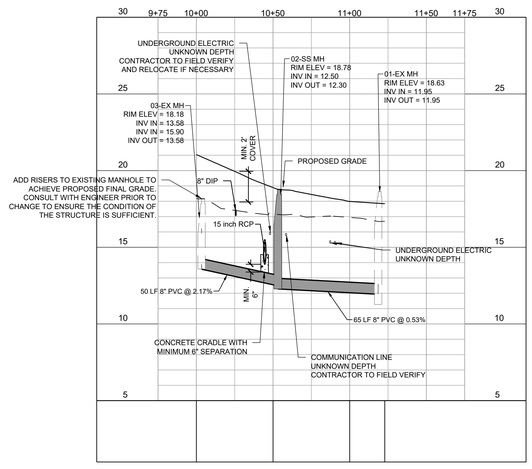


SANITARY SEWER PLAN VIEW - SOUTH
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)

NORTH



SANITARY SEWER PROFILE VIEW - MECHANICAL YARD
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)



SANITARY SEWER PROFILE VIEW - SOUTH
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)

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FIRM LICENSE # C-1051
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NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER DAVID NEETS BARTON

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HERMES HERMES

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302.195530

No.	Date	Description
1	2022.10.10	RESPONSE TO COMMENTS
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KEY PLAN:

SHEET NAME:
UTILITY PLAN & PROFILE I

DATE: 06.10.2022
DRAWN BY: JP
CHECKED BY: DB

SHEET:
C6.10

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD's-Sheets\L20001-C6.00 Utility Plan.dwg Feb 07, 2024 - 9:01am

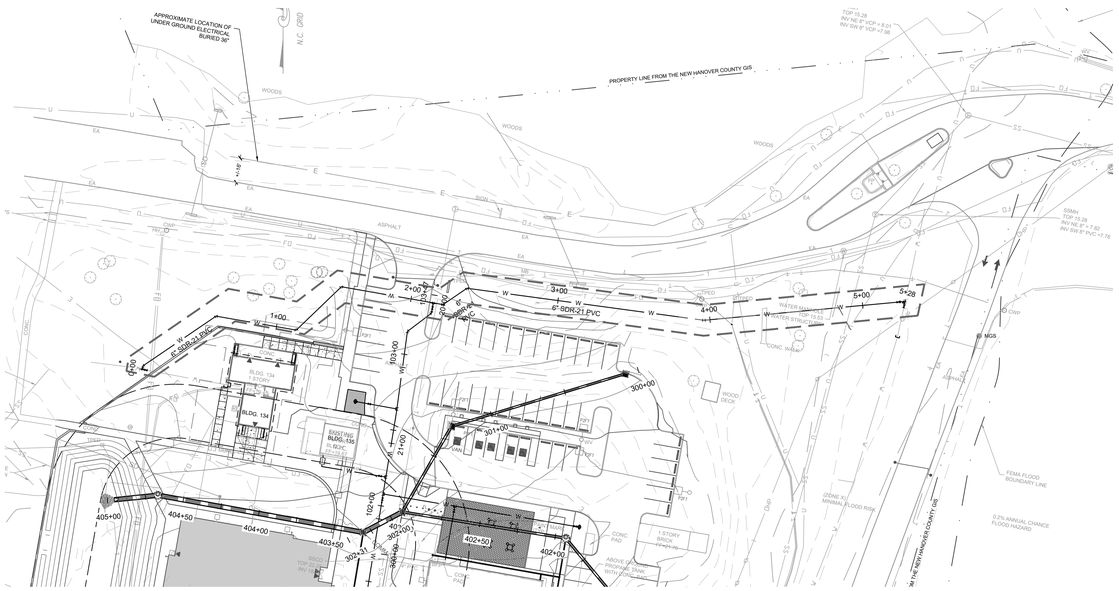
UTILITY LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
—— W ——	EXISTING WATER LINE	N/A
—— W ——	PROPOSED WATER LINE	#/C9.XX
—— SS ——	EXISTING SANITARY SEWER LINE	N/A
—— SS ——	PROPOSED SANITARY SEWER LINE	#/C9.XX
	PROPOSED FIRE HYDRANT	#/C9.XX
	PROPOSED WATER VALVE	#/C9.XX
	EXISTING SANITARY SEWER MANHOLE	N/A
	PROPOSED SANITARY SEWER MANHOLE	#/C9.XX
	PROPOSED CLEANOUT	#/C9.XX
FDC	PROPOSED FDC	#/C9.XX
	PROPOSED BACKFLOW METER	#/C9.XX
PIV	PROPOSED POST INDICATOR VALVE (PIV)	#/C9.XX
	GREASE INTERCEPTOR	#/C9.XX
	300' HYDRANT COVERAGE CIRCLE	N/A
	LIMITS OF DISTURBANCE	N/A

NOTES:

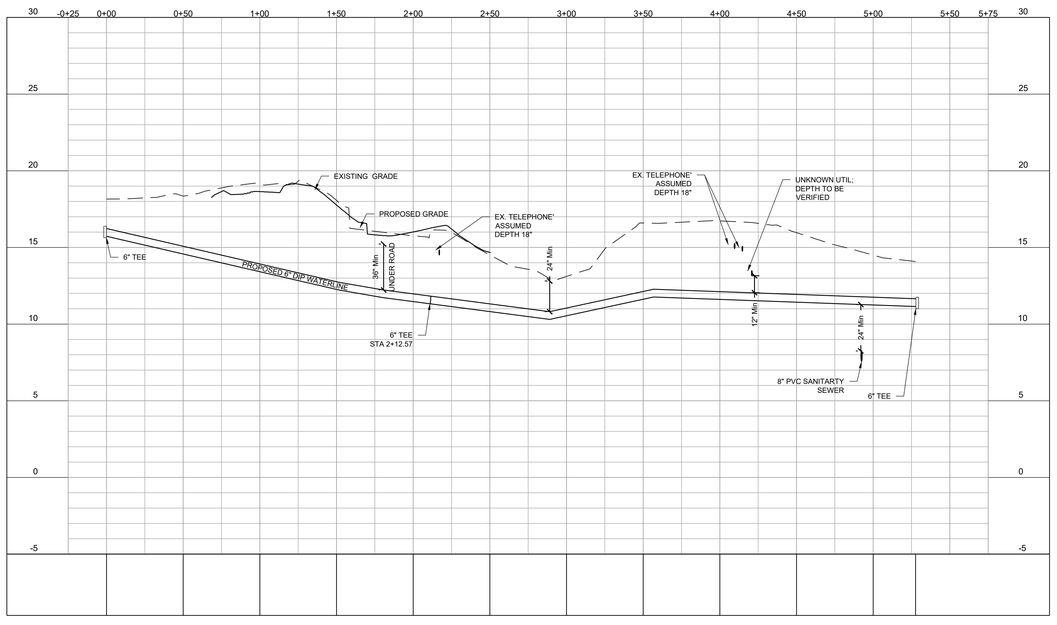
1. SEE SHEET C0.10 FOR GENERAL AND UTILITY NOTES.

ALL UNDERGROUND LINES OUTSIDE BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6 INCHES TO 24 INCHES BELOW FINISHED GRADE DIRECTLY OVER PIPING.



WATER LINE PLAN VIEW
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)

NORTH



WATER LINE PROFILE VIEW
SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C6.00 Utility Plan.dwg Feb 07, 2024 - 9:02am

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RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
WWW.LS3P.COM

MILCON PROJECT NUMBER: 94360-371901

NC SCO PROJECT NUMBER: 19-21526-01BA

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NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER JEFFREY A. TARRANT

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HERMES

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302.195530

No.	Date	Description
RESPONSE TO COMMENTS 2023.10.10		
2	2023.02.06	RESPONSE TO COMMENTS
3	2023.04.06	GRADE/PAVER/WL CHANGES
4	2023.08.02	WATERLINE CHANGES
5	2023.10.04	SW PERMIT
6	2023.10.18	UTILITY/GRADING/STORM SE
7	2023.11.08	DEQ SW ADD'L INFO
8	2024.02.07	GRADING/SW CHANGES
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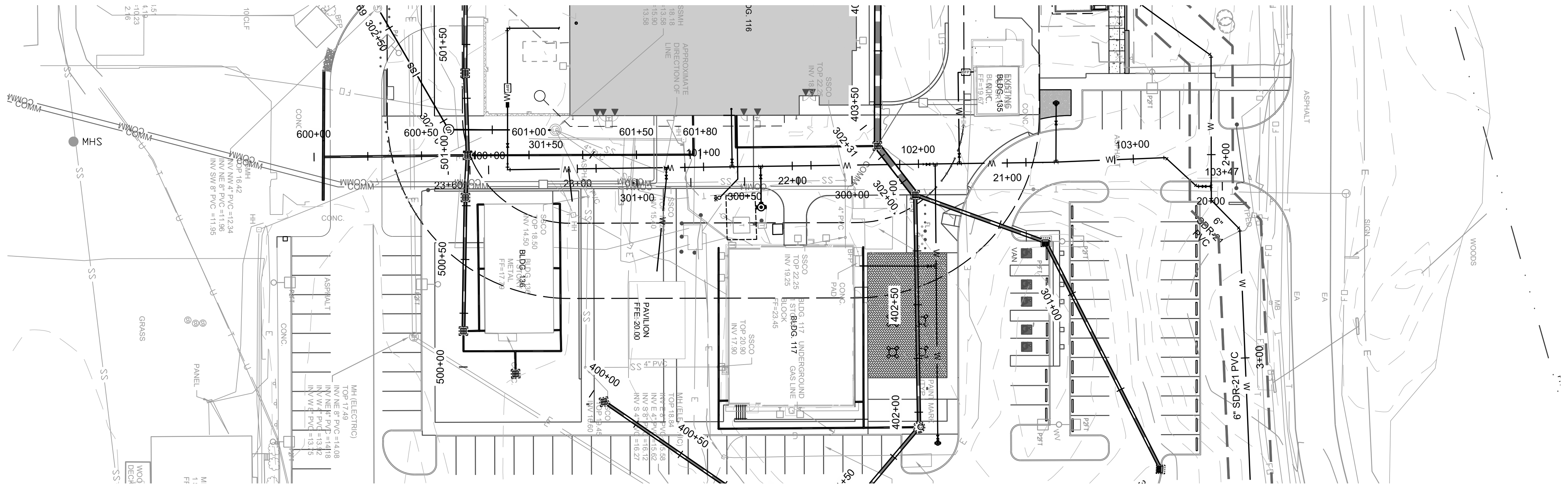
KEY PLAN:

SHEET NAME:
UTILITY PLAN & PROFILE II

DATE: 06.10.2022
DRAWN BY: JP
CHECKED BY: NBC

SHEET:
C6.11

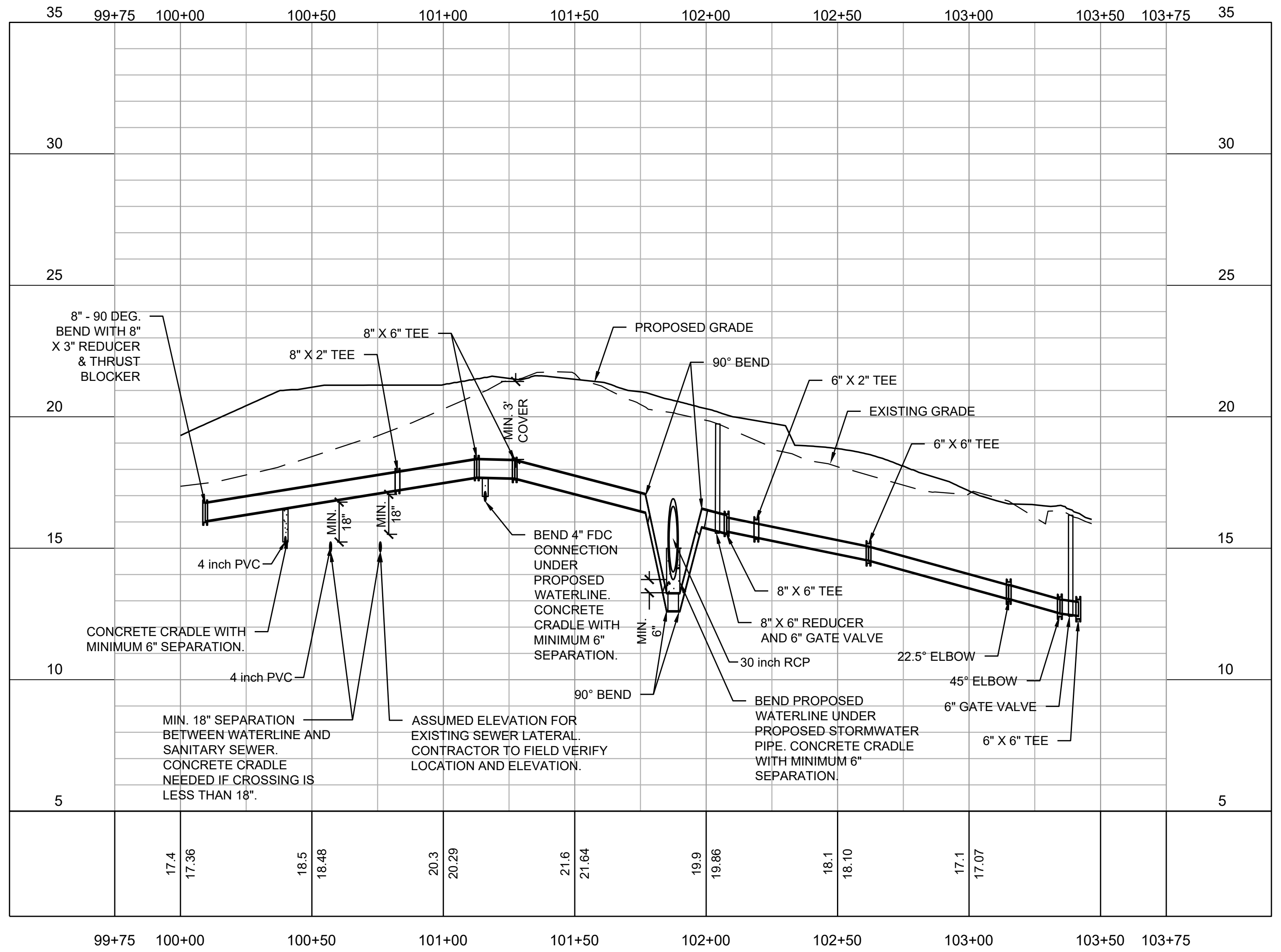
CONSTRUCTION DOCUMENTS



PROPOSED WATER LINE PLAN VIEW

SCALE: 1"= 40'

NORTH



WATER LINE PROFILE VIEW

SCALE: 1"=40' (HORIZONTAL) 1"=4' (VERTICAL)

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C6.00 Utility Plan.dwg Feb 07, 2024 - 9:02am

UTILITY LEGEND:

SYMBOL	DESCRIPTION	DETAIL REFERENCE
—— W ——	EXISTING WATER LINE	N/A
—— W ——	PROPOSED WATER LINE	#/C9.XX
—— SS ——	EXISTING SANITARY SEWER LINE	N/A
—— SS ——	PROPOSED SANITARY SEWER LINE	#/C9.XX
HYD	PROPOSED FIRE HYDRANT	#/C9.XX
⊗	PROPOSED WATER VALVE	#/C9.XX
Ⓢ	EXISTING SANITARY SEWER MANHOLE	N/A
Ⓢ	PROPOSED SANITARY SEWER MANHOLE	#/C9.XX
○CO	PROPOSED CLEANOUT	#/C9.XX
○ FDC	PROPOSED FDC	#/C9.XX
▭	PROPOSED BACKFLOW METER	#/C9.XX
PIV ●	PROPOSED POST INDICATOR VALVE (PIV)	#/C9.XX
○○○	GREASE INTERCEPTOR	#/C9.XX
— — —	300' HYDRANT COVERAGE CIRCLE	N/A
▬ ▬ ▬	LIMITS OF DISTURBANCE	N/A

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND UTILITY NOTES.

ALL UNDERGROUND LINES OUTSIDE BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6 INCHES TO 24 INCHES BELOW FINISHED GRADE DIRECTLY OVER PIPING.

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SEAL 53676
BRYAN A. HARRIS

023121
Pamela A. Kistner
2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
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8	2024.02.07	GRADING/SW CHANGES
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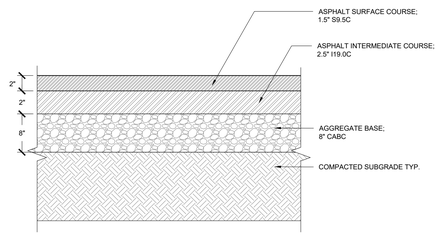
KEY PLAN:

SHEET NAME:
UTILITY PLAN & PROFILE III

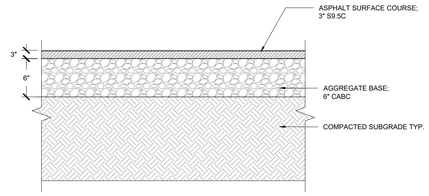
DATE: 06.10.2022
DRAWN BY: JP
CHECKED BY: NBC

SHEET:
C6.12

CONSTRUCTION DOCUMENTS

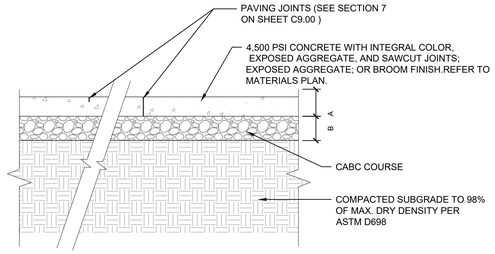


1 ASPHALT PAVING - HEAVY DUTY 3/4" = 1'-0"
SECTION

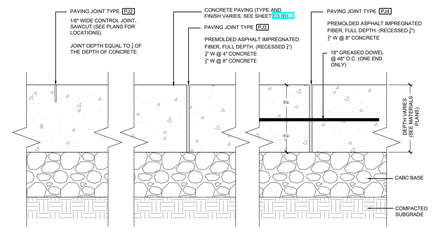


2 ASPHALT PAVING - LIGHT DUTY 3/4" = 1'-0"
SECTION

CONCRETE SCHEDULE			
A	B	DESCRIPTION	REINFORCING
4"	4"	PEDESTRIAN CONCRETE (3,000 PSI)	NONE
8"	8"	VEHICULAR CONCRETE (4,500 PSI)	NONE

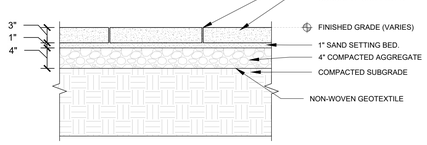


3 CONCRETE PAVING 3/4" = 1'-0"
SECTION

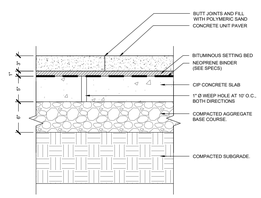


4 CONCRETE PAVING JOINTS 1/8" = 1'-0"
SECTION

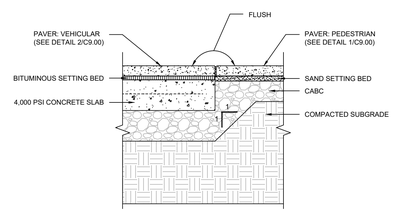
NOTES:
1. PEDESTRIAN AREAS ONLY.



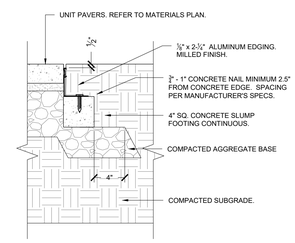
5 UNIT PAVING - PEDESTRIAN 1" = 1'-0"
SECTION



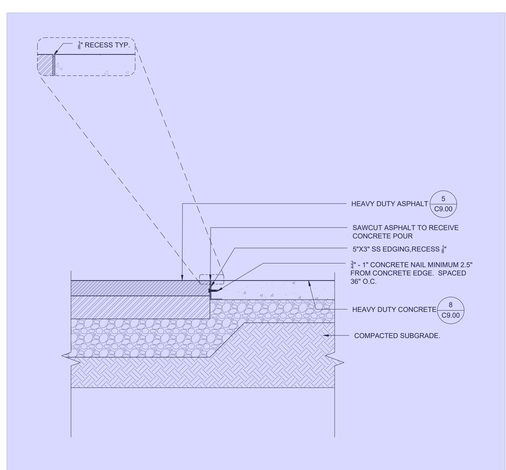
6 UNIT PAVING - VEHICULAR 1" = 1'-0"
SECTION



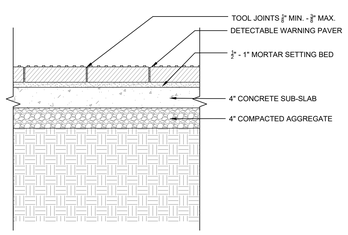
7 UNIT PAVING - PED. PAVER TO VEH. PAVER 1" = 1'-0"
SECTION



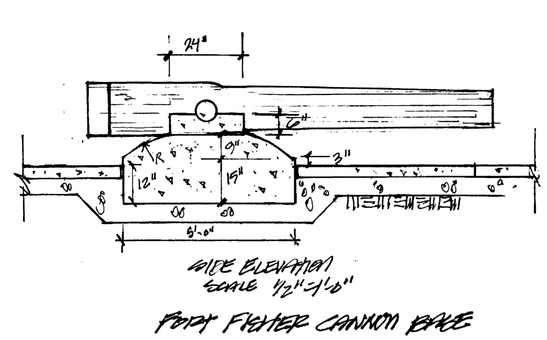
8 UNIT PAVING EDGING 1 1/2" = 1'-0"
PLAN



9 ASPHALT TO CONCRETE TRANSITION 3/4" = 1'-0"
SECTION



10 DETECTABLE WARNING PAVER 1" = 1'-0"
SECTION



11 CANNON 1/2" = 1'-0"
PLAN ELEVATION

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2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302.195530

No.	Description	Date
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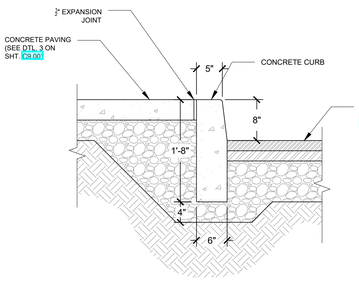
KEY PLAN:

SHEET NAME:
SITE DETAILS

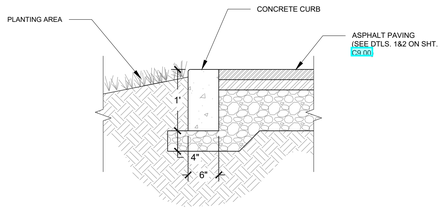
DATE: 06.10.2022
DRAWN BY: JP
CHECKED BY: DB

SHEET:
C9.00

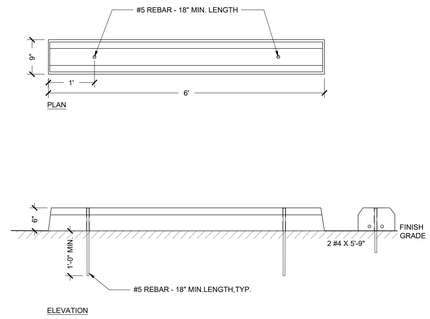
CONSTRUCTION DOCUMENTS



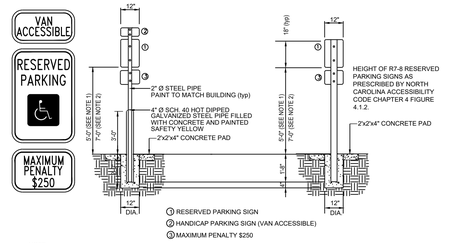
1 8" CONCRETE CURB
SECTION — 1" = 1'-0"



2 FLUSH CONCRETE CURB
SECTION — 1" = 1'-0"

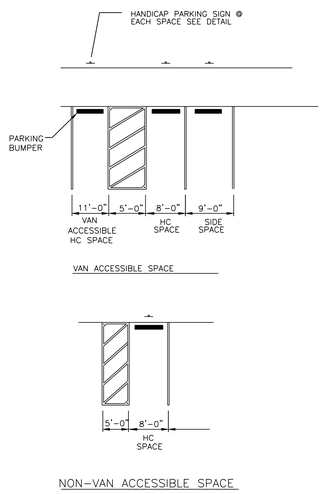


3 CONCRETE WHEEL STOP
SECTION — ¾" = 1'-0"

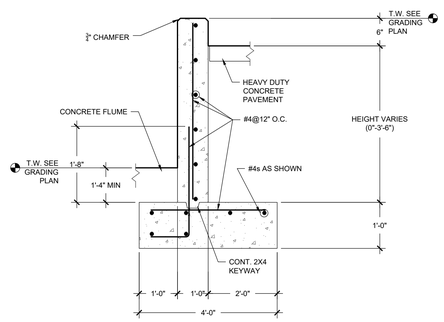


NOTE:
1. THE RESERVED PARKING SIGN IS TO BE 5'-0" IF THE PEDESTRIAN PATH DOES NOT PASS UNDER OR AROUND SIGN IN ACCORDANCE WITH FIGURE 4.1.2 OF THE NORTH CAROLINA STATE ACCESSIBILITY CODE.
2. THE RESERVED PARKING SIGN IS TO BE 7'-0" IF THE PEDESTRIAN PATH GOES BY, UNDER, OR AROUND THE SIGN IN ACCORDANCE WITH FIGURE 4.1.2 OF THE NORTH CAROLINA STATE ACCESSIBILITY CODE.

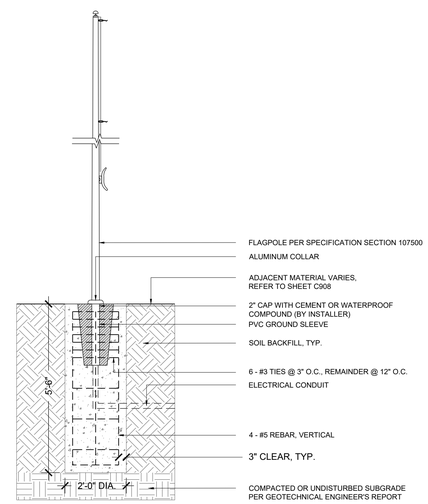
4 ADA PARKING SIGN
NTS



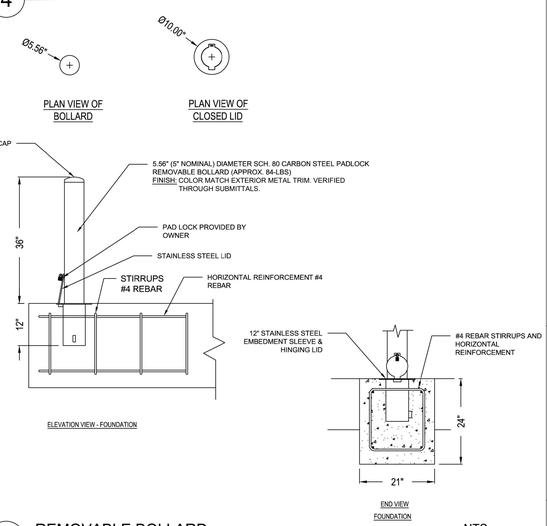
5 ADA PARKING DETAIL
NTS



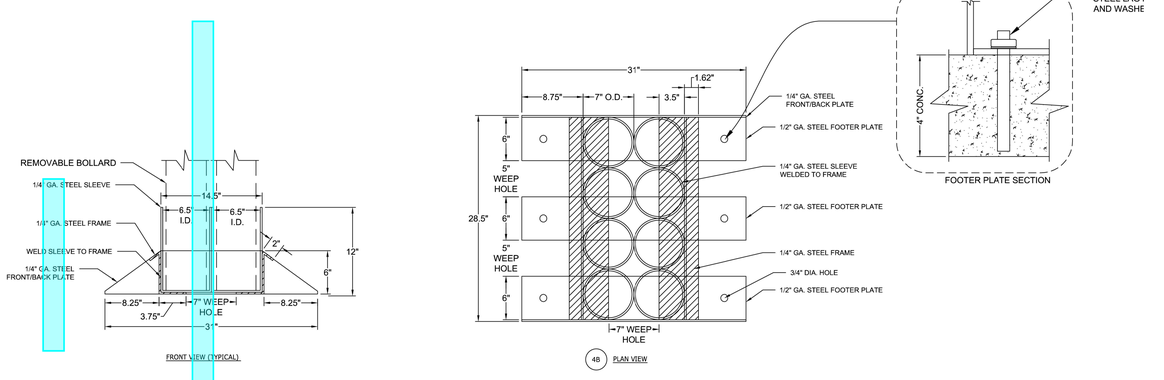
6 RETAINING WALL
SECTION — ¾" = 1'-0"



7 FLAGPOLE
SECTION — NTS

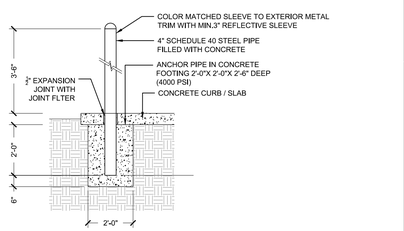


8 REMOVABLE BOLLARD
SECTION — NTS



BOLLARD RACK NOTES
1. COLOR MATCH EXTERIOR METAL TRIM. VERIFIED THROUGH SUBMITTALS.
2. ALL WELDED CONSTRUCTION.
3. PROVIDE SHOP DRAWING FOR REVIEW PRIOR TO CONSTRUCTION.

9 BOLLARD STORAGE RACK
SECTION — NTS



10 BOLLARD AND SLEEVE
SECTION — 1" = 1'-0"

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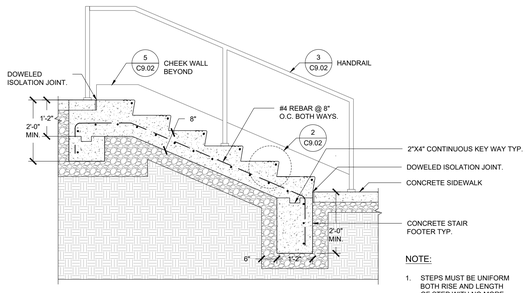
KEY PLAN:

SHEET NAME:
SITE DETAILS

DATE: 06.10.2022
DRAWN BY: JP
CHECKED BY: DB

SHEET:
C9.01

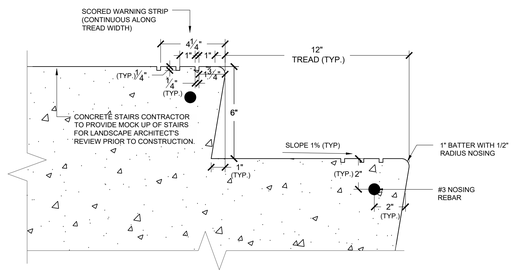
CONSTRUCTION DOCUMENTS



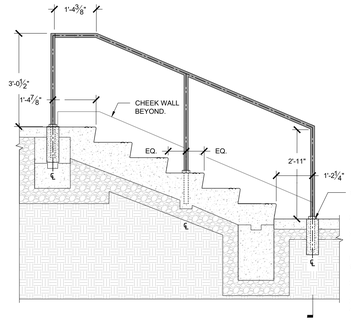
NOTE:

1. STEPS MUST BE UNIFORM BOTH RISE AND LENGTH OF STEP WITH NO MORE THAN 5/8" TOTAL VARIANCE IN EITHER.

1 CAST-IN-PLACE CONCRETE STAIR (TYP.)
SECTION — ½" = 1'-0"



2 CAST-IN-PLACE CONCRETE STAIR ENLARGEMENT
SECTION — 3" = 1'-0"

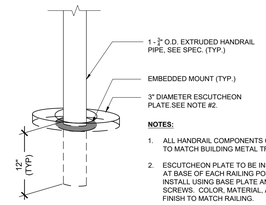


1. IN CONCRETE, BORE HOLE INTO PAVEMENT TO RECEIVE RAILING AND SLEEVE. SET WITH ROCKTITE HYDRAULIC CEMENT.
2. IN PAVERS, POUR CONCRETE SLEEVE FOOTER AS SHOWN.
3. CENTER POST IN SLEEVE.

NOTES:

1. SUBMIT SHOP DRAWINGS FOR ALL HANDRAILS TO L.A. FOR REVIEW AND APPROVAL
2. WHEN DISTANCE BETWEEN HANDRAILS EXCEEDS 5', USE INTERMEDIATE POSTS PACED EQUALLY.
3. ALL PIPE RAIL TO BE 1 ½" O.D..
4. HANDRAIL COLOR TO MATCH BUILDING METAL TRIM.

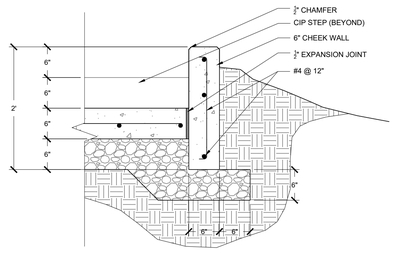
3 STAIR HANDRAIL (TYP.)
SECTION — ½" = 1'-0"



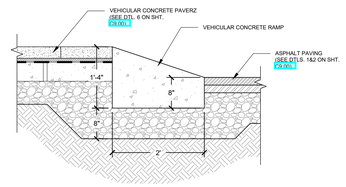
NOTES:

1. ALL HANDRAIL COMPONENTS COLOR TO MATCH BUILDING METAL TRIM.
2. ESCUTCHEON PLATE TO BE INSTALLED AT BASE OF EACH RAILING POST. INSTALL USING BASE PLATE AND SET SCREWS. COLOR, MATERIAL, AND FINISH TO MATCH RAILING.

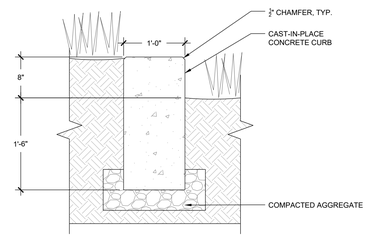
4 HANDRAIL DETAIL
ELEVATION — 3" = 1'-0"



5 CONCRETE CHEEK WALL
SECTION — 1" = 1'-0"



6 HEAVY DUTY CONCRETE ROLL CURB
SECTION — ¾" = 1'-0"

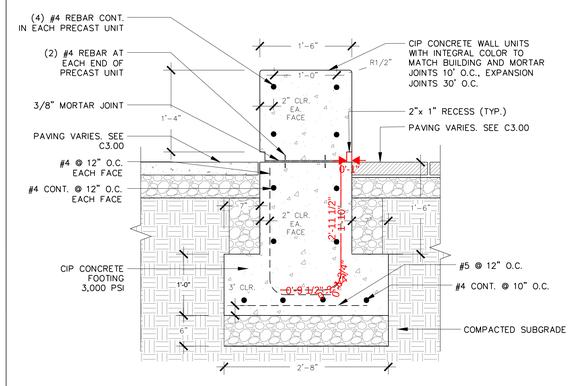


SECTION

CONCRETE CURB NOTES:

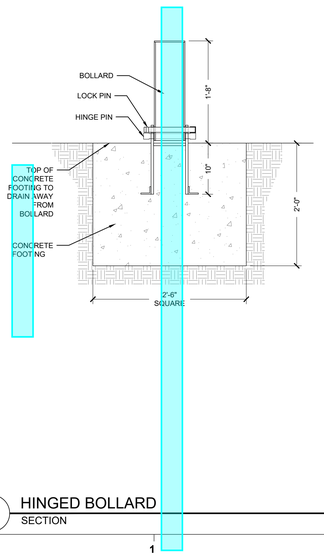
1. ALL CONCRETE CURBS SHALL BE INSTALLED PER SPECIFICATION SECTION 32 13 13 CONCRETE PAVING.
2. 4000 PSI CONCRETE AT 28 DAYS MINIMUM. 4" SLUMP MAXIMUM.
3. FINISH SHALL BE EXPOSED AGGREGATE FINISH. CONTRACTOR TO COORDINATE WITH NCNG AND LANDSCAPE ARCHITECT ON SELECTION OF A ¾" AGGREGATE FROM LOCAL QUARRY.

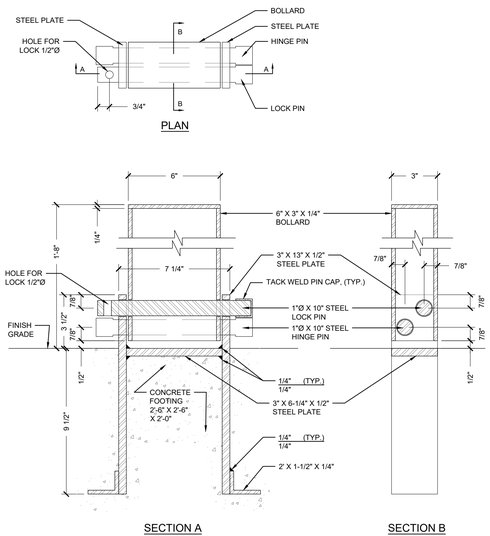
7 CONCRETE CURB EDGE
SECTION — 1" = 1'-0"



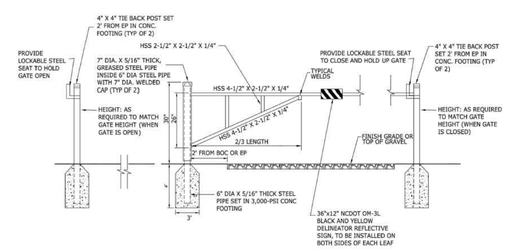
NOTES:
1. F'C=3,000 PSI
2. FY STEEL=60,000 PSI
3. CONCRETE FINISH: CLASS A, SMOOTH FORMED FINISH WITH NO DEFECTS.

8 SEATWALL
SECTION — 1" = 1'-0"





9 HINGED BOLLARD
SECTION — NTS



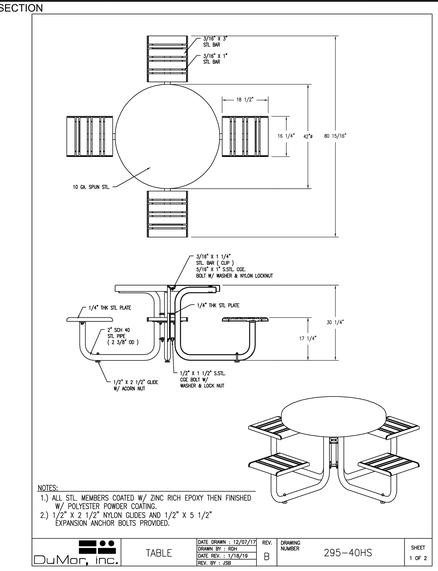
NOTES

1. ALL STEEL SHALL BE HOT-DIPPED GALVANIZED AND EPOXY PAINTED.
2. SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL PRIOR TO FABRICATION AND ASSEMBLY.
3. CONTRACTOR SHALL CONTRACT OUT DIMENSIONS OF PIPES FOR STRUCTURAL SUPPORT.
4. ALL GATES SHALL HAVE 8' OF CONCRETE JERSEY BARRIER ON EITHER SIDE OF GATE POST. (SEE NCDOT SPECIFICATION FOR JERSEY BARRIERS)

PAINTING SPECIFICATIONS:

1. MANUFACTURER: TNEMEC COMPANY, INC.; CARY, NC (919-659-3737)
2. SYSTEM TYPE: EPOXY-POLYURETHANE
3. SURFACE PREPARATION: SSPV-SP3 AND BRUSH OFF BLAST CLEAN
4. PRIMER: SERIES 27 (FIELD-COATED) TYPOXY OR 69 HI-BUILD EPOXOLINE
5. FINISH PAINT: SERIES 73 ENDURA-SHIELD, SEMI-GLOSS, COLOR: YELLOW

10 VEHICULAR SWING GATE
SECTION — NTS



NOTES:
1.) ALL STL. MEMBERS COATED W/ ZINC RICH EPOXY THEN FINISHED W/ POLYESTER POWDER COATING.
2.) 1/2" X 2 1/2" NYLON GLIDES AND 1/2" X 5 1/2" EXPANSION ANCHOR BOLTS PROVIDED.

DuMor, inc.	TABLE	DATE DRAWN : 12/07/17 DRAWN BY : RDH DATE REV. : 1/16/18 REV. BY : JSB	REV: B	DRAWING NUMBER 295-40HS	SHEET 1 OF 2

11 STEEL TABLE AND CHAIR
PLAN ELEVATION — NTS

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
WWW.LS3P.COM

MILCON PROJECT NUMBER: 94360-371901

NC SCO PROJECT NUMBER: 19-21526-01BA

STEWART
223 S. WEST ST., #1100
RALEIGH, NC 27603
T 919.380.8750
FIRM LICENSE # C-1051
www.stewartinc.com

NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER PAMELA A. HASTINGS

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HOCHSTEDLER

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:

SITE DETAILS

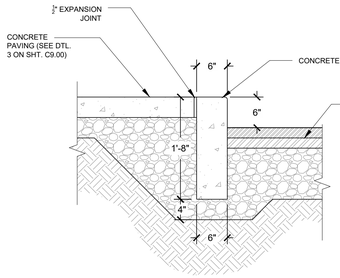
DATE: 06.10.2022
DRAWN BY: JP
CHECKED BY: DB

SHEET:

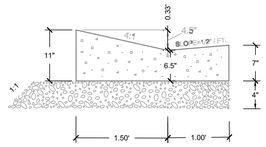
C9.02

CONSTRUCTION DOCUMENTS

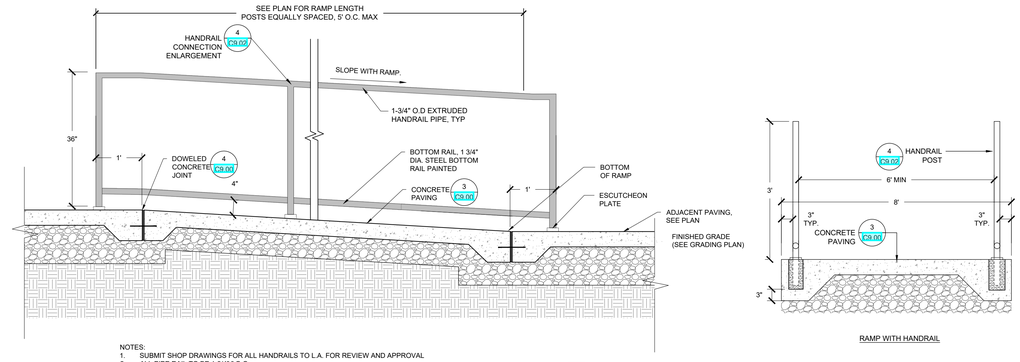
L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C9.00 Site Details.dwg Feb 07, 2024 - 9:04am



1 6" CONCRETE CURB 1" = 1'-0"
SECTION



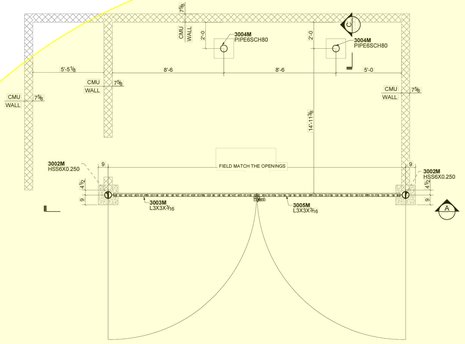
2 30" VALLEY CURB 1" = 1'-0"
SECTION



NOTES:
1. SUBMIT SHOP DRAWINGS FOR ALL HANDRAILS TO L.A. FOR REVIEW AND APPROVAL
2. ALL PIPE RAIL TO BE 1-3/4" O.C.

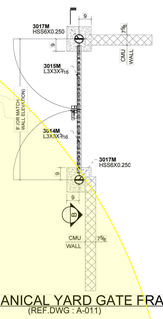
RAMP WITH HANDRAIL

3 CONCRETE RAMP WITH HANDRAIL ¾" = 1'-0"
SECTION



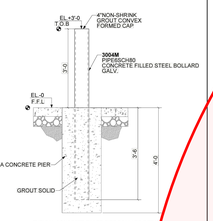
TRASH ENCLOSURE BOLLARDS AND GATE FRAME PLAN
(REF. DWG : A-101, A-011 & A-012)

PROJECT NORTH



NORTH MECHANICAL YARD GATE FRAME PLAN
(REF.DWG : A-011)

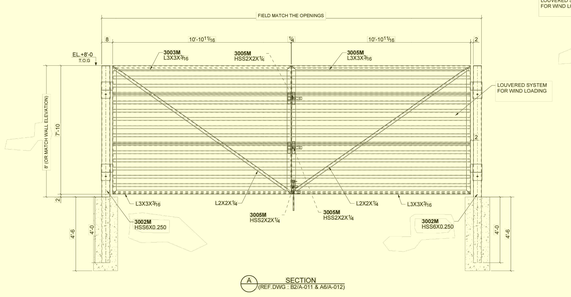
PROJECT NORTH



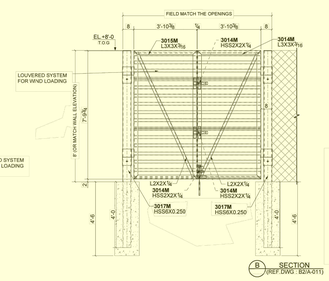
TYPICAL CONCRETE FILLED PIPE BOLLARD DETAIL
REF. DWG: 3/A-012

LEGEND
T.O.G - TOP OF GATE
EL - ELEVATION

ERECTION NOTE :-
1. SEE ARCHITECTURAL DRAWINGS FOR GATE DETAILS
2. READ THIS SHEET IN CONJUNCTION WITH E3000
3. LOCATION OF CANE BOLT RECEIVER AT GATE TO BE VERIFIED IN FIELD.
4. BOLLARD LOCATIONS TO BE V.I.F. PRIOR INSTALLATION



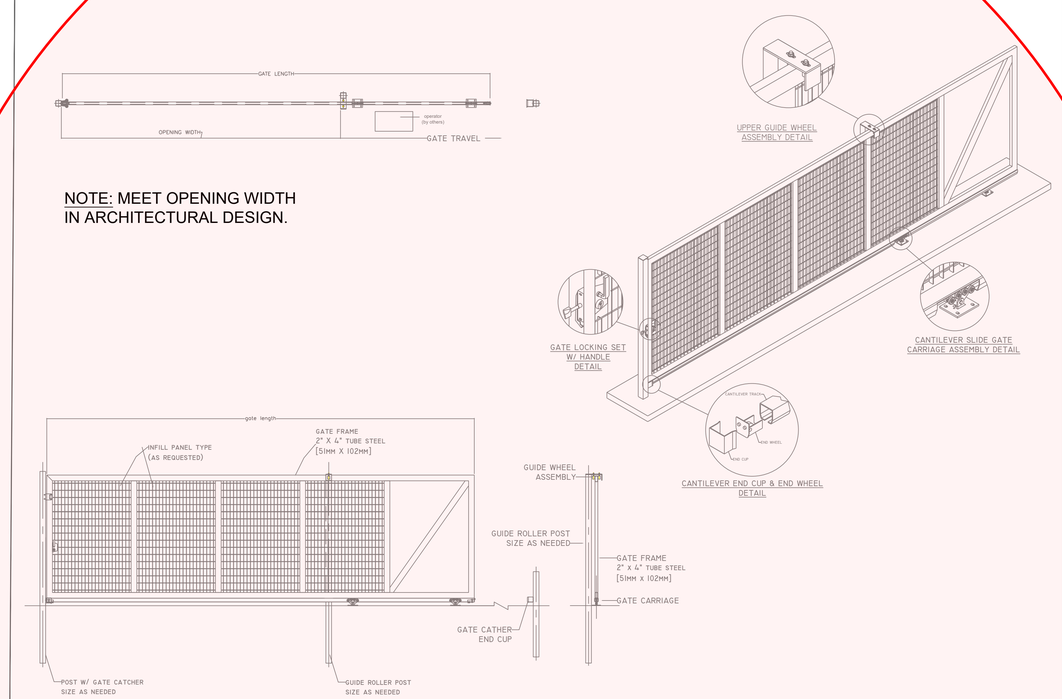
A SECTION
(REF.DWG : B2/A-011 & A8/A-012)



B SECTION
(REF.DWG : B2/A-011)

4 SWING GATE NTS
SECTION

NOTE: MEET OPENING WIDTH IN ARCHITECTURAL DESIGN.



5 CANTILEVER SLIDE GATE NTS
SECTION

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
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NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER DAVID A. BARRETT

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HERMES

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
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LS3P PROJECT: 8302-195530

No	Description	Date
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7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

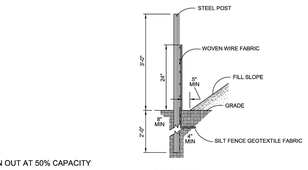
SHEET NAME:
SITE DETAILS

DATE: 06.10.2022
DRAWN BY: JP
CHECKED BY: DB

SHEET:
C9.03

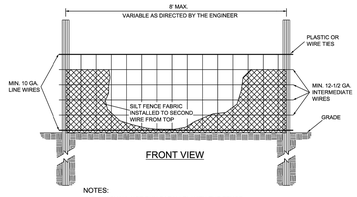
CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD3-Sheets\L20001-C9.00 Site Details.dwg Feb 07, 2024 - 9:04am



MAINTENANCE: CLEAN OUT AT 50% CAPACITY
LIFE OF FENCING: 6-9 MONTHS

SIDE VIEW

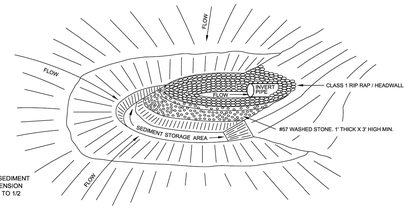


FRONT VIEW

NOTES:
1. FLOW SHALL NOT RUN PARALLEL WITH THE FENCE.
2. END OF SILT FENCE NEEDS TO BE TURNED UPHILL.
3. SEE NC DEQ SEDIMENT DESIGN MANUAL FOR CONSTRUCTION SPECIFICATIONS, WHERE PRACTICE APPLIES AND PLANNING CONSIDERATIONS.
4. SILT FENCE SHOULD NOT BE USED ALONE BELOW GRADED SLOPES GREATER THAN 10' IN HEIGHT.

REVISIONS | DATE 8/1/18 | STANDARD TEMPORARY (SEDIMENT(SILT) FENCE | NOT TO SCALE | SW-20.01

1 STANDARD SILT FENCE
PLAN — NTS

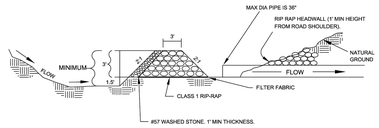


MAINTENANCE:
REMOVE SEDIMENT & RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSION WHEN SEDIMENT HAS ACCUMULATED TO 1/2 DESIGN DEPTH OF THE TRAP.

PLAN VIEW

ANY RIP-RAP DISPLACED FROM THE STONE HORSESHOE MUST BE REPLACED IMMEDIATELY.

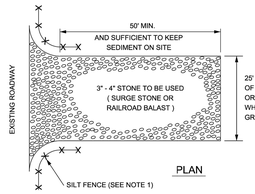
NOTES:
IF EXCAVATED STORAGE AREA IS USED AS TEMPORARY SEDIMENT TRAP, THE DESIGN CRITERIA FOR TEMPORARY SEDIMENT TRAP MUST BE SATISFIED.



CROSS SECTION

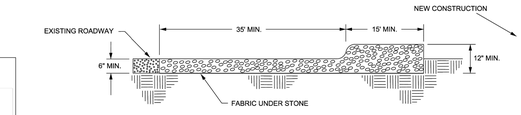
REVISIONS | DATE 8/1/18 | ROCK PIPE INLET PROTECTION | NOT TO SCALE | SW-20.06

2 ROCK PIPE INLET PROTECTION
PLAN — NTS



PLAN

NOTES:
1. SILT FENCE SHOULD BE INSTALLED TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF MUD IS NOT REMOVED FROM THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLE MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD OR THE LENGTH OF THE CONSTRUCTION ENTRANCE EXTENDED.



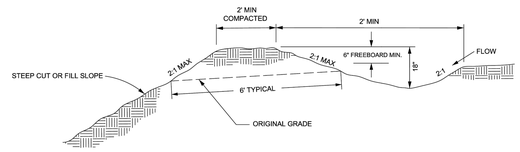
CROSS SECTION

MAINTENANCE:
ADD ADDITIONAL STONE AND "FLUFF" TOP DRESSING WITH 2" STONE.

SEE N.C. DEQ EROSION and SEDIMENT CONTROL PLANNING and DESIGN MANUAL FOR CONDITIONS WHERE PRACTICE APPLIES; PLANNING CONSIDERATION & DESIGN CRITERIA.

REVISIONS | DATE 8/1/18 | CONSTRUCTION ENTRANCE | NOT TO SCALE | SW-20.09

3 CONSTRUCTION ENTRANCE
PLAN — NTS

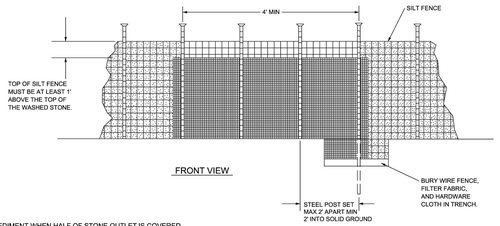


CROSS SECTION

NOTES:
1. STABILIZE IMMEDIATELY UPON CONSTRUCTION AND PRIOR TO SITE INSPECTION APPROVAL.
2. STABILIZE DIVERSION DITCH BASED ON DESIGN VELOCITY. IF DESIGN VELOCITIES (V_D) IN BARE EARTH CONDITIONS EXCEEDS 2 FT/S, A TEMPORARY LINER IS REQUIRED.
3. MAXIMUM 5 ACRE DRAINAGE AREA TO TEMPORARY DIVERSION.

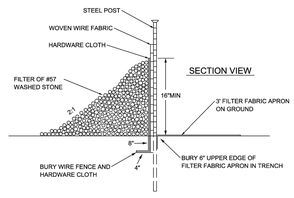
REVISIONS | DATE 8/1/18 | DIVERSION DITCH | NOT TO SCALE | SW-20.11

4 DIVERSION DITCH
PLAN — NTS



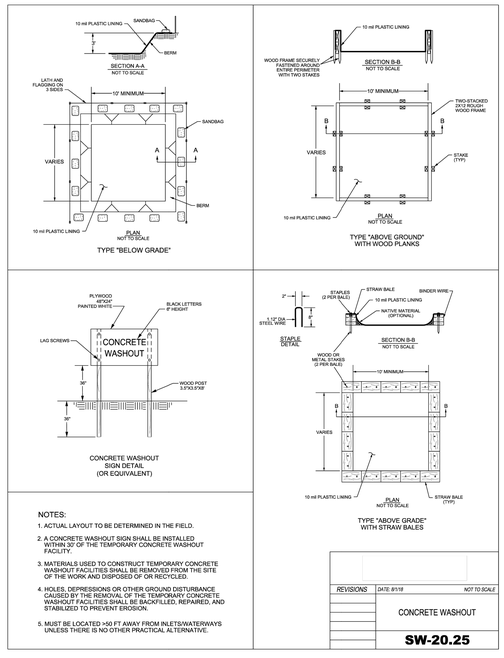
FRONT VIEW

NOTES:
1. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.
2. REPLACE STONE AS NEEDED TO ENSURE DEWATERING.



REVISIONS | DATE 8/1/18 | STANDARD SILT FENCE OUTLET | NOT TO SCALE | SW-20.24

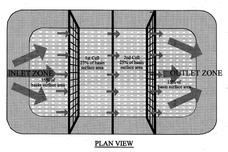
5 STANDARD SILT FENCE OUTLET
PLAN — NTS



NOTES:
1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.
5. MUST BE LOCATED >50 FT AWAY FROM INLETS/WATERWAYS UNLESS THERE IS NO OTHER PRACTICAL ALTERNATIVE.

REVISIONS | DATE 8/1/18 | NOT TO SCALE | CONCRETE WASHOUT | SW-20.25

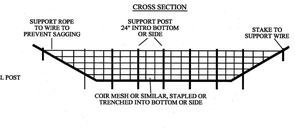
6 CONCRETE WASHOUT
PLAN — NTS

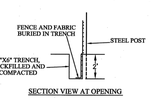


PLAN VIEW

NOTES:
1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
3. PROVIDE 2 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH). PROVIDE ONE FOR EVERY 10 ADDITIONAL FEET OF LENGTH OR 1 ACRE.
4. BAFFLE SHALL BE 700 G/M2 COIR EROSION BLANKET.
5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS
6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL.

CROSS SECTION

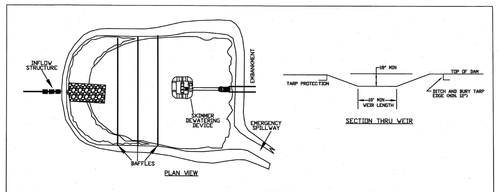


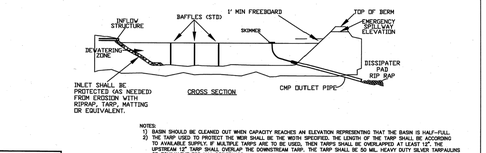


SECTION VIEW AT OPENING

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08
STANDARD BAFFLES DETAIL

7 STANDARD BAFFLES DETAIL
PLAN — 3/8" = 1'-0"



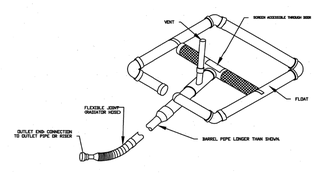


CROSS SECTION

NOTES:
1) BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.
2) THE TARP USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TARP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TARPS ARE TO BE USED, THEN TARPS SHALL BE OVERLAPPED AT LEAST 12". THE TARP SHALL BE SECURED TO THE DAM ALONG THE DOWNSTREAM TARP. THE TARP SHALL BE 30 MIL. HEAVY DUTY SILVER TARPAULINS OR EQUIVALENT FOR UV RESISTANCE.
3) PROVIDE A MINIMUM OF THREE POROUS BAFFLES TO EVENLY DISTRIBUTE FLOW ACROSS THE BASIN, REDUCING TURBULENCE.
4) BAFFLE MATERIAL MUST BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR A SILT FENCE.
5) MOST OF THE SEDIMENT WILL ACCUMULATE IN THE FIRST BAY, SO THIS SHOULD BE READILY AVAILABLE FOR MAINTENANCE.
6) DURING THE CONSTRUCTION PHASE OF THE PROJECT, PERMANENT STORMWATER RISER SHALL ONLY DEWATER FROM THE TOP OF PIPE.
7) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08
STANDARD SKIMMER BASIN

8 STANDARD SKIMMER BASIN
PLAN — 3/8" = 1'-0"



WAKE COUNTY NORTH CAROLINA
EFFECTIVE: 01/31/08
STANDARD SKIMMER DETAIL

9 STANDARD SKIMMER DETAIL
PLAN — 3/8" = 1'-0"

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
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WWW.LS3P.COM CXXXXX

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NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER RAMESH A. VAIDYA

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE HERMANCE
2/7/2024

FORT FISHER 116

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KURE BEACH, NC 28449

LS3P PROJECT: 8302.195530

No.	Description	Date
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5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

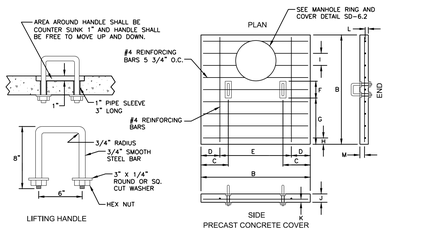
SHEET NAME:
EROSION CONTROL DETAILS

L20001.00
DATE: 06.10.2022
DRAWN BY: DB
CHECKED BY: RM

SHEET:
C9.10

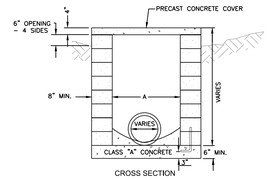
CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWG\8\2-CD\3-Sheets\L20001-C9.10 Erosion Control Details.dwg Feb 07, 2024 - 9:05am

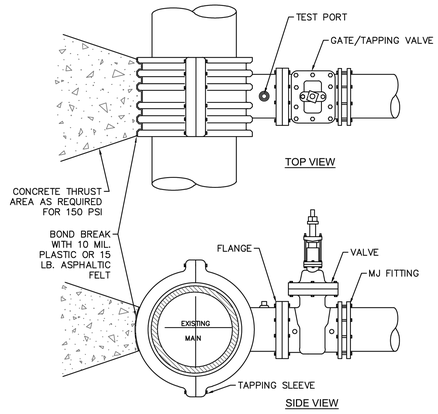


INTERIOR SIZE	A	B	C	D	E	F	G	H	J	J	K	L	M
3'x3'	3'-0"	4'-4"	1'-1"	9"	2'-10"	8"	1'-10"	3"	5 3/4"	4"	1 1/2"	1 1/2"	2"
4'x4'	4'-0"	5'-4"	1'-1"	9"	3'-10"	8"	2'-4"	3"	5 3/4"	4"	1 1/2"	1 1/2"	2"
5'x5'	5'-0"	6'-4"	1'-1"	9"	4'-10"	8"	2'-10"	3"	5 3/4"	4"	1 1/2"	1 1/2"	2"
6'x6'	6'-0"	7'-4"	1'-1"	9"	5'-10"	8"	3'-4"	3"	5 3/4"	4"	1 1/2"	1 1/2"	2"

GENERAL NOTES
1. MORTAR JOINTS 1/2" +/- 1/8" THICK.
2. USE CLASS "A" CONCRETE THROUGHOUT.
3. USE FORMS FOR CONSTRUCTION OF FLOOR SLAB.
4. USE #4 BAR DOWELS AT 12" O.C.
5. USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF NCDOT SECTION 840 OF THE STANDARD AND SPECIFICATIONS (LATEST REVISION).
6. STEPS SHALL BE INSTALLED IN ALL CATCH BASINS OVER 3'-6" IN DEPTH AT 12" O.C. DEPTH SHALL BE MEASURED FROM THE TOP OF GUTTER TO INVERT. GALVANIZED REINFORCED STEEL SHALL NOT BE USED FOR STEPS. SEE NCDOT STANDARD DRAWING #840.66.
7. A CONCRETE BASE PAD PER NCDOT STANDARD DRAWING #840.00 SHALL BE ADDED FOR REINFORCED CONCRETE PIPES SET AT THE FLOOR SLAB.
8. FOR BASINS 8'-0" IN DEPTH OR LESS USE 8" THICK WALLS. IF DEPTH OF BASIN IS OVER 8'-0", WALL THICKNESS SHALL BE 12" FROM TOP TO 6'-0" IN DEPTH AND 8" FOR THE REMAINING DEPTH OF THE BASIN.

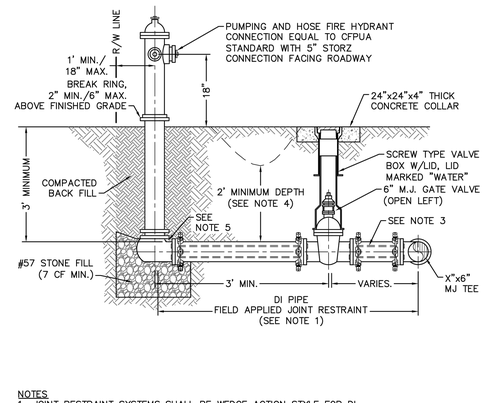


1 OPEN THROAT YARD INLET — NTS
SECTION 0



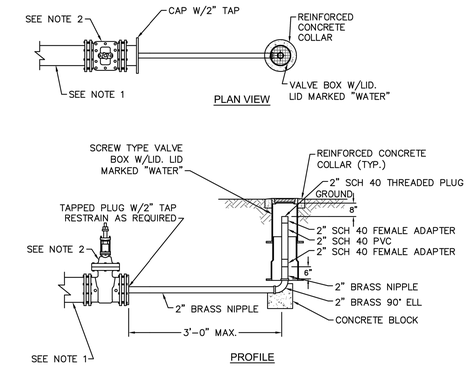
NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. PIPE & FITTING TO BE WRAPPED IN 10 MIL. PLASTIC OR 15 LB. ASPHALTIC FELT PRIOR TO THRUST BLOCK BEING POURED.
3. TEST PRESSURE SHALL NOT BE APPLIED FOR A MINIMUM OF 7 DAYS AFTER THRUST BLOCK PLACEMENT.
4. BRANCH SHALL NOT EQUAL RUN DIAMETER UNLESS APPROVED BY CFPUA ENGINEERING.

2 TAPPING SLEEVE AND VALVE — NTS
SECTION



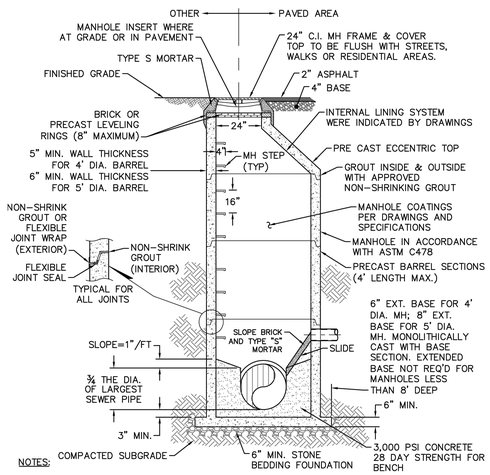
NOTES:
1. JOINT RESTRAINT SYSTEMS SHALL BE WEDGE ACTION STYLE FOR DI.
2. WHEN HYDRANT LEG REQUIRE FULL LENGTH PIPE SECTIONS, OVER BELL RESTRAINT SYSTEM SHALL HAVE 316 STAINLESS STEEL HARNESS AND FASTENERS.
3. CONTINUOUS 316 STAINLESS STEEL RODS (TEE TO VALVE AND VALVE TO HYDRANT) MAY BE USED WITH COR-BLUE MJ T-BOLT AND GASKET KITS, AS AN ALTERNATIVE.
4. HYDRANT AND VALVE SHALL BE PLACED OUTSIDE DITCH LIMITS.
5. WEEP HOLES OPEN AND UNBLOCKED TO DRAIN.
6. MJ TEE SHALL BE RESTRAINED ON EACH SIDE OF MAIN PLUS MAIN VALVES, FITTING, OR JOINTS WITHIN 10-FEET OF MJ TEE.
7. TRACING WIRE SHALL EXTEND ALONG HYDRANT LATERAL AND UP TO FINISHED GRADE WITH 2-FEET EXTENDED ABOVE THE BREAK RING OF HYDRANT.

3 FIRE HYDRANT — NTS
SECTION



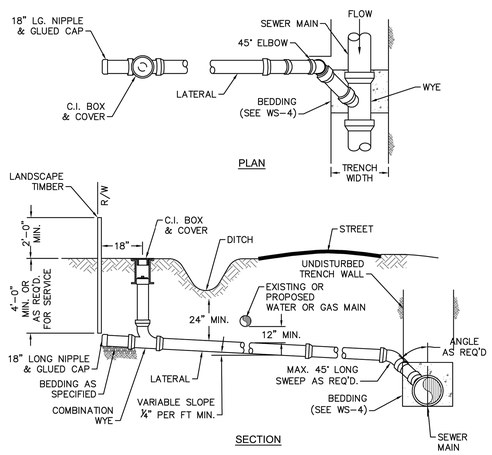
NOTES:
1. PROVIDE TOTAL LENGTH OF RESTRAINED JOINTS UPSTREAM AS REQUIRED FOR MAIN DIAMETER AT 150 psi TEST PRESSURE. WHEN UPSTREAM BENDS ARE WITHIN THE DEAD LENGTH, ADD TOTAL BEND RESTRAINT FOR EACH BEND TO DEAD-IN LENGTH.
2. IF MAIN IS LARGER THAN 2", END WITH A VALVE SIZED FOR THE MAIN, THREADED CAP SIZED ON VALVE FOR THE 2" BLOW-OFF.

4 2" BLOWOFF — NTS
SECTION



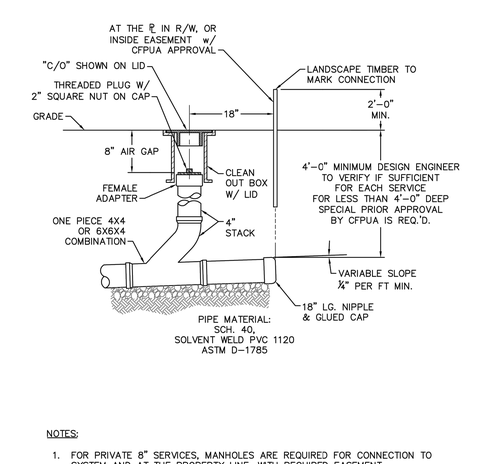
NOTES:
1. FOR MANHOLES UP TO 12 FEET IN DEPTH MINIMUM BARREL DIAMETER SHALL BE 4 FEET. MANHOLES GREATER THAN 12 FEET IN DEPTH SHALL BE A MINIMUM OF 5 FEET IN DIAMETER.
2. PROVIDE A MINIMUM DISTANCE OF SIX (6) INCHES BETWEEN EDGE OF MANHOLE CORE HOLES AND MANHOLE BARREL JOINTS. PROVIDE A MINIMUM OF SIX (6) INCHES BETWEEN EDGES OF CORE HOLES. CORING THE MANHOLE CONE IS NOT ALLOWED.
3. ALL MANHOLE MAIN LINE AND SERVICE PIPING TO BE INSTALLED AT A MINIMUM OF CROWN TO CROWN OF THE LARGEST DIAMETER PIPE.

5 SANITARY SEWER MANHOLE — NTS
SECTION



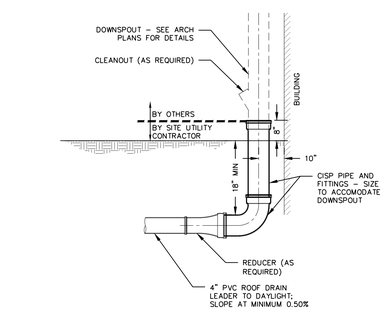
NOTES:
1. SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
2. ALL SERVICES CONNECTING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF DIP, WITH PROTECTIVE LINING.
3. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS.
4. MINIMUM 1'-6" NIPPLE SPACING BETWEEN FITTINGS.
5. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO MAIN.

6 SANITARY SEWER SERVICE LATERIAL — NTS
SECTION

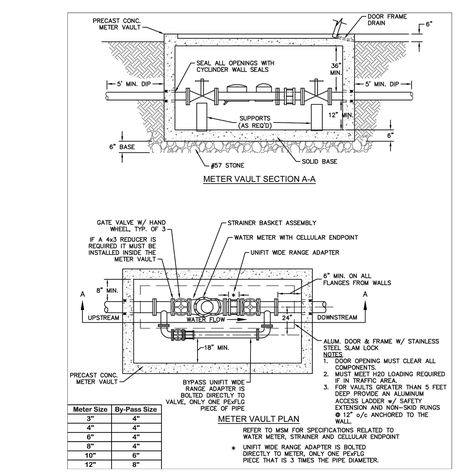


NOTES:
1. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO SYSTEM AND AT THE PROPERTY LINE, WITH REQUIRED EASEMENT.
2. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS.

7 SANITARY SEWER CLEANOUT — NTS
SECTION



8 DOWNSPOUT CONNECTION — NTS
SECTION



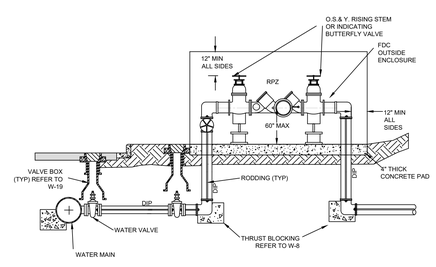
Meter Size	By-Pass Size
3"	4"
4"	4"
6"	4"
8"	4"
10"	6"
12"	8"

NOTES:
1. DOOR OPENING MUST CLEAR ALL COMPONENTS.
2. MUST MEET H20 LOADING REQUIRED IF IN TRAFFIC AREA.
3. FOR VAULTS GREATER THAN 5 FEET DEEP PROVIDE AN ALUMINUM ACCESS LADDER w/ SAFETY EXTENSON AND NON-SKID RUNGS @ 12" o/c ANCHORED TO THE WALL.

REFER TO MSM FOR SPECIFICATIONS RELATED TO WATER METER, STRAINER AND CELLULAR ENDPOINT

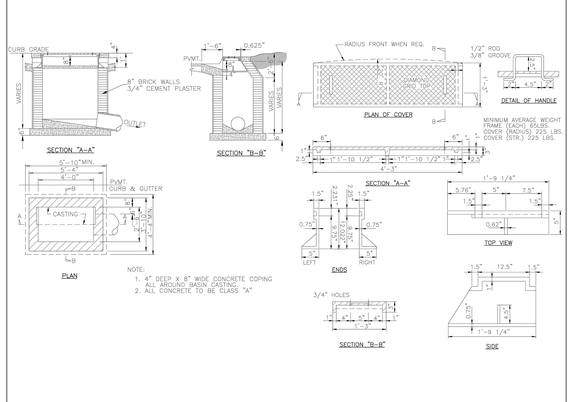
* UNIFIT WIDE RANGE ADAPTER IS BOLTED DIRECTLY TO METER, ONLY ONE PE/AFLG PIECE THAT IS 3 TIMES THE PIPE DIAMETER.

9 WATER METER — NTS
SECTION

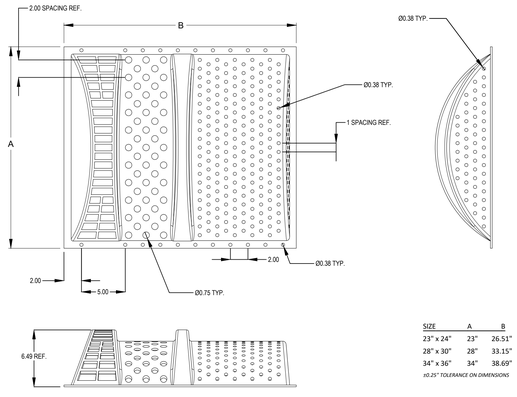


1. ALL ABOVE GROUND ENCLOSURES MUST HAVE ADEQUATE DRAINAGE (TWICE THE DIAMETER OF THE SUPPLY PIPE) TO DAYLIGHT ABOVE GRADE.
2. REDUCED PRESSURE BACKFLOW PRESENTERS MAY BE LOCATED IN A BUILDING PROVIDED THERE ARE NO OTHER UNPROTECTED TAPS BETWEEN THE MAIN AND THE BUILDING. DRAINAGE IN A BUILDING MUST BE TWICE THE DIAMETER OF THE SUPPY PIPE.
3. ABOVE GROUND INSULATED VAULTS MUST BE ASSE 1060 APPROVED ABOVE GROUND ENCLOSURES. SEE SPECIFICATIONS FOR ENCLOSURE FREEZE PROTECTION AND CERTIFICATION REQUIREMENTS.
7. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
8. ALL ASSEMBLIES MUST BE ON THE CURRENT APPROVAL LIST.

10 BACKFLOW PREVENTER IN HEATED ENCLOSURE — NTS
SECTION



11 CATCH BASIN & CASTINGS — NTS
SECTION



SIZE	A	B
23" x 24"	23"	26.51"
28" x 30"	28"	33.15"
34" x 36"	34"	38.69"

±0.25" TOLERANCE ON DIMENSIONS

12 TRASH GUARD PLUS DETAIL — NTS
SECTION

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
WWW.LS3P.COM

MILCON PROJECT NUMBER: 94360-371901
NC SCO PROJECT NUMBER: 19-21526-01BA

STEWART
223 S. WEST ST., #1100
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NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER BRIAN A. TARTAS

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAMELA-ANNE HERSHEY
2/7/2024

FORT FISHER 116
NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449
LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	RESPONSE TO COMMENTS	2023.02.06
3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:
STORM DRAINAGE & UTILITY DETAILS I

DATE: 06.10.2022
DRAWN BY: BFH
CHECKED BY: NBC

SHEET:
C9.20

CONSTRUCTION DOCUMENTS

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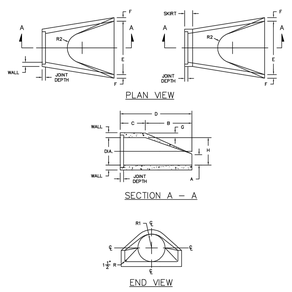
CIRCULAR FLARED END SECTION

CONCRETE PIPE



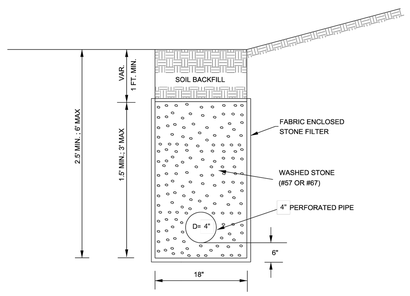
DIAMETER	WALL THICKNESS	JOINT DEPTH	APPROX. WEIGHT	A	FLARE LENGTH	BARREL LENGTH	LAY LENGTH	FLARE WIDTH	F	G	H	B-1	B-2	SKIRT
12"	4"	3-1/4"	1,362#	8"	26"	46-1/4"	72-1/4"	36"	2-3/4"	3-1/4"	13"	10-1/4"	8"	NA
15"	4"	3-1/4"	1,628#	8"	27"	43-1/2"	68-1/2"	42"	3"	4"	16"	11-1/2"	10"	NA
18"	4-1/2"	4"	2,442#	8"	27"	48"	75"	50"	3-1/4"	3-3/4"	19"	13-1/2"	12"	NA
24"	5-1/4"	4-1/2"	3,960#	8-1/2"	43-1/2"	88-3/4"	132-1/4"	68"	3-3/4"	4-3/4"	25"	18-1/2"	18"*	NA
30"	5-3/4"	4-1/2"	5,550#	12"	54"	114"	168"	80"	4-1/4"	5-3/4"	31"	18-3/4"	18"	NA
36"	6-3/8"	4-1/2"	7,880#	15"	63"	133-1/2"	196-1/2"	92"	4-3/4"	6-1/8"	37"	24-1/4"	23"	NA
42"	7-1/4"	4-1/2"	9,900#	18"	72"	153"	225"	104"	5"	6-3/4"	43"	30-1/4"	23"	12-1/2"
48"	8"	4-1/2"	12,500#	21"	72"	201"	273"	84"	NA	NA	49"	36-1/4"	23"	12-1/2"
54"	8-1/2"	4-3/4"	16,040#	27"	65"	225"	290"	90"	NA	NA	55"	32-1/4"	24"	6-1/4"
60"	9"	5"	19,700#	30"	60"	234"	294"	96"	NA	NA	61"	36-1/4"	24"	6-1/4"
72"	9"	5-1/2"	12,500#	24"	78"	21"	99"	108"	NA	NA	73"	38-1/4"	24"	11-3/4"

CP007
5/97

16419 TEN LANE, NAMPA, IDAHO 83687-(208)465-0176, 1-800-696-5648-FAX(208)465-7129

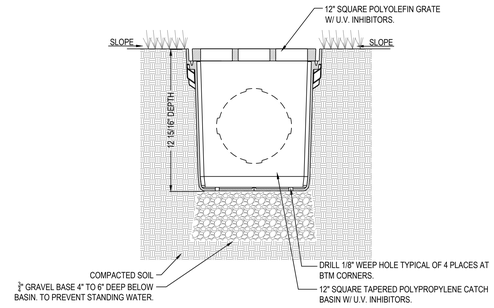
* ITEMS SHOWN ARE SUBJECT TO CHANGE WITHOUT NOTICE.

1 FLARED END SECTION CIRCULAR PIPE — NTS
SECTION



NOTES:
ALL PIPE UNDERDRAINS ARE TO EXIT INTO DRAINAGE STRUCTURES SUCH AS CATCH BASINS OR JUNCTION BOXES.

2 PERFORATED UNDERDRAIN PIPE — NTS
SECTION



SECTION

NOTES:
1. GRATE TO BE ATTACHED TO CATCH BASIN WITH SCREW PROVIDED AT TIME OF INSTALLATION.
2. RISER CAN BE CUT TO ACHIEVE EXACT ELEVATION.
3. DO NOT USE OVER 5 RISERS WITH CATCH BASIN.
4. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
5. DO NOT SCALE DRAWING.
6. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY.
7. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.

3 AREA DRAIN — NTS
SECTION

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
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MILCON PROJECT NUMBER: 94360-371901

NC SCO PROJECT NUMBER: 19-21526-01BA

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NORTH CAROLINA PROFESSIONAL SEAL 53676 ENGINEER DEVAN A. TARRANT

NORTH CAROLINA PROFESSIONAL SEAL 023121 ENGINEER PAULA-ANNE NEUMANN

2/7/2024

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10.
2	RESPONSE TO COMMENTS	2023.02.06.
3	GRADE/PAVER/WL CHANGES	2023.04.06.
4	WATERLINE CHANGES	2023.08.02.
5	SW PERMIT	2023.10.04.
6	UTILITY/GRADING/STORM SET	2023.10.18.
7	DEQ SW ADD'L INFO	2023.11.08.
8	GRADING/SW CHANGES	2024.02.07.
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KEY PLAN:

SHEET NAME:
STORM DRAINAGE & UTILITY DETAILS II

DATE: 06.10.2022
DRAWN BY: CO
CHECKED BY: NBC

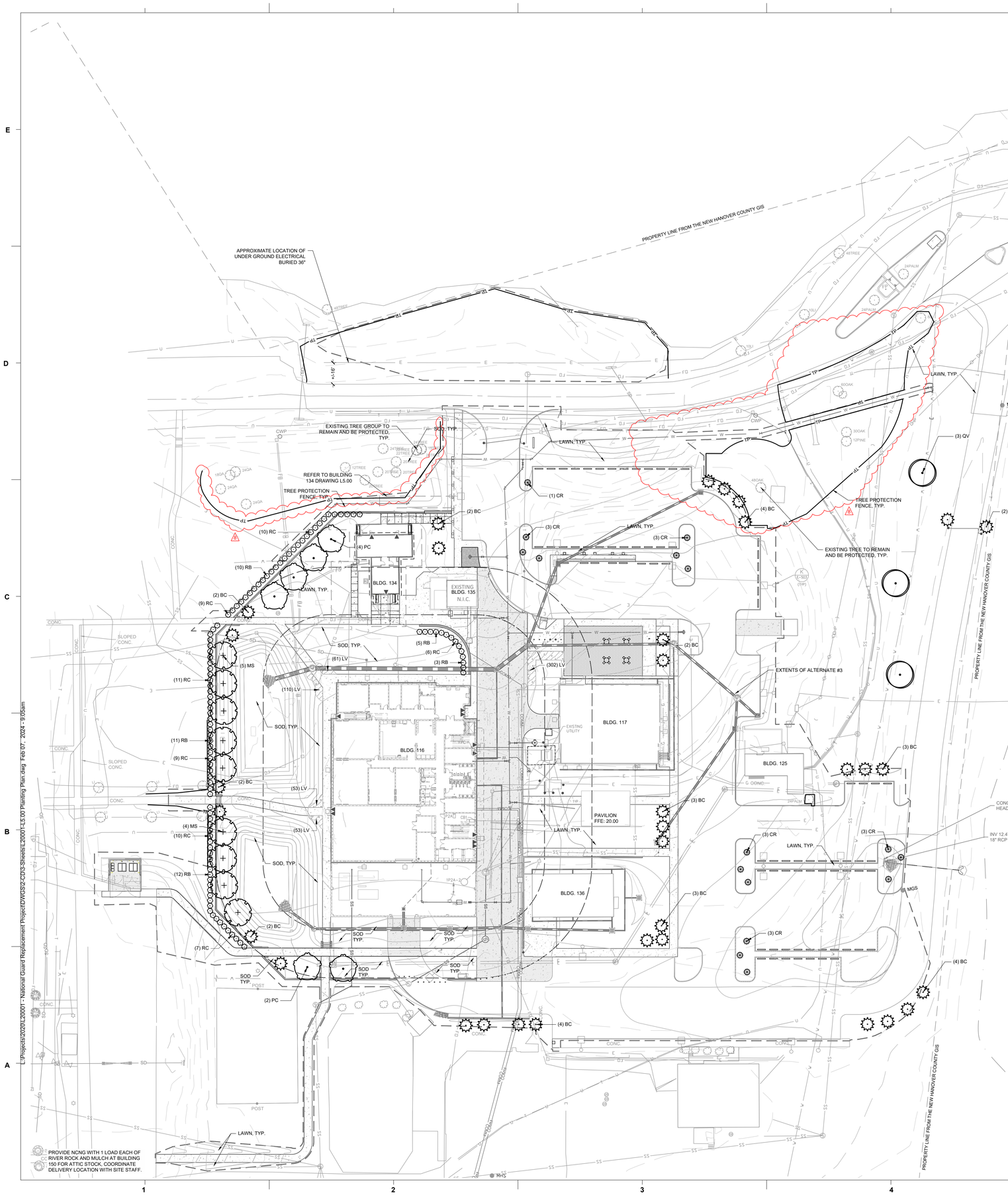
SHEET: C9.21

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-C9.20 Storm Drainage Details.dwg Feb 07, 2024 - 9:05am

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND PLANTING NOTES.



PLANTING NARRATIVE

- SALT AND DROUGHT TOLERANT, NATIVE, LOW MAINTENANCE PLANT MATERIALS IS PROPOSED FOR THIS SITE. DUE TO THE SITE'S CLOSE PROXIMITY TO THE COAST AND HIGH WINDS, THE FEW TREES THE PROJECT PROPOSES ARE WIND TOLERANT.
- SEVERAL EXISTING LARGE OAK TREES WILL BE PRESERVED. SITE DISTURBANCE WILL BE KEPT AWAY FROM THE DRIP LINES OF THESE TREES.

PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONTAINER	CALIPER	HEIGHT	NOTES
	BC	33	BUTIA CAPITATA PINDO PALM	B&B	SEE HEIGHT	12 TO 14 FT	NATIVE, SALT TOLERANT, TOLERATES WET
	MS	9	MAGNOLIA VIRGINIANA SWEET BAY	B&B	2 IN	12 FT	15-25' TALL, 10-20' WIDE, LOW MAINTENANCE, SALT TOLERANT
	PC	6	PRUNUS CAROLINIANA CAROLINA LAUREL CHERRY	B&B	2 IN	12 FT	
	QV	3	QUERCUS VIRGINIANA SOUTHERN LIVE OAK	B&B	3.5 IN	18 FT AND UP	
SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	CONTAINER	---	HEIGHT	NOTES
	CR	16	CYCAS REVOLUTA SAGO PALM	#3		SEE REMARKS	3' HEIGHT MAX.
	RC	62	RHODODENDRON X `CONLEC` TM AUTUMN ROYALTY ENCORE AZALEA	#3			
	RB	41	RHODODENDRON X `ROBLEG` TM AUTUMN ANGEL ENCORE AZALEA	#3		3 FT	
GROUND COVERS	CODE	QTY	BOTANICAL / COMMON NAME	CONTAINER	---	HEIGHT	NOTES
	LV	579	LIRIOPE MUSCARI `VARIEGATA` VARIEGATED LILYTURF	#1	SEE HEIGHT	12 TO 15 IN	SPACED 12" ON CENTER

NOTE:
ALL LAWN AREA SHOULD BE BERMUDA SEEDING, EXCEPT WHERE SOD IS SPECIFIED.

QUANTITY, SIZE, AND TYPE OF PLANTS TO REMAIN AS INDICATED.
ACTUAL LOCATIONS WILL CHANGE AND BE REVISED AT A LATER DATE.

0 15 30 60
SCALE: 1" = 30'
NORTH

LS3P
434 FAYETTEVILLE STREET SUITE 1700
RALEIGH, NORTH CAROLINA 27601
TEL. 919.829.2700 FAX 919.829.2730
WWW.LS3P.COM

MILCON PROJECT NUMBER: 94360-371901

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PROJECT #: L20001

FORT FISHER 116

NC NATIONAL GUARD
116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302.195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
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3	GRADE/PAVER/WL CHANGES	2023.04.06
4	WATERLINE CHANGES	2023.08.02
5	SW PERMIT	2023.10.04
6	UTILITY/GRADING/STORM SET	2023.10.18
7	DEQ SW ADD'L INFO	2023.11.08
8	GRADING/SW CHANGES	2024.02.07
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KEY PLAN:

SHEET NAME:

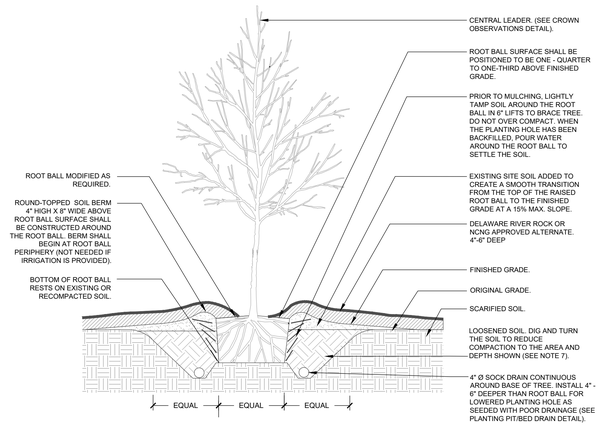
PLANTING PLAN

DATE: 06.10.2022
DRAWN BY: HMH
CHECKED BY: NBC

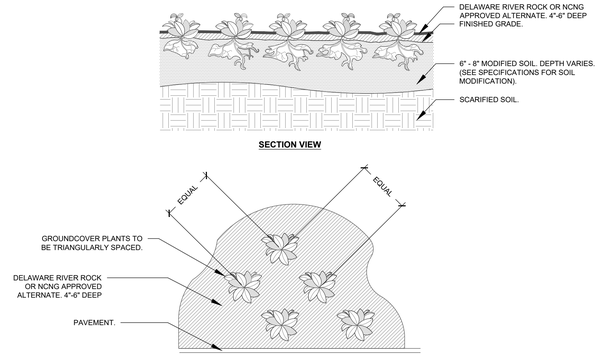
SHEET:
L5.00

CONSTRUCTION DOCUMENTS

L:\Projects\2020\L20001 - National Guard Replacement Project\DWGS\2-CD\3-Sheets\L20001-L5.00 Planting Plan.dwg Feb 07, 2024 - 9:05am



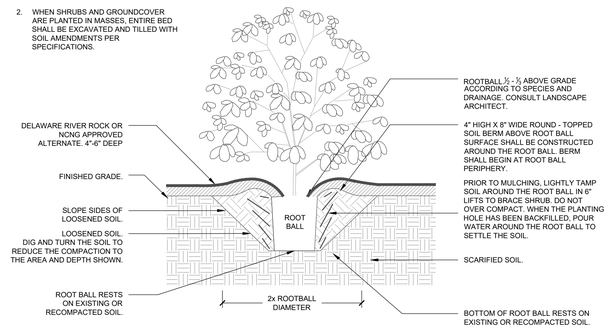
1 TREE STAKING - LODGE POLES
SECTION — NTS



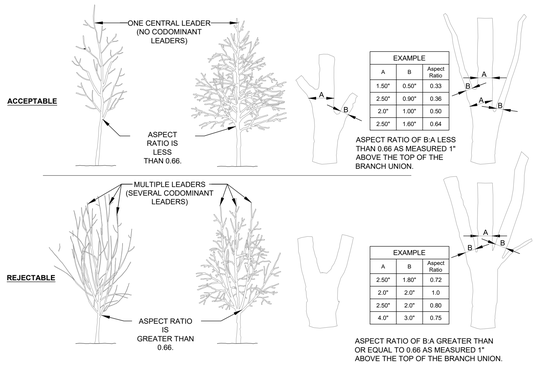
2 GROUNDCOVER PLANTING (TYPICAL)
PLAN

NOTES:

1. CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.
2. WHEN SHRUBS AND GROUNDCOVER ARE PLANTED IN MASSES, ENTIRE BED SHALL BE EXCAVATED AND TILLED WITH SOIL AMENDMENTS PER SPECIFICATIONS.



3 SHRUB - EXISTING IN-SITU SOIL
SECTION — NTS



EXAMPLE		
A	B	Aspect Ratio
1.50"	0.50"	0.33
2.50"	0.90"	0.36
2.0"	1.00"	0.50
2.50"	1.60"	0.64

ASPECT RATIO OF B/A LESS THAN 0.66 AS MEASURED 1" ABOVE THE TOP OF THE BRANCH UNION.

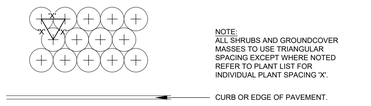
EXAMPLE		
A	B	Aspect Ratio
2.50"	1.80"	0.72
2.0"	2.0"	1.0
2.50"	2.0"	0.80
4.0"	3.0"	0.75

ASPECT RATIO OF B:A GREATER THAN OR EQUAL TO 0.66 AS MEASURED 1" ABOVE THE TOP OF THE BRANCH UNION.

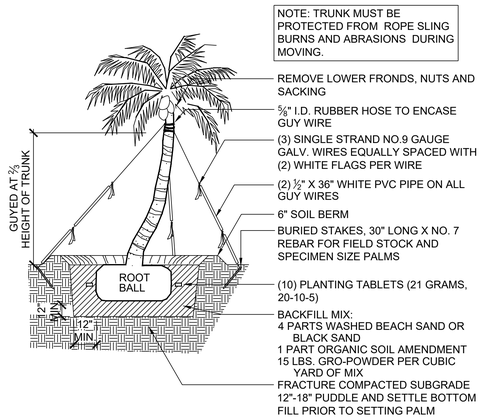
4 SHRUB ON SLOPE - EXISTING IN-SITU SOIL
SECTION — NTS

NOTES:

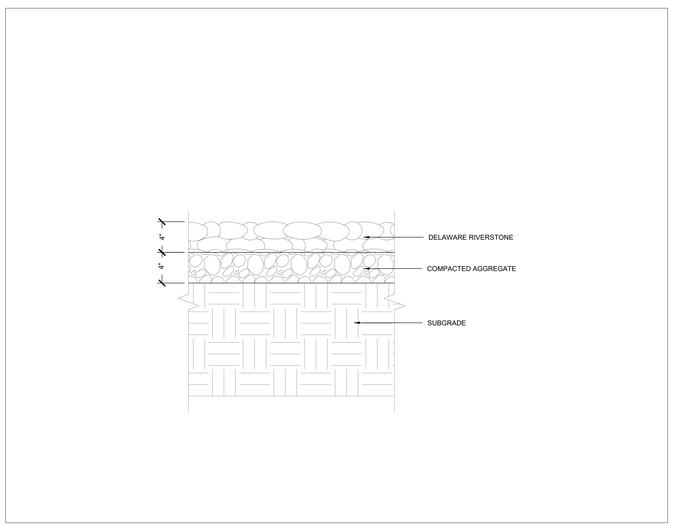
1. SEE PLANTING LEGEND FOR GROUNDCOVER SPECIES, SIZE AND SPACING DIMENSION.
2. SMALL ROOTS (½" OR LESS) THAT GROW AROUND, UP OR DOWN THE ROOT BALL PERIPHERY ARE CONSIDERED A NORMAL CONDITION IN CONTAINER PRODUCTION AND ARE ACCEPTABLE, HOWEVER THEY SHOULD BE ELIMINATED AT THE TIME OF PLANTING. ROOTS ON THE PERIPHERY CAN BE REMOVED AT THE TIME OF PLANTING (SEE ROOT BALL SHAVING DETAIL).
3. SETTLE SOIL AROUND ROOT BALL OF EACH GROUNCOVER PRIOR TO MULCHING.
4. WHEN GROUNDCOVER PLANTINGS ARE USED IN MASSES, ENTIRE BED SHALL BE EXCAVATED AND TILLED WITH SOIL AMENDMENTS PER SPECIFICATIONS.
5. CONTRACTORS SHALL ASSURE PERCOLATION OF A ALL PLANTING PITS PRIOR TO INSTALLATION.



5 SHRUB AND GROUNDCOVER SPACING
PLAN — NTS



6 PALM PLANTING
SECTION — NTS



7 RIVERSTONE
SECTION — 1 ½" = 1'-0"

8 NOT USED
PLAN — NTS

PLANTING NOTES:

1. DO NOT STAKE TREES EXCEPT WHERE SPECIFIED BY LANDSCAPE ARCHITECT. STAKING IS REQUIRED FOR TREES PLANTED ON SLOPES.
2. WHERE SEVERAL TREES WILL BE PLANTED CLOSE TOGETHER SUCH THAT THEY WILL LIKELY SHARE ROOT SPACE, TILL IN SOIL AMENDMENTS TO A DEPTH OF 4-6" OVER THE ENTIRE AREA.
3. FOR CONTAINER GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
4. FOR FIELD GROWN TREES, CUT BURLAP, ROPE AND WIRE BASKET AWAY FROM TOP AND SIDES OF ROOT BALL.
5. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
6. THE PLANTING PROCESS IS SIMILAR FOR DECIDUOUS AND EVERGREEN TREES.
7. DO NOT WRAP TRUNK; MARK NORTH SIDE OF TREE IN THE NURSERY AND LOCATE TO THE NORTH IN THE FIELD.
8. WIDTH OF PLANTING HOLE IS 3X ROOT BALL AT THE SURFACE, SLOPING TO 2X THE ROOT BALL DIAMETER AT THE DEPTH OF THE ROOT BALL.
9. BEFORE PLANTING, ADD 3-4" OF WELL COMPOSTED LEAVES, RECYCLED YARD WASTE OR OTHER COMPOST AND TILL INTO TOP 6" OF PREPARED SOIL. ADD COMPOST AT 20-35% BY VOLUME TO BACKFILL.
10. PERFORM PERCOLATION TEST FOR EACH TREE PIT TO CONFIRM THAT WATER DRAINS OUT OF THE SOIL. PROVIDE GRAVEL SUMP FILTER FABRIC & VENT PIPE IF DRAINAGE DOES NOT OCCUR WITHIN 24 HOURS. INCLUDE ALL SUMPS IN BASE BID. SHOULD SUMPS NOT BE NECESSARY AFTER PERCOLATION TEST, PROVIDE CHANGE ORDER DEDUCT TO OWNER.
11. IF PLANTING HOLES ARE DUG WITH A LARGE AUGER BREAKING DOWN THE SIDES WITH A SHOVEL CAN ELIMINATE GLAZING AND CREATE THE PREFERRED SLOPING SIDE.
12. TREES SHALL HAVE SINGLE LEADERS. TREES WITH 2 LEADERS WILL BE REJECTED.
13. DO NOT PLACE MULCH IN CONTACT WITH TRUNK.
14. PROVIDE GATOR BAGS FOR ALL TREES WHERE IRRIGATION IS NOT PROVIDED.

9 PLANTING NOTES

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116 AIR FORCE WAY
KURE BEACH, NC 28449

LS3P PROJECT: 8302-195530

No.	Description	Date
1	RESPONSE TO COMMENTS	2022.10.10
2	2023.02.06	RESPONSE
3	2023.04.06	GRADE/PAV
4	2023.08.02	WATERLIN
5	2023.10.04	SW PERMIT
6	2023.10.18	UTILITY/GR
7	2023.11.08	DEQ SW AI
8	2024.02.07	GRADING/S
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KEY PLAN:

SHEET NAME:

PLANTING & SOIL DETAIL

DATE: 05.20.2020
DRAWN BY: ML
CHECKED BY: JP

SHEET:

L6.00

CONSTRUCTION DOCUMENTS

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