HARPER'S MEADOW
SITE DEVELOPMENT PLANS

NEILLS CREEK TOWNSHIP
TOWN OF LILLINGTON, NORTH CAROLINA
HARNETT COUNTY

VICINITY MAP
NOT TO SCALE

EXISTING UTILITY OWNER

SEWER
LILLINGTON PUBLIC WORKS DEPARTMENT
PO Box 296
Lillington, North Carolina 27546
910-893-0314
Contact: Shane Cummings, PE

WATER
HARNETT REGIONAL WATER
700 McKinney Parkway
Lillington, North Carolina 27546
910-893-7575
Contact: Glenn McFadden

SOURCE OF TITLE
DB 4177, PG 1478
HARNETT COUNTY
REGISTER OF DEEDS

REZONING CONDITIONS

1. MINIMUM LOT SIZE – 20'X100'
2. FRONT SETBACK – 20', REAR SETBACK – 10', SIDE SETBACK – 0', CORNER SIDE – 10'
3. GARAGES FOR TOWN HOMES WILL BE FRONT ENTRY.
4. SINGLE STREET CONNECTION TO NC 210 WITH TWO ROAD STUBS TO ADJOINING PROPERTY AS SHOWN.

INDEX OF DRAWINGS

NOTICE TO CONTRACTOR
All construction must comply with current NC Building Codes and is subject to field inspection and verification.
Reviewed for Code Compliance
02/21/2025
Harnett COUNTY NORTH CAROLINA
Electrical review only

APPROVED
SEP 13 2024
HARNETT REGIONAL WATER
PO. BOX 1119
LILLINGTON, NC 27546

Know what's below. Call before you dig.

CIVIL ENGINEER
4D SITE SOLUTIONS, INC.
409 Chicago Drive - Suite 112
Fayetteville, North Carolina 28306
910-426-6777
Contact: Scott Brown, PE
email: sbrown@4dsitesolutions.com

OWNER/DEVELOPER
TRIANGLE LAND PARTNERS, LLC
PO Box 5548
Cary, North Carolina 27512
704-608-3085
Contact: Kirby LaForce
email: carolinalandgroup@outlook.com

SURVEYOR
4D SITE SOLUTIONS, INC.
409 Chicago Drive - Suite 112
Fayetteville, North Carolina 28306
910-426-6777
Contact: Jimmy Holland, PLS
email: jholland@4dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027452 ENGINEER SCOTT BROWN
03-22-24
NORTH CAROLINA PROFESSIONAL SEAL 4574 SURVEYOR SEAN R. SEWELL
03.11.24

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

I:\Triangle Land Partners\1896 Harper's Meadow\CIVIL 3D\CIVIL\1896 DESIGN.dwg • 4.01 C3 • 2.22.2024 • 1:18:39 PM

4Dsite solutions
civil engineering | land surveying
409 Chicago Drive, Suite 112, Fayetteville, NC 28306
office | 910-426-6777 fax | 910-426-5777 license number | C-2354
www.4dsitesolutions.com

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
HARPER'S MEADOW

PIN: 0651-90-8197.000
N MAIN ST/ NC HWY 210
NEILLS CREEK TOWNSHIP
TOWN OF LILLINGTON
HARNETT COUNTY
NORTH CAROLINA

CLIENT
TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE
SEE SHEETS

DATE RELEASED
MARCH 22, 2024

2022 HRW REQUIRED UTILITY NOTES

(REVISION 10– APRIL 19, 2022)

THE FOLLOWING UTILITY NOTES SHOULD BE ADDED TO THE COVERSHEET OF UTILITY PLANS FOR PROJECTS LOCATED IN HARNETT COUNTY:

WATER

A. THE FIRE MARSHAL'S OFFICE SHALL APPROVE ALL HYDRANT TYPES AND LOCATIONS IN NEW SUBDIVISIONS. HOWEVER, HARNETT REGIONAL WATER (HRW) PREFERS THE CONTRACTORS TO INSTALL ONE OF THE FOLLOWING FIRE HYDRANTS:

1. MUELLER – SUPER CENTURION 250 A–423 MODEL WITH A 5¼" MAIN VALVE OPENING THREE WAY (TWO HOSE NOZZLES AND ONE PUMPER NOZZLE);
2. AMERICAN DARLING – MARK B–84–B MODEL WITH A 5¼" MAIN VALVE OPENING THREE WAY (TWO HOSE NOZZLES AND ONE PUMPER NOZZLE);
3. WATEROUS – PACER B–67–250 MODEL WITH A 5¼" MAIN VALVE OPENING THREE WAY (TWO HOSE NOZZLES AND ONE PUMPER NOZZLE) OR APPROVED EQUAL FOR STANDARDIZATION.

*ALL FIRE HYDRANTS LISTED ABOVE MUST HAVE "AMERICAN NATIONAL FIRE HOSE CONNECTION SCREW THREADS" NST/NH HOSE THREADS.

B. FIRE HYDRANTS ARE INSTALLED AT CERTAIN ELEVATIONS. ANY GRADE CHANGE NEAR ANY FIRE HYDRANT, WHICH IMPEDES ITS OPERATION, SHALL BECOME THE RESPONSIBILITY OF THE UTILITY CONTRACTOR FOR CORRECTION. CORRECTIONS WILL BE MONITORED BY THE HRW UTILITY CONSTRUCTION INSPECTOR AND THE HARNETT COUNTY FIRE MARSHAL.

C. THE PROFESSIONAL ENGINEER (PE) SHALL OBTAIN AND PROVIDE THE NCDEQ "AUTHORIZATION TO CONSTRUCT" PERMIT TO THE UTILITY CONTRACTOR BEFORE THE CONSTRUCTION OF THE WATER LINE SHALL BEGIN. THE UTILITY CONTRACTOR MUST POST A COPY OF THE NCDEQ "AUTHORIZATION TO CONSTRUCT" PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ) ON SITE PRIOR TO THE START OF CONSTRUCTION. THE PERMIT MUST BE MAINTAINED ON SITE THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS OF THE PROPOSED WATER LINES THAT WILL SERVE THIS PROJECT.

D. THE UTILITY CONTRACTOR SHALL NOTIFY HARNETT REGIONAL WATER (HRW) AND THE PROFESSIONAL ENGINEER (PE) AT LEAST TWO DAYS PRIOR TO CONSTRUCTION COMMENCING. THE UTILITY CONTRACTOR MUST SCHEDULE A PRE–CONSTRUCTION CONFERENCE WITH MR. CHAD EVERETTE, HRW UTILITY CONSTRUCTION INSPECTOR AT LEAST TWO (2) DAYS BEFORE CONSTRUCTION WILL BEGIN AND THE UTILITY CONTRACTOR MUST COORDINATE WITH HRW FOR REGULAR INSPECTION VISITATIONS AND ACCEPTANCE OF THE WATER SYSTEM(S). CONSTRUCTION WORK SHALL BE PERFORMED ONLY DURING THE NORMAL WORKING HOURS OF HRW WHICH IS 8:00 AM – 5:00 PM MONDAY THROUGH FRIDAY. HOLIDAY AND WEEKEND WORK IS NOT PERMITTED BY HRW.

E. THE PROFESSIONAL ENGINEER (PE) SHALL PROVIDE HRW AND THE UTILITY CONTRACTOR WITH A SET OF NCDEQ APPROVED PLANS MARKED "RELEASED FOR CONSTRUCTION" AT LEAST TWO DAYS PRIOR TO CONSTRUCTION COMMENCING. THE REGISTERED LAND SURVEYOR (RLS) SHOULD STAKE OUT ALL LOT CORNERS AND THE GRADE STAKES FOR THE PROPOSED FINISH GRADE FOR EACH STREET BEFORE THE UTILITY CONTRACTOR BEGINS CONSTRUCTION OF THE WATER LINE(S). THE GRADE STAKES SHOULD BE SET WITH A CONSISTENT OFFSET FROM THE STREET CENTERLINE SO AS NOT TO INTERFERE WITH THE STREET GRADING AND UTILITY CONSTRUCTION.

F. THE UTILITY CONTRACTOR SHALL PROVIDE THE HRW UTILITY CONSTRUCTION INSPECTOR WITH MATERIAL SUBMITTALS AND SHOP DRAWINGS FOR ALL PROJECT MATERIALS PRIOR TO THE CONSTRUCTION OF ANY WATER LINE EXTENSION(S), AND ASSOCIATED WATER SERVICES IN HARNETT COUNTY. THE MATERIALS TO BE USED ON THE PROJECT MUST MEET THE ESTABLISHED SPECIFICATIONS OF HRW AND BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION. ALL SUBSTANDARD MATERIALS OR MATERIALS NOT APPROVED FOR USE IN HARNETT COUNTY FOUND ON THE PROJECT SITE MUST BE REMOVED IMMEDIATELY WHEN NOTIFIED BY THE HRW UTILITY CONSTRUCTION INSPECTOR.

G. THE WATER MAIN(S), FIRE HYDRANTS, SERVICE LINES, METER SETTERS AND ALL ASSOCIATED APPURTENANCES SHALL BE CONSTRUCTED IN STRICT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE HARNETT REGIONAL WATER (HRW). THE UTILITY CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE THE NEWLY INSTALLED WATER MAIN(S), WATER SERVICE LINES AND ALL ASSOCIATED METER SETTERS AND METER BOXES FOR OTHER UTILITY COMPANIES AND THEIR CONTRACTORS UNTIL THE NEW WATER MAIN(S) HAVE BEEN APPROVED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF ENVIRONMENTAL HEALTH, PUBLIC WATER SUPPLY SECTION (NCDEQ, DEH, PWS) AND ACCEPTED BY HRW.

H. PRIOR TO ACCEPTANCE, ALL SERVICES WILL BE INSPECTED TO ENSURE THAT THEY ARE INSTALLED AT THE PROPER DEPTH. ALL METER BOXES MUST BE FLUSH WITH THE GROUND LEVEL AT FINISH GRADE AND THE METER SETTERS MUST BE A MINIMUM OF 8" BELOW THE METER BOX LID. METER SETTERS SHALL BE CENTERED IN THE METER BOX AND SUPPORTED BY BRICK, BLOCK OR STONE.

I. THE UTILITY CONTRACTOR SHALL PROVIDE THE PROFESSIONAL ENGINEER (PE) AND HRW UTILITY CONSTRUCTION INSPECTOR WITH A SET OF RED LINE DRAWINGS IDENTIFYING THE COMPLETE WATER SYSTEM INSTALLED FOR EACH PROJECT. THE RED LINE DRAWINGS SHOULD IDENTIFY THE MATERIALS, PIPE SIZES AND APPROXIMATE DEPTHS OF THE WATER LINES AS WELL AS THE GATE VALVES, FIRE HYDRANTS, METER SETTERS, BLOW OFF ASSEMBLIES AND ALL ASSOCIATED APPURTENANCES FOR ALL WATER LINE(S) CONSTRUCTED IN HARNETT COUNTY. THE RED LINE DRAWINGS SHOULD CLEARLY IDENTIFY ANY DEVIATIONS FROM THE NCDEQ APPROVED PLANS. ALL CHANGE ORDERS MUST BE APPROVED BY HRW AND THE PROFESSIONAL ENGINEER (PE) IN WRITING AND PROPERLY DOCUMENTED IN THE RED LINE FIELD DRAWINGS.

J. POTABLE WATER MAINS CROSSING OTHER UTILITIES AND NON–POTABLE WATER LINES (SANITARY SEWER, STORM SEWER, RCP, ETC.) SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF TWENTY–FOUR (24") INCHES BETWEEN THE POTABLE WATER MAIN AND ALL OTHER UTILITIES. NCDOT REQUIRES THE NEW WATER MAINS TO BE INSTALLED UNDER THE STORM WATER LINES. THE POTABLE WATER MAIN SHALL BE INSTALLED WITH TWENTY–FOUR (24") INCHES OF VERTICAL SEPARATION AND WITH DUCTILE IRON PIPE WHEN DESIGNED TO BE PLACED UNDER A NON– POTABLE WATER LINE SUCH AS SANITARY SEWER OR STORM SEWER LINES. IF THESE SEPARATIONS CANNOT BE MAINTAINED THEN THE WATER MAIN SHALL BE INSTALLED WITH DUCTILE IRON PIPE. BOTH THE POTABLE WATER MAIN AND THE NON–POTABLE WATER LINE MUST BE CAST IRON OR DUCTILE IRON PIPE (DIP) IF THE STATE MINIMUM SEPARATIONS CANNOT BE MAINTAINED. THE DUCTILE IRON PIPE MUST BE LAID SO THE MECHANICAL JOINTS ARE AT LEAST (10') FEET FROM THE POINT WHERE THE POTABLE WATER MAIN CROSSES THE NON–POTABLE WATER LINE.

K. POTABLE WATER MAINS INSTALLED PARALLEL TO NON–POTABLE WATER LINES (SANITARY SEWER, STORM SEWER, RCP, ETC.) SHALL BE LAID TO PROVIDE A MINIMUM HORIZONTAL DISTANCE OF TEN (10') FEET BETWEEN THE POTABLE WATER MAIN AND SANITARY SEWER MAINS, SEWER LATERALS AND SERVICES. THE HORIZONTAL SEPARATION BETWEEN THE POTABLE WATER MAIN AND ANY OTHER UTILITY OR STORM SEWER SHALL NOT BE LESS THAN FIVE (5') FEET. THE POTABLE WATER MAIN MUST BE DUCTILE IRON PIPE IF THIS HORIZONTAL SEPARATION OF TEN (10') FEET CANNOT BE MAINTAINED. THE DUCTILE IRON PIPE SHALL EXTEND AT LEAST TEN (10') FEET BEYOND THE POINT WHERE THE MINIMUM REQUIRED HORIZONTAL SEPARATION OF TEN (10') FEET CAN BE RE–ESTABLISHED.

L. METER SETTERS SHALL BE INSTALLED IN PAIRS ON EVERY OTHER LOT LINE WHERE POSSIBLE TO LEAVE ADEQUATE SPACE FOR OTHER UTILITIES TO BE INSTALLED AT A LATER TIME. THE METER SETTERS SHALL BE INSTALLED AT LEAST ONE (1') FOOT INSIDE THE RIGHT–OF–WAY AND AT LEAST THREE (3') TO FIVE (5') FEET FROM THE PROPERTY LINE BETWEEN THE LOTS.

M. HRW REQUIRES THAT METER BOXES FOR ¾" SERVICES SHALL BE 12" WIDE X 17" LONG ABS PLASTIC BOXES AT LEAST 18" IN HEIGHT WITH CAST IRON LIDS/COVERS. METER BOXES FOR 1" SERVICES SHALL BE 17" WIDE X 21" LONG ABS PLASTIC BOXES AT LEAST 18" IN HEIGHT WITH PLASTIC LIDS AND CAST IRON FLIP COVERS IN THE CENTER OF THE LIDS. METER BOXES FOR 2" SERVICES SHALL BE 20" WIDE X 32" LONG ABS PLASTIC BOXES AT LEAST 20" IN HEIGHT WITH PLASTIC LIDS AND CAST IRON FLIP COVERS IN THE CENTER OF THE LIDS.

N. MASTER METERS MUST BE INSTALLED IN CONCRETE VAULTS SIZED FOR THE METER ASSEMBLY AND ASSOCIATED APPURTENANCES SO AS TO PROVIDE AT LEAST EIGHTEEN (18") INCHES OF CLEARANCE BETWEEN THE BOTTOM OF THE CONCRETE VAULT AND THE BOTTOM OF THE METER SETTER. THE MASTER METER MUST BE PROVIDED TEST PORTS IF THE METER IS NOT EQUIPPED WITH TEST PORTS FROM THE MANUFACTURER IN ACCORDANCE WITH THE HRW ESTABLISHED STANDARD SPECIFICATIONS AND DETAILS. DUCTILE IRON PIPE MUST BE USED FOR THE MASTER METER VAULT PIPING AND VALVE VAULT PIPING. THE UTILITY CONTRACTOR MUST PROVIDE SHOP DRAWINGS FOR THE METER VAULTS TO HRW PRIOR TO ORDERING THE CONCRETE VAULTS.

O. THE UTILITY CONTRACTOR WILL INSTALL POLYETHYLENE SDR–9 WATER SERVICE LINES THAT CROSS UNDER THE PAVEMENT INSIDE A SCHEDULE 40 PVC CONDUIT TO ALLOW FOR REMOVAL AND REPLACEMENT IN THE FUTURE. TWO (2) INDEPENDENT ¾" WATER SERVICE LINES MAY BE INSTALLED INSIDE ONE (1) – TWO (2") INCH SCHEDULE 40 PVC CONDUIT OR TWO (2) INDEPENDENT 1" WATER SERVICE LINES MAY BE INSTALLED INSIDE ONE

(1) – THREE (3") INCH SCHEDULE 40 PVC CONDUIT, BUT EACH WATER SERVICE SHALL BE TAPPED DIRECTLY TO THE WATER MAIN. SPLIT SERVICES ARE NOT ALLOWED BY HRW. IF SIDEWALKS ARE PROPOSED, THE CONDUIT MUST EXTEND PAST THE SIDEWALK.

P. THE WATER MAIN(S), FIRE HYDRANTS, GATE VALVES, SERVICE LINES, METER SETTERS AND ASSOCIATED APPURTENANCES MUST BE RATED FOR 200 PSI AND HYDROSTATICALLY PRESSURE TESTED TO 200 PSI. THE HYDROSTATIC PRESSURE TEST(S) MUST BE WITNESSED BY THE HRW UTILITY CONSTRUCTION INSPECTOR. THE UTILITY CONTRACTOR MUST NOTIFY HRW WHEN THEY ARE READY TO BEGIN FILLING IN LINES AND COORDINATE WITH HARNETT REGIONAL WATER TO WITNESS ALL PRESSURE TESTING.

Q. THE UTILITY CONTRACTOR SHALL CONDUCT A PNEUMATIC PRESSURE TEST USING COMPRESSED AIR OR OTHER INERT GAS ON THE STAINLESS STEEL TAPPING SLEEVE(S) PRIOR TO MAKING THE TAP ON THE EXISTING WATER MAIN. THIS PNEUMATIC PRESSURE TEST MUST BE WITNESSED BY THE HRW UTILITY CONSTRUCTION INSPECTOR. THE UTILITY CONTRACTOR SHALL USE ROMAC BRAND STAINLESS STEEL TAPPING SLEEVE(S) OR APPROVED EQUAL FOR ALL TAPS MADE IN HARNETT COUNTY. ALL NEW WATER LINE EXTENSIONS MUST BEGIN WITH A RESILIENT WEDGE TYPE GATE VALVE SIZED EQUAL TO THE DIAMETER OF THE NEW WATER LINE EXTENSION IN ORDER TO PROVIDE A MEANS OF ISOLATION BETWEEN HARNETT REGIONAL WATER'S EXISTING WATER MAINS AND THE NEW WATER LINE EXTENSIONS UNDER CONSTRUCTION.

R. ALL WATER MAINS WILL BE CONSTRUCTED WITH SDR–21 PVC PIPE OR CLASS 50 DUCTILE IRON PIPE RATED FOR AT LEAST 200 PSI OR GREATER. ALL PIPES MUST BE PROTECTED DURING LOADING, TRANSPORT, UNLOADING, STAGING, AND INSTALLATION. PVC PIPE MUST BE PROTECTED FROM EXTENDED EXPOSURE TO SUNLIGHT PRIOR TO INSTALLATION.

S. ALL WATER MAINS WILL BE FLUSHED AND DISINFECTED IN STRICT ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE HARNETT REGIONAL WATER. ALL WATER SAMPLES COLLECTED FOR BACTERIA TESTING WILL BE COLLECTED BY THE HRW UTILITY CONSTRUCTION INSPECTOR AND TESTED IN THE HRW LABORATORY.

T. ALL FITTINGS LARGER THAN TWO (2") INCHES DIAMETER SHALL BE DUCTILE IRON. HRW REQUIRES THAT MECHANICAL JOINTS BE ASSEMBLED WITH GRIP RINGS AS "MEGALUG" FITTINGS ARE NOT APPROVED BY HARNETT REGIONAL WATER FOR PIPE SIZES SMALLER THAN TWELVE INCHES (12") DIAMETER. PVC PIPE USED FOR WATER MAINS SHALL BE CONNECTED BY SLIP JOINT OR MECHANICAL JOINT WITH GRIP RINGS. GLUED PIPE JOINTS ARE NOT ALLOWED ON PVC PIPE USED FOR WATER MAINS IN HARNETT COUNTY.

U. HRW REQUIRES THAT THE UTILITY CONTRACTOR INSTALL TRACER WIRE IN THE TRENCH WITH ALL WATER LINES. THE TRACER WIRE SHALL BE 12 GA. INSULATED, SOLID COPPER CONDUCTOR AND IT SHALL BE TERMINATED AT THE TOP OF THE VALVE BOXES OR MANHOLES. NO SPLICED WIRE CONNECTIONS SHALL BE MADE UNDERGROUND ON TRACER WIRE INSTALLED IN HARNETT COUNTY. THE TRACER WIRE MAY BE SECURED WITH DUCT TAPE TO THE TOP OF THE PIPE BEFORE BACKFILLING.

V. THE UTILITY CONTRACTOR WILL PROVIDE PROFESSIONAL ENGINEER (PE) AND THE HRW UTILITY CONSTRUCTION INSPECTOR WITH A SET OF RED LINE FIELD DRAWINGS TO IDENTIFY THE INSTALLED LOCATIONS OF THE WATER LINE(S) AND ALL ASSOCIATED SERVICES. ALL CHANGE ORDERS MUST BE PRE–APPROVED BY HRW AND THE PROFESSIONAL ENGINEER (PE) IN WRITING AND PROPERLY DOCUMENTED IN THE RED LINE FIELD DRAWINGS.

W. THE UTILITY CONTRACTOR SHALL SPOT DIG TO EXPOSE EACH UTILITY PIPE OR LINE WHICH MAY CONFLICT WITH CONSTRUCTION OF PROPOSED WATER LINE EXTENSIONS WELL IN ADVANCE TO VERIFY LOCATIONS OF THE EXISTING UTILITIES. THE UTILITY CONTRACTOR SHALL PROVIDE BOTH HORIZONTAL AND VERTICAL CLEARANCES TO THE PROFESSIONAL ENGINEER (PE) TO ALLOW THE PE TO ADJUST THE WATER LINE DESIGN IN ORDER TO AVOID CONFLICTS WITH EXISTING UNDERGROUND UTILITIES. THE UTILITY CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER AND BE RESPONSIBLE FOR TEMPORARY RELOCATION AND/OR SECURING EXISTING UTILITY POLES, PIPES, WIRES, CABLES, SIGNS AND/OR UTILITIES INCLUDING SERVICES IN ACCORDANCE WITH THE UTILITY OWNER REQUIREMENTS DURING WATER LINE INSTALLATION, GRADING AND STREET CONSTRUCTION.

X. PRIOR TO THE COMMENCEMENT OF ANY WORK WITHIN ESTABLISHED UTILITY EASEMENTS OR NCDOT RIGHT–OF–WAYS THE UTILITY CONTRACTOR IS REQUIRED TO HAVE A SIGNED NCDOT ENCROACHMENT AGREEMENT POSTED ON SITE AND NOTIFY ALL CONCERNED UTILITY COMPANIES IN ACCORDANCE WITH G.S. 87–102. THE UTILITY CONTRACTOR MUST CALL THE NC ONE CALL CENTER AT 811 OR (800) 632–4949 TO VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. EXISTING UTILITIES SHOWN IN THESE PLANS ARE TAKEN FROM MAPS FURNISHED BY VARIOUS UTILITY COMPANIES AND HAVE NOT BEEN PHYSICALLY LOCATED OR VERIFIED BY THE P.E. (I.E. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC,

NATURAL GAS, ETC.). THE UTILITY CONTRACTOR WILL BE RESPONSIBLE TO REPAIR ANY AND ALL DAMAGES TO THE SATISFACTION OF THE RELATED UTILITY COMPANY.

Y. THE UTILITY CONTRACTOR SHALL PROVIDE HRW WITH AT LEAST ONE (1) FIRE HYDRANT WRENCH AND ONE (1) BREAK–AWAY FLANGE KIT FOR EVERY SUBDIVISION WITH FIRE HYDRANTS DEVELOPED IN HARNETT COUNTY. THESE ITEMS MUST BE PROVIDED TO HRW BEFORE THE FINAL INSPECTION WILL BE SCHEDULED BY THE HRW UTILITY CONSTRUCTION INSPECTOR. IN ADDITION, THE UTILITY CONTRACTOR SHALL INSTALL A 4" X 4" CONCRETE VALVE MARKER AT THE EDGE OF THE RIGHT–OF–WAY TO IDENTIFY THE LOCATION OF EACH GATE VALVE INSTALLED IN THE NEW WATER SYSTEM WITH THE EXCEPTION OF THE FIRE HYDRANT ISOLATION VALVES. THE CONTRACTOR SHALL MEASURE THE DISTANCE FROM THE CENTER OF THE CONCRETE MARKER TO THE CENTER OF THE VALVE BOX. THIS DISTANCE (IN LINEAR FEET) SHALL BE STAMPED ON THE BRASS PLATE LOCATED ON THE TOP OF THE CONCRETE VALVE MARKER. IN LIEU OF INSTALLING THE CONCRETE VALVE MARKERS, THE UTILITY CONTRACTOR MAY PROVIDE AT LEAST TWO MEASUREMENTS FROM TWO INDEPENDENT PERMANENT ABOVE GROUND STRUCTURES TO THE PROFESSIONAL ENGINEER (PE) IN THE RED LINE DRAWINGS TO IDENTIFY THE VALVE LOCATIONS. THE PROFESSIONAL ENGINEER (PE) MUST INCLUDE THESE MEASUREMENTS IN THE AS–BUILT RECORD DRAWINGS SUBMITTED TO HRW.

Z. THE UTILITY CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL REPAIRS DUE TO LEAKAGE DAMAGE FROM POOR WORKMANSHIP DURING THE ONE

(1) YEAR WARRANTY PERIOD ONCE THE WATER SYSTEM IMPROVEMENTS HAVE BEEN ACCEPTED BY HARNETT REGIONAL WATER. HARNETT REGIONAL WATER WILL PROVIDE MAINTENANCE AND REPAIRS WHEN REQUESTED AND BILL THE DEVELOPER AND/OR UTILITY CONTRACTOR IF NECESSARY DUE TO LACK OF RESPONSE WITHIN 48 HOURS OF NOTIFICATION OF WARRANTY WORK. THE UTILITY CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL REPAIRS DUE TO DAMAGES RESULTING FROM FAILURE TO LOCATE THE NEW WATER LINES AND ASSOCIATED APPURTENANCES FOR OTHER UTILITIES AND THEIR CONTRACTORS UNTIL THE WATER LINES HAVE BEEN APPROVED BY NCDEQ AND ACCEPTED BY HRW. THE FINAL INSPECTION OF WATER SYSTEM IMPROVEMENTS CANNOT BE SCHEDULED WITH HRW UNTIL THE STREETS HAVE BEEN PAVED; THE RIGHTS–OF–WAY AND UTILITY EASEMENTS HAVE BEEN SEEDED AND STABILIZED WITH AN ADEQUATE STAND OF GRASS IN PLACE TO PREVENT EROSION ISSUES ON SITE.

AA THE ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THAT CONSTRUCTION IS, AT ALL TIMES, IN COMPLIANCE WITH ACCEPTED SANITARY ENGINEERING PRACTICES AND APPROVED PLANS AND SPECIFICATIONS. NO FIELD CHANGES TO THE APPROVED PLANS ARE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY HRW. A COPY OF EACH ENGINEER'S FIELD REPORT IS TO BE SUBMITTED TO HRW AS EACH SUCH INSPECTION IS MADE ON SYSTEM IMPROVEMENTS OR TESTING IS PERFORMED BY THE CONTRACTOR. WATER AND SEWER INFRASTRUCTURE MUST PASS ALL TESTS REQUIRED BY HRW SPECIFICATIONS

AND THOSE OF ALL APPLICABLE REGULATORY AGENCIES. THESE TESTS INCLUDE, BUT ARE NOT LIMITED TO: AIR TEST, VACUUM TEST, MANDREL TEST, VISUAL TEST, PRESSURE TEST, BACTERIOLOGICAL TEST, ETC. A HRW INSPECTOR MUST BE PRESENT DURING TESTING AND ALL TEST RESULTS SHALL BE SUBMITTED TO HRW. ALL TESTS MUST BE SATISFIED BEFORE THE FINAL INSPECTION WILL BE SCHEDULED WITH THE HRW INSPECTOR. THE ENGINEER OF RECORD MUST REQUEST IN WRITING TO SCHEDULE THE FINAL INSPECTION ONCE ALL CONSTRUCTION IS COMPLETE. THE DEVELOPER'S ENGINEER OF RECORD AND THE HRW UTILITY CONSTRUCTION INSPECTOR SHALL PREPARE A WRITTEN PUNCH LIST OF ANY DEFECTS OR DEFICIENCIES NOTED DURING THE FINAL INSPECTION, SHOULD ANY EXIST. UPON COMPLETION OF THE PUNCH LIST, THE DEVELOPER'S ENGINEER OF RECORD WILL SCHEDULE ANOTHER INSPECTION. IN THE EVENT THE NUMBER OF INSPECTIONS PERFORMED BY THE HRW EXCEEDS TWO, ADDITIONAL FEES MAY BE ASSESSED TO THE DEVELOPER.

4Dsite solutions
civil engineering | land surveying
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office | 910-426-6777 fax | 910-426-5777 license number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027452 C. SCOTT BROWN

03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

PROJECT NOTES

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

SEE SHEETS

DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

G-1.0

VICINITY MAP
NOT TO SCALE

NOTES:
1. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED.
2. COMBINED SCALE FACTOR: 0.99987707
   LOCALIZATION POINT N: 609,133.262 E: 2,060,013.076
   CONTROL ESTABLISHED VIA NORTH CAROLINA GEODETIC SURVEY VIRTUAL REFERENCE SYSTEM.
3. THE HORIZONTAL AND VERTICAL CONTROL FOR THIS SURVEY WERE ESTABLISHED USING THE NORTH CAROLINA GEODETIC SURVEY VIRTUAL REFERENCE SYSTEM.
4. LINES NOT SURVEYED ARE SHOWN AS DASHED LINES FROM INFORMATION REFERENCED ON THE FACE OF THIS MAP.
5. NONCONFORMING STRUCTURES HAVE NOT BEEN CREATED BY THIS SURVEY.
6. THE SUBJECT PROPERTY IS THE SAME AS THE PROPERTY DESCRIBED IN THAT CERTAIN TITLE COMMITMENT ID. KEY2022-00197 ISSUED BY KEYSTONE TITLE, LLC WITH AN EFFECTIVE DATE OF JUNE 6, 2022, AND ALL EASEMENTS, COVENANTS AND RESTRICTIONS REFERENCED IN SAID TITLE COMMITMENT OR APPARENT FROM A PHYSICAL INSPECTION OF THE SUBJECT PROPERTY OR OTHERWISE KNOWN TO ME HAVE BEEN PLOTTED HEREON OR OTHERWISE NOTED AS TO THEIR EFFECT ON THE SUBJECT PROPERTY.
7. LOCATIONS OF ALL UNDERGROUND UTILITIES LYING WITHIN THIS MAPPED AREA MAY NOT BE SHOWN ON THIS PLAN. DEVELOPERS OR CONTRACTORS SHOULD NOT ONLY MAKE SUBSURFACE INVESTIGATIONS BUT SHOULD ALSO ALLOW FOR CONTINGENCIES WHICH MIGHT ARISE BY REASON OF ENCOUNTERING UNRECORDED LINES OR OF LINES BEING IN DIFFERENT LOCATIONS THAN INDICATED ON THIS SURVEY.
8. THIS PROPERTY LIES WITHIN FLOOD ZONE "X" ACCORDING TO MAP# 3720064200J OF THE FLOOD INSURANCE RATE, DATED OCTOBER 3, 2006 AND MAP# 3720066000J OF THE FLOOD INSURANCE RATE, DATED OCTOBER 3, 2006.

AREA: (BY COORDINATE COMPUTATION)
419,655 SF (9.63 AC)

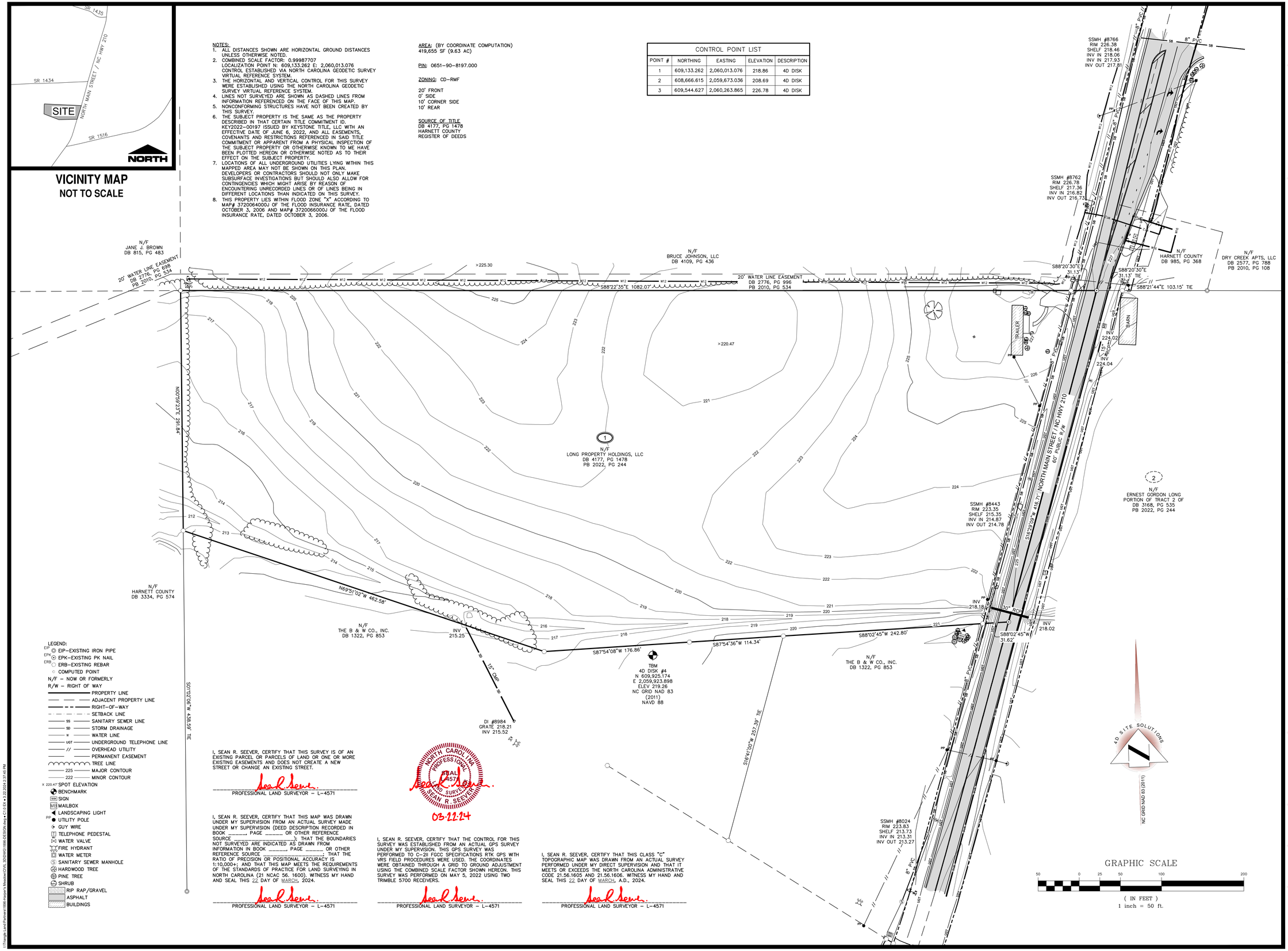
PIN: 0651-90-8197.000

ZONING: CD-RMF

20' FRONT
0' SIDE
10' CORNER SIDE
10' REAR

SOURCE OF TITLE
DB 4177, PG 1478
HARNETT COUNTY
REGISTER OF DEEDS

CONTROL POINT LIST				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	609,133.262	2,060,013.076	218.86	4D DISK
2	608,666.615	2,059,673.036	208.69	4D DISK
3	609,544.627	2,060,263.865	226.78	4D DISK



LEGEND:
- EIP — EIP-EXISTING IRON PIPE
- EPK — EPK-EXISTING PK NAIL
- ERB — ERB-EXISTING REBAR
- COMPUTED POINT
- N/F — NOW OR FORMERLY
- R/W — RIGHT OF WAY
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- RIGHT-OF-WAY
- SETBACK LINE
- SS — SANITARY SEWER LINE
- SD — STORM DRAINAGE
- W — WATER LINE
- UGT — UNDERGROUND TELEPHONE LINE
- // — OVERHEAD UTILITY
- PERMANENT EASEMENT
- TREE LINE
- 225 — MAJOR CONTOUR
- 222 — MINOR CONTOUR
- x 220.47' SPOT ELEVATION
- BENCHMARK
- SIGN
- MB MAILBOX
- LANDSCAPING LIGHT
- PP UTILITY POLE
- GUY WIRE
- TELEPHONE PEDESTAL
- WATER VALVE
- FH FIRE HYDRANT
- WM WATER METER
- SANITARY SEWER MANHOLE
- HARDWOOD TREE
- PINE TREE
- SHRUB
- RIP RAP/GRAVEL
- ASPHALT
- BUILDINGS

I, SEAN R. SEEVER, CERTIFY THAT THIS SURVEY IS OF AN EXISTING PARCEL OR PARCELS OF LAND OR ONE OR MORE EXISTING EASEMENTS AND DOES NOT CREATE A NEW STREET OR CHANGE AN EXISTING STREET.

Sean R. Seever
PROFESSIONAL LAND SURVEYOR – L-4571

I, SEAN R. SEEVER, CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN BOOK _____, PAGE _____ OR OTHER REFERENCE SOURCE _____); THAT THE BOUNDARIES NOT SURVEYED ARE INDICATED AS DRAWN FROM INFORMATION IN BOOK _____, PAGE _____ OR OTHER REFERENCE SOURCE _____; THAT THE RATIO OF PRECISION OR POSITIONAL ACCURACY IS 1:10,000+; AND THAT THIS MAP MEETS THE REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 56. 1600). WITNESS MY HAND AND SEAL THIS 22 DAY OF MARCH, 2024.

Sean R. Seever
PROFESSIONAL LAND SURVEYOR – L-4571

NORTH CAROLINA PROFESSIONAL SEAL L-4571 LAND SURVEYOR SEAN R. SEEVER
03.22.24

I, SEAN R. SEEVER, CERTIFY THAT THE CONTROL FOR THIS SURVEY WAS ESTABLISHED FROM AN ACTUAL GPS SURVEY UNDER MY SUPERVISION. THIS GPS SURVEY WAS PERFORMED TO C-2II FGCC SPECIFICATIONS RTK GPS WITH VRS FIELD PROCEDURES WERE USED. THE COORDINATES WERE OBTAINED THROUGH A GRID TO GROUND ADJUSTMENT USING THE COMBINED SCALE FACTOR SHOWN HEREON. THIS SURVEY WAS PERFORMED ON MAY 5, 2022 USING TWO TRIMBLE 5700 RECEIVERS.

Sean R. Seever
PROFESSIONAL LAND SURVEYOR – L-4571

I, SEAN R. SEEVER, CERTIFY THAT THIS CLASS "C" TOPOGRAPHIC MAP WAS DRAWN FROM AN ACTUAL SURVEY PERFORMED UNDER MY DIRECT SUPERVISION AND THAT IT MEETS OR EXCEEDS THE NORTH CAROLINA ADMINISTRATIVE CODE 21.56.1605 AND 21.56.1606. WITNESS MY HAND AND SEAL THIS 22 DAY OF MARCH, A.D., 2024.

Sean R. Seever
PROFESSIONAL LAND SURVEYOR – L-4571

4D SITE SOLUTIONS
NC GRID NAD 83 (2011)

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

4Dsite solutions
civil engineering | land surveying
409 Chicago Drive, Suite 112, Fayetteville, NC 28306
office | 910-426-6777 fax | 910-426-5777 licenses number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL L-4571 LAND SURVEYOR SEAN R. SEEVER
03.22.24

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
HARPER'S MEADOW

EXISTING CONDITIONS

CLIENT
TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

SURVEYED BY:	CLIFF
DRAWN BY:	SEAN
CHECKED BY:	JIMMY
PROJECT NUMBER:	1896

DRAWING SCALE
HORIZONTAL: 1"=50'

DATE SURVEYED
MAY 5, 2022

SHEET NUMBER
C-1.0

VICINITY MAP
NOT TO SCALE

LEGEND:
- EIP — EIP–EXISTING IRON PIPE
- EPK — EPK–EXISTING PK NAIL
- ERB — ERB–EXISTING REBAR
- COMPUTED POINT
- N/F – NOW OR FORMERLY
- R/W – RIGHT OF WAY
- TOL – TOWN OF LILLINGTON
- PROPERTY LINE
- ADJACENT PROPERTY LINE
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- SETBACK LINE
- SS — SANITARY SEWER LINE
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- FIRE HYDRANT
- WATER METER
- S SANITARY SEWER MANHOLE
- HARDWOOD TREE
- PINE TREE
- SHRUB
- RIP RAP/GRAVEL
- ASPHALT
- BUILDINGS

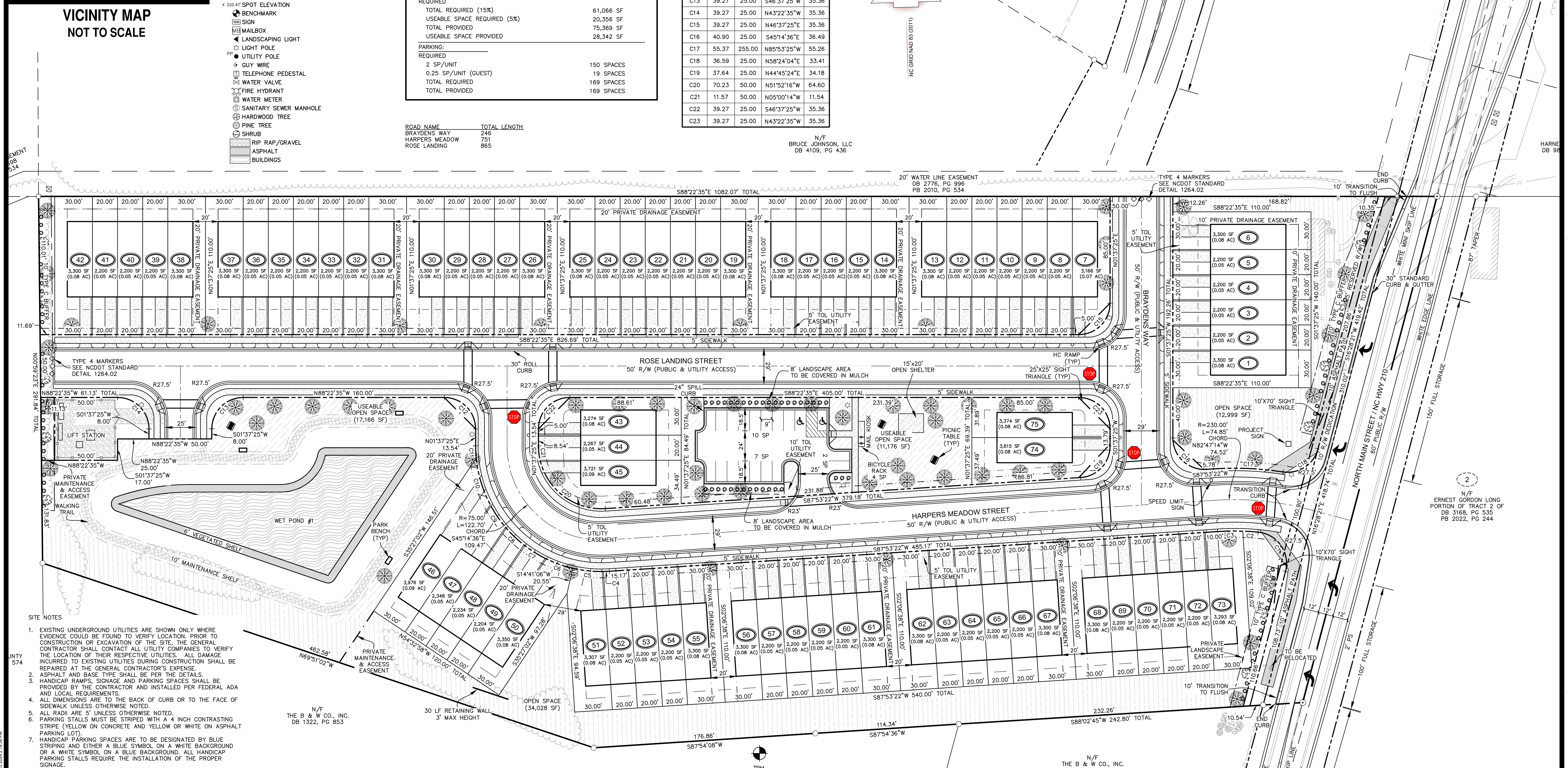
SITE DATA

DEVELOPER	TRIANGLE LAND PARTNERS, LLC
MAILING ADDRESS	PO BOX 5548
CITY, STATE	CARY, NORTH CAROLINA 27512
PIN NUMBER	0651–90–8197.000
TOWNSHIP	NEILLS CREEK
TOTAL SITE ACREAGE	9.63 AC
ACREAGE TO BE DEVELOPED	9.63 AC
ZONING	CD–RMF
EXISTING USE	UNDEVELOPED/RESIDENTIAL
PROPOSED USE	RESIDENTIAL
DISTURBED/DENUDED AREA	10.82 AC
SETBACKS REQUIRED:	
FRONT	20 FT
SIDE	0 FT
CORNER SIDE	10 FT
REAR	10 FT
OPEN SPACE REQUIRED:	
REQUIRED	
TOTAL REQUIRED (15%)	61,066 SF
USEABLE SPACE REQUIRED (5%)	20,356 SF
TOTAL PROVIDED	75,369 SF
USEABLE SPACE PROVIDED	28,342 SF
PARKING:	
REQUIRED	
2 SP/UNIT	150 SPACES
0.25 SP/UNIT (GUEST)	19 SPACES
TOTAL REQUIRED	169 SPACES
TOTAL PROVIDED	169 SPACES

ROAD NAME	TOTAL LENGTH
BRAYDENS WAY	246
HARPERS MEADOW	751
ROSE LANDING	865

CURVE TABLE

CURVE	LENGTH	RADIUS	BEARING	CHORD
C1	43.45	25.00	N33°19'05"W	38.18
C2	12.18	205.00	N84°48'37"W	12.17
C3	20.03	205.00	N89°18'40"W	20.02
C4	4.84	100.00	S89°16'30"W	4.84
C5	24.48	100.00	N82°19'39"W	24.42
C6	23.47	100.00	N68°35'31"W	23.41
C7	20.04	100.00	N56°07'40"W	20.01
C8	20.34	100.00	N44°33'31"W	20.31
C9	21.61	100.00	N32°32'19"W	21.57
C10	39.07	100.00	N15°09'15"W	38.82
C11	9.75	100.00	N01°10'09"W	9.74
C12	39.27	25.00	N43°22'35"W	35.36
C13	39.27	25.00	S46°37'25"W	35.36
C14	39.27	25.00	N43°22'35"W	35.36
C15	39.27	25.00	N46°37'25"E	35.36
C16	40.90	25.00	S45°14'36"E	36.49
C17	55.37	255.00	N85°53'25"W	55.26
C18	36.59	25.00	N58°24'04"E	33.41
C19	37.64	25.00	N44°45'24"E	34.18
C20	70.23	50.00	N51°52'16"W	64.60
C21	11.57	50.00	N05°00'14"W	11.54
C22	39.27	25.00	S46°37'25"W	35.36
C23	39.27	25.00	N43°22'35"W	35.36



SITE NOTES

1. EXISTING UNDERGROUND UTILITIES ARE SHOWN ONLY WHERE EVIDENCE COULD BE FOUND TO VERIFY LOCATION. PRIOR TO CONSTRUCTION OR EXCAVATION OF THE SITE, THE GENERAL CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES TO VERIFY THE LOCATION OF THEIR RESPECTIVE UTILITIES. ALL DAMAGE INCURRED TO EXISTING UTILITIES DURING CONSTRUCTION SHALL BE REPAIRED AT THE GENERAL CONTRACTOR'S EXPENSE.
2. ASPHALT AND BASE TYPE SHALL BE PER THE DETAILS.
3. HANDICAP RAMPS, SIGNAGE AND PARKING SPACES SHALL BE PROVIDED BY THE CONTRACTOR AND INSTALLED PER FEDERAL ADA AND LOCAL REQUIREMENTS.
4. ALL DIMENSIONS ARE TO THE BACK OF CURB OR TO THE FACE OF SIDEWALK UNLESS OTHERWISE NOTED.
5. ALL RADII ARE 5' UNLESS OTHERWISE NOTED.
6. PARKING STALLS MUST BE STRIPED WITH A 4 INCH CONTRASTING STRIPE (YELLOW ON CONCRETE AND YELLOW OR WHITE ON ASPHALT PARKING LOT).
7. HANDICAP PARKING SPACES ARE TO BE DESIGNATED BY BLUE STRIPING AND EITHER A BLUE SYMBOL ON A WHITE BACKGROUND OR A WHITE SYMBOL ON A BLUE BACKGROUND. ALL HANDICAP PARKING STALLS REQUIRE THE INSTALLATION OF THE PROPER SIGNAGE.
8. ALL PARKING SPACES ARE TO BE LAID OUT IN ACCORDANCE WITH THE SITE PLAN DIMENSIONS.
9. ALL WASTE MATERIAL SHALL BE DISPOSED OF OFF–SITE IN ACCORDANCE WITH STATE AND LOCAL LAWS AND REGULATIONS.
10. ALL SITE IMPROVEMENTS SHALL BE INSTALLED PER TOWN OF LILLINGTON AND STATE REGULATIONS.
11. LAND USE CLASS: SINGLE FAMILY RESIDENTIAL
12. LOT COUNT: 75
13. WATERSHED CLASSIFICATION: WS–IV–PA
14. THIS PROJECT LIES WITHIN 1 MILE OF A VOLUNTARY AGRICULTURAL DISTRICT.
15. NC 210N IS ON THE NCDOT THOROUGHFARE PLAN.
16. FOUNDATION SURVEYS WILL BE REQUIRED FOR ALL LOTS.
17. NO PARKING WITHIN R/W WILL BE PERMITTED.
18. STREET AND STORM WATER DRAINAGE IMPROVEMENTS TO BE INSTALLED IN ACCORDANCE WITH THE "TOWN OF LILLINGTON STANDARD ROADWAY, SIDEWALK, CURB & GUTTER, & DRAINAGE PIPE SPECIFICATIONS".
19. OPEN SPACES, SIGNAGE, MAIL KIOSK, DRAINAGE EASEMENTS, LANDSCAPING, PARKING LOTS, AND ALL OTHER ITEMS NOT UNDER TOWN PURVIEW TO BE MAINTAINED BY THE HOME OWNERS ASSOCIATION ("HOA"), PROPERTY OWNERS ASSOCIATION ("POA"), CONDOMINIUM OWNERS ASSOCIATION ("COA"), OR ANY OTHER ASSOCIATION RESPONSIBLE FOR THE MAINTENANCE AND/OR UPKEEP OF THE RESIDENTIAL COMMUNITY.

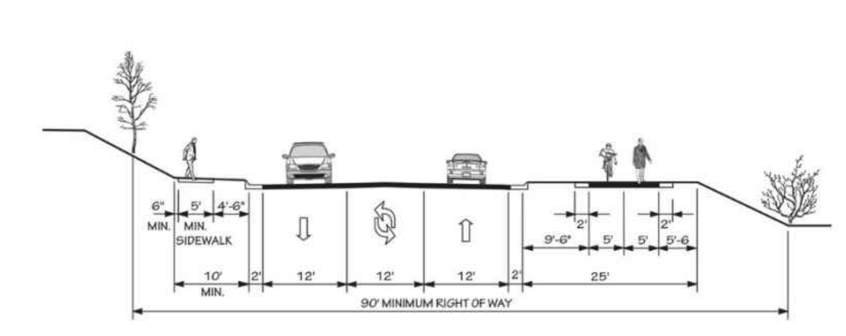
LANDSCAPING NOTES:
1. HEIGHT AND SPREAD OF TREE SPECIMEN SHALL MEET REQUIREMENTS OF THE AMERICAN ASSOCIATION OF NURSERYMEN, AMERICAN STANDARD FOR NURSERY STOCK.
2. EACH TREE MUST BE PLANTED SUCH THAT THE ROOT FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL. TREES WHERE THE ROOT FLARE IS NOT VISIBLE SHALL BE REJECTED. DO NOT COVER THE ROOT FLARE WITH MULCH.
3. DO NOT PLACE MULCH IN CONTACT WITH THE TREE TRUNK. KEEP MULCH A MIN. OF 4" AWAY FROM THE TRUNK BASE.
4. STREET TREE LOCATIONS ARE FOR ILLUSTRATION PURPOSES ONLY. PLACEMENT OF TREES TO BE ADJUSTED FOR DRIVEWAYS AND UTILITIES.

*THIS LANDSCAPING PLAN IS THE MINIMUM REQUIRED TO MEET WITH THE TOWN OF LILLINGTON UDO. THE OWNER OR DEVELOPER IS ENCOURAGED TO CONSULT WITH A LANDSCAPE ARCHITECT IN ORDER TO DEVELOP A PLAN THAT IS MORE IN DEPTH THAN THE MINIMUM REQUIREMENTS. THIS PLAN IS FOR PERMITTING PURPOSES ONLY.

	QTY.	TYPE	PLANTING SIZE	MIN. HEIGHT	SCIENTIFIC NAME
		CANOPY TREES			
	68	WILLOW OAK	3" CALIPER	8'	QUERCUS PHELLOS
		UNDERSTORY TREES			
	11	FLOWERING DOGWOOD	1.5" CALIPER	8'	CORNUS FLORIDA
		SHRUBS			
	101	JAPANESE HOLLY	5 GAL.	18"	ILEX CRENATA

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

TYPICAL SECTION No. 3E
2 LANE WITH TWO WAY LEFT TURN LANE, CURB & GUTTER, SIDEWALKS, AND SIDEPATH



4Dsite solutions
civil engineering | land surveying
409 Chicago Drive, Suite 112, Fayetteville, NC 28306
office | 910-426-6777 fax | 910-426-5777 license number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 45?? LAND SURVEYOR SEAN R. SEEVER 03-22-24

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
HARPER'S MEADOW

SITE PLAN

CLIENT
TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE
HORIZONTAL: 1"=40'

DATE RELEASED
MARCH 22, 2024

SHEET NUMBER
C-2.0

I:\Triangle Land Partners\1896-Harper's Meadow\CIVIL 3D\DWG\1896-DESIGN.dwg • C2.0 SI • 3.22.2024 2:19:36 PM

VICINITY MAP
NOT TO SCALE

LEGEND:
- EIP—EXISTING IRON PIPE
- EPK—EXISTING PK NAIL
- ERB—EXISTING REBAR
- COMPUTED POINT
- N/F – NOW OR FORMERLY
- R/W – RIGHT OF WAY
- TOL – TOWN OF LILLINGTON
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- RIGHT–OF–WAY
- SETBACK LINE
- SANITARY SEWER LINE
- STORM DRAINAGE
- WATER LINE
- UNDERGROUND TELEPHONE LINE
- OVERHEAD UTILITY
- PERMANENT EASEMENT
- TREE LINE
- 225 MAJOR CONTOUR
- 222 MINOR CONTOUR
- X 220.47' SPOT ELEVATION
- BENCHMARK
- SIGN
- MAILBOX
- LANDSCAPING LIGHT
- UTILITY POLE
- GUY WIRE
- TELEPHONE PEDESTAL
- WATER VALVE
- FIRE HYDRANT
- WATER METER
- SANITARY SEWER MANHOLE
- HARDWOOD TREE
- PINE TREE
- SHRUB
- RIP RAP/GRAVEL
- ASPHALT
- BUILDINGS
- LIMITS OF CONSTRUCTION
- SILT FENCE LINE
- JUTE NETTING
- DIVERSION BERM
- INLET PROTECTION

NOTIFICATION OF COMBINED SELF–MONITORING AND SELF–INSPECTION FORM:

THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND–DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. RULES DETAILING THE DOCUMENTATION OF THESE INSPECTIONS TOOK EFFECT OCTOBER 1, 2010.

TO SIMPLIFY DOCUMENTATION OF SELF–INSPECTION REPORTS AND NPDES SELF–MONITORING REPORTS, DWQ AND DEMLR DEVELOPED A COMBINED FORM. THE SELF–INSPECTION PROGRAM IS SEPARATE FROM THE WEEKLY SELF–MONITORING PROGRAM OF THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES. THE FOCUS OF THE SELF–INSPECTION REPORT IS THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES ACCORDING TO THE APPROVED PLAN. THE INSPECTIONS SHOULD BE CONDUCTED AFTER EACH PHASE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED. THE FORM CAN BE ACCESSED AT: HTTP://PORTAL.NCDENR.ORG/WEB/LR/EROSION

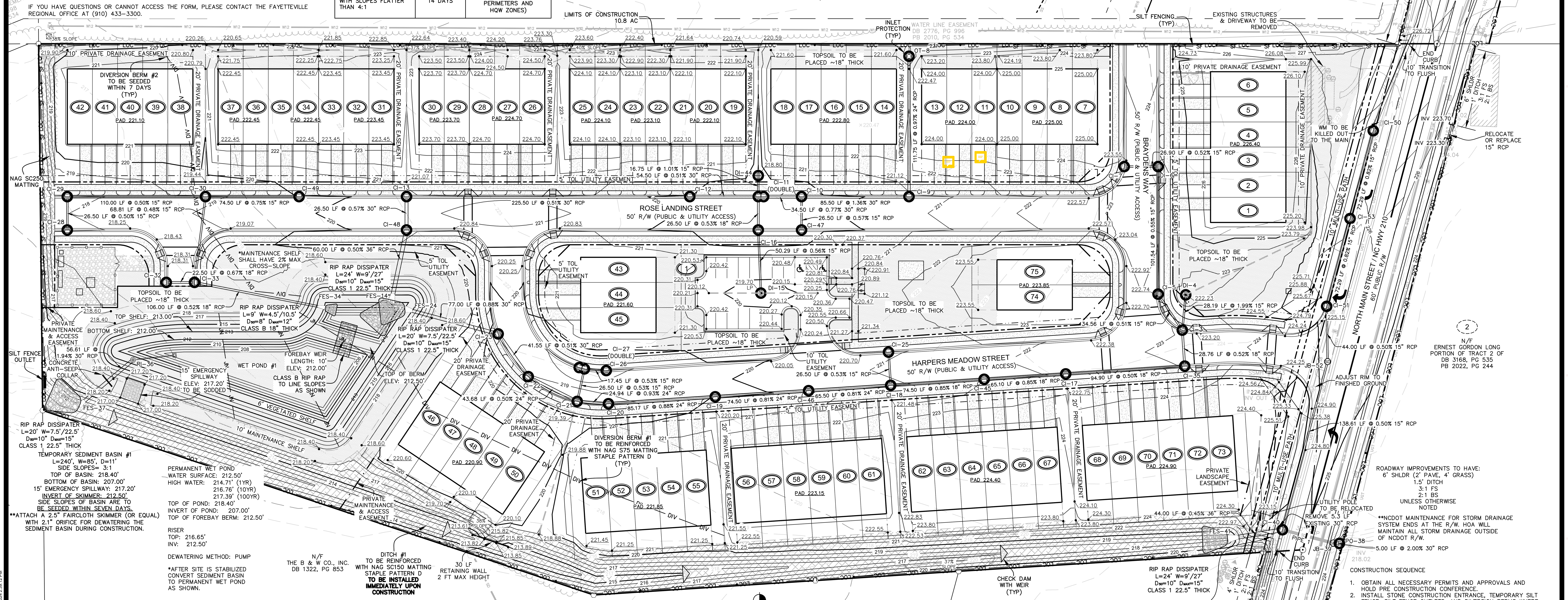
IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THE FAYETTEVILLE REGIONAL OFFICE AT (910) 433–3300.

GROUND STABILIZATION CHART

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITHCES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
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
SLOPES 3:1 OR FLATTER	14 DAYS	7–DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

EROSION CONTROL NOTES

1. ALL INLET/OUTLET PROTECTION WILL BE CHECKED FOR MAINTENANCE AND FAILURE EACH ACTIVE DAY ON SITE. SEDIMENT WILL BE REMOVED FROM THE SEDIMENT TRAP AND INLET PROTECTION DEVICES WHEN THE STORAGE CAPACITY HAS BEEN APPROXIMATELY 50% FILLED. GRAVEL WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS PROPERLY. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES ABOUT 0.5' DEEP AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NEEDED TO MAINTAIN A PROPER BARRIER.
2. TEMPORARY EROSION CONTROL FACILITIES AND/OR PERMANENT FACILITIES INTENDED TO CONTROL EROSION OF AND EARTH DISTURBANCE OPERATION SHALL BE INSTALLED BEFORE ANY EARTH DISTURBANCE OPERATIONS TAKE PLACE OR AT THE EARLIEST POSSIBLE POINT DURING CONSTRUCTION.
3. TEMPORARY & PERMANENT EROSION CONTROL MEASURES SHALL BE CONSTRUCTED PER THE DETAILS HEREIN, OR SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.
4. THE CONTRACTOR MUST NOTIFY THE APPROPRIATE NCDEQ OFFICE A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES. 910–433–3300
5. REMOVE ALL SOILS AND SEDIMENTS TRACKED OR OTHERWISE DEPOSITED ONTO PUBLIC AND PRIVATE PAVEMENT AREAS. REMOVAL SHALL BE ON A DAILY BASIS WHEN TRACKING OCCURS.
6. LOCATE SOIL STOCKPILES NO LESS THAN FIFTY (50) FEET FROM ANY PUBLIC OR PRIVATE ROADWAY OR DRAINAGE CHANNEL. IF REMAINING FOR MORE THAN SEVEN DAYS, STABILIZE THE STOCKPILES BY VEGETATIVE COVER, TARPS, OR OTHER MEANS. CONTROL EROSION FROM ALL STOCKPILES BY PLACING SILT BARRIERS AROUND THE PILES. TEMPORARY STOCKPILES LOCATED ON PAVED SURFACES MUST BE NO LESS THAN FIVE FEET FROM THE DRAINAGE/GUTTER LINE AND SHALL BE COVERED IF LEFT MORE THAN 24 HOURS.
7. MAINTAIN ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES IN PLACE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED. INSPECT TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES ON A DAILY BASIS AND REPLACE DETERIORATED, DAMAGED, OR ROTTED EROSION CONTROL DEVICES IMMEDIATELY.
8. TEMPORARILY OR PERMANENTLY STABILIZE ALL DENUDED AREAS WHICH HAVE BEEN FINISH GRADED, AND ALL DENUDED AREAS IN WHICH GRADING OR SITE BUILDING CONSTRUCTION OPERATIONS ARE NOT ACTIVELY UNDERWAY AGAINST EROSION DUE TO RAIN, WIND AND RUNNING WATER WITHIN 14 DAYS. USE SEEDING AND MULCHING, EROSION CONTROL MATTING, AND/OR SODDING AND STAKING IN GREEN SPACE AREAS AND OTHERWISE APPROPRIATE MEASURES. USE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED.
9. DO NOT REMOVE ANY EROSION AND SEDIMENT CONTROL DEVICES AFTER THE PROTECTED AREA HAS UNDERGONE FINAL STABILIZATION AND PERMANENT VEGETATION HAS BEEN ESTABLISHED, IT IS RECOMMENDED THAT NCDEQ APPROVE THE ACTION PRIOR TO REMOVAL.
10. THE CONSTRUCTION ENTRANCE SHALL BE INSTALLED CONCURRENTLY WITH THE INITIATION OF CONSTRUCTION ACTIVITY.
11. THE INSTALLATION OF EROSION CONTROL MEASURES SHALL TAKE PRECEDENCE OVER ALL OTHER CONSTRUCTION ACTIVITIES.
12. THE PERMITTEE SHALL BE HELD RESPONSIBLE FOR THE ACTIONS AND PERFORMANCE OF ANY OTHER PARTIES PERFORMING WORK ON THIS PROJECT.
13. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF–PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
14. PURSUANT TO G.S. 113A–57(2), THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 7 OR 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PURSUANT TO G.S. 113A–57(3), PROVISIONS FOR PERMANENT GROUND COVER SUFFICIENT TO RETAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS WITHIN 90 CALENDAR DAYS FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.
15. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL EROSION CONTROL MEASURES SHOWN AND ANY ADDITIONAL MEASURES REQUIRED TO CONTROL THE SEDIMENT DURING THE COURSE OF CONSTRUCTION.
16. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO THE DETAILS HEREIN.
17. THE CONTACT PERSON FOR EROSION CONTROL ISSUES THAT ARISE ON SITE IS KIRBY LAFORCE. CONTACT 704–608–3085.



GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

Know what's below. Call before you dig.

GRADING NOTES

1. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR.ALL SPOT ELEVATIONS ARE TO THE FINISHED GRADE OF THE CURB, UNLESS OTHERWISE NOTED.
2. ALL SIDEWALKS AND PEDESTRIAN WALKING SURFACES SHALL HAVE A CROSS SLOPE NO STEEPER THAN 2% AND LONGITUDINAL SLOPE NO STEEPER THAN 5%.
3. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL LAND DISTURBING ACTIVITIES AND ENSURE COMPLIANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. THE CONTRACTOR SHALL INSPECT AND MAINTAIN ALL EROSION CONTROL DEVICES AND CLEAR ANY DEBRIS LEAVING THE SITE ON NEIGHBORING ROADS.
4. EXISTING GROUND UPON WHICH FILL OR BASE IS TO BE PLACED SHALL BE CLEARED OF WEEDS, DEBRIS, TOPSOIL, AND ALL OTHER DELETERIOUS MATERIALS; NO FILL SHALL BE PLACED UNTIL PREPARATION OF THE EXISTING GROUND HAS BEEN COMPLETED
5. PROTECTIVE MEASURES SHALL BE TAKEN BY THE CONTRACTOR AND THE OWNER TO PROTECT ADJACENT PROPERTY, THE PUBLIC AND UTILITIES DURING GRADING OPERATIONS. THE CONTRACTOR ASSUMES ALL LIABILITY FOR THE UNDERGROUND UTILITY PIPES, CONDUITS, OR STRUCTURES, WHETHER SHOWN OR NOT ON THE PLAN
6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES OR STRUCTURES ABOVE AND BELOW GROUND, SHOWN OR NOT SHOWN ON THESE PLANS. THEY WILL BE HELD RESPONSIBLE FOR ALL DAMAGE TO ANY UTILITIES OR STRUCTURES CAUSED BY HIS OPERATION.
7. ALL CUT AND FILL SLOPES SHOULD BE INVESTIGATED BOTH DURING AND AFTER GRADING BY THE CONTRACTOR TO DETERMINE IF ANY SLOPE STABILITY PROBLEMS EXIST. IF IT IS DETERMINED THAT THERE IS A SLOPE STABILITY PROBLEM THE ENGINEER OF RECORD SHOULD BE NOTIFIED.
8. STOCKPILE AREAS THAT WILL EXCEED 10' IN HEIGHT SHOULD BE GRADED WITH 3:1 SLOPES AND SURROUNDED BY SILT FENCE.
9. APPROVED COPIES OF THE GRADING AND EROSION CONTROL PLANS SHALL BE ON THE PERMITTED SITE WHILE WORK IS IN PROGRESS.
10. ALL EXISTING DRAINAGE COURSES THROUGH THIS SITE SHALL REMAIN IN A CONDITION SUCH THAT THEY CAN TRANSPORT THE NATURAL DRAINAGE UNTIL FACILITIES TO HANDLE THE STORM WATER ARE CONSTRUCTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DUE TO OBSTRUCTING NATURAL DRAINAGE PATTERNS.
11. ANY DEVIATION FROM THE APPROVED GRADING PLAN SHOULD BE REPORTED TO THE ENGINEER OF RECORD PRIOR TO IMPLEMENTATION OF THE CHANGE.
12. ALL SLOPES 3:1 OR STEEPER THAT EXTEND TEN FEET OR MORE SHALL BE LINED WITH NORTH AMERICAN GREEN S75 TEMPORARY EROSION CONTROL BLANKET OR EQUAL SUBSTITUTE.
13. STORM PIPE DISTANCES SHOWN ARE TO THE CENTER OF THE BOX FOR ALL STRUCTURES UNLESS OTHERWISE NOTED.
14. ALL STORM DRAINAGE PIPE TO BE CLASS III RCP UNLESS OTHERWISE NOTED.
15. STREET AND STORM WATER DRAINAGE IMPROVEMENTS TO BE INSTALLED IN ACCORDANCE WITH THE "TOWN OF LILLINGTON STANDARD ROADWAY, SIDEWALK, CURB & GUTTER, & DRAINAGE PIPE SPECIFICATIONS".

CONSTRUCTION SEQUENCE

1. OBTAIN ALL NECESSARY PERMITS AND APPROVALS AND HOLD PRE CONSTRUCTION CONFERENCE.
2. INSTALL STONE CONSTRUCTION ENTRANCE, TEMPORARY SILT FENCE, SILT FENCE OUTLETS, AND DIVERSION BERMS WHERE SPECIFIED.
3. CONSTRUCT TEMPORARY SEDIMENT BASIN.
4. CLEAR AND GRUB THE SITE AS NEEDED.
5. ROUGH GRADE THE SITE AND APPLY TEMPORARY SEEDING TO AREAS TO REMAIN GRASSED.
6. INSTALL TEMPORARY CHECK DAMS IN SWALE AS SHOWN.
7. INSTALL UTILITIES.
8. INSTALL INLET PROTECTION ON ALL NEW STORM WATER INLETS.
9. PERFORM FINE GRADING.
10. INSTALL AND PREPARE BASE COURSE.
11. PAVE ROADWAYS AND PARKING LOTS.
12. FERTILIZE, SEED AND MULCH ALL REMAINING DISTURBED AREAS.
13. UPON SITE STABILIZATION, SEEK NCDEQ APPROVAL TO REMOVE ALL TEMPORARY MEASURES.
14. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED AS OUTLINED IN THE DETAILS WITHIN THE PLANS AND ACCORDING TO THE NCDEQ EROSION CONTROL MANUAL.
15. TERMINATION OF COVERAGE UNDER THE NPDES GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES MUST BE REQUESTED BY THE PERMITTEE VIA A NOTICE OF TERMINATION (NOT). THE NOT IS AVAILABLE AT: HTTPS://EDOCS.DEQ.NC.GOV/FORMS/NCG01–TERMINATION. PLEASE NOTE THAT THE CLOSE OUT INSPECTION REPORT MUST BE UPLOADED AS PART OF COMPLETING THE NOTICE OF TERMINATION PROCESS.

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

4Dsite solutions
civil engineering | land surveying
409 Chicago Drive, Suite 112, Fayetteville, NC 28306
office | 910-426-6777 fax | 910-426-5777 license number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027452 C. SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

GRADING AND EROSION CONTROL PLAN

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

HORIZONTAL: 1"=40'

DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

C-3.0

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LEGEND:
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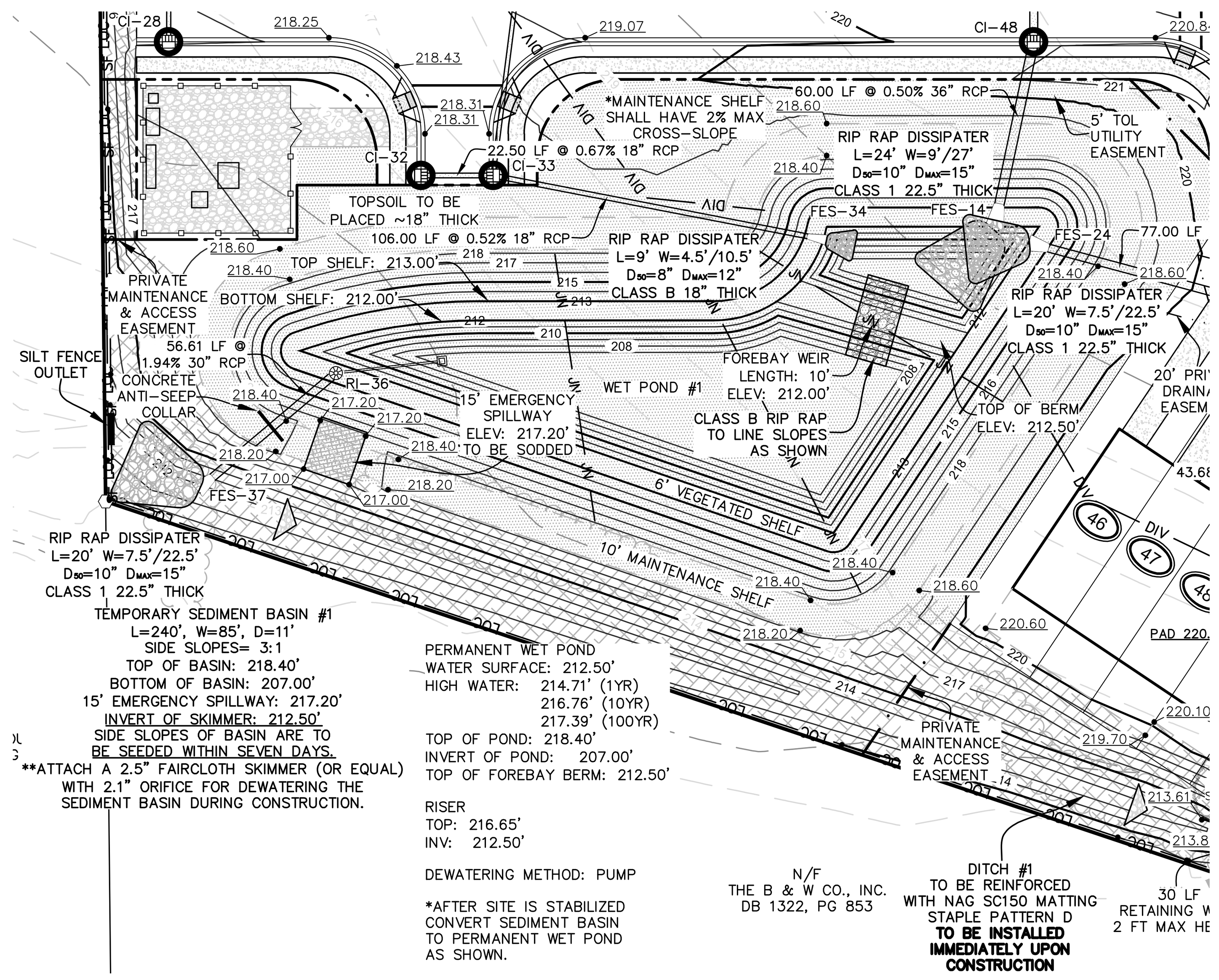
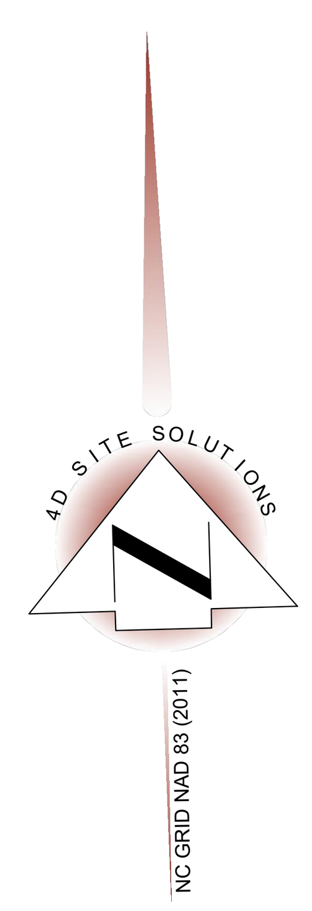
- PINE TREE
- SHRUB
- RIP RAP/GRAVEL
- ASPHALT
- BUILDINGS
- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE LINE
- JN — JUTE NETTING
- DIV — DIVERSION BERM
- INLET PROTECTION

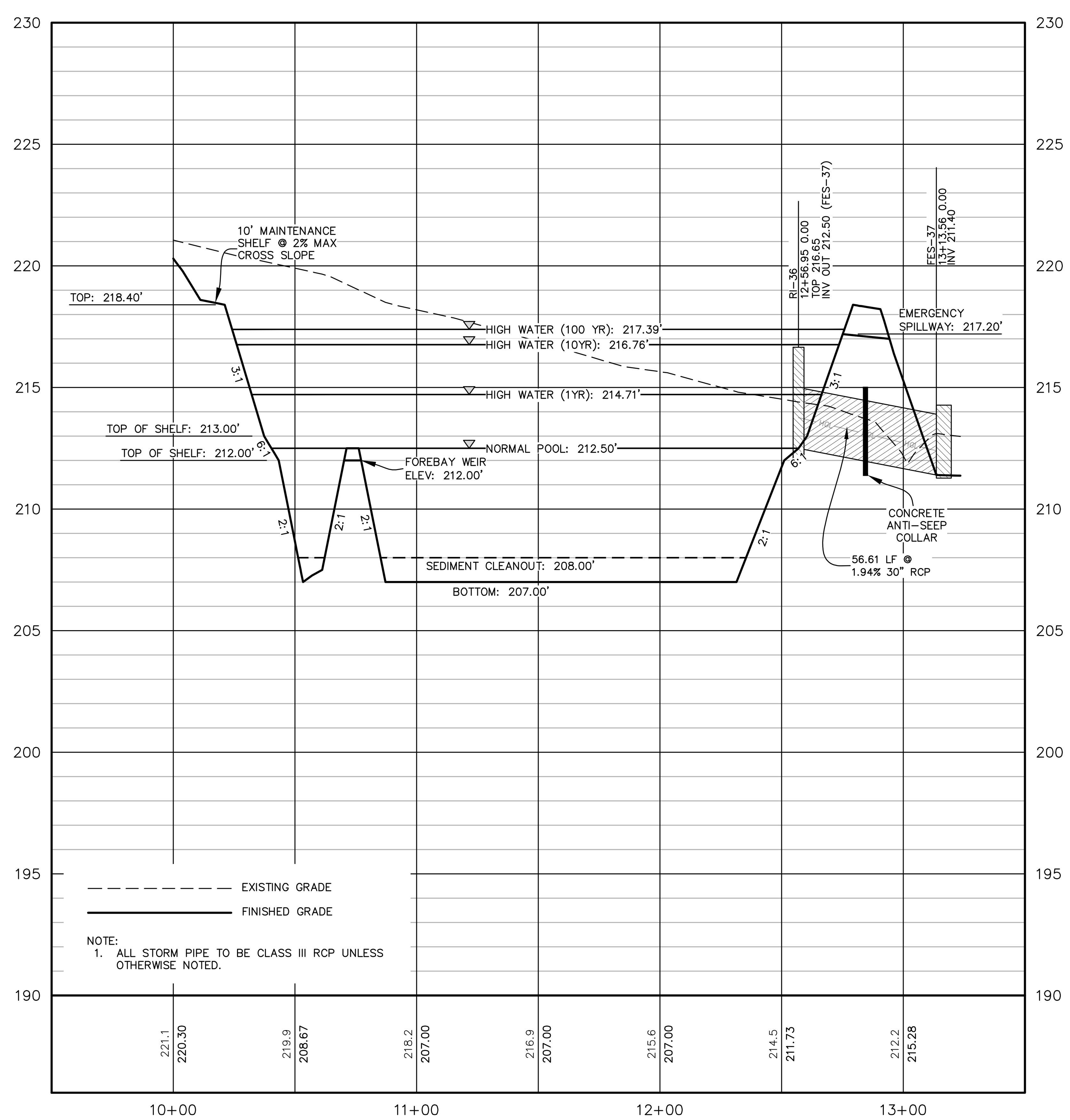


WET POND #1



STORM DRAIN 9+50 TO 13+50

HORIZONTAL: 1"=40'
VERTICAL: 1"=4'



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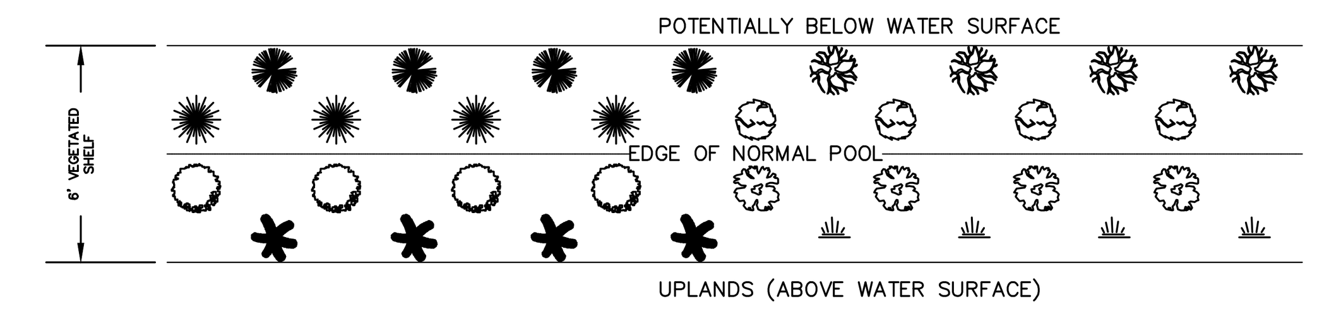


SHALLOW WATER PLANTS

COMMON NAME	BOTANICAL NAME
BEAUTYBERRY	CALLICARPA AMERICANA
RED CHOKEBERRY	ARONIA ARBUTIFOLIA
VIRGINIA SWEETSPIRE	ITEA VIRGINICA
SILKY DOGWOOD	CORNUS AMOMUM
* GOLDENROD	SOLIDAGO

SHALLOW LAND PLANTS

COMMON NAME	BOTANICAL NAME
SWEET GRASS	MUHLENBERGIA FILIPES
SWITCHGRASS	PANICUM VIRGATUM
RIVER OATS	CHASMANTHIUM LATIFOLIUM
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM
* INDIANAGRASS	SORGHASTRUM NUTANS

* ALTERNATE PLANTS

NOTES

1. PLANT SPACINGS SHALL BE A MAXIMUM OF 18 INCHES ON CENTER.
2. PLANTS CAN AND SHOULD BE MIXED MATCHED DURING THE PLANTING PROCESS. SHALLOW LAND PLANTS AND SHALLOW WATER PLANTS CAN BE MIXED TOGETHER.
3. SOIL SAMPLE SHOULD BE TAKEN PRIOR TO SAMPLING AND FERTLIZE AT RECOMMENDATION FROM SOILS ANALYSIS.
4. ALL SLOPES AND AREAS ADJACENT TO THE WET POND SHALL BE SEEDED WITH BERMUDA GRASS FOR A PERMANENT GROUNDCOVER.
5. ALL INSTALLATIONS SHALL BE FROM A QUALIFIED PROFESSIONAL.

COMMON NAME	SIZE	SPACING
BEAUTYBERRY	#3 CONTAINER	48" O.C. MAXIMUM
RED CHOKEBERRY	#3 CONTAINER	48" O.C. MAXIMUM
VIRGINIA SWEETSPIRE	#3 CONTAINER	36" O.C. MAXIMUM
SILKY DOGWOOD	#3 CONTAINER	60" O.C. MAXIMUM
GOLDENROD	#3 CONTAINER	48" O.C. MAXIMUM
SWEET GRASS	PLUGS	18" O.C. MAXIMUM
SWITCHGRASS	PLUGS	24" O.C. MAXIMUM
RIVER OATS	PLUGS	18" O.C. MAXIMUM
LITTLE BLUESTEM	PLUGS	18" O.C. MAXIMUM
INDIANAGRASS	PLUGS	18" O.C. MAXIMUM

*MUST INCLUDE A MINIMUM OF 3 DIVERSE SPECIES AT A MINIMUM PLANTING RATE OF 50 PLANTS PER 200 SF.

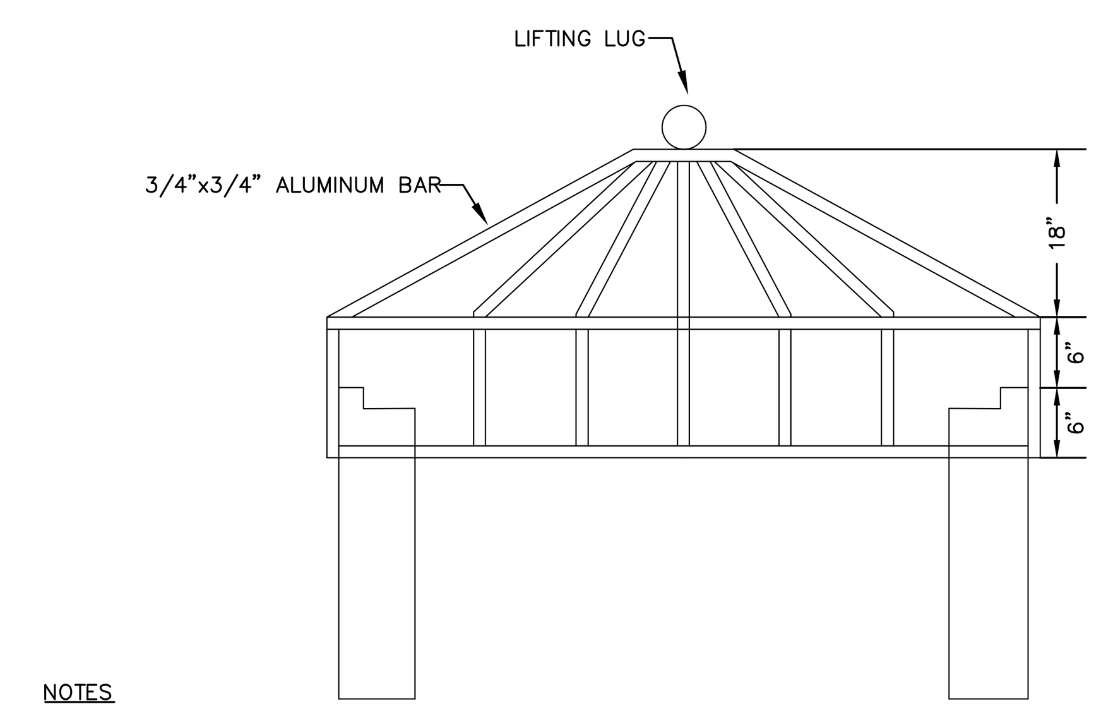
PLANT SUPPLIERS

CAROLINA GREENERY, WEST END, NC 910–947–3150
MELLOW MARSH FARM, PITTSBORO, NC 919–742–1200
PLANT DELIGHTS NURSERY, RALEIGH, NC 919–772–4794
CILL IDE NATIVE PLANT NURSERY, RALEIGH, NC 877–479–2673

**VEGETATED SHELF AND SLOPES ABOVE THE PERMANENT POOL ELEVATION SHALL HAVE A MINIMUM OF 6" TOPSOIL. SUBGRADE SHALL BE ADJUSTED TO ACCOUNT FOR ADDITION OF TOPSOIL IN THESE AREAS SUCH THAT THE ELEVATIONS SHOWN ABOVE ARE TO THE FINISHED GRADE OF THE TOPSOIL.

NTS

1 VEGETATED SHELF PLANTING DETAIL



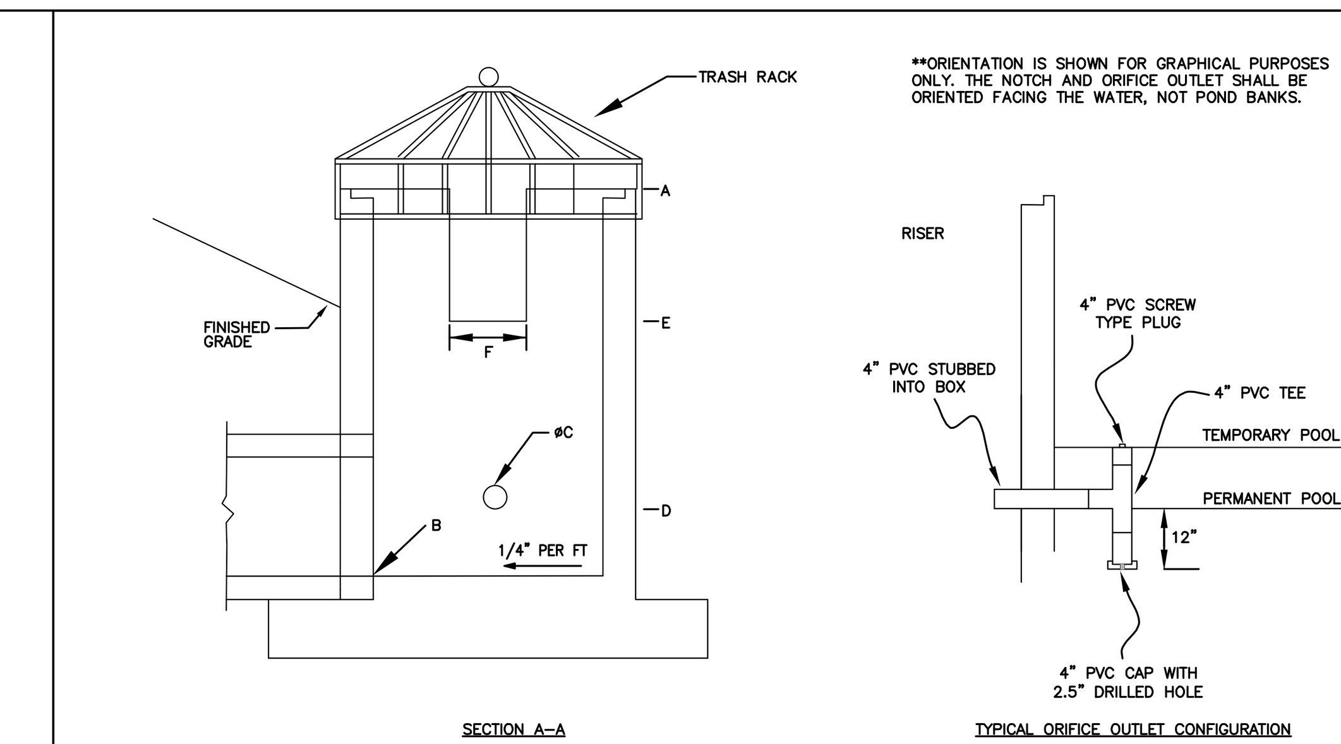
NOTES

1. THE MAXIMUM SPACING BETWEEN BARS SHALL NOT EXCEED 5.5 INCHES.
2. INSTALL A MAN ACCESS IN THE RACK FOR MAINTENANCE INSIDE THE STRUCTURE.

NTS

2 TRASH RACK

**ORIENTATION IS SHOWN FOR GRAPHICAL PURPOSES ONLY. THE NOTCH AND ORIFICE OUTLET SHALL BE ORIENTED FACING THE WATER, NOT POND BANKS.



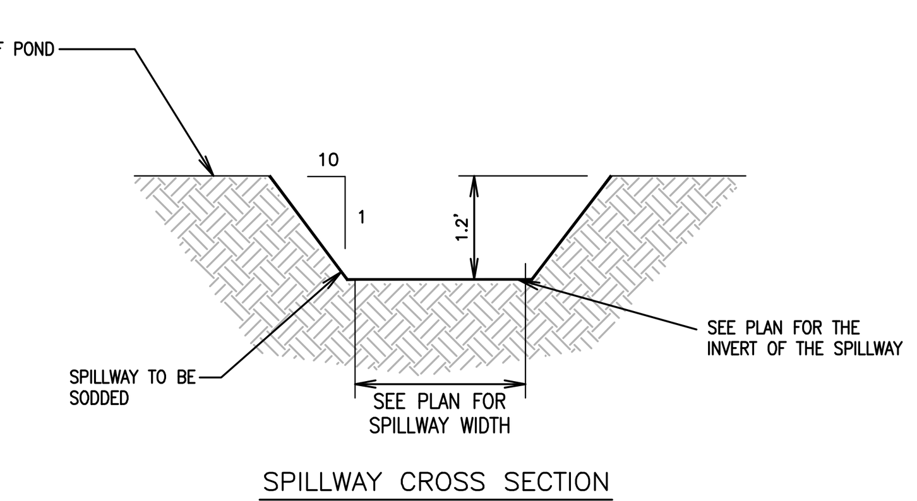
STRUCTURE	A (FT)	B (FT)	C (IN)	D (FT)	# HOLES	E (FT)	F (FT)
RI–36	216.65	212.50	4	212.50	1	214.15	1.50

NOTES

1. MIN. OUTSIDE RISER DIMENSIONS: L=4', W=3'2" MIN. INSIDE RISER DIMENSIONS: L=3', W=2'2"

NTS

3 STORM BASIN RISER WITH ORIFICE DETAIL

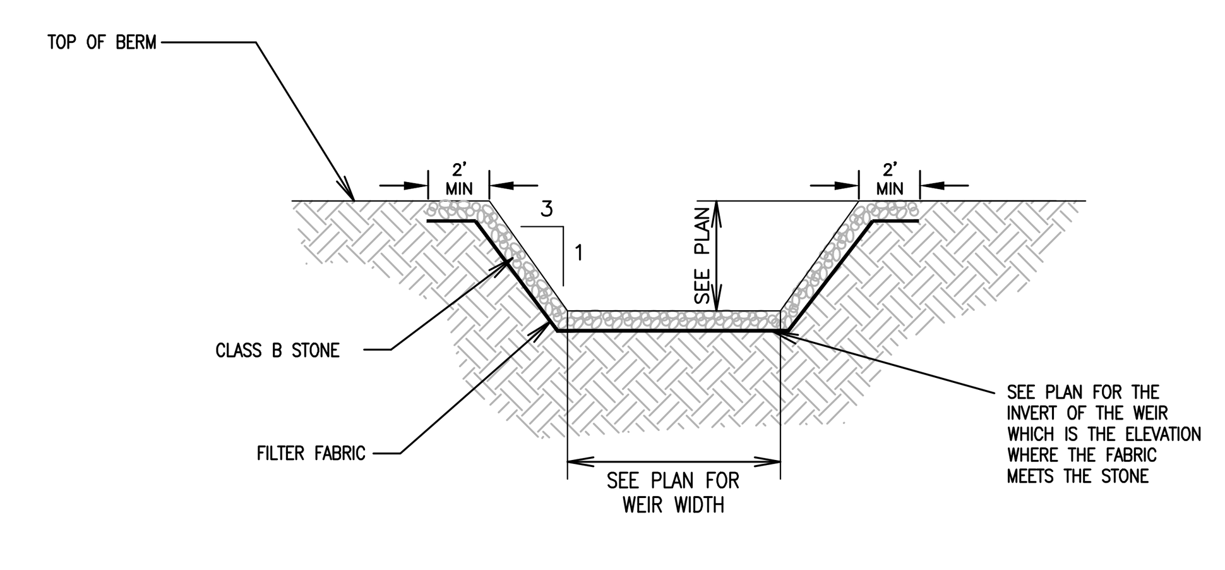


SPILLWAY CROSS SECTION

1. INSTALL THE EMERGENCY SPILLWAY IN UNDISTURBED SOIL. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE EMERGENCY SPILLWAY.
2. ALTERNATIVE MATERIALS MAY BE USED OTHER THAN THE SPECIFIED SOD IF APPROVED BY THE DESIGN ENGINEER.
3. MAX SIDE SLOPES ARE 3:1

NTS

4 EMERGENCY SPILLWAY

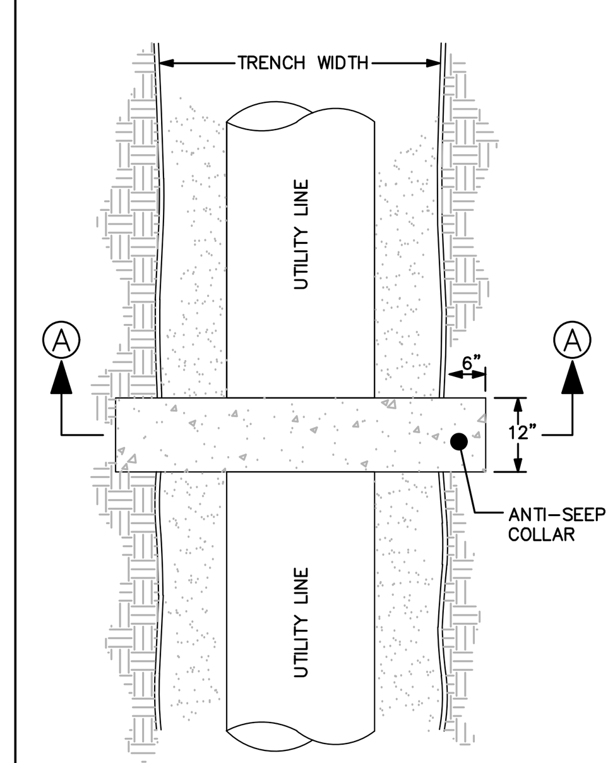


FOREBAY WEIR CROSS SECTION

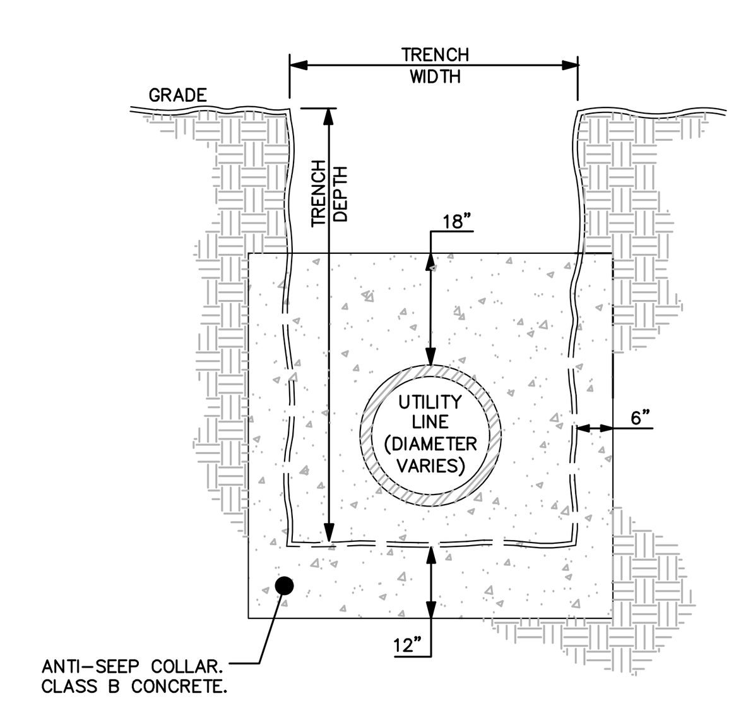
1. ALTERNATIVE MATERIALS MAY BE USED OTHER THAN THE SPECIFIED STONE IF APPROVED BY THE DESIGN ENGINEER.
2. MAX SIDE SLOPES ARE 3:1

NTS

5 FOREBAY WEIR



PLAN VIEW



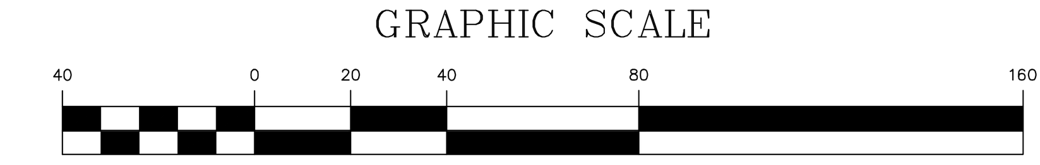
SECTION A–A

NTS

6 ANTI-SEEP COLLAR

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

GRAPHIC SCALE



(IN FEET)
1 inch = 40 ft.

SEAL 027452 NORTH CAROLINA PROFESSIONAL ENGINEER SCOTT BROWN 03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

DETAILED WET POND PLAN

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

HORIZONTAL: 1"=40'

DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

C-3.1

VICINITY MAP
NOT TO SCALE

LEGEND:
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- PROPOSED WATER VALVE
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- PROPOSED 22.5° BEND

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**SIDEWALKS AND STREET TREES ARE TO BE MAINTAINED BY THE HOME OWNERS ASSOCIATION ("HOA"), PROPERTY OWNERS ASSOCIATION ("POA"), CONDOMINIUM OWNER'S ASSOCIATION ("COA), OR ANY OTHER ASSOCIATION RESPONSIBLE FOR THE MAINTENANCE AND/OR UPKEEP OF THIS RESIDENTIAL COMMUNITY. SIDEWALK OR STREET TREE INSTALLATIONS THAT ARE DAMAGED AND/OR REMOVED BY HARNETT COUNTY/ DEPARTMENT OF PUBLIC UTILITIES/HARNETT REGIONAL WATER OR ITS REPRESENTATIVES, AGENTS, OR CONTRACTORS AS A RESULT OF REPAIR/MAINTENANCE OF THE PUBLIC WATER AND/OR SEWER LINE WILL BE REPLACED OR REPAIRED BY THE HOA, POA, COA, OR ANY OTHER ASSOCIATION RESPONSIBLE FOR THE MAINTENANCE AND/OR UPKEEP OF THE RESIDENTIAL COMMUNITY.

UTILITY NOTES

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3. HORIZONTAL DIMENSIONS GIVEN FOR UNDERGROUND UTILITY TIES ARE APPROXIMATE UNLESS OTHERWISE NOTED.
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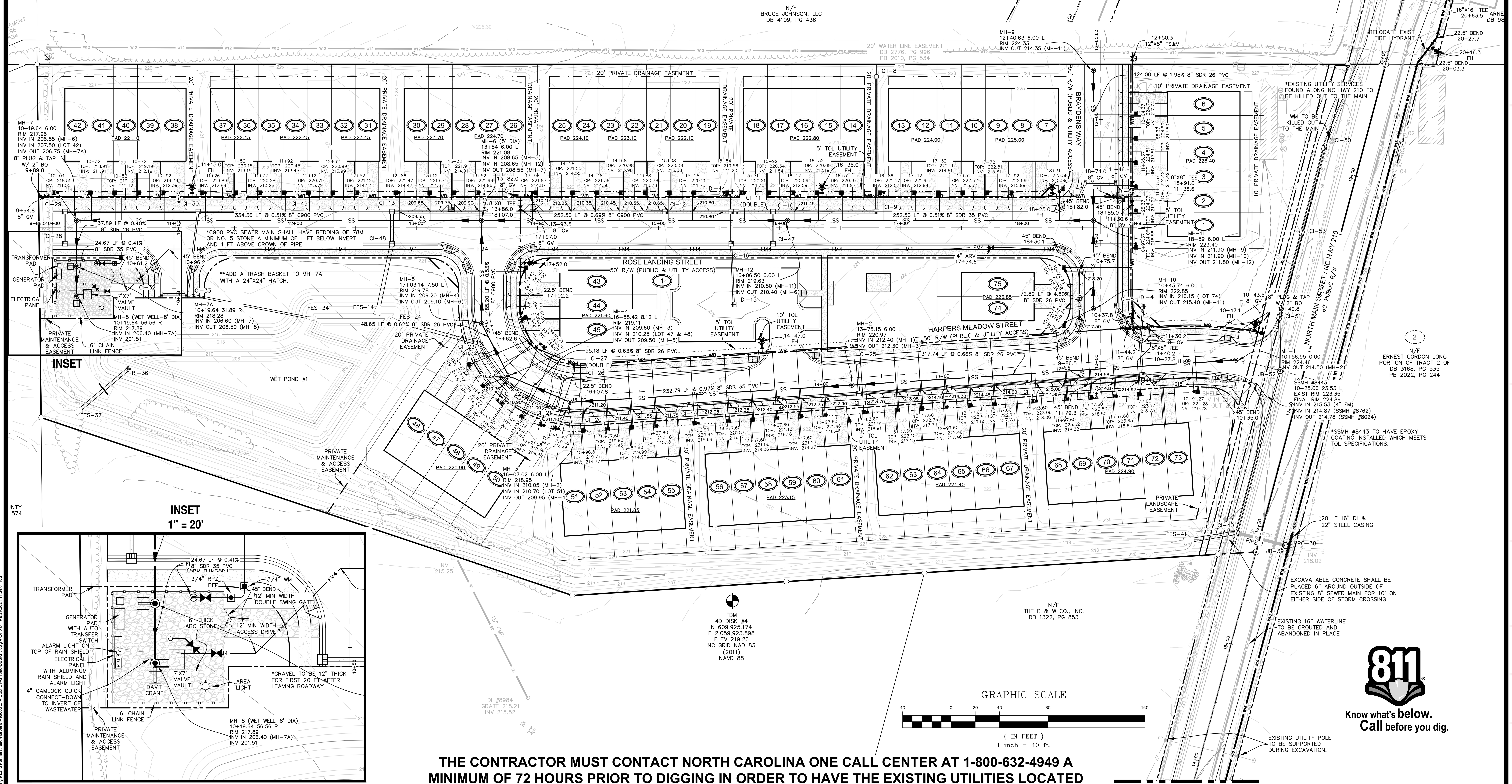
5. THE GENERAL CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO COMPLETE THE PROPOSED WORK, AND SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS
6. PIPE SHALL BE LAID UPSTREAM WITH THE SPIGOT ENDS POINTING DOWNSTREAM. ALL PIPES SHALL BE PLACED TRUE TO LINE AND GRADE WITH ENDS ABUTTING, CAREFULLY CENTERED, AND WITH A SMOOTH INVERT AT THE JOINT.
7. LATERAL SEPARATION OF SEWERS AND WATER MAINS: WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION--IN WHICH CASE:
   7.1. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 24 INCHES ABOVE THE TOP OF THE SEWER; OR
   7.2. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 24 INCHES ABOVE THE TOP OF THE SEWER.
8. 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 24 INCHES ABOVE THE TOP OF THE SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 24 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.
9. 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.
10. ALL MAINS, LATERALS AND APPURTENANCES SHALL BE TESTED IN ACCORDANCE WITH LILLINGTON PW AND NCDEQ TECHNICAL SPECIFICATIONS.
11. ALL MATERIALS SHALL BE APPROVED BY LILLINGTON PW BEFORE INSTALLATION.
12. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND LILLINGTON PW A MINIMUM OF 48 HOURS BEFORE CONSTRUCTION OF THE WATER LINE AND SANITARY SEWER LINE BEGINS. THE CONTRACTOR SHALL ALSO NOTIFY THE ENGINEER OF RECORD AND LILLINGTON PW 48 HOURS IN ADVANCE OF ALL TESTING.
13. EXISTING UTILITIES NOT FOUND IN THE FIELD DURING SURVEY MAY REQUIRE DEMOLITION. NO UTILITIES SHALL BE LEFT IN PLACE THAT CROSS THE NEW LOTS UNLESS RUNNING ALONG A LOT LINE. IF ADDITIONAL UTILITIES ARE FOUND, CONTACT ENGINEER PRIOR TO DEMOLITION.
14. ALL ELEVATIONS ARE IN NAVD 88 DATUM.
15. WATERLINES TO BE INSPECTED, OPERATED, AND MAINTAINED BY HRW.
16. SEWER LINES TO BE INSPECTED, OPERATED, AND MAINTAINED BY THE TOWN OF LILLINGTON.
17. SANITARY SEWER INSTALLATION TO BE PERFORMED IN ACCORDANCE WITH THE "TOWN OF LILLINGTON DETAILED SANITARY SEWER SPECIFICATIONS".
18. SEWER CLEANOUTS GREATER THAN 6 FT IN DEPTH TO SATISFY UTILITY SEPARATION REQUIREMENTS PER TOL STANDARDS. WHERE POSSIBLE, DEEP SEWER LATERALS TO BE INSTALLED PER DETAIL S-4.1 (SEE SHEET C-6.8).



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www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027452 ENGINEER C. SCOTT BROWN
08-29-24

REVISIONS

ISSUED FOR CONSTRUCTION

1 08-29-24 ADDED MH-7A

PROJECT NAME

HARPER'S MEADOW

UTILITY PLAN

PIN:
0651-90-8197.000

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

HORIZONTAL: 1"=40'

DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

C-4.0

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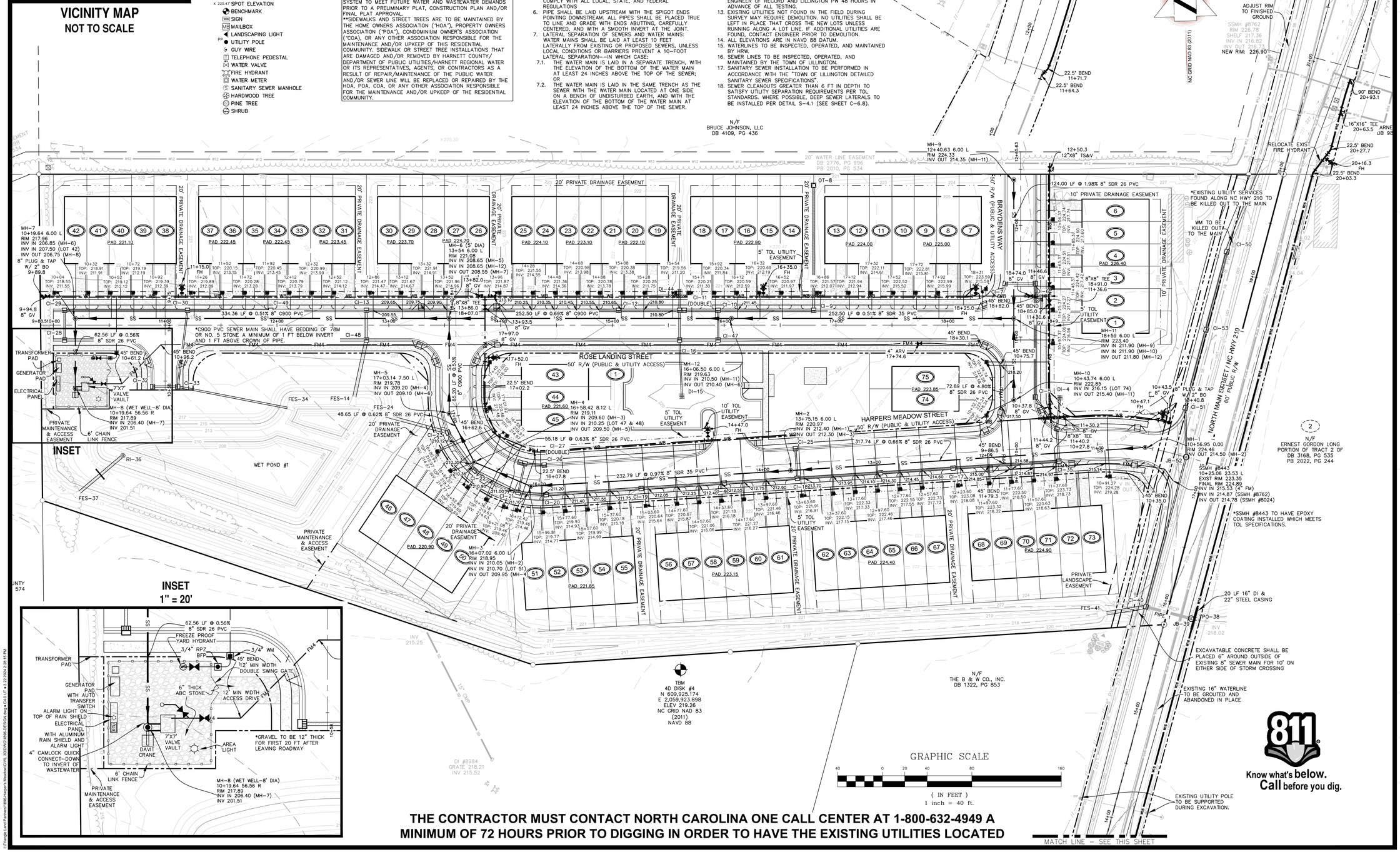
6. PIPE SHALL BE LAID UPSTREAM WITH THE SPIGOT ENDS POINTING DOWNSTREAM. ALL PIPES SHALL BE PLACED TRUE TO LINE AND GRADE WITH ENDS ABUTTING, CAREFULLY CENTERED, AND WITH A SMOOTH INVERT AT THE JOINT.
7. LATERAL SEPARATION OF SEWERS AND WATER MAINS:
   WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10–FOOT LATERAL SEPARATION––IN WHICH CASE:
   7.1. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 24 INCHES ABOVE THE TOP OF THE SEWER; OR
   7.2. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 24 INCHES ABOVE THE TOP OF THE SEWER.
8. 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 24 INCHES ABOVE THE TOP OF THE SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 24 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.
9. 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.
10. ALL MAINS, LATERALS AND APPURTENANCES SHALL BE TESTED IN ACCORDANCE WITH LILLINGTON PW AND NCDEQ TECHNICAL SPECIFICATIONS.
11. ALL MATERIALS SHALL BE APPROVED BY LILLINGTON PW BEFORE INSTALLATION.
12. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND LILLINGTON PW A MINIMUM OF 48 HOURS BEFORE CONSTRUCTION OF THE WATER LINE AND SANITARY SEWER LINE BEGINS. THE CONTRACTOR SHALL ALSO NOTIFY THE ENGINEER OF RECORD AND LILLINGTON PW 48 HOURS IN ADVANCE OF ALL TESTING.
13. EXISTING UTILITIES NOT FOUND IN THE FIELD DURING SURVEY MAY REQUIRE DEMOLITION. NO UTILITIES SHALL BE LEFT IN PLACE THAT CROSS THE NEW LOTS UNLESS RUNNING ALONG A LOT LINE. IF ADDITIONAL UTILITIES ARE FOUND, CONTACT ENGINEER PRIOR TO DEMOLITION.
14. ALL ELEVATIONS ARE IN NAVD 88 DATUM.
15. WATERLINES TO BE INSPECTED, OPERATED, AND MAINTAINED BY HRW.
16. SEWER LINES TO BE INSPECTED, OPERATED, AND MAINTAINED BY THE TOWN OF LILLINGTON.
17. SANITARY SEWER INSTALLATION TO BE PERFORMED IN ACCORDANCE WITH THE "TOWN OF LILLINGTON DETAILED SANITARY SEWER SPECIFICATIONS".
18. SEWER CLEANOUTS GREATER THAN 6 FT IN DEPTH TO SATISFY UTILITY SEPARATION REQUIREMENTS PER TOL STANDARDS. WHERE POSSIBLE, DEEP SEWER LATERALS TO BE INSTALLED PER DETAIL S–4.1 (SEE SHEET C–6.8).



INSET
1" = 20'

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

Know what's below. Call before you dig.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027464 SCOTT BROWN
03-22-24

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
HARPER'S MEADOW

UTILITY PLAN

PIN:
0651-90-8197.000

CLIENT
TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE
HORIZONTAL: 1"=40'

DATE RELEASED
MARCH 22, 2024

SHEET NUMBER
C-4.0

SEWER STRUCTURE TABLE

STRUCTURE	DIA	RIM EL	STRUCTURE IN	INVERT IN	INV OUT
MH-1	4'	224.46			214.50
MH-2	4'	220.97	MH-1	212.40	212.30
MH-3	4'	218.95	MH-2 LOT 51	210.05 210.70	209.95
MH-4	4'	219.11	MH-3 LOT 47 & 48	209.60 210.25	209.50
MH-5	4'	219.78	MH-4	209.20	209.10
MH-6	5'	221.08	MH-5 MH-12	208.65 208.65	208.55
MH-7	4'	217.96	MH-6 LOT 42	206.85 207.50	206.75
MH-8	8'	217.89	MH-7	206.40	
MH-9	4'	224.33			214.35
MH-10	4'	222.85	LOT 74	216.15	215.40
MH-11	4'	223.40	MH-9 MH-10	211.90 211.90	211.80
MH-12	4'	219.63	MH-11	210.50	210.40

SEWER PIPE TABLE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	SIZE	LENGTH	SLOPE	UPSTREAM INVERT	DOWNSTREAM INVERT
MH-1	MH-2	8"	317.74	0.66%	214.50	212.40
MH-2	MH-3	8"	232.79	0.97%	212.30	210.05
MH-3	MH-4	8"	55.18	0.63%	209.95	209.60
MH-4	MH-5	8"	48.65	0.62%	209.50	209.20
MH-5	MH-6	8"	85.20	0.53%	209.10	208.65
MH-6	MH-7	8"	334.36	0.51%	208.55	206.85
MH-7	MH-8	8"	62.56	0.56%	206.75	206.40
MH-9	MH-11	8"	124.00	1.98%	214.35	211.90
MH-10	MH-11	8"	72.89	4.80%	215.40	211.90
MH-11	MH-12	8"	252.50	0.51%	211.80	210.50
MH-12	MH-6	8"	252.50	0.69%	210.40	208.65

STORM STRUCTURE TABLE

STRUCTURE	TOP EL	STRUCTURE IN	INVERT IN	INV OUT
CI-3	223.51	CI-5 DI-4	218.29 (15") 219.29 (15")	218.04 (18")
CI-5	223.17	CI-6	218.47 (15")	218.47 (15")
CI-6	223.93	CI-7	219.03 (15")	219.03 (15")
CI-7	223.86			219.17 (15")
CI-9	220.96	OT-8	216.81 (24")	215.01 (30")
CI-10	219.80	CI-9 CI-47	213.85 (30") 215.15 (15")	213.85 (30")
CI-11	219.64	CI-10 CI-16 DI-44	213.58 (30") 214.58 (18") 216.03 (15")	213.58 (30")
CI-12	220.03	CI-11	213.30 (30")	213.30 (30")
CI-13	220.91	CI-12	212.15 (30")	212.00 (30")
CI-16	219.64	DI-15	214.97 (15")	214.72 (18")
CI-17	222.59	CI-35	217.42 (18")	217.42 (18")
CI-18	221.32	CI-45 CI-25	216.23 (18") 216.48 (15")	215.73 (24")
CI-19	220.04	CI-46	214.59 (24")	214.59 (24")
CI-20	219.29	CI-19	213.84 (24")	213.84 (24")
CI-21	219.24	CI-20 CI-27	213.61 (24") 214.36 (15")	213.61 (24")
CI-22	219.42	CI-21	213.39 (24")	212.99 (30")
CI-23	219.89	CI-22	212.78 (30")	212.68 (30")
CI-25	221.32			216.62 (15")
CI-26	219.29			214.59 (15")
CI-27	219.23	CI-26	214.50 (15")	214.50 (15")
CI-28	218.16			213.46 (15")
CI-29	218.16	CI-28	213.33 (15")	213.33 (15")
CI-30	219.28	CI-29 CI-49	212.78 (15") 214.68 (15")	212.78 (15")
CI-32	218.66			213.90 (18")
CI-33	218.66	CI-32 CI-30	213.75 (18") 212.45 (15")	212.20 (18")
CI-35	223.49	CI-3	217.89 (18")	217.89 (18")
CI-40	224.79	JB-39 JB-52	218.16 (30") 219.66 (15")	217.80 (36")
CI-45	222.00	CI-17	216.86 (18")	216.86 (18")
CI-46	220.72	CI-18	215.20 (24")	215.20 (24")
CI-47	219.80			215.30 (15")
CI-48	220.91	CI-13	211.85 (30")	211.50 (36")
CI-49	220.04			215.24 (15")
DI-4	222.23			219.85 (15")
DI-15	219.70			215.25 (15")
DI-44	218.80			216.20 (15")
FES-14	214.62	CI-48	211.20 (36")	
FES-24	214.88	CI-23	212.00 (30")	
FES-34	213.44	CI-33	211.65 (18")	
FES-37	214.28	RI-36	211.40 (30")	
FES-41	221.02	CI-40	217.60 (36")	
JB-39	223.98	PO-38	219.40 (30")	218.02 (30")
OT-8	221.65			217.90 (24")
RI-36	216.65			212.50 (30")

STORM PIPE TABLE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	SIZE	LENGTH	SLOPE	UPSTREAM INVERT	DOWNSTREAM INVERT
		15"	12.70'	3.15%	223.70	223.30
CI-3	CI-35	18"	28.76'	0.52%	218.04	217.89
CI-5	CI-3	15"	34.56'	0.51%	218.47	218.29
CI-6	CI-5	15"	101.54'	0.55%	219.03	218.47
CI-7	CI-6	15"	26.90'	0.52%	219.17	219.03
CI-9	CI-10	30"	85.50'	1.36%	215.01	213.85
CI-10	CI-11	30"	34.50'	0.77%	213.85	213.58
CI-11	CI-12	30"	54.50'	0.51%	213.58	213.30
CI-12	CI-13	30"	225.50'	0.51%	213.30	212.15
CI-13	CI-48	30"	26.50'	0.57%	212.00	211.85
CI-16	CI-11	18"	26.50'	0.53%	214.72	214.58
CI-17	CI-45	18"	65.10'	0.85%	217.42	216.86
CI-18	CI-46	24"	65.50'	0.81%	215.73	215.20
CI-19	CI-20	24"	85.17'	0.88%	214.59	213.84
CI-20	CI-21	24"	24.94'	0.93%	213.84	213.61
CI-21	CI-22	24"	43.68'	0.50%	213.61	213.39
CI-22	CI-23	30"	41.55'	0.51%	212.99	212.78
CI-23	FES-24	30"	77.00'	0.88%	212.68	212.00
CI-25	CI-18	15"	26.50'	0.53%	216.62	216.48
CI-26	CI-27	15"	17.45'	0.53%	214.59	214.50
CI-27	CI-21	15"	26.50'	0.53%	214.50	214.36
CI-28	CI-29	15"	26.50'	0.50%	213.46	213.33
CI-29	CI-30	15"	110.00'	0.50%	213.33	212.78
CI-30	CI-33	15"	68.81'	0.48%	212.78	212.45
CI-32	CI-33	18"	22.50'	0.67%	213.90	213.75
CI-33	FES-34	18"	106.00'	0.52%	212.20	211.65
CI-35	CI-17	18"	94.90'	0.50%	217.89	217.42
CI-40	FES-41	36"	44.00'	0.45%	217.80	217.60
CI-45	CI-18	18"	74.50'	0.85%	216.86	216.23
CI-46	CI-19	24"	74.50'	0.81%	215.20	214.59
CI-47	CI-10	15"	26.50'	0.57%	215.30	215.15
CI-48	FES-14	36"	60.00'	0.50%	211.50	211.20
CI-49	CI-30	15"	74.50'	0.75%	215.24	214.68
CI-50	CI-53	15"	72.29'	0.82%	221.76	221.16
CI-51	JB-52	15"	44.00'	0.50%	220.57	220.35
CI-53	CI-51	15"	72.29'	0.82%	221.16	220.57
DI-4	CI-3	15"	28.19'	1.99%	219.85	219.29
DI-15	CI-16	15"	50.29'	0.56%	215.25	214.97
DI-44	CI-11	15"	16.75'	1.01%	216.20	216.03
JB-39	CI-40	30"	41.74'	-0.34%	218.02	218.16
JB-52	CI-40	15"	138.61'	0.50%	220.35	219.66
OT-8	CI-9	24"	111.75'	0.97%	217.90	216.81
PO-38	JB-39	30"	5.00'	2.00%	219.50	219.40
RI-36	FES-37	30"	56.61'	1.94%	212.50	211.40

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NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

STORM & SEWER STRUCTURE DATA

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

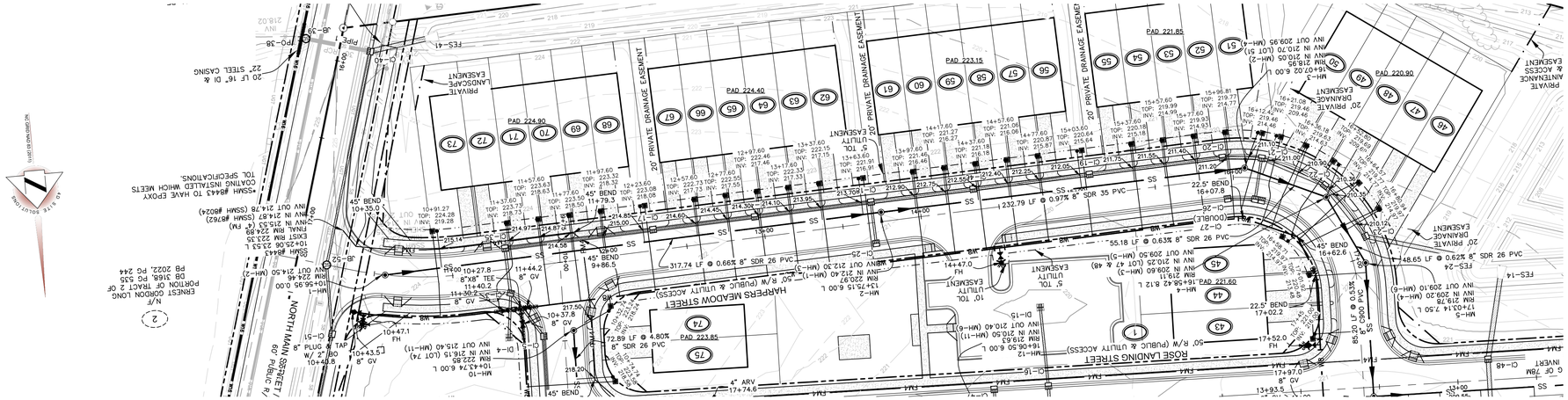
HORIZONTAL: 1"=40'

DATE RELEASED

MARCH 22, 2024

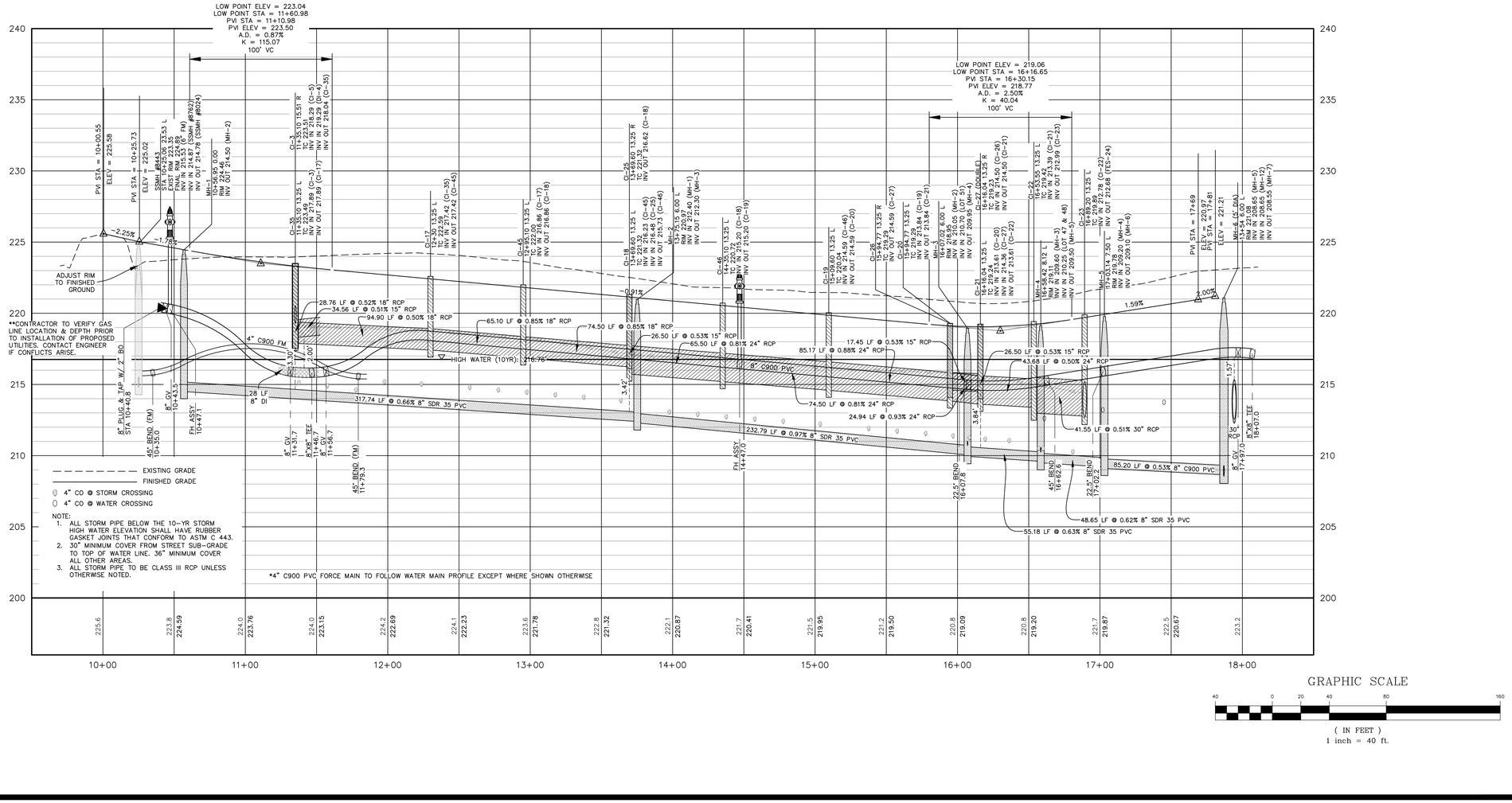
SHEET NUMBER

C-4.1



HARPERS MEADOW STREET

50' R/W (PUBLIC STREET)
ROADWAY PROFILE 9+50 TO 18+50



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

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NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN
03-22-24

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
HARPER'S MEADOW

HARPERS MEADOW STREET PROFILE

CLIENT
TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE
HORIZONTAL: 1"=40'
VERTICAL: 1"=4'

DATE RELEASED
MARCH 22, 2024

SHEET NUMBER
C-5.0

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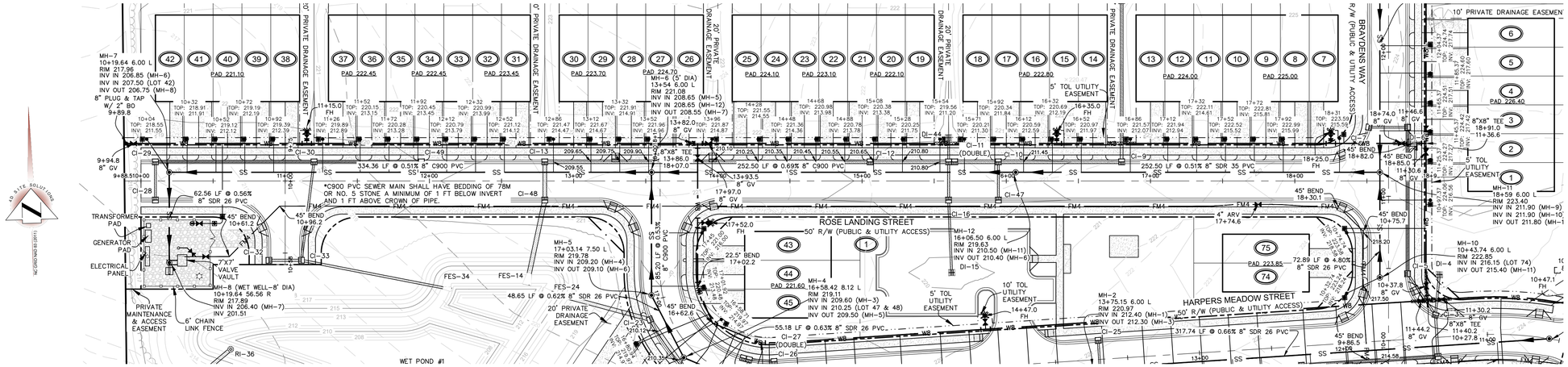

ROSE LANDING STREET

50' R/W (PUBLIC STREET)
ROADWAY PROFILE 9+50 TO 19+00

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

ROSE LANDING STREET PROFILE

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

HORIZONTAL: 1"=40'
VERTICAL: 1"=4'

DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

C-5.1

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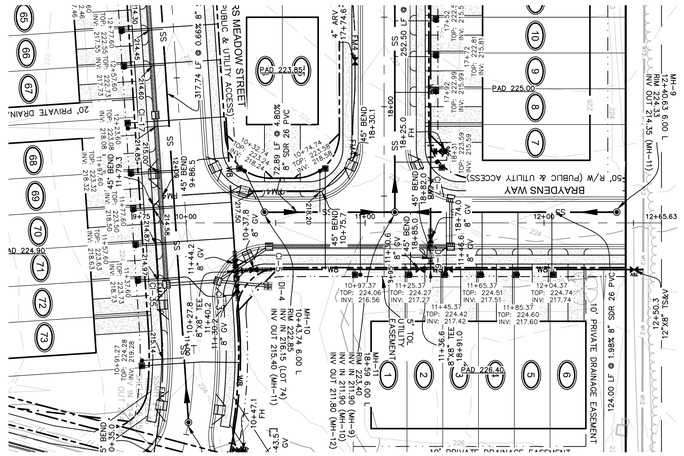

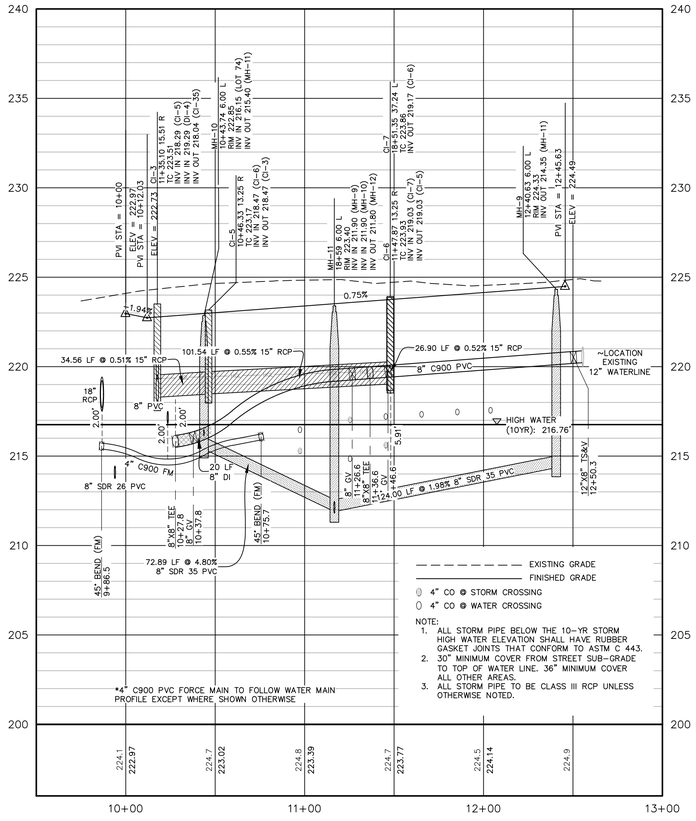

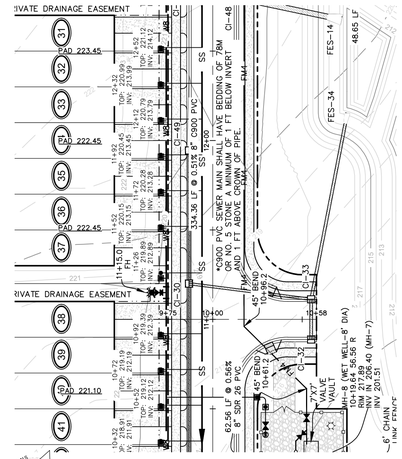

BRAYDENS WAY

50' R/W (PUBLIC STREET)
ROADWAY PROFILE 9+50 TO 13+00

———— EXISTING GRADE

——— FINISHED GRADE

⬮ 4" CO @ STORM CROSSING

0 4" CO @ WATER CROSSING

NOTE:
1. ALL STORM PIPE BELOW THE 10-YR STORM HIGH WATER ELEVATION SHALL HAVE RUBBER GASKET JOINTS THAT CONFORM TO ASTM C 443.
2. 30" MINIMUM COVER FROM STREET SUB-GRADE TO TOP OF WATER LINE. 36" MINIMUM COVER ALL OTHER AREAS.
3. ALL STORM PIPE TO BE CLASS III RCP UNLESS OTHERWISE NOTED.

*4" C900 PVC FORCE MAIN TO FOLLOW WATER MAIN PROFILE EXCEPT WHERE SHOWN OTHERWISE

ROAD STUB

50' R/W (PUBLIC STREET)
ROADWAY PROFILE 9+50 TO 11+00

WET POND #1

STORM DRAIN 9+50 TO 13+50

-------- EXISTING GRADE

——— FINISHED GRADE

NOTE:
1. ALL STORM PIPE TO BE CLASS III RCP UNLESS OTHERWISE NOTED.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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SEAL 027452
SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

BRAYDENS WAY & STORM PROFILES

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

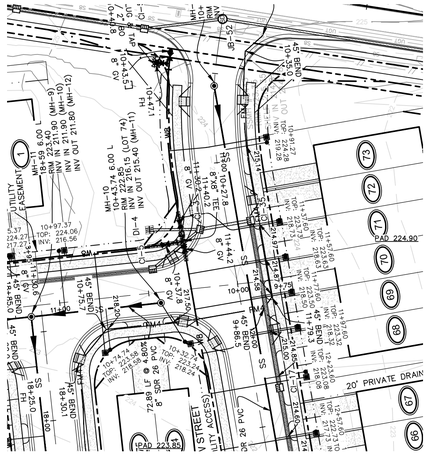
HORIZONTAL: 1"=40'
VERTICAL: 1"=4'

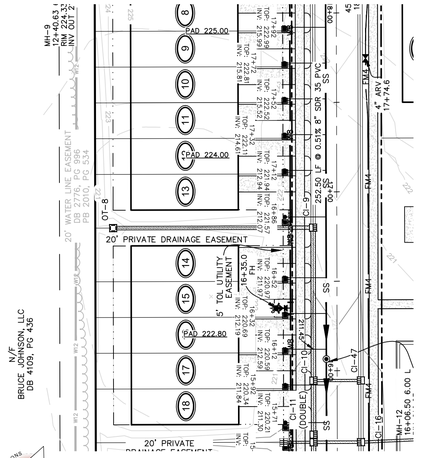
DATE RELEASED

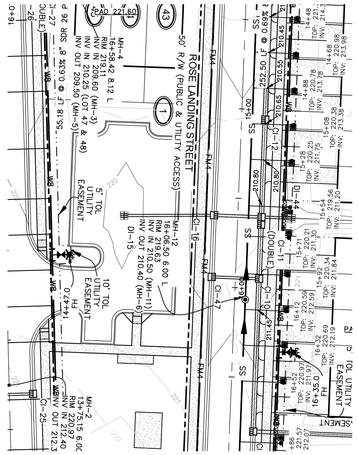
MARCH 22, 2024

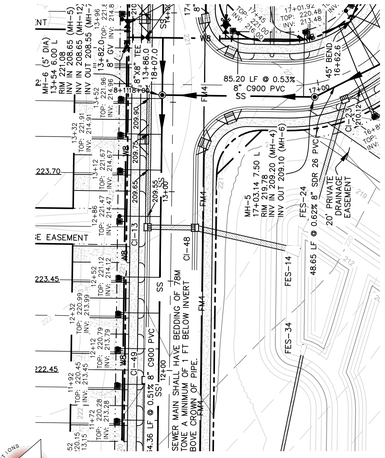
SHEET NUMBER

C-5.2



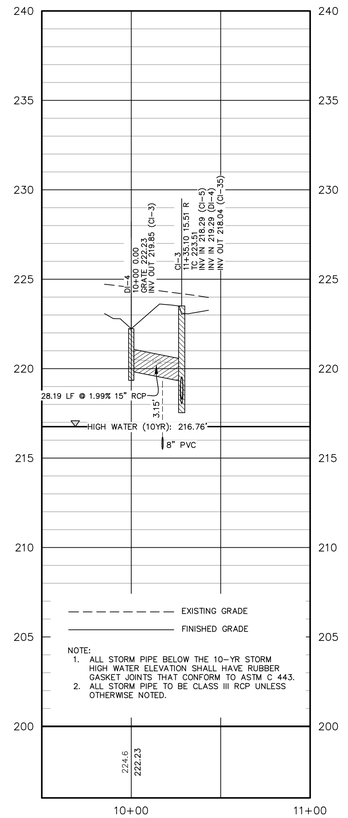






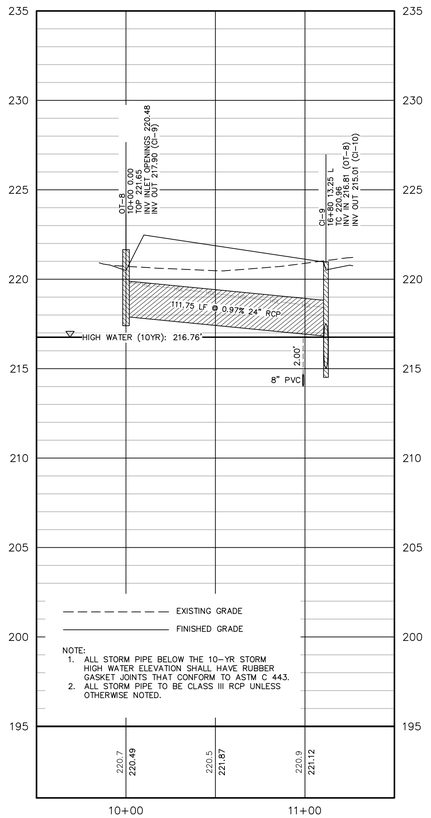
DI-4 TO CI-5

STORM DRAIN 9+50 TO 11+00



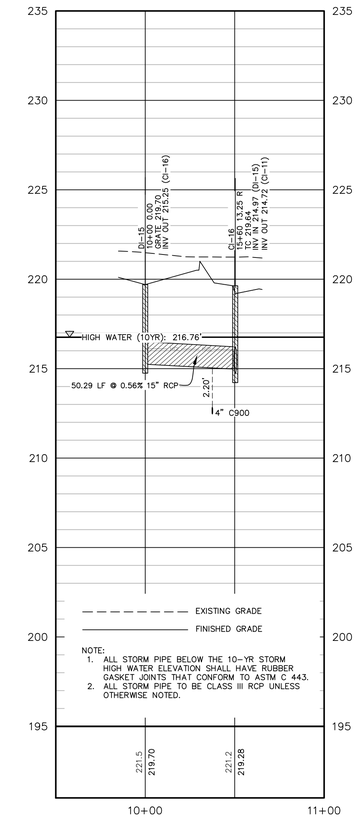
OT-8 TO CI-9

STORM DRAIN 9+50 TO 11+50



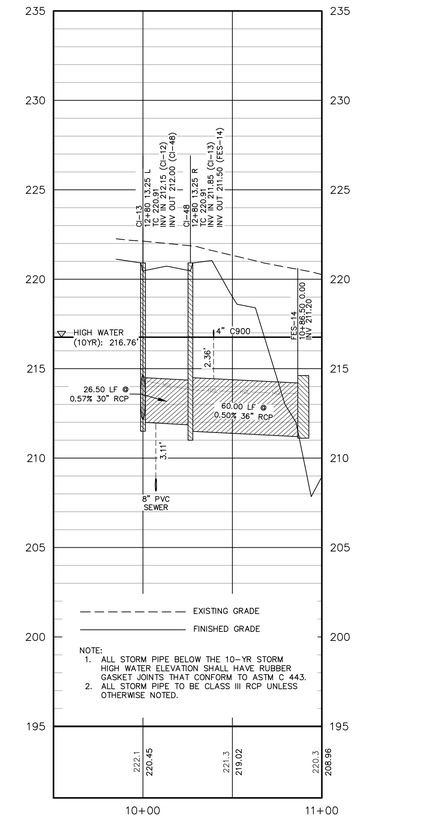
DI-15 TO CI-16

STORM DRAIN 9+50 TO 11+00



CI-13 TO FES-14

STORM DRAIN 9+50 TO 11+00



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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office | 910-426-6777 fax | 910-426-5777 licenses number | C-2354
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052762 SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

STORM PROFILE

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

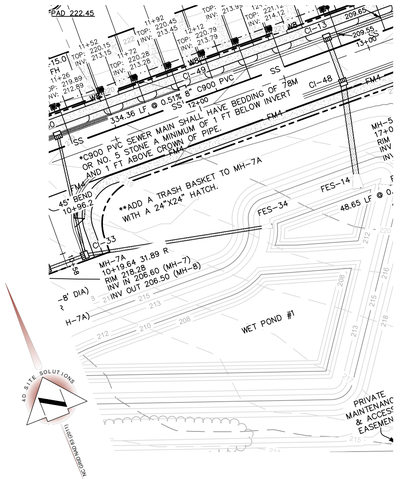
HORIZONTAL: 1"=40'
VERTICAL: 1"=4'

DATE RELEASED

MARCH 22, 2024

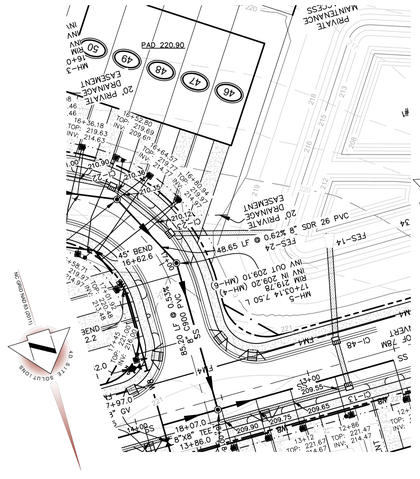
SHEET NUMBER

C-5.3



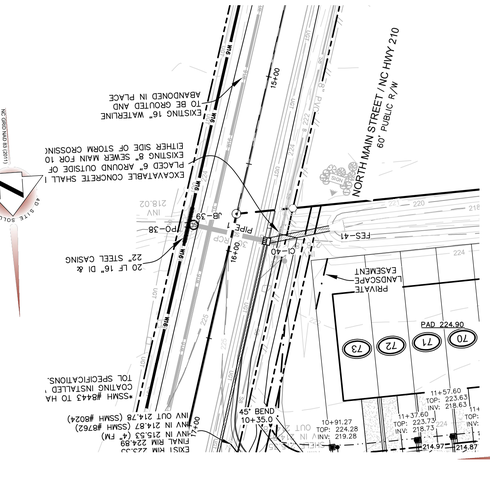
CI-33 TO FES-34

STORM DRAIN 9+50 TO 11+50



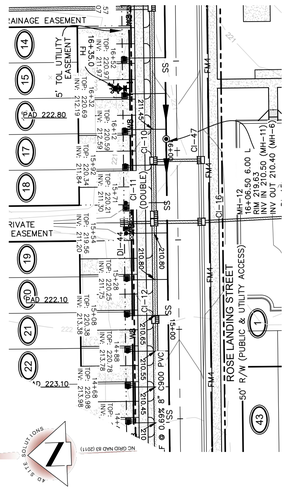
CI-23 TO FES-24

STORM DRAIN 9+50 TO 11+00



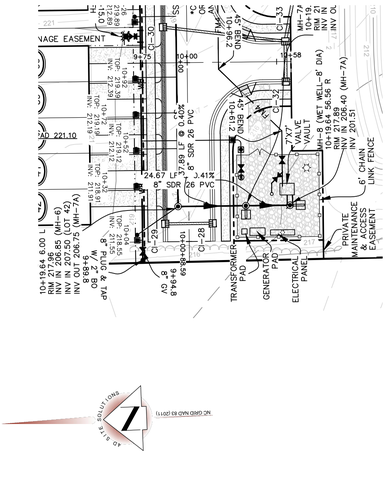
PO-38 TO FES-41

STORM DRAIN 9+50 TO 11+50



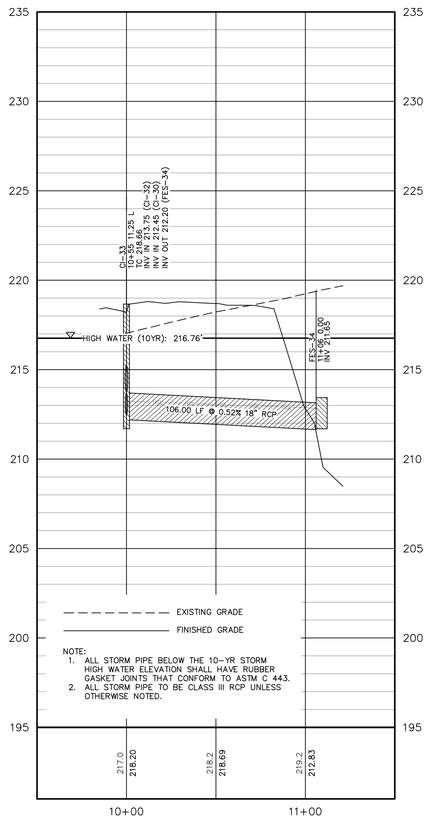
DI-44 TO CI-11

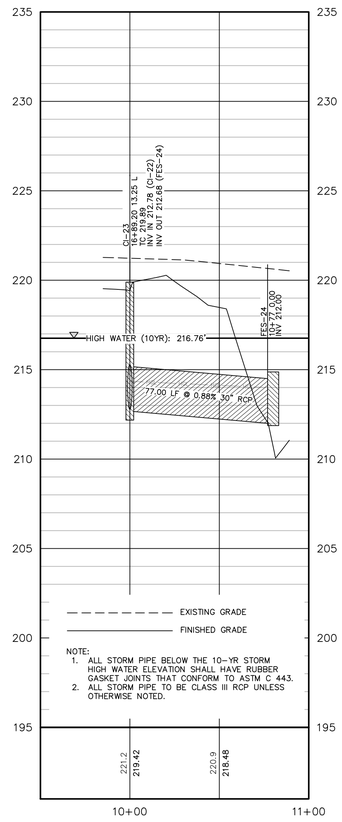
STORM DRAIN 9+50 TO 10+5

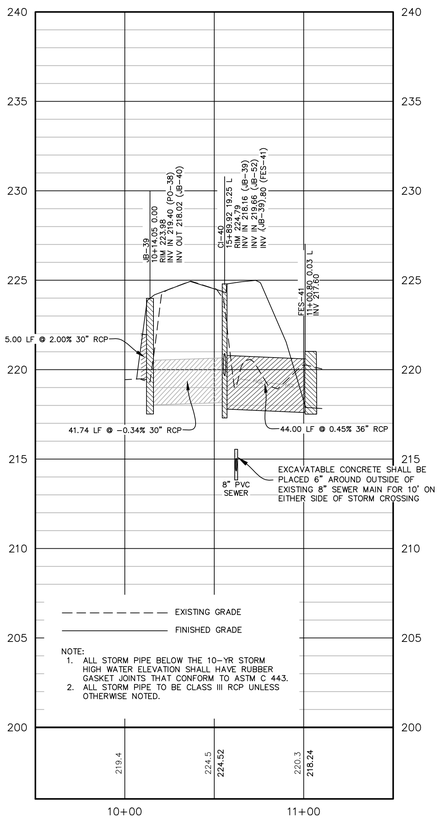


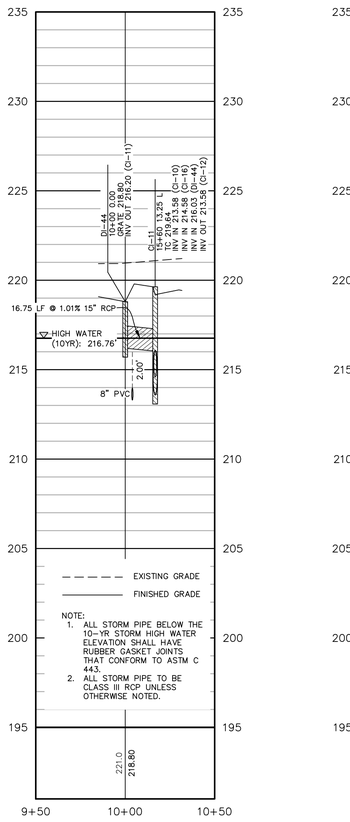
MH-7 TO MH-8

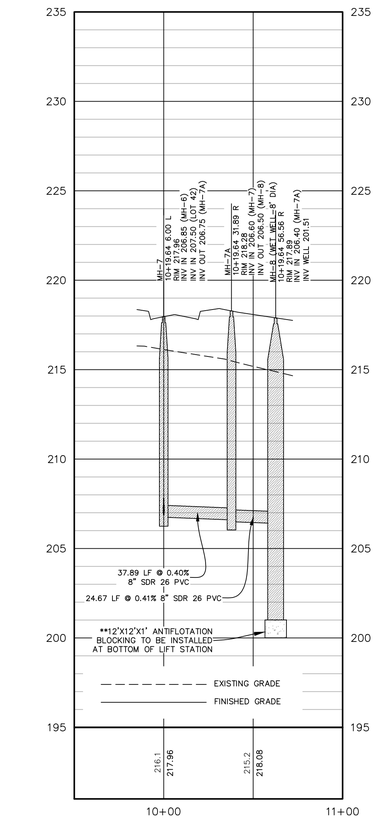
SANITARY SEWER 9+50 TO 11+00











GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027462 SCOTT BROWN
08-29-24

REVISIONS

ISSUED FOR CONSTRUCTION

1 08-29-24 ADDED MH-7A

PROJECT NAME

HARPER'S MEADOW

STORM & SEWER PROFILES

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

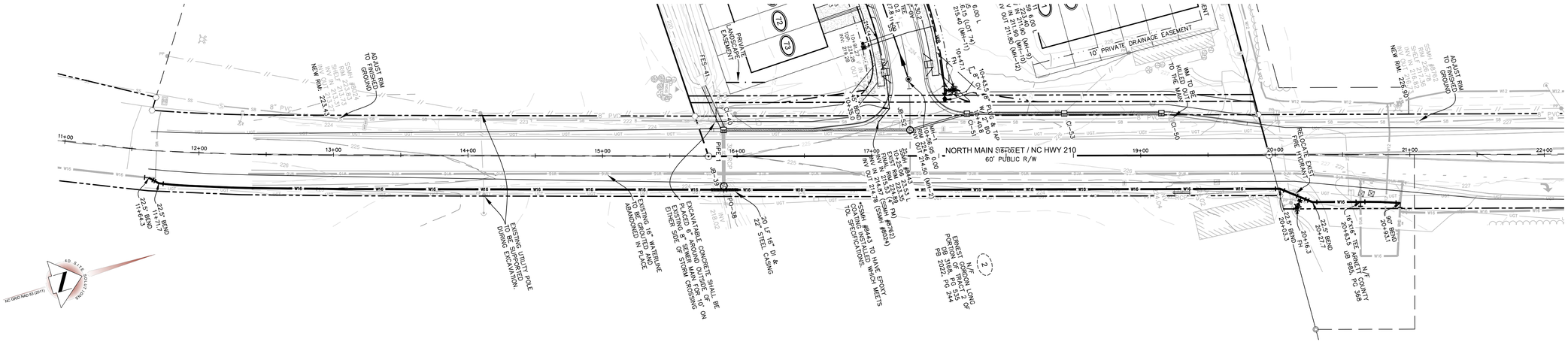
HORIZONTAL: 1"=40'
VERTICAL: 1"=4'

DATE RELEASED

MARCH 22, 2024

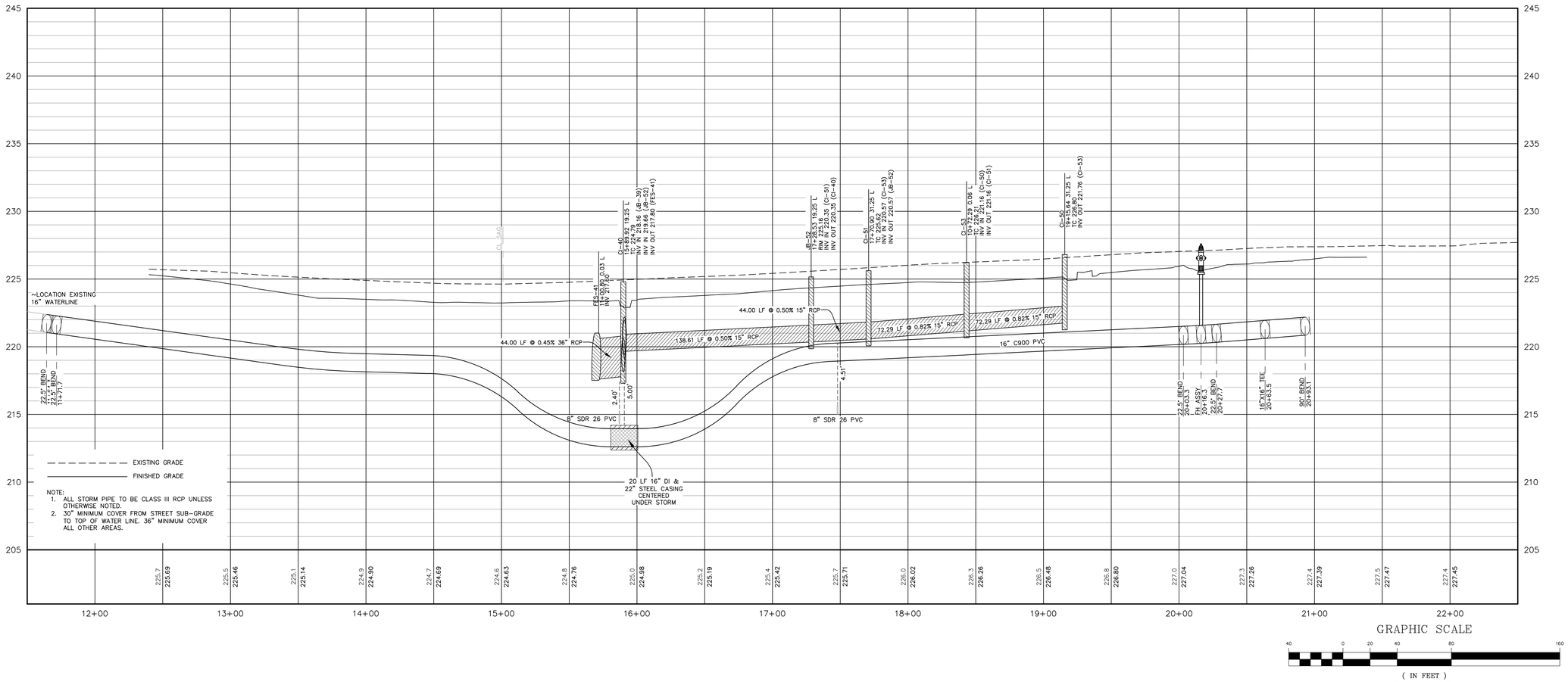
SHEET NUMBER

C-5.4



NORTH MAIN STREET - NC HWY 210 WIDENING

60' R/W (PUBLIC STREET)
ROADWAY PROFILE 11+50 TO 22+50



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NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN
03-22-24

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
HARPER'S MEADOW

NORTH MAIN STREET - NC HWY 210 PROFILE

CLIENT
TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

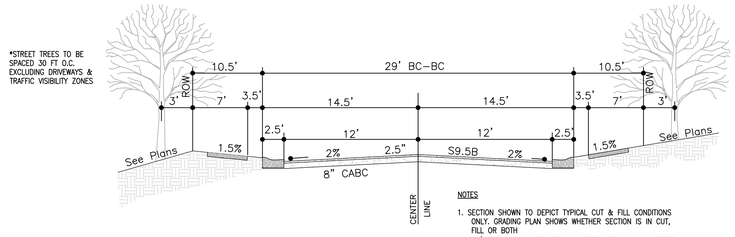
PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE
HORIZONTAL: 1"=40'
VERTICAL: 1"=4'

DATE RELEASED
MARCH 22, 2024

SHEET NUMBER
C-5.5

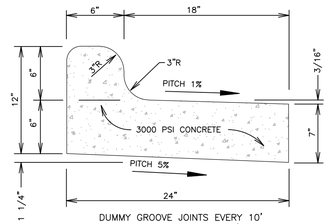


NOTES

1. SECTION SHOWN TO DEPICT TYPICAL CUT & FILL CONDITIONS ONLY. GRADING PLAN SHOWS WHETHER SECTION IS IN CUT, FILL OR BOTH
2. A 5' SIDEWALK IS REQUIRED ON BOTH SIDE OF EACH STREET. SEE PLANS FOR LOCATION OF SIDEWALK.
3. SIDEWALK SHALL HAVE A MAXIMUM CROSS-SLOPE OF 2% FROM BACK EDGE OF SIDEWALK TOWARD BACK OF CURB.

NTS

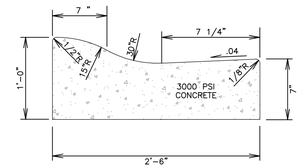
1 ROADWAY TYPICAL SECTION



DUMMY GROOVE JOINTS EVERY 10'
EXPANSION JOINTS EVERY 50'
(90' IF MACHINE PLACED)

NTS

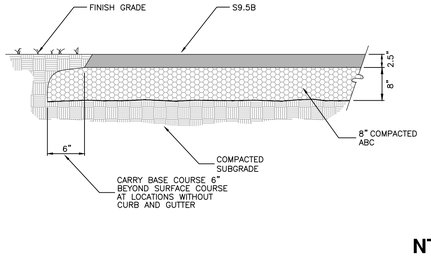
2 24" SPILL TYPE CURB AND GUTTER



CURB AND GUTTER TO BE POURED
IN 10' SECTIONS WITH EXPANSION
JOINTS EVERY 50'
(90' IF MACHINE PLACED)

NTS

3 30" STANDARD ROLL CURB



NTS

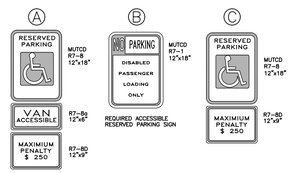
4 ASPHALT PAVEMENT

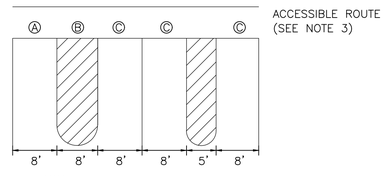
ACCESSIBLE PARKING REQUIREMENTS

TOTAL PARKING SPACES PROVIDED	MINIMUM NUMBER OF ACCESSIBLE SPACES REQUIRED	MINIMUM NUMBER OF ACCESSIBLE SPACES REQUIRED TO BE VAN ACCESSIBLE
1 TO 25	1	1
26 TO 50	2	1
51 TO 75	3	1
76 TO 100	4	1
101 TO 150	5	1
151 TO 200	6	1
201 TO 300	7	1
301 TO 400	8	1
401 TO 500	9	2
501 TO 1000	2% OF TOTAL	1 IN EVERY 8 ACCESSIBLE SPACES
1001 AND OVER	20 PLUS 1 FOR EACH 100 OVER 1000	1 IN EVERY 8 ACCESSIBLE SPACES
SECTION 4.1.2 (5) OF THE AMERICANS WITH DISABILITIES ACT (ADA). SEE 4.1.2(5) (d) FOR MEDICAL CARE FACILITIES		

NOTES:

1. ALL 12"x18" ACCESSIBLE SIGNS (R7-8 & R7-1) SHALL BE MOUNTED AT 7 FEET FROM GRADE TO BOTTOM EDGE OF SIGN FACE (MUTCD). MOUNTING HEIGHT CAN BE REDUCED TO 5 FEET IF PLACED IN AN AREA BETWEEN SIDEWALK AND BUILDING FACE IN WHICH PEDESTRIANS ARE NOT EXPECTED TO USE.
2. REFER TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD) U.S. DEPARTMENT OF TRANSPORTATION AND NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SUPPLEMENT.
3. IF ACCESSIBLE ROUTE IS A RAISED SIDEWALK AREA, THEN RAMPS ARE REQUIRED AT LOADING ZONE AREA.
4. ALL DIMENSIONS, PAVEMENT MARKINGS AND SIGNAGE SHALL COMPLY WITH CURRENT ADA REQUIREMENTS.



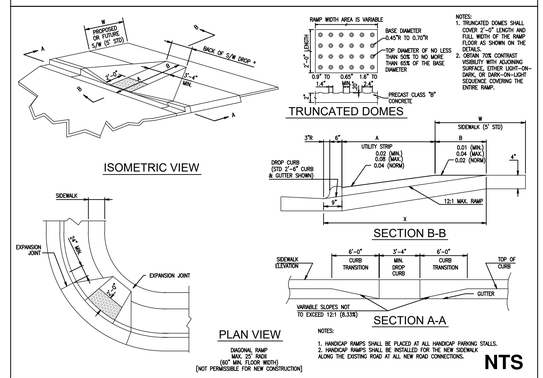


ONE OUT OF EVERY EIGHT (8) ACCESSIBLE SPACES, BUT NOT LESS THAN ONE, IS REQUIRED TO BE VAN ACCESSIBLE.

PARKING SPACE PAVEMENT MARKINGS

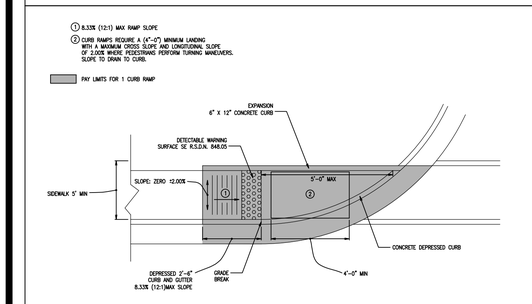
NTS

5 HANDICAP SIGNAGE AND PAVEMENT MARKINGS



NTS

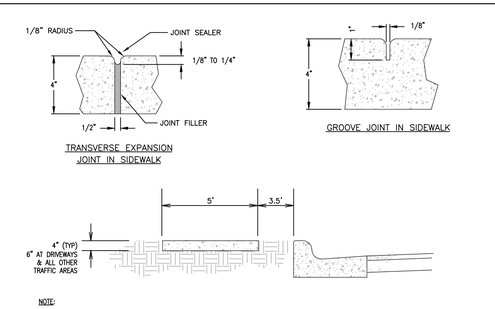
6 HANDICAP RAMP WITH TRUNCATED DOMES



TYPE 1

NTS

7 TYPE 1 CURB RAMP

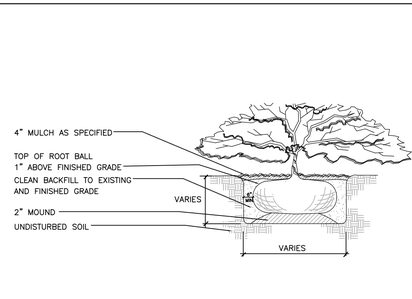


NOTE:

1. PROVIDE CONTROL JOINTS AT DISTANCE EQUAL TO WIDTH OF SIDEWALK, PROVIDE 1/2" EXP. JOINTS WITH PRE-MOLDED E.J. FILLER AT MAX. 30' O.C.
2. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI. IN 28 DAYS.

NTS

8 SIDEWALK WITH CURB

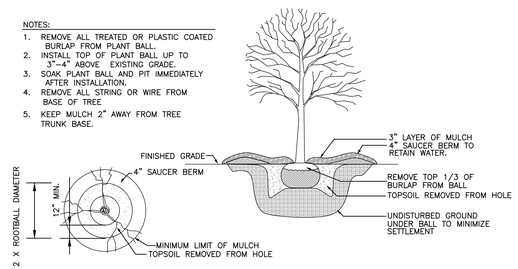


NTS

9 SHRUB PLANTING

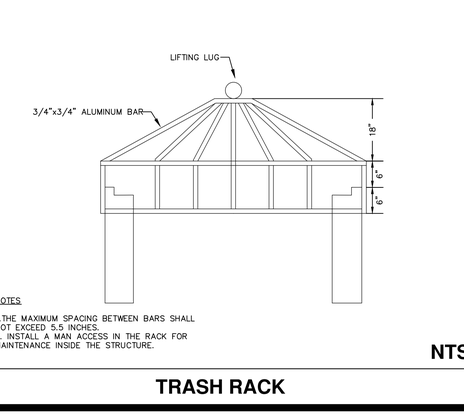
NOTES

1. REMOVE ALL TREATED OR PLASTIC COATED BURLAP FROM PLANT BALL.
2. INSTALL TOP OF PLANT BALL UP TO 3"–4" ABOVE EXISTING GRADE.
3. SOAK PLANT BALL AND PIT IMMEDIATELY AFTER INSTALLATION.
4. REMOVE ALL STRING OR WIRE FROM BASE OF TREE
5. KEEP MULCH 2" AWAY FROM TREE TRUNK BASE.



NTS

10 TREE PLANTING

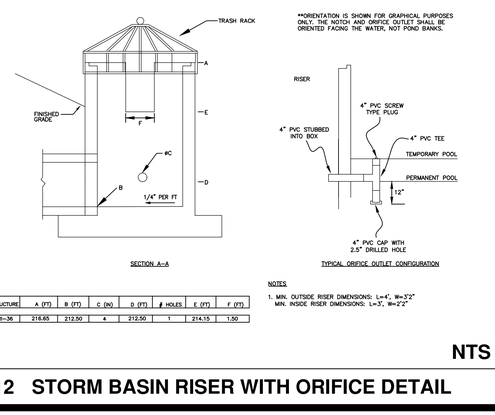


NOTES

1.THE MAXIMUM SPACING BETWEEN BARS SHALL NOT EXCEED 5.5 INCHES.
2. INSTALL A MAN ACCESS IN THE RACK FOR MAINTENANCE INSIDE THE STRUCTURE.

NTS

11 TRASH RACK



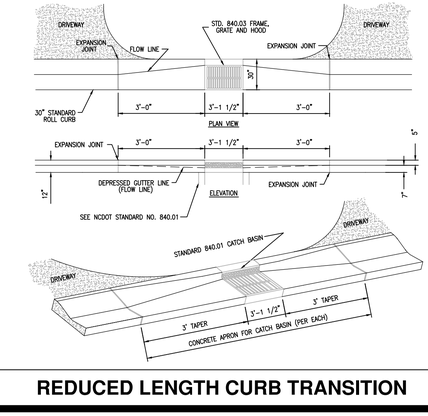
STRUCTURE	A (FT)	B (FT)	C (IN)	D (FT)	# HOLES	E (FT)	F (FT)
R–36	216.65	212.50	4	212.50	1	214.15	1.50

NOTES

1. MIN. OUTSIDE RISER DIMENSIONS: L=4', W=3'3"
MIN. INSIDE RISER DIMENSIONS: L=3', W=2'2"

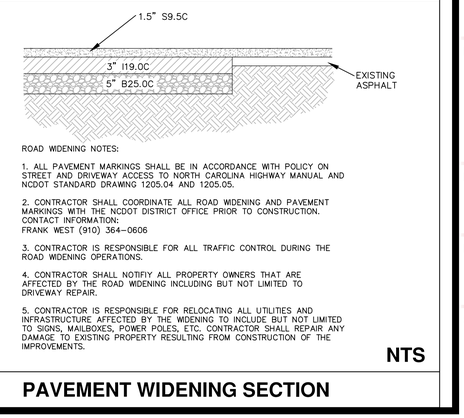
NTS

12 STORM BASIN RISER WITH ORIFICE DETAIL



NTS

13 REDUCED LENGTH CURB TRANSITION



ROAD WIDENING NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH POLICY ON STREET AND DRIVEWAY ACCESS TO NORTH CAROLINA HIGHWAY MANUAL AND NCDOT STANDARD DRAWING 1205.04 AND 1205.05.
2. CONTRACTOR SHALL COORDINATE ALL ROAD WIDENING AND PAVEMENT MARKINGS WITH THE NCDOT DISTRICT OFFICE PRIOR TO CONSTRUCTION. CONTACT INFORMATION:
FRANK WEST (910) 364–0606
3. CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL DURING THE ROAD WIDENING OPERATIONS.
4. CONTRACTOR SHALL NOTIFIY ALL PROPERTY OWNERS THAT ARE AFFECTED BY THE ROAD WIDENING INCLUDING BUT NOT LIMITED TO DRIVEWAY REPAIR.
5. CONTRACTOR IS RESPONSIBLE FOR RELOCATING ALL UTILITIES AND INFRASTRUCTURE AFFECTED BY THE WIDENING TO INCLUDE BUT NOT LIMITED TO SIGNS, MAILBOXES, POWER POLES, ETC. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING PROPERTY RESULTING FROM CONSTRUCTION OF THE IMPROVEMENTS.

NTS

14 PAVEMENT WIDENING SECTION

4Dsite solutions
civil engineering | land surveying
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office | 910-426-6777 fax | 910-426-5777 licenses number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027482 ENGINEER SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

SITE DETAILS

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

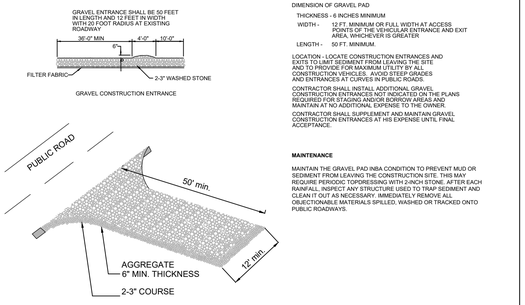
NOT TO SCALE

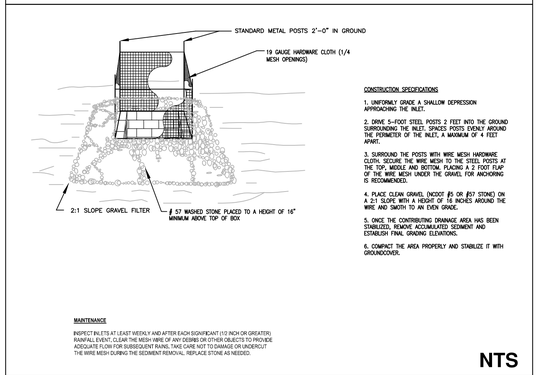
DATE RELEASED

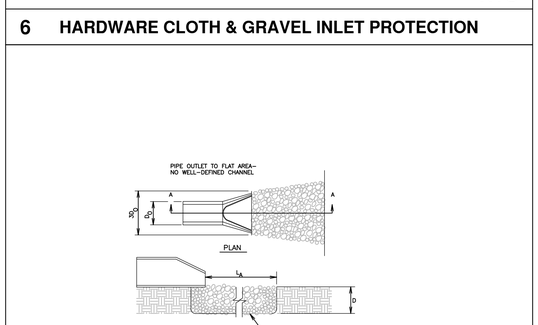
MARCH 22, 2024

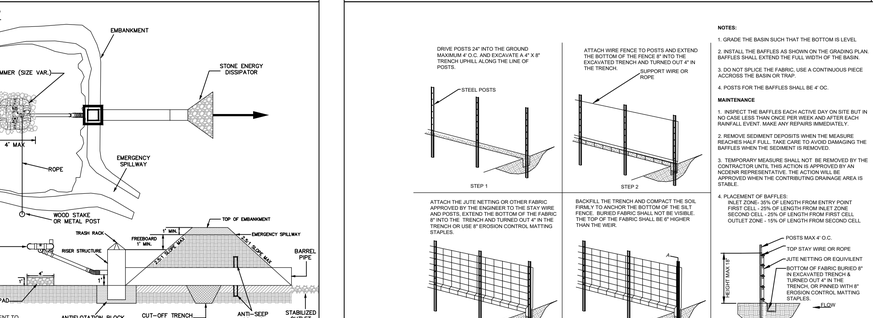
SHEET NUMBER

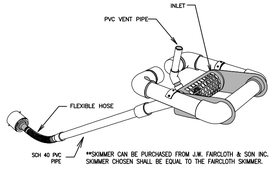
C-6.0

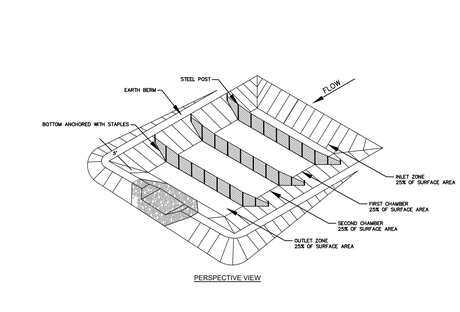


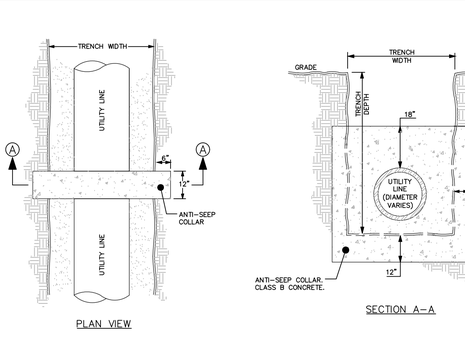












1 TEMPORARY SEEDING SPECIFICATIONS

TEMPORARY SEEDING/MULCHING SPECIFICATIONS (FOR LATE WINTER AND EARLY SPRING)
SEEDING MIXTURE:

SPECIES	RATE (LB./ACRE)
RYE (GRAIN)	120
ANNUAL KOBE LESPEDEZA	50

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT EXTEND BEYOND JUNE.

SEEDING DATES:
JANUARY 1 - MAY 1

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB./ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB./ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB./ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

TEMPORARY SEEDING/MULCHING SPECIFICATIONS (FOR SUMMER)
SEEDING MIXTURE:

SPECIES	RATE (LB./ACRE)
GERMAN MILLET	40

A SMALL-STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 LB./ACRE.

SEEDING DATES:
MAY 1 - AUGUST 15

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB./ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB./ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB./ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

TEMPORARY SEEDING/MULCHING SPECIFICATIONS (FOR FALL)
SEEDING MIXTURE:

SPECIES	RATE (LB./ACRE)
RYE (GRAIN)	120

SEEDING DATES:
AUGUST 15 - DECEMBER 30

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB./ACRE GROUND AGRICULTURAL LIMESTONE AND 1,000 LB./ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB./ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOP DRESS WITH 50 LB./ACRE OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB./ACRE KOBE LESPEDEZA IN LATE OR EARLY MARCH.

2 PERMANENT SEEDING SPECIFICATIONS

SEEDING SPECIFICATIONS

SEEDING MIXTURES:

SPECIES	RATE (LBS./ACRE)
TALL FESCUE	80
PENSACOLA BAHIAGRASS	50
SERICEA LESPEDEZA	30
KOBE LESPEDEZA	10

SEEDING NOTES:
1. FROM SEPT. 1 TO MAR. 1 USE UNSCARIFIED SERICEA SEED.
2. ON POORLY DRAINED SITES OMIT SERICEA AND INCREASE KOBE TO 30 LB./ACRE.
3. WHERE A NEAT APPEARANCE IS DESIRED, OMIT SERICEA AND INCREASE KOBE TO 40 LB./ACRE.

NURSE PLANTS:
BETWEEN APRIL 15 AND AUG. 15, ADD 10 LB./ACRE OF GERMAN MILLET OR 15 LB./ACRE SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 25 LB./ACRE RYE (GRAIN).

SEEDING DATES:

	BEST	POSSIBLE
EARLY SPRING:	FEB. 15 - MAR. 20	FEB. 15 - APR. 30
FALL:	SEPT. 1 - SEPT. 30	SEPT. 1 - OCT. 31

SOIL AMENDMENTS:
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST, OR APPLY 3,000 - 5,000 LB./ACRE GROUND AGRICULTURAL LIMESTONE (USE THE LOWER RATE ON SANDY SOILS) AND 1,000 LB./ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB./ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
IF GROWTH IS LESS THAN FULLY ADEQUATE, REFERTILIZE IN THE SECOND YEAR, ACCORDING TO THE SOIL TESTS OR TOP DRESS WITH 500 LB./ACRE 10-10-10 FERTILIZER. MOW AS NEEDED WHEN SERICEA IS OMITTED FROM THE MIXTURE. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

SEEDING SPECIFICATIONS

SEEDING MIXTURE:

SPECIES	RATE (LB./ACRE)
COMMON BERMUDAGRASS	40-80(1-2 LB./1,000 FT²)

SEEDING DATES:
COASTAL PLAIN: APR. - JULY

SOIL AMENDMENTS:
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST, OR APPLY 3,000 LB./ACRE GROUND AGRICULTURAL LIMESTONE AND 500 LB./ACRE 10-10-10 FERTILIZER.

MULCH:
USE JUTE, EXCELSIOR MATTING, OR OTHER EFFECTIVE CHANNEL LINING MATERIAL TO COVER THE BOTTOM OF CHANNELS AND DITCHES. THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW. ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGES NOT REQUIRING TEMPORARY LININGS, APPLY 4,000 LB./ACRE GRAIN STRAW AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

MULCH AND ANCHORING MATERIALS MUST NOT BE ALLOWED TO WASH DOWN SLOPES WHERE THEY CAN CLOG DRAINAGE DEVICES.

MAINTENANCE:
A MINIMUM OF 3 WEEKS IS REQUIRED FOR ESTABLISHMENT. INSPECTION AND REPAIR MULCH FREQUENTLY. REFERTILIZE THE FOLLOWING APR. WITH 50 LB./ACRE NITROGEN.

3 GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL HANDBOOK.

2. THE CONTRACTOR SHALL NOTIFY PLAN APPROVING AUTHORITY ONE WEEK PRIOR TO THE PRECONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO FINAL INSPECTION.

3. IF POSSIBLE ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO CLEARING AND/OR LAND DISTURBANCE.

4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND PERMIT SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO OFF-SITE BORROW OR WASTE AREAS, STAGING OR STORAGE AREAS), THE CONTRACTOR SHALL PREPARE AND SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND TO NCDENR REGIONAL OFFICE FOR APPROVAL. CONTRACTOR SHALL PAY ALL FEES REQUIRED AND SHALL INSTALL NECESSARY MEASURES AT NO SEPARATE PAYMENT. THE CONTRACTOR SHALL PROVIDE THE OWNER AND THE ENGINEER A COPY OF THE AMENDED PERMIT.

6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY EITHER NCDENR OR THE ENGINEER.

7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

8. ALL AREAS DISTURBED BY CONSTRUCTION UNLESS OTHERWISE IMPROVED SHALL BE SODDED OR SEEDED AS INDICATED AND STABILIZED.

9. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE PRIOR TO DISCHARGE TO RECEIVING OUTLET.

10. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES WEEKLY AND AFTER EACH RUNOFF-PRODUCING EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

11. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED BY CONTRACTOR ONCE STABILIZATION OR A SUFFICIENT GROUND COVER HAS BEEN ESTABLISHED OR AS DIRECTED BY THE ENGINEER. NCDENR'S FINAL APPROVAL IS REQUIRED.

12. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE SHALL BE REQUIRED AT ALL CONSTRUCTION STAGING AREA ENTRANCES AND ALL CONSTRUCTION ACCESS LOCATIONS INTO NON-PAVED AREA.

13. WHEN CROSSING CREEK OR DRAINAGE-WAY, THE CONTRACTOR SHALL RIP-RAP WITH FABRIC DISTURBED BANKS AND CHANNEL AND RESTORE SLOPES TO ORIGINAL CONTOURS, BUT NOT STEEPER THAN 2:1 MAXIMUM. DISTURBED CREEK AREA SHALL BE STABILIZED IMMEDIATELY.

4 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

DESIGN CRITERIA
AGGREGATE SIZE - USE 2-3 INCH WASHED STONE
DIMENSION OF GRAVEL PAD
THICKNESS - 6 INCHES MINIMUM
WIDTH - 12 FT. MINIMUM OR FULL WIDTH AT ACCESS POINTS OF THE VEHICULAR ENTRANCE AND EXIT AREA, WHICHEVER IS GREATER
LENGTH - 50 FT. MINIMUM.

LOCATION - LOCATE CONSTRUCTION ENTRANCES AND EXITS TO LIMIT SEDIMENT FROM LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID STEEP GRADES AND ENTRANCES AT CURVES IN PUBLIC ROADS.

CONTRACTOR SHALL INSTALL ADDITIONAL GRAVEL CONSTRUCTION ENTRANCES NOT INDICATED ON THE PLANS REQUIRED FOR STAGING AND/OR BORROW AREAS AND MAINTAIN AT NO ADDITIONAL EXPENSE TO THE OWNER.

CONTRACTOR SHALL SUPPLEMENT AND MAINTAIN GRAVEL CONSTRUCTION ENTRANCES AT HIS EXPENSE UNTIL FINAL ACCEPTANCE.

MAINTENANCE

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

NTS

5 TEMPORARY DIVERSION BERM

*** WHEN A GRAVEL DIVERSION BERM IS REQUIRED, THE HEIGHT SHALL BE REDUCED TO 12 INCHES AND THE TOP WIDTH TO 6", ALL OTHER REQUIREMENTS SHALL REMAIN THE SAME.

TEMPORARY DIVERSION KEY NOTES:

1. CLEAR THE ARE UNDER THE BERM AND STRIP THE ROOTS/OTHER ORGANICS.
2. COMPACT THE SIDE SLOPES, PREFERABLY WITH A TRACKED VEHICLE TO SLOW RUNOFF VELOCITIES.
3. VEGITATE THE RIDGE OF THE BERM IMMEDIATELY AFTER CONSTRUCTION UNLESS THE BERM WILL REMAIN IN PLACE FOR LESS THAN 30 DAYS.

MAINTENANCE:

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED.

NTS

6 HARDWARE CLOTH & GRAVEL INLET PROTECTION

CONSTRUCTION SPECIFICATIONS

1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.

2. DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACES POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.

3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE AND BOTTOM. PLACING A 2 FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.

4. PLACE CLEAN GRAVEL (NCDOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE AND SMOTH TO AN EVEN GRADE.

5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT AND ESTABLISH FINAL GRADING ELEVATIONS.

6. COMPACT THE AREA PROPERLY AND STABILIZE IT WITH GROUNDCOVER.

MAINTENANCE

INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING THE SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.

NTS

7 TEMPORARY SEDIMENT BASIN

CONSTRUCTION SPECIFICATIONS

1. CLEAR, GRUB & STRIP TOPSOIL FROM AREAS UNDER THE EMBANKMENT TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL. DELAY CLEARING THE POOL AREA UNTIL THE DAM IS COMPLETE AND THEN REMOVE BRUSH, TREES, AND OTHER OBJECTIONABLE MATERIALS TO FACILITATE SEDIMENT CLEANOUT. STOCKPILE ALL TOPSOIL OR SOIL CONTAINING ORGANIC MATTER FOR USE ON THE OUTER SHELL OF THE EMBANKMENT TO FACILITATE VEGETATIVE ESTABLISHMENT. PLACE TEMPORARY SEDIMENT CONTROLS BELOW THE BASIN AS NEEDED.

2. EXCAVATE CUT-0FF TRENCH ALONG THE CENTER LINE OF THE EARTH FILL EMBANKMENT. CUT THE TRENCH TO STABLE SOIL MATERIAL, BUT IN NO CASE MAKE IT LESS THAN 2 FEET DEEP. THE CUT-OFF TRENCH MUST EXTEND INTO BOTH ABUTMENTS TO AT LEAST THE ELEVATION OF THE RISER CREST. MAKE THE MINIMUM BOTTOM WIDTH WIDE ENOUGH TO PERMIT OPERATION OF EXCAVATION AND COMPACTION EQUIPMENT, BUT IN NO CASE LESS THAN 2 FEET. MAKE SIDE SLOPES OF THE TRENCH NO STEEPER THAN 1:1. COMPACTION REQUIREMENTS ARE THE SAME AS THOSE FOR THE EMBANKMENT. KEEP THE TRENCH DRY DURING BACKFILLING AND COMPACTION OPERATIONS.

3. EMBANKMENT - TAKE FILL MATERIAL FROM THE APPROVED AREAS SHOWN ON THE PLANS. IT SHOULD BE CLEAN MINERAL SOIL, FREE OF ROOTS, WOODY VEGETATION, ROCKS, AND OTHER OBJECTIONABLE MATERIAL. SCARIFY AREAS ON WHICH FILL IS TO BE PLACED BEFORE PLACING FILL. THE FILL MATERIAL MUST CONTAIN SUFFICIENT MOISTURE SO IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE BALL, IT IS TOO WET FOR PROPER COMPACTION. PLACE FILL MATERIAL IN 6 TO 8 INCH CONTINUOUS LAYERS OVER THE ENTIRE LENGTH OF THE FILL AREA AND COMPACT IT. COMPACTION MAY BE OBTAINED BY ROUTING THE CONSTRUCTION HAULING EQUIPMENT OVER THE FILL SO THAT THE ENTIRE SURFACE OF EACH LAYER IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF HEAVY EQUIPMENT, OR A COMPACTOR MAY BE USED. CONSTRUCT THE EMBANKMENT TO AN ELEVATION 10% HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLING.

4. SECURELY ATTACH THE RISER TO THE BARREL OR BARREL STUB TO MAKE A WATERTIGHT STRUCTURAL CONNECTION. SECURE ALL CONNECTIONS BETWEEN BARREL SECTIONS BY APPROVED WATERTIGHT ASSEMBLIES. PLACE THE BARREL AND RISER ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PERVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS BACKFILL AROUND THE PIPE OR ANTISEEP COLLARS. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4 INCH LAYERS, AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM FIRM CONTACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE HAUNCHES. PLACE A MINIMUM DEPTH OF 2 FEET OF COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. ANCHOR THE RISER IN PLACE BY CONCRETE OR OTHER SATISFACTORY MEANS TO PREVENT FLOTATION. IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.

5. INSTALL THE EMERGENCY SPILLWAY IN UNDISTURBED SOIL. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE EMERGENCY SPILLWAY.

6. DISCHARGE THE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT-LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE TRAP EFFICIENCY.

7. CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED.

8. INSTALL POROUS BAFFLES AS SPECIFIED.

9. AVOID STEEP SIDE SLOPES, AND FENCE AND MARK BASINS WITH WARNING SIGNS IF TRESPASSING IS LIKELY. FOLLOW ALL STATE AND LOCAL REQUIREMENTS.

NOTES

1. SEED AND PLACE MATITNG FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. INSTALL A MINIMUM OF 3 COIR FIBER BAFFLES IN ACCORDANCE WITH PRACTICE STANDARD 6.65.
3. INSTALL SKIMMER AND COUPLING TO RISER STRUCTURE OR DIRECTLY INTO EMBANKMENT 1 FT. FROM BOTTOM OF BASIN.
4. THE ARM PIPE SHALL HAVE A MINIMUM LENGTH OF 6 FT. BETWEEN THE SKIMMER AND COUPLING.

**SKIMMER CAN BE PURCHASED FROM J.W. FAIRCLOTH & SON INC. SKIMMER CHOSEN SHALL BE EQUAL TO THE FAIRCLOTH SKIMMER.

SKIMMER

MAINTENANCE

INSPECT TEMPORARY SEDIMENT BASINS WEEKLY AND AFTER EACH PERIOD OF SIGNIFICANT RAINFALL. REMOVE SEDIMENT AND RESTORE TRAP TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN AN AREA WITH SEDIMENT CONTROLS.

CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE AND INSPECT THE EMBANKMENT FOR
PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA.

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8 POROUS BAFFLES

DRIVE POSTS 24" INTO THE GROUND MAXIMUM 4' O.C. AND EXCAVATE A 4" X 8" TRENCH UPHILL ALONG THE LINE OF POSTS.

STEP 1

ATTACH WIRE FENCE TO POSTS AND EXTEND THE BOTTOM OF THE FENCE 8" INTO THE EXCAVATED TRENCH AND TURNED OUT 4" IN THE TRENCH.

STEP 2

ATTACH THE JUTE NETTING OR OTHER FABRIC APPROVED BY THE ENGINEER TO THE STAY WIRE AND POSTS, EXTEND THE BOTTOM OF THE FABRIC 8" INTO THE TRENCH AND TURNED OUT 4" IN THE TRENCH OR USE 8" EROSION CONTROL MATTING STAPLES.

STEP 3

BACKFILL THE TRENCH AND COMPACT THE SOIL FIRMLY TO ANCHOR THE BOTTOM OF THE SILT FENCE. BURIED FABRIC SHALL NOT BE VISIBLE. THE TOP OF THE FABRIC SHALL BE 6" HIGHER THAN THE WEIR.

STEP 4

NOTES:

1. GRADE THE BASIN SUCH THAT THE BOTTOM IS LEVEL

2. INSTALL THE BAFFLES AS SHOWN ON THE GRADING PLAN. BAFFLES SHALL EXTEND THE FULL WIDTH OF THE BASIN.

3. DO NOT SPLICE THE FABRIC, USE A CONTINUOUS PIECE ACCROSS THE BASIN OR TRAP.

4. POSTS FOR THE BAFFLES SHALL BE 4' OC.

MAINTENANCE

1. INSPECT THE BAFFLES EACH ACTIVE DAY ON SITE BUT IN NO CASE LESS THAN ONCE PER WEEK AND AFTER EACH RAINFALL EVENT. MAKE ANY REPAIRS IMMEDIATELY.

2. REMOVE SEDIMENT DEPOSITS WHEN THE MEASURE REACHES HALF FULL. TAKE CARE TO AVOID DAMAGING THE BAFFLES WHEN THE SEDIMENT IS REMOVED.

3. TEMPORARY MEASURE SHALL NOT BE REMOVED BY THE CONTRACTOR UNTIL THIS ACTION IS APPROVED BY AN NCDENR REPRESENTATIVE. THE ACTION WILL BE APPROVED WHEN THE CONTRIBUTING DRAINAGE AREA IS STABLE.

4. PLACEMENT OF BAFFLES:
   INLET ZONE- 35% OF LENGTH FROM ENTRY POINT
   FIRST CELL - 25% OF LENGTH FROM INLET ZONE
   SECOND CELL - 25% OF LENGTH FROM FIRST CELL
   OUTLET ZONE - 15% OF LENGTH FROM SECOND CELL

SECTION A-A

PERSPECTIVE VIEW

NTS

9 SILT FENCE

DRIVE STEEL POSTS 18" INTO THE GROUND MAXIMUM 8' O.C. AND EXCAVATE A 4" X 8" TRENCH UPHILL ALONG THE LINE OF POSTS.

STEP 1

ATTACH WIRE FENCE TO POSTS AND EXTEND THE BOTTOM OF THE FENCE 8" INTO THE EXCAVATED TRENCH AND TURNED OUT 4" IN THE TRENCH.

STEP 2

ATTACH THE FILTER FABRIC TO THE WIRE FENCE, EXTEND THE BOTTOM OF THE FABRIC 8" INTO THE TRENCH AND TURNED OUT 4" IN THE TRENCH.

STEP 3

BACKFILL THE TRENCH AND COMPACT THE SOIL FIRMLY TO ANCHOR THE BOTTOM OF THE SILT FENCE. BURIED FABRIC SHALL NOT BE VISIBLE.

STEP 4

NOTES:

1. WIRE SHALL BE A MINIMUM OF 32 INCHES IN WIDTH AND SHALL HAVE A MINIMUM OF 6 WIRES WITH 12" STAY SPACING.

2. FILTER FABRIC SHALL BE A MINIMUM OF 36" IN WIDTH AND SHALL BE FASTENED ADEQUATELY TO THE WIRE WITH #9 WIRE STAPLES 1-1/2" LONG. FABRIC THAT DETERIORATES TO SUCH EXTENT THAT IT'S EFFECTIVENESS IS REDUCED SHALL BE REPLACED BY CONTRACTOR AT CONTRACTOR'S EXPENSE.

3. STEEL POSTS SHALL BE A MIN. OF 5' HEIGHT AND SHALL BE THE SELF FASTENER ANGLE STEEL TYPE.

4. CONTRACTOR SHALL REVIEW SILT FENCE ONCE PER WEEK AND AFTER EACH RAINFALL OCCURRENCE. ANY NECESSARY REPAIRS OR CLEAN-UP TO MAINTAIN THE EFFECTIVENESS OF THE DEVICE SHALL BE MADE IMMEDIATELY.

5. REMOVE DEPOSITED SEDIMENT ALONG THE FENCE TO PROVIDE ADEQUATE STORAGE VOLUME AND TO REDUCE PRESSURE ON THE FENCE AS NEEDED.

5. TEMPORARY MEASURE SHALL NOT BE REMOVED BY THE CONTRACTOR UNTIL THIS ACTION IS APPROVED BY AN NCDENR REPRESENTATIVE. THE ACTION WILL BE APPROVED WHEN THE CONTRIBUTING DRAINAGE AREA IS STABLE.

SECTION A-A

MAINTENANCE

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

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

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

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

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10 ANTI-SEEP COLLAR

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11 TYPICAL RIP RAP APRON

NOTES

1. L_A IS THE LENGTH OF THE RIPRAP APRON.
2. D = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
3. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER FABRIC OR BLANKET SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

MAINTENANCE

INSPECT RIPRAP OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT (½ INCH OR GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

NTS

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SEAL 027452
SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

EROSION CONTROL DETAILS

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

NOT TO SCALE

DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

C-6.1

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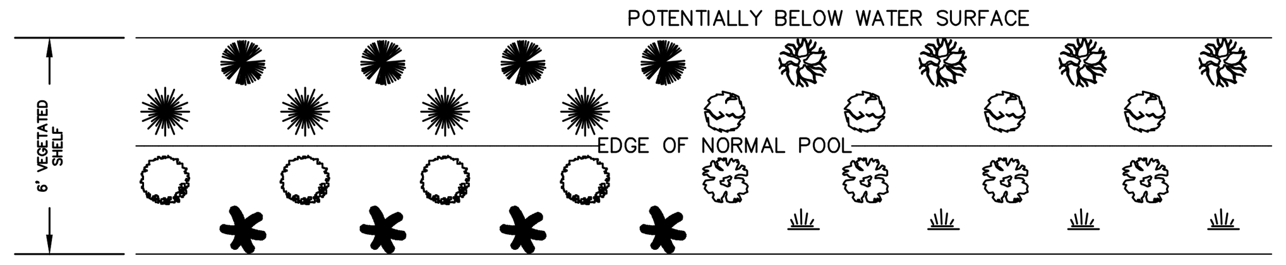


SHALLOW WATER PLANTS

COMMON NAME	BOTANICAL NAME
BEAUTYBERRY	CALLICARPA AMERICANA
RED CHOKEBERRY	ARONIA ARBUTIFOLIA
VIRGINIA SWEETSPIRE	ITEA VIRGINICA
SILKY DOGWOOD	CORNUS AMOMUM
* GOLDENROD	SOLIDAGO

SHALLOW LAND PLANTS

COMMON NAME	BOTANICAL NAME
SWEET GRASS	MUHLENBERGIA FILIPES
SWITCHGRASS	PANICUM VIRGATUM
RIVER OATS	CHASMANTHIUM LATIFOLIUM
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM
* INDIANAGRASS	SORGHASTRUM NUTANS

* ALTERNATE PLANTS

NOTES

1. PLANT SPACINGS SHALL BE A MAXIMUM OF 18 INCHES ON CENTER.
2. PLANTS CAN AND SHOULD BE MIXED MATCHED DURING THE PLANTING PROCESS. SHALLOW LAND PLANTS AND SHALLOW WATER PLANTS CAN BE MIXED TOGETHER.
3. SOIL SAMPLE SHOULD BE TAKEN PRIOR TO SAMPLING AND FERTLIZE AT RECOMMENDATION FROM SOILS ANALYSIS.
4. ALL SLOPES AND AREAS ADJACENT TO THE WET POND SHALL BE SEEDED WITH BERMUDA GRASS FOR A PERMANENT GROUNDCOVER.
5. ALL INSTALLATIONS SHALL BE FROM A QUALIFIED PROFESSIONAL.

COMMON NAME	SIZE	SPACING
BEAUTYBERRY	#3 CONTAINER	48" O.C. MAXIMUM
RED CHOKEBERRY	#3 CONTAINER	48" O.C. MAXIMUM
VIRGINIA SWEETSPIRE	#3 CONTAINER	36" O.C. MAXIMUM
SILKY DOGWOOD	#3 CONTAINER	60" O.C. MAXIMUM
GOLDENROD	#3 CONTAINER	48" O.C. MAXIMUM
SWEET GRASS	PLUGS	18" O.C. MAXIMUM
SWITCHGRASS	PLUGS	24" O.C. MAXIMUM
RIVER OATS	PLUGS	18" O.C. MAXIMUM
LITTLE BLUESTEM	PLUGS	18" O.C. MAXIMUM
INDIANAGRASS	PLUGS	18" O.C. MAXIMUM

*MUST INCLUDE A MINIMUM OF 3 DIVERSE SPECIES AT A MINIMUM PLANTING RATE OF 50 PLANTS PER 200 SF.

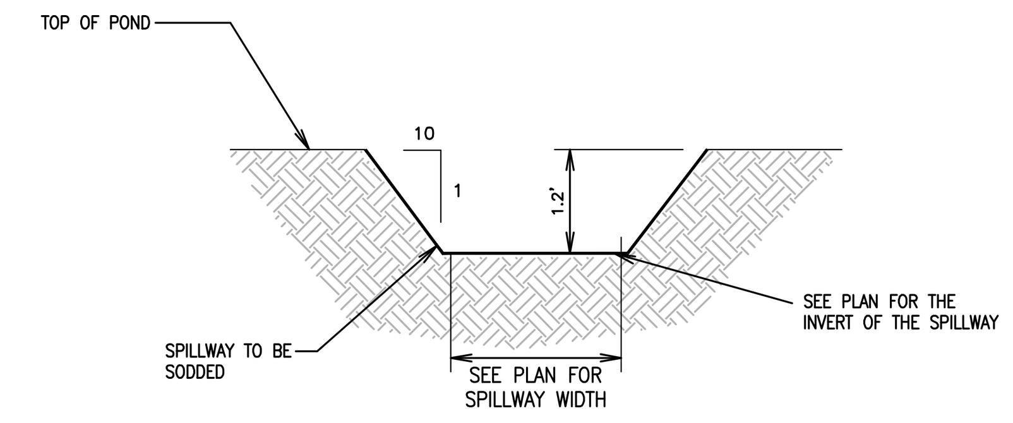
PLANT SUPPLIERS

CAROLINA GREENERY, WEST END, NC 910-947-3150
MELLOW MARSH FARM, PITTSBORO, NC 919-742-1200
PLANT DELIGHTS NURSERY, RALEIGH, NC 919-772-4794
CILL IDE NATIVE PLANT NURSERY, RALEIGH, NC 877-479-2673

**VEGETATED SHELF AND SLOPES ABOVE THE PERMANENT POOL ELEVATION SHALL HAVE A MINIMUM OF 6" TOPSOIL. SUBGRADE SHALL BE ADJUSTED TO ACCOUNT FOR ADDITION OF TOPSOIL IN THESE AREAS SUCH THAT THE ELEVATIONS SHOWN ABOVE ARE TO THE FINISHED GRADE OF THE TOPSOIL.

NTS

1 VEGETATED SHELF PLANTING DETAIL



SPILLWAY CROSS SECTION

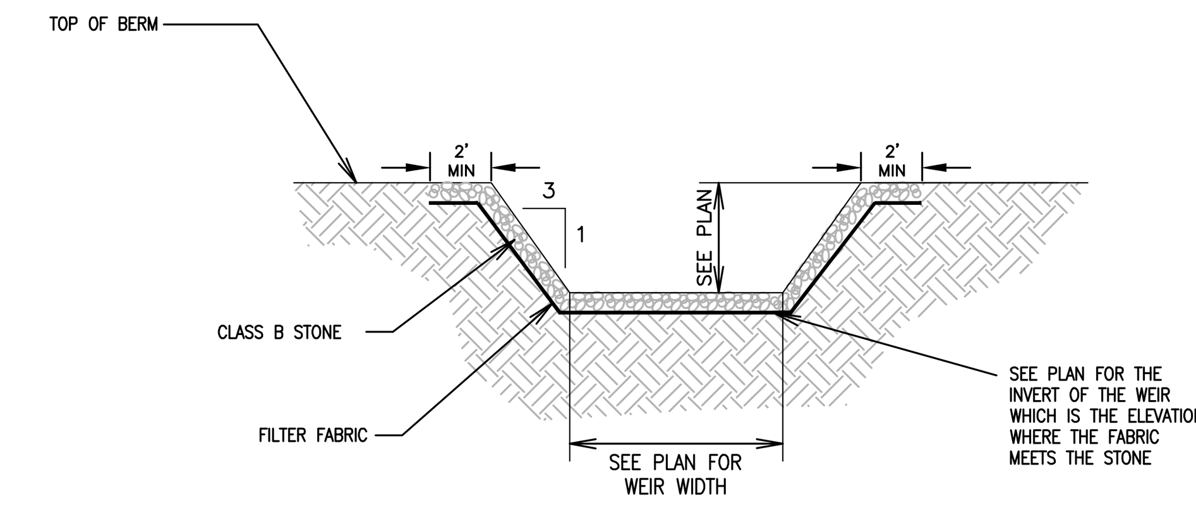
1. INSTALL THE EMERGENCY SPILLWAY IN UNDISTURBED SOIL. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE EMERGENCY SPILLWAY.

2. ALTERNATIVE MATERIALS MAY BE USED OTHER THAN THE SPECIFIED SOD IF APPROVED BY THE DESIGN ENGINEER.

3. MAX SIDE SLOPES ARE 3:1

NTS

2 EMERGENCY SPILLWAY



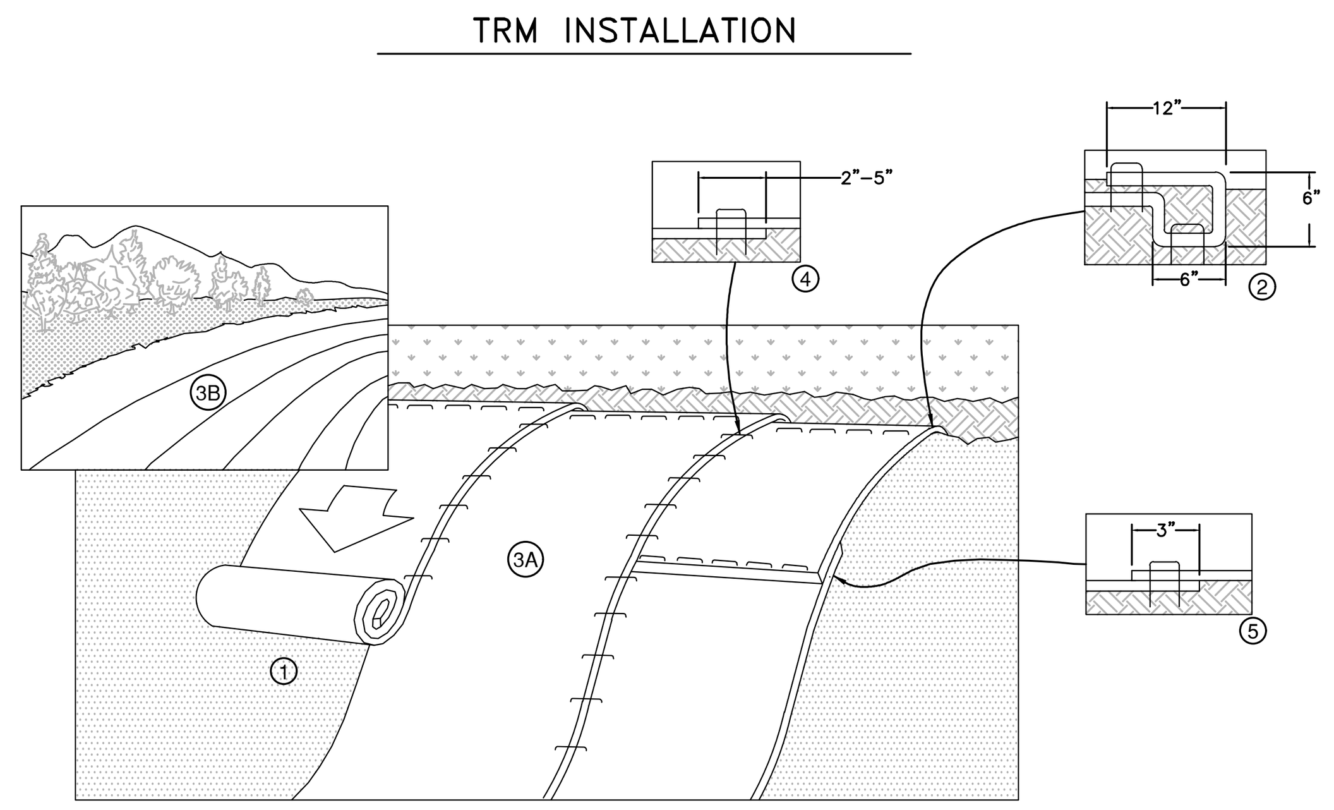
FOREBAY WEIR CROSS SECTION

1. ALTERNATIVE MATERIALS MAY BE USED OTHER THAN THE SPECIFIED STONE IF APPROVED BY THE DESIGN ENGINEER.
2. MAX SIDE SLOPES ARE 3:1

NTS

3 FOREBAY WEIR

TRM INSTALLATION



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" - 5" (5 CM - 12.5 CM) OVERLAP DEPENDING ON BLANKET TYPE.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE BLANKET WIDTH.
NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

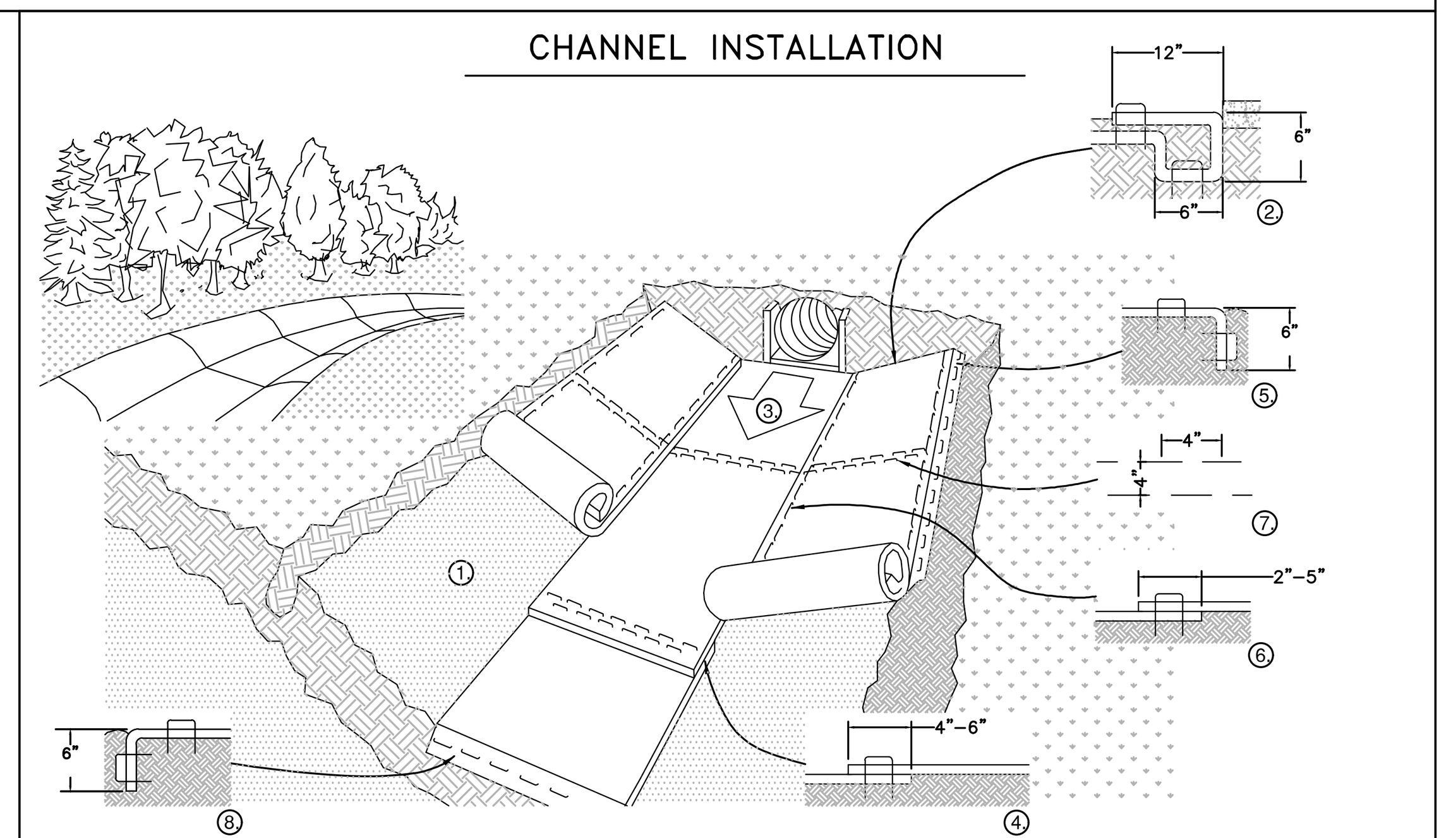
MAINTENANCE:

1. INSPECT THE EROSION CONTROL BLANKET ONCE A WEEK AND AFTER EVERY RAINFALL.
2. IMMEDIATELY REPAIR AND/OR REPLACE ANY DAMAGED BLANKET.
3. IF GROUND COVER IS NOT ESTABLISHED THROUGH THE BLANKET WITHIN 2 WEEKS, THE BLANKET SHOULD BE REMOVED AND THE AREA RESEEDED. AFTER RESEEDING, THE BLANKET SHOULD BE REINSTALLED.

NTS

4 EROSION CONTROL BLANKET INSTALLATION

CHANNEL INSTALLATION



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) ACROSS THE WIDTH OF THE BLANKET.

3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.

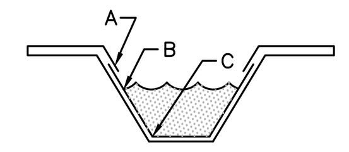
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4" - 6" (10 CM -15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER TO SECURE BLANKETS.

5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (5 CM -12.5 CM) (DEPENDING ON BLANKET TYPE) AND STAPLED.

7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M - 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.

8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
NOTE: * IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.



CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

MAINTENANCE:

1. INSPECT THE EROSION CONTROL BLANKET ONCE A WEEK AND AFTER EVERY RAINFALL.
2. IMMEDIATELY REPAIR AND/OR REPLACE ANY DAMAGED BLANKET.
3. IF GROUND COVER IS NOT ESTABLISHED THROUGH THE BLANKET WITHIN 2 WEEKS, THE BLANKET SHOULD BE REMOVED AND THE AREA RESEEDED. AFTER RESEEDING, THE BLANKET SHOULD BE REINSTALLED.

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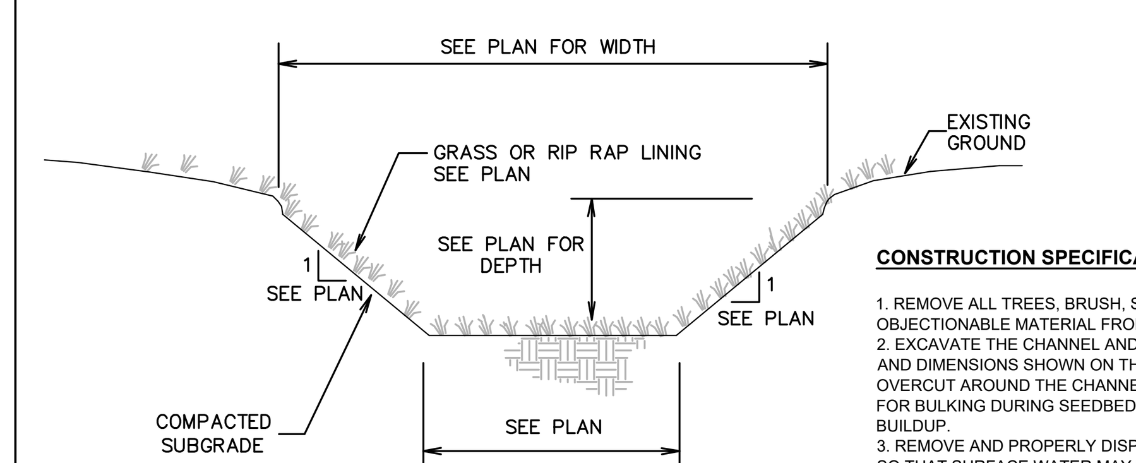
5 EROSION CONTROL BLANKET INSTALLATION

GRASSED OR RIP RAP LINED SWALE
NOTE: THIS CROSS SECTION IS TO BE USED FOR THE ENTIRE LENGTH OF THE SWALE.



CONSTRUCTION SPECIFICATIONS:

1. REMOVE ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA.
2. EXCAVATE THE CHANNEL AND SHAPE IT TO NEAT LINES AND DIMENSIONS SHOWN ON THE PLANS PLUS 0.2 FT OVERCUT AROUND THE CHANNEL PERIMETER TO ALLOW FOR BULKING DURING SEEDBED PREPARATIONS AND SOD BUILDUP.
3. REMOVE AND PROPERLY DISPOSE OF ALL EXCESS SOIL SO THAT SURFACE WATER MAY ENTER THE CHANNEL FREELY.
4. ESTABLISH GRASS IN THE CHANNEL IMMEDIATELY.

MAINTENANCE & CONSTRUCTION:

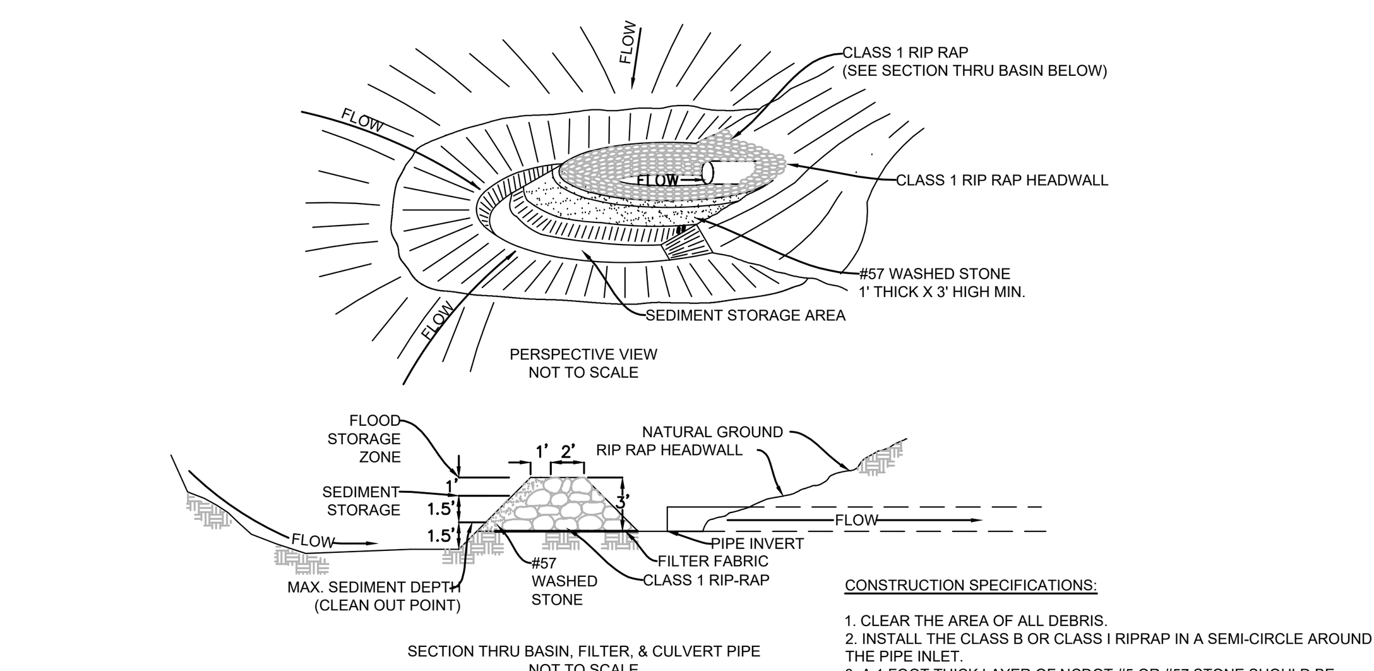
1. INSPECT THE SWALE FOR EROSION ONCE A WEEK AND AFTER EVERY RAINFALL.
2. IMMEDIATELY REPAIR AND/OR REPLACE ANY DAMAGED AREAS.
3. MAINTAIN PROPER CROSS SECTION UNTIL THE SWALE IS STABLE.
4. KEEP THE GRASS IN A HEALTHY, VIGOROUS CONDITION AT ALL TIMES.

NOTES:

1. DITCH #1 TO HAVE 1' BOTTOM WIDTH, 3:1 SIDE SLOPES, AND ~3.5' DEPTH.
2. DITCHES BETWEEN BUILDINGS TO HAVE 0' BOTTOM WIDTH AND VAIRABLE SIDE SLOPES NOT TO EXCEED 3:1.

NTS

6 TYPICAL SWALE CROSS SECTION



CONSTRUCTION SPECIFICATIONS:

1. CLEAR THE AREA OF ALL DEBRIS.
2. INSTALL THE CLASS B OR CLASS I RIPRAP IN A SEMI-CIRCLE AROUND THE PIPE INLET.
3. A 1 FOOT THICK LAYER OF NCDOT #5 OR #57 STONE SHOULD BE PLACED ON THE OUTSIDE SLOPE OF THE RIPRAP.
4. SEDIMENT STORAGE AREA SHOULD BE EXCAVATED AROUND THE OUTSIDE OF THE STONE HORSESHOE 18" BELOW NATURAL GRADE.
5. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, FILL DEPRESSION AND ESTABLISH FINAL GRADING ELEVATIONS, COMPACT, AND STABILIZE WITH GROUND COVER.

MAINTENANCE:

INSPECT ROCK PIPE INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2" OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.

CHECK THE STRUCTURE FOR DAMAGE. ANY RIPRAP DISPLACED FROM THE STONE HORSESHOE MUST BE REPLACED IMMEDIATELY.

NTS

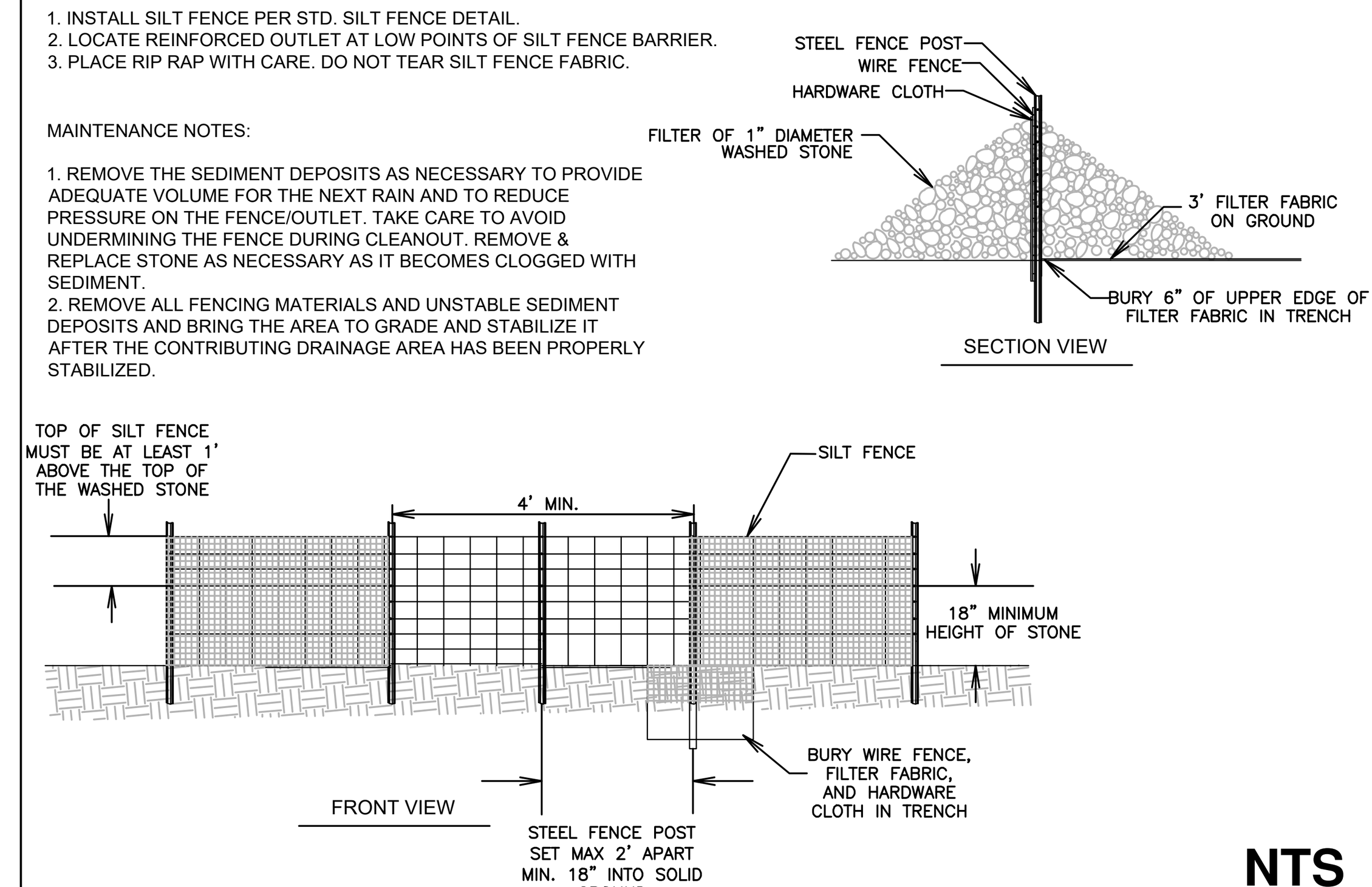
7 ROCK PIPE INLET PROTECTION

NOTES:

1. INSTALL SILT FENCE PER STD. SILT FENCE DETAIL.
2. LOCATE REINFORCED OUTLET AT LOW POINTS OF SILT FENCE BARRIER.
3. PLACE RIP RAP WITH CARE. DO NOT TEAR SILT FENCE FABRIC.

MAINTENANCE NOTES:

1. REMOVE THE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE/OUTLET. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT. REMOVE & REPLACE STONE AS NECESSARY AS IT BECOMES CLOGGED WITH SEDIMENT.
2. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



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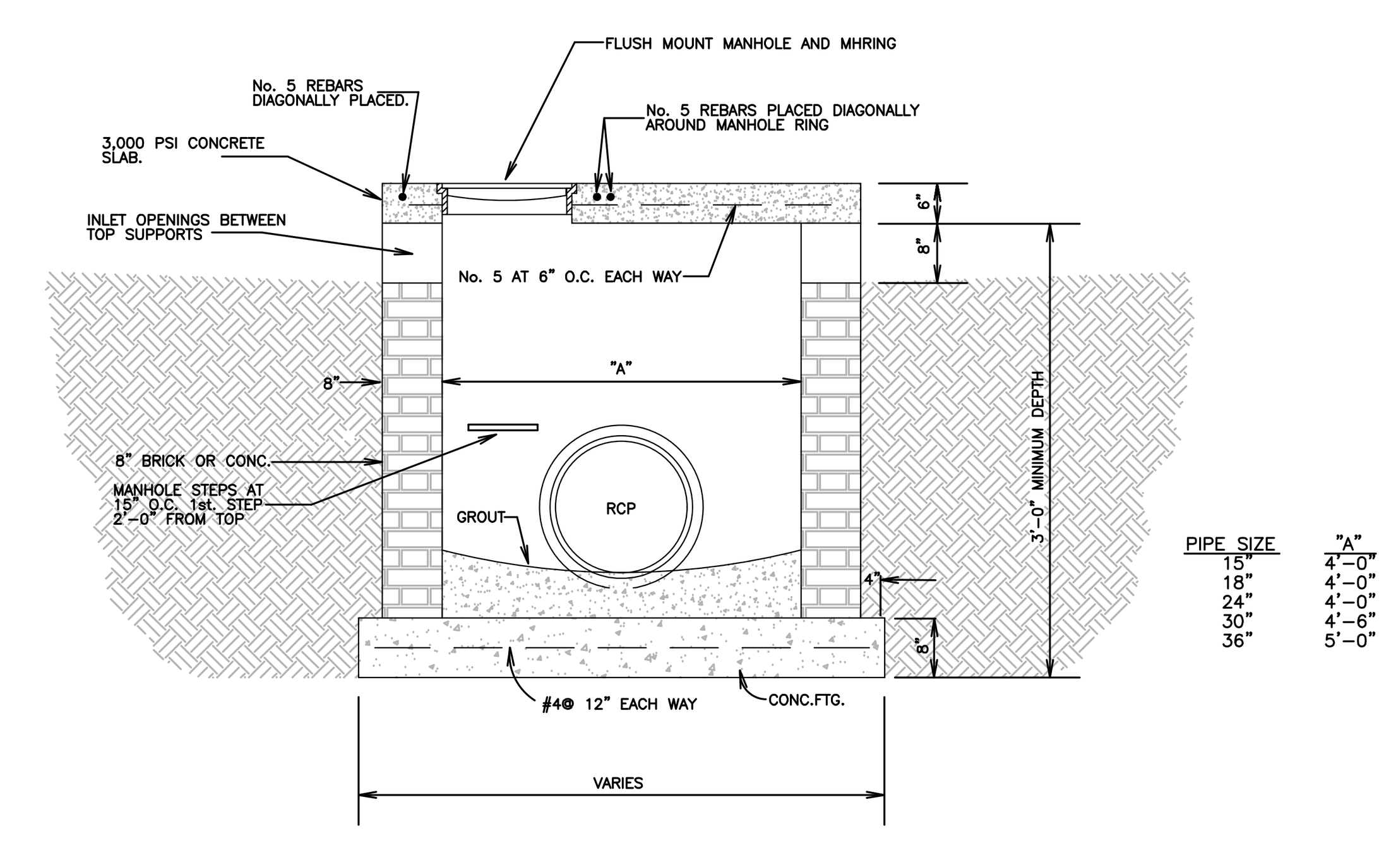
8 SILT FENCE OUTLET



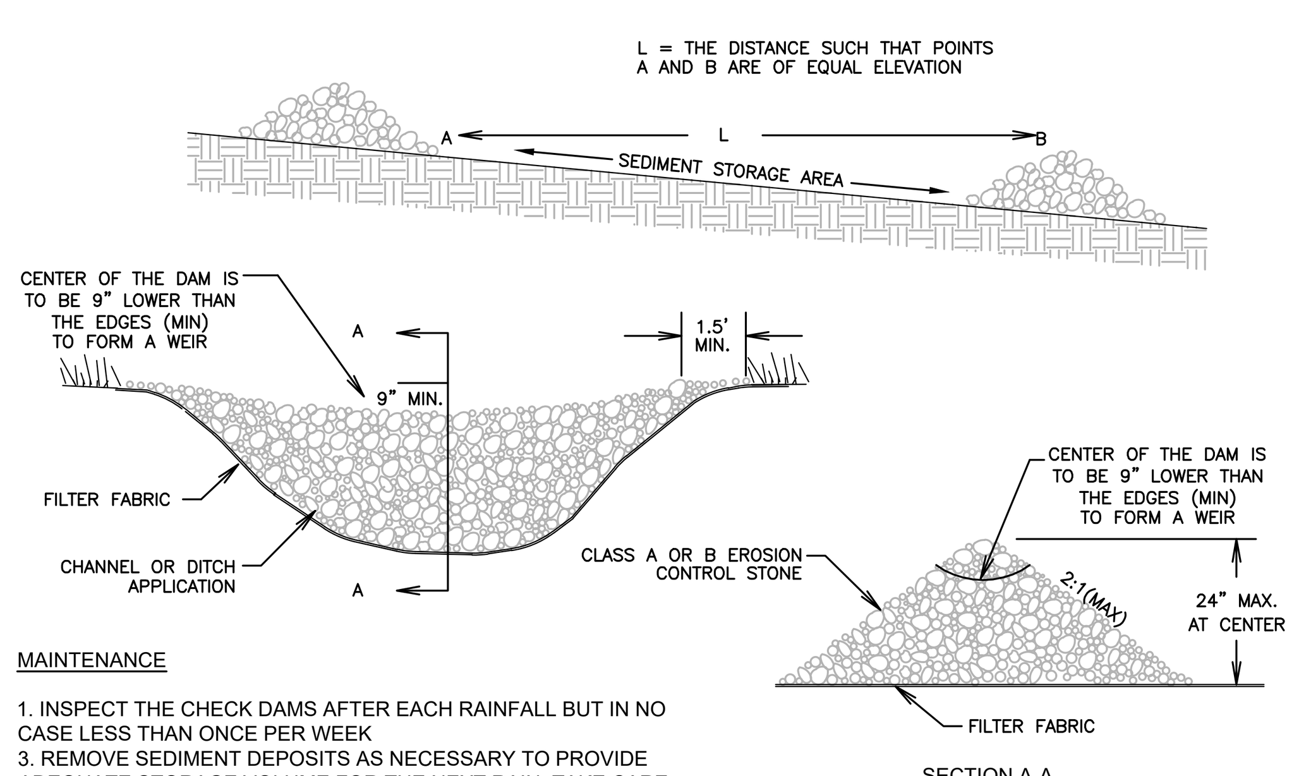
PIPE SIZE	"A"
15"	4'-0"
18"	4'-0"
24"	4'-0"
30"	4'-6"
36"	5'-0"

NOTES:

1. CONTRACTOR SHALL INSTALL INLET SUCH THAT OPENINGS ALLOW FLOW IN FROM GRADED DITCH.

NTS

9 OPEN THROAT CATCH BASIN

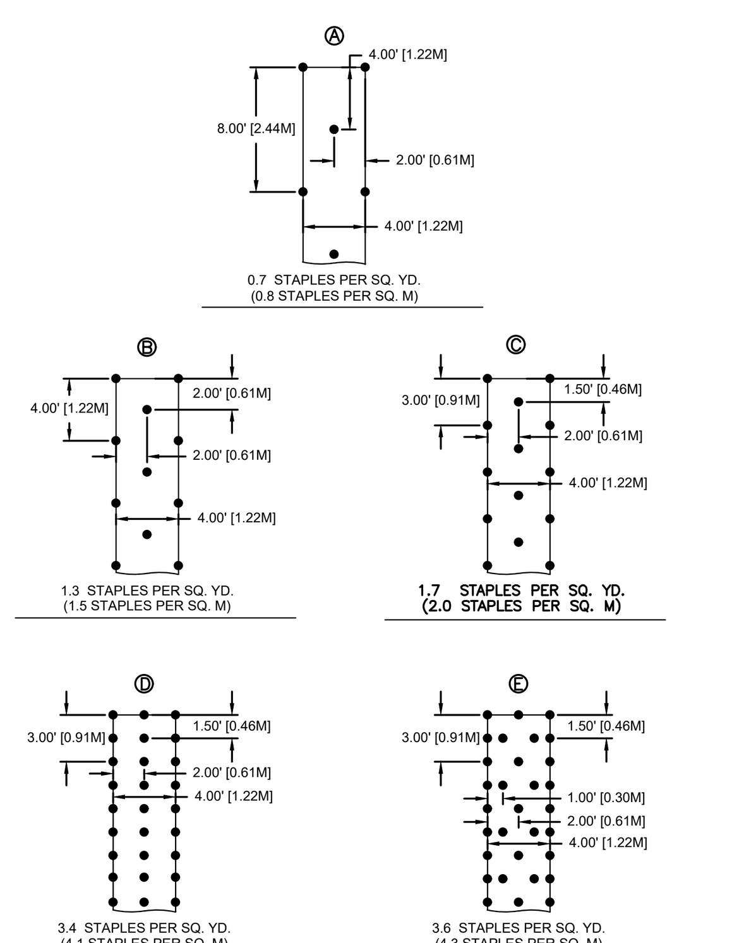


MAINTENANCE

1. INSPECT THE CHECK DAMS AFTER EACH RAINFALL BUT IN NO CASE LESS THAN ONCE PER WEEK
3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN. TAKE CARE TO AVOID UNDERMINING THE DAM DURING CLEANOUT.
3. CLEAN OR REPLACE THE STONE WHEN IT SHOWS SIGNS OF CLOGGING OR OTHERWISE DOES NOT PERFORM CORRECTLY
4. WEIR SECTION MUST BE 9" LOWER THAN ABUTMENTS
5. DOWNSTREAM APRON LENGTH SHOULD BE 3 TIMES THE HEIGHT OF THE WEIR.

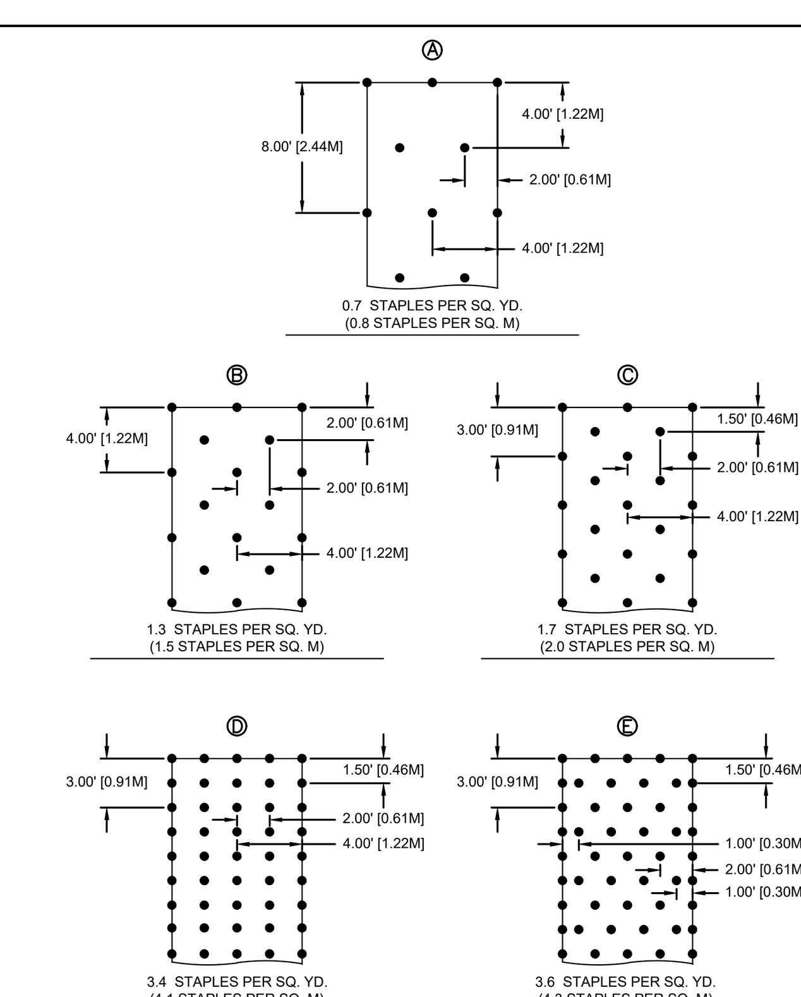
NTS

10 CHECK DAM WITH WEIR



NTS

11 STAPLE PATTERN FOR 4' ROLLS



NTS

12 STAPLE PATTERN FOR 8' ROLLS

4Dsite solutions
civil engineering | land surveying
409 Chicago Drive, Suite 112, Fayetteville, NC 28306
office | 910-426-6777 fax | 910-426-5777 license number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027452 ENGINEER C. SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

EROSION CONTROL DETAILS

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

NOT TO SCALE

DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

C-6.2

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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.

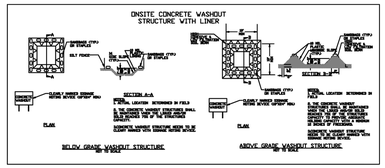
PORTABLE TOILETS

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.

NORTH CAROLINA Environmental Quality



CONCRETE WASHOUTS

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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

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

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING | EFFECTIVE: 04/01/19

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 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 documented in the manner described:

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

In addition to the E&SC Plan documents above, the following items shall be kept on the site

and available for agency 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 30 days. 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.

(c) All data used to complete the Notice of Intent and older 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).

(a) 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.

(b) Anticipated bypasses and unanticipated bypasses.

(c) 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 Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

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

NORTH CAROLINA Environmental Quality

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

DUKE ENERGY PROGRESS

Outdoor Lighting

Mitchell LED Series

Mitchell LED
Mitchell Top Hat LED
Mitchell LED with ribs, bands and medallions
Mitchell Open LED
Mitchell Top Hat LED with ribs, bands and medallions

The energy-efficient fixtures in the Mitchell LED Series enhance the character and prestige of streetscapes and parking lots, as well as pedestrian areas and greenways. These fixtures provide safety and security in commercial settings and complement any neighborhood with their classic, elegant design.

LED *(Light Emitting Diode)*	50 watts, 75 watts (*Mitchell Open*)
Mounting heights	12', 13', 16'
Color	Black
Poles	Fiberglass Smooth round concrete Style V Style VI Style VII

For additional information, visit us at duke-energy.com/OutdoorLighting or call us toll free at 866.769.6417.

DUKE ENERGY PROGRESS

Outdoor Lighting

Mitchell LED Series

Light source: LED *(white)*

Lumens: 4,332 – 5,678 *(fixture dependent)*

Color temperature: 4,000K

light distribution pattern

	Wattage	Light Pattern	IESNA Backlight – Uplight – Glare (BUG) Rating
Mitchell LED	50	IESNA Type V	B3-U4-G3
Mitchell Top Hat LED	50	IESNA Type V	B3-U3-G3
Mitchell Open LED	75	IESNA Type III	B1-U0-G1
Mitchell LED with Ribs, Bands and Medallions	50	IESNA Type V	B3-U4-G3
Mitchell Top Hat LED with Ribs, Bands and Medallions	50	IESNA Type V	B3-G3-U3

Poles available:

Name	*Mounting height*	*Color*
Smooth concrete	12', 16'	Black
Fiberglass	16'	Black
Style V	12', 16'	Black
Style VI	12'	Black
Style VII	13'	Black

4Dsite solutions
civil engineering | land surveying
409 Chicago Drive, Suite 112, Fayetteville, NC 28306
office | 910-426-6777 fax | 910-426-5777 licenses number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER CRAIG NEIL BROWN SCOTT
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

SITE & EROSION CONTROL DETAILS

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

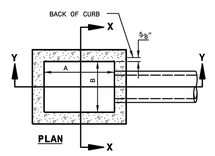
NOT TO SCALE

DATE RELEASED

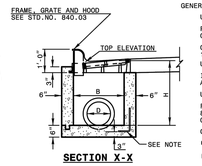
MARCH 22, 2024

SHEET NUMBER

C-6.3



PLAN



SECTION X-X

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

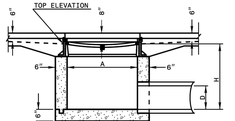
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.

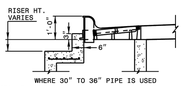
CONSTRUCT WITH PIPE CROWNS MATCHING.

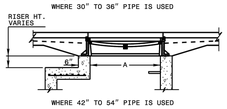
CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

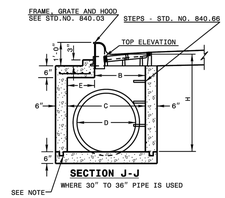


SECTION Y-Y

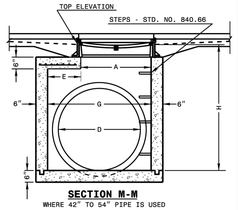




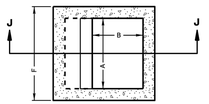
DETAIL SHOWING METHOD OF RISER CONSTRUCTION



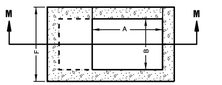
SECTION J-J
WHERE 30" TO 36" PIPE IS USED



SECTION M-M
WHERE 42" TO 54" PIPE IS USED



PLAN



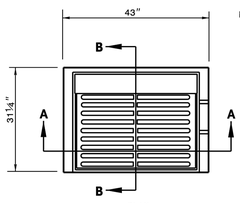
PLAN

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

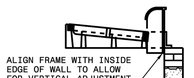
SHEET 1 OF 2
840.02



PLAN

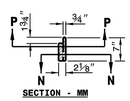
FRAME,GRATE, & HOOD ASS'Y

NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.



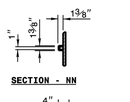
SECTION - BB

SECTION - LL



SECTION - MM

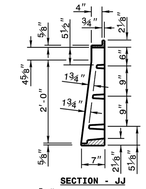
SECTION - PP



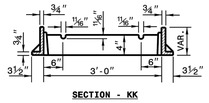
SECTION - NN

SECTION - AA

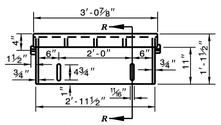
FRAME PLAN



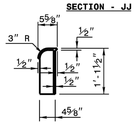
SECTION - JJ



SECTION - KK



HOOD ELEVATION



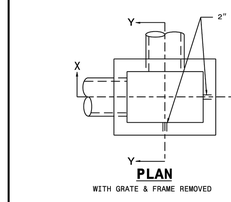
SECTION - RR

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

SHEET 1 OF 2
840.03



PLAN

WITH GRATE & FRAME REMOVED

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

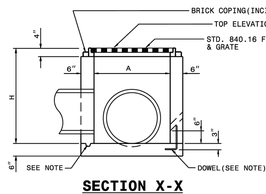
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.

INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.

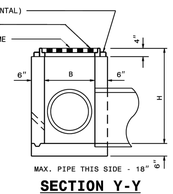
INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.



SECTION X-X



SECTION Y-Y

DOWEL

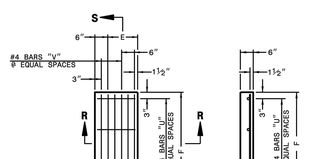
DIMENSIONS AND QUANTITIES FOR DROP INLET(BASED ON MIN. HEIGHT, H)								
DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONC. IN BOX			DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL PER FT. HT.	TOTAL* FOR MINIMUM HEIGHT, H	C.M.	R.C.
D	A	B	H					
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.592	0.015	0.026
15"	/	/	2'-3"	/	/	0.648	0.023	0.036
18"	/	/	2'-6"	/	/	0.703	0.033	0.049
24"	/	/	3'-0"	/	/	0.814	0.059	0.085
30"	3'-0"	2'-0"	3'-6"	0.222	0.222	0.925	0.092	0.127

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

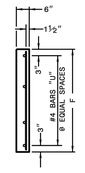
1-18

ROADWAY STANDARD DRAWING FOR
CONCRETE DROP INLET
12" THRU 30" PIPE

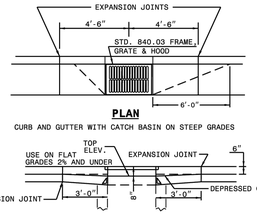
SHEET 1 OF 1
840.14



PLAN OF TOP SLAB

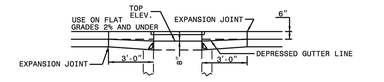


SECTION S-S



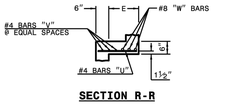
PLAN

CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES



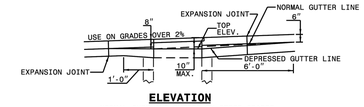
ELEVATION

NORMAL CURB AND GUTTER ON LIGHT GRADES



SECTION R-R

DOWEL



ELEVATION

NORMAL CURB AND GUTTER ON STEEP GRADES

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN(BASED ON MIN. HEIGHT, H, WITH NO RISER) *																		
DIMENSIONS OF BOX AND PIPE						COVER DIMENSION		BARS-U		BARS-V		BARS-W		TOTAL LBS.	CU.YDS. CONC. IN BOX		DEDUCTIONS ONE PIPE	
PIPE	SPAN	WIDTH	WIDTH	SPAN	MIN. HEIGHT			NO.	LENGTH	NO.	LENGTH	NO.	LENGTH		TOP SLAB	BOTTOM SLAB	TOP CONC. IN RISER	C.M.	R.C.
D	A	B	C	G	H	E	F												
12"	3'-0"	2'-2"	--	--	2'-9"	--	--	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"			3'-0"											0.235	0.829	0.023	0.036
18"	3'-0"	2'-2"			3'-3"											0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"			3'-9"											0.235	1.001	0.059	0.085
30"	3'-0"	2'-2"	3'-4"		4'-3"	1'-2"	4'-0"	4	1'-5"	2	3'-9"	3	3'-9"	39	0.123	0.321	1.433	0.092	0.127
36"	3'-0"	2'-2"	3'-10"		4'-9"	1'-8"	4'-0"	4	1'-11"	3	3'-9"	3	3'-9"	43	0.161	0.358	1.714	0.132	0.178
42"	3'-0"	2'-2"		4'-5"	5'-3"	1'-5"	3'-2"	4	1'-8"	2	2'-11"	3	2'-11"	32	0.112	0.318	1.738	0.180	0.243
48"	3'-0"	2'-2"		5'-0"	5'-9"	2'-0"	3'-2"	4	2'-3"	3	2'-11"	3	2'-11"	35	0.145	0.352	2.052	0.235	0.317
54"	3'-0"	2'-2"		5'-7"	6'-3"	2'-7"	3'-2"	4	2'-10"	5	2'-11"	3	2'-11"	41	0.180	0.386	2.387	0.297	0.401

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

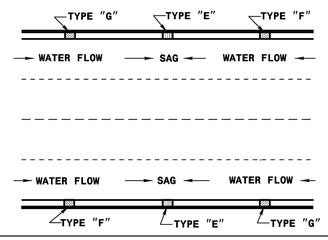
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

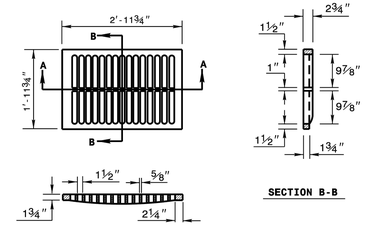
1-18

ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

SHEET 2 OF 2
840.02

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

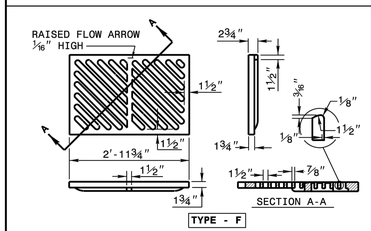




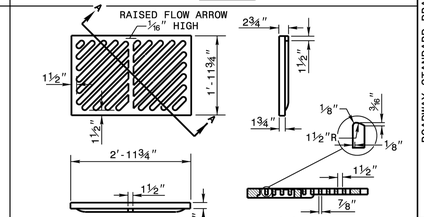
SECTION A-A

SECTION B-B

TYPE - E



TYPE - F



TYPE G

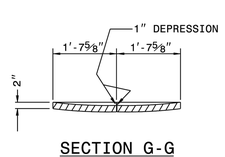
SECTION A-A

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

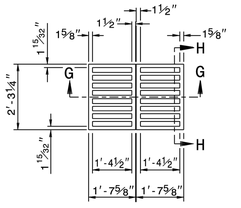
1-18

ROADWAY STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

SHEET 2 OF 2
840.03

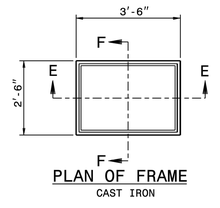


SECTION G-G



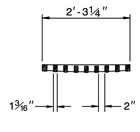
PLAN OF GRATING

CAST IRON

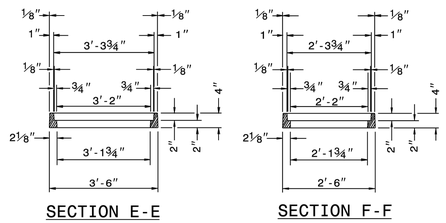


PLAN OF FRAME

CAST IRON



SECTION H-H



SECTION E-E

SECTION F-F

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
DROP INLET FRAME AND GRATES
FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1
840.16

4Dsite solutions
civil engineering | land surveying
409 Chicago Drive, Suite 112, Fayetteville, NC 28306
office | 910-426-6777 fax | 910-426-5777 licenses number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN

03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

STORM DETAILS

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

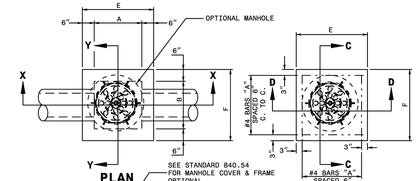
NOT TO SCALE

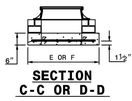
DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

C-6.4





GENERAL NOTES:

CHAMFER ALL EXPOSED CORNERS 1".

USE CLASS "B" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

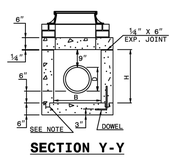
USE FORMS TO CONSTRUCT THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.

PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.

ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)

MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.



SECTION Y-Y

DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES

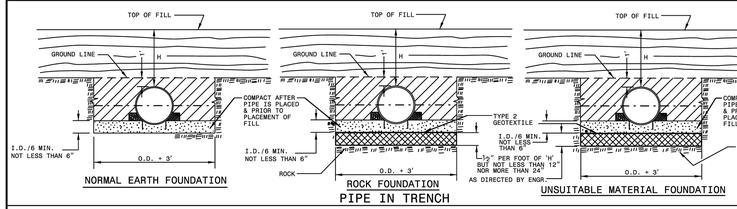
DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE CU.YDS.	
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WALL/ FT. OF HT.	LBS. REINF	CU. YDS. CONC. "H"	C.S.	R.C.
D	A	B	H											
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.167	0.167	0.185	22	0.750	0.015	0.024
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.196	0.204	24	0.902	0.023	0.036
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.222	30	1.085	0.033	0.049
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.296	0.296	0.259	40	1.434	0.059	0.085
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.375	0.375	0.296	51	1.860	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	0.333	64	2.341	0.132	0.178
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	77	2.878	0.180	0.243
48"	5'-4"	5'-4"	5'-3"	26	6'-3"	6'-4"	6'-4"	0.743	0.743	0.407	111	3.623	0.235	0.317
54"	5'-10"	5'-10"	5'-9"	28	6'-7"	6'-10"	6'-10"	0.865	0.865	0.444	126	4.283	0.297	0.401
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	0.481	145	5.090	0.367	0.495
66"	7'-1"	7'-1"	6'-9"	32	7'-10"	8'-1"	8'-1"	1.210	1.210	0.518	169	5.917	0.444	0.589

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

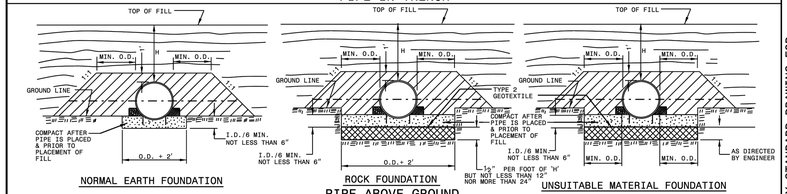
1-18

ROADWAY STANDARD DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
12" THRU 66" PIPE

SHEET 1 OF 1
840.31



PIPE IN TRENCH



PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE 2 GEOTEXTILE AS DIRECTED BY THE ENGINEER.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE

SHEET 1 OF 3
300.01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	(Ga)	Maximum Height of Cover (feet) 16	14	12	10	8
12	12		204	256			
15	12		162	204			
18	12		135	169	239		
21	12		115	145	204		
24	12		100	126	178		
30	12		79	100	142		
36	12		65	83	117	152	
42	12		55	70	100	130	160
48	12		48	61	87	113	139
54	12			54	77	100	123
60	12				69	90	111
66	12					81	100
72	12					74	91
78	12						81
84	12						69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	(Ga)	Maximum Height of Cover (feet) 16	14	12	10	8
12	12		123	155	218	281	344
15	12		98	123	174	224	275
18	12		81	102	144	187	228
21	12		69	87	123	160	195
24	12		60	76	108	139	171
27	12			67	95	123	151
30	12			60	85	111	136
36	12			50	71	92	113
42	12				60	78	96
48	12				52	68	84
54	12				46	50	74
60	12					50	62
66	12						51
72	12						41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
* (Maximum fill) 20' for pipe diameters ≤ 24"
17' for pipe diameters ≥ 30" and ≤ 60"

PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
* (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

RIGID PIPE

RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II

* (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

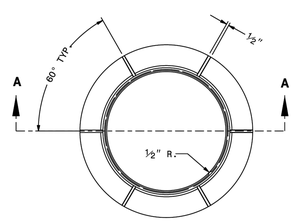
1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

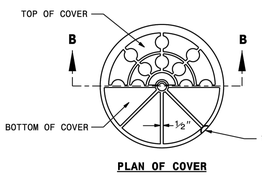
1-18

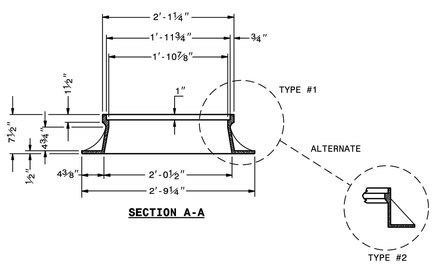
ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

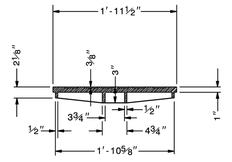
SHEET 3 OF 3
300.01



SOLID COVER SHOWN PERFORATED. PERFORATED AVAILABLE IF SPECIFIED.
STATE USE OF SYSTEM ON COVER
(I.E.: SEWER, STORM DRAIN, ELECTRICAL)







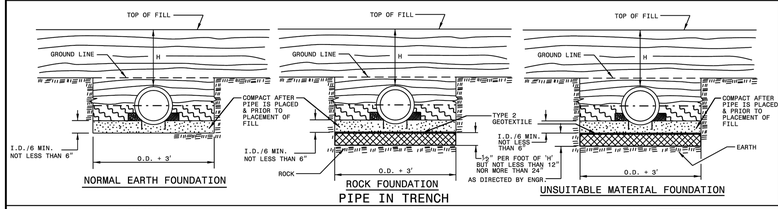
MINIMUM WEIGHTS - LBS.
FRAME - 180
COVER - 120
TOTAL - 300

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

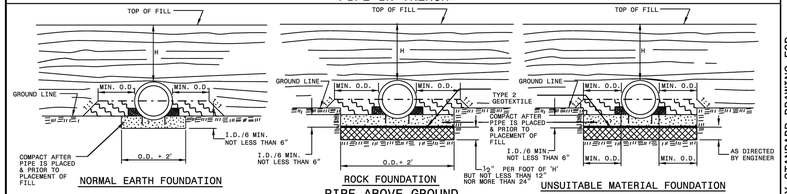
1-18

ROADWAY STANDARD DRAWING FOR
MANHOLE FRAME AND COVER

SHEET 1 OF 1
840.54



PIPE IN TRENCH



PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE 2 GEOTEXTILE AS DIRECTED BY THE ENGINEER.

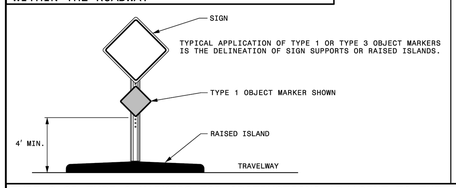
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

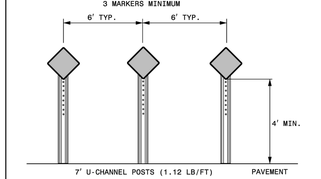
ROADWAY STANDARD DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 3
300.01

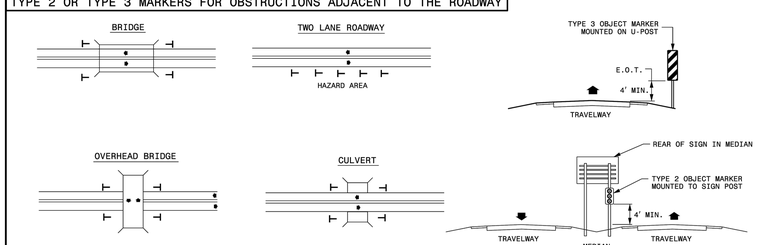
TYPE 1 OR TYPE 3 MARKERS FOR OBSTRUCTIONS WITHIN THE ROADWAY



TYPE 4 MARKERS FOR END OF ROADWAY



TYPE 2 OR TYPE 3 MARKERS FOR OBSTRUCTIONS ADJACENT TO THE ROADWAY



TYPICAL APPLICATIONS OF TYPE 2 OR TYPE 3 OBJECT MARKERS INCLUDES DELINEATION OF BRIDGE PIERS, ABUTMENTS, HANDRAILS, CULVERT HEADWALLS, NARROW SHOULDERS, DROP-OFFS, OR OTHER UNDESIRABLE CONDITIONS WHEN GUARDRAIL OR OTHER ROADSIDE PROTECTION IS NOT IN PLACE.

LEGEND
OBJECT MARKER
DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
OBJECT MARKERS
INSTALLATION

SHEET 1 OF 1
1264.02

4Dsite solutions
civil engineering | land surveying
409 Chicago Drive, Suite 112, Fayetteville, NC 28306
office | 910-426-6777 fax | 910-426-5777 licenses number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

STORM DETAILS

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1895

DRAWING SCALE

NOT TO SCALE

DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

C-6.5

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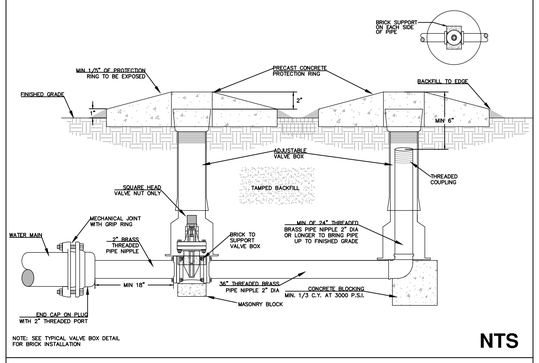
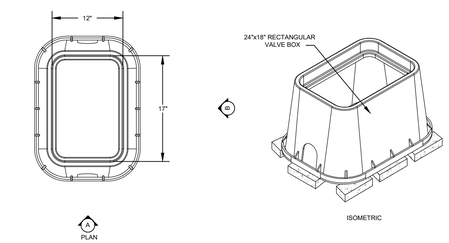
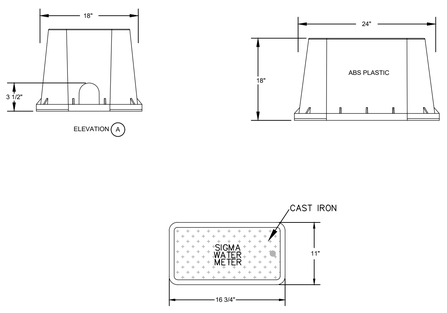


NOTE: SEE TYPICAL VALVE BOX DETAIL FOR BRICK INSTALATION

NTS

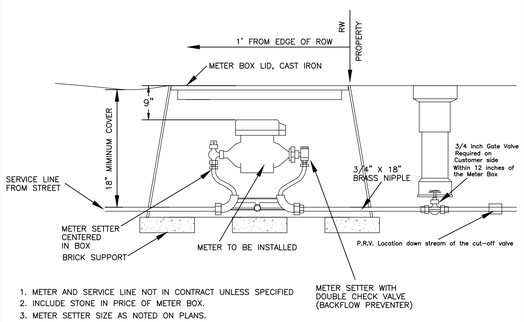
1 PERMANENT BLOW-OFF ASSEMBLY





NTS

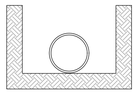
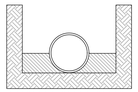
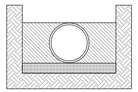
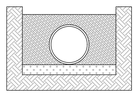
7 METER BOX DETAIL FOR 3/4" SERVICE



1. METER AND SERVICE LINE NOT IN CONTRACT UNLESS SPECIFIED
2. INCLUDE STONE IN PRICE OF METER BOX.
3. METER SETTER SIZE AS NOTED ON PLANS.
4. ALL BRASS FITTINGS SHALL BE COMPRESSION TYPE.

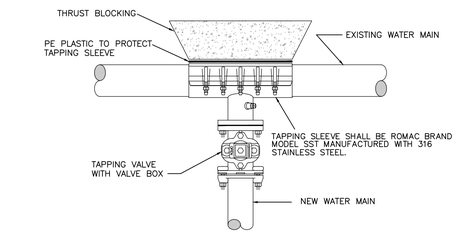
NTS

9 TYPICAL 3/4" METER BOX INSTALLATION

LAYING CONDITIONS	DESCRIPTION	PROJECT USE
 TYPE 1	FLAT BOTTOM UNDISTURBED EARTH TRENCH, LOOSE BACKFILL	NOT USED.
 TYPE 2	FLAT BOTTOMED UNDISTURBED EARTH TRENCH. BACKFILL LIGHTLY CONSOLIDATED TO CENTERLINE OF PIPE.	NOT USED.
 TYPE 3	PIPE BEDDED IN 4" MINIMUM JOB EXCAVATED MATERIAL. BACKFILL LIGHTLY CONSOLIDATED TO TOP OF PIPE.	ALL DUCTILE IRON GRAVITY SEWER LINE.
 TYPE 4	PIPE BEDDED IN SAND, GRANULAR MATERIAL OR GRADED GRAVEL TO THE DEPTH OF 1/8 PIPE DIAMETER, 4" MIN. JOB EXCAVATED MATERIAL COMPACTED TO 4" ABOVE TOP OF PIPE. (APPROX. 95% STANDARD PROCTOR, AASHTO T-99)	ALL PVC WATER LINE AND PVC FORCE MAIN.
 TYPE 5	PIPE BEDDED TO ITS CENTERLINE IN COMPACTED GRANULAR MATERIAL 4" MIN. UNDER PIPE. COMPACTED GRANULAR OR SAND MATERIAL TO 4"ABOVE TOP OF PIPE. (APPROX. 95% STANDARD PROCTOR, AASHTO T-99)	ALL PVC GRAVITY SEWER LINE.

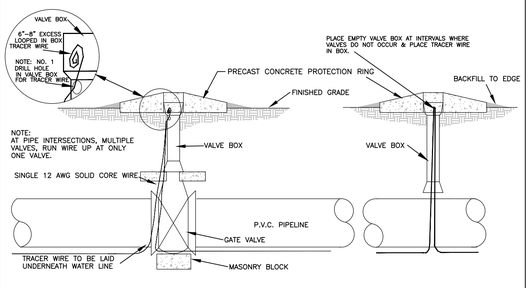
NTS

4 TYPICAL LAYING CONDITIONS



NTS

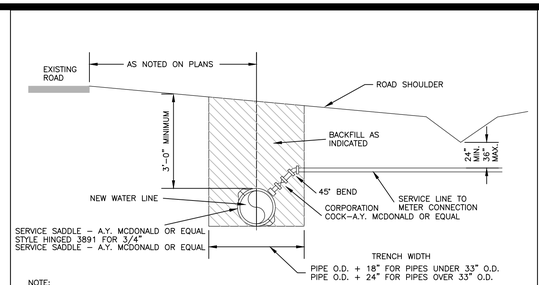
8 TYP. TAPPING SLEEVE & VALVE ASSEMBLY



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

NTS

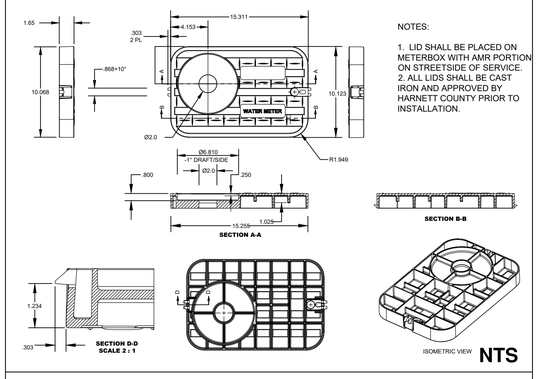
10 TYPICAL TRACER WIRE INSTALLATION



NOTE:
1. "SERVICE CONNECTION" IN PROPOSAL TO INCLUDE SERVICE SADDLE, 45° BEND, CORPORATION COCK AND ALL LABOR INVOLVED IN MAKING A COMPLETE SERVICE CONNECTION.
2. SERVICE PIPING TO BE 3/4" SDR-9 PE TUBING
3. ALL BRASS FITTINGS SHALL BE COMPRESSION TYPE

NTS

2 TYPICAL WATER SERVICE CONNECTION

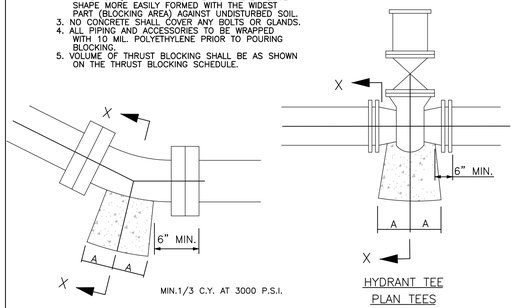


NOTES:
1. LID SHALL BE PLACED ON METERBOX WITH AMR PORTION ON STREETSIDE OF SERVICE.
2. ALL LIDS SHALL BE CAST IRON AND APPROVED BY HARNETT COUNTY PRIOR TO INSTALLATION.

NTS

5 METER BOX AMR LID

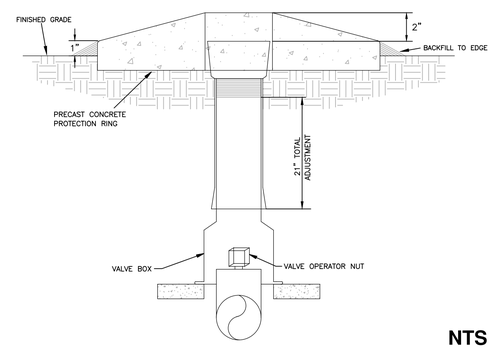
NOTES:
1. CONCRETE SHALL BE 3,000 PSI MIN.
2. CONCRETE FOR THRUST BLOCKING SHALL BE KEPT FAIRLY DRY, THUS MAKING THE CONCRETE WEDGE SHAPE MORE EASILY FORMED WITH THE WIDEST PART (BLOCKING AREA) AGAINST UNDISTURBED SOIL.
3. NO CONCRETE SHALL COVER ANY BOLTS OR GLANDS.
4. ALL PIPING AND ACCESSORIES TO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



PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	8"	9"	10"	16"
6"	10"	12"	8"	10"	8"	8"	8"	8"	10"	10"	12"	18"
8"	15"	13"	10"	10"	8"	8"	8"	8"	10"	12"	12"	24"
10"	16"	14"	10"	12"	8"	10"	8"	10"	11"	14"	14"	25"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
14"	22"	18"	14"	16"	10"	14"	10"	14"	16"	18"	18"	34"
16"	26"	20"	16"	18"	12"	16"	12"	16"	18"	20"	20"	36"

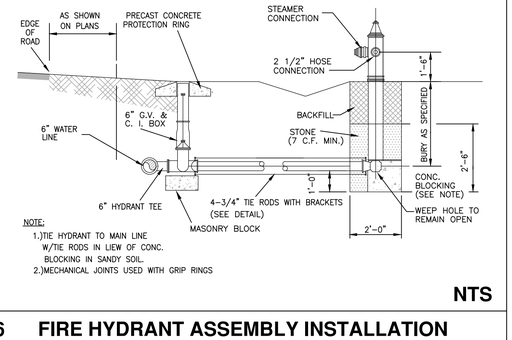
NTS

11 THRUST BLOCK DETAIL



NTS

3 TYPICAL VALVE BOX DETAIL

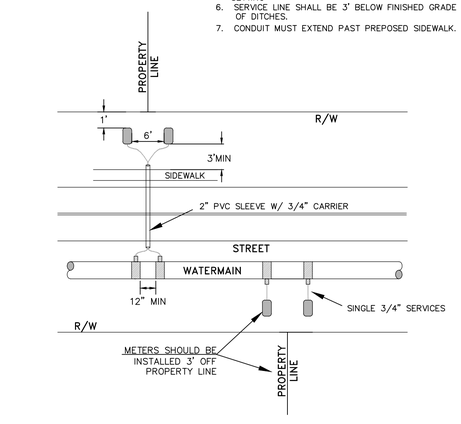


NOTE:
1.)TIE HYDRANT TO MAIN LINE W/TIE RODS IN LIEW OF CONC. BLOCKING IN SANDY SOIL.
2.)MECHANICAL JOINTS USED WITH GRIP RINGS

NTS

6 FIRE HYDRANT ASSEMBLY INSTALLATION

NOTES:
1. INSTALL METER AT R/W
2. "TWO (2)-3/4" SERVICE LINES MUST BE INSTALLED INSIDE A 2" SLEEVE.
3. "TWO (2)-1" SERVICE LINES MUST BE INSTALLED INSIDE A 3" SLEEVE.
4. SLEEVES SHOULD BE SCHEDULE 40 PVC PIPE.
5. SEE DETAIL FOR SERVICE MATERIAL AND METER SETTING
6. SERVICE LINE SHALL BE 3' BELOW FINISHED GRADE OF DITCHES.
7. CONDUIT MUST EXTEND PAST PREPOSED SIDEWALK.



NTS

12 TYP. DOMESTIC WATER SERVICE DETAIL

4Dsite solutions
civil engineering | land surveying
409 Chicago Drive, Suite 112, Fayetteville, NC 28306
office | 910-426-6777 fax | 910-426-5777 licenses number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

WATER DETAILS

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

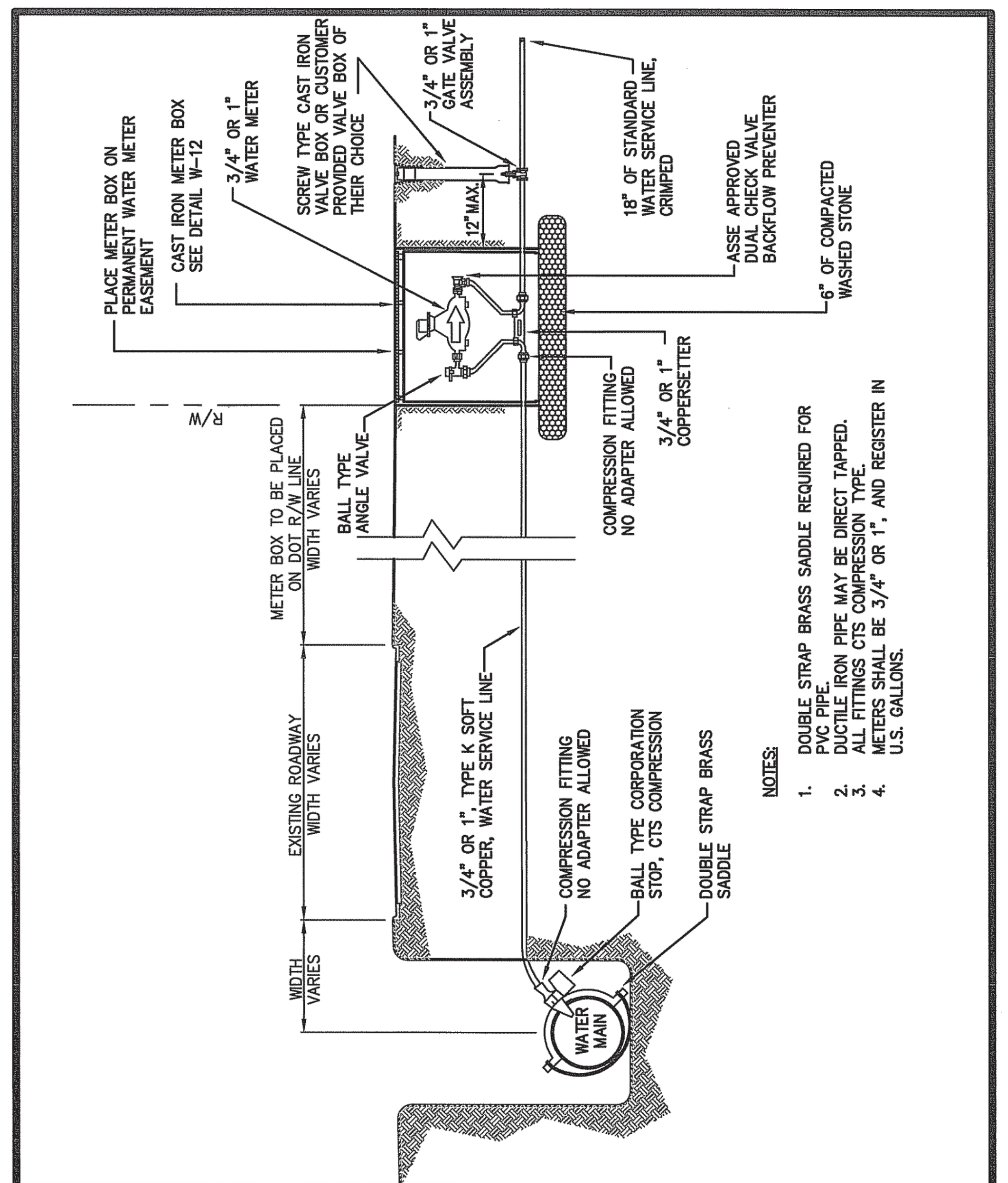
NOT TO SCALE

DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

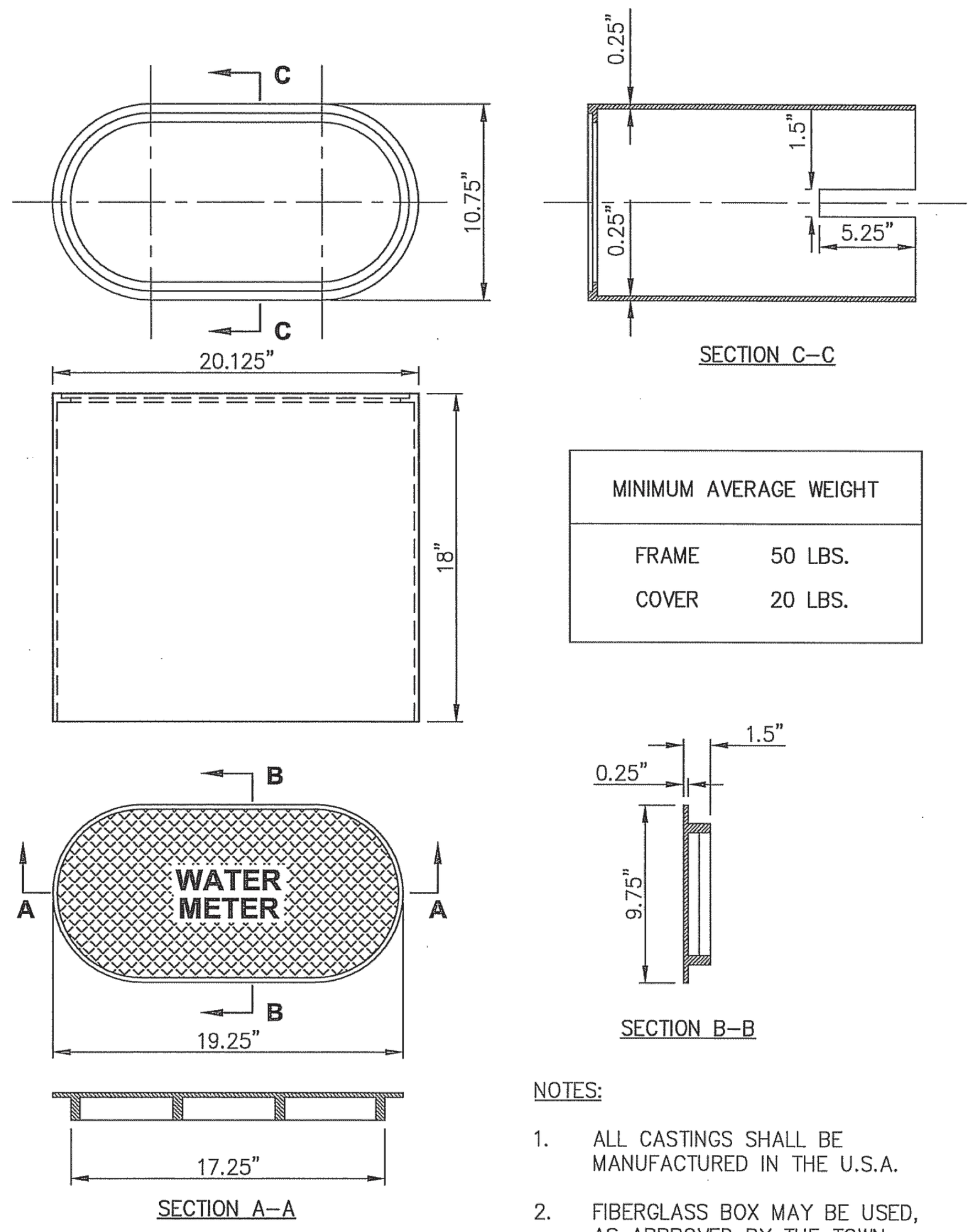
C-6.6



DATE	BY	DESCRIPTION
		REVISIONS

TOWN OF LILLINGTON PUBLIC WORKS

	SCALE	DRAWING #
3/4" OR 1" RESIDENTIAL SERVICE CONNECTION DETAIL	N.T.S.	W-11



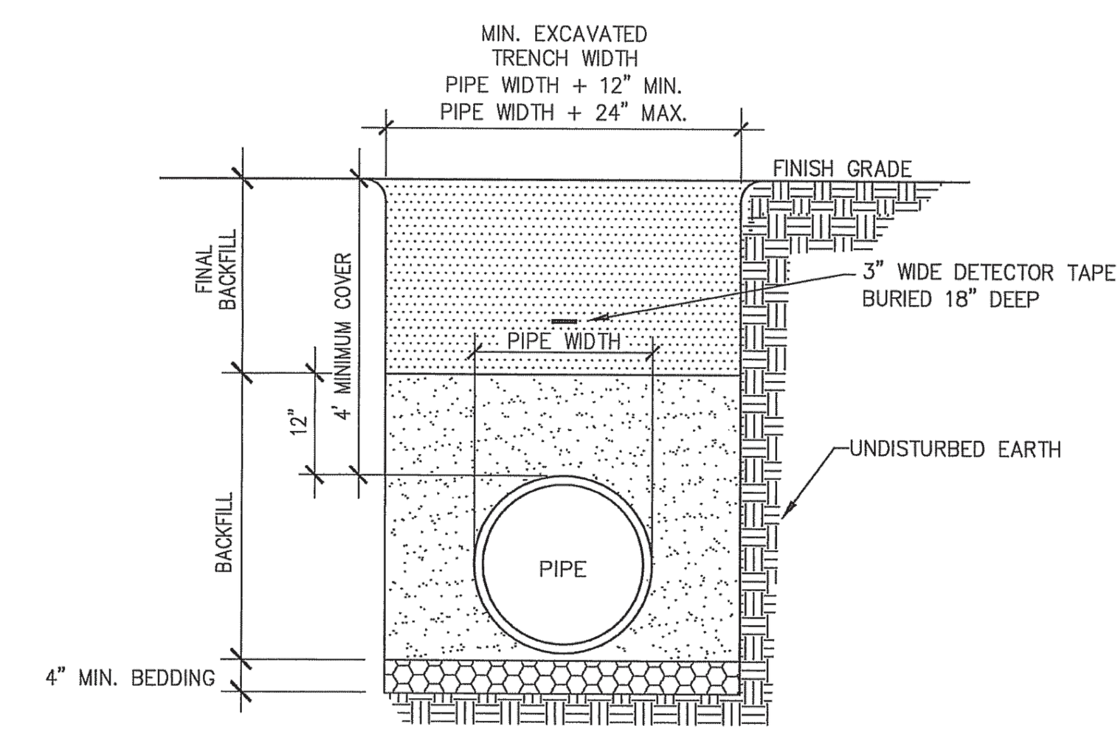
NOTES:

1. ALL CASTINGS SHALL BE MANUFACTURED IN THE U.S.A.
2. FIBERGLASS BOX MAY BE USED, AS APPROVED BY THE TOWN.

DATE	BY	DESCRIPTION
		REVISIONS

TOWN OF LILLINGTON PUBLIC WORKS

	SCALE	DRAWING #
3/4" AND 1" WATER METER BOX DETAIL	N.T.S.	W-12



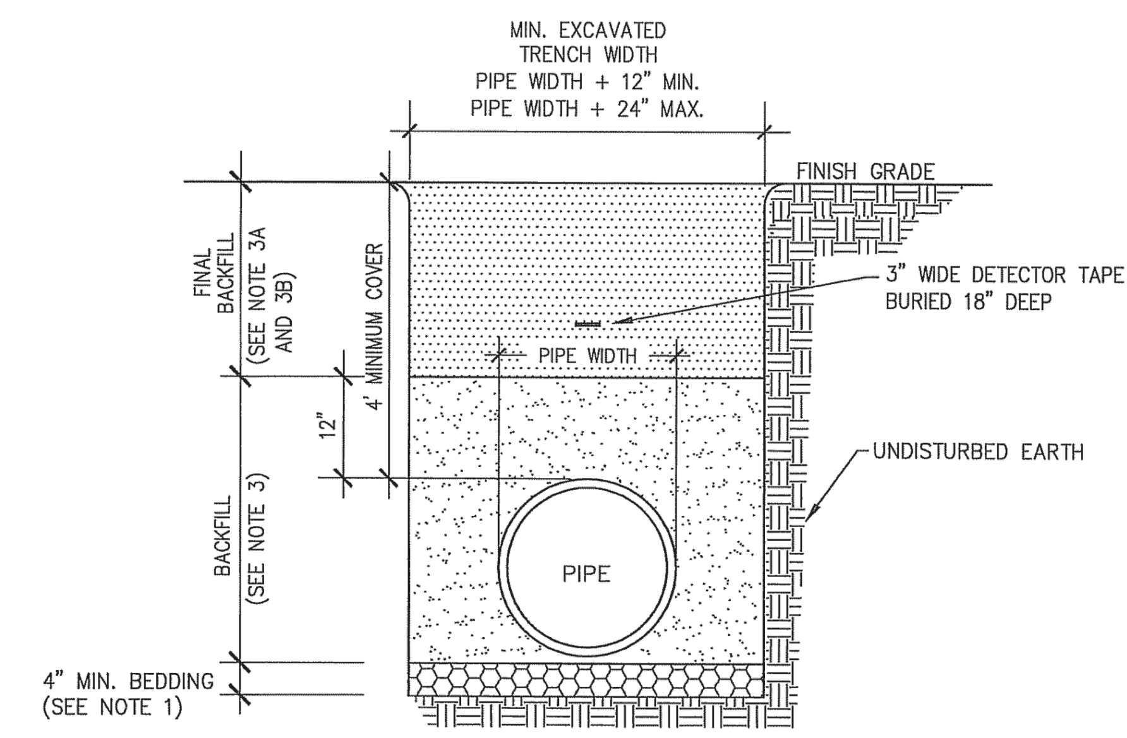
NOTES:

1. BEDDING AND BACKFILL SHALL BE #57 OR #67 STONE.
2. BEDDING WITH STONE TO SPRING LINE FOR DEPTHS UP TO 12". BACKFILL WITH STONE TO TOP OF PIPE FOR DEPTHS GREATER THAN 12".
3. UNDER AREAS TO BE SEEDED OR SODDED, COMPACT SUCCEEDING LAYERS OF FINAL BACKFILL IN 12" LOOSE LIFTS TO 95% MAXIMUM DENSITY.
4. UNDER STRUCTURES, PAVEMENTS, AND ROAD SHOULDERS, COMPACT SUCCEEDING LAYERS OF FINAL BACKFILL IN 6" LOOSE LIFTS TO 95% MAXIMUM DENSITY EXCEPT COMPACT TOP 12" OF SUBGRADE TO 95% MAXIMUM DENSITY.
5. INSTALL 3" WIDE DETECTOR TAPE AT 18" DEPTH. TAPE SHALL HAVE MIDDLE FOIL LAYER (PVC OR HDPE PIPE ONLY).

DATE	BY	DESCRIPTION
		REVISIONS

TOWN OF LILLINGTON PUBLIC WORKS

	SCALE	DRAWING #
SANITARY SEWER MAIN TRENCH DETAIL	N.T.S.	S–1



NOTES:

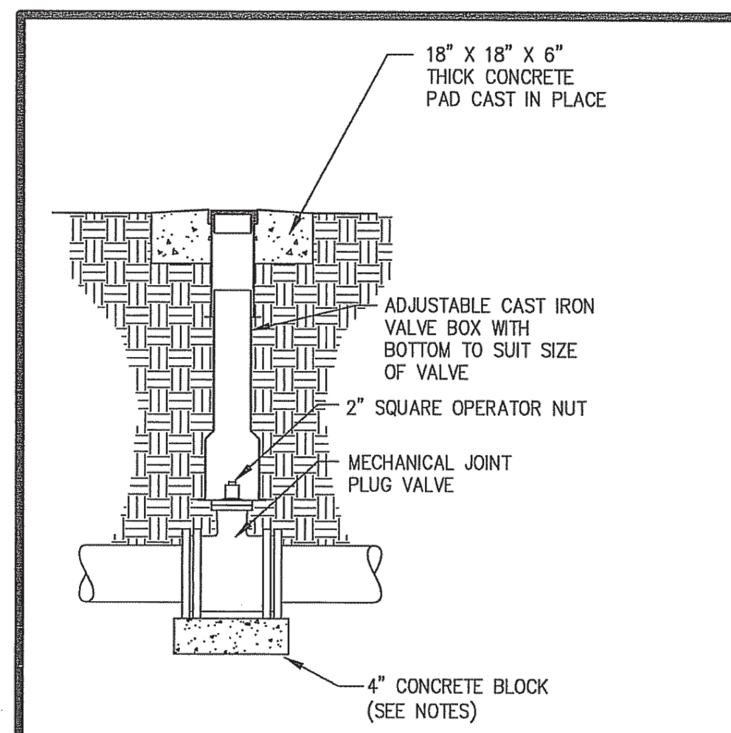
1. LAYING CONDITIONS AS PER AWWA C600 AND C605 STANDARDS.
2. BEDDING MATERIAL SHALL BE 4" MINIMUM THICKNESS, LOOSE SOIL (DEFINED AS NATIVE SOIL EXCAVATED FROM TRENCH), FREE FROM ROCKS AND SHALL PROVIDE UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE. COMPACT TO 95% MAXIMUM DENSITY.
3. INITIAL BACKFILL SHALL BE LIGHTLY CONSOLIDATED IN MAXIMUM 6" LOOSE LIFTS, COMPACTED TO 95% MAXIMUM DENSITY.
   A. UNDER AREAS TO BE SEEDED OF SODDED, COMPACT SUCCEEDING LAYERS OF FINAL BACKFILL IN 12" LOOSE LIFTS TO 85% MAXIMUM DENSITY.
   B. UNDER STRUCTURES, PAVEMENTS AND ROAD SHOULDERS, COMPACT SUCCEEDING LAYERS OF FINAL BACKFILL IN 12" LOOSE LIFTS TO 95% MAXIMUM DENSITY EXCEPT COMPACT TOP 12" OF SUBGRADE TO 98% MAXIMUM DENSITY.
4. INSTALL 3" WIDE DETECTOR TAPE AT 18" DEPTH. TAPE SHALL HAVE MIDDLE FOIL LAYER (PVC OR HDPE PIPE ONLY).

DATE	BY	DESCRIPTION
		REVISIONS

TOWN OF LILLINGTON PUBLIC WORKS

	SCALE	DRAWING #
STANDARD SEWER FORCE MAIN TRENCH DETAIL	N.T.S.	S–2

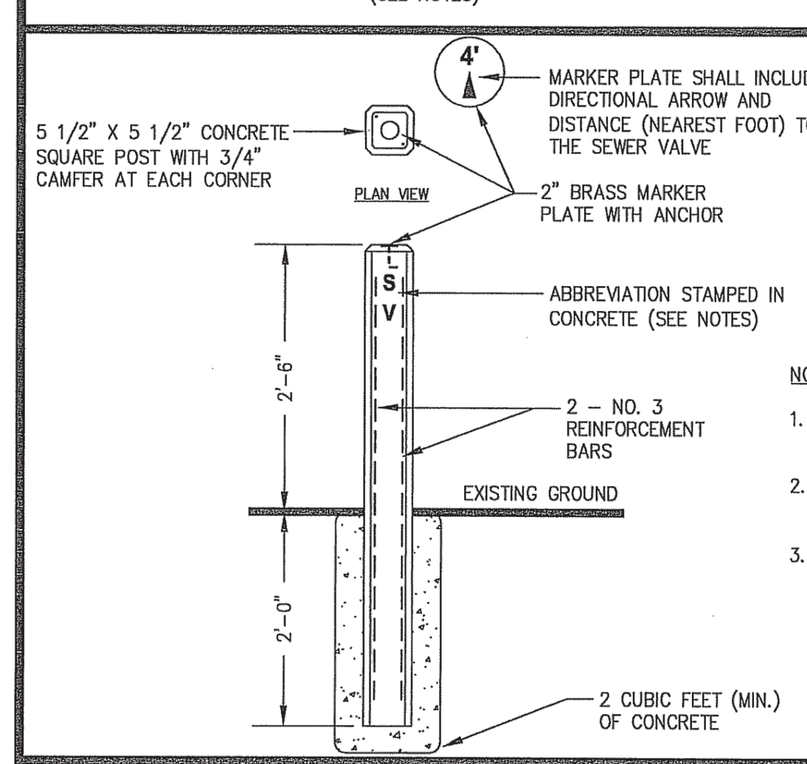
VALVE ASSEMBLY DETAIL



NOTES:

1. PLACE VALVES ON 4" CONCRETE BLOCK.
2. WHERE PVC PIPE IS BEING INSTALLED, 6" OF COMPACTED #57 STONE MAY BE USED IN LIEU OF THE CONCRETE BLOCK.
3. MAXIMUM SPACING FOR SEWER FORCE MAIN ISOLATION VALVES IS 1,000 LINEAR FEET.

MARKER DETAIL



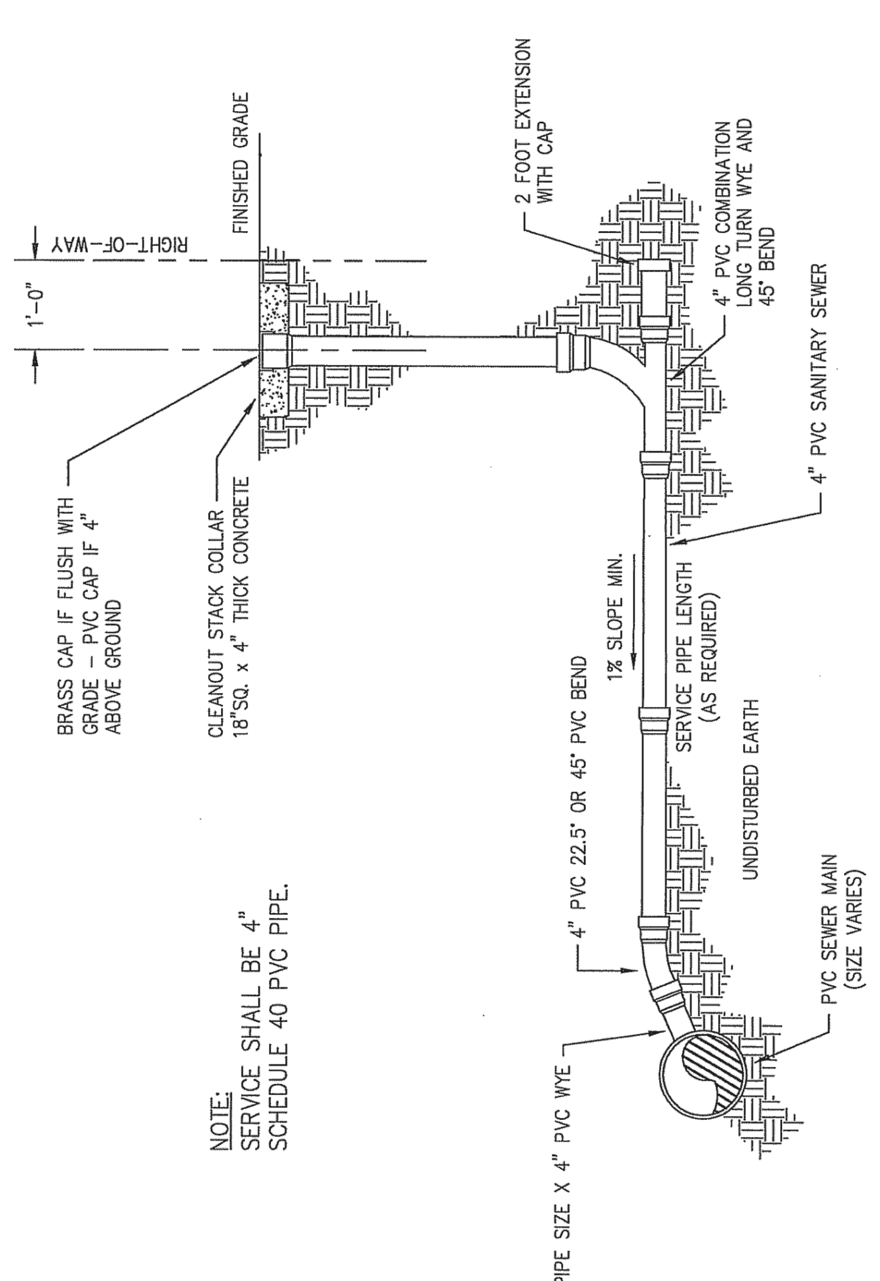
NOTES:

1. INSTALL MARKER POSTS ON THE EDGE OF THE DOT RIGHT–OF–WAY LINE.
2. PROVIDE MARKER POSTS AT ALL LINE VALVES.
3. ABBREVIATION "SV" SHALL BE STAMPED ON POST TO INDICATE "SEWER VALVE".

DATE	BY	DESCRIPTION
		REVISIONS

TOWN OF LILLINGTON PUBLIC WORKS

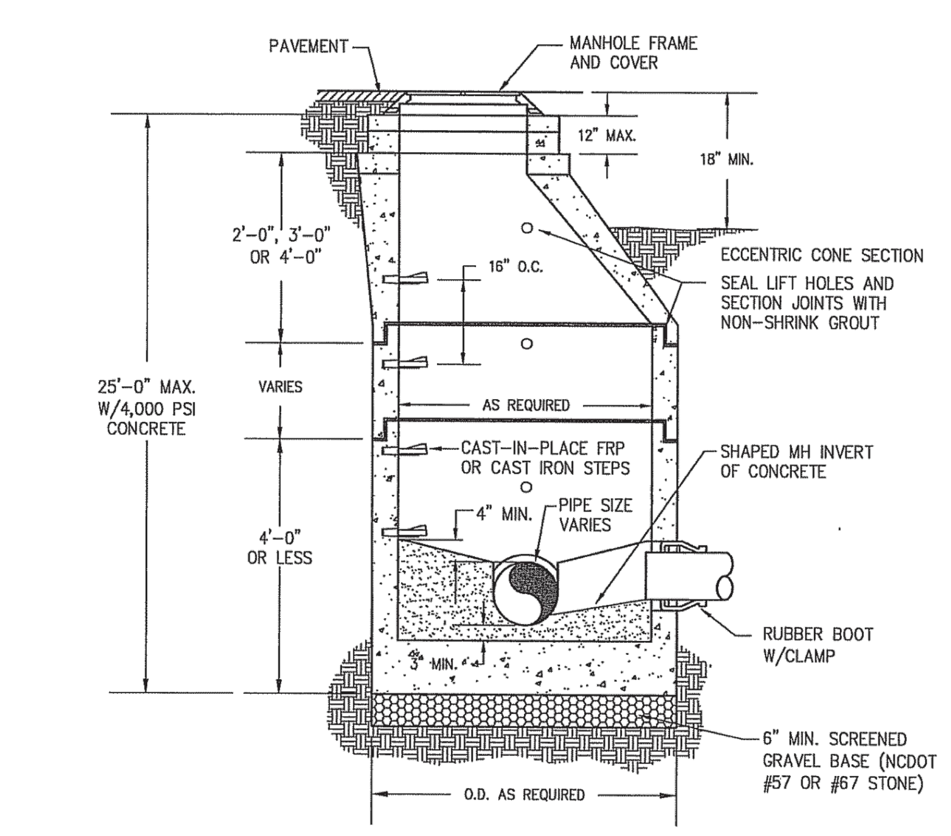
	SCALE	DRAWING #
VALVE ASSEMBLY AND MARKER DETAIL FOR SEWER FORCE MAINS	N.T.S.	S–3



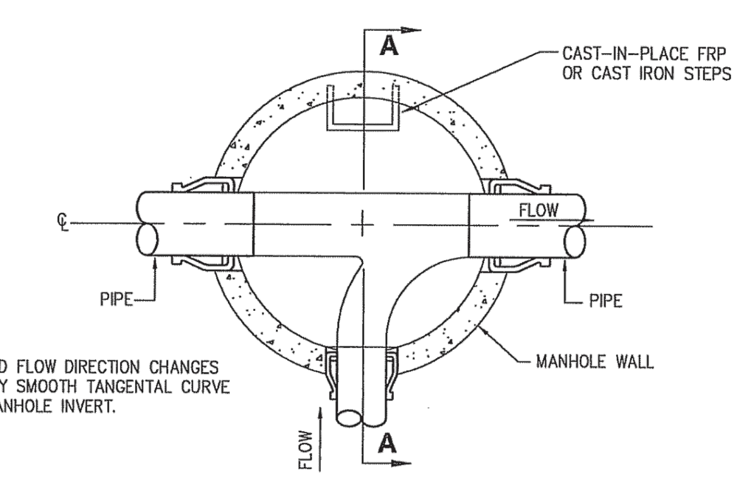
DATE	BY	DESCRIPTION
		REVISIONS

TOWN OF LILLINGTON PUBLIC WORKS

	SCALE	DRAWING #
4" SEWER SERVICE CONNECTION WITH CLEAN OUT DETAIL (NEW INSTALLATION)	N.T.S.	S–4



ECCENTRIC CONE TOP MANHOLE
SECTION A–A



NOTE:
MAKE REQUIRED FLOW DIRECTION CHANGES IN MANHOLE BY SMOOTH TANGENTAL CURVE OF SHAPED MANHOLE INVERT.

PLAN VIEW

DATE	BY	DESCRIPTION
		REVISIONS

TOWN OF LILLINGTON PUBLIC WORKS

	SCALE	DRAWING #
PRECAST MANHOLE DETAIL	N.T.S.	S–6

4Dsite solutions
civil engineering | land surveying
409 Chicago Drive, Suite 112, Fayetteville, NC 28306
office | 910-426-6777 fax | 910-426-5777 license number | C-2354
www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027452 ENGINEER SCOTT BROWN
03-22-24

REVISIONS
ISSUED FOR CONSTRUCTION

PROJECT NAME
HARPER'S MEADOW

WATER & SEWER DETAILS

CLIENT
TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

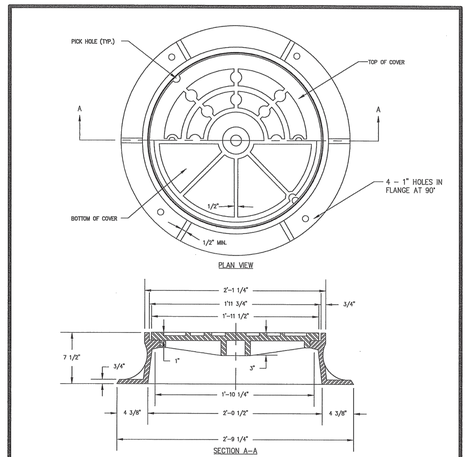
PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE
NOT TO SCALE

DATE RELEASED
MARCH 22, 2024

SHEET NUMBER
C-6.7

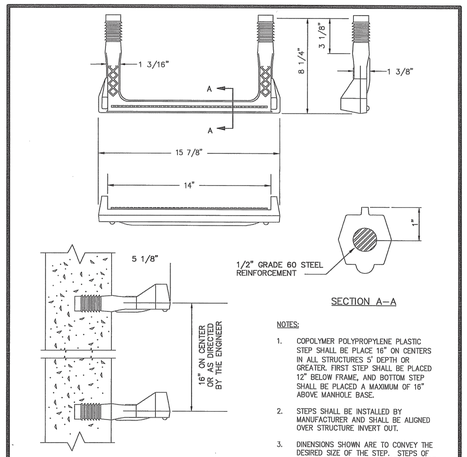


NOTES:

1. COVERS TO READ: "SANITARY SEWER CONFINED SPACE PERMIT FOR ENTRY REQUIRED.
2. CASTINGS SHALL BE MANUFACTURED IN THE U.S.A.

DATE	BY	DESCRIPTION
REVISIONS		

TOWN OF LILLINGTON PUBLIC WORKS		
MANHOLE FRAME AND COVER DETAIL	SCALE	DRAWING #
	N.T.S.	S–10

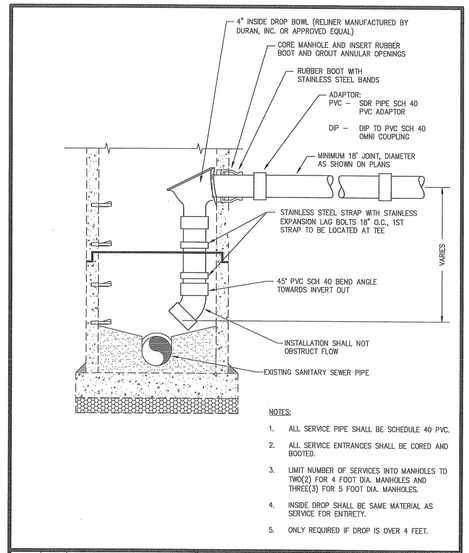


NOTES:

1. COPOLYMER POLYPROPYLENE PLASTIC STEP SHALL BE PLACE 16" ON CENTERS IN ALL STRUCTURES 5' DEPTH OR GREATER. FIRST STEP SHALL BE PLACED 12" BELOW FRAME, AND BOTTOM STEP SHALL BE PLACED A MAXIMUM OF 16" ABOVE MANHOLE BASE.
2. STEPS SHALL BE INSTALLED BY MANUFACTURER AND SHALL BE ALIGNED OVER STRUCTURE INVERT OUT.
3. DIMENSIONS SHOWN ARE TO CONVEY THE DESIRED SIZE OF THE STEP. STEPS OF SIMILAR SIZE AND CONSTRUCTION MAY BE ACCEPTABLE PROVIDED MATERIAL SUBMITTAL IS APPROVED BY THE TOWN OF LILLINGTON.
4. MATERIALS OF CONTRUCTION AND METHOD OF INSTALLATION SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND ASTM C–478.

DATE	BY	DESCRIPTION
REVISIONS		

TOWN OF LILLINGTON PUBLIC WORKS		
STRUCTURE STEP DETAIL	SCALE	DRAWING #
	N.T.S.	S–13

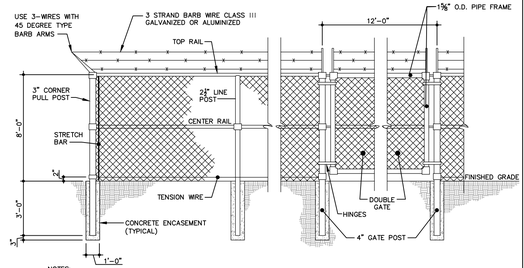


NOTES:

1. ALL SERVICE PIPE SHALL BE SCHEDULE 40 PVC.
2. ALL SERVICE ENTRANCES SHALL BE CORED AND BOOTED.
3. LIMIT NUMBER OF SERVICES INTO MANHOLES TO TWO(2) FOR 4 FOOT DIA. MANHOLES AND THREE(3) FOR 5 FOOT DIA. MANHOLES.
4. INSIDE DROP SHALL BE SAME MATERIAL AS SERVICE FOR ENTIRETY.
5. ONLY REQUIRED IF DROP IS OVER 4 FEET.

DATE	BY	DESCRIPTION
REVISIONS		

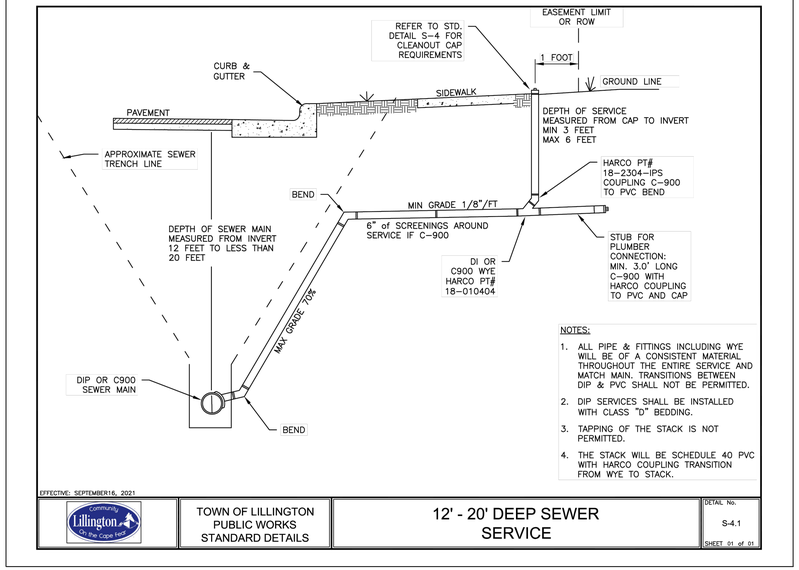
TOWN OF LILLINGTON PUBLIC WORKS		
4" SEWER SERVICE CONNECTION TO EXISTING OR NEW PRECAST MANHOLE	SCALE	DRAWING #
	N.T.S.	S–14



NOTES:
1. DOUBLE GATE SHALL HAVE A LOCKING MECHANISM, DROP ROD, AND TRUSS ROD.
2. ALL FENCE COMPONENT MATERIALS SHALL BE EITHER HOT DIPPED GALVANIZED STEEL OR IRON. FENCE FABRIC SHALL BE ALUMINUM COATED.
3. WIRE GAUGE SHALL BE NO. 9 MINIMUM.

NTS

CHAIN LINK FENCE AND GATE



NOTES:

1. ALL PIPE & FITTINGS INCLUDING WYE WILL BE OF A CONSISTENT MATERIAL THROUGHOUT THE ENTIRE SERVICE AND MATCH MAIN. TRANSITIONS BETWEEN DIP & PVC SHALL NOT BE PERMITTED.
2. DIP SERVICES SHALL BE INSTALLED WITH CLASS "D" BEDDING.
3. TAPPING OF THE STACK IS NOT PERMITTED.
4. THE STACK WILL BE SCHEDULE 40 PVC WITH HARCO COUPLING TRANSITION FROM WYE TO STACK.

EFFECTIVE: SEPTEMBER16, 2021

Community Lillington Where the Cape Fear Rises	TOWN OF LILLINGTON PUBLIC WORKS STANDARD DETAILS	12' - 20' DEEP SEWER SERVICE
		DETAIL No. S-4.1
		SHEET 01 of 01

4Dsite solutions
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office | 910-426-6777 fax | 910-426-5777 licenses number | C-2354
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NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

SEWER DETAILS

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PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

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DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

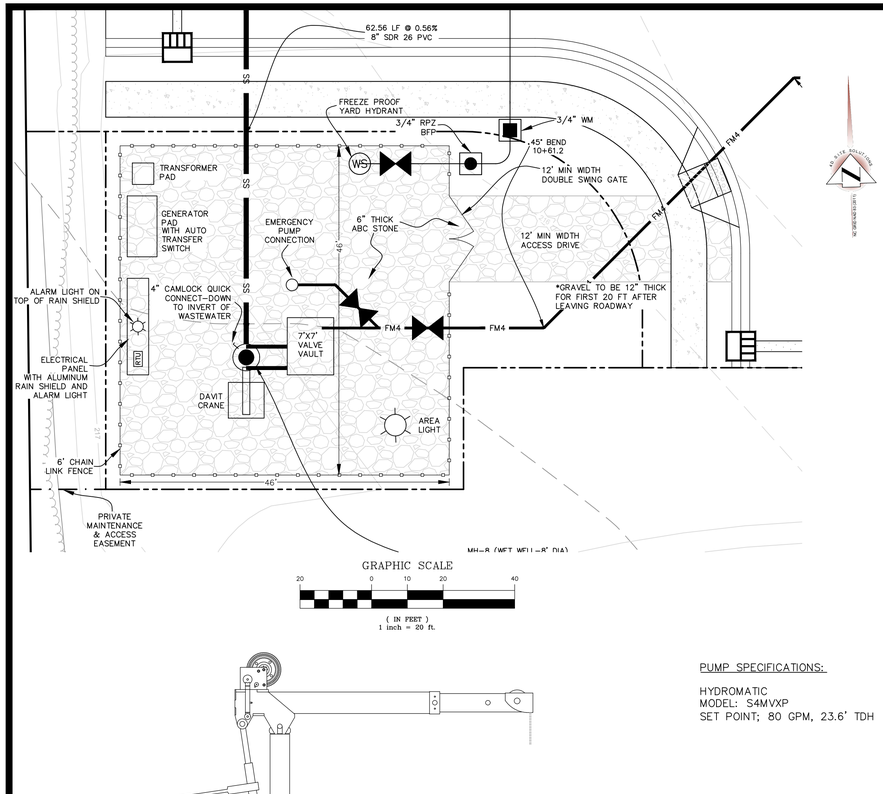
NOT TO SCALE

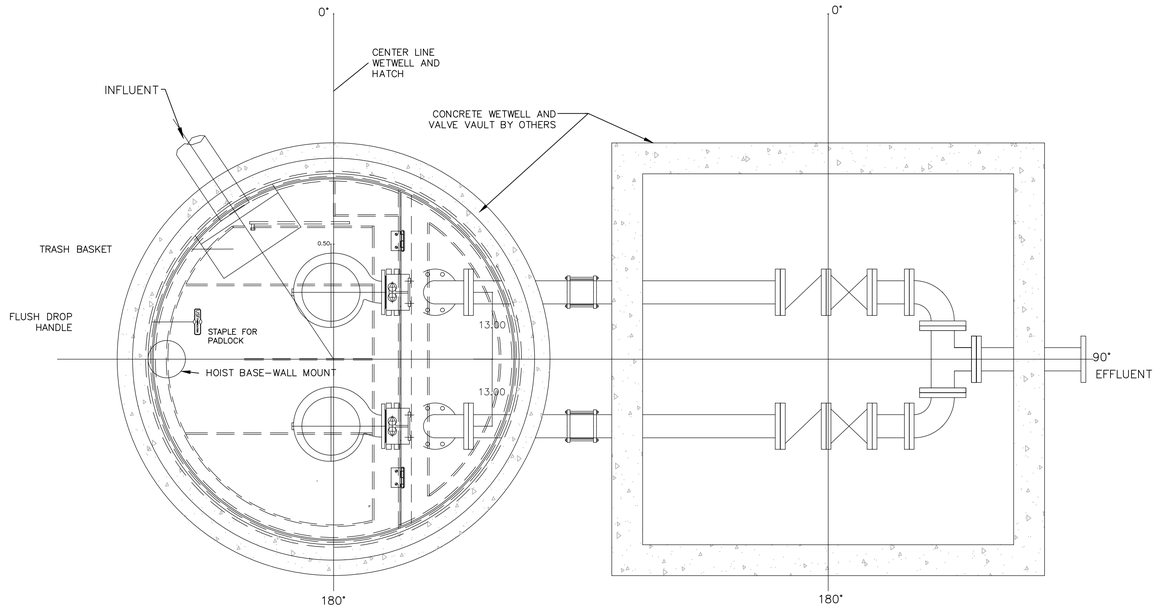
DATE RELEASED

MARCH 22, 2024

SHEET NUMBER

C-6.8





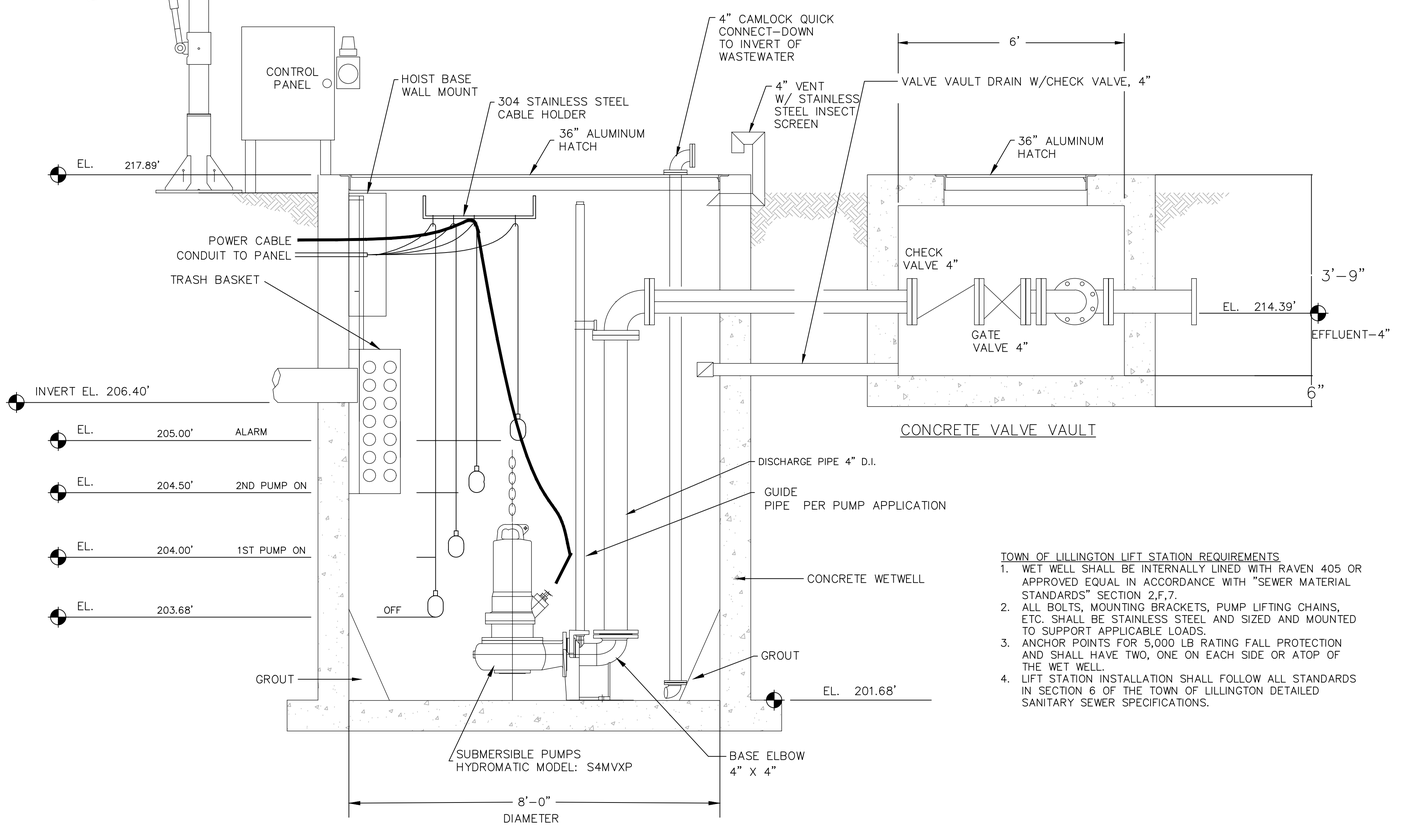
PLAN
(NOT TO SCALE)

7'X7' VALVE VAULT
(SOME ITEMS OMITTED FOR CLARITY)

WETWELL

PUMP SPECIFICATIONS:

HYDROMATIC
MODEL: S4MVXP
SET POINT; 80 GPM, 23.6' TDH



CONCRETE VALVE VAULT

TOWN OF LILLINGTON LIFT STATION REQUIREMENTS

1. WET WELL SHALL BE INTERNALLY LINED WITH RAVEN 405 OR APPROVED EQUAL IN ACCORDANCE WITH "SEWER MATERIAL STANDARDS" SECTION 2.F.7.
2. ALL BOLTS, MOUNTING BRACKETS, PUMP LIFTING CHAINS, ETC. SHALL BE STAINLESS STEEL AND SIZED AND MOUNTED TO SUPPORT APPLICABLE LOADS.
3. ANCHOR POINTS FOR 5,000 LB RATING FALL PROTECTION AND SHALL HAVE TWO, ONE ON EACH SIDE OR ATOP OF THE WET WELL.
4. LIFT STATION INSTALLATION SHALL FOLLOW ALL STANDARDS IN SECTION 6 OF THE TOWN OF LILLINGTON DETAILED SANITARY SEWER SPECIFICATIONS.

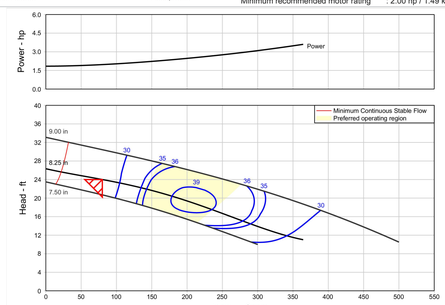
PENTAIR

Customer :
Project name : Default

Pump Performance Datasheet
Encompass 2.0 - 22.3.0

Item number	: 001	Size	: Hydromatic-S4MVP/S4MVXP
Service	:	Stages	: 1
Quantity	: 1	Based on curve number	: SUB_S_PE_AH_00004_B_6
Quote number	: 386164	Date last saved	: 20 Sep 2022 12:53 PM

Operating Conditions		Liquid	
Flow, rated	: 80.00 USgpm	Liquid type	: Water
Differential head / pressure, rated (requested)	: 24.00 ft	Additional liquid description	:
Differential head / pressure, rated (actual)	: 24.61 ft	Solids diameter, max	: 0.00 in
Suction pressure, rated / max	: 0.00 / 0.00 psi.g	Solids diameter limit	: 3.00 in
NPSH available, rated	: Ample	Solids concentration, by volume	: 0.00 %
Site Supply Frequency	: 60 Hz	Temperature, max	: 68.00 deg F
Performance		Fluid density, rated / max	: 1.000 / 1.000 SG
Speed criteria	: Synchronous	Viscosity, rated	: 1.00 cP
Speed, rated	: 1165 rpm	Vapor pressure, rated	: 0.34 psi.a
Impeller diameter, rated	: 8.25 in	**Material**	
Impeller diameter, maximum	: 9.00 in	Material selected	: Standard
Impeller diameter, minimum	: 7.50 in	**Pressure Data**	
Efficiency	: 24.62 %	Maximum working pressure	: 11.40 psi.g
NPSH required / margin required	: - / 0.00 ft	Maximum allowable working pressure	: N/A
nq (imp. eye flow) / S (imp. eye flow)	: 31 / - Metric units	Maximum allowable suction pressure	: N/A
Minimum Continuous Stable Flow	: 21.73 USgpm	Hydrostatic test pressure	: N/A
Head, maximum, rated diameter	: 26.33 ft	**Driver & Power Data (@Max density)**	
Head rise to shutoff	: 9.69 %	Driver sizing specification	: Rated power
Flow, best eff. point	: 206.1 USgpm	Margin over specification	: 0.00 %
Flow ratio, rated / BEP	: 38.81 %	Service factor	: 1.00
Diameter ratio (rated / max)	: 91.67 %	Power, hydraulic	: 0.48 hp
Head ratio (rated dia / max dia)	: 78.87 %	Power, rated	: 1.97 hp
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00	Power, maximum, rated diameter	: 3.60 hp
Selection status	: Acceptable	Minimum recommended motor rating	: 2.00 hp / 1.49 kW



PENTAIR

CLEARWATER, INC.
PO BOX 1469 · HICKORY, NC 28602

PHONE: (828) 855-3182 · FAX: (828) 855-3183

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www.4Dsitesolutions.com

NORTH CAROLINA PROFESSIONAL SEAL 027462 ENGINEER SCOTT BROWN
03-22-24

REVISIONS

ISSUED FOR CONSTRUCTION

PROJECT NAME

HARPER'S MEADOW

LIFT STATION DETAILS

CLIENT

TRIANGLE LAND PARTNERS, LLC

PO Box 5548
Cary, North Carolina 27512
Phone: (704) 608-3085

PROJECT INFORMATION

DESIGNED BY:	CALEB
DRAWN BY:	CALEB
CHECKED BY:	SCOTT
PROJECT NUMBER:	1896

DRAWING SCALE

NOT TO SCALE

DATE RELEASED

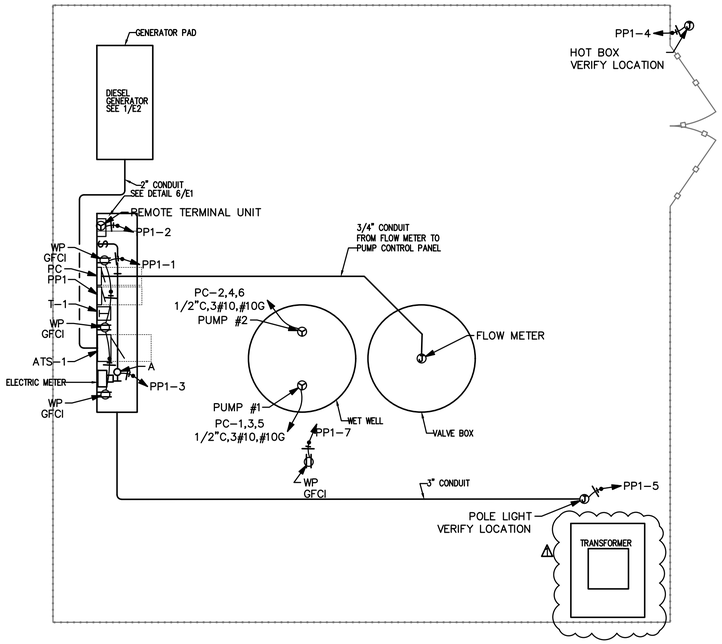
MARCH 22, 2024

SHEET NUMBER

C-6.9

LUMINAIRE SCHEDULE

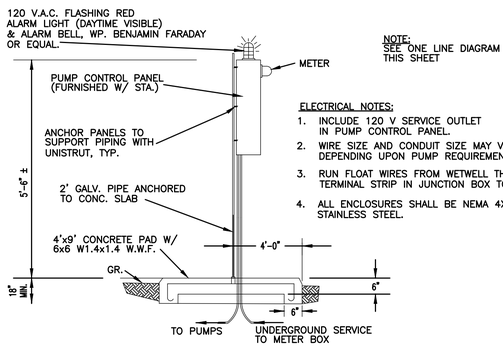
CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	INPUT WATTS	VOLTS
A		(1) LED	8' LED STRIP WET LOCATION SUITABLE	ELECTRONIC	SURFACE		30	120V 1P 2W



1 E1 **SITE ELECTRICAL PLAN**
N.T.S.

NOTE: ALL WIRES (TO INCLUDE FLOATS) LEAVING THE WET WELL SHALL BE SPLICED INSIDE AN ELECTRICAL JUNCTION BOX JUST OUTSIDE THE WET WELL AND PROPERLY LABELED ON BOTH ENDS BEFORE CONTINUING TO THE CONTROL BOX.

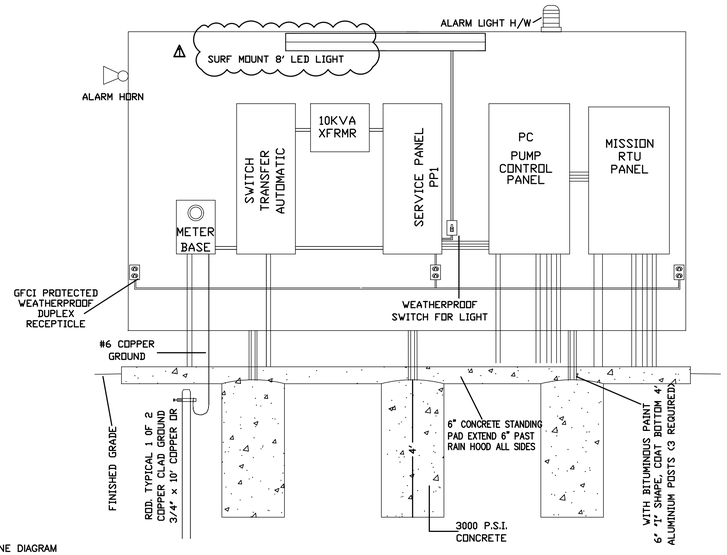
⚠ ALL ELECTRICAL WORK MUST MEET TOWN OF LILLINGTON STANDARDS



NOTE:
SEE ONE LINE DIAGRAM THIS SHEET

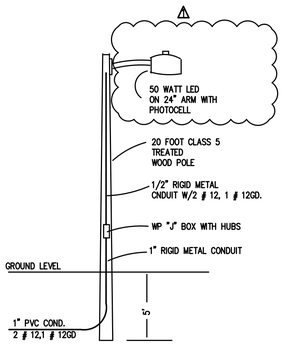
ELECTRICAL NOTES:
1. INCLUDE 120 V SERVICE OUTLET IN PUMP CONTROL PANEL.
2. WIRE SIZE AND CONDUIT SIZE MAY VARY DEPENDING UPON PUMP REQUIREMENTS.
3. RUN FLOAT WIRES FROM WETWELL THROUGH TERMINAL STRIP IN JUNCTION BOX TO PANEL.
4. ALL ENCLOSURES SHALL BE NEMA 4X STAINLESS STEEL.

5 E1 **CONTROL RACK SIDE VIEW**
N.T.S.

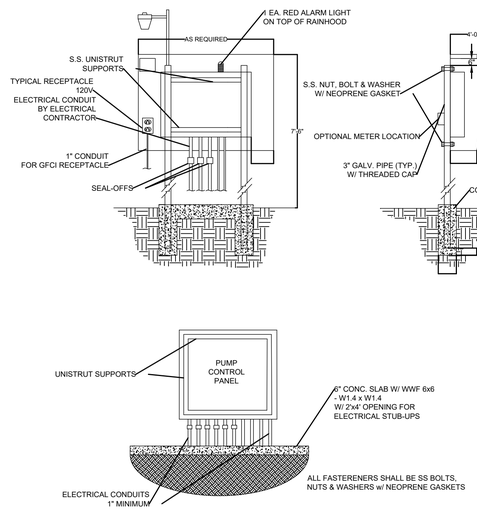


NOTES
1. BACKING PLATE TO BE 1/4" ALUMINUM. MOUNT TO "I" BEAM POSTS WITH STAINLESS STEEL NUT, BOLTS, AND WASHERS.
2. ALL ELECTRICAL WORK SHALL CONFORM TO LATEST NATIONAL, STATE AND LOCAL CODES AND REQUIREMENTS.
3. SHOW CONDUIT SIZE AND RUNS WITH WIRE SIZE AND NUMBER ON PUMP STATION PLANS.
4. PANEL LAYOUT IS SCHEMATIC ONLY. ADJUST AS NEEDED TO ACCOMMODATE EQUIPMENT. MAINTAIN 4" MIN. CLEARANCE BETWEEN PANELS AND SIDE SHIELDS.
5. ALL ENCLOSURES SHALL BE NEMA 4X RATED AND LOCKABLE.
6. ENCLOSURES SHALL BE MOUNTED TO ALUMINUM BACKING PLATE WITH NYLON SPACERS & STAINLESS STEEL NUTS BOLTS & WASHERS.
7. CONDUIT SHALL BE RIDGID ALUMINUM OR GALVANIZED. MEYERS HUBS SHALL BE USED AT ALL PANEL CONNECTIONS.
8. NO EQUIPMENT SHALL BE MOUNTED LESS THAN 36" ABOVE FINISHED GRADE. MIN. CLEARANCE FROM WORK LIGHT TO STANDING RAD. SHALL BE 6' 6".
⚠ 9. FOR RAIN HOOD DETAIL SEE 3/E1.

6 E1 **CONTROL RACK DETAIL**
N.T.S.



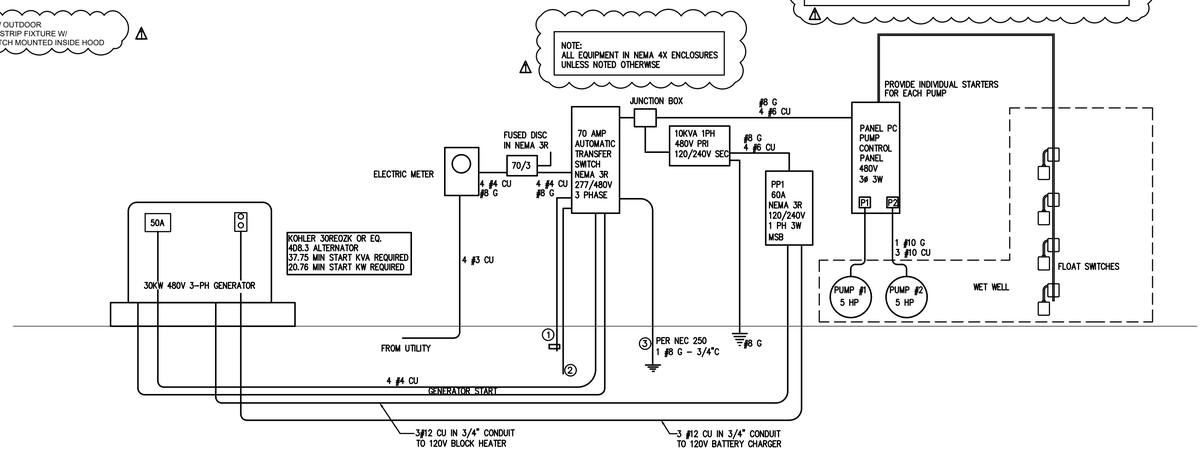
2 E1 **EXTERIOR POLE LIGHT**
NTS



3 E1 **RAIN HOOD DETAILS**
N.T.S.

NOTE: ALL WIRES (TO INCLUDE FLOATS) LEAVING THE WET WELL SHALL BE SPLICED INSIDE AN ELECTRICAL JUNCTION BOX JUST OUTSIDE THE WET WELL AND PROPERLY LABELED ON BOTH ENDS BEFORE CONTINUING TO THE CONTROL BOX.

⚠ NOTE:
ALL EQUIPMENT IN NEMA 4X ENCLOSURES UNLESS NOTED OTHERWISE



GROUNDING ELECTRODE DETAILS

GROUNDING ELECTRODE CONDUCTORS SHALL BE #8 BARE COPPER. OTHER MATERIAL AND INSTALLATION PER NEC 250

① #8 CONNECT TO METALIC WATER PIPE AS REQ'D.
② #8 TO BUILDING STEEL OR FOUNDATION REBAR
③ 3/4"x10' LONG COPPER CLAD GROUNDING ROD W/ #6 COPPER GROUND.

4 E1 **ELEC. RISER DETAIL**
N.T.S.

Aug 24, 2023

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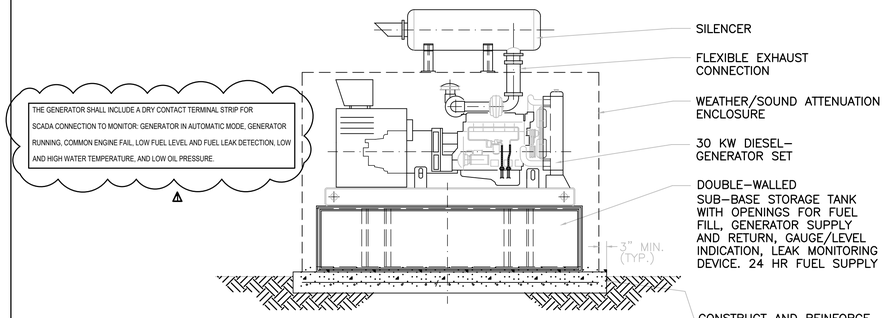
HARPERS MEADOW LIFT STATION

LILLINGTON, NC 27546

PROJECT NO: 2023-025
DRAWN BY: WJ
CHECKED BY: CSL
DATE: 02-20-23
REVISIONS: ⚠ 8-24-23 REVIEW COMMENTS

SHEET NO:
E-1



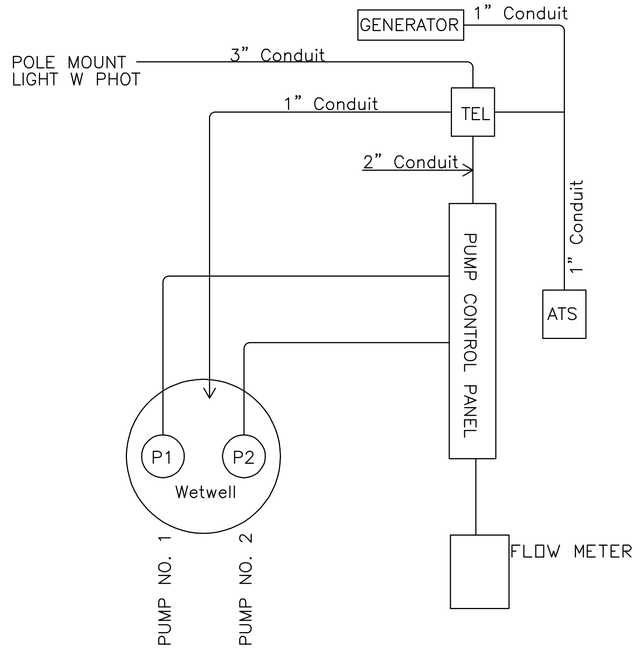
1/E2 **PADMOUNTED GENERATOR DETAIL**
N.T.S.

PP1

ROOM	VOLTS 240/120V 2P 3W		AIC 22,000
MOUNTING SURFACE	BUS AMPS 60		MAIN BKR 60
FED FROM UTILITY	NEUTRAL 100%		LUGS STANDARD
NOTE			

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B
1	20/1	ELECTRICAL RACK WPGFCI RECEPTACLE	0.54		2	20/1	REMOTE TERMINAL UNIT	0.42	
3	20/1	ELECTRICAL RACK LIGHTING		0.03	4	20/1	HOT BOX		0.18
5	20/1	POLE LIGHT	0.1		6	20/1	BATTERY CHARGER	1.5	
7	20/1	PUMP STATION WPGFCI RECEPTACLE		0.18	8	20/1	BLOCK HEATER		1.5
9	20/1	SPACE	0		10	20/1	SPACE	0	
11	20/1	SPACE		0	12	20/1	SPACE		0
							TOTAL CONNECTED KVA BY PHASE	2.56	1.89

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	0.03	0.038	(125%)	CONTINUOUS	0.52	0.65	(125%)
RECEPTACLES	0.72	0.72	(50%>10)	NONCONTINUOUS	3.18	3.18	(100%)
				TOTAL LOAD		4.59	
				BALANCED LOAD		19.1 A	



2/E2 **MISSION RTU CONDUIT DIAGRAM**
N.T.S.

PC

ROOM	VOLTS 480V 3P 3W		AIC 22,000
MOUNTING SURFACE	BUS AMPS 60		MAIN BKR MLO
FED FROM UTILITY	NEUTRAL NONE		LUGS STANDARD
NOTE			

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1 3 5	20/3 | |	PUMP #1	2.11	2.11	2.11	2 4 6	20/3 | |	PUMP #2	2.11	2.11	2.11
								TOTAL CONNECTED KVA BY PHASE	4.21	4.21	4.21

	CONN KVA	CALC KVA			CALC KVA
LARGEST MOTOR	6.32	1.58	(25%)	TOTAL LOAD	14.2
MOTORS	12.6	12.6	(100%)	BALANCED 3–PHASE LOAD	17.1 A

Aug 24, 2023

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f. Electrical Requirements for the Pump Station

1) All electrical work shall conform to the latest NEC and local guidelines. Plans must include an electrical design completed by a Professional Electrical Engineer licensed in North Carolina. The plans should include, but not limited to, a electrical schedule, line diagram, conduit layout, dry contacts, grounding information, panel detail with hood.

2) Control panels shall be labeled as an assembled panel and bear the UL label.

3) Sewage pumping station utility voltage shall be 480 volt, three phase, 60 hertz power for stations with larger than 5-hp pumps. It is theresponsibility of the Owner/Developer/Contractor to ensure adequate power is available at the proposed pumping station site.

4) All wiring shall be identified at each termination. Wiring shall have a unique wire number and shall be labeled at both ends. Wire numbers shallcorrespond with equipment terminal wire numbers as indicated in theaccepted shop drawings. Where no wire numbers are indicated, the Contractor shall advise the Engineer of Record in writing prior to assigning wire numbers. Wire numbers shall not be duplicated.

5) For instrumentation wiring, the Contractor shall provide on the shop drawings, a schedule indicating the wire number, color code if applicable, origin and destination devices, and terminals.

6) Conductor insulation color-coding: (Tape for identification shall only be allowed on conductors larger than #6 AWG.)

7) 480 Volt AC Power

(i) Phase A – Brown
(ii) Phase B – Orange
(iii) Phase C – Yellow
(iv) Neutral – White

8) 120/208 Volt or 120/240 Volt Power

(i) Phase A – Black
(ii) Phase B – Red
(iii) Phase C – Blue
(iv) Neutral – White

9) DC power

(a) Positive Lead – Red
(b) Negative Lead – Black

10) 120 VAC Control

(i) Single conductor 120 VAC control wire shall be RED except for a wire entering a motor control center compartment or control panel that is an interlock. This conductor shall be color coded YELLOW.

(ii) 240 VAC Control; All wiring – ORANGE

(iii) Equipment Grounding Conductor; All wiring – Green

(iv) Phase sequence shall be A-B-C from rear to front, top to bottom, or left to right when facing the equipment.

(v) The use of rigid hot-dipped galvanized steel or rigid aluminum electrical conduit is required. The Contractor shall apply a section of heat shrink tubing to the conduit extending through and 12" above and below concrete pads.

(vi) All panels shall be lockable and rated NEMA 4X minimum.

(vii) Weatherproof, insulated throat "Meyers" hubs shall be used on all conduit entries to panels, boxes, and devices without integral hubs.

(viii) All equipment shall be NEMA rated, IEC will not be accepted.

(ix) All electrical and control panels shall have weatherproof identifying labels attached with stainless steel screws, adhesive will not be acceptable.

(x) All electrical conduits from wet well to control panel must be sealed using a rubber grommet system to prevent gas entry to control panel or pump house enclosure. This only applies to conduit that enters the wet well area.

(xi) No electrical junction boxes or splices are permitted in the wet well.

(xii) All wires leaving the wet well shall be spliced inside an electrical junction box just outside the wet well (and properly labeled on both ends) before continuing to the control box.

(xiii) All branch circuit panels shall have a typed index identifying breakers. Spare breakers are to be labeled "spare."

(xiv) The Owner shall be provided with one complete set of spare fuses. Conduit size, origin, destination, wire size and number of wires shall be shown on the plans.

(xv) Monitoring Points

TOWN OF LILLINGTON
BASIC TWO PUMP SEWAGE LIFT STATION MONITORING POINTS

DATA TYPE	DEFINITION	CONTROL HOOKUP
DI	CONTROL AC POWER FAIL	DRY CONTACT ON RELAY POWERED BY LOAD SIDE OF CONTROL CIRCUIT PROTECTED BY PHASEMONITOR THAT BREAKS CONTROL CIRCUIT
DI	HIGH WETWELL	DRY CONTACT ON HIGH WETWELL RELAY AND SEPARATE DIRECT FLOAT
DI	PUMP 1 RUNNING	AUX. DRY CONTACT ON MOTOR STARTER
DI	PUMP 2 RUNNING	AUX. DRY CONTACT ON MOTOR STARTER
DI	LAG PUMP RUNNING	DRY CONTACT, MANUFACTURER PROVIDED
DI	GEN. RUN & HOUR METER	DRY CONTACT GENERATOR RUN RELAY
DI	GEN. FAIL, COMMON FAULT	DRY CONTACT COMMON FAULT RELAY
DI	TRX SWITCH EMERG/UTILITY POSITION	DRY CONTACT, TRX. SWITCH
DI	TRX SWITCH UTILITY POWER AVAILABLE	DRY CONTACT, TRX. SWITCH
DI	GEN. FUEL LOW	DRY CONTACT, MANUFACTURER PROVIDED
DI	GEN. FUEL TANK LEAK	DRY CONTACT, MANUFACTURER PROVIDED
DI	LOW WET WELL	DRY CONTACT ON HIGH WETWELL RELAY AND SEPARATE DIRECT FLOAT

Alarm wiring to be # 14 stranded MTW blue color. Pull alarm wiring in separate conduit from AC power circuits. Conduit size for alarm circuits to be min.1" from PS control to RTU, 1" from generator to RTUand ¼" from ATS to RTU.

1/E1 ELECTRICAL/RTU NOTES
N.T.S.

Aug 24, 2023

NORTH CAROLINA PROFESSIONAL SEAL 20193 ENGINEER CHRISTOPHER S. LOCKLEAR

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