

# HIGHLAND ELEMENTARY ADDITION & RENOVATION

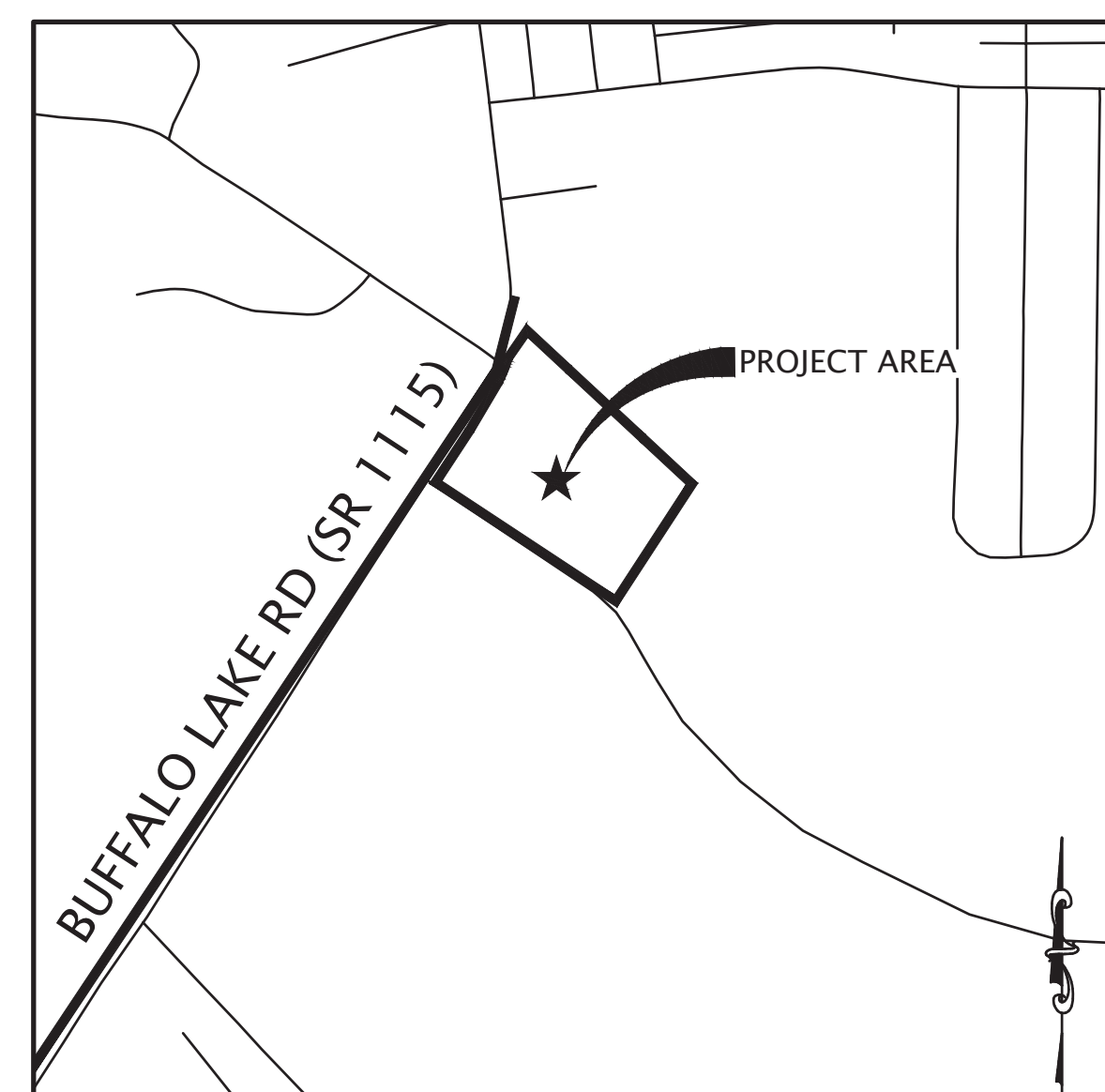
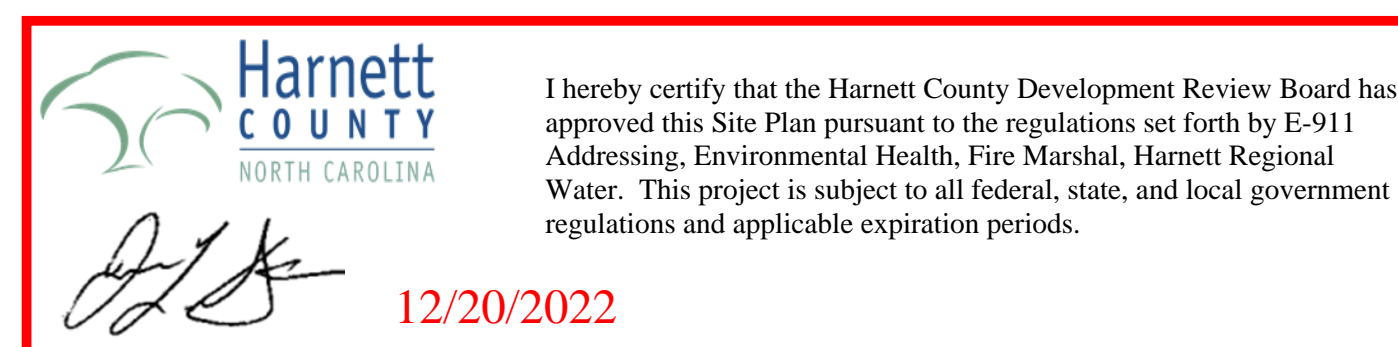
## HARNETT COUNTY, NORTH CAROLINA

SITE DATA TABLE	
JURISDICTION	HARNETT COUNTY, NORTH CAROLINA
PROPERTY OWNER	HARNETT COUNTY BOARD OF EDUCATION
OWNER ADDRESS	PO BOX 1029 LILLINGTON, NC 27546
OWNER CONTACT	DR. AARON FLEMING AFLEMING@HARNETT.K12.NC.US
HARNETT REGIONAL WATER CONTACT	GLENN MCFADDEN GMCFADDEN@HARNETT.ORG
LKC ENGINEERING CONTACT	PHILIP PICERNO PHILIP@LKCENGINEERING.COM
PROPERTY PIN	9586-76-5532-000
PROPERTY PARCEL ID	03956701 0346 55
DEED INFORMATION	DB 1430 PG 0191
PROPERTY ZONED	RA-20R
ACREAGE	24.35 ACS.
SETBACKS	FRONT 35' BACK 25' SIDES 10'

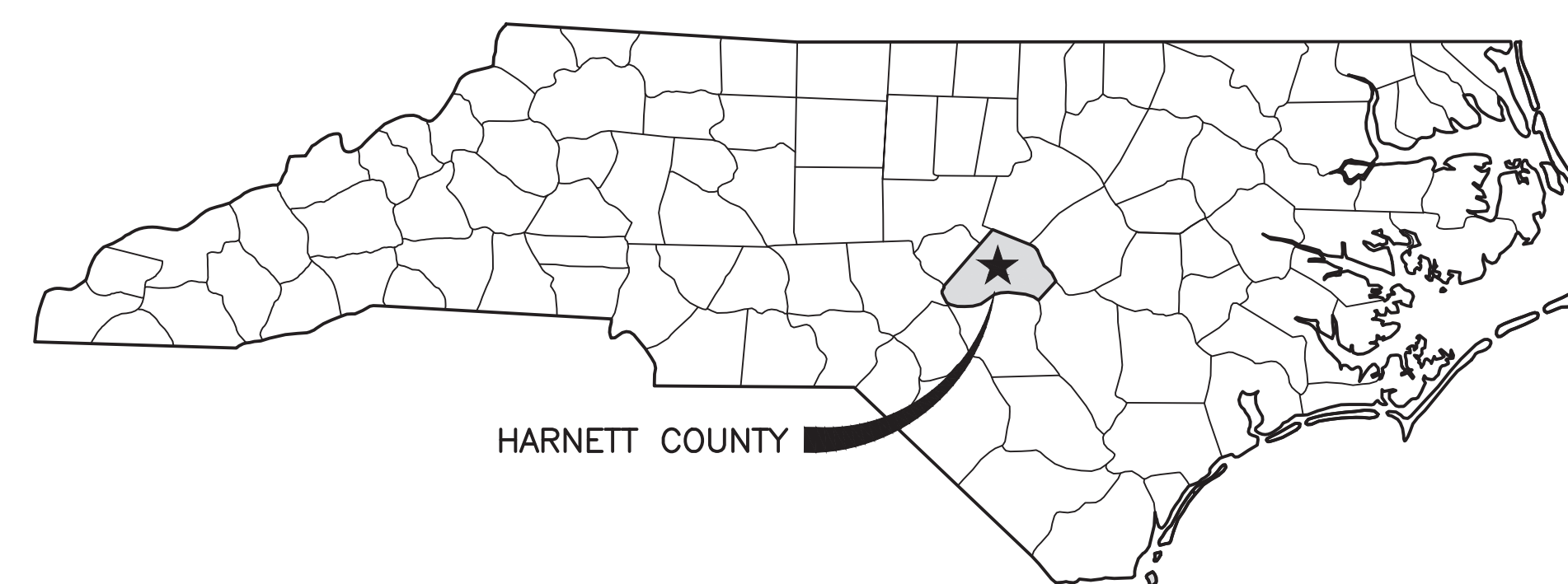
"THIS DEVELOPMENT IS WITHIN FIVE MILE MILITARY CORRIDOR OVERLAY ZONE, AND MAY BE SUBJECT TO MILITARY TRAINING ACTIVITIES"

### SHEET INDEX

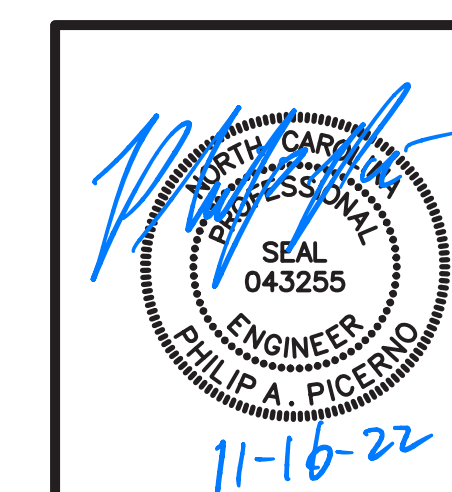
-	COVER SHEET
C-100	GENERAL NOTES AND LEGEND
C-101	EXISTING CONDITIONS AND DEMOLITION PLAN
C-201	SITE LAYOUT PLAN
C-301	GRADING, DRAINAGE, AND EROSION CONTROL PLAN
C-401	UTILITY PLAN
D-101	SITE DETAILS
D-201	DRAINAGE DETAILS
D-301	EROSION CONTROL DETAIL
D-401	NCG01 DETAILS
D-501	UTILITY DETAILS
D-601	WATERLINE DETAILS



PROJECT VICINITY MAP  
Scale: 1"=1000'



COUNTY LOCATION MAP  
NTS



# LKC

Engineering  
Landscape Architecture  
Surveying

LKC Engineering, PLLC  
140 Aqua Shed Court  
Aberdeen, NC 28315  
O: 910.420.1437  
F: 910.637.0096  
lkceengineering.com  
License No. P-1095





GENERAL NOTES

ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THIS SHEET SHALL BE APPLIED TO ALL CONTRACT DOCUMENTS AND SHEETS IN THIS SET.

- SURVEY, BASE MAPPING, & TOPOGRAPHICAL DATA PROVIDED BY LKC ENGINEERING, PLLC; JEFFREY GREEN, PLS, LIC. # L-3972; 140 AQUA SHED CT, ABERDEEN, NC 28315, TEL # 910-420-1436.
- THE GENERAL CONTRACTOR SHALL FIELD VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AT THE JOB SITE.
- ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. BENCHMARKS ARE TWO EXISTING IRON RODS (EIR) LOCATED IN THE NORTHEASTERN AND EASTERN AREA OF THE DRAWING NEAR THE PROPOSED BUILDING ADDITION. THE NORTHEASTERN BENCHMARK HAS AN ELEVATION OF 424.74 AND THE EASTERN HAS AN ELEVATION OF 424.16.  
THE VERTICAL DATUM FOR THIS SURVEY IS BASED ON NAVD 88.
- ALL DIMENSIONS AND ALL ELEVATIONS ARE MEASURED TO BACK OF CURB UNLESS OTHERWISE NOTED.
- THE INTENT OF THE LIMITS OF DISTURBANCE/CONSTRUCTION (LOD/C) SHOWN ON THE DRAWINGS IS TO DEFINE THE GENERAL PROJECT AREA TO CONSTRUCT, INSTALL AND/OR MODIFY THE SITE. TYPICALLY, THE LOD/C WILL FOLLOW RIGHT-OF-WAY OR PROPERTY LINES. THE CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE REGARDING ANY QUESTIONS AS TO THE EXACT LOCATION OF THE LOD/C PRIOR TO BID AND PRIOR TO BEGINNING CONSTRUCTION. ALL ITEMS SHOWN ON THESE PLANS THAT DO NOT SPECIFICALLY STATE "NOT-IN-CONTRACT (NIC), SHALL BE INCLUDED IN THE BID COST, INCLUDING ITEMS THAT MAY BE OUTSIDE THE PROJECT LIMITS.
- LOCATIONS OF EXISTING UTILITY LINES HAVE BEEN TAKEN FROM UTILITY RECORDS SUPPLEMENTED BY FIELD INSPECTIONS AND SHOULD INDICATE IN GENERAL THE TYPE OF UNDERGROUND UTILITIES NOW IN SERVICE. LOCATIONS SHOWN ARE NOT GUARANTEED. DEVELOPERS AND/OR CONTRACTORS SHALL NOT ONLY MAKE SUBSURFACE INVESTIGATIONS BUT SHALL ALSO ALLOW FOR CONTINGENCIES WHICH MIGHT ARISE BY REASON OF ENCOUNTERING UNRECORDED LINES OR LINES BEING IN DIFFERENT LOCATIONS THAN INDICATED ON THESE PLANS. AT LEAST 48-HOURS PRIOR OR SOONER IF REQUIRED BY THE LOCAL MUNICIPALITY TO ANY CONSTRUCTION ACTIVITY, EXCAVATION, GRADING, OR DIGGING ON THE SITE, THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES TO VERIFY AND/OR FIELD-LOCATE THEIR RESPECTIVE UTILITIES (THE NORTH CAROLINA ONE CALL CENTER - 1-800-632-4949). ALL DAMAGE INCURRED TO EXISTING UTILITY LINES DURING CONSTRUCTION SHALL BE REPAIRED AT THE GENERAL CONTRACTORS EXPENSE.
- ALL WASTE MATERIAL TO BE BROUGHT OFF-SITE SHALL BE DISPOSED OF IN A LEGALLY PERMITTED DISPOSAL SITE.
- A FORMAL EROSION AND SEDIMENTATION CONTROL PERMIT IS NOT REQUIRED FOR THIS SITE UNDER THE REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ). THE GENERAL CONTRACTOR IS REQUIRED TO AND SHALL FOLLOW ALL LOCAL, STATE AND FEDERAL REGULATIONS TO MINIMIZE EROSION AND THE TRANSPORT OF SEDIMENT OFF-SITE DURING CONSTRUCTION, INCLUDING THE PLACEMENT AND MAINTENANCE OF CONTROL MEASURES. ALL MEASURES REQUIRED SHALL BE INCLUDED IN THE BID COST WHETHER SPECIFICALLY INDICATED OR NOT.
- ANY AND ALL PARKING STRIPES SHALL BE 4" WIDE AND SHALL BE PAINTED WITH STANDARD WHITE TRAFFIC PAINT. CROSSWALKS, STOP BARS AND TRAFFIC ARROWS SHALL BE MARKED WITH THERMOPLASTIC WHITE TRAFFIC MARKINGS.
- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL HARNETT COUNTY & STATE REQUIREMENTS.
- DISTURBED AREAS NOT COVERED BY ASPHALT OR OTHER IMPERMEABLE SURFACES SHALL BE SEEDED AND STABILIZED PER SPECIFICATIONS.
- ACCESSIBLE PARKING SPACES, ACCESS AISLES, & SIGNAGE SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AND INSTALLED PER FEDERAL, STATE, AND LOCAL REQUIREMENTS UNDER THE AMERICANS WITH DISABILITIES ACT (ADA). STANDARD R7-8 RESERVED PARKING AND MAXIMUM PENALTY \$250 NCGS 20.37.6 SIGNS MUST BE INSTALLED IN FRONT OF ALL ACCESSIBLE PARKING SPACES. "VAN ACCESSIBLE" SIGNS MUST BE PROVIDED IN FRONT OF THE VAN ACCESSIBLE PARKING SPACE(S).
- ALL TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, SIGNS, AND SIGNALS SHALL BE DESIGNED, INSTALLED AND MAINTAINED IN CONFORMANCE WITH THE STANDARDS SET FORTH IN THE NORTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TREE PROTECTION FENCING AROUND ALL "AT-RISK" TREES WITHIN THE VICINITY OF THE CONSTRUCTION ACTIVITY WHETHER SPECIFICALLY INDICATED ON THE PLANS OR NOT. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO BEGINNING ANY CONSTRUCTION OR OTHER DEVELOPMENT ACTIVITIES, AND SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE DURATION OF THE PROJECT UNTIL FINAL SITE INSPECTION.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY & THE NORTH CAROLINA DEPARTMENT OF WATER QUALITY FOR APPROVAL TO REMOVE ALL CONSTRUCTED TEMPORARY EROSION & SEDIMENTATION CONTROL MEASURES, AND FOR THE APPROVAL OF PERMANENT GROUND COVER.
- CONTRACTOR SHALL INSTALL A RAIN GAUGE AND MAINTAIN A MONITORING LOG ACCORDING TO NCDEQ REQUIREMENTS UNTIL THE AGENCY HAS RELEASED THE SITE.
- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL ACCORDING TO NCDOT REQUIREMENTS DURING THE CONSTRUCTION OF IMPROVEMENTS IN THE RIGHT-OF-WAY WHEN APPLICABLE.
- CONTRACTOR SHALL PROVIDE RED-LINE PRINTS OF ALL CHANGES AND MODIFICATIONS. THIS INFORMATION SHALL BE PROVIDED TO THE DESIGNER OF RECORD AT THE TIME OF SUBSTANTIAL COMPLETION.
- CONTRACTOR SHALL MAINTAIN A COPY OF THE LOCAL AUTHORITY'S APPROVED PLANS ALONG WITH ANY PERMIT LETTERS THAT HAVE BEEN MARKED "APPROVED" OR "APPROVED AS CORRECTED" ON SITE DURING CONSTRUCTION.
- ALL EXCAVATION IN THE PROJECT AREA SHALL BE UNCLASSIFIED. CONTRACTOR SHALL INCLUDE ALL COST ASSOCIATED WITH SOIL MATERIAL REMOVAL, REPAIR AND DISPOSAL UNDER THE BASE BID SCOPE OF WORK.
- CONTRACTOR SHALL INSTALL 6-FT HIGH TEMPORARY CHAIN LINK CONSTRUCTION FENCING OR APPROVED EQUAL IN ALL AREAS WHERE DIRECT ACCESS TO CONSTRUCTION ACTIVITY IS POSSIBLE, AND SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH THE OWNER REGARDING THE LOCATION OF THE CONSTRUCTION FENCE AND PEDESTRIAN TRAFFIC CONTROL DURING CONSTRUCTION. ALL FENCING SHALL BE INCLUDED IN THE BID COST WHETHER SPECIFICALLY INDICATED OR NOT.

ABBREVIATIONS

ABBREVIATION:	DESCRIPTION:	ABBREVIATION:	DESCRIPTION:
A/C	AIR CONDITIONING	NIC	NOT IN CONTRACT
ADJ	ADJACENT	NTS	NOT TO SCALE
AL	AREA LIGHT		
APROX	APPROXIMATE	O.C.	ON CENTER
ASSM	ASSEMBLY	OHE	OVERHEAD ELECTRIC
ASPH	ASPHALT		
		PC	POINT OF CURVATURE
BLDG	BUILDING	PI	POINT OF INTERSECTION
B.O.	BLOW-OFF	PV	POST INDICATION VALVE
BOC	BACK OF CURB	PP	POWER POLE
BOW	BOTTOM OF WALL	PT	POINT OF TANGENCY
BX	BOX	PVC	POLYVINYL CHLORIDE
		PVMT	PAVEMENT
C.F.	CUBIC FOOT		
CI	CURB INLET	R	RADIUS
CL	CENTER LINE	R.J.	RESTRAINED JOINT
CONC	CONCRETE	R/W, ROW	RIGHT OF WAY
CONST	CONSTRUCTION	RCP	REINFORCED CONCRETE PIPE
CY	CUBIC YARD	RDCO	ROOF DRAIN CLEAN OUT
		REQD	REQUIRED
		ROMT	REQUIREMENT
DEMO	DEMOLISH (DEMOLITION)	RT	RIGHT
DI	DEEP	RWM	RIGHT OF WAY MONUMENT
DP	DUCTILE IRON		
D.I.P.	DUCTILE IRON PIPE		
DIA	DIAMETER	SCH	SCHEDULE
DM	DIMENSION	SD	STORM DRAIN
DWG	DRAWING	SDCO	STORM DRAIN CLEAN OUT
		SDMH	STORM DRAIN MANHOLE
		SED	SEDIMENT
ECM	EXISTING CONCRETE MONUMENT	SF	SQUARE FOOT
EIP	EXISTING IRON PIPE	SPEC	SPECIFICATION
EIS	EXISTING IRON STAKE	SQ	SQUARE
ELEC	ELECTRIC	SS	SANITARY SEWER
ELEV	ELEVATION	SSCO	SANITARY SEWER CLEAN OUT
ELMH	ELECTRICAL MANHOLE	SSMH	SANITARY SEWER MANHOLE
ENCL	ENCLOSURE	SSMH	SANITARY SEWER MANHOLE
EOC	EDGE OF CONCRETE	STA	STATION
EOP	EDGE OF PAVEMENT	SY	SQUARE YARD
EQPT	EQUIPMENT		
ESMT	EASEMENT	TBM	TEMPORARY BENCHMARK
EX	EXISTING	TEL	TELEPHONE
		TEMP	TEMPORARY
FES	FLARED END SECTION	THK	THICK
FFE	FINISH FLOOR ELEVATION	TOC, T/C	TOP OF CURB
FH	FIRE HYDRANT	TOW	TOP OF WALL
FNC	FENCE	TPED	TELEPHONE PEDESTAL
FO	FIBER OPTIC	TS&V	TAPPING SADDLE & VALVE
FOC	FACE OF CURB	TYP	TYPICAL
FT	FOOT		
		UGE	UNDERGROUND ELECTRIC
G.V.	GATE VALVE	UTIL	UTILITY
GALV	GALVANIZE		
GND	GROUND		
GRAV	GRAVEL		
HDPE	HIGH DENSITY POLYETHYLENE		
L	LENGTH		
LF	LINEAR FOOT		
LFT	LEFT		
MAX	MAXIMUM		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
M.J.	MECHANICAL JOINT		

LEGEND / KEY

NAME:	EXISTING	NEW	EROSION CONTROL:	NEW
ASPHALT PAVEMENT			TEMP. CONST ENT.	
CABLE TV			TEMP. SILT FENCE	
CENTERLINE			TEMP. DIVERSION	
CURB & GUTTER			TEMP. INLET PROTECT.	
CONCRETE			TEMP. ROCK PIPE INLET PROTECTION	
CONTOUR MAJOR			RIPRAP DISSIPATOR	
CONTOUR MINOR			TEMP. SILT FENCE OUTLET	
EASEMENT			TEMP. SKIMMER BASIN WITH BAFFLES	
FENCE			FAIRCLOTH SKIMMER	
FIBER OPTIC			TEMP. SEDIMENT TRAP WITH BAFFLES	
FORCE MAIN			TEMP. SLOPE DRAIN	
GAS LINE			TREE PROTECTION	
GAS VALVE			ROLLED EROSION CONTROL MATTING	
GRAVEL			DEMOLITION LIMITS	
LIMITS OF DIST/CONST				
LIGHT POLE				
OVERHEAD ELECTRIC				
POWER POLE				
PROPERTY LINE				
PROPERTY LINE - ADJ				
RAILROAD				
RIGHT-OF-WAY (ROW)				
SANITARY SEWER LINE				
SANITARY SEWER MH				
SANITARY SEWER CO				
SPOT EL. GS				
SPOT EL. TOC				
SPOT EL. TOW				
STORM DRAIN LINE				
STORM DRAIN FES				
STORM DRAIN MH				
STORM DRAIN CI				
STORM DRAIN GI				
STORM DRAIN YI				
TELEPHONE LINE				
TELEPHONE PEDESTAL				
UNDERGROUND ELEC.				
UTILITY POLE				
WATER LINE				
WATER VALVE				
FIRE HYDRANT				
WATER METER				
WATER LINE BACKFLOW				
WATER LINE REDUCER				
IRON ROD/PIPE				
CONCRETE MONUMENT				
BENCHMARK				

...Becoming the  
Leading Designer of  
High Performance Facilities  
in the Nation with a  
Specialty in Alternative  
Delivery Methods

333 Fayetteville St, Ste 225  
Raleigh, NC 27601  
P: 919-573-6350  
F: 919-573-6350  
www.sfl+a.biz

**sfl+a**  
ARCHITECTS

ARCHITECTS  
REGISTERED PROFESSIONAL ARCHITECTS  
CERT. NO. 50676  
STATE OF NORTH CAROLINA  
FAYETTEVILLE, NC

PROFESSIONAL SEAL  
SEAL 043255  
ENGINEER  
MURRAY A. PICEANO  
11-16-22

FOR CONSTRUCTION SET

**LKC**  
Engineering  
Landscape Architecture  
Surveying  
140 Aqua Shed Ct., Aberdeen, NC 28315  
Office: 910-420-1437 Fax: 910-420-1438  
lkceengineering.com License No. P-1095

Harnett County Schools

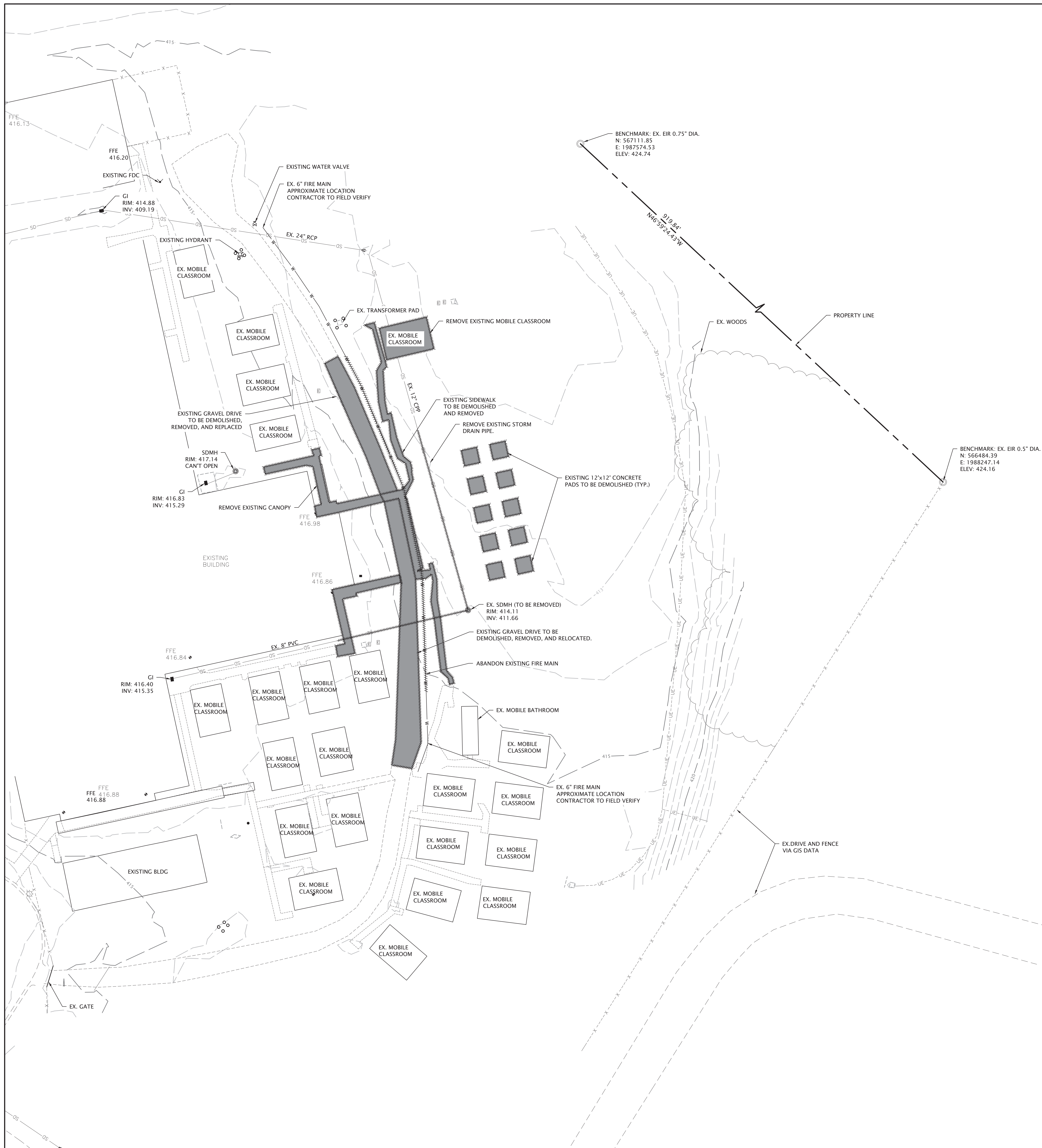
**HIGHLAND ELEMENTARY ADDITION & RENOVATION**

1915 Buffalo Lake Road - Sanford, NC 27332

ENERGY STAR PARTNER

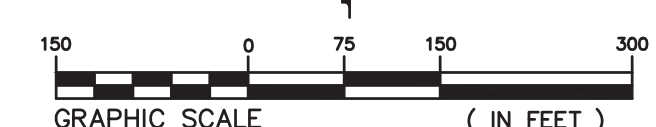
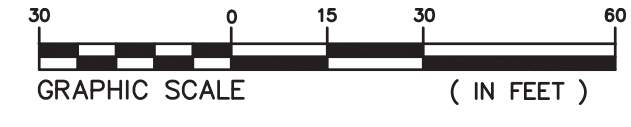
ID	DATE	DESCRIPTION
ISSUE DATE:	10/07/2022	
PROJECT #:	02110.100	
DRAWN BY:	BS	
CHECKED BY:	PAP	
© 2020 Sfl+a Architects, PA All Rights Reserved		
GENERAL NOTES AND LEGEND		





**NOTES:**

1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON SHEET C-01 SHALL APPLY TO THIS PLAN. THE PURPOSE OF THE PLAN IS FOR INFORMATIONAL PURPOSES ONLY. THOUGH THIS PLAN IS FROM AN ACTUAL FIELD SURVEY IT IS NOT AND SHOULD NOT BE CONSIDERED A RECORDABLE DOCUMENT.
2. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR WITH THE SURVEYOR OF RECORD PRIOR TO BEGINNING CONSTRUCTION. BENCHMARKS ARE TWO EXISTING IRON RODS (EIR) LOCATED IN THE NORTHEASTERN AND EASTERN AREA OF THE DRAWING NEAR THE PROPOSED BUILDING. ADDITION, THE NORTHEASTERN BENCHMARK HAS AN ELEVATION OF 424.74 AND THE EASTERN BENCHMARK HAS AN ELEVATION OF 424.16. LOCATIONS OF EXISTING UTILITY LINES HAVE BEEN TAKEN FROM UTILITY RECORDS SUPPLEMENTED BY FIELD INSPECTIONS AND SHOULD INDICATE IN GENERAL THE TYPE OF UNDERGROUND FACILITIES NOW IN SERVICE. HOWEVER, LOCATIONS SHOWN ARE NOT GUARANTEED AND ANY FURTHER 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 LINES BEING IN DIFFERENT LOCATIONS THAN INDICATED ON THIS PLAT.
3. THE HORIZONTAL DATUM FOR THIS SURVEY IS NC GRID NAD-83 AND THE VERTICAL DATUM IS NAVD-88.
4. ALL DISTANCES ARE HORIZONTAL GROUND.
5. AREA BY COORDINATE COMPUTATION.
6. SURVEY INFORMATION FROM THE SURVEYOR OF RECORD, LKC ENGINEERING, PLLC, JEFFREY L. GREEN, PLS; LICENSE # L-3972; 140 AQUA SHED CT., ABERDEEN, NC 28315; PHONE 910-4201437.



SITE MAP  
(NOTE: SOME DATA OBTAINED THROUGH HARNETT COUNTY GIS.)

...Becoming the  
Leading Designer of  
High Performance Facilities  
in the Nation with a  
Specialty in Alternative  
Delivery Methods

333 Fayetteville St, Ste 225  
Raleigh, NC 27601  
P: 919-973-6350  
F: 919-973-6355  
www.sfi+a.biz

**sfi+a**  
ARCHITECTS

ARCHITECTS  
REGISTERED PROFESSIONAL  
CERT. NO.  
58676  
FAYETTEVILLE  
NORTH CAROLINA

SEAL  
043255  
ENGINEER  
MULIP A. PICEANO  
11/16/22

FOR CONSTRUCTION SET

**LKC**  
Engineering  
Landscape Architecture  
Surveying

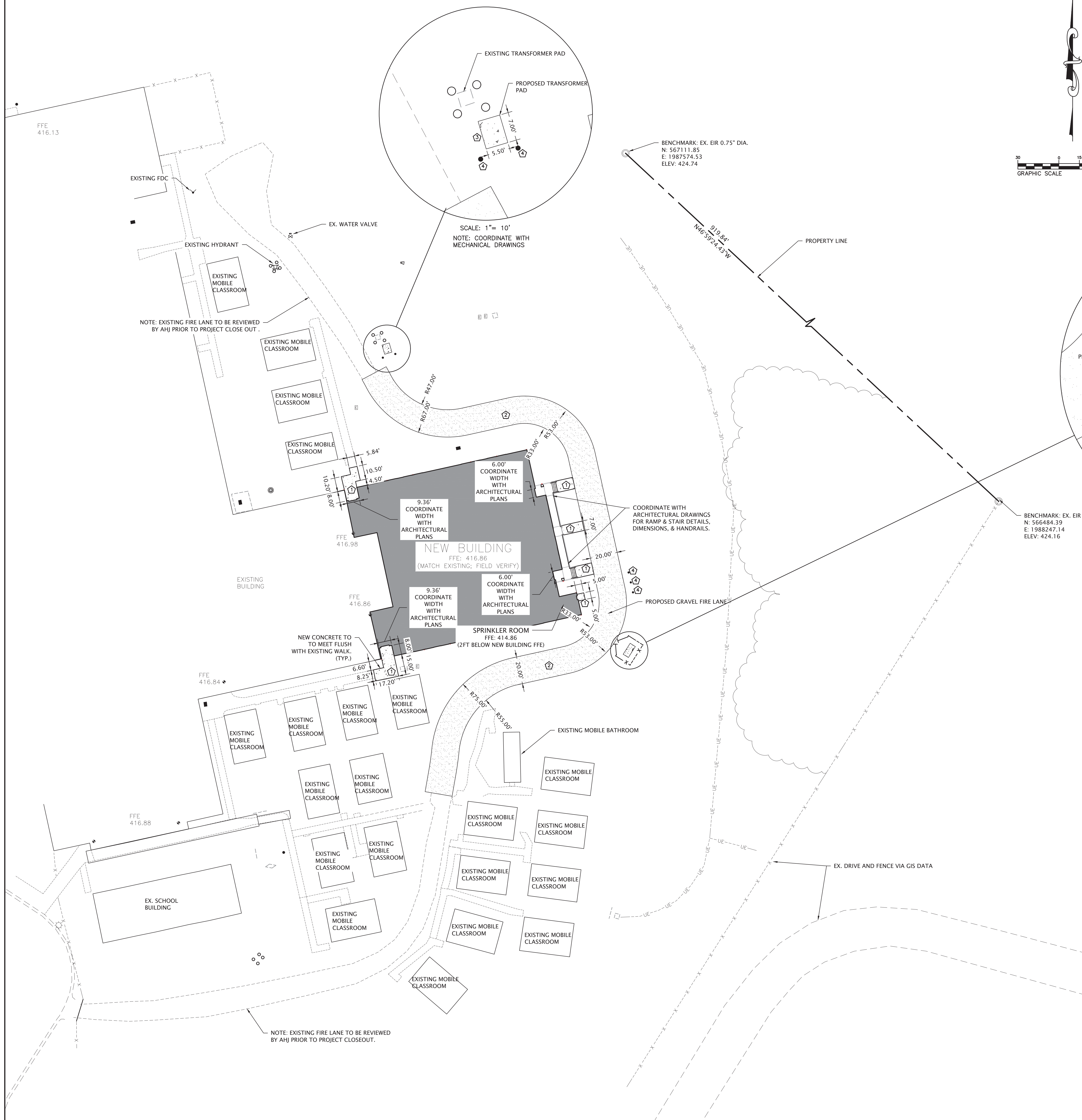
140 Aqua Shed Ct., Aberdeen, NC 28315  
Office: 910-420-1437 Fax: 910-420-1438  
lkcengineering.com License No. P-1095

Harnett County Schools  
**HIGHLAND ELEMENTARY ADDITION & RENOVATION**  
1915 Buffalo Lake Road - Sanford, NC 27332

ENERGY  
STAR  
PARTNER

ID	DATE	DESCRIPTION
ISSUE DATE:	10/07/2022	
PROJECT #:	02110.100	
DRAWN BY:	BS	
CHECKED BY:	PAP	
© 2020 Sfi+a Architects, PA All Rights Reserved		
EXISTING SURVEY CONDITIONS AND DEMOLITION PLAN		



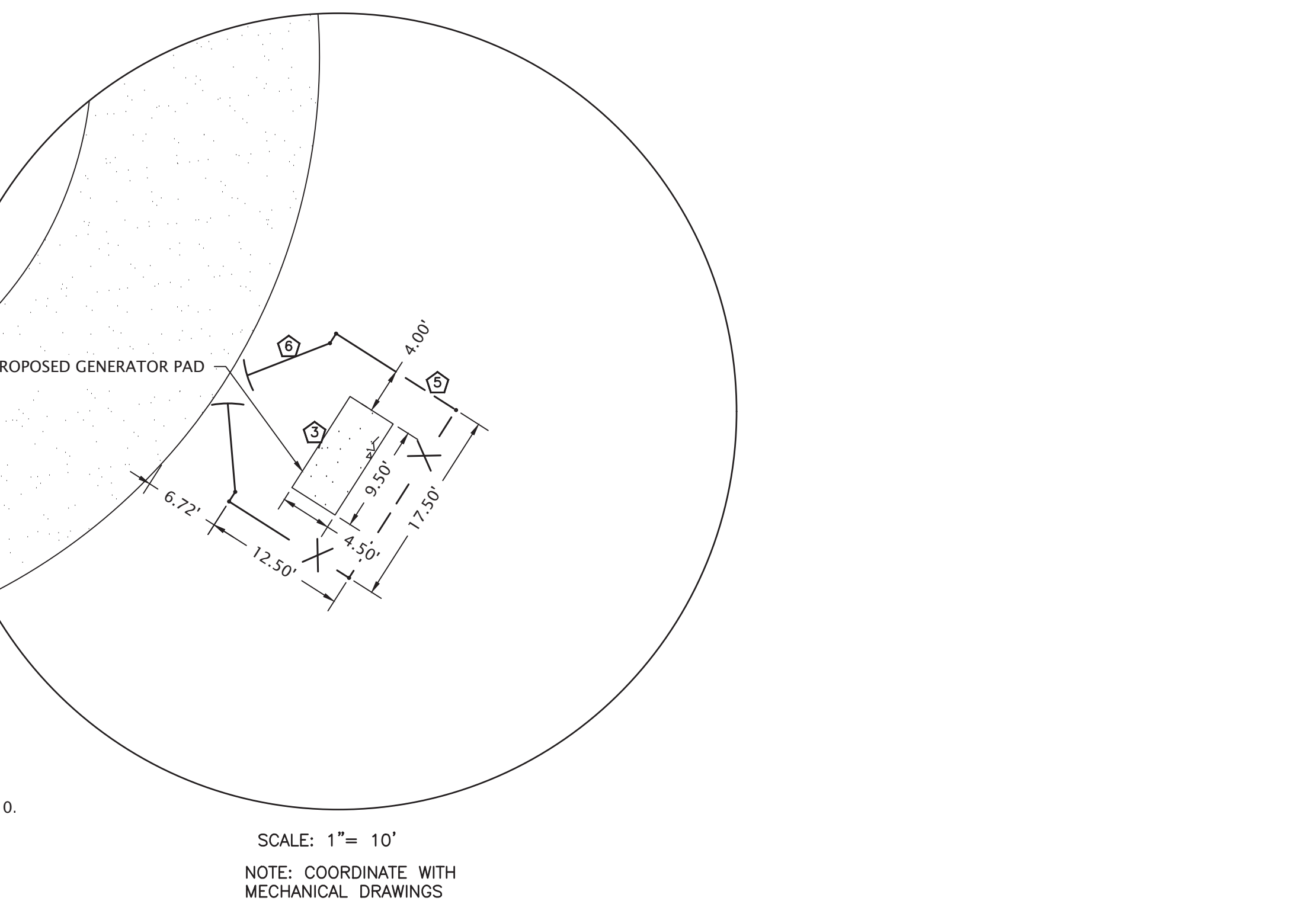


**NOTES:**

- ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THE GENERAL NOTES, LEGEND AND ABBREVIATIONS SHEET, SHEET C-100 SHALL APPLY TO THIS PLAN.
- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL HARNETT COUNTY STANDARDS AND SPECIFICATIONS.
- CONTRACTOR SHALL ENSURE THAT THE EXISTING UTILITIES ARE LOCATED AND MARKED PRIOR TO INSTALLATION OF NEW UTILITIES.

SITE KEY NOTING:		
SYMBOL	DESCRIPTION	SHEET REFERENCE
⬆	INSTALL CONCRETE SIDEWALK	SEE SHT. D-101, #1
⬆	INSTALL GRAVEL PAVEMENT	SEE SHT. D-101, #2
⬆	INSTALL CONCRETE PAVEMENT	SEE SHT. D-101, #3
⬆	INSTALL CONCRETE BOLLARD	SEE SHT. D-101, #4
⬆	INSTALL CHAIN LINK FENCE	SEE SHT. D-101, #6
⬆	INSTALL DOUBLE SWING GATE	SEE SHT. D-101, #7

"THIS DEVELOPMENT IS WITHIN FIVE MILE MILITARY CORRIDOR OVERLAY ZONE, AND MAY BE SUBJECT TO MILITARY TRAINING ACTIVITIES"



...Becoming the Leading Designer of High Performance Facilities in the Nation with a Specialty in Alternative Delivery Methods

333 Fayetteville St, Ste 225  
 Raleigh, NC 27601  
 P: 919-573-6390  
 F: 919-573-6395  
 www.sfl+a.com

**sfl+a ARCHITECTS**

PROFESSIONAL SEAL  
 ENGINEER  
 MURRAY A. PICE  
 11-16-22

FOR CONSTRUCTION SET

**LKC**  
 Engineering  
 Landscape Architecture  
 Surveying

140 Angus Shed Ct., Aberdeen, NC 28315  
 Office: 910-420-1437 Fax: 910-420-1438  
 lkceengineering.com License No. P-1095

Harnett County Schools  
**HIGHLAND ELEMENTARY ADDITION & RENOVATION**  
 1915 Buffalo Lake Road - Sanford, NC 27332

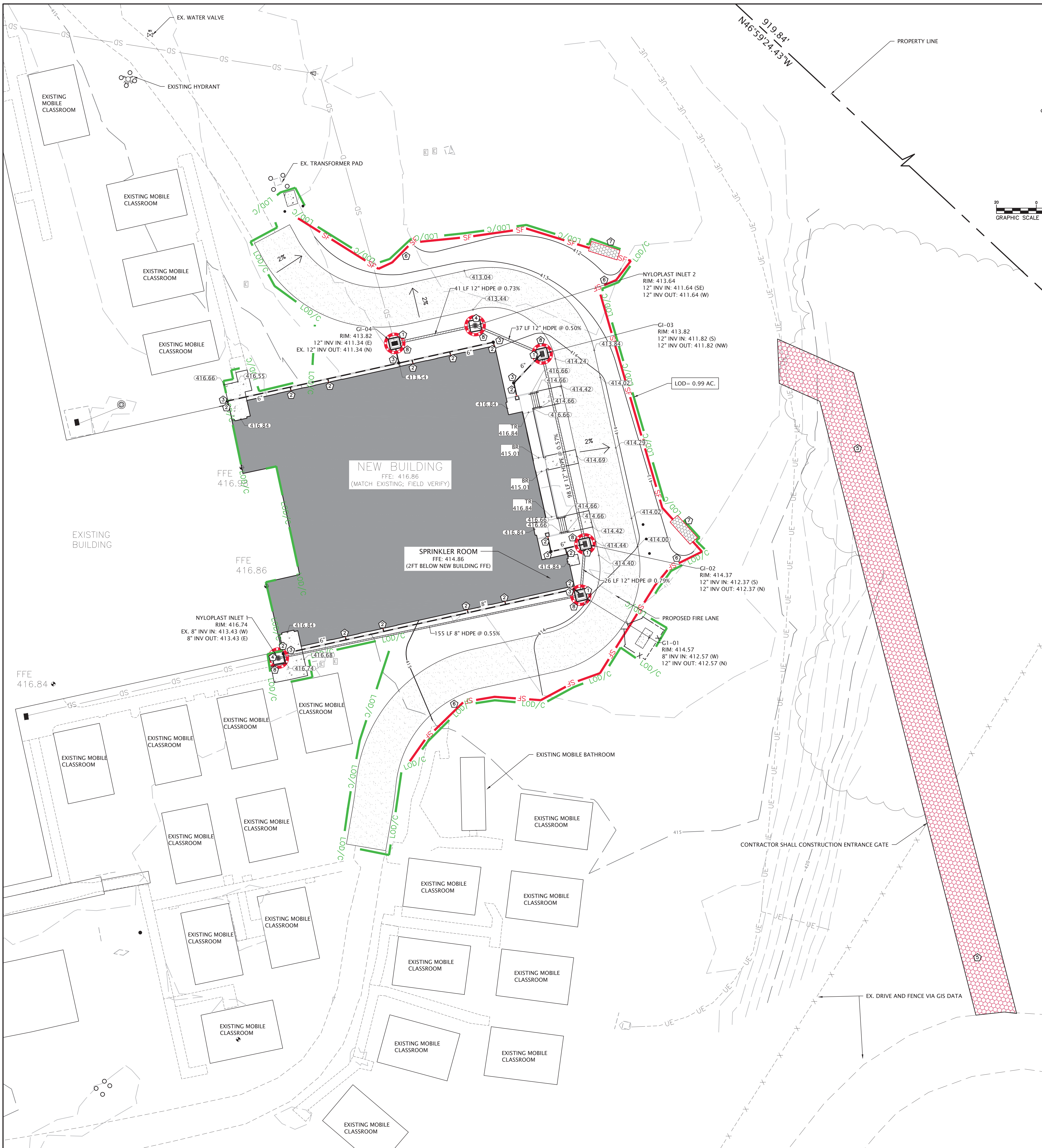
ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
	10/07/2022	ISSUE DATE:
	02110.100	PROJECT #:
	BS	DRAWN BY:
	PAP	CHECKED BY:

© 2020 Sfl+a Architects, PA  
 All Rights Reserved

SITE LAYOUT PLAN





**NOTES:**

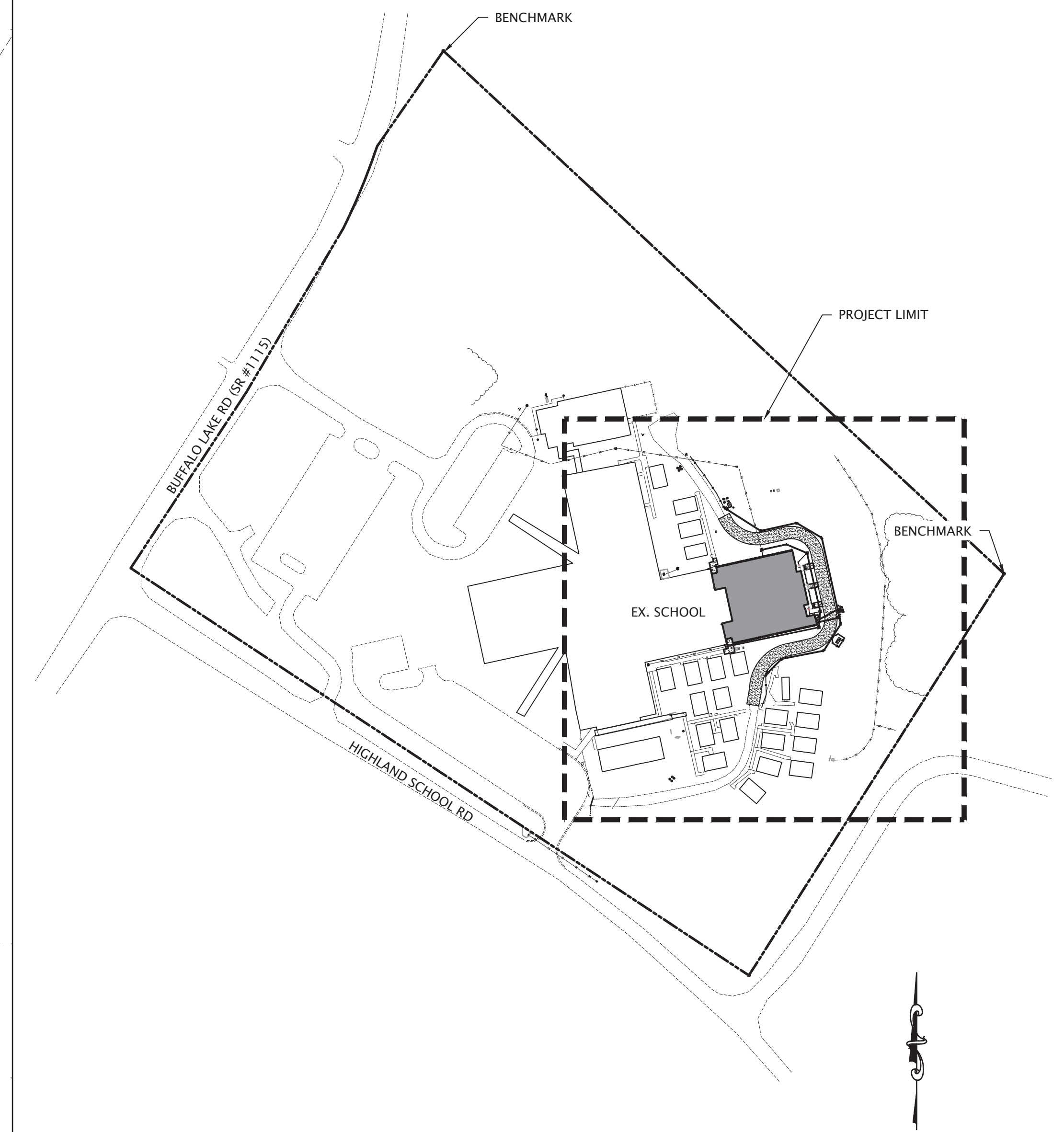
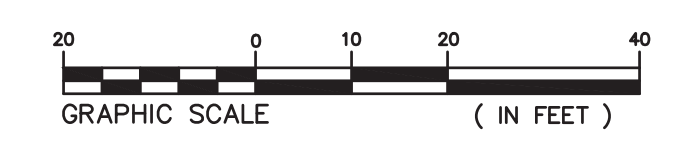
1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THE GENERAL NOTES, LEGEND AND ABBREVIATIONS SHEET, SHEET C-100 SHALL APPLY TO THIS PLAN.
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL HARNETT COUNTY STANDARDS AND SPECIFICATIONS.
3. CONTRACTOR SHALL ENSURE THAT THE EXISTING UTILITIES ARE LOCATED AND MARKED PRIOR TO INSTALLATION OF NEW UTILITIES.
4. ALL DISTURBED AREAS TO BE STABILIZED DURING CONSTRUCTION WITH SEED MIXTURES AS PER DETAIL SHT. D201, #6. PERMANENT SEEDING SHALL BE FESTUCA ARUNDINACEA.
5. SEE ARCHITECTURAL PLANS FOR ROOF DRAIN DOWNSOUTS

**DRAINAGE/EROSION CONTROL KEY NOTING:**

SYMBOL	DESCRIPTION	SHEET REFERENCE
⊙	INSTALL GRATE INLET W/FRAME AND GRATE	SEE SHT. D-201, #1,2
⊕	INSTALL DOWNSPOUT CONNECTION	SEE SHT. D-201, #3
⊖	INSTALL STORM DRAIN CLEANOUTS	SEE SHT. D-201, #4
⊗	INSTALL 18" NYLOPLAST DRAIN INLET	SEE SHT. D-201, #10
⊘	INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	SEE SHT. D-301, #1
⊙	INSTALL TEMPORARY SILT FENCE	SEE SHT. D-301, #2
⊕	INSTALL TEMPORARY SILT FENCE OUTLET	SEE SHT. D-301, #4
⊖	INSTALL TEMPORARY INLET PROTECTION	SEE SHT. D-301, #5

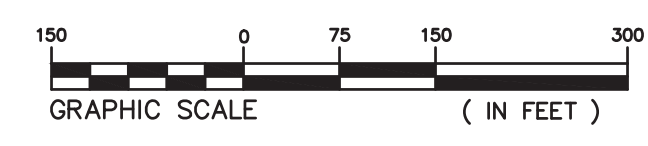
**DOWNSPOUT PIPE NOTES:**

1. ALL PIPING FROM DOWNSPOUTS TO STORM DRAIN INLETS SHALL BE NON-PRESSURE RATED PVC PIPE (SEE PLAN FOR SIZE).
2. STORM DRAIN CLEANOUTS SHALL BE PLACED AT ALL BENDS.
3. PIPING FROM DOWNSPOUTS SHALL HAVE A MIN. 1.0 % GRADE.



**SITE MAP**

(NOTE: SOME DATA OBTAINED THROUGH HARNETT COUNTY GIS.)



...Becoming the  
Leading Designer of  
High Performance Facilities  
in the Nation with a  
Specialty in Alternative  
Delivery Methods

333 Fayetteville St, Ste 225  
Raleigh, NC 27601  
P: 919-573-6390  
F: 919-573-6395  
www.sfl+a.biz

**sfl+a**  
ARCHITECTS

ARCHITECTS  
CERT. NO.  
50676  
FAYETTEVILLE, NC  
11-16-22

SEAL  
043255  
MURRAY A. PICEANO  
REGISTERED PROFESSIONAL ENGINEER  
11-16-22

**FOR CONSTRUCTION SET**

**LKC**  
Engineering  
Landscape Architecture  
Surveying

140 Auga Shed Ct., Aberdeen, NC 28315  
Office: 910-420-1437 Fax: 910-420-1438  
lkceengineering.com License No. P-1095

Harnett County Schools

**HIGHLAND ELEMENTARY ADDITION & RENOVATION**

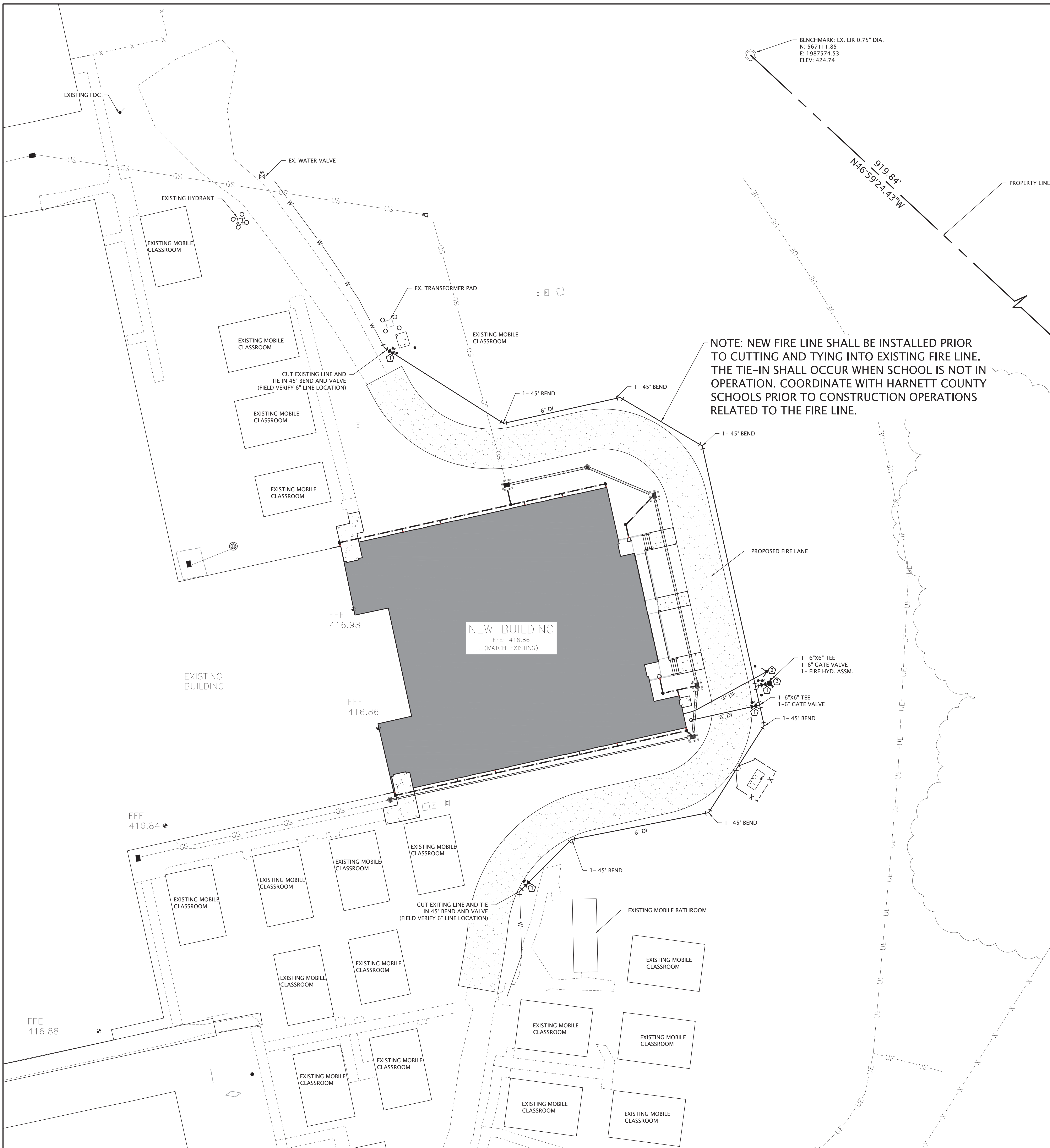
1915 Buffalo Lake Road - Sanford, NC 27332

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
ISSUE DATE:	10/07/2022	
PROJECT #:	02110.100	
DRAWN BY:	BS	
CHECKED BY:	PAP	
© 2020 Sfl+a Architects, PA All Rights Reserved		

GRADING,  
DRAINING, AND  
EROSION CONTROL  
PLAN





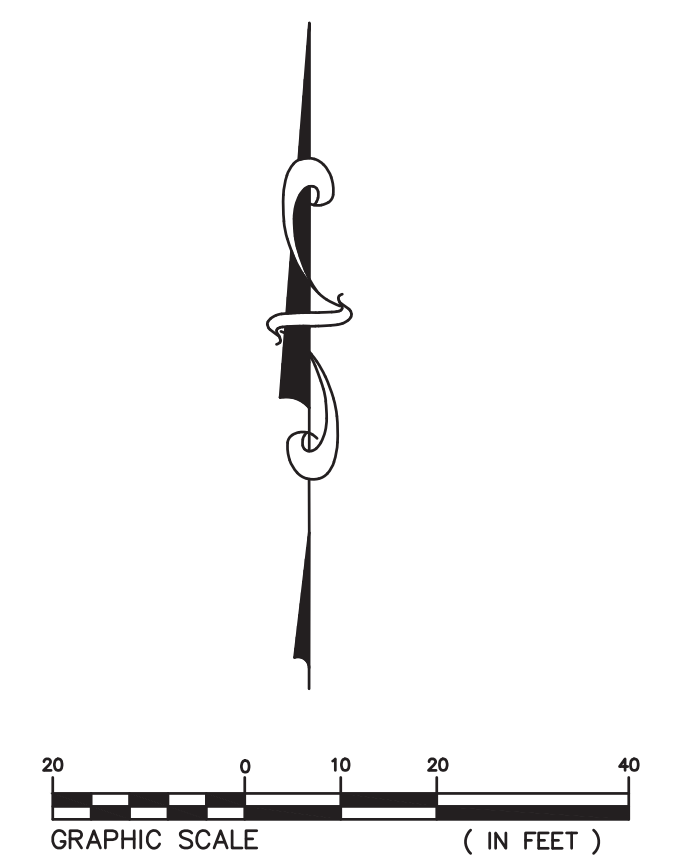
NOTE: NEW FIRE LINE SHALL BE INSTALLED PRIOR TO CUTTING AND TYING INTO EXISTING FIRE LINE. THE TIE-IN SHALL OCCUR WHEN SCHOOL IS NOT IN OPERATION. COORDINATE WITH HARNETT COUNTY SCHOOLS PRIOR TO CONSTRUCTION OPERATIONS RELATED TO THE FIRE LINE.

**NOTES:**

1. ALL GENERAL NOTES, ABBREVIATIONS, SYMBOLS, AND OTHER INFORMATION INDICATED ON THE GENERAL NOTES, LEGEND AND ABBREVIATIONS SHEET, SHEET C-100 SHALL APPLY TO THIS PLAN.
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL HARNETT COUNTY STANDARDS AND SPECIFICATIONS.
3. CONTRACTOR SHALL ENSURE THAT THE EXISTING WATERLINES, GRAVITY SANITARY SEWER LINES AND FORCE MAIN ARE LOCATED AND MARKED PRIOR TO INSTALLATION OF NEW UTILITIES.
4. TRACER WIRE IS TO BE INSTALLED PER DETAIL D-501 #3.
5. SEE DETAIL SHEETS D-401 AND D-501 FOR WATERLINE NOTES BY HARNETT COUNTY.

**UTILITY KEY NOTING:**

SYMBOL	DESCRIPTION	SHEET REFERENCE
⬠	INSTALL GATE VALVE	SEE SHT. D-601, #2;3
⊕	INSTALL STORZ FIRE DEPARTMENT CONNECTION	SEE SHT. D-601, #4
⊕	INSTALL FIRE HYDRANT ASSEMBLY	SEE SHT. D-601, #5



**SITE MAP**  
(NOTE: SOME DATA OBTAINED THROUGH HARNETT COUNTY GIS.)

...Becoming the  
Leading Designer of  
High Performance Facilities  
in the Nation with a  
Specialty in Alternative  
Delivery Methods

333 Fayetteville St, Ste 225  
Raleigh, NC 27601  
P: 919-573-6350  
F: 919-573-6355  
www.sfl+a.biz

**sfl+a**  
ARCHITECTS

ARCHITECTS  
REGISTERED PROFESSIONAL ARCHITECTS  
CERT. NO. 50676  
FAYETTEVILLE, NC

SEAL  
043255  
ENGINEER  
MICHAEL A. PICEANO  
11-10-22

FOR CONSTRUCTION SET

**LKC**  
Engineering  
Landscape Architecture  
Surveying

140 Auga Shed Ct., Aberdeen, NC 28315  
Office: 910-420-1437 Fax: 910-420-1438  
lkceengineering.com License No. P-1095

Harnett County Schools

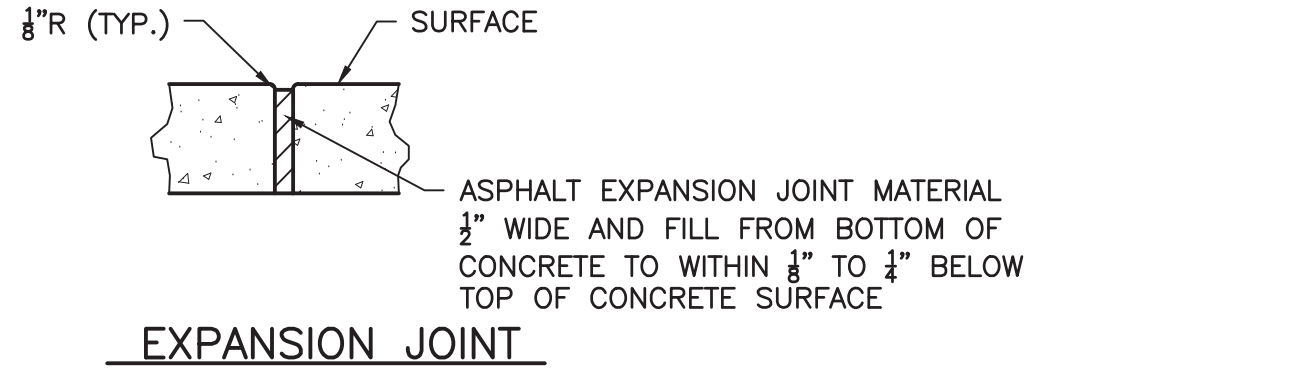
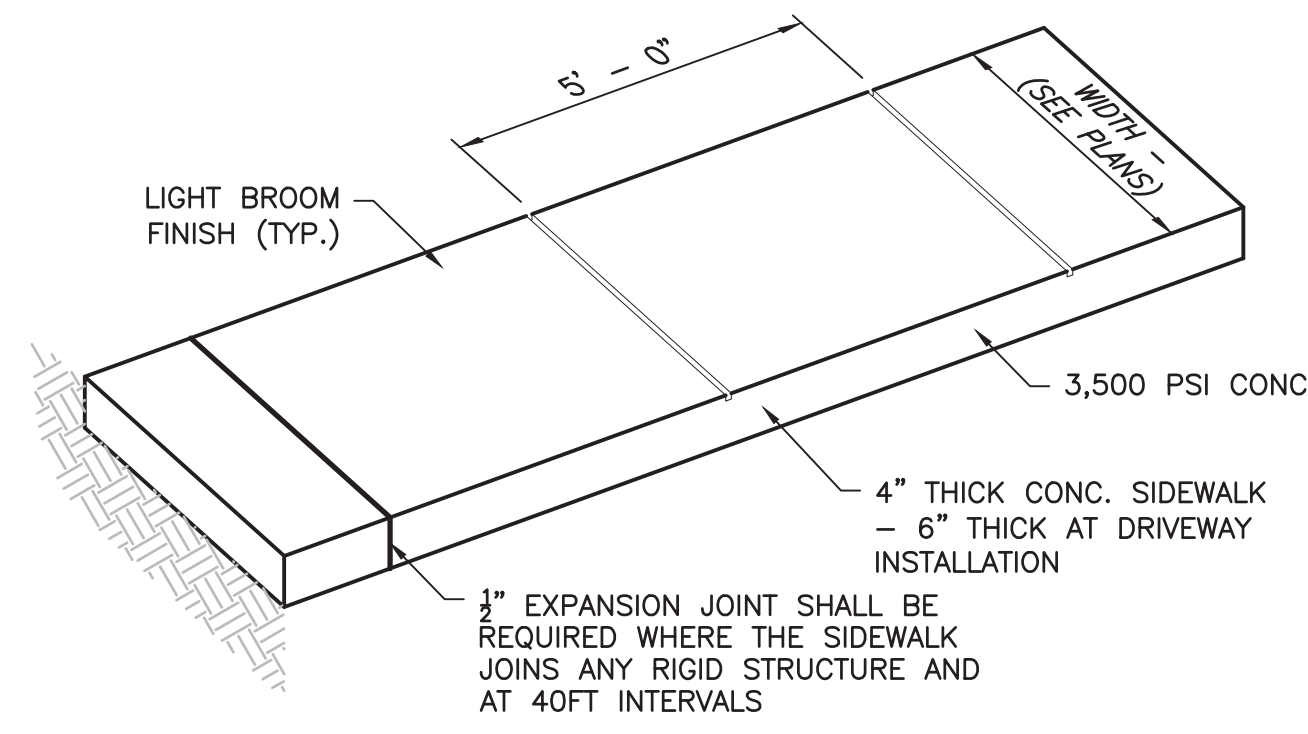
**HIGHLAND ELEMENTARY ADDITION & RENOVATION**

1915 Buffalo Lake Road - Sanford, NC 27332

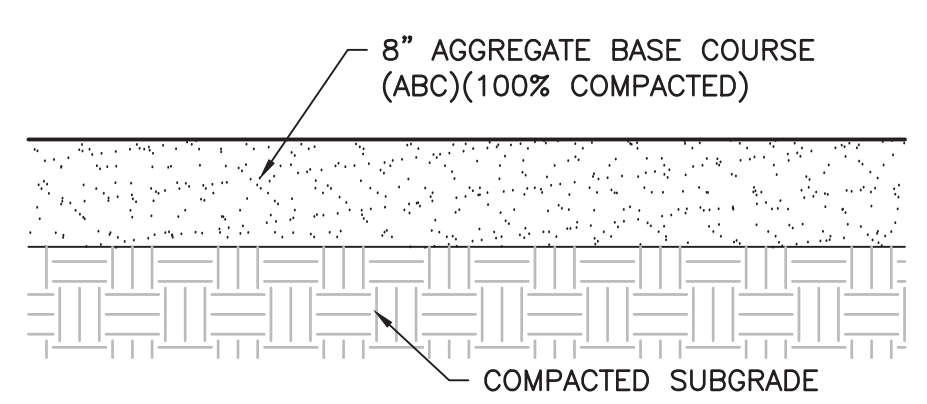
ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
ISSUE DATE:	10/07/2022	
PROJECT #:	02110.100	
DRAWN BY:	BS	
CHECKED BY:	PAP	
© 2020 Sfl+a Architects, PA All Rights Reserved		

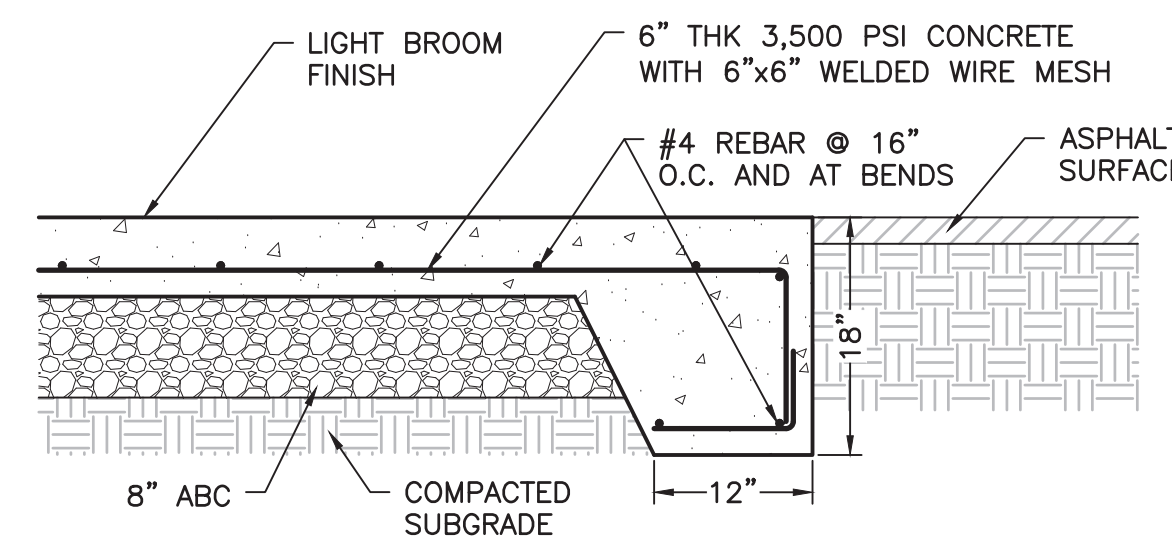




1 CONCRETE SIDEWALK

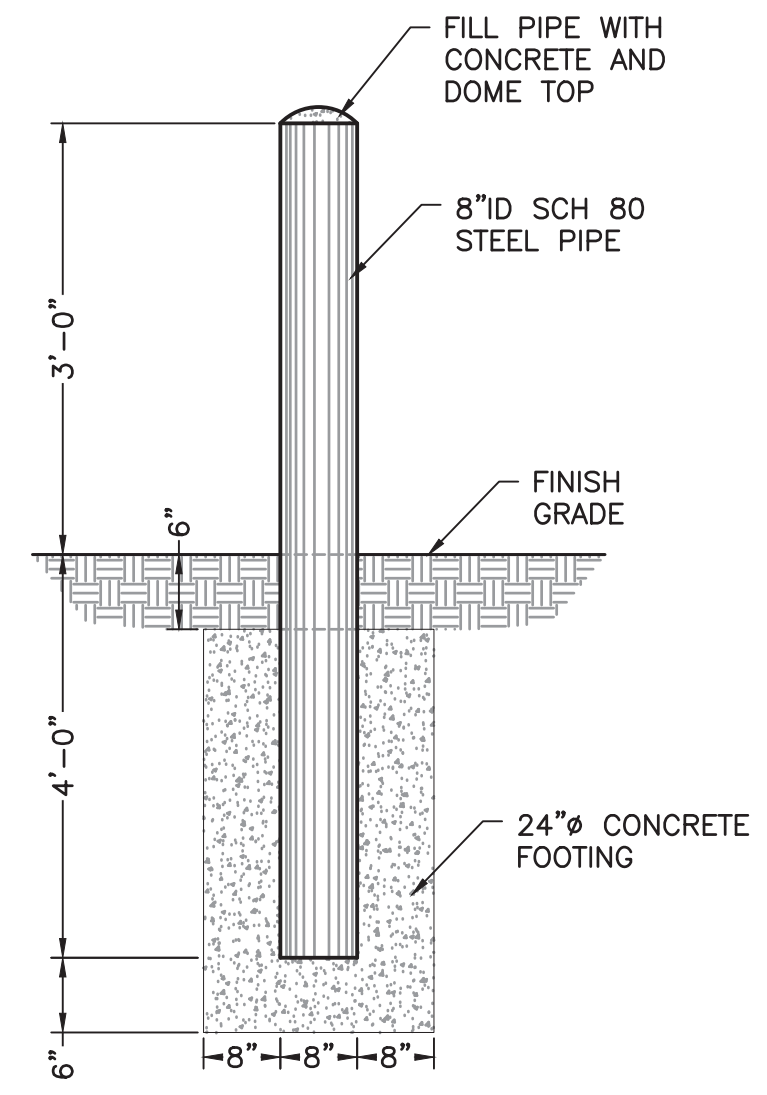


2 ABC GRAVEL PAVEMENT/PAD SECTION

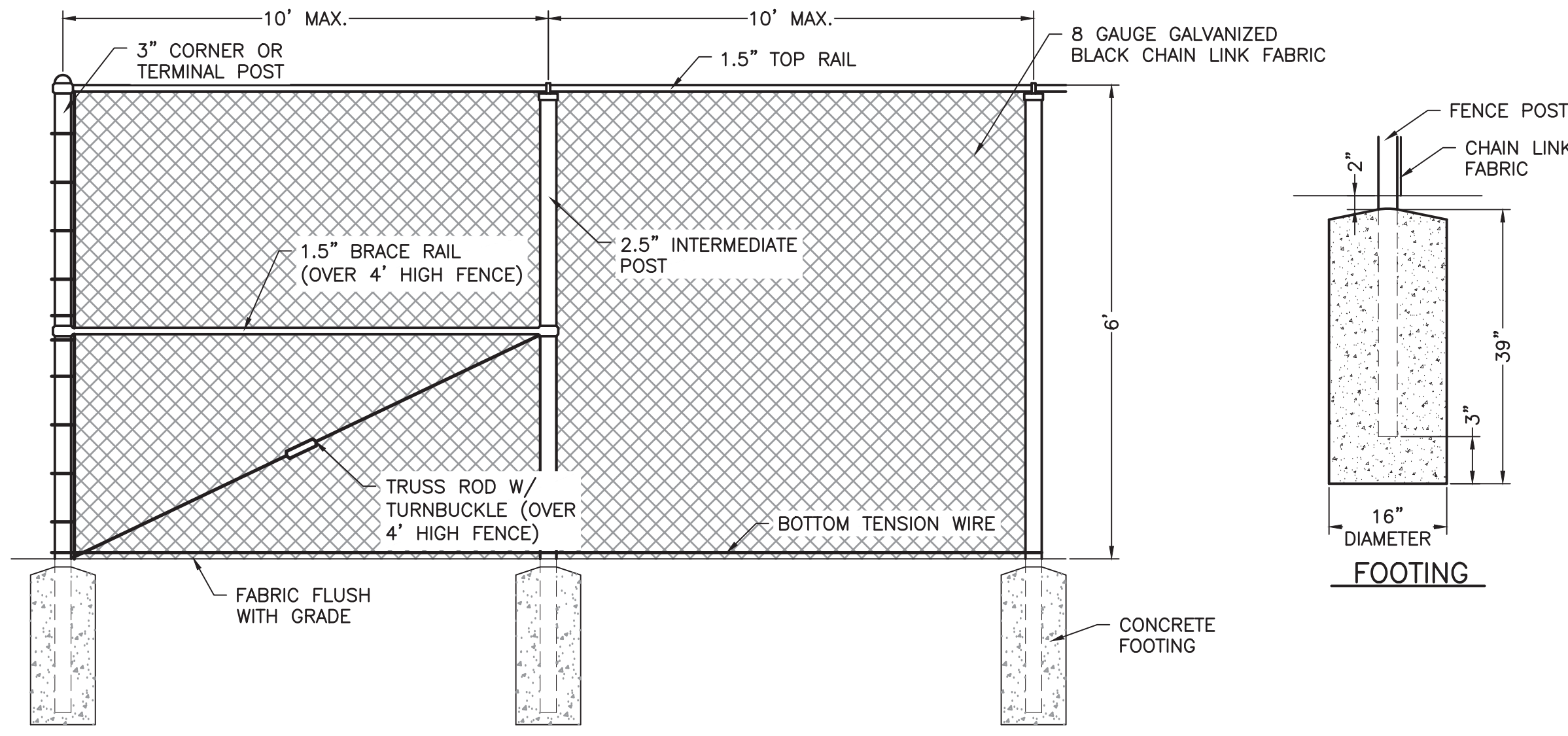


NOTE:  
CONTROL JOINTS TO BE PLACE AT 20' INTERVALS

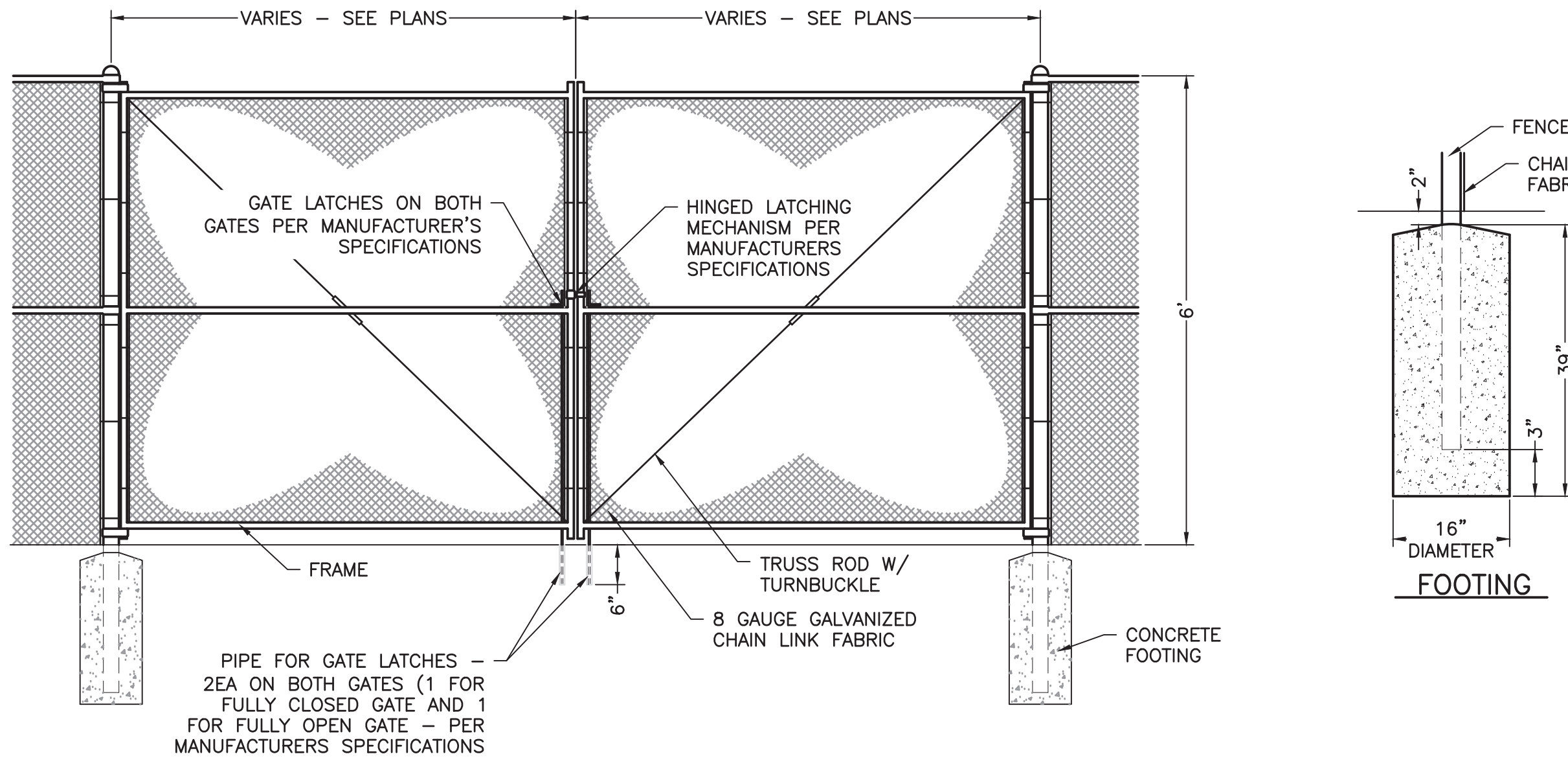
3 CONCRETE PAVEMENT



4 CONCRETE FILLED BOLLARD



6 6' BLACK CHAIN LINK FENCE



7 DOUBLE SWING GATES

...Becoming the  
Leading Designer of  
High Performance Facilities  
in the Nation with a  
Specialty in Alternative  
Delivery Methods

333 Fayetteville St, Ste 225  
Raleigh, NC 27601  
P: 919-573-6350  
F: 919-573-6355  
www.sfl+a.biz

**sfl+a**  
ARCHITECTS

ARCHITECTS  
REGISTERED PROFESSIONAL ARCHITECTS  
CERT. NO. 50676  
FAYETTEVILLE, NC  
FAYETTEVILLE, NC

SEAL  
043255  
ENGINEER  
MULIP A. PICEANO  
11-16-22

FOR CONSTRUCTION SET

**LKC**  
Engineering  
Landscape Architecture  
Surveying  
140 Angus Shed Ct., Aberdeen, NC 28315  
Office: 910-420-1437 Fax: 910-420-1438  
lkceengineering.com License No. P-1095

Harnett County Schools  
**HIGHLAND ELEMENTARY ADDITION & RENOVATION**  
1915 Buffalo Lake Road - Sanford, NC 27332

ENERGY STAR PARTNER

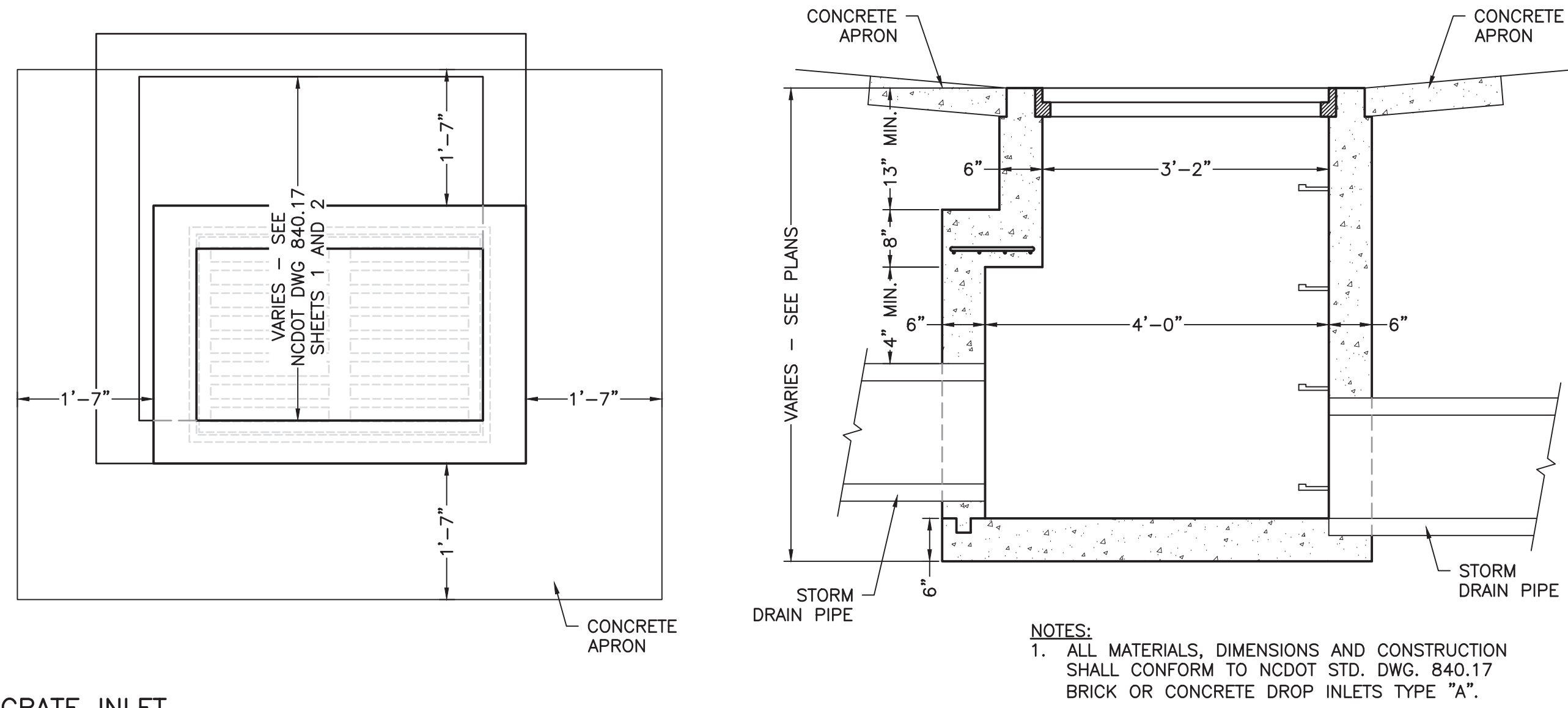
ID	DATE	DESCRIPTION
ISSUE DATE:	10/07/2022	
PROJECT #:	02110.100	
DRAWN BY:	BS	
CHECKED BY:	PAP	

© 2020 Sfl+a Architects, PA  
All Rights Reserved

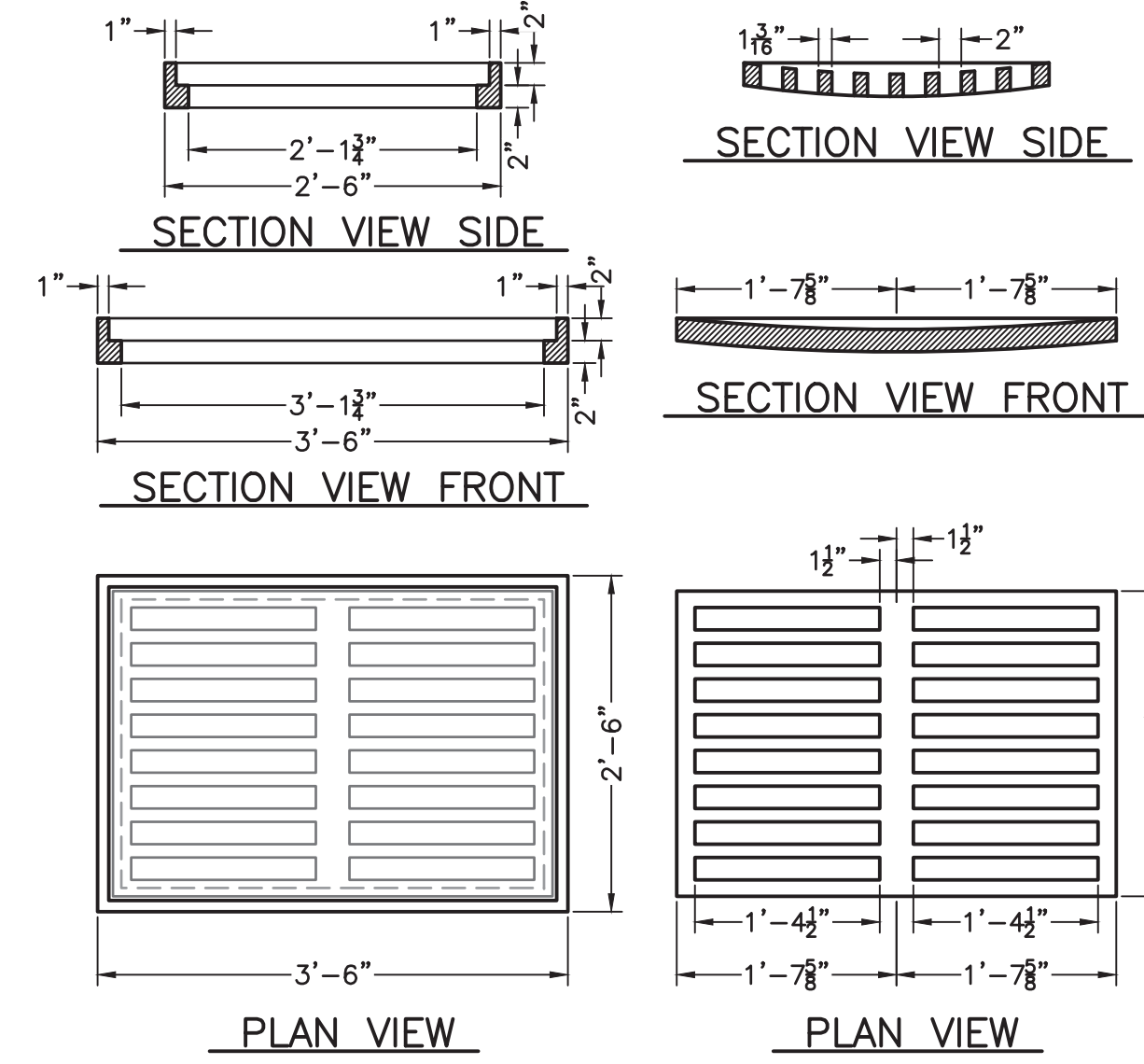
SITE DETAILS



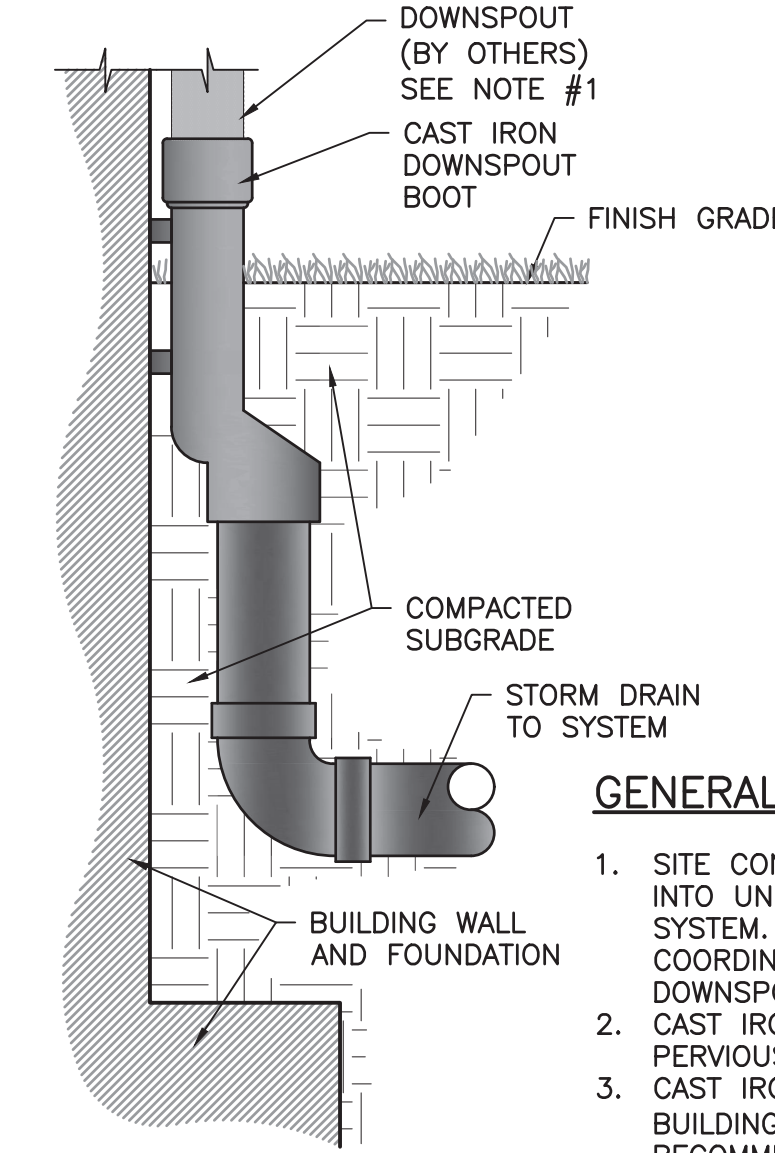
NOTE: CONCRETE APRON NOT REQUIRED



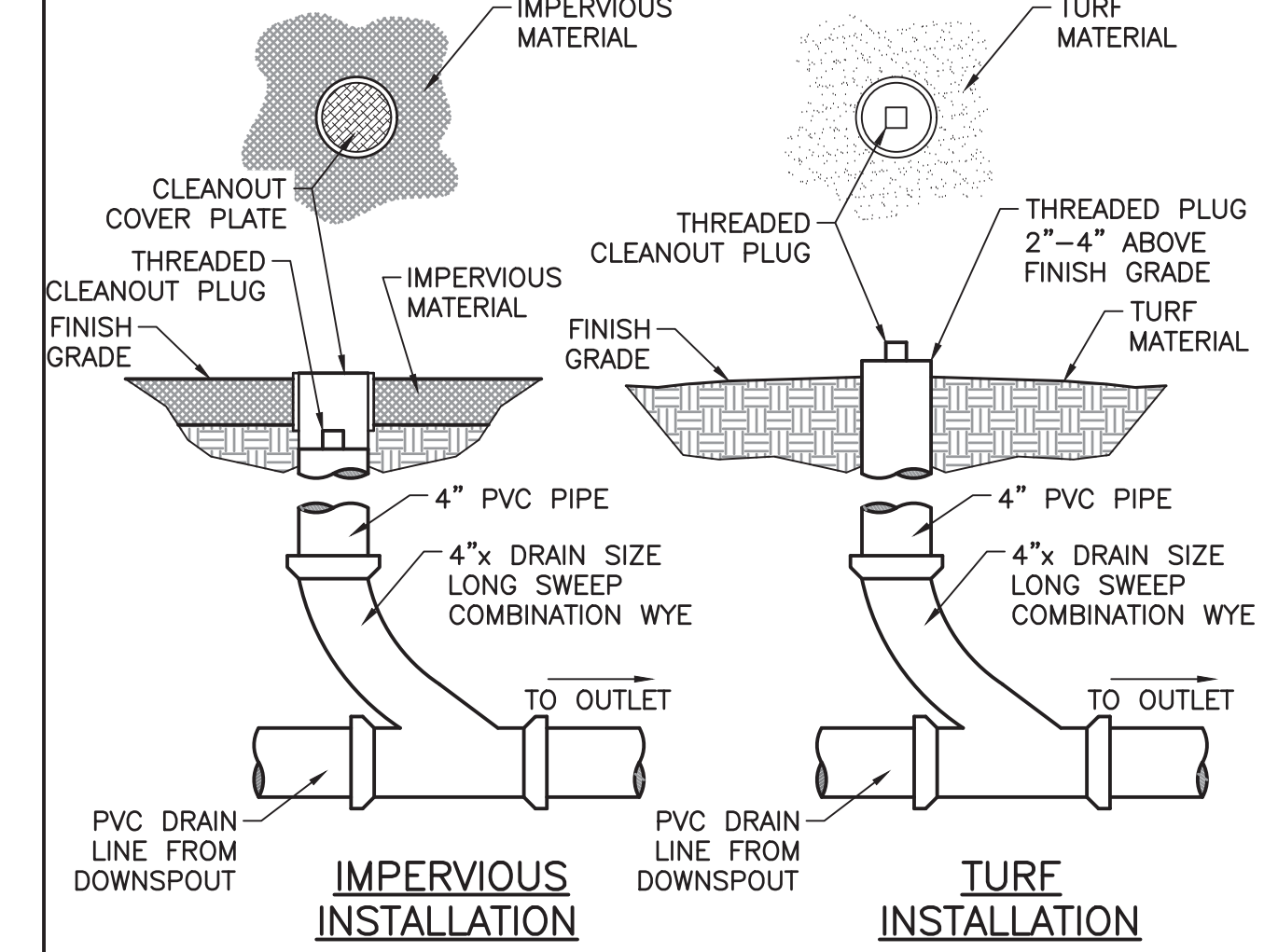
1 GRATE INLET



2 24"x36" FRAME AND GRATE



3 DOWNSPOUT TO DRAINAGE TIE-IN



4 STORM DRAIN CLEANOUT

STORM DRAIN PIPE NOTES:

1. ALL STORM DRAINAGE SHALL BE RCP UNLESS OTHERWISE INDICATED.
2. STORM DRAINAGE PIPING IN ANY NCDOT RIGHT-OF-WAY SHALL CLASS 4 OR BETTER AND STAMPED FOR NCDOT.
3. STORM DRAINAGE PIPING IN NON-NCDOT RIGHT-OF-WAY UNDER PAVEMENT SHALL BE CLASS 4 OR BETTER, STAMP NOT REQUIRED.
4. COMPLETE RUNS OF STORM DRAINAGE PIPING NOT UNDER PAVEMENT SHALL BE CLASS 3 OR BETTER.

STORM DRAIN PIPE SEPARATION NOTES:

1. THE MINIMUM VERTICAL CLEARANCE BETWEEN STORM DRAINAGE AND SANITARY SEWER LINES SHALL BE 24-INCHES UNLESS DUCTILE IRON IS SPECIFIED FOR THE SANITARY SEWER LINES.
2. STORM DRAINAGE PIPE HAVING WATER MAINS CROSSING OVER, OR UNDER MUST MAINTAIN A VERTICAL SEPARATION OF AT LEAST 24-INCHES. IN ADDITION, IF A WATER MAIN MUST CROSS UNDER A STORM DRAINAGE PIPE, THE WATER MAIN SHALL BE MADE OF DUCTILE IRON FOR A MINIMUM OF 10 FEET ON BOTH SIDES OF THE CROSSING.

5 STORM DRAIN PIPE NOTES

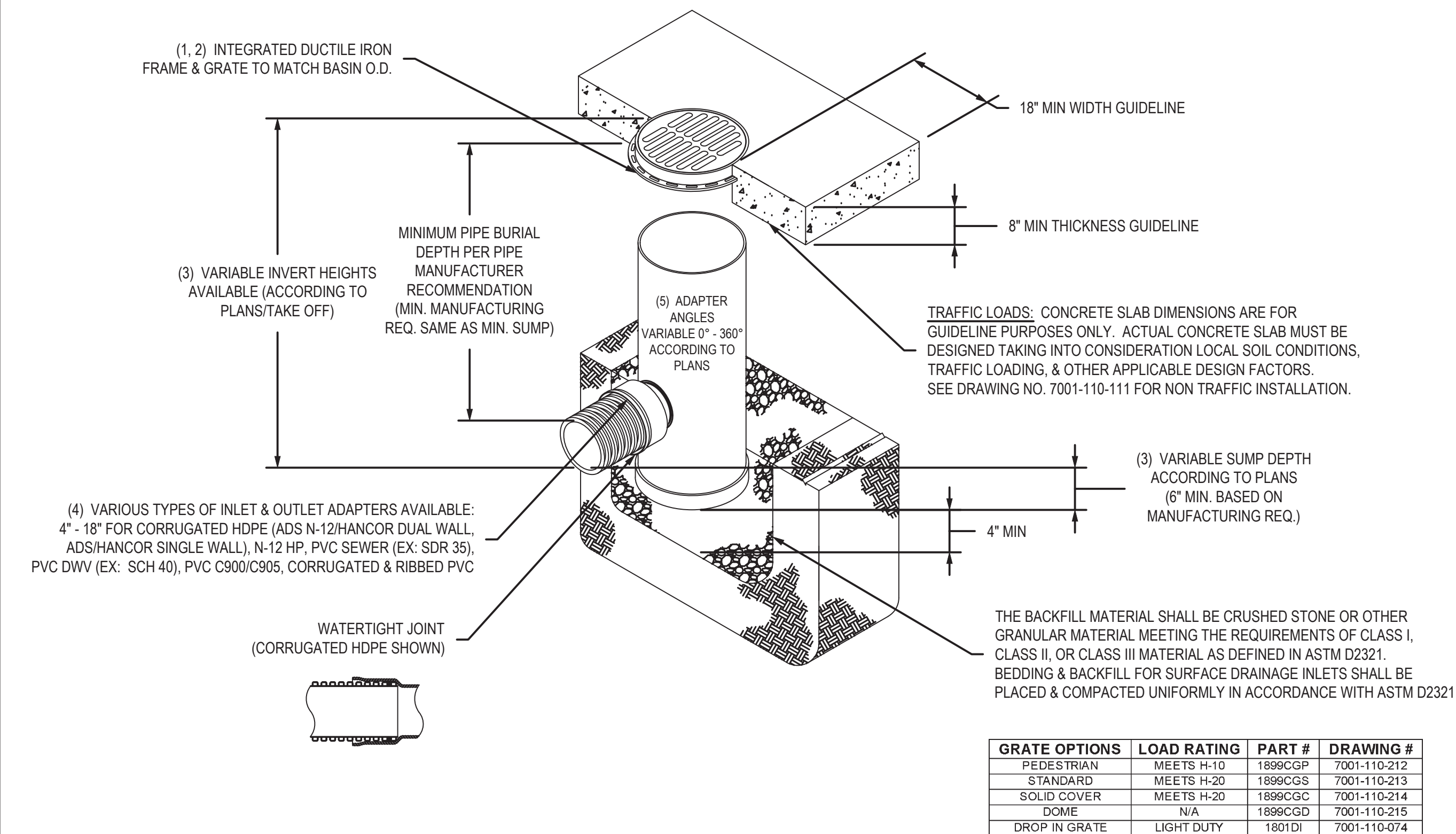
6

7

8

9

NYLOPLAST 18" DRAIN BASIN: 2818AG \_\_ X



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	1899CGP	7001-110-212
STANDARD	MEETS H-20	1899CGS	7001-110-213
SOLID COVER	MEETS H-20	1899CGC	7001-110-214
DOME	N/A	1899CGD	7001-110-215
DROP IN GRATE	LIGHT DUTY	1891DI	7001-110-274

1. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D2321 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
5. ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°, TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

THIS PRINT DISCLOSES SUBJECT MATTER IN WHICH NYLOPLAST HAS PROPRIETARY RIGHTS. THE RECEIPT OR POSSESSION OF THIS PRINT DOES NOT CONFER, TRANSFER, OR LICENSE THE USE OF THE DESIGN OR TECHNICAL INFORMATION SHOWN HEREIN. REPRODUCTION OF THIS PRINT OR ANY INFORMATION CONTAINED HEREIN, OR MANUFACTURE OF ANY ARTICLE HEREFROM FOR THE DISCLOSURE TO OTHERS IS FORBIDDEN, EXCEPT BY SPECIFIC WRITTEN PERMISSION FROM NYLOPLAST.

DRAWN BY: EBC  
 DATE: 04-03-06  
 MATERIAL:  
 REVISIONS:  
 DATE: 03-14-16  
 PROJECT NO./NAME:  
 TITLE: 18 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL.  
 DWG NO.: 7001-110-191  
 REV: E

RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4" (100mm)	21" (533mm)
6" (150mm)	25" (635mm)
8" (200mm)	26" (660mm)
10" (250mm)	28" (711mm)
12" (300mm)	30" (762mm)
15" (375mm)	34" (864mm)
18" (450mm)	39" (991mm)
24" (600mm)	48" (1219mm)
30" (750mm)	56" (1422mm)
36" (900mm)	64" (1626mm)
42" (1050mm)	72" (1829mm)
48" (1200mm)	80" (2032mm)
60" (1500mm)	96" (2438mm)

MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS\*

PIPE DIAM.	SURFACE LIVE LOADING CONDITION		HEAVY CONSTRUCTION (75T AXLE LOAD) *
	H-25	48"	
12" - 48" (300mm - 1200mm)	12"	48"	(1219mm)
(1500mm)	60"	24"	60"
(1500mm)	(610mm)	(610mm)	(1524mm)

\* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER \*\*SEE BACKFILL REQUIREMENTS IN NOTE 6.

MAXIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

PIPE DIAM.	CLASS I			CLASS II			CLASS III		
	COMPACTED	DUMPED	95%	90%	95%	90%	95%	90%	95%
4" (100mm)	37	18	25	18	18	18	18	18	18
6" (150mm)	44	20	28	20	21	21	21	21	21
8" (200mm)	35	17	24	17	17	17	17	17	17
10" (250mm)	38	18	26	18	18	18	18	18	18
12" (300mm)	35	17	24	17	17	17	17	17	17
15" (375mm)	38	18	26	18	18	18	18	18	18
18" (450mm)	35	17	24	17	17	17	17	17	17
24" (600mm)	28	13	20	13	14	14	14	14	14
30" (750mm)	28	13	20	13	14	14	14	14	14
36" (900mm)	26	12	18	13	13	13	13	13	13
42" (1050mm)	23	11	16	11	11	11	11	11	11
48" (1200mm)	23	11	16	11	11	11	11	11	11
60" (1500mm)	25	11	17	11	12	12	12	12	12

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12. LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:  
NO HYDROSTATIC PRESSURE,  
UNIT WEIGHT OF SOIL (γ<sub>s</sub>) = 120 PCF

COVER HEIGHTS TO MATCH TN 201

REV	DESCRIPTION	BY	MM/DD/YY	CHKD
1				

TRENCH INSTALLATION DETAIL (N-12 PER AASHTO)  
 DRAWING NUMBER: STD-101  
 464C TRUHEMAN BLVD  
 HILLIARD, OHIO 43026  
 ADVANCED DRAINAGE SYSTEMS, INC.

\*ADS N-12 OR APPROVED EQUAL

11 HDPE STORM DRAIN PIPE TRENCH DETAIL

10

...Becoming the Leading Designer of High Performance Facilities in the Nation with a Specialty in Alternative Delivery Methods

333 Fayetteville St, Ste 225  
Raleigh, NC 27601  
P: 919-573-6350  
F: 919-573-6355  
www.sfi+a.biz

**sfi+a**  
ARCHITECTS

ARCHITECTS  
REGISTERED PROFESSIONAL ENGINEERS  
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECTS  
REGISTERED PROFESSIONAL SURVEYORS  
REGISTERED PROFESSIONAL PLANNERS  
REGISTERED PROFESSIONAL INTERIORS DESIGNERS

CERT. NO. 58676  
SEAL 043255  
MULLEN A. PICE  
11-16-22

FOR CONSTRUCTION SET

**LKC**  
Engineering  
Landscape Architecture  
Surveying

140 Augs Shed Ct., Aberdeen, NC 28315  
Office: 910-420-1437 Fax: 910-420-1438  
lkceengineering.com License No. P-1095

Harnett County Schools

**HIGHLAND ELEMENTARY ADDITION & RENOVATION**

1915 Buffalo Lake Road, Sanford, NC 27332

ENERGY STAR PARTNER

DATE: 10/07/2022

PROJECT #: 02110.100

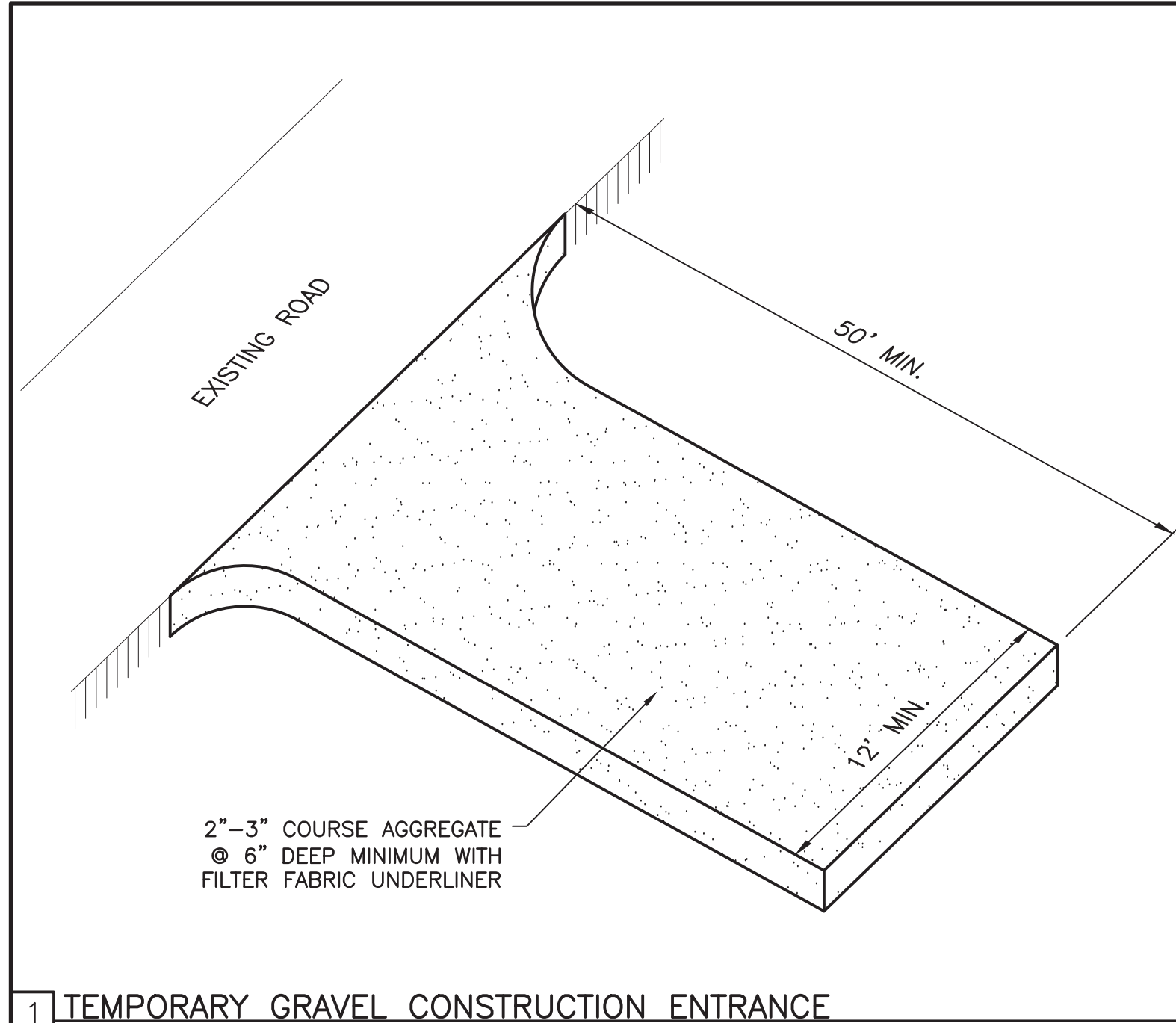
DRAWN BY: BS

CHECKED BY: PAP

© 2020 Sfi+a Architects, PA  
All Rights Reserved

DRAINAGE DETAILS





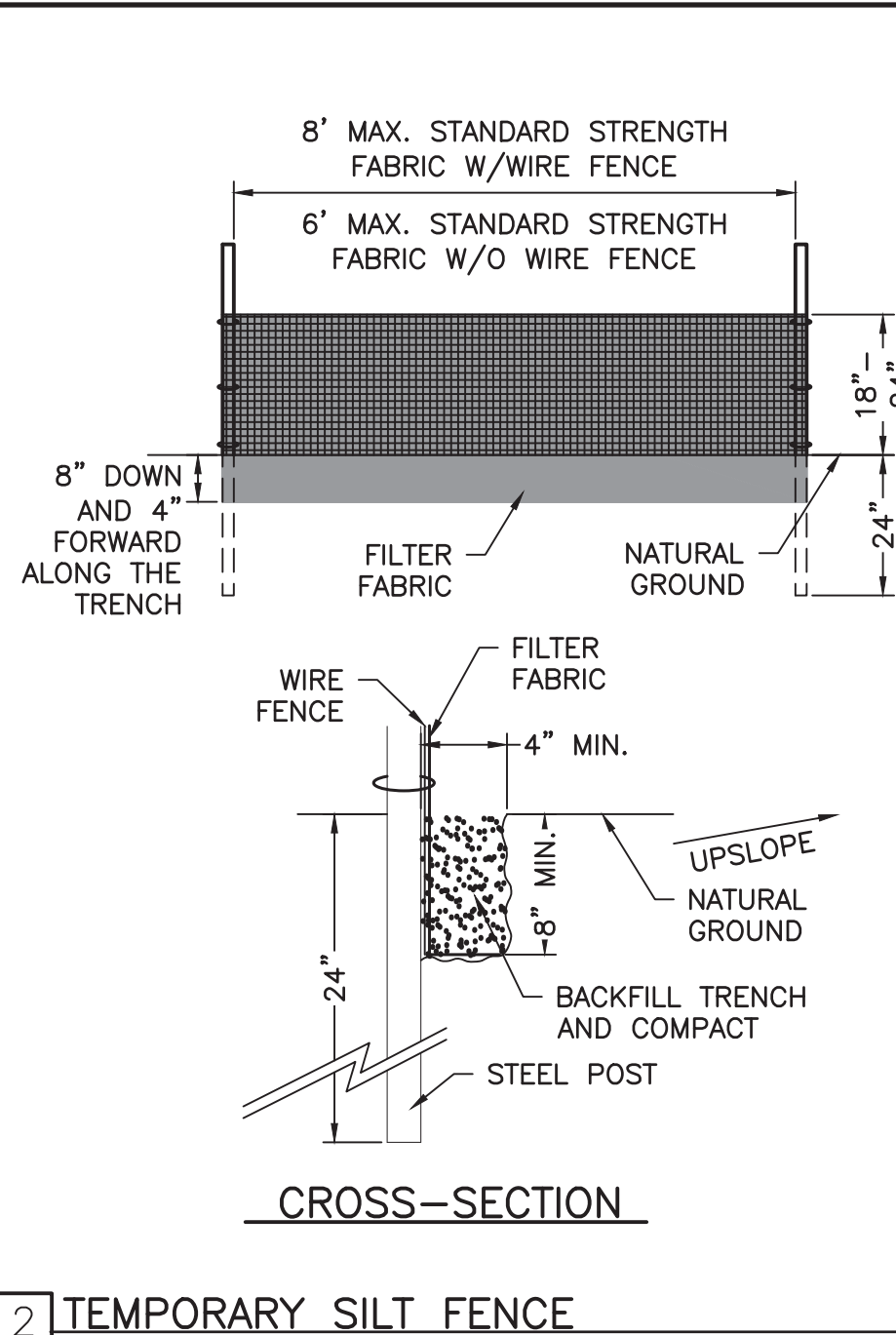
**CONSTRUCTION SPECIFICATIONS:**

1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
2. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS AND SMOOTH IT.
3. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
4. USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

**MAINTENANCE:**

MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH 2" 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.

1 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE



**CONSTRUCTION SPECIFICATIONS:**

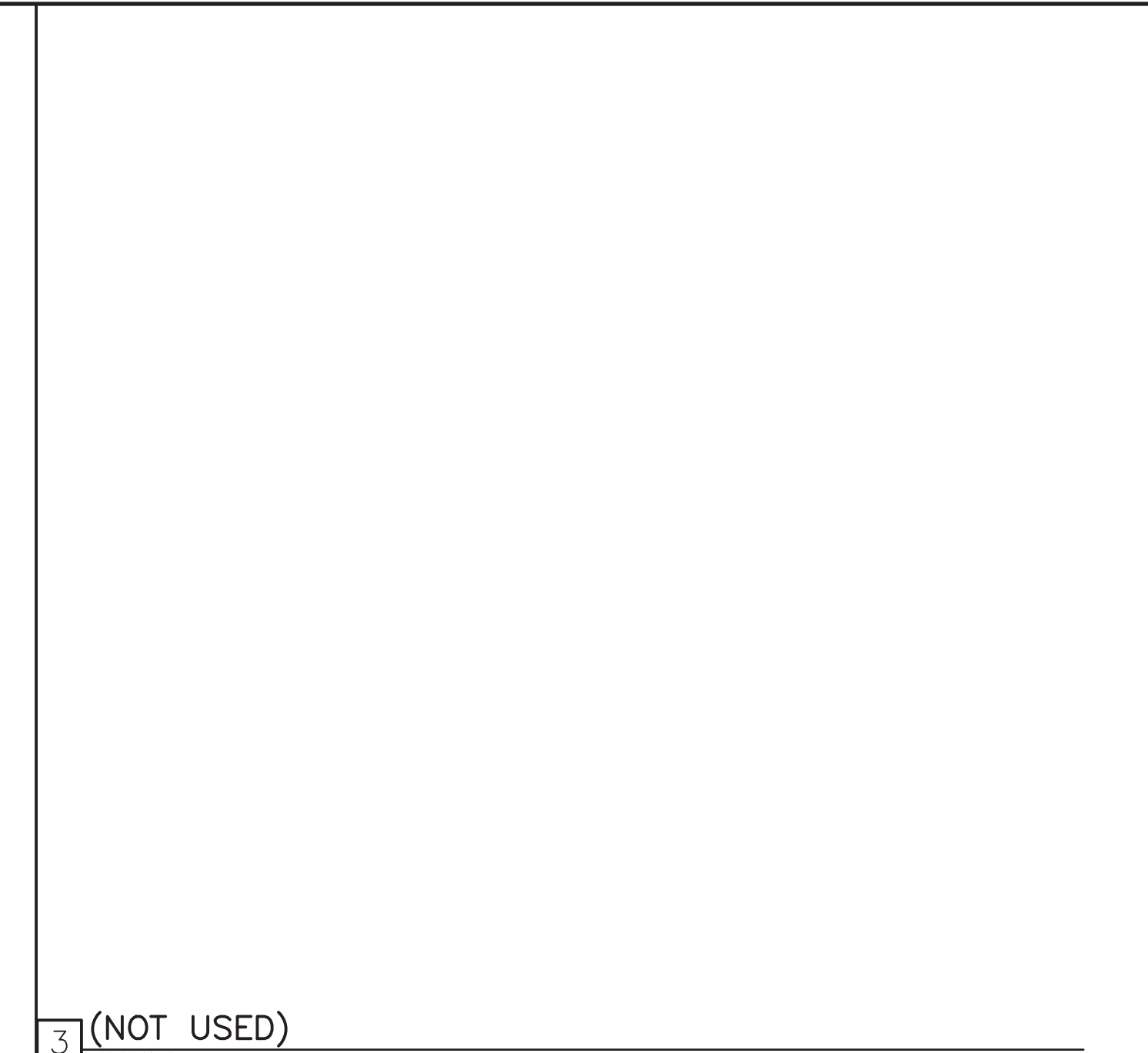
1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.
2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE THE GROUND SURFACE. (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
3. CONSTRUCT THE FILTER FABRIC FROM CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST.
4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THE FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE A MINIMUM 50 POUND TENSILE STRENGTH.
7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER (FIGURE 6.62A, NORTH CAROLINA EROSION AND SEDIMENTATION CONTROL DESIGN MANUAL).
8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.
9. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTATION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.

**MAINTENANCE:**

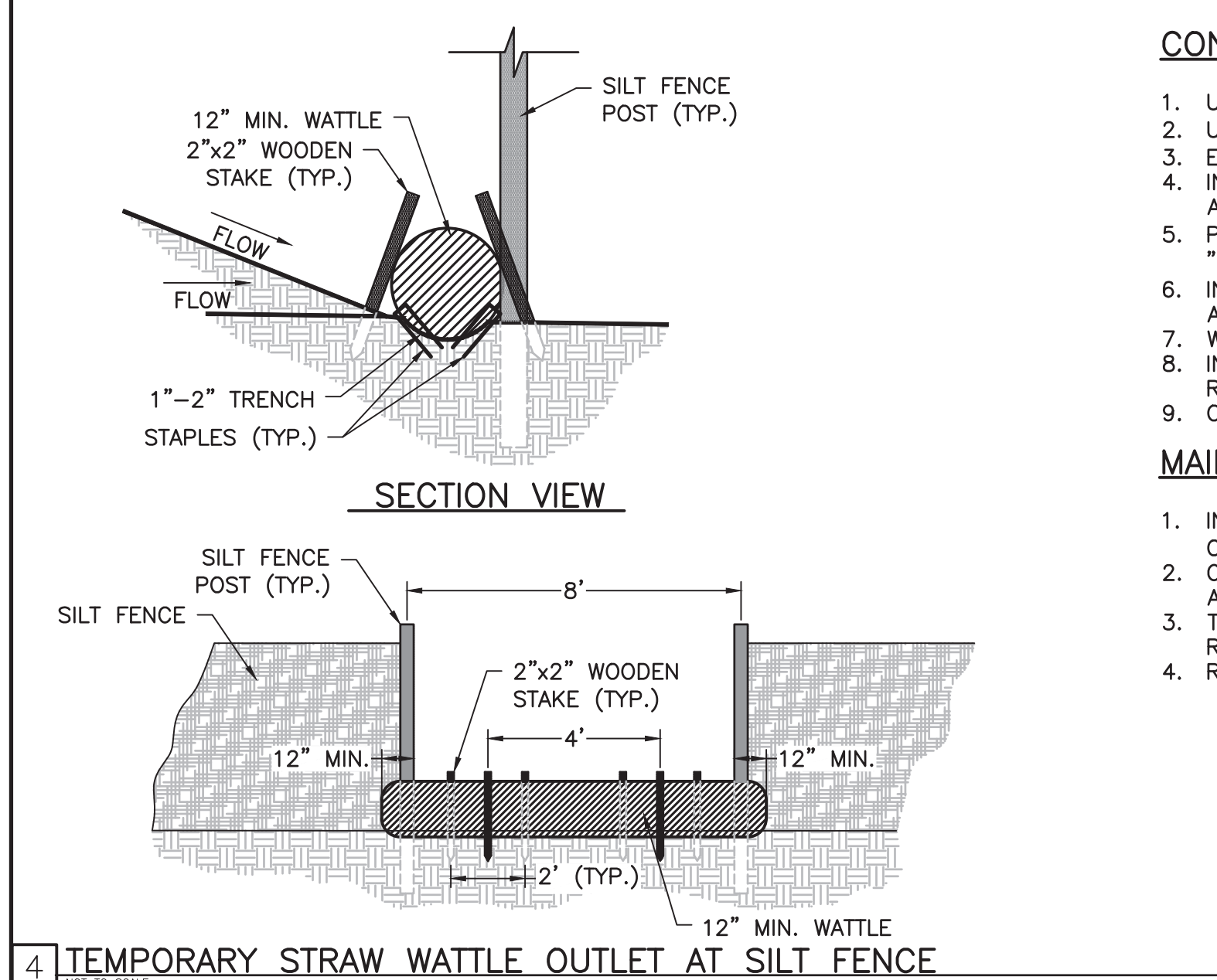
INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

CROSS-SECTION

2 TEMPORARY SILT FENCE



3 (NOT USED)



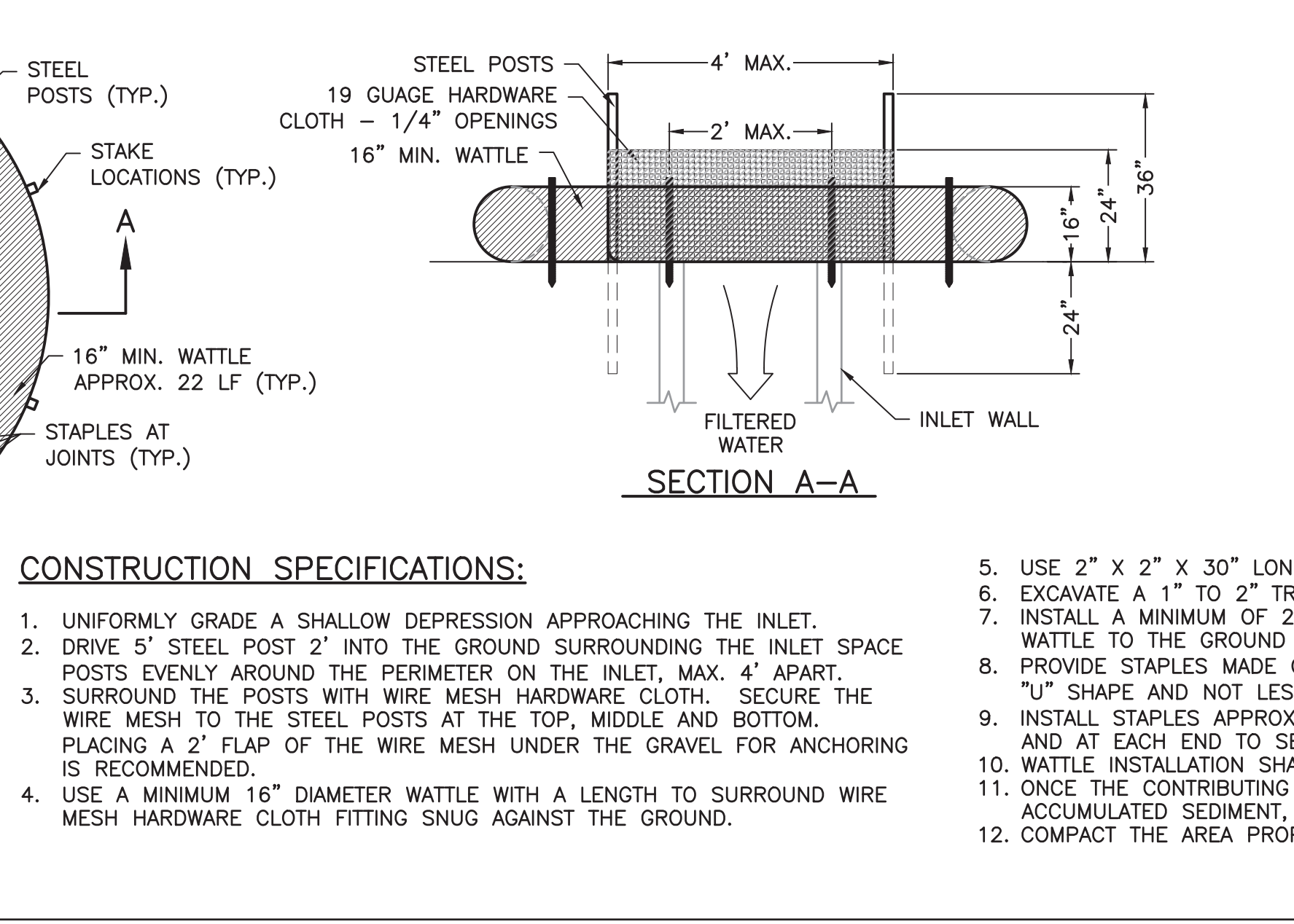
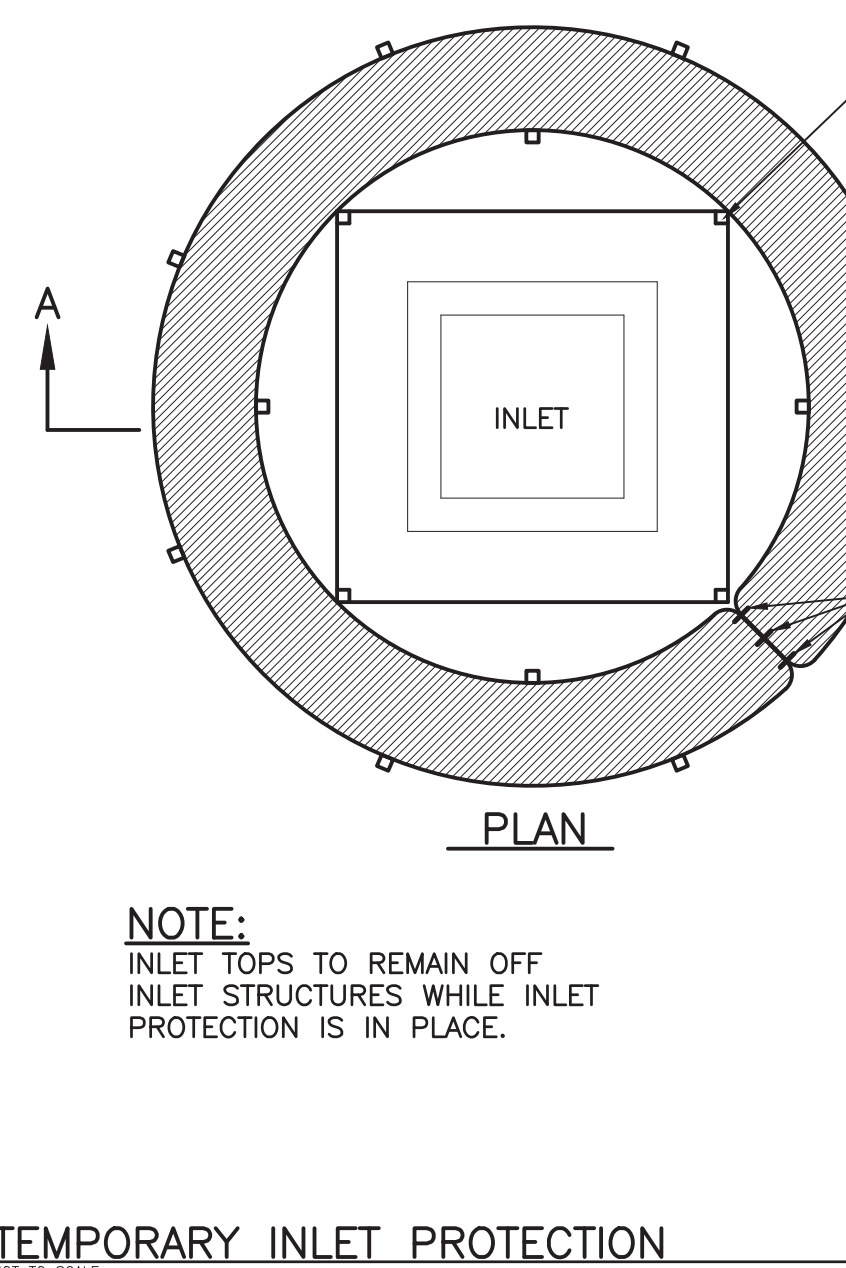
**CONSTRUCTION SPECIFICATIONS:**

1. USE A MINIMUM 12" DIAMETER WATTLE WITH A MINIMUM LENGTH OF 10 FT.
2. USE 2" X 2" X 2 FT. LONG WOODEN STAKES.
3. EXCAVATE A 1" TO 2" TRENCH FOR WATTLE TO BE PLACED.
4. INSTALL A MINIMUM OF 2 UPSLOPE AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE THE WATTLE TO THE GROUND.
5. PROVIDE STAPLES MADE OF 0.125" DIAMETER STEEL WIRE FORMED INTO A "U" SHAPE AND NOT LESS THAN 12" LENGTH.
6. INSTALL STAPLES APPROXIMATELY EVERY 12" ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
7. WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
8. INSTALL TEMPORARY SEDIMENT FENCE IN ACCORDANCE WITH NCDENR REGULATIONS.
9. OUTLETS TO BE PLACED AS SHOWN ON PLANS ALONG SILT FENCE.

**MAINTENANCE:**

1. INSPECT OUTLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2" OR GREATER) RAINFALL EVENT.
2. CLEAR THE OUTLET OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS.
3. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE OUTLET DURING SEDIMENT REMOVAL.
4. REPLACE WATTLE AS NEEDED.

4 TEMPORARY STRAW WATTLE OUTLET AT SILT FENCE

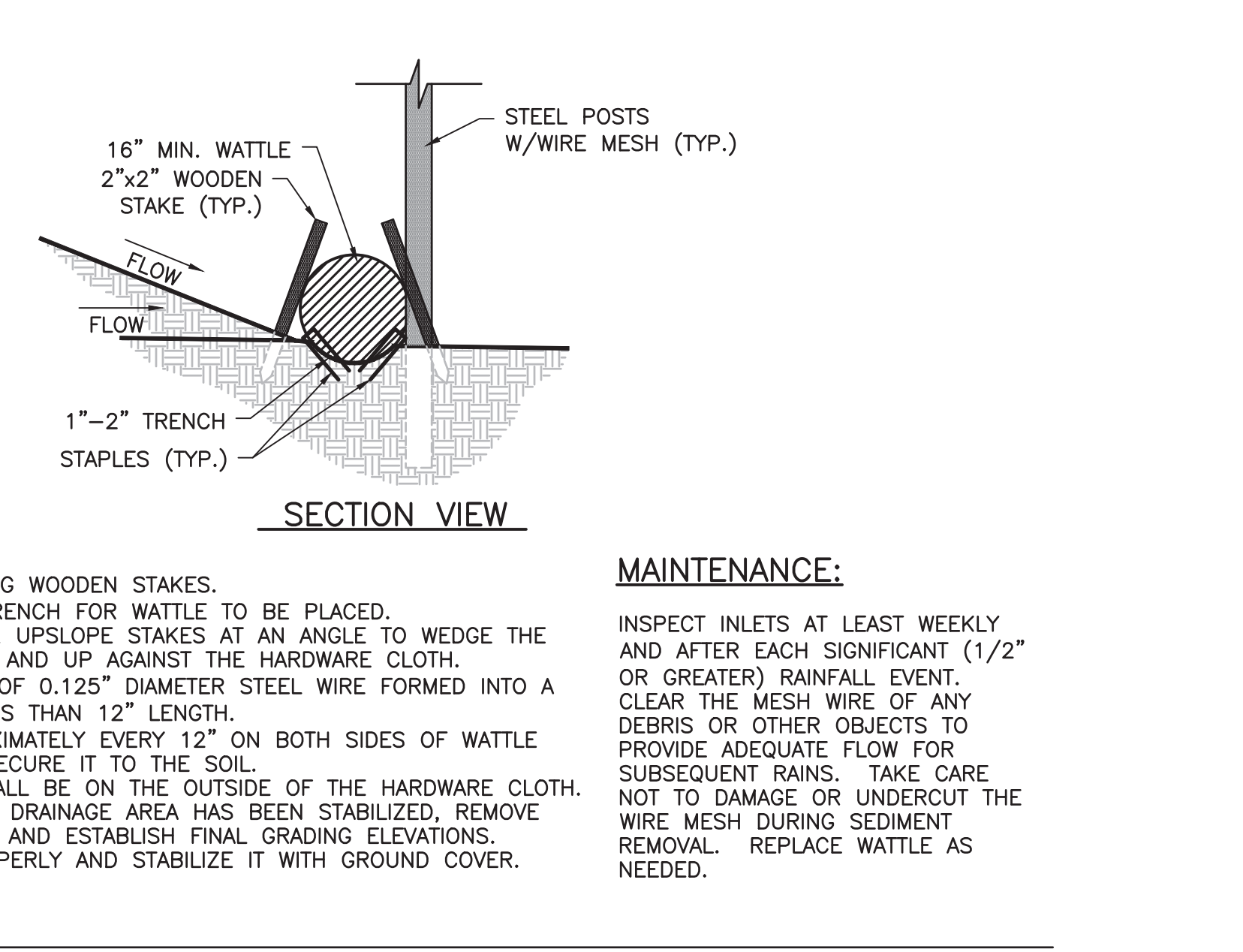


**CONSTRUCTION SPECIFICATIONS:**

1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5" STEEL POST 2" INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER ON THE INLET, MAX. 4' 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" FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. USE A MINIMUM 16" DIAMETER WATTLE WITH A LENGTH TO SURROUND WIRE MESH HARDWARE CLOTH FITTING SNUG AGAINST THE GROUND.

**NOTE:**  
INLET TOPS TO REMAIN OFF INLET STRUCTURES WHILE INLET PROTECTION IS IN PLACE.

5 TEMPORARY INLET PROTECTION



**MAINTENANCE:**

5. USE 2" X 2" X 30" LONG WOODEN STAKES.
6. EXCAVATE A 1" TO 2" TRENCH FOR WATTLE TO BE PLACED.
7. INSTALL A MINIMUM OF 2 UPSLOPE STAKES AT AN ANGLE TO WEDGE THE WATTLE TO THE GROUND AND UP AGAINST THE HARDWARE CLOTH.
8. PROVIDE STAPLES MADE OF 0.125" DIAMETER STEEL WIRE FORMED INTO A "U" SHAPE AND NOT LESS THAN 12" LENGTH.
9. INSTALL STAPLES APPROXIMATELY EVERY 12" ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
10. WATTLE INSTALLATION SHALL BE ON THE OUTSIDE OF THE HARDWARE CLOTH.
11. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
12. COMPACT THE AREA PROPERLY AND STABILIZE IT WITH GROUND COVER.

INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2" 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 SEDIMENT REMOVAL. REPLACE WATTLE AS NEEDED.

TEMPORARY SUMMER SEED MIX		
(TO BE FOLLOWED BY PERMANENT FALL SEED MIX)		
DATES	SPECIES	RATE: LB/ACRE
MAR 1 - SEP 1	GERMAN MILLET	120
TEMPORARY WINTER SEED MIX		
(TO BE FOLLOWED BY PERMANENT FALL SEED MIX)		
DATES	SPECIES	RATE: LB/ACRE
SEP 1 - MAR 1	WINTER RYE (GRAIN)	200
	KOBE LESPEDEZA	120
PERMANENT SPRING SEED MIX		
DATES	SPECIES	RATE: LB/ACRE
MAR 1 - JUL 1	PENSICOLA BAHIAGRASS	60
	COMMON BERMUDA	25
	SERICA LESPEDEZA	30
PERMANENT FALL SEED MIX		
DATES	SPECIES	RATE: LB/ACRE
SEP 1 - NOV 1	COMMON BERMUDA	30
	SERICA LESPEDEZA	30
	KOBE LESPEDEZA	10

**SOIL AMENDMENTS:**

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

**MULCH:**

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

**WATER:**

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

**MAINTENANCE:**

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

6 SEEDING SCHEDULE

...Becoming the Leading Designer of High Performance Facilities in the Nation with a Specialty in Alternative Delivery Methods

333 Fayetteville St, Ste 225  
Raleigh, NC 27601  
P: 919-573-6350  
F: 919-573-6351  
www.sfi+a.biz

**sfi+a**  
ARCHITECTS

ARCHITECTS  
REGISTERED PROFESSIONAL  
CERT. NO. 58676  
FAYETTEVILLE  
NORTH CAROLINA

SEAL  
043255  
ENGINEER  
MURRAY A. PICEANO  
11/10/22

FOR CONSTRUCTION SET

**LKC**  
Engineering  
Landscape Architecture  
Surveying  
140 Angus Shed Ct., Aberdeen, NC 28315  
Office: 910-420-1437 Fax: 910-420-1438  
lkceengineering.com License No. P-1095

Harnett County Schools

**HIGHLAND ELEMENTARY ADDITION & RENOVATION**

1915 Buffalo Lake Road - Sanford, NC 27332

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
ISSUE DATE:	10/07/2022	
PROJECT #:	02110.100	
DRAWN BY:	BS	
CHECKED BY:	PAP	
© 2020 Sfi+a Architects, PA All Rights Reserved		
EROSION CONTROL DETAILS		

D-301



**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 unattended 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&S Measure	At least once per 7 calendar days and within 24 hours of a rain event $\geq 1.0$ 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 and within 24 hours of a rain event $\geq 1.0$ inch in 24 hours	At least once per 7 calendar days and within 24 hours of a rain event $\geq 1.0$ 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 $\geq 1.0$ inch in 24 hours	If visible sediment 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 $\geq 1.0$ inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&S 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&S Plan Documentation**  
The approved E&S plan as well as any approved deviation shall be kept on the site. The approved E&S plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&S plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&S measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&S plan.	Initial and date each E&S measure on a copy of the approved E&S plan or complete, date and sign an inspection report that lists each E&S measure shown on the approved E&S plan. This documentation is required upon the initial installation of the E&S measures or if the E&S measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&S 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&S plan.	Initial and date a copy of the approved E&S 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&S measures	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&S measures.	Initial and date a copy of the approved E&S plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

**2. Additional Documentation to be Kept on Site**  
In addition to the E&S plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:  
(a) This General Permit as well as the Certificate of Coverage, after it is received.  
(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

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

**PART III  
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

**SECTION C: REPORTING**  
**1. Occurrences that Must be Reported**  
Permittees shall report the following occurrences:  
(a) Visible sediment deposition in a stream or wetland.  
(b) Oil spills if:  
• They are 25 gallons or more,  
• They are less than 25 gallons but cannot be cleaned up within 24 hours,  
• They cause sheen on surface waters (regardless of volume), or  
• They are within 100 feet of surface waters (regardless of volume).  
(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.  
(d) Anticipated bypasses and unanticipated bypasses.  
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

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

**Occurrences Reporting Timeframes (After Discovery) and Other Requirements**

Occurrences	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• <b>Within 24 hours</b> , an oral or electronic notification. • <b>Within 7 calendar days</b> , 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 <b>NC 303(d) list</b> 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	• <b>Within 24 hours</b> , 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))	• <b>A report at least ten days before the date of the bypass, if possible.</b> The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses (40 CFR 122.41(m)(3))	• <b>Within 24 hours</b> , an oral or electronic notification. • <b>Within 7 calendar days</b> , 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))	• <b>Within 24 hours</b> , an oral or electronic notification. • <b>Within 7 calendar days</b> , 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 recurrence of the noncompliance. (40 CFR 122.41(l)(6)). • Division staff may waive the requirement for a written report on a case-by-case basis.

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

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

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

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

**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**

Site Area Description	Required Ground Stabilization Timeframes	
	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
<ul style="list-style-type: none"> <li>Temporary grass seed covered with straw or other mulches and tackifiers</li> <li>Hydroseeding</li> <li>Rollled erosion control products with or without temporary grass seed</li> <li>Appropriately applied straw or other mulch</li> <li>Plastic sheeting</li> </ul>	<ul style="list-style-type: none"> <li>Permanent grass seed covered with straw or other mulches and tackifiers</li> <li>Geotextile fabrics such as permanent soil reinforcement matting</li> <li>Hydroseeding</li> <li>Shrubs or other permanent plantings covered with mulch</li> <li>Uniform and evenly distributed ground cover sufficient to restrain erosion</li> <li>Structural methods such as concrete, asphalt or retaining walls</li> <li>Rollled erosion control products with grass seed</li> </ul>

**POLYACRYLAMIDES (PAMS) AND FLOCCULANTS**

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

**EQUIPMENT AND VEHICLE MAINTENANCE**

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- 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**

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g. dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- 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.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

**PAINT AND OTHER LIQUID WASTE**

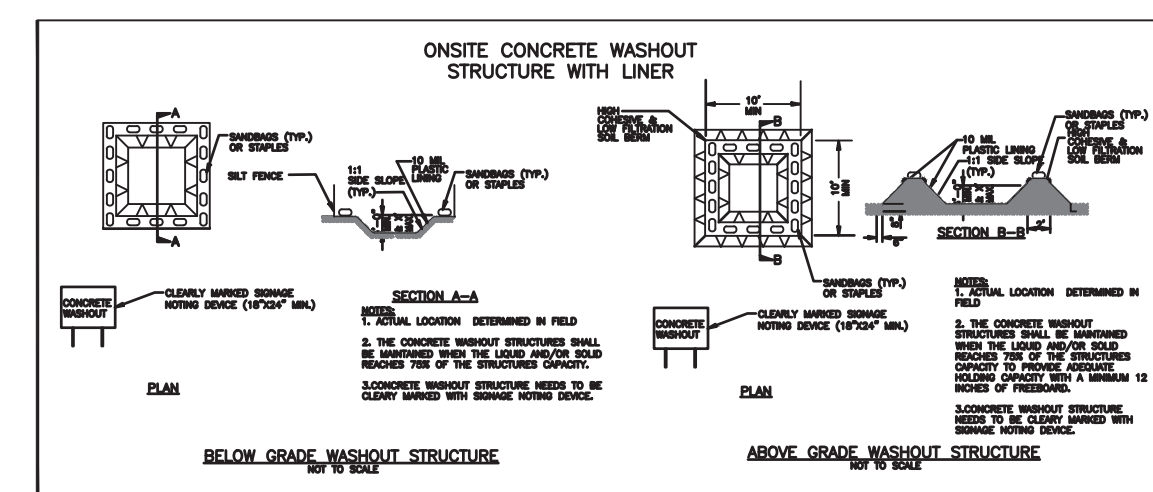
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled,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

**PORTABLE TOILETS**

- 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.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- 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**

- 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.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



**CONCRETE WASHOUTS**

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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**

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- 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.
- 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.
- Do not stockpile these materials onsite.

**HAZARDOUS AND TOXIC WASTE**

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

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

...Becoming the Leading Designer of High Performance Facilities in the Nation with a Specialty in Alternative Delivery Methods

333 Fayetteville St, Ste 225  
Raleigh, NC 27601  
P: 919-573-6390  
F: 919-573-6395  
www.sfi+a.biz

**sfi+a**  
ARCHITECTS

ARCHITECTS  
REGISTERED PROFESSIONAL ENGINEERS  
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECTS  
REGISTERED PROFESSIONAL SURVEYORS

CERT. NO. 50676

SEAL  
043255

REGISTERED PROFESSIONAL ENGINEER  
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT  
REGISTERED PROFESSIONAL SURVEYOR

FOR CONSTRUCTION SET

**LKC**

Engineering  
Landscape Architecture  
Surveying

140 Augusta Shed Ct., Aberdeen, NC 28315  
Office: 910-420-1437 Fax: 910-420-1438  
lkceingneering.com License No. P-1095

Harnett County Schools

**HIGHLAND ELEMENTARY ADDITION & RENOVATION**

1915 Buffalo Lake Road - Sanford, NC 27332

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
ISSUE DATE:	10/07/2022	
PROJECT #:	02110_100	
DRAWN BY:	BS	
CHECKED BY:	PAP	
© 2020 Sfi+a Architects, PA All Rights Reserved		
NCG01 DETAILS		



2019 HRW REQUIRED UTILITY NOTES  
(Revision 7 - November 2019)

**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 5/4" main valve opening three way (two hose nozzles and one pumpier nozzle);
  2. American Darling - Mark B-84-B model with a 5/4" main valve opening three way (two hose nozzles and one pumpier nozzle);
  3. Watrous - Facer B-250 model with a 5/4" main valve opening three way (two hose nozzles and one pumpier nozzle) or approved equal for standardization.
- B. Fire hydrants are installed at certain elevations. Any grade change in the vicinity of 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 NCDCEQ "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 NCDCEQ "Authorization to Construct" permit issued by the North Carolina Department of Environmental Quality (NCDCEQ) on site prior to the start of construction. The permit must be maintained on site throughout the entire construction process of the proposed water lines that will serve this project.
- D. The Utility Contractor shall notify Harnett Regional Water (HRW) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre-construction conference with Mr. Alan Moss, HRW Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HRW for regular inspection visitations and acceptance of the water system(s). Construction work shall be performed only during the normal working hours of HRW which is 8:00 am - 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HRW.
- E. The Professional Engineer (PE) shall provide HRW and the Utility Contractor with a set of NCDCEQ 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 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 (NCDCEQ, DEH, PWS) and accepted by HRW.
- H. Prior to acceptance, all services will be inspected to insure that they are installed at the proper depth. All meter boxes must be flush with the ground level at finish grade and the meter setters must be a minimum of 8" below the meter box lid. Meter setters shall be centered in the meter box and supported by brick, block or stone.
- I. The Utility Contractor shall provide the Professional Engineer (PE) and HRW Utility Construction Inspector with a set of red line drawings identifying the complete water system installed for each project. The red line drawings should identify the materials, pipe sizes and approximate depths of the water lines as well as the gate valves, fire hydrants, meter setters, blow off assemblies and all associated appurtenances for all water line(s) constructed in Harnett County. The red line drawings should clearly identify any deviations from the NCDCEQ 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 3/4" 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 3/4" 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 tapper directly to the water main. Split services are not allowed by HRW.
- 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 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 NCDCEQ and accepted by HRW. The final inspection of water system improvements cannot be scheduled with HRW until the streets have been paved; the rights-of-way and utility easements have been seeded and stabilized with an adequate stand of grass in place to prevent erosion issues on site.
- AA. The Engineer of Record is responsible to insure that construction is, at all times, in compliance with accepted sanitary engineering practices and approved plans and specifications. No field changes to the approved plans are allowed without prior written approval by HRW. A copy of each engineer's field report is to be submitted to HRW as each such inspection is made on system improvements or testing is performed by the contractor. Water and sewer infrastructure must pass all tests required by HRW specifications and those of all applicable regulatory agencies. These tests include, but are not limited to: air test, vacuum test, mandrel test, visual test, pressure test, bacteriological test, etc. A HRW Inspector must be present during testing and all test results shall be submitted to HRW. All tests must be satisfied before the final inspection will be scheduled with the HRW Inspector. The Engineer of Record must request in writing to schedule the final inspection once all construction is complete. The Developer's Engineer of Record and the HRW Utility Construction Inspector shall prepare a written punch list of any defects or deficiencies noted during the final inspection, should any exist. Upon completion of the punch list, the Developer's Engineer of Record will schedule another inspection. In the event the number of inspections performed by the HRW exceeds two, additional fees may be accessed to the Developer.

2019 HRW REQUIRED UTILITY NOTES  
(Revision 7 - November 2019)

**SANITARY SEWER**

- A. The Professional Engineer (PE) shall obtain and supply a copy of the sewer permit for the construction and operation of the wastewater collection system to the Utility Contractor before the construction of the sanitary sewer line, sewer lift station and associated force main shall begin. The Utility Contractor must post a copy of the sewer permit issued by the North Carolina Department of Environmental Quality (NCDCEQ) on site prior to the start of construction. The permit must be maintained on site during the construction of the sewer system improvements.
- B. The Utility Contractor shall notify Harnett Regional Water (HRW) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre-construction conference with Mr. Alan Moss, HRW Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HRW for regular inspection visitations and acceptance of the wastewater system(s). Construction work shall be performed only during the normal working hours of HRW which is 8:00 am - 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HRW.
- C. The Professional Engineer (PE) shall provide HRW with a set of NCDCEQ approved plans marked "Released for Construction" at least two days prior to construction commencing. HRW will stamp the approved plans as "Released for Construction" and provide copies to the utility contractor. The Registered Land Surveyor (RLS) shall stake out all lot corners and establish grade stakes for the proposed finish grade for each street and sewer line before the Utility Contractor begins construction or installation of the manholes, sanitary sewer gravity line(s), sewer lift stations and/or sanitary sewer force main(s). The grade stakes should be set with a consistent offset from the street centerline so as not to interfere with the street grading or utility construction.
- D. The Utility Contractor shall provide the HRW Utility Construction Inspector with material submittals and shop drawings for all project materials prior to the construction of any gravity sewer line(s), manhole(s), sewer lift station(s) and associated force main(s) in Harnett County. The materials to be used on the project must meet the established specifications of HRW and be approved by the Engineer of Record prior to construction. All substandard materials or materials not approved for use in Harnett County found on the project site must be removed immediately when notified by the HRW Utility Construction Inspector.
- E. The sanitary sewer lateral connections should be installed 90° (perpendicular) to the sanitary sewer gravity lines with schedule 40 PVC pipe. HRW requires the Utility Contractor to provide the Professional Engineer (PE) with accurate measurements for locating sanitary sewer service lateral and associated each sanitary sewer clean-out. These measurements should be taken from the nearest downstream manhole up along the sanitary sewer main to the in-line wye fitting (or tapping saddle) and then another measurement from the in-line wye fitting (or tapping saddle) to the 4" x 4" long sweep combination wye fitting at the bottom of the sewer clean-out stack. These field measurements must be provided to the Professional Engineer (PE) in the red line drawings from the Utility Contractor for proper documentation in the As-Built Record Drawings submitted to HRW.
- F. The Utility Contractor shall be responsible to locate the newly installed sanitary sewer gravity line(s), sanitary sewer force main(s), sanitary sewer service lateral(s) and all associated sewer clean-outs in the proposed sanitary sewer system for other utility companies and their contractors until the new sanitary sewer line(s) and associated appurtenances have been approved by the North Carolina Department of Environmental Quality (NCDCEQ) and accepted by HRW. All new sanitary sewer lines must have at least three (3 ft.) feet of cover and extend under all existing water main and storm water lines with a least 24" of vertical clearance below the bottom of the existing water main and storm water lines.
- G. The sanitary sewer gravity line(s), manhole(s), sanitary sewer service lateral(s) and associated clean-out(s) shall be constructed in strict accordance with the standard specifications of the Harnett Regional Water. The sanitary sewer gravity line(s) must be pneumatically pressure tested with compressed air at 5 psi and the sanitary sewer force main(s) must hydrostatically pressure tested with water or air at 200 psi. Sanitary sewer manholes must be vacuum tested to 10 inches of mercury and cannot drop below 9 inches in 60 seconds for 4 ft. diameter manholes, 75 seconds for 5 ft. diameter manholes. All tests mentioned above must be witnessed by the HRW Utility Construction Inspector and Engineer.
- H. Prior to acceptance, all sewer service laterals will be inspected to insure that they are installed at the proper depth. All sewer clean-outs must be installed so the 4" x 4" long sweep combination wye is at least three (3') feet but no more than four (4') feet below the finish grade unless otherwise approved in writing by HRW. The sewer cleanouts shall have a four (4") schedule 40 PVC pipe stubbed up from both ends of the 4" x 4" long sweep combination wye to be at least two (2') feet above the finish grade and cover each end with a four (4") inch temporary cap to keep out dirt, sand, rocks, water and construction debris. The vertical stack on each clean-out must be provided with a concrete donut for protection.
- I. Once sanitary sewer gravity line(s) have been installed, pneumatically pressure tested and in place for at least 30 days, the Utility Contractor must contact the HRW Utility Construction Inspector to witness the mandrel test on each PVC sanitary sewer gravity line. The Utility Contractor will notify HRW to schedule the mandrel testing. The mandrel and proving ring must be supplied by the Utility Contractor. Closed circuit video camera inspections (at the Utility Contractor's expense) may be required by the HRW Utility Construction Inspector if the mandrel and mirror tapping testing cannot be completed with satisfactory results. The sanitary sewer lines shall be flushed clean using a sewer ball of the proper diameter before any mandrel testing. The Utility Contractor is responsible to remove all dirt, sand, silt, gravel, mud and debris from the newly constructed sewer lines exercising care to keep the Harnett Regional Water's existing sanitary sewer systems clean. Sanitary sewer force main(s) shall be pressure tested to 200 psi for at least 2 hours like water lines.
- J. The Utility Contractor shall be responsible to locate the newly installed sanitary sewer system(s) for other utility companies and their contractors until the new sanitary sewer system(s) have been approved by the North Carolina Department of Environmental Quality (NCDCEQ) and accepted by HRW.
- K. HRW requires that the Utility Contractor install tracer wire in the trench with all sanitary sewer force mains. The tracer wire shall be 12 ga. insulated, solid copper conductor and it shall be terminated at the top of the valve boxes or manholes. No spliced wire connections shall be made underground on tracer wire installed in Harnett County. The tracer wire may be secured with duct tape to the top of the pipe before backfilling. The tracer wire is not required for the gravity sewer line(s) between manholes.
- L. The Utility Contractor shall provide the Professional Engineer (PE) and HRW Utility Construction Inspector with a set of red line drawings identifying the complete sewer system installed for each project. The red line drawings should identify the materials, pipe sizes and approximate depths of the sewer lines as well as the installed locations of the manhole(s), sanitary sewer gravity line(s), sanitary sewer service laterals, clean-outs, sewer lift station(s) and associated force main(s). The red line drawings should clearly identify any deviations from the NCDCEQ approved plans. All change orders must be approved by HRW and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.
- M. Prior to the commencement of any work within established utility easements or NCDOT right-of-ways the Utility Contractor is required to notify all concerned utility companies in accordance with G.S. 87-102. The Utility Contractor must call the NC One Call Center at 811 or (800) 632-4949 to verify the location of existing utilities prior to the beginning of construction. Existing utilities shown in these plans are taken from maps furnished by various utility companies and have not been physically located by the P.E. (i.e. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL GAS, ETC.).
- N. The Utility Contractor shall spot dig to expose each existing utility pipe or line which may conflict with construction of proposed sanitary sewer line extensions well in advance to verify locations of the existing utilities. The Utility Contractor shall provide both horizontal and vertical clearances to the Professional Engineer (PE) to allow the PE to adjust the sanitary sewer line design in order to avoid conflicts with existing underground utilities. The Utility Contractor shall coordinate with the utility owner and be responsible for temporary relocation of existing utilities and/or securing existing utility poles, pipes, wires, cables, signs and/or utilities including services in accordance with the utility owner's requirements during sanitary sewer line installation, grading and street construction.
- O. When making a tap on an existing sewer force main, the Utility Contractor must have a permit from the North Carolina Department of Environmental Quality (NCDCEQ) prior to begin the tap work. The Utility Contractor shall conduct a pneumatic pressure test using compressed air or other inert gas on the stainless steel tapping sleeve and gate valve prior to making the tap on an existing sanitary sewer force main. This pneumatic pressure test must be witnessed by the HRW Utility Construction Inspector. The Utility Contractor shall use Romac brand stainless steel tapping sleeve(s) or approved equal for all taps made on sanitary sewer force mains in Harnett County. The Utility Contractor shall use Romac brand Style "CB" sewer saddles with stainless steel bands or approved equal for all taps made on existing sanitary sewer gravity lines in Harnett County.
- P. The Utility Contractor shall provide a grease trap for each sanitary sewer service lateral that will be connected to a restaurant, food processing facility and any other commercial or industrial facility as required by the Harnett County Fat, Oil & Grease Ordinance. The grease trap must be rated for a minimum capacity of at least 1,000 gallons unless otherwise approved in writing by the HRW Pre-Treatment Coordinator. Garbage disposals should not be installed in homes and businesses that discharge wastewater to the Harnett Regional Water's Sanitary Sewer System as they are not approved by HRW.
- Q. Each sewer lift station must be provided with three phase power (at least 480 volts) and constructed to meet the minimum requirements of the latest version of the National Electrical Code (NEC) and Harnett Regional Water's standard specifications and details. If three phase power is not available from the power company other arrangements must be approved by HRW Engineering prior to the start of construction.
- R. Where a new sanitary sewer force main is connected to an existing manhole in the Harnett Regional Water sewer collections system, the Utility Contractor must provide a protective coating (coal tar epoxy) for the interior surfaces of the manhole to protect it against corrosion, erosion and deterioration from the release of sewer gases such as methane and hydrogen sulfide.
- S. The sewer lift station design and associated equipment must meet or exceed the MINIMUM REQUIREMENTS FOR HARNETT COUNTY SEWER LIFT STATIONS 2009 edition. Each sanitary sewer lift station must be constructed with an all-weather access road that is at least 20 feet wide. The lift station site must be covered with weed blocking material and at least six (6") inches of a 57 stone (crush and run).
- T. Once a sewer lift station has been installed, the Utility Contractor is responsible to schedule a draw down test with HRW Engineering and Collections staff, the Professional Engineer (PE), the Electrician, the original equipment manufacturer's (OEM) representatives (for both the Pumps and the Generator). This draw down test must be completed with power supplied from the electrical utility company and with power supplied by the emergency generator with satisfactory results before final inspections are conducted by the HRW Utility Construction Inspector.
- U. Once the Utility Contractor completes the installation of a sewer lift station, the Professional Engineer (PE) must submit the sewer permit certification and As-Built Record Drawings to the North Carolina Department of Environmental Quality (NCDCEQ) and HRW for final approval. The Utility Contractor must supply HRW Engineering staff with three original Operation & Maintenance (O&M) Manuals along with the associated pump curves and electrical schematics for the associated sewer lift station equipment including all warranty information and documentation.
- V. Once the Utility Contractor completes the installation of a sewer lift station, the Developer must pay HRW the established System Control and Data Acquisition (SCADA) fees before the SCADA system will be installed at the new sewer lift station. The SCADA system must be installed and operational before the utilities may be accepted by HRW and placed into operation.
- W. HRW requires the Utility Contractor to provide all necessary equipment and devices for the testing and inspection of the sanitary sewer system. The equipment and devices may include but not limited to lamping with mirrors, mandrels, sewer balls, plugs, air compressors and associated compressed air lines. If the HRW Utility Construction Inspector deems that a closed circuit video camera inspection of the newly constructed sewer system is necessary, then all costs for the closed circuit camera inspection will be the responsibility of the Utility Contractor. All closed circuit video camera inspections must be recorded on VHS tapes that will be released to HRW for record keeping, review and approval of the sewer system.
- X. Any use of sewer plugs to temporarily block Harnett Regional Water's existing sanitary sewer lines must be coordinated with the HRW Collections Supervisor at least two (2) days in advance of installing the plugs. The sewer plugs must be removed as soon as possible once the new sanitary sewer lines have been inspected, pressure tested, mandrel tested, approved by the North Carolina Department of Environmental Quality (NCDCEQ) and accepted by HRW to allow the sewer to flow as designed in Harnett Regional Water's existing sanitary sewer lines or when so ordered by the HRW Collections Supervisor to limit interruptions to the normal flow of the sanitary sewer collection system(s). The Utility Contractor must provide the pumps hoses and necessary connectors for a temporary pump around setup if required by the HRW Collections Supervisor. Mr. Randolph Clegg, HRW Collections Supervisor may be contacted between 8:00 am and 5:00 pm Monday through Friday at (910) 893-7575 extension 3241.
- Y. The Utility Contractor will be responsible for any and all repairs due to leakage or damage resulting from poor workmanship during the one (1) year warranty period once the sewer system improvements have been approved by the North Carolina Department of Environmental Quality (NCDCEQ) and accepted by HRW. The Utility Contractor will be responsible for any and all repairs due to damages resulting from failure to locate the new sanitary sewer lines and associated appurtenances for other utilities and their contractors until the sanitary sewer lines have been approved by NCDCEQ and accepted by HRW. HRW will provide maintenance and warranty repairs if necessary due to lack of response within 48 hours of notification of warranty work. HRW will invoice the Developer and/or Utility Contractor for materials and labor in such cases.
- Z. In developments and projects that require utility easements to be established for future HRW right-of-way, the Registered Land Surveyor (RLS) must provide the HRW Right-of-Way Agent with an official copy of the recorded plat and legal description of the said easement as recorded with the Harnett County Register of Deeds. The recorded documents must be provided to the HRW Right-of-Way Agent before the utility improvements within the said easement can be placed into operation. Any and all easements that must be obtained from adjoining property owners must be provided to HRW by the Developer at no cost to Harnett County. The final inspection of all sanitary sewer system improvements cannot be scheduled with HRW until the streets have been paved; the rights-of-way and utility easements have been seeded and stabilized with an adequate stand of grass in place to prevent erosion issues on site.
- AA. The Engineer of Record is responsible to insure that construction is, at all times, in compliance with accepted sanitary engineering practices and approved plans and specifications. No field changes to the approved plans are allowed without prior written approval by HRW. A copy of each engineer's field report is to be submitted to HRW as each such inspection is made on system improvements or testing is performed by the contractor. Water and sewer infrastructure must pass all tests required by HRW specifications and those of all applicable regulatory agencies. These tests include, but are not limited to: air test, vacuum test, mandrel test, visual test, pressure test, bacteriological test, etc. A HRW Inspector must be present during testing and all test results shall be submitted to HRW. All tests must be satisfied before the final inspection will be scheduled with the HRW Inspector. The Engineer of Record must request in writing to schedule the final inspection once all construction is complete. The Developer's Engineer of Record and the HRW Utility Construction Inspector shall prepare a written punch list of any defects or deficiencies noted during the final inspection, should any exist. Upon completion of the punch list, the Developer's Engineer of Record will schedule another inspection. In the event the number of inspections performed by the HRW exceeds two, additional fees may be accessed to the Developer.

...Becoming the  
Leading Designer of  
High Performance Facilities  
in the Nation with a  
Specialty in Alternative  
Delivery Methods

333 Fayetteville St, Ste 225  
Raleigh, NC 27601  
P: 919-573-6390  
F: 919-573-6395  
www.sfl+a.biz

**sfl+a**  
ARCHITECTS



FOR CONSTRUCTION SET

**LKC**  
Engineering  
Landscape Architecture  
Surveying

140 Angus Shed Ct., Aberdeen, NC 28315  
Office: 910-420-1437 Fax: 910-420-1438  
lkcengineering.com License No. P-1095

Harnett County Schools

**HIGHLAND ELEMENTARY ADDITION & RENOVATION**

1915 Buffalo Lake Road- Sanford, NC 27332

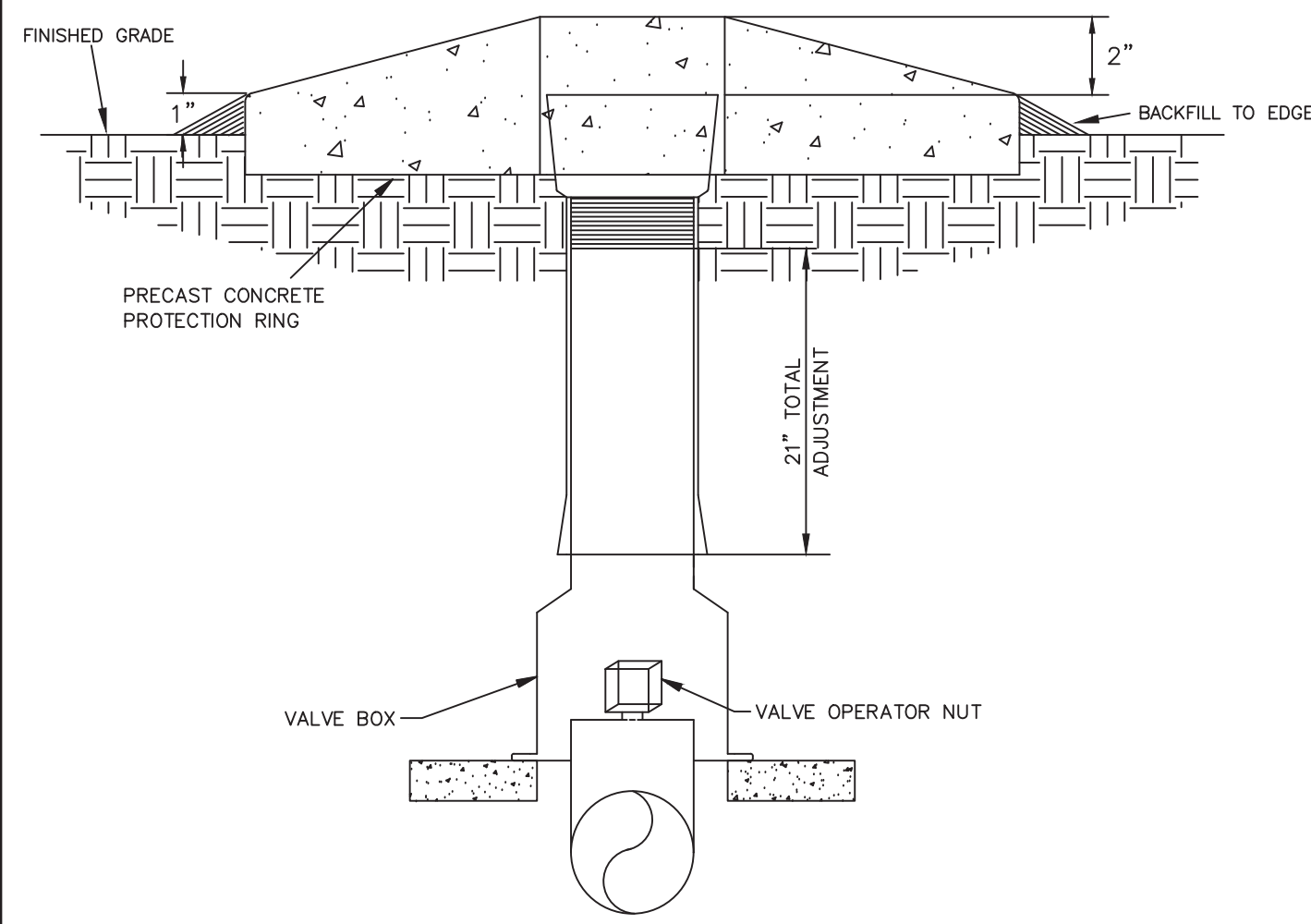
ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
ISSUE DATE:	10/07/2022	
PROJECT #:	02110.100	
DRAWN BY:	BS	
CHECKED BY:	PAP	
© 2020 SFL+A Architects, PA All Rights Reserved		
UTILITY DETAILS		

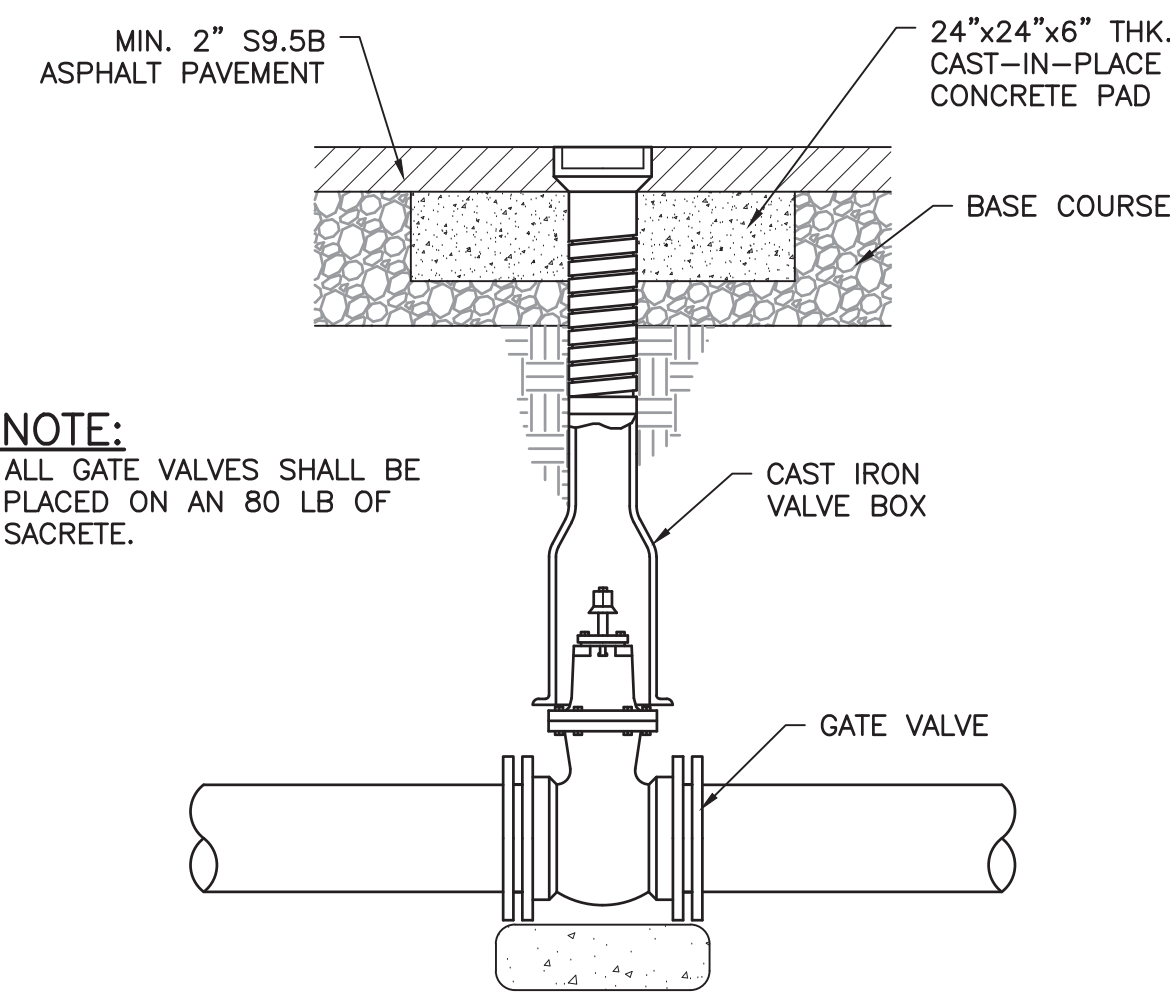


**GENERAL WATERLINE NOTES**

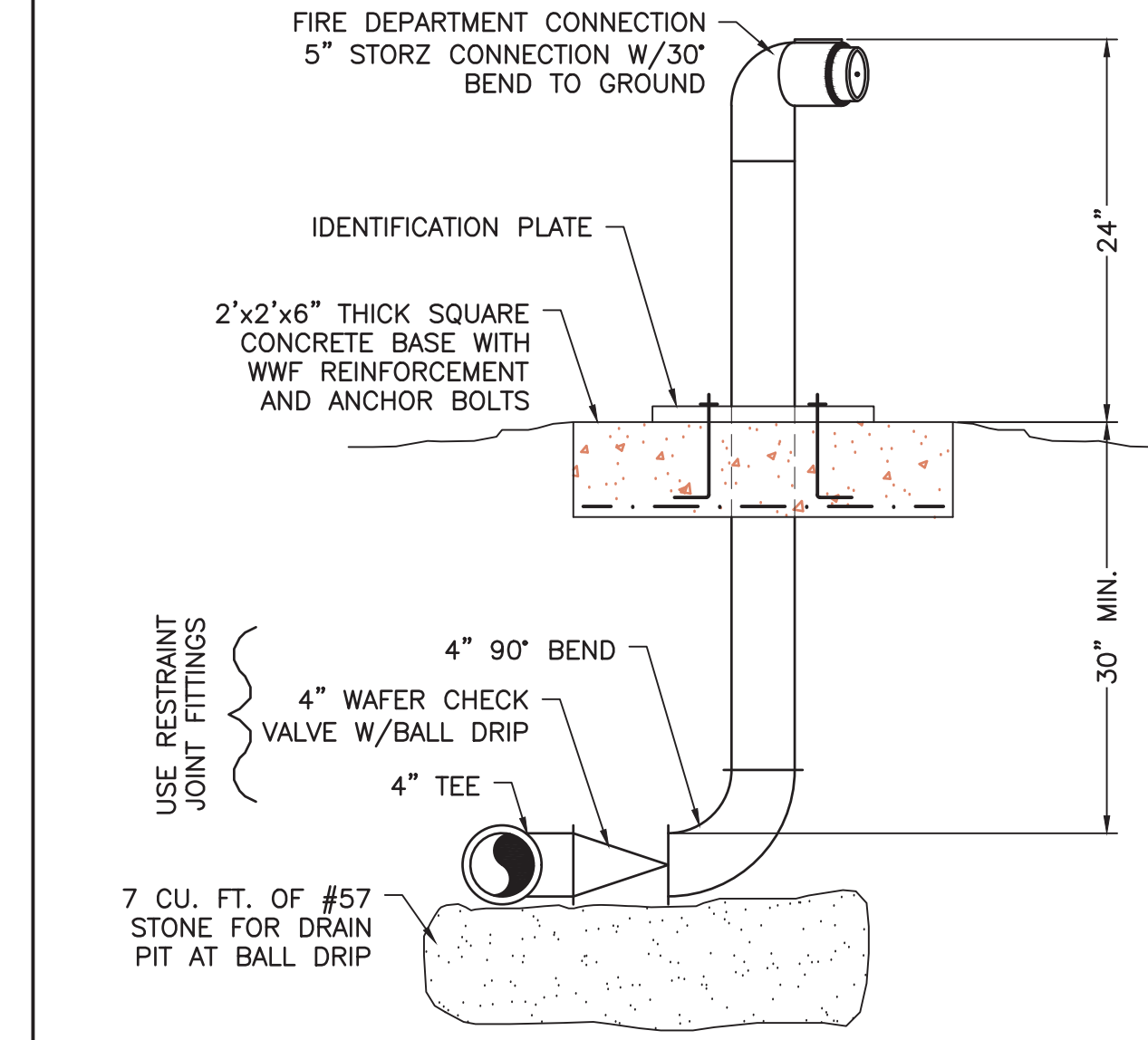
- CONTRACTOR SHALL REPAIR ALL WATER LATERALS, AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO HARNETT COUNTY DISPATCHER AND TO THE OWNER'S REPRESENTATIVE AND SHALL INITIATE IMMEDIATE REPAIRS TO HARNETT COUNTY STANDARDS. CONTRACTOR SHALL NOT OPERATE HARNETT COUNTY WATER MAIN VALVES WITHOUT HARNETT COUNTY APPROVAL AND SHALL COORDINATE ALL VALVE CLOSINGS WITH THE HARNETT COUNTY WATER AUTHORITY. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH WATER SYSTEM IN THE AREA SO AS TO LESSEN THE CHANCE OF SERVICE INTERRUPTION.
- THE CONTRACTOR SHALL NOT USE HOUSE HOSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THRU RESIDENT'S METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENT'S PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SCREENS, ETC.



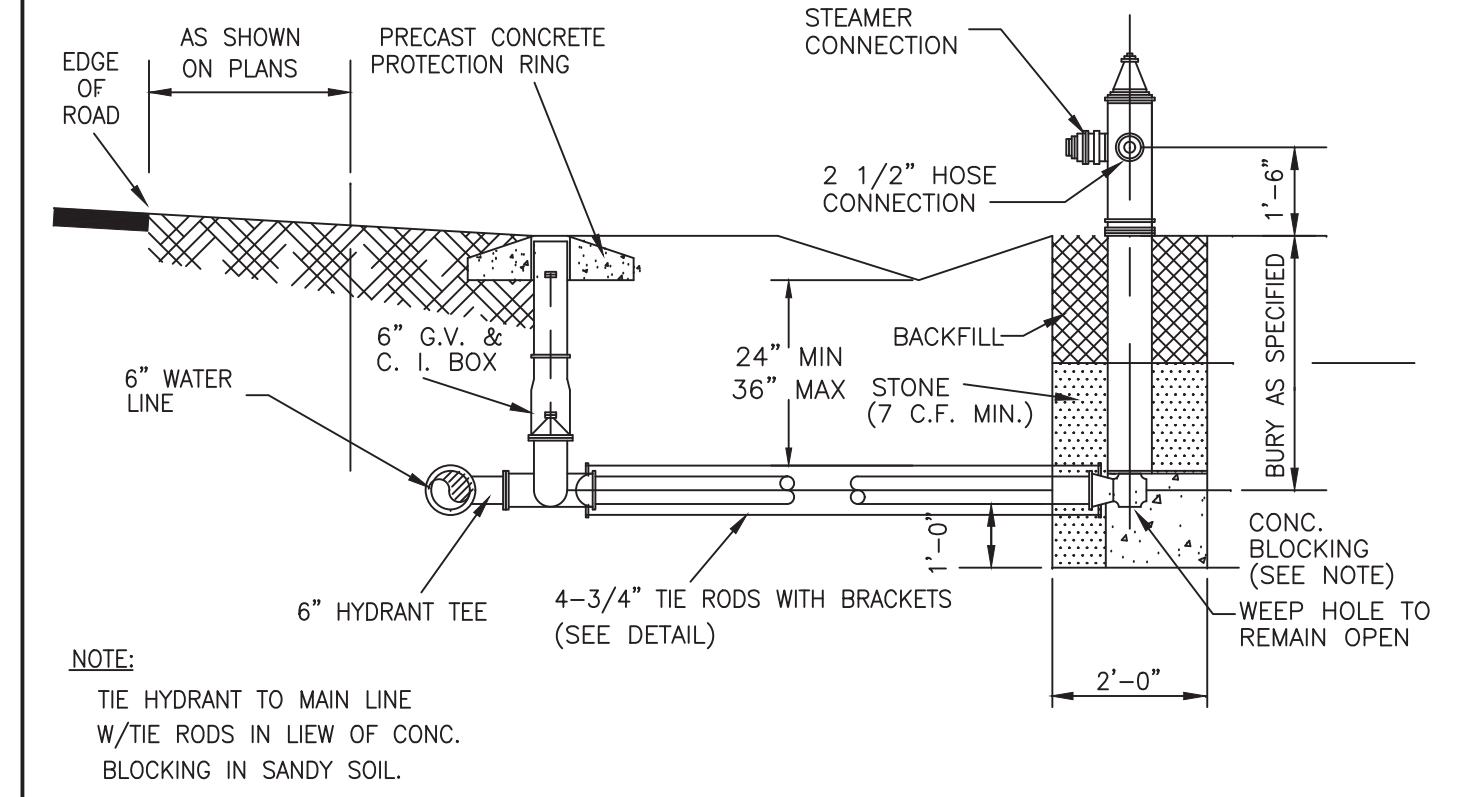
2 TYPICAL VALVE BOX DETAIL  
NO SCALE



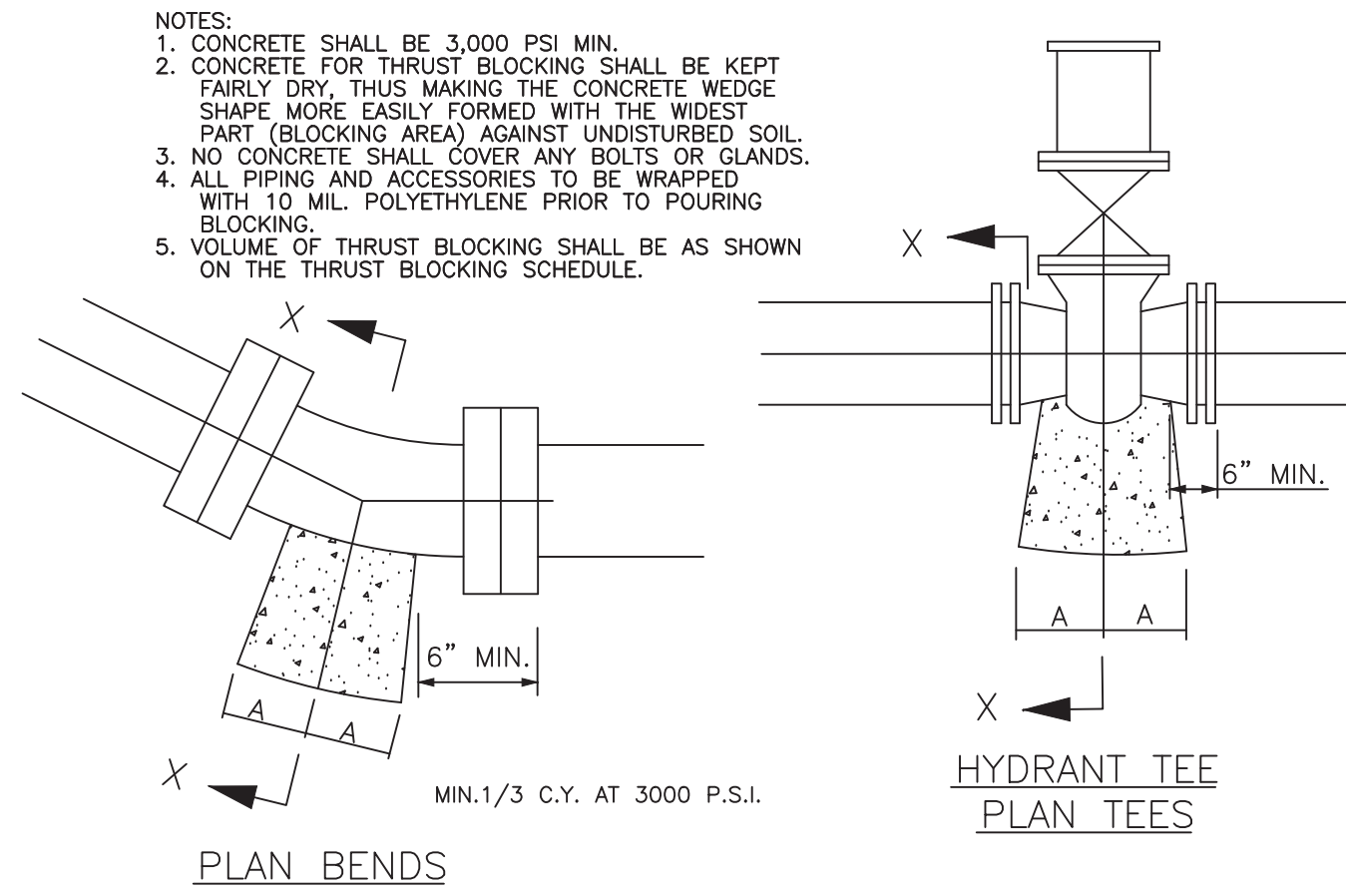
3 GATE VALVE IN PAVEMENT  
NO SCALE



4 STORZ FIRE DEPARTMENT CONNECTION  
NO SCALE



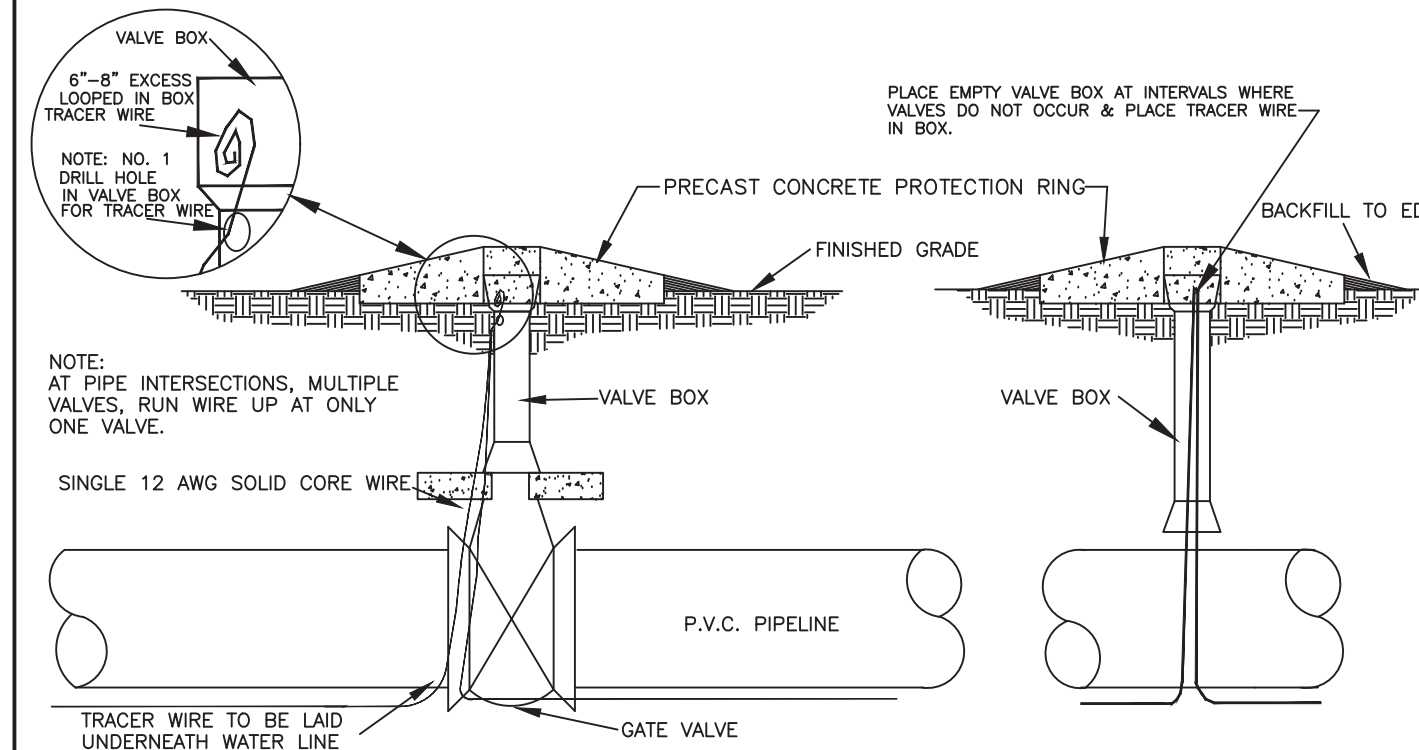
5 TYPICAL FIRE HYDRANT INSTALLATION DETAIL  
NO SCALE



18" MIN. - 10" O OR LESS  
24" MIN. - 12" O OR LESS

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

TYPICAL THRUST BLOCK DETAIL  
NO SCALE



7 TYPICAL TRACER WIRE INSTALLATION DETAIL  
NO SCALE

...Becoming the  
Leading Designer of  
High Performance Facilities  
in the Nation with a  
Specialty in Alternative  
Delivery Methods

333 Fayetteville St, Ste 225  
Raleigh, NC 27601  
P: 919-573-6350  
F: 919-573-6355  
www.sfl+a.biz

ARCHITECTS  
CERT. NO. 56876  
FAYETTEVILLE  
N.C.

REGISTERED PROFESSIONAL  
SEAL  
04-5255  
ENGINEER  
MULIPAL A. PICEANO  
11/16/22

FOR CONSTRUCTION SET

**LKC**  
Engineering  
Landscape Architecture  
Surveying

140 Angus Shed Ct., Aberdeen, NC 28315  
Office: 910-420-1437 Fax: 910-420-1438  
lkceengineering.com License No. P-1095

Harnett County Schools

**HIGHLAND ELEMENTARY ADDITION & RENOVATION**

1915 Buffalo Lake Road - Sanford, NC 27332

ENERGY STAR PARTNER

ID	DATE	DESCRIPTION
	10/07/2022	ISSUE DATE:
	02110.100	PROJECT #:
	BS	DRAWN BY:
	PAP	CHECKED BY:

© 2020 SFL+a Architects, PA  
All Rights Reserved

WATERLINE  
DETAILS

D-601