

CONSTRUCTION DOCUMENTS

12" PUBLIC SEWER EXTENSION

PUBLIC SEWER - PHASE 2

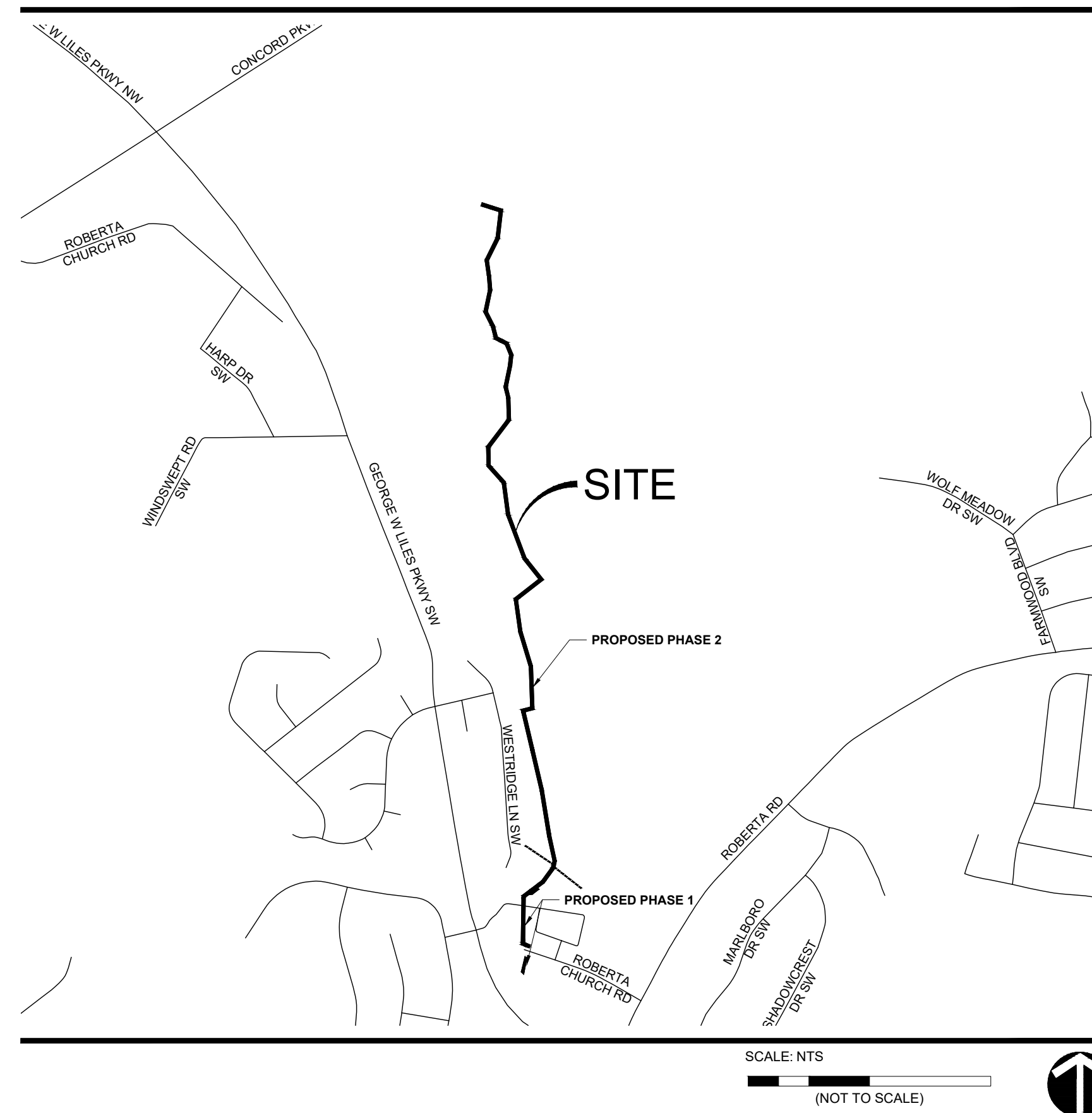
CONCORD, NC

DATE: 09.01.2022

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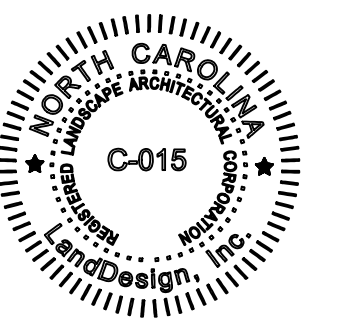


PROJECT TEAM

OWNER
 CITY OF CONCORD
 PO BOX 308
 CONCORD, NC 28026
 704-920-5401
 CONTACT NAME: SUE HYDE

CIVIL ENGINEER
 LANDESIGN
 223 NORTH GRAHAM STREET
 CHARLOTTE, NC 28202
 704.333.0325
 CONTACT NAME: ROBERT KEIDEL

SURVEYOR
 R. B. PHARR & ASSOCIATES, P.A.
 420 HAWTHORNE LANE
 CHARLOTTE, NC 28204
 704.376.2186



NOTES

- LANDESIGN, INC. DOES NOT INTEND FOR THE INCLUDED CONSTRUCTION SEQUENCING TO DICTATE NOR TAKE RESPONSIBILITY FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES, AND SAFETY PRECAUTIONS WHICH ARE GOVERNED BY LOCAL, STATE AND FEDERAL GUIDELINES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION RELATED ACTIVITIES ASSOCIATED WITH THIS PROJECT.

CONSTRUCTION SEQUENCE

- CONTRACTOR SHALL ENSURE THAT ALL NECESSARY PERMITS HAVE BEEN RECEIVED AND THAT THOSE REQUIRED TO BE DISPLAYED ON-SITE ARE AVAILABLE.
- CONTRACTOR SHALL HOLD ON-SITE PRE-CONSTRUCTION MEETING A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL CONTACT CAROLINA ONE CALL AND ALL ENTITIES HAVING BURIED UTILITIES AT LEAST 72 HOURS PRIOR TO DIGGING OR AS DIRECTED AT THE PRE-CONSTRUCTION MEETING.
- CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION ENTRANCES (IF ANY) AT EACH POINT OF ACCESS STORAGE AND CONSTRUCTION AREAS.
- SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH PLANS AND BEFORE START OF WORK. THE CONTRACTOR SHALL NOT INSTALL EROSION CONTROL MEASURES WHERE THE WORK WILL NOT OCCUR FOR SOME TIME. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY CITY/PROJECT ENGINEER OR UPON NCDENR PERSONNEL AS CONDITIONS WARRANT.
- STABILIZATION FOR THIS PROJECT SHALL COMPLY WITH THE TIME FRAME GUIDELINES AS SPECIFIED BY THE NCG-01000 GENERAL CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER

- ALL SECTIONS SHALL BE SEEDDED AT EARLIEST POSSIBLE DATE AFTER INSTALLATION OF PIPE, STRUCTURE, OR ACCESS.
- ONCE GROUND COVER IS FIRMLY ESTABLISHED, ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITH THE APPROVAL OF CITY/ NCDENR INSPECTOR.
- CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITY WITH THE CITY ENGINEERING DEPARTMENT.

GENERAL NOTES:

- BASE INFORMATION, INCLUDING EXISTING CONDITIONS, TOPOGRAPHY, EXISTING UTILITIES, AND BOUNDARY INFORMATION IS FROM PLANS BY: RB PHARR AND ASSOCIATES, PA.
- ARCHITECTURAL INFORMATION IS FROM PLANS BY: N/A.
- WRITTEN DIMENSIONS PREVAIL OVER SCALED DIMENSIONS. NOTIFY LANDESIGN OF ANY DISCREPANCIES.
- DIMENSIONS ARE TO FACE OF OBJECT, UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UNDERGROUND UTILITIES, PIPES, STRUCTURES, AND LINE RUNS IN THE FIELD PRIOR TO CONSTRUCTION. ANY DAMAGE TO NEW AND EXISTING UTILITIES ARE TO BE REPAIRED IMMEDIATELY AT NO ADDITIONAL EXPENSE TO THE OWNER. LANDESIGN ASSUMES NO RESPONSIBILITY FOR ANY UTILITIES NOT SHOWN ON PLANS.
- ALL PROPOSED FINISHED GRADES ARE BASED ON INFORMATION PROVIDED BY THE OWNER'S SURVEY AND OR CIVIL ENGINEER. ANY DISCREPANCIES IN ACTUAL FIELD MEASUREMENTS ARE TO BE REPORTED TO LANDESIGN IMMEDIATELY.
- CONTRACTOR IS RESPONSIBLE TO PROVIDE AND INSTALL ALL ITEMS PER DRAWINGS AND SPECIFICATION. NOTIFY LANDESIGN OF ANY MAJOR DISCREPANCIES BETWEEN CONTRACTOR'S VERIFIED QUANTITIES, BID BOOK, AND INTENT OF DRAWING.
- CONTRACTOR IS RESPONSIBLE FOR ALL FINAL QUANTITIES PER DRAWINGS AND

- SPECIFICATIONS ANY QUANTITIES PROVIDED BY LANDESIGN ARE PROVIDED FOR CONVENIENCE ONLY AND SHALL NOT BE CONSIDERED ABSOLUTE. LANDESIGN SHOULD BE NOTIFIED OF ANY GRADING DISCREPANCIES.
- THE CONTRACTOR SHALL EXAMINE AND BECOME FAMILIAR WITH ALL CONTRACT DOCUMENTS IN THEIR ENTIRETY. SURVEY THE PROJECT AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND SCOPE OF WORK. ALL COSTS SUBMITTED SHALL BE BASED ON THOROUGH KNOWLEDGE OF ALL WORK AND MATERIALS REQUIRED ANY DISCREPANCY AND/OR UNCERTAINTY AS TO WHAT MATERIAL OR PRODUCT IS TO BE USED, SHALL BE VERIFIED WITH THE OWNER OR LANDESIGN PRIOR TO BIDDING.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES REQUIRED FOR SAFE EXECUTION AND COMPLETION OF WORK, AND FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
- IN THE EVENT A DISCREPANCY IS FOUND IN THE CONTRACT DOCUMENTS, THE OWNER & LANDESIGN SHALL BE NOTIFIED IMMEDIATELY.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD AND NOTIFY LANDESIGN OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL VERIFY ALL MEASUREMENTS AT THIS SITE AND AND BE RESPONSIBLE FOR ACCURACY AND CORRECTNESS OF SAME.
- CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER TRADES AND NOTIFY OWNER & LANDESIGN OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
- ALL EXISTING WORK OR LANDSCAPING NOT SHOWN TO BE ALTERED OR REMOVED SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. THE CONTRACTOR(S) SHALL BEAR THE TOTAL EXPENSE FOR, AND SHALL REPAIR ANY DAMAGE TO EXISTING CONDITIONS, OR IMPROVEMENTS NOT INDICATED IN THE DRAWINGS OR SPECIFICATIONS TO RECEIVE ALTERATION, ADDITIONS OR REMOVAL.

LAYOUT NOTES:

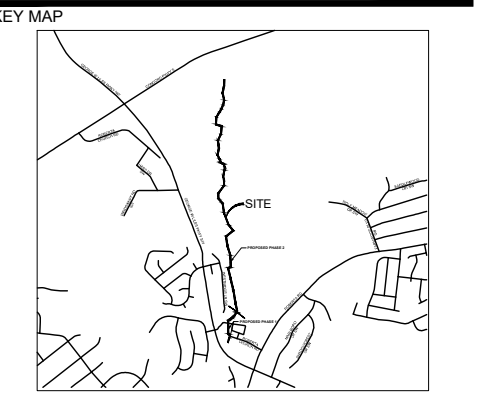
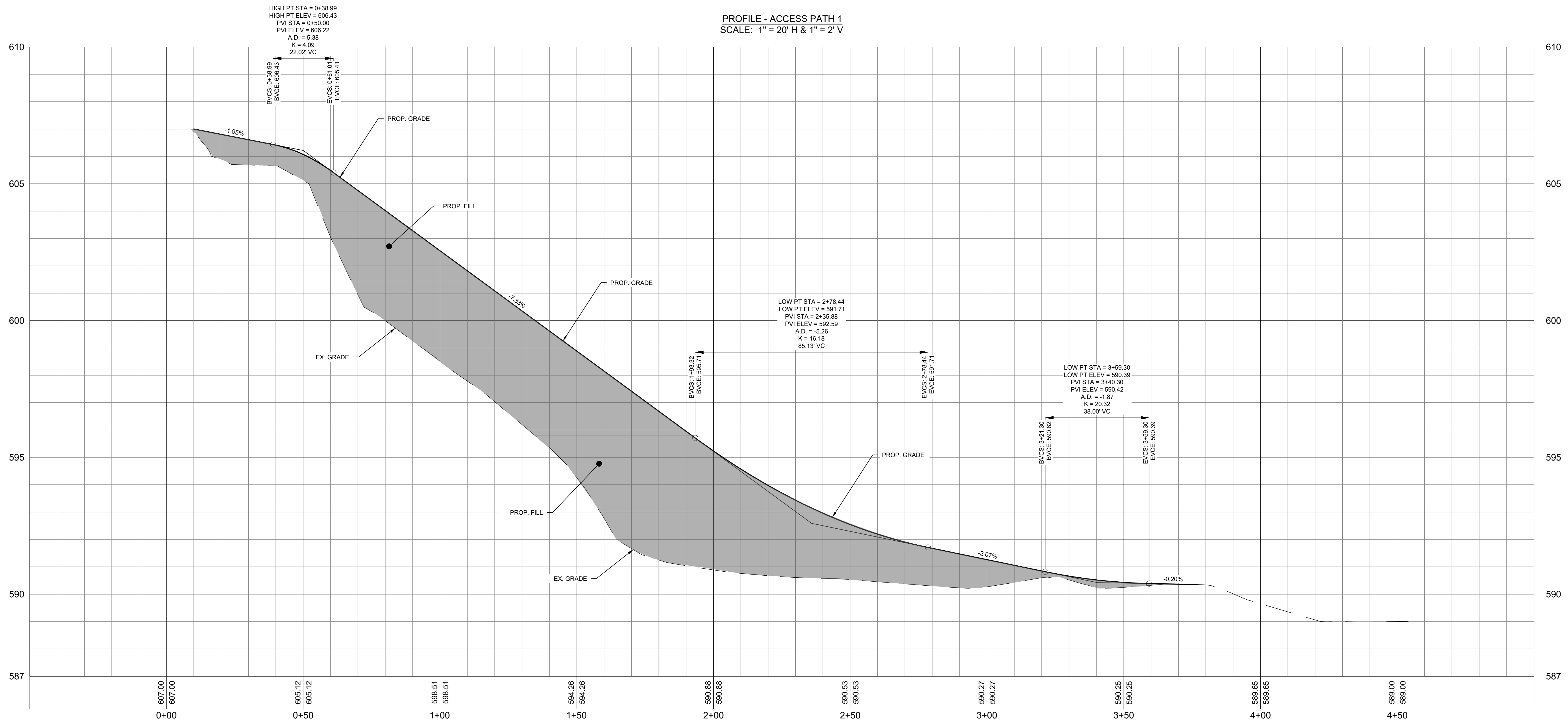
- ALL MATERIALS AND CONSTRUCTION WITHIN RIGHT OF WAYS SHALL BE IN ACCORDANCE WITH NCDOT AND CITY OF CONCORD STANDARDS AND SPECIFICATIONS AND ALL OTHER CITY, STATE AND FEDERAL REGULATIONS AND/OR STANDARDS.
- EXISTING UTILITIES ARE SHOWN SCHEMATICALLY AND ARE FOR THE CONTRACTOR'S GUIDANCE ONLY. THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING IMPROVEMENTS IN THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION. REPAIRS SHALL BE EQUAL TO OR BETTER THAN CONDITION PRIOR TO CONSTRUCTION.
- BOUNDARY SURVEY: BOUNDARY SURVEY INFORMATION IS BASED ON THE BOUNDARY SURVEY PREPARED BY RB PHARR AND ASSOCIATES, PA. REFER TO THE BOUNDARY SURVEY AND PLAT TO VERIFY PROPERTY LINES AND EASEMENT LOCATIONS.

Concord Notes

- PER CITY OF CONCORD CODE OF ORDINANCE CHAPTER 62, ARTICLE 3, SECTION 62-98 (3) ALL MATERIALS, EQUIPMENT, LABOR, AND WORKMANSHIP ASSOCIATED WITH PUBLIC WATER AND/ OR SEWER EXTENSION AND/OR MODIFICATION SHALL BE IN ACCORDANCE WITH AND SUBJECT TO THE WATER AND SEWER AUTHORITY OF CABARRUS COUNTY'S STANDARD SPECIFICATIONS, THE CITY OF CONCORD'S ORDINANCES, POLICIES, AND STANDARD SPECIFICATIONS, AND THE NORTH CAROLINA ADMINISTRATIVE CODE FOR WASTEWATER DISTRIBUTION SYSTEMS. IN THE EVENT OF CONFLICT BETWEEN THE WATER AND SEWER AUTHORITY OF CABARRUS COUNTY'S STANDARD SPECIFICATIONS, THE CITY OF CONCORD'S ORDINANCES, POLICIES, AND STANDARD SPECIFICATIONS, OR THE NORTH CAROLINA CODE, THE MOST RESTRICTIVE REQUIREMENTS SHALL APPLY.
- REVIEW AND APPROVAL OF THE PLANS DOES RELIEVE THE OWNER, CONTRACTOR, OR DEVELOPER FROM MEETING THE REQUIREMENTS OF THE CITY OF CONCORD'S OR CABARRUS COUNTY ORDINANCES, POLICIES, AND STANDARD SPECIFICATIONS, (AS APPLICABLE), CONCORD WATER & SEWER POLICIES AND TECHNICAL SPECIFICATIONS, THE STANDARD SPECIFICATION FOR WASTEWATER COLLECTION & WASTE DISTRIBUTION FOR CABARRUS COUNTY (WSACC MANUAL) AND ANY OTHER LOCAL, STATE, AND FEDERAL REGULATIONS AND APPROVALS. THE CONTRACTOR MUST CONTACT THE CITY OF CONCORD ENGINEERING CONSTRUCTION MANAGER AT 704-920-5425 AT LEAST 24-HOURS PRIOR TO INITIATING ANY CONSTRUCTION ACTIVITY.
- THE EXISTING WATER MAIN VALVE RIMS AND STEAMS AND THE EXISTING SEWER MAIN MANHOLE RIMS ARE TO BE RAISED OR LOWERED TO FINAL GRADE, AS APPLICABLE AND AT LEAST 5 FT OF GROUND COVER IS REQUIRED.
- PER THE CITY OF CONCORD CODE OF ORDINANCE CHAPTER 62, ARTICLE 3, SECTION 62-98 THE FOLLOWING MINIMUM SEPARATIONS MUST BE INDICATED, UNLESS OTHERWISE APPROVED BY THE CITY OF CONCORD.
 - A MINIMUM HORIZONTAL SEPARATION OF FIVE FEET SHALL BE MAINTAINED BETWEEN ANY TYPE OF MAINTENANCE OBSTRUCTION AND THE CITY'S WATER DISTRIBUTION LINES, WASTEWATER COLLECTION LINES, AND ASSOCIATED APPURTENANCES, UNLESS AN EXCEPTION IS GRANTED. GREATER SEPERATION DISTANCES MAY BE REQUIRED AS SPECIFIED BY FEDERAL, STATE, OR LOCAL REGULATIONS.
 - A MINIMUM VERTICAL SEPERATION OF TWO FEET SHALL BE MAINTAINED BETWEEN ANY TYPE OF MAINTENANCE OBSTRUCTION, INCLUDING BUT NOT LIMITED TO ANY OTHER UTILITY PROVIDER'S LINES OR EQUIPMENT, AND THE CITY'S WATER DISTRIBUTION LINES, WASTEWATER COLLECTION LINES, AND ASSOCIATED APPURTENANCES, UNLESS AN EXCEPTION IS GRANTED. IF AN EXCEPTION IS GRANTED, A MINIMUM VERTICAL SEPERATION OF ONE FOOT MUST BE MAINTAINED AND THE CITY WATER DISTRIBUTION LINES, WASTEWATER COLLECTION LINES, AND ASSOCIATED APPURTENANCES SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE OR AN APPROVED FERROUS MATERIAL WITH JOINTS THAT EQUIVALENT TO POTABLE WATER MAIN STANDARDS FOR A DISTANCE OF TEN FEET ON EITHER SIDE OF THE POINT OF CROSSING. GREATER SEPERATION DISTANCES MAY BE REQUIRED AS SPECIFIED BY FEDERAL, STATE, OR LOCAL REGULATIONS.
 - A MINIMUM HORIZONTAL SEPERATION OF TEN FEET SHALL BE MAINTAINED BETWEEN THE CITY WATER DISTRIBUTION SYSTEM AND WASTEWATER COLLECTION LINES, AND ASSOCIATED APPURTENANCES, UNLESS AN EXCEPTION IS GRANTED.



PROFILE - ACCESS PATH 1
 SCALE: 1" = 20' H & 1" = 2' V



09/01/2022

ISSUED FOR PERMITTING

12" PUBLIC SEWER EXTENSION

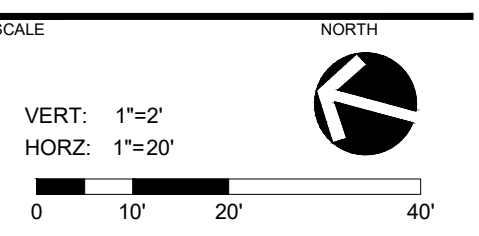
PHASE 2
 CITY OF CONCORD
 PO BOX 308

LANDDESIGN PROJ# 1020059

REVISION / ISSUANCE

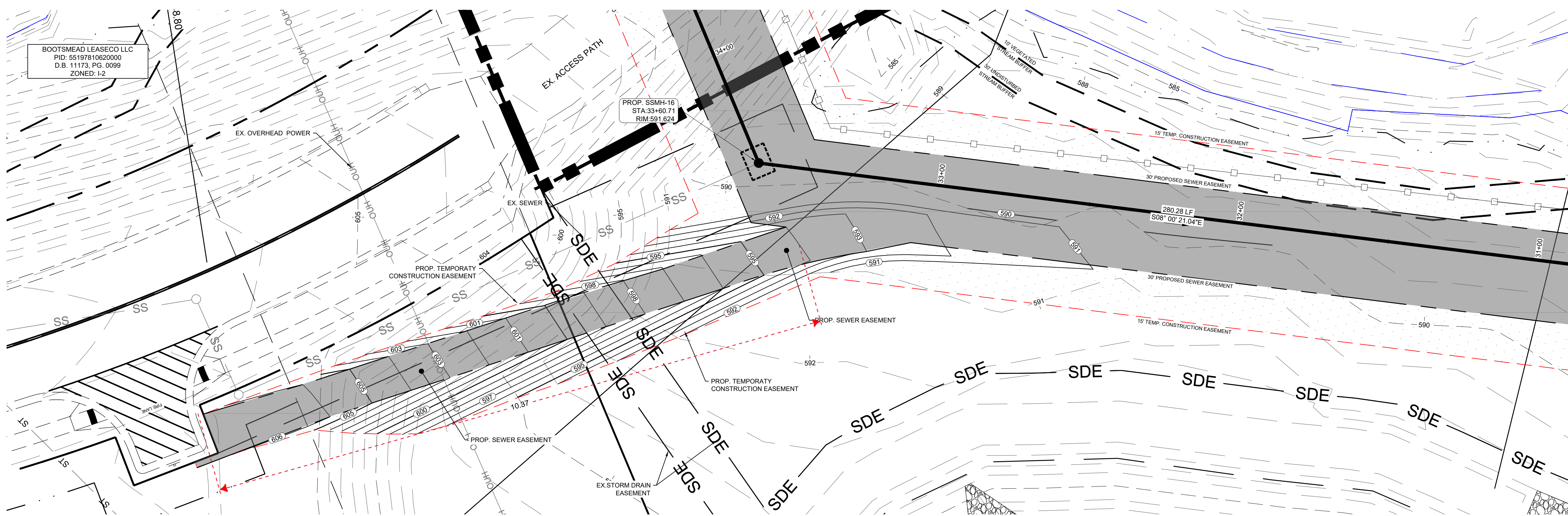
NO.	DESCRIPTION	DATE
1	CITY SUBMITTAL	09.01.2022

DESIGNED BY: LDI
 DRAWN BY: RSK
 CHECKED BY: RAK



ACCESS PATH PLAN AND PROFILE

SHEET NUMBER C1-10



RELATION OF WATER MAINS TO SEWER MAINS

NOTES:
WHEN THE WATER MAIN IS ABOVE THE SEWER, BUT WITH LESS THAN 24" OF VERTICAL CLEARANCE, OR WHEN THE SEWER IS ABOVE THE WATER MAIN, BOTH THE WATER MAIN AND THE SEWER MAIN SHALL BE CONSTRUCTED OF 20 LINEAR FEET OF FERROUS MATERIALS LOCATED ON CENTER TO THE CROSSING, WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A MINIMUM LATERAL SEPARATION OF 10 FEET TO EACH SIDE OF THE CROSSING, AS MEASURED AT RIGHT ANGLES TO THE SEWER CROSSING.
FOR ALL WATER MAINS AT THE PIPE MATERIAL TRANSITIONS FROM C-900 PVC TO DUCTILE IRON (DI) PIPE, RESTRAINED MECHANICAL JOINT SLEEVES SHALL BE UTILIZED TO JOIN THE PIPES.

CITY OF CONCORD STANDARD DETAIL
RELATION OF WATER MAINS TO SEWER MAINS

1. 2/10/10 MSH
2. 2/10/10 MSH
3. 2/10/10 MSH
4. 2/10/10 MSH
5. 2/10/10 MSH
6. 2/10/10 MSH
7. 2/10/10 MSH
8. 2/10/10 MSH
9. 2/10/10 MSH
10. 2/10/10 MSH

NOTES:
WHEN A WATER MAIN OR SANITARY SEWER MAIN CROSSES OVER OR UNDER A STORM SEWER AND CONDITIONS PREVENT THE REQUIRED 24" MIN VERTICAL SEPARATION, THE WATER MAIN OR SANITARY SEWER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A MINIMUM DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
FOR ALL WATER MAINS AT THE PIPE MATERIAL TRANSITIONS FROM C-900 PVC TO DUCTILE IRON (DI) PIPE, RESTRAINED MECHANICAL JOINT SLEEVES SHALL BE UTILIZED TO JOIN THE PIPES.

CITY OF CONCORD STANDARD DETAIL
RELATION OF WATER MAINS AND SEWER MAINS TO STORM SEWER

1. 11/09/09 MSH
2. 11/09/09 MSH
3. 11/09/09 MSH
4. 11/09/09 MSH
5. 11/09/09 MSH
6. 11/09/09 MSH
7. 11/09/09 MSH
8. 11/09/09 MSH
9. 11/09/09 MSH
10. 11/09/09 MSH

NOTES:
1. MANHOLE RISERS AND CONE SECTIONS SHALL CONFORM TO ASTM A753, LATEST REVISION.
2. TRANSITION RINGS SHALL HAVE A MINIMUM CLEARANCE OF 2" ABOVE THE EFFLUENT INVERT ELEVATION.
3. FLEXIBLE WATER-TIGHT SYNTHETIC RUBBER GLEVES, WITH STAINLESS STEEL CLAMP, DRAW BOLT AND NUT, OR CAST-IN SLEEVE, OR "X" LOCK CONNECTION SHALL BE FURNISHED FOR EACH PIPE TO MANHOLE CONNECTION.
4. MANHOLE HEIGHT OF GRADE ADJUSTMENT RINGS SHALL NOT EXCEED 12".
5. ALL MANHOLE COMPONENTS SHALL BE 30# TRAFFIC LOAD RATED.
6. MANHOLE RINGS MUST BE ABOVE FINISHED GRADE IN OUTLASH CONDITIONS AND IN 100-YEAR FLOOD AREAS, UNLESS EXCEPTIONS ARE GRANTED BY THE CITY IN ACCORDANCE TO CITY CODE.
7. WHERE THE MANHOLE RIM WILL BE LESS THAN 2' ABOVE THE 100-YEAR FLOOD ELEVATION, THE MANHOLE RIMS AND COVERS ARE TO BE SEALED WATER-TIGHT WITH BOLTED RIM AND COVERS, AND THE MANHOLE PIPE IS TO BE VENTED WITH A VENT PIPE UNLESS A VENT MANHOLE VENT PIPE IS WITHIN 100' OF THE MANHOLE. AN OUTLASH MANHOLE RIM ELEVATION CANNOT EXCEED 2' ABOVE FINAL GRADE.
8. MANHOLES SHALL NOT BE LOCATED WITHIN ANY FEATURE CONVEYING OR PROTECTING EROSION-CONTROL AND/OR OTHER FEATURES.
9. FOR SANITARY SEWER LINES ENTERING AND EXITING A MANHOLE, SEPARATED BY 200' OR MORE, THE INVERT-IN AND INVERT-OUT ELEVATIONS SHALL HAVE A VERTICAL SEPARATION OF AT LEAST FIFTY PERCENTS OF ONE FOOT. ALL OTHER MANHOLES SHALL HAVE AT LEAST TWO TENTHS OF VERTICAL SEPARATION BETWEEN THE INVERT-IN AND INVERT-OUT ELEVATIONS.
10. 9" DIAMETER INSIDE DROP MANHOLES SHALL BE PROVIDED WHERE INVERT SEPARATIONS EQUAL TO OR GREATER THAN 12" DIAMETER PIPES OR SMALLER. THREE 12" DIAMETER OR SMALLER PIPE DROPS ARE NEEDED AT A MANHOLE. A 4" INSIDE DROP MANHOLE SHALL BE PROVIDED IF THE INVERT SEPARATION IS 2' OR GREATER AND A PIPE DIAMETER LARGER THAN 12". AN OUTSIDE DROP MANHOLE SHALL BE PROVIDED (SEE DROP MANHOLE DETAIL).

CITY OF CONCORD STANDARD DETAIL
PRECAST CONCRETE MANHOLE

PIPE DIAMETER (INCHES)	MANHOLE DIAMETER (FEET)
8 TO 16	4
18 TO 36	5
39 TO 54	6
54 AND LARGER	8

1. 07/27/05 MSH
2. 07/27/05 MSH
3. 07/27/05 MSH
4. 07/27/05 MSH
5. 07/27/05 MSH
6. 07/27/05 MSH
7. 07/27/05 MSH
8. 07/27/05 MSH
9. 07/27/05 MSH
10. 07/27/05 MSH

NOTES:
1. NEW PAVEMENT SHALL HAVE SECTION THICKNESS DESIGNED TO NCDOT SUPERPAVE STANDARDS AS PROVIDED BY ENGINEER OR MATCH EXISTING CONSTRUCTION, WHICH EVER IS GREATER OR AS SPECIFIED BY THE CONTRACT DOCUMENTS.
2. TRENCH IS TO BE BACKFILLED IN COMPACTED 6" LAYERS BEFORE PAVEMENT REPAIRS ARE MADE.
3. REFER TO EARTHWORK SPECIFICATIONS FOR EMBEDMENT AND FILL REQUIREMENTS.
4. THIS DETAIL SHOWS ASPHALT PAVEMENT REPLACEMENT. THE WIDTH OF PAY LIMITS SHALL APPLY TO STONE AND CONCRETE PAVEMENT AS WELL.

CITY OF CONCORD STANDARD DETAIL
UTILITY CUT REPLACEMENT

1. 10/07/07 MSH
2. 10/07/07 MSH
3. 10/07/07 MSH
4. 10/07/07 MSH
5. 10/07/07 MSH
6. 10/07/07 MSH
7. 10/07/07 MSH
8. 10/07/07 MSH
9. 10/07/07 MSH
10. 10/07/07 MSH

NOTES:
1. INSTALL "RELINER-DURAN, INC." OR EQUAL INSIDE DROP BOWL AND ASSOCIATED APPURTENANCES, ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. ALL ADJUSTABLE CLAMPING BRACKETS AND ASSOCIATED APPURTENANCES SHALL BE STAINLESS STEEL. ANNULAR SPACES TO BE GROUT FILLED AND EPOXY COATED.
2. PIPING FOR INSIDE DROP SHALL BE SIZE 35 PVC CONFORMING TO ASTM SPECIFICATION D2003. BOTTOM BEAD TO BE 90° SHORT BEAD. BELL SPIGOT, OF SIZE 35 PVC, SPIGOT OF BEAD TO BE TURNED AT 45-DEGREE TO SEWER FLOW AND SHALL REST DIRECTLY ON EXISTING SLEEF. CONSTRUCT MASONRY TROUGH FROM DROP EFFLUENT TO MAIN CHANNEL.
3. LOCATE "RELINER-DURAN, INC." OR EQUAL STAINLESS STEEL ADJUSTABLE CLAMPING BRACKETS WITH ASSOCIATED APPURTENANCES AT PIPE BELL AND ABOVE BELL OF 90° BEAD AS SHOWN. ADD EXTERNAL CLAMPING BRACKETS AS NECESSARY TO MAINTAIN MAXIMUM SPACING OF FOUR FEET AND TO ENSURE A BRACKET IS LOCATED AT EACH PIPE JOINT (MIN OF 2').
4. HOLE IN MANHOLE WALL TO BE MADE WITH A CORING MACHINE. INSTALL FLEXIBLE RUBBER COUPLING. COUPLING SHALL NOT ENTER CONE SECTION. THE EFFLUENT SEWER MAIN PIPE SHALL BE AT EACH DROP MANHOLE. INSUFFICIENT MAIN SHALL NOT PROTRUDE MORE THAN 2-INCHES INTO THE INTERIOR OF MANHOLE. STEPS SHALL BE RELOCATED IF THEY CONFLICT WITH INSIDE DROP. ANNULAR SPACES TO BE GROUT FILLED AND EPOXY COATED.

CITY OF CONCORD STANDARD DETAIL
INSIDE DROP MANHOLE WITH DROP BOWL

1. 10/07/07 MSH
2. 10/07/07 MSH
3. 10/07/07 MSH
4. 10/07/07 MSH
5. 10/07/07 MSH
6. 10/07/07 MSH
7. 10/07/07 MSH
8. 10/07/07 MSH
9. 10/07/07 MSH
10. 10/07/07 MSH

TABLE OF EMBEDMENT DEPTHS BELOW PIPE

D	MIN SOIL	MIN ROCK
27" & SMALLER	6"	6"
30" TO 60"	6"	9"
66" & LARGER	6"	12"

NOTES:
1. GRANULAR EMBEDMENT MATERIAL SHALL BE CRUSHED ROCK, PEA GRAVEL, COARSE AGGREGATE, SIZE NUMBER 57. EMBEDMENT MATERIAL SHALL BE PLACED IN LAYERS NOT MORE THAN 6" DEEP AND COMPACTED AS SPECIFIED.
2. HAND PLACED EMBEDMENT SHALL BE COMPACTED FINELY DIVIDED MATERIAL FREE FROM DEBRIS AND STONES.
3. EMBEDMENT ABOVE THE TOP OF THE PIPE SHALL BE AN UNCOMPACTED LAYER FOR ALL INSTALLATIONS.
4. REFER TO SPECIFICATIONS FOR GEOTECHNICAL FABRIC OR SPECIAL EMBEDMENT REQUIREMENTS FOR TRENCHES IN FINE SOILS EXTENDING BELOW GROUNDWATER LEVEL.
5. TRENCH OUTLINES DO NOT INDICATE ACTUAL TRENCH EXCAVATION SHAPE, SOIL CONDITIONS, OR PRESENCE OF SHEETING LEFT IN PLACE. EMBEDMENT MATERIAL SHALL EXTEND THE FULL WIDTH OF THE ACTUAL TRENCH EXCAVATION.

LEGEND
○ OUTSIDE DIAMETER OF PIPE COVER ABOVE TOP OF PIPE
○ NOMINAL PIPE SIZE
○ EMBEDMENT BELOW PIPE (SEE TABLE)
■ HAND PLACED EMBEDMENT
■ GRANULAR EMBEDMENT
■ CONCRETE

CLASS A ARCH ENCASMENT
CLASS B
CLASS C
CLASS D

WSACC EMBEDMENTS FOR MAINS
WATER AND SEWER AUTHORITY OF CABARRUS COUNTY
FILE NAME: WS_1.0 DATE: 8/06

1. 02/10/10 MSH
2. 02/10/10 MSH
3. 02/10/10 MSH
4. 02/10/10 MSH
5. 02/10/10 MSH
6. 02/10/10 MSH
7. 02/10/10 MSH
8. 02/10/10 MSH
9. 02/10/10 MSH
10. 02/10/10 MSH

TYPICAL TRENCHLESS EXCAVATION DETAIL
TYPICAL PIPE CROSSING UNDER ROADWAY RIGHT OF WAYS

CITY OF CONCORD STANDARD DETAIL
INSTALLATION OF CARRIER PIPE WITHIN RIGHT-OF-WAYS

1. 02/10/10 MSH
2. 02/10/10 MSH
3. 02/10/10 MSH
4. 02/10/10 MSH
5. 02/10/10 MSH
6. 02/10/10 MSH
7. 02/10/10 MSH
8. 02/10/10 MSH
9. 02/10/10 MSH
10. 02/10/10 MSH

TYPICAL STREAM/CREEK CROSSINGS
TYPICAL CONC. ANCHOR BLOCK

CITY OF CONCORD STANDARD DETAIL
STREAM/CREEK CROSSING

1. 01/11/11 MSH
2. 01/11/11 MSH
3. 01/11/11 MSH
4. 01/11/11 MSH
5. 01/11/11 MSH
6. 01/11/11 MSH
7. 01/11/11 MSH
8. 01/11/11 MSH
9. 01/11/11 MSH
10. 01/11/11 MSH

CARRIER PIPE
CASING PIPE

NOMINAL DIA.	HIGHWAY		RAILROAD		SPIDER/SPACER DIMENSIONS		
	O.D.	WALL	O.D.	WALL	A	B	C
6"	6.90"	12.75"	6.188"	6.250"	11"	1.144"	5/8"
8"	9.85"	18"	6.250"	6.312"	16 1/2"	2 1/4"	1"
12"	13.20"	24"	6.250"	6.468"	22 1/2"	3"	1 1/4"
16"	17.46"	30"	6.312"	6.500"	28 1/2"	3 1/2"	1 1/2"
24"	25.80"	36"	6.375"	6.5625"	34 1/2"	4"	1 3/4"

PIPE SUPPORT ASSEMBLY MARK NUMBER

NOMINAL DIA.	1	2	3	4
6"	6" X 2" X 1/4"	PL	6" X 1 1/2" X 1/4"	PL
8"	6" X 3" X 1/4"	PL	6" X 1 1/2" X 1/4"	PL
12"	6" X 4" X 1/4"	PL	6" X 3 3/4" X 3/8"	PL
16"	6" X 4" X 3/8"	PL	6" X 4" X 3/8"	PL
24"	6" X 4" X 3/8"	PL	6" X 5 1/2" X 3/8"	PL

CITY OF CONCORD STANDARD DETAIL
CARRIER PIPE WITHIN RIGHT-OF-WAYS

1. 08/21/11 MSH
2. 08/21/11 MSH
3. 08/21/11 MSH
4. 08/21/11 MSH
5. 08/21/11 MSH
6. 08/21/11 MSH
7. 08/21/11 MSH
8. 08/21/11 MSH
9. 08/21/11 MSH
10. 08/21/11 MSH

NOTES:
1. VENT PIPE SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02605.
2. VENT OPENING TO POINT DOWNSTREAM.
3. TWO 3" X 3/8" STEEL STRAPS, AND 3/8" X 4" EXPANSION ANCHOR BOLTS SHALL BE USED TO SECURELY ANCHOR VENT.
4. THE FOLLOWING TABLE SHALL BE USED TO DETERMINE THE LENGTH OF THE STRAPPED LEG.

HEIGHT OF VENT	LENGTH OF STRAPPED LEG
UP TO 6.00'	3.00'
6.01' TO 8.00'	4.00'
8.01' TO 10.00'	5.00'
10.01' TO 12.00'	6.00'
OVER 12.01'	7.00'

CITY OF CONCORD STANDARD DETAIL
STANDARD VENT FOR PRECAST CONCRETE MANHOLE

1. 01/20/10 MSH
2. 01/20/10 MSH
3. 01/20/10 MSH
4. 01/20/10 MSH
5. 01/20/10 MSH
6. 01/20/10 MSH
7. 01/20/10 MSH
8. 01/20/10 MSH
9. 01/20/10 MSH
10. 01/20/10 MSH

TYPICAL TRENCHLESS EXCAVATION DETAIL

CITY OF CONCORD STANDARD DETAIL
INSTALLATION OF CARRIER PIPE WITHIN RIGHT-OF-WAYS

1. 02/10/10 MSH
2. 02/10/10 MSH
3. 02/10/10 MSH
4. 02/10/10 MSH
5. 02/10/10 MSH
6. 02/10/10 MSH
7. 02/10/10 MSH
8. 02/10/10 MSH
9. 02/10/10 MSH
10. 02/10/10 MSH

TYPICAL STREAM/CREEK CROSSING

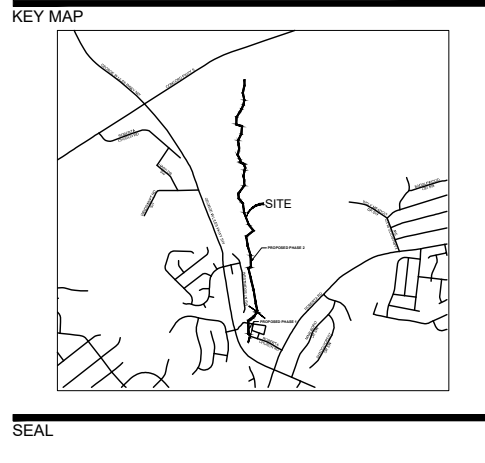
CITY OF CONCORD STANDARD DETAIL
STREAM/CREEK CROSSING

1. 01/11/11 MSH
2. 01/11/11 MSH
3. 01/11/11 MSH
4. 01/11/11 MSH
5. 01/11/11 MSH
6. 01/11/11 MSH
7. 01/11/11 MSH
8. 01/11/11 MSH
9. 01/11/11 MSH
10. 01/11/11 MSH

CARRIER PIPE
CASING PIPE

CITY OF CONCORD STANDARD DETAIL
CARRIER PIPE WITHIN RIGHT-OF-WAYS

1. 08/21/11 MSH
2. 08/21/11 MSH
3. 08/21/11 MSH
4. 08/21/11 MSH
5. 08/21/11 MSH
6. 08/21/11 MSH
7. 08/21/11 MSH
8. 08/21/11 MSH
9. 08/21/11 MSH
10. 08/21/11 MSH



ISSUED FOR PERMITTING

12" PUBLIC SEWER EXTENSION
PHASE 2
CITY OF CONCORD
PO BOX 308
CONCORD, NC 28026

LANDDESIGN PROJ# 1020059

REVISION / ISSUANCE		
NO.	DESCRIPTION	DATE
1	CITY SUBMITTAL	09.01.2022

DESIGNED BY: LDI
DRAWN BY: RSK
CHECKED BY: RAK

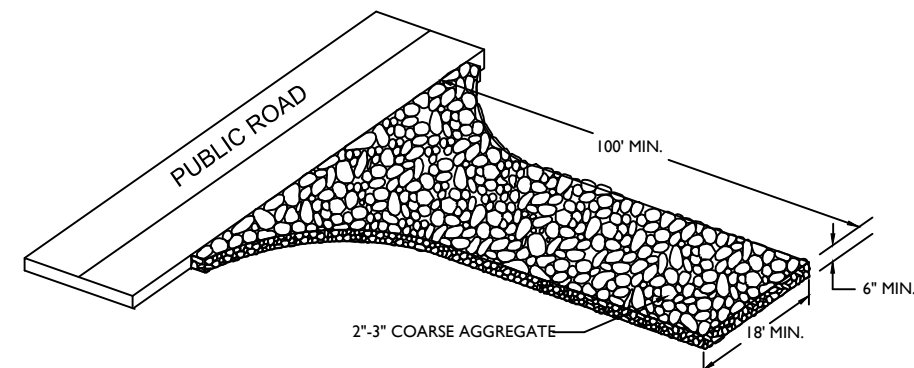
SCALE: NORTH

VERT: N/A
HORZ: NTS

(NOT TO SCALE)

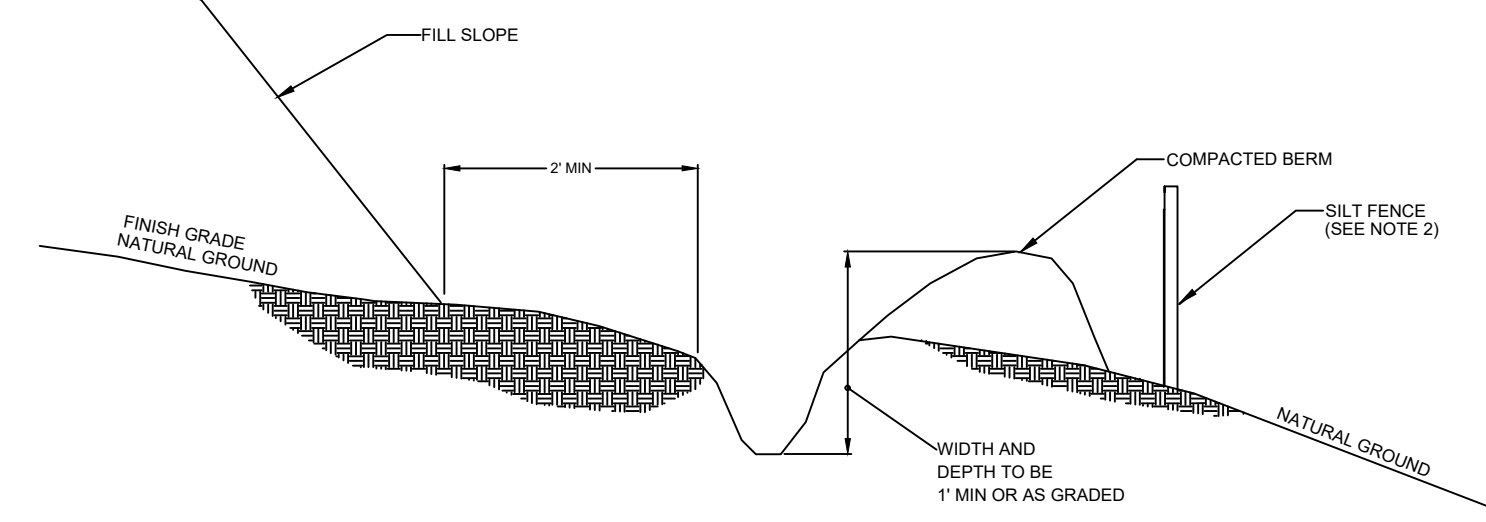
SEWER DETAILS

SHEET NUMBER: C1-20



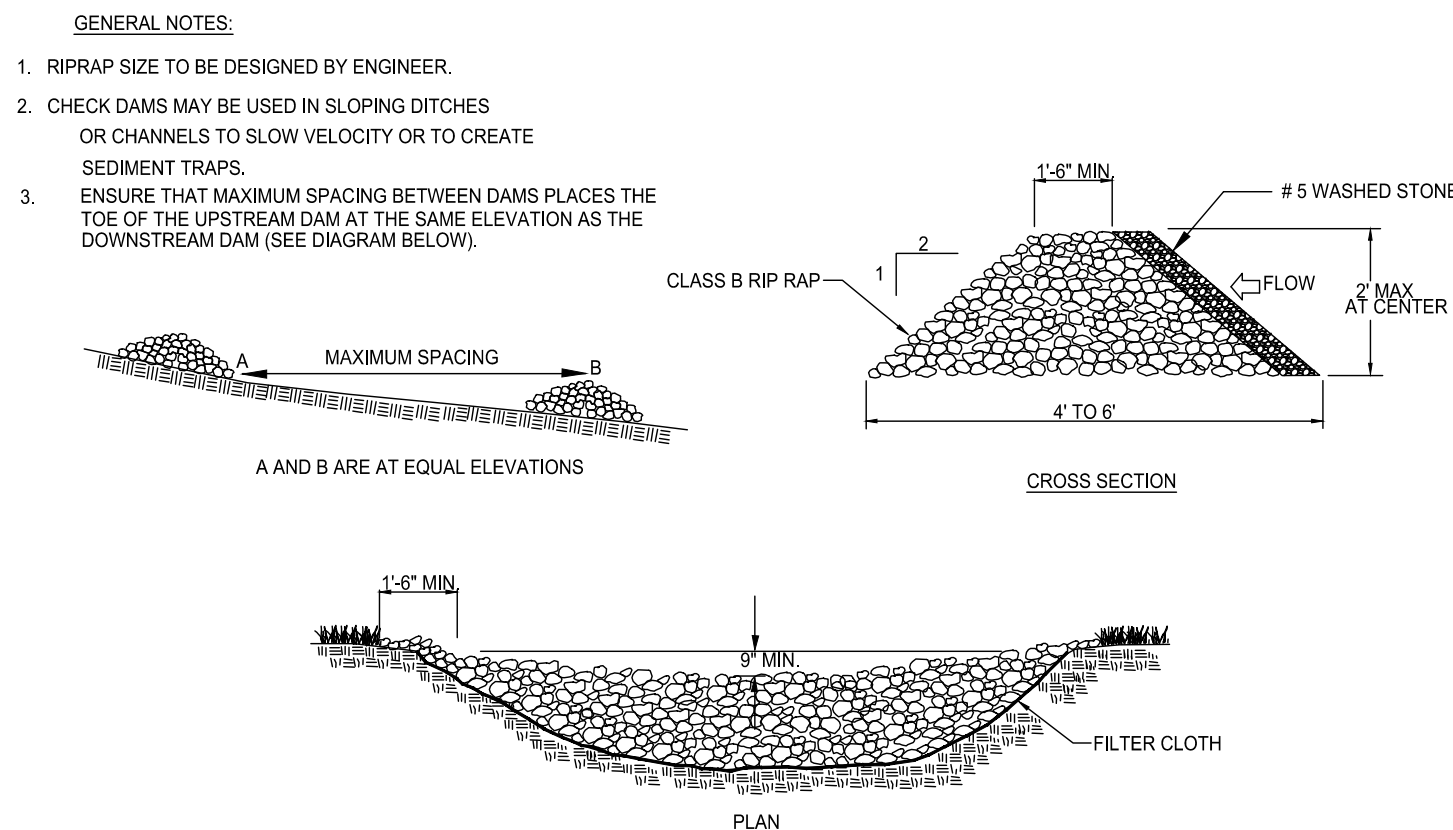
- GENERAL NOTES:**
- A STABILIZED PAD OF CRUSHED STONE SHALL BE LOCATED WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE TO OR FROM A PUBLIC STREET.
 - STONE TO BE 2 - 3 INCH WASHED STONE.
 - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS OR EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
 - ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC STREETS MUST BE REMOVED IMMEDIATELY.
 - WHEN NECESSARY WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTERING A PUBLIC STREET. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN.
 - FILTER FABRIC SHALL BE PLACED UNDER THE ENTRANCE EXIT AND SHALL BE MIN 100' OR EQUAL.

1 GRAVEL CONSTRUCTION ENTRANCE
C1-21 NCDEQ 6.06 NOT TO SCALE

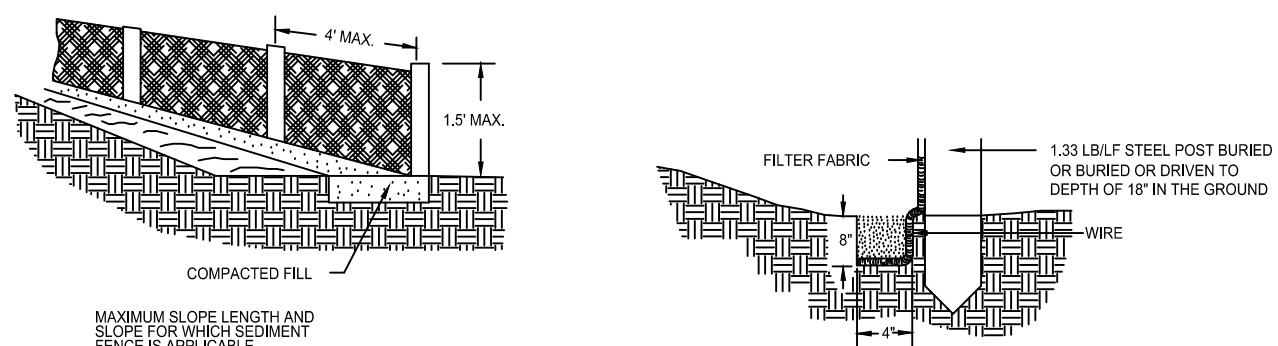


- NOTE:**
- DITCH SHOULD HAVE LONGITUDINAL SLOPE OF 1%.
 - SILT FENCE MAY BE REQUIRED BEHIND BERM.

2 TEMPORARY DIVERSION DITCH
C1-21 NCDEQ 6.20 NOT TO SCALE



3 TEMPORARY ROCK CHECK DAM
C1-21 NOT TO SCALE



SLOPE	SLOPE LENGTH (ft.)
< 2%	100
2 TO 5%	50
5 TO 10%	25
> 10%	15

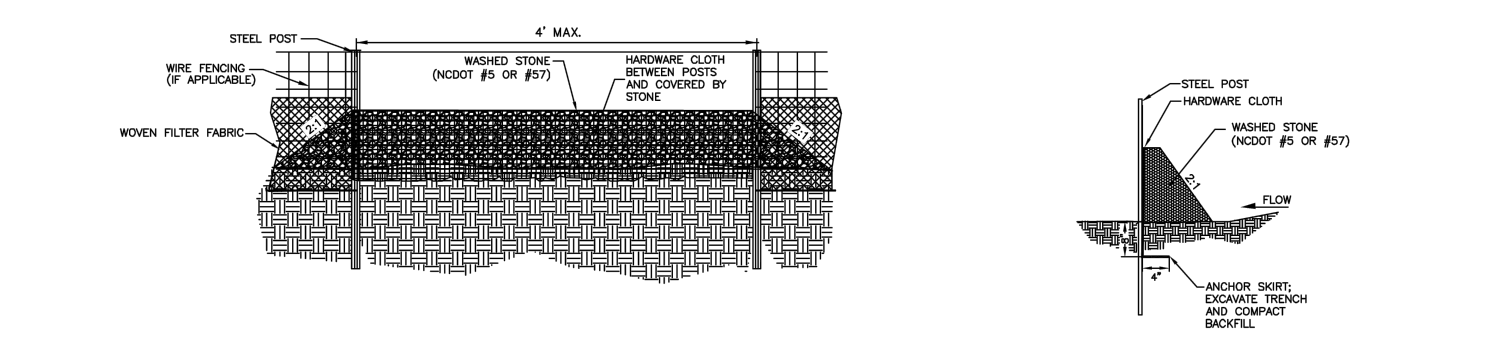
SPECIFICATIONS FOR SEDIMENT FENCE FABRIC

PHYSICAL PROPERTY	REQUIREMENTS
FILTERING EFFICIENCY	85% (MIN.)
TENSILE STRENGTH AT 50% MAX. ELONGATION	STANDARD STRENGTH - 3 LB./SQ. YD. (MIN.)
	EXTRA STRENGTH - 4 LB./SQ. YD. (MIN.)
SLURRY FLOW RATE	0.3 GAL./SQ. FT./MIN. (MIN.)

GENERAL NOTES:

- DRAINAGE AREA SHALL BE LESS THAN 1/4 ACRE PER 100 FEET OF FENCE.
- DEPTH OF WATER BEHIND FENCE SHALL NOT EXCEED 1.5 FEET.
- FOR REINFORCEMENT OF FABRIC, USE 1/4 GAUGE MESH WITH 4" SPACING.
- CONSTRUCT FENCE FROM A CONTINUOUS ROLL. JOINTS SHALL OVERLAP BY 4" MINIMUM.
- IF WIRE MESH IS USED, FENCE POST SPACING MAY BE 8' MAXIMUM.
- DO NOT ATTACH FABRIC TO EXISTING TREES.
- INSPECT FENCES WEEKLY AND AFTER RAINFALL EVENTS. REPAIRS SHALL BE MADE IMMEDIATELY.
- REMOVE SEDIMENT DEPOSITS AS NECESSARY TO ENSURE ADEQUATE STORAGE VOLUMES.
- PREFABRICATED SILT FENCE IS NOT ACCEPTABLE.

4 SEDIMENT FENCE (SILT FENCE)
C1-21 NCDEQ 6.62 NOT TO SCALE



- GENERAL NOTES:**
- SEDIMENT FILTER OUTLET AND HARDWARE CLOTH SHALL BE 16 INCHES HIGH BUT NO TALLER THAN 18 INCHES.
 - HARDWARE CLOTH SHALL BE ANCHORED TO THE STEEL POSTS SECURELY USING APPROVED HARDWARE. HARDWARE CLOTH SHALL BE HELD IN A MINIMUM OF 12 INCHES IN LENGTH AND BACKLAPPED PROPERLY AS SHOWN TO AVOID CREEP. HARDWARE CLOTH TO BE SAME AS TOE BUSH (1/4 GAUGE, 1/4" SPACING).
 - POSTS SHALL BE NO MORE THAN 4 FEET APART.
 - SITE OUTLETS AT ANY POINT SMALL CONCENTRATED FLOWS ARE ANTICIPATED AND AT THE DIRECTION OF THE INSPECTOR.
- MAINTENANCE NOTES:**
- FILTER OUTLETS SHALL BE INSPECTED BY THE FINANCIALLY RESPONSIBLE PARTY OR THE BEST MAINTENANCE AFTER EACH RAINFALL AND AT LEAST ONCE QUARTERLY PROLONGED RAINFALL. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
 - THE STONE SHALL BE REPLACED PROMPTLY AFTER ANY EVENT THAT HAS CLOSED OR REDUCED IT.
 - SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE BUSHES AND SEDIMENT DEPOSITS REMAINING IN PLACE WITH THE SILT FENCE OUTLETS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

5 SILT FENCE OUTLET
C1-21 NOT TO SCALE

SEEDING NOTES & SPECIFICATIONS:

GRASS SEED SHALL BE DROUGHT RESISTANT TALL FESCUE AND/OR PERENNIAL RYE UNLESS SPECIFIED OTHERWISE ON THE PLANT LIST. NEW VARIETIES WILL BE CONSIDERED FOR REVIEW. SEED SHALL HAVE A 97% MINIMUM PURITY AND 80% MINIMUM GERMINATION AND BE FREE OF NOXIOUS WEED SEEDS, AS CERTIFIED BY THE NORTH CAROLINA CO-OP IMPROVEMENT ASSOCIATION OR ITS APPROVED EQUIVALENT BY THE CONSULTANT.

SEEDING SPECIFICATIONS

SEASON	TYPE OF SEED	DATE	RATE
FALL	TALL FESCUE	SEP 1 - NOV 15	7 LBS/1,000 SF
	PERENNIAL RYE		5 LBS/1,000 SF
WINTER	PERENNIAL RYE	NOV 15 - MARCH 1	7 LBS/1,000 SF
SPRING / SUMMER	BLEND OF TWO TURF TYPE TALL FESCUE WITH RYE GRASS COVER CROP	MARCH 1 - SEP 1	5 LBS/1,000 SF

- MAINTENANCE SCHEDULE:**
- ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY STORM EVENT, BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY REPAIRS OR CLEANING NECESSARY TO MAINTAIN EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE COMPLETED IMMEDIATELY.
 - ALL SEEDED AREAS SHALL BE REFERTILIZED, RESEED AS NECESSARY, AND MULCHED ACCORDING TO THE SEEDING SCHEDULE.
 - MONITORING OF EROSION CONTROL AND SEDIMENTATION CONTROL MEASURES IS REQUIRED AT LEAST ONCE PER WEEK OR AFTER EVERY HALF INCH OF RAINFALL.
- EFFECTIVE OCTOBER 1, 2010, PERSONS RESPONSIBLE FOR LAND DISTURBING ACTIVITIES MUST INSPECT A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION CONTROL AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. SELF-INSPECTION REPORTS ARE REQUIRED. A SAMPLE SELF-INSPECTION PROGRAM, CAN BE FOUND ON THE LAND QUALITY WEB SITE: [HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML](http://www.dlr.enr.state.nc.us/pages/sedimentation_new.html)

Major Elements of DWQ Construction General Permit

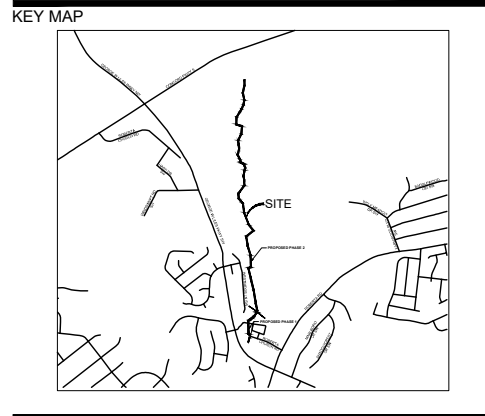
This document contains the major elements of the recently revised North Carolina Division of Water Quality (DWQ) Construction General Permit (CGP) which requires a permit for any activity that disturbs more than 100 square feet of land or 10 cubic yards of soil. It is intended to be used as a guide for permittees and the public. For more information, visit <http://www.dwr.state.nc.us/dwq/>.

Element	Permit Requirement	Compliance Time
1. Stormwater Management Plan (SWMP)	Develop and implement a SWMP for all activities that require a permit.	7 days
2. Erosion Control Measures	Implement erosion control measures to prevent sediment from leaving the site.	7 days
3. Sedimentation Control Measures	Implement sedimentation control measures to prevent sediment from leaving the site.	7 days
4. Stormwater Pollution Prevention Plan (SWPPP)	Develop and implement a SWPPP for all activities that require a permit.	7 days
5. Stormwater Sampling and Testing	Collect and test stormwater samples to ensure compliance with permit requirements.	7 days
6. Stormwater Discharge Monitoring	Monitor stormwater discharges to ensure compliance with permit requirements.	7 days
7. Stormwater Discharge Reporting	Report stormwater discharges to the permittee and the public.	7 days
8. Stormwater Discharge Record Keeping	Keep records of stormwater discharges for at least one year.	7 days
9. Stormwater Discharge Training	Train permittees and the public on stormwater management practices.	7 days
10. Stormwater Discharge Enforcement	Enforce permit requirements and take action against violators.	7 days

STABILIZATION TIMEFRAMES
(Effective Aug. 3, 2015)

Site Area Description	Stabilization	Timeframe Exceptions
Perimeter ditches, swales, ditches, slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 2:1	7 days	If slopes are 15' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 2:1 or flatter	14 days	7 days for slopes greater than 50' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.

- NOT EVERY PROJECT WILL HAVE ALL POSSIBLE PHASES, BUT A LIST OF PHASES INCLUDE:**
- INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL MEASURES
 - INSTALLATION OF SEDIMENT TRAPS/BASINS
 - CLEARING AND GRUBBING EXISTING GROUND COVER.



09/01/2022

ISSUED FOR PERMITTING

12" PUBLIC SEWER EXTENSION

PHASE 2
CITY OF CONCORD
PO BOX 308
CONCORD, NC 28026

LANDDESIGN PROJ# 1020059

REVISION / ISSUANCE

NO.	DESCRIPTION	DATE
1	CITY SUBMITTAL	09.01.2022

DESIGNED BY: LDI
DRAWN BY: RSK
CHECKED BY: RAK

SCALE: NORTH

VERT: N/A
HORZ: NTS

(NOT TO SCALE)

EROSION CONTROL DETAILS

SHEET NUMBER
C1-21

