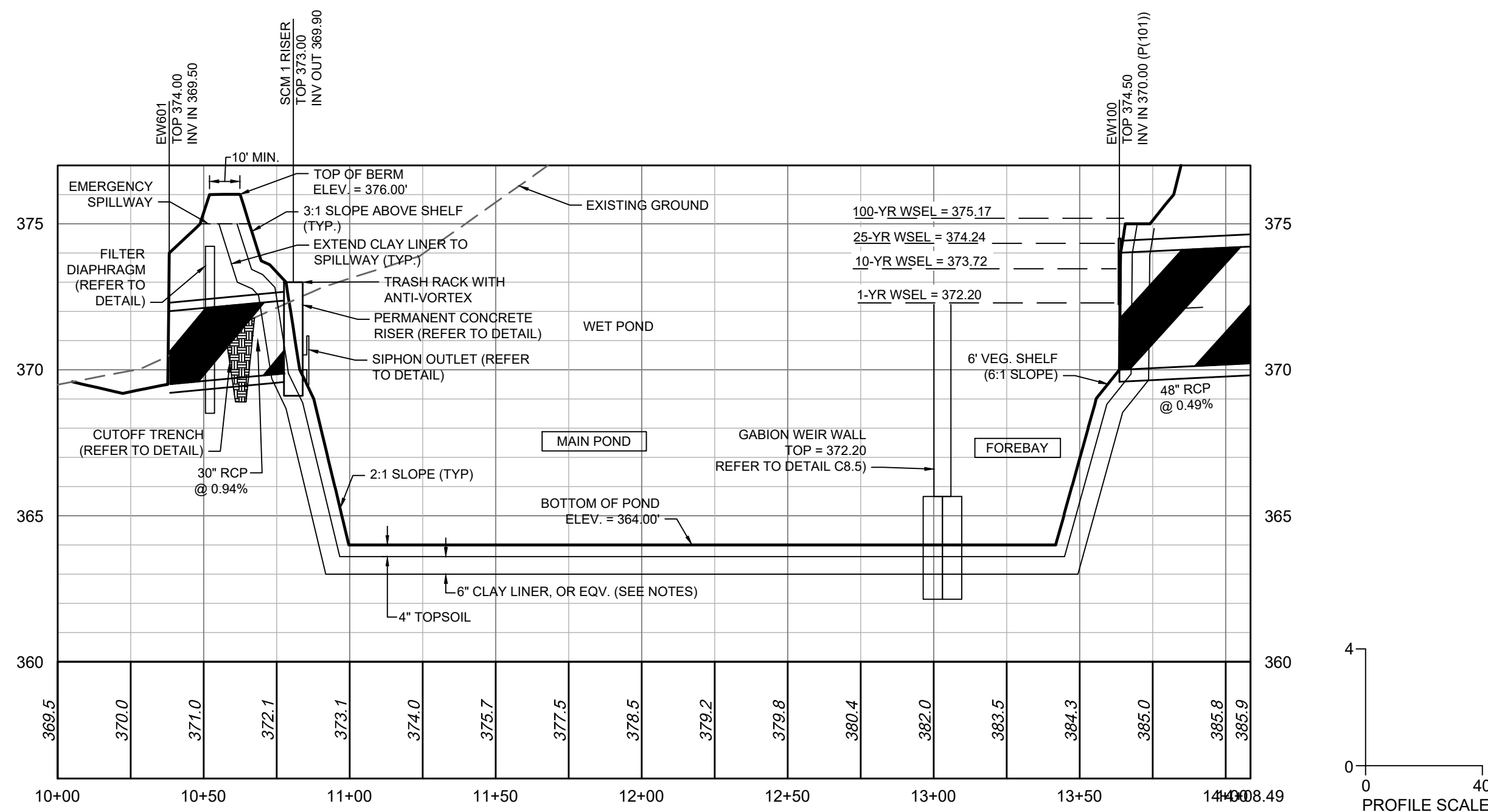
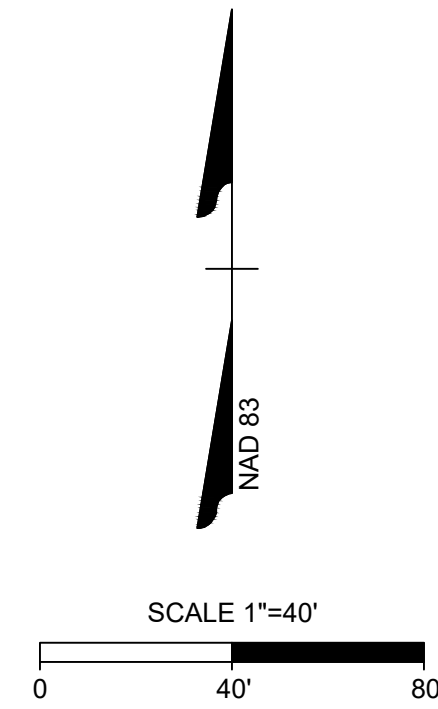


WET POND PLAN VIEW



WET POND PROFILE VIEW

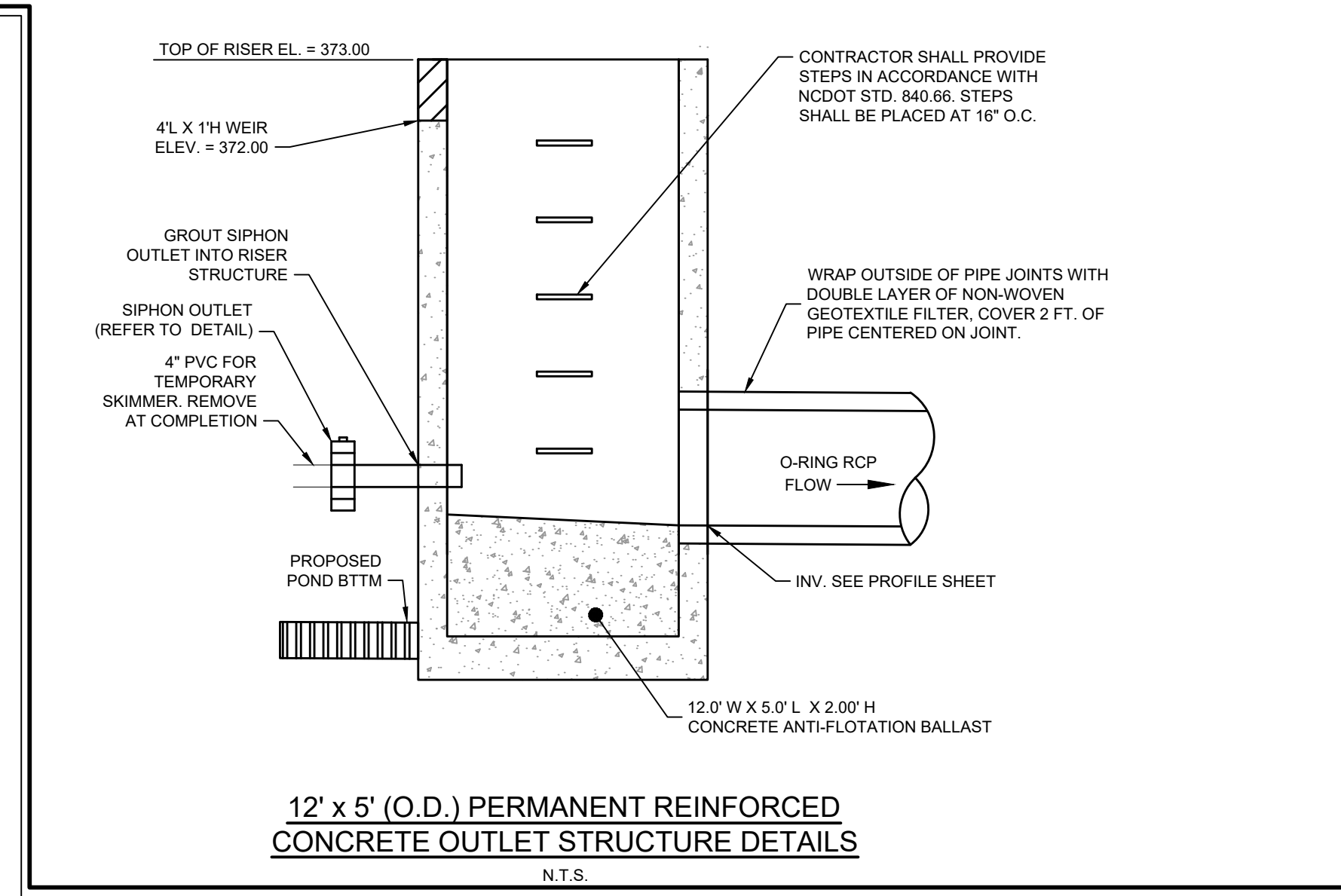
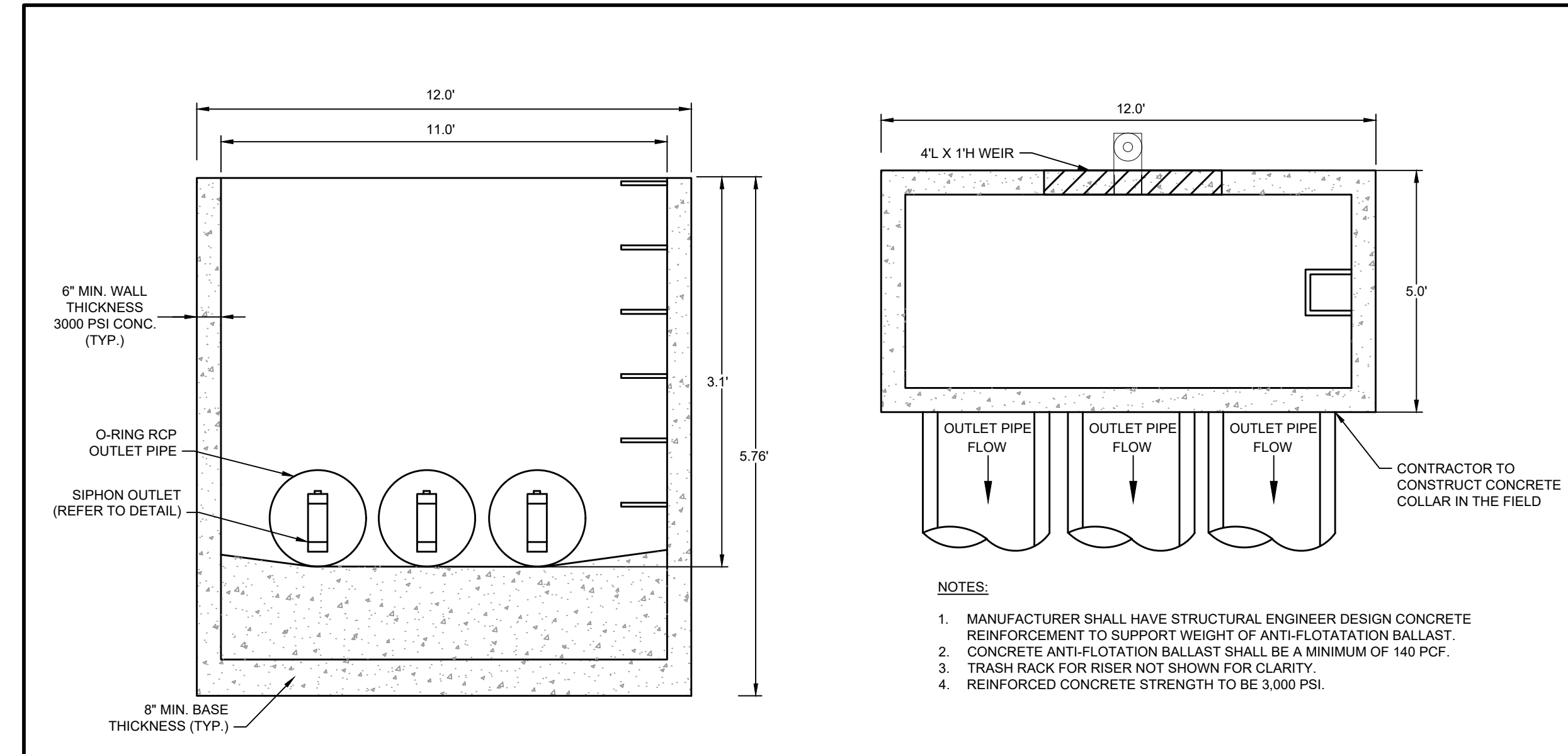
POND VEGETATED SHELF PLANT LIST

MINIMUM REQUIRED PLANT DENSITY = 50 PLANTS PER 200 SQUARE FEET OF VEGETATED SHELF
 (5,104 SF / 200 SF) * 50 PLANTS = 1,276 MINIMUM PLANTS REQUIRED.

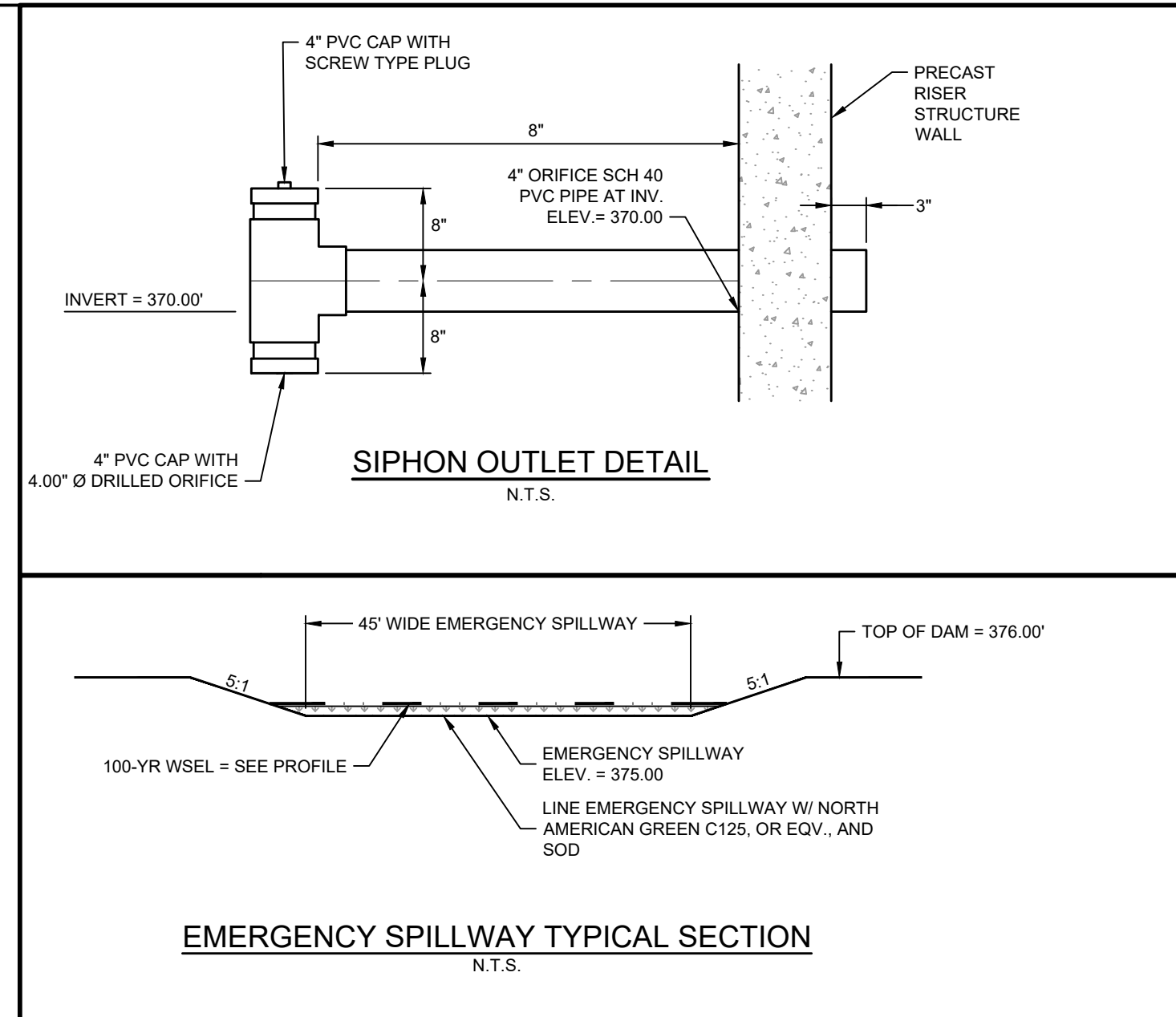
THE FOLLOWING PLANTS SHALL BE PLANTED ON THE 6-FOOT WIDE VEGETATED SHELF BETWEEN THE ELEVATIONS OF 369.0 - 370.0:

QUA.	BOTANICAL NAME	COMMON NAME	SPACING	NOTES
212	EUPATORIADELPHUS FISTULOSUS	JOE PYE WEED	4' O.C.	PLANT IN GROUPS OF 5
212	LOBELIA SIPHILITICA	GREAT BLUE LOBELIA	4' O.C.	PLANT IN GROUPS OF 5
213	LOBELIA CARDINALIS	CARDINAL FLOWER	4' O.C.	PLANT IN GROUPS OF 5
213	EUPATORIADELPHUS MACULATUS	SPOTTED TRUMPETWEED	4' O.C.	PLANT IN GROUPS OF 5
213	ASCLEPIAS INCARNATA	SWAMP MILKWEED	4' O.C.	PLANT IN GROUPS OF 5
213	SACCHARUM BALDWINII	NARROW PLUMEGRASS	4' O.C.	PLANT IN GROUPS OF 5

NURSERY SOURCES:
 MELLOW MARSH FARM (919) 742-1200
 CURE NURSERY (919) 542-6186



12' x 5' (O.D.) PERMANENT REINFORCED CONCRETE OUTLET STRUCTURE DETAILS



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06/24/2023	REVISIONS PER WAKE COUNTY COMMENTS
07/22/2023	CONSTRUCTION DOCUMENT SUBMITTAL
04/06/2023	REVISIONS PER NCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS

09/17/2021
 DRAWN BY
A. BROWN
 DESIGNED BY
P. BARBEAU
 CHECKED BY
P. BARBEAU
 SCALE
AS SHOWN

TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

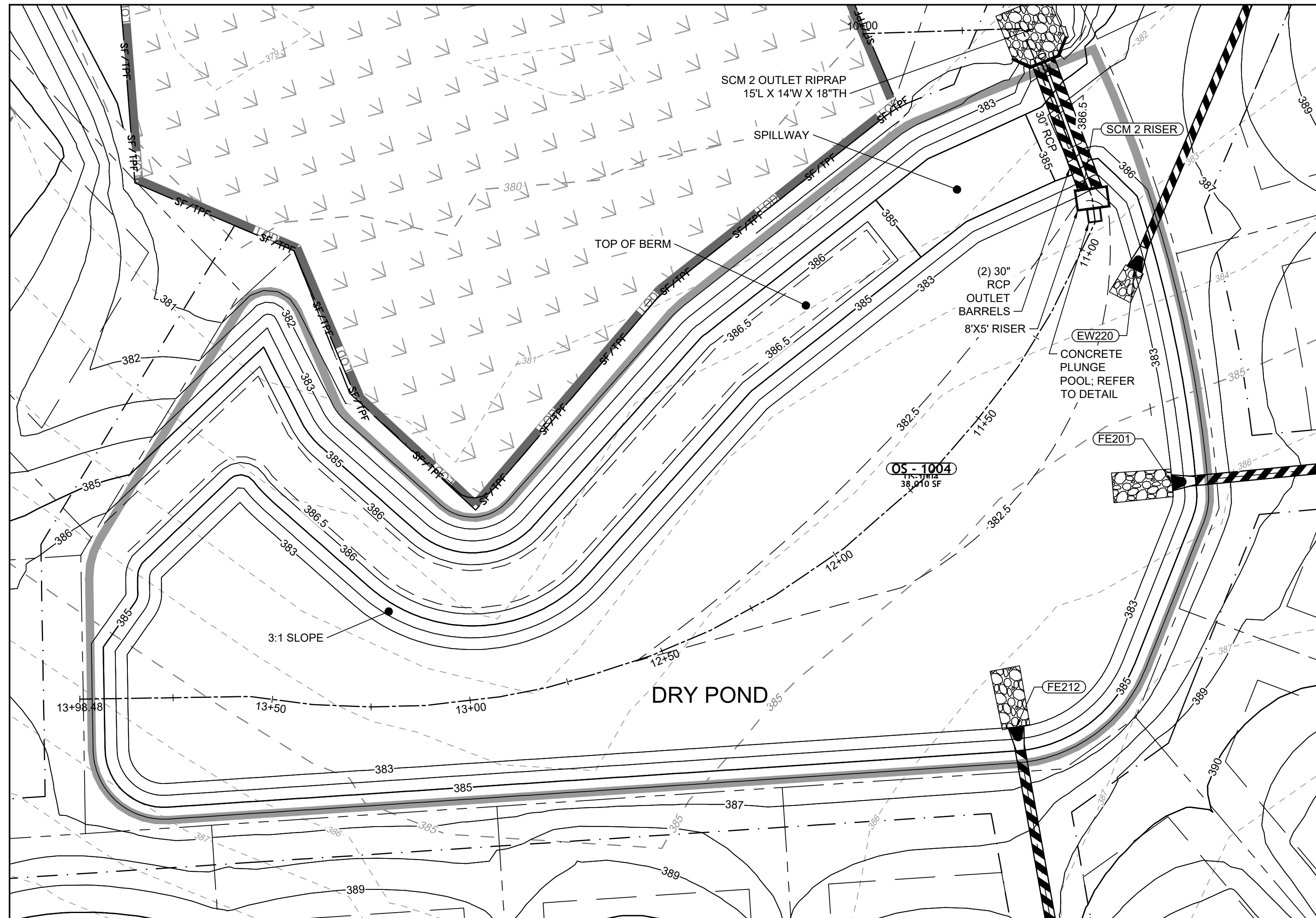
ROLESVILLE CROSSING - CD 21-08
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

SCM 1 DETAILS

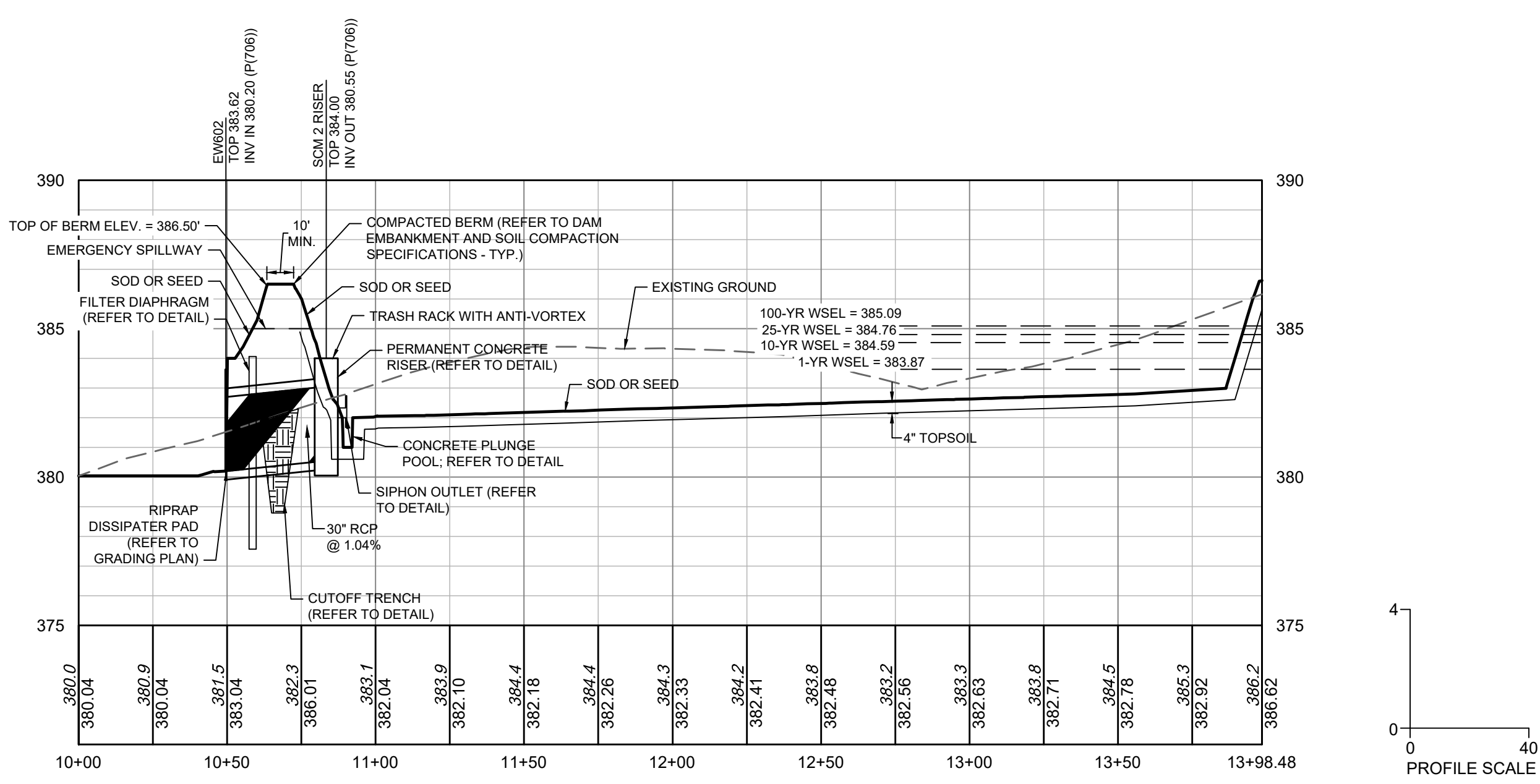
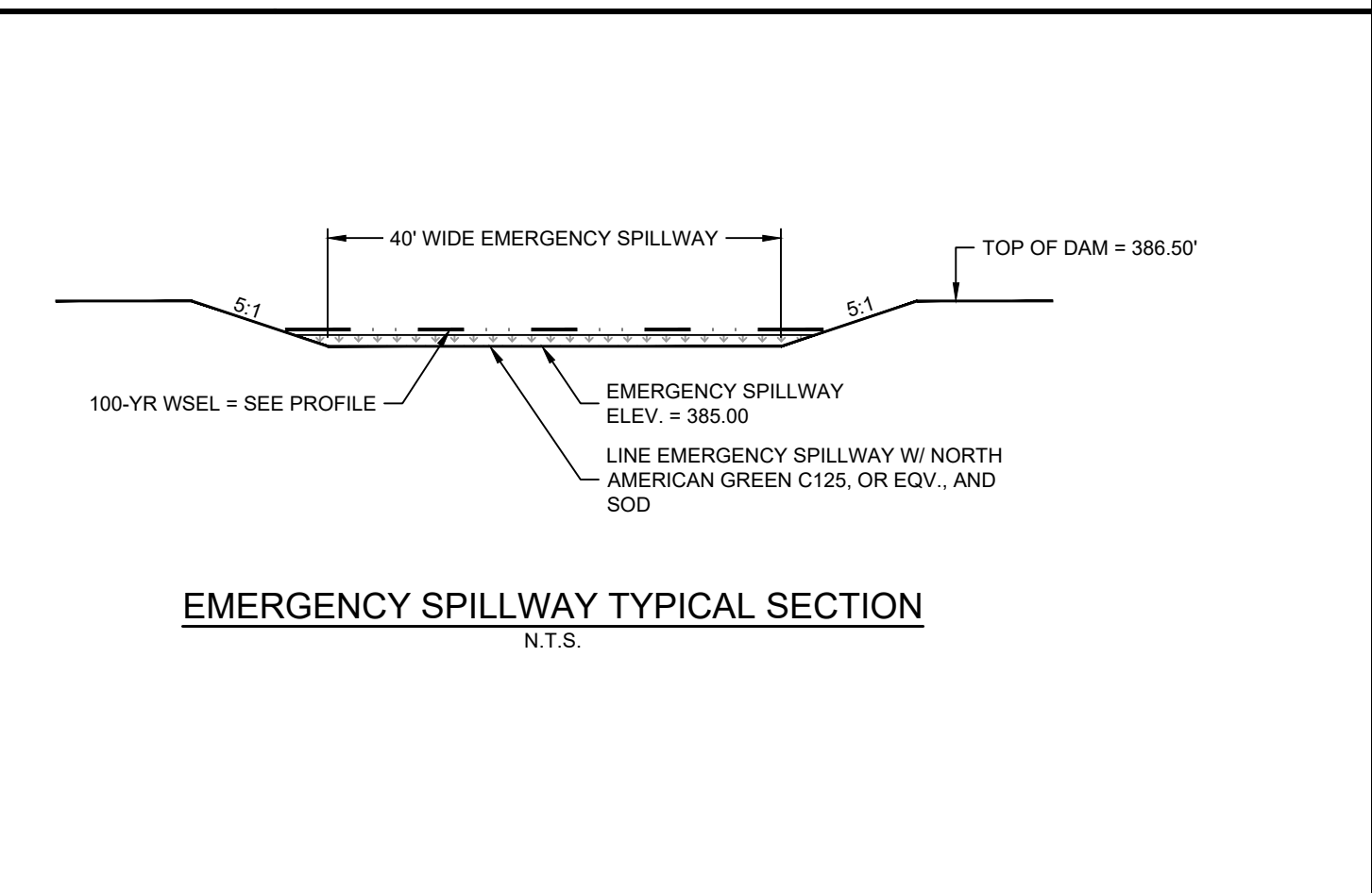
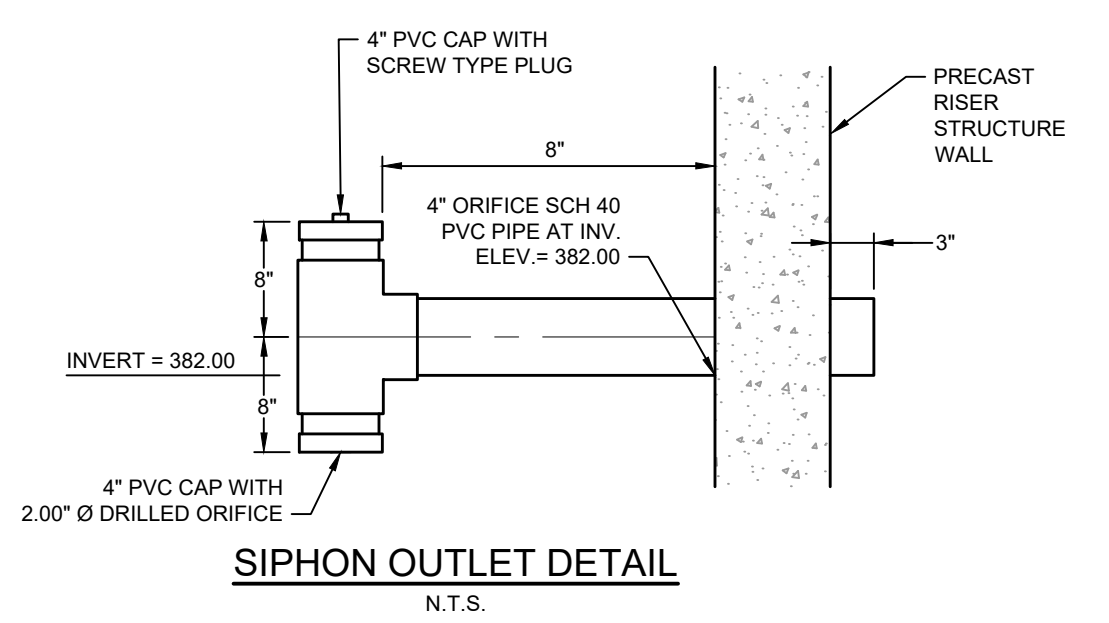
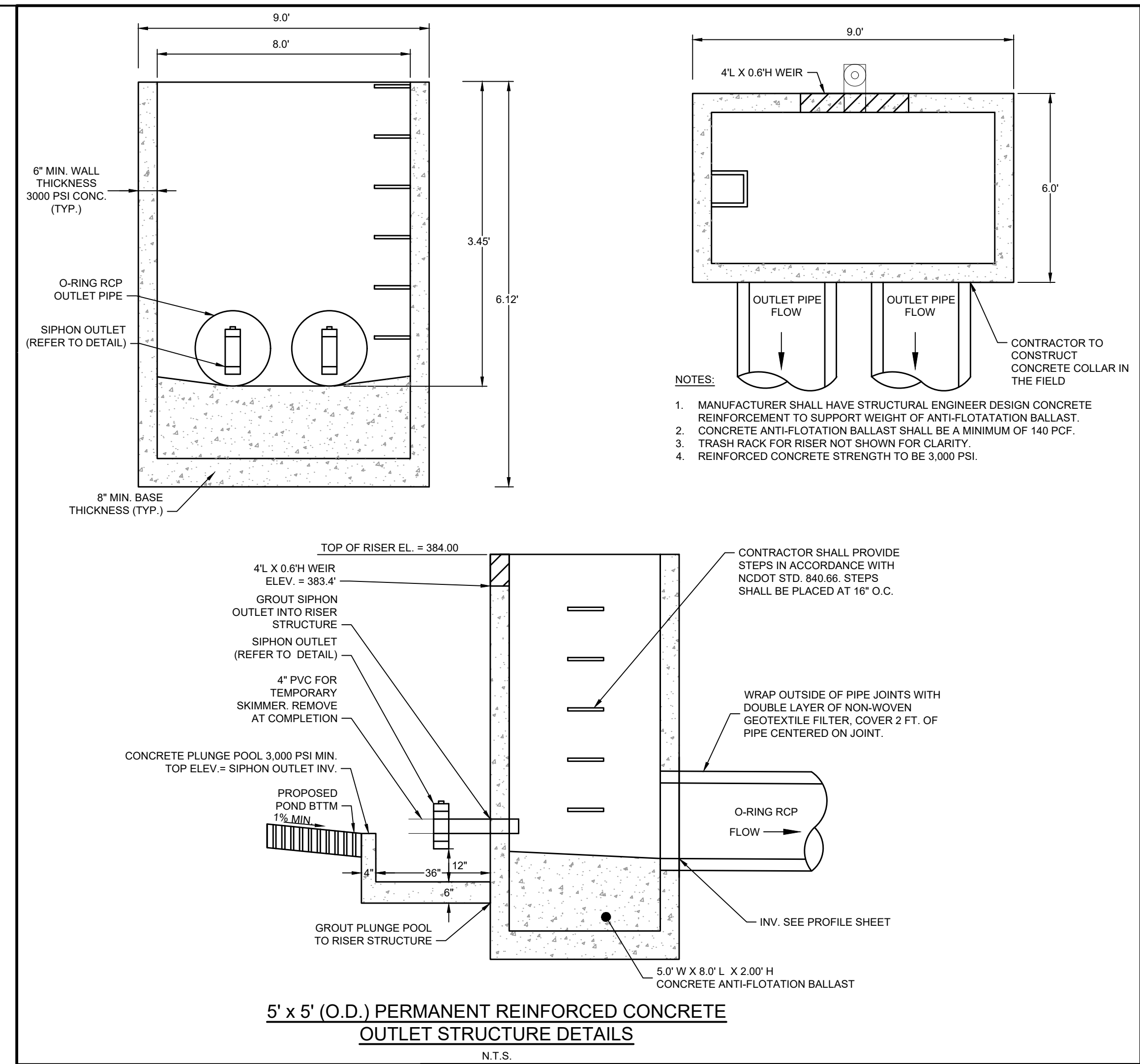
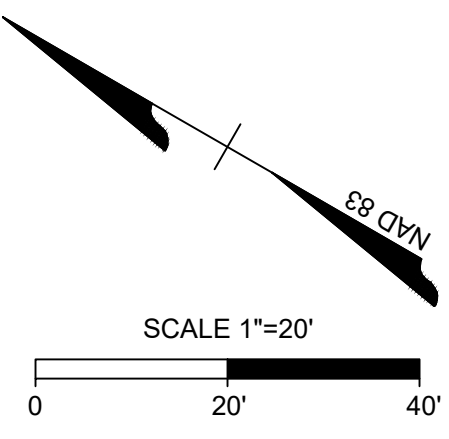
JOB NO.
43398

SHEET NO.
C8.0

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



DRY POND PLAN VIEW



DRY POND PROFILE VIEW



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04/06/2023	REVISIONS PER NCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS

09/17/2021
DRAWN BY
R. WINGATE
DESIGNED BY
P. BARBEAU
CHECKED BY
P. BARBEAU
SCALE
AS SHOWN

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROLESVILLE CROSSING - CD 21-08

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

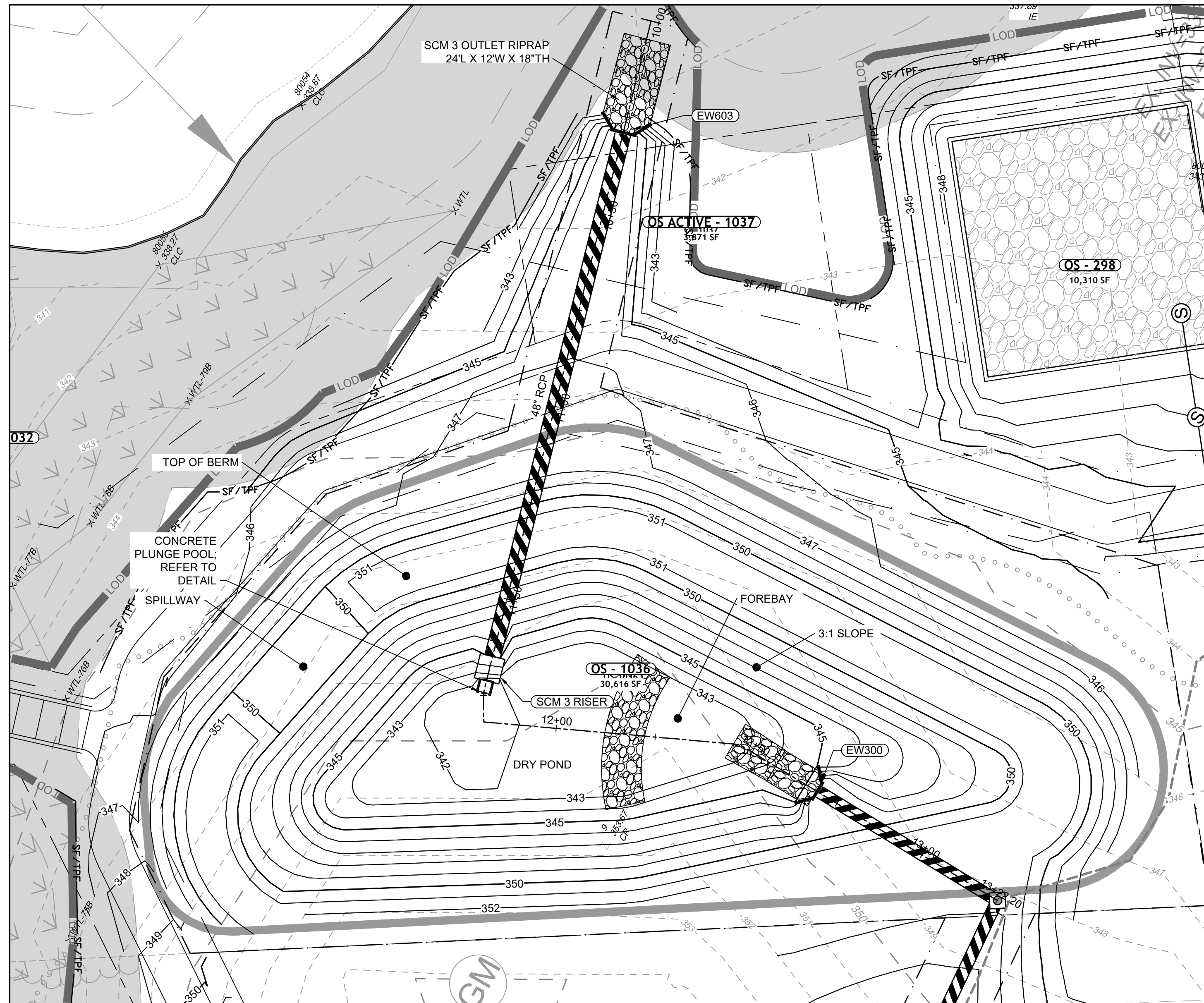
SCM 2 DETAILS

JOB NO.
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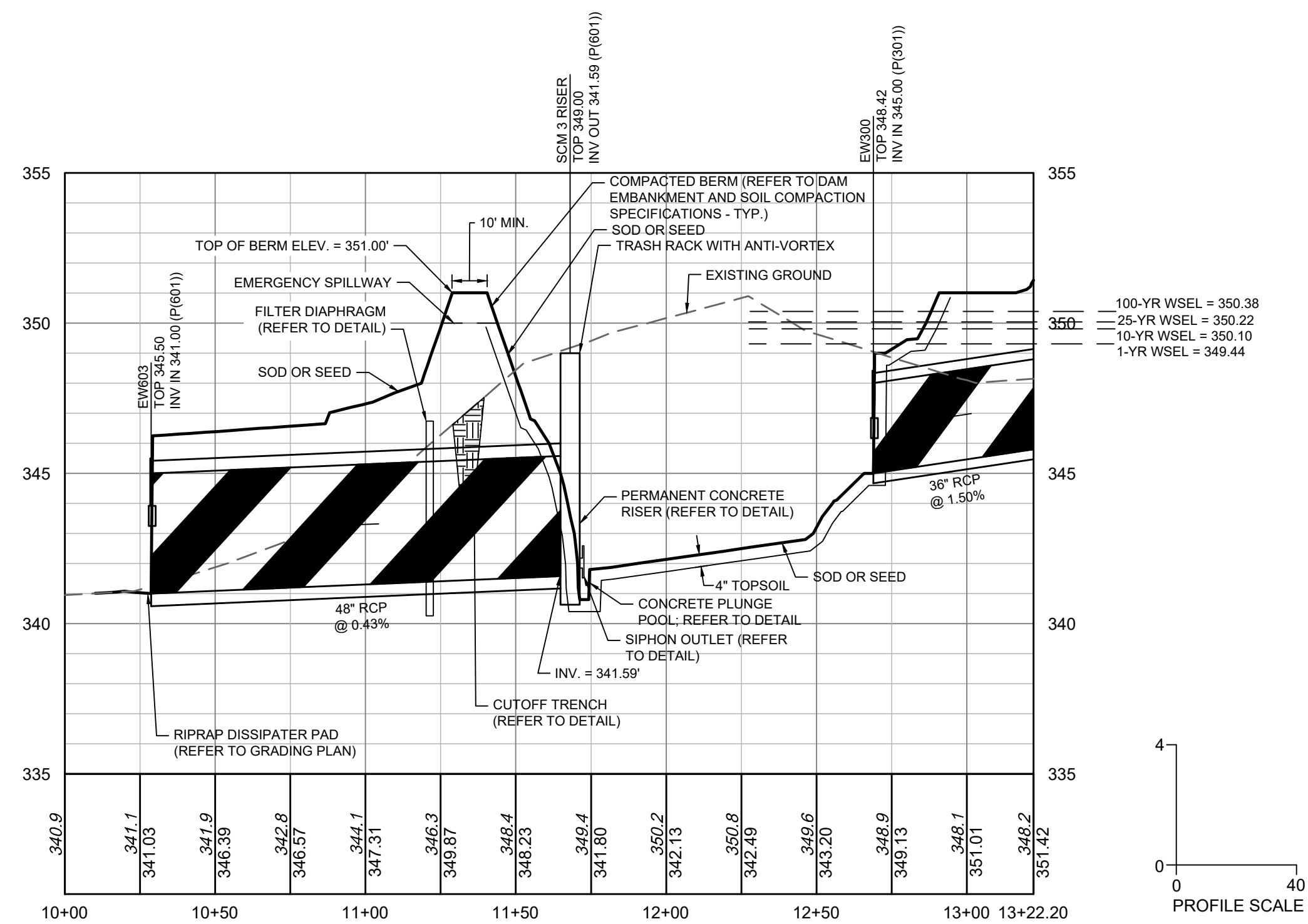
SHEET NO.
C8.1

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

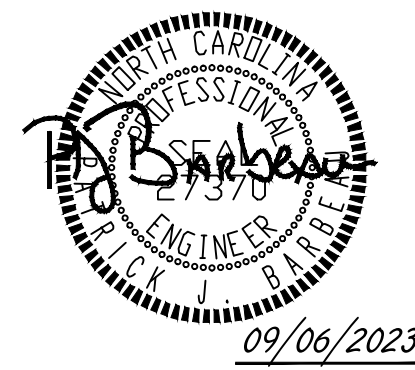
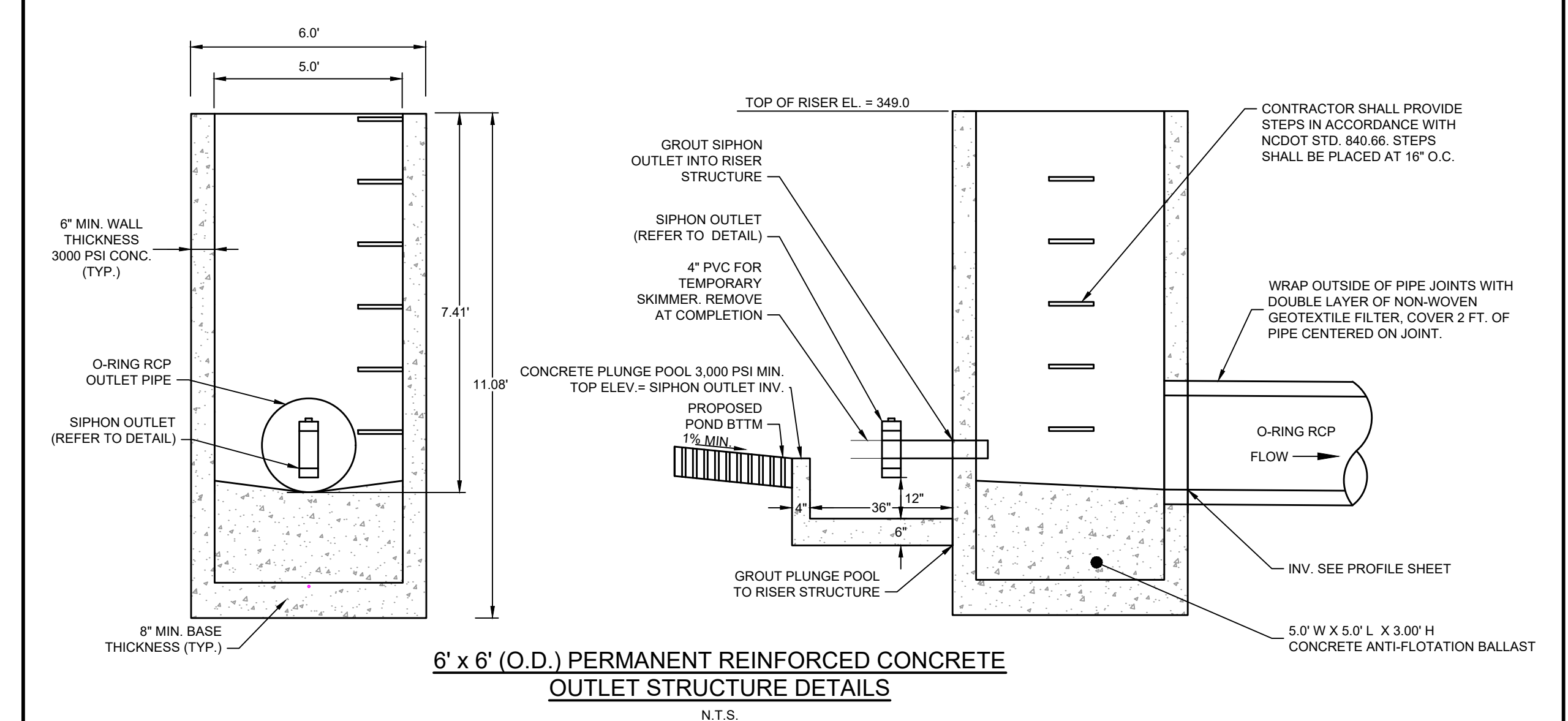
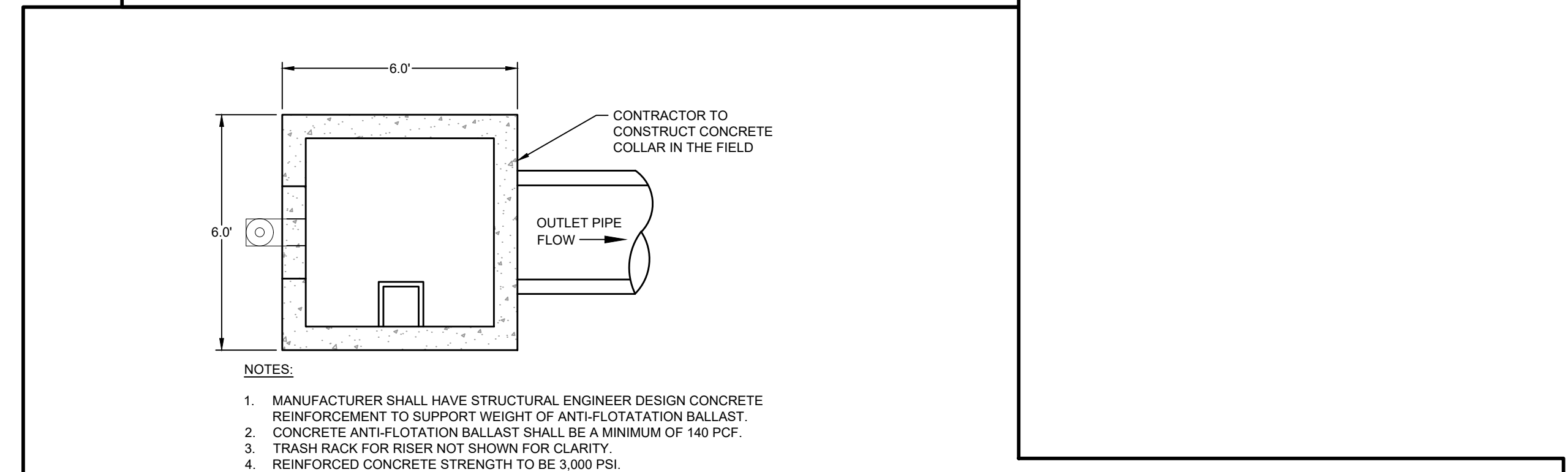
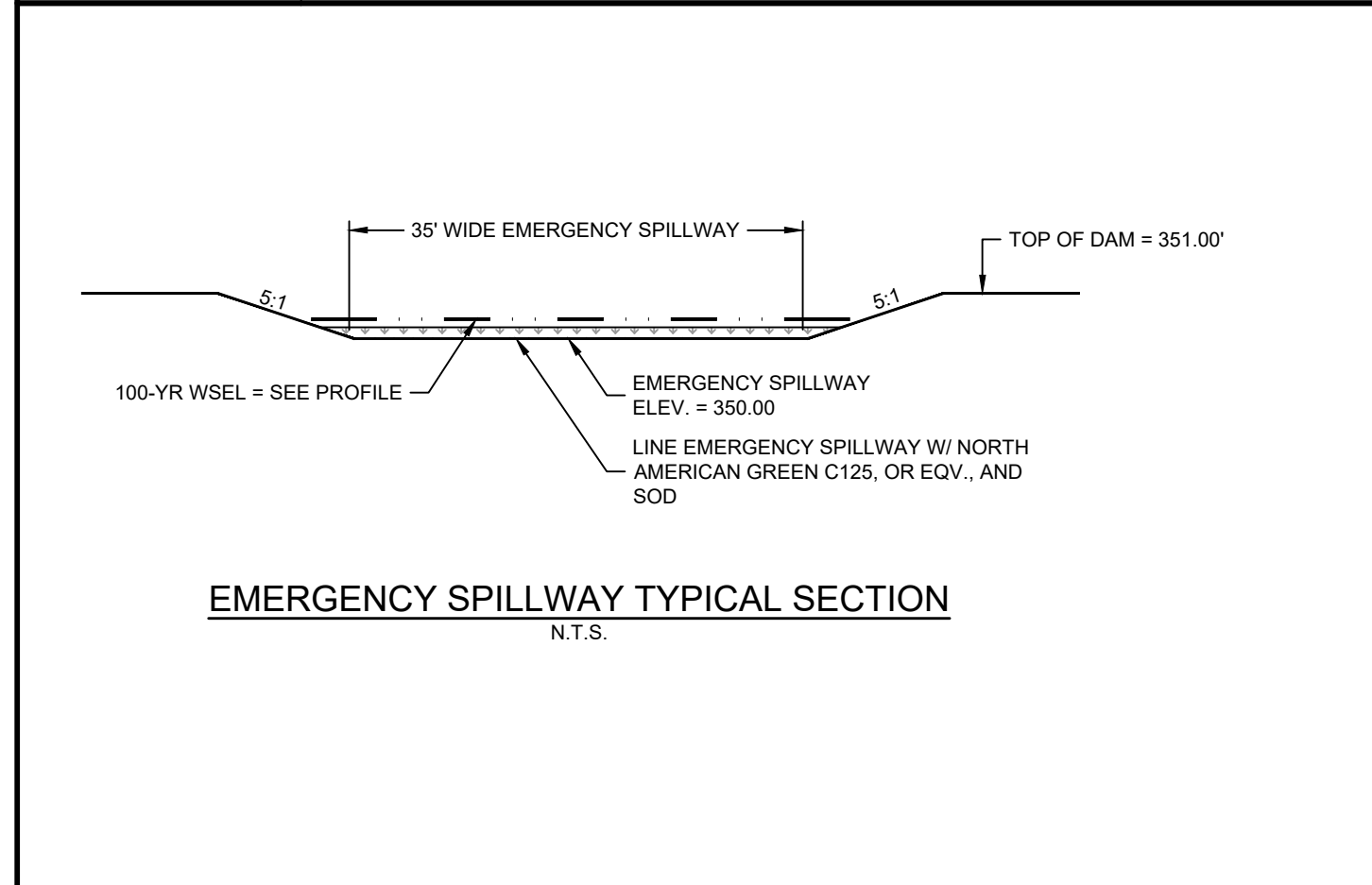
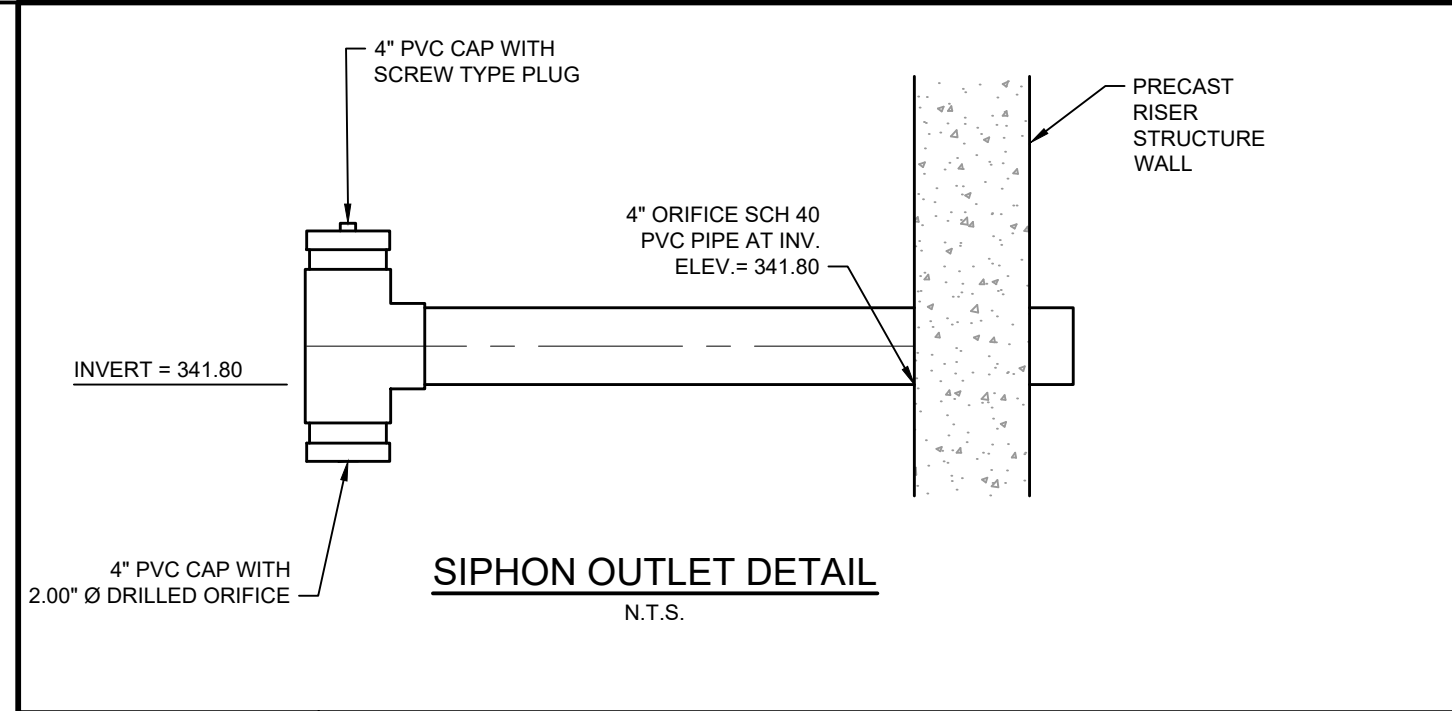
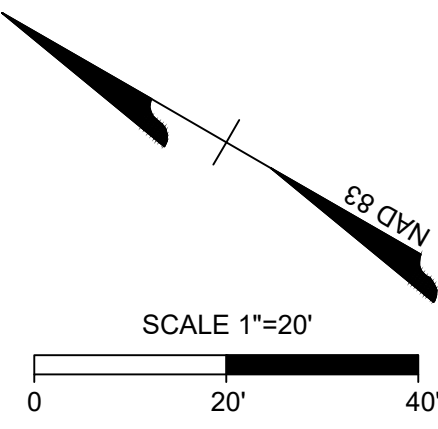
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DRY POND PROFILE VIEW



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P. BARBEAU
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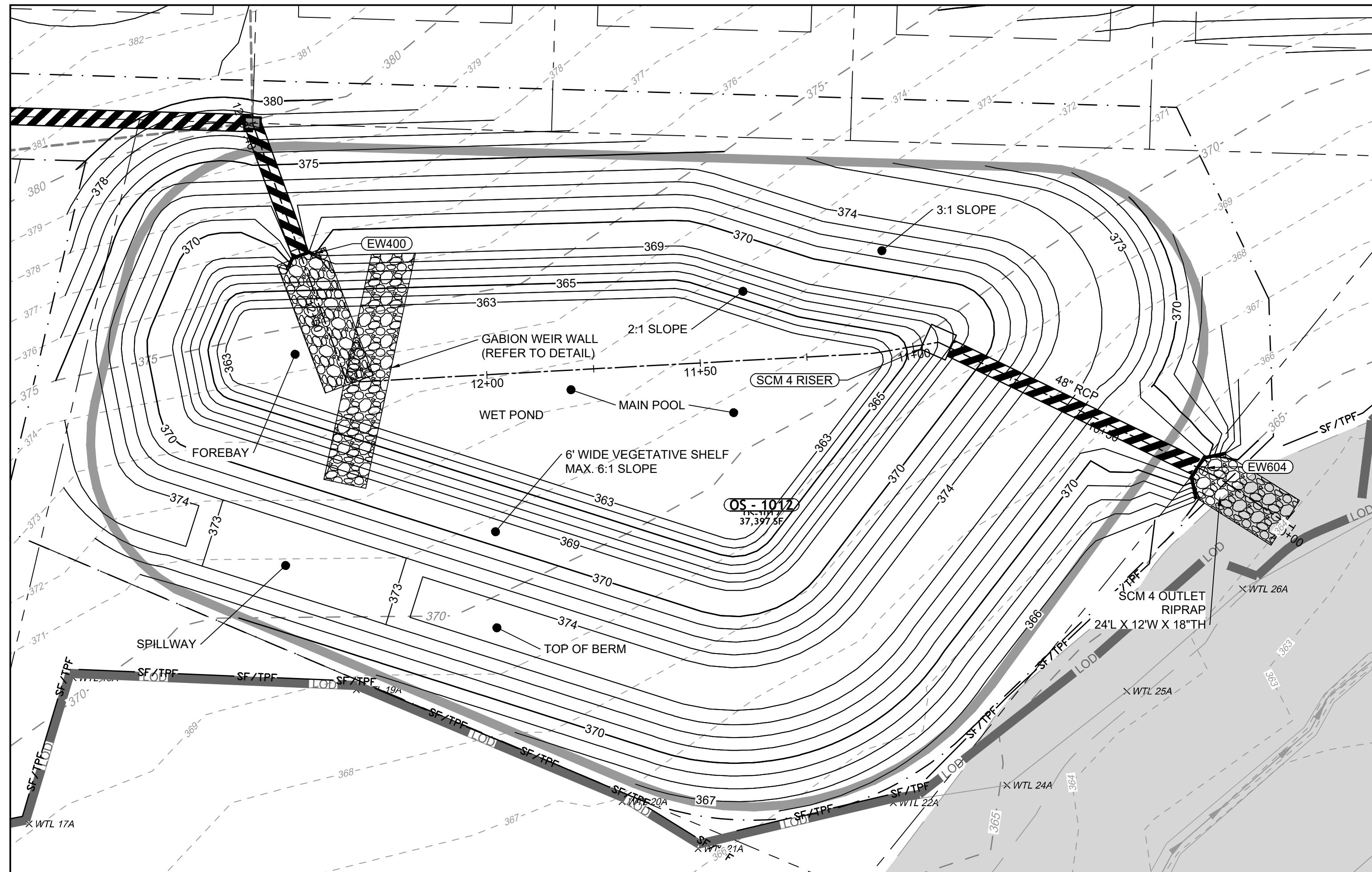
ROLESVILLE CROSSING - CD 21-08

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

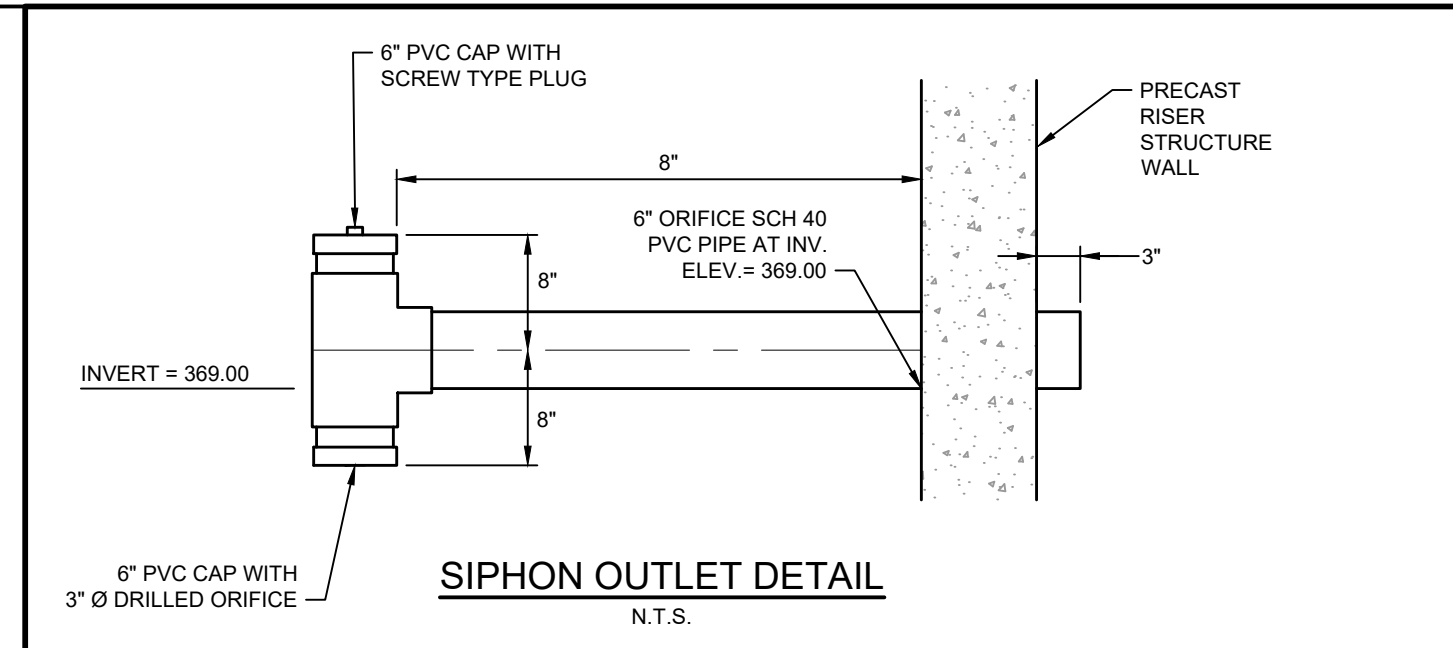
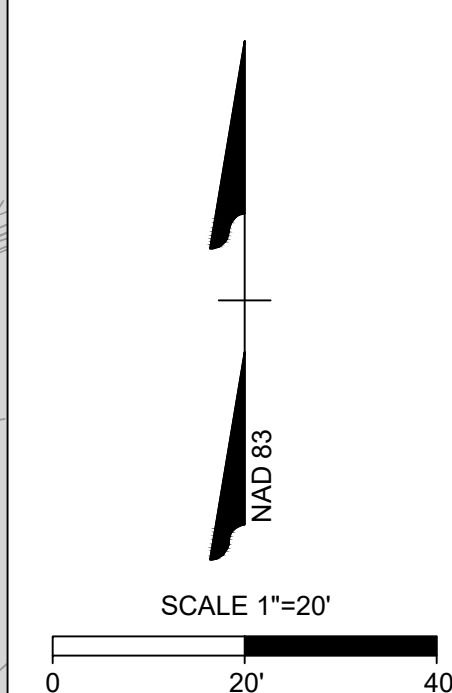
SCM 3 DETAILS

JOB NO.
43398
 SHEET NO.
C8.2

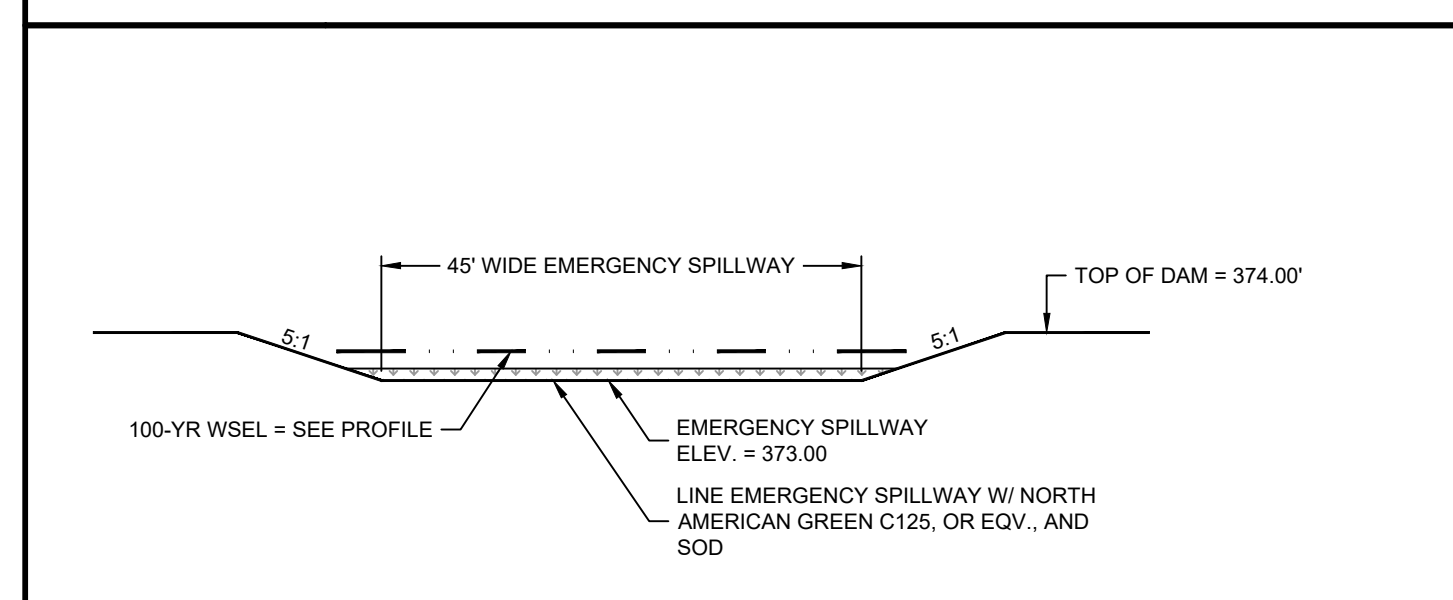
ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDOT AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



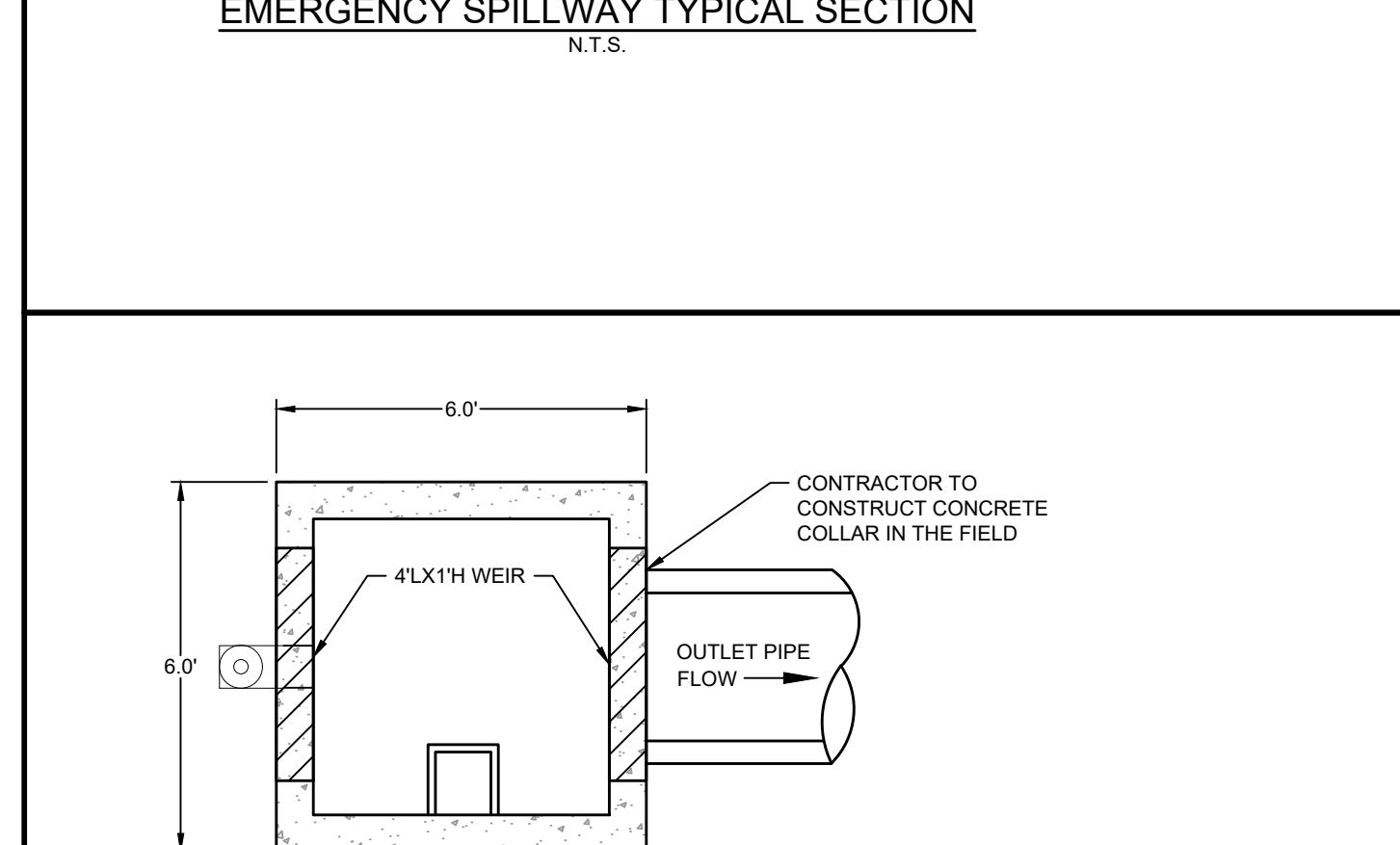
WET POND PLAN VIEW



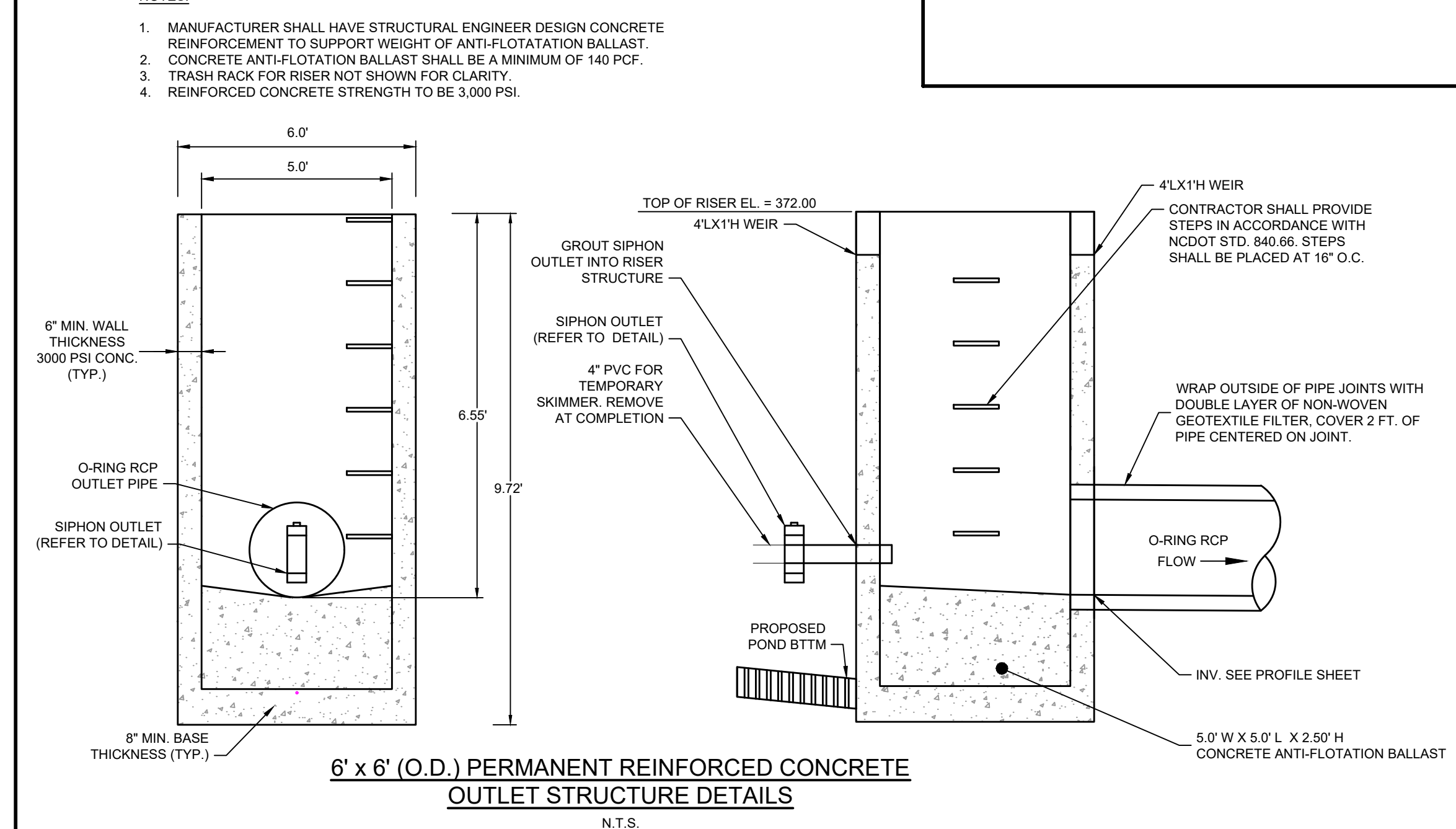
SIPHON OUTLET DETAIL
N.T.S.



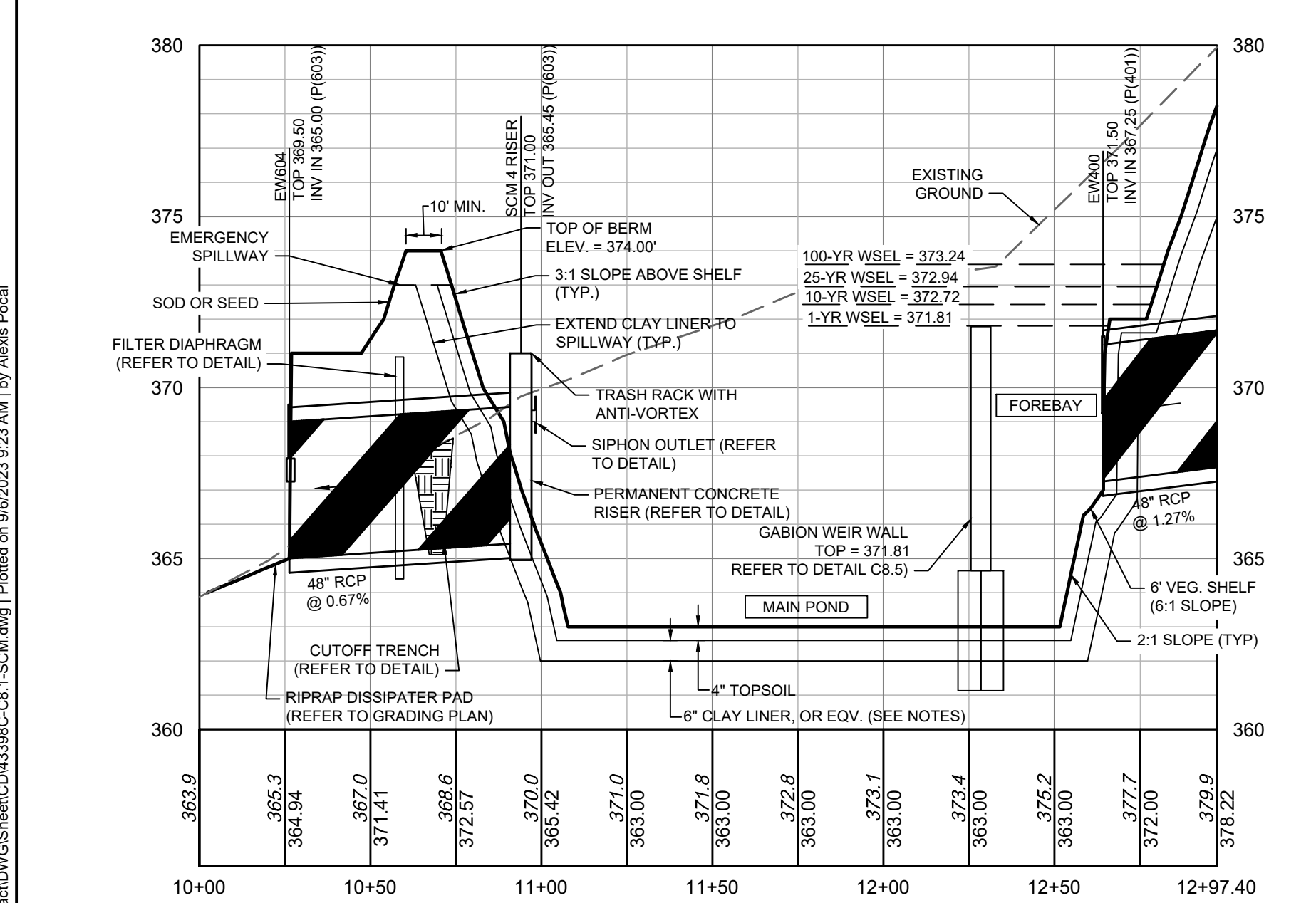
EMERGENCY SPILLWAY TYPICAL SECTION
N.T.S.



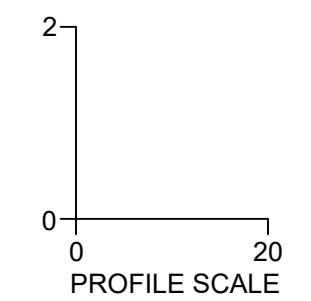
- NOTES:
1. MANUFACTURER SHALL HAVE STRUCTURAL ENGINEER DESIGN CONCRETE REINFORCEMENT TO SUPPORT WEIGHT OF ANTI-FLOTATION BALLAST.
 2. CONCRETE ANTI-FLOTATION BALLAST SHALL BE A MINIMUM OF 140 PCF.
 3. TRASH RACK FOR RISER NOT SHOWN FOR CLARITY.
 4. REINFORCED CONCRETE STRENGTH TO BE 3,000 PSI.



6' x 6' (O.D.) PERMANENT REINFORCED CONCRETE
OUTLET STRUCTURE DETAILS
N.T.S.



WET POND PROFILE VIEW



POND VEGETATED SHELF PLANT LIST

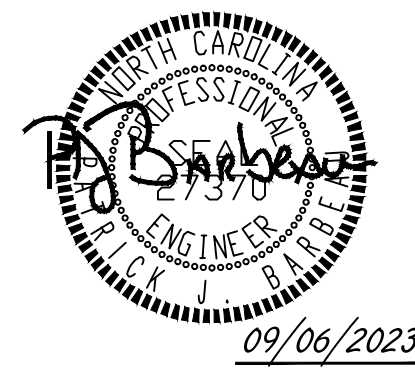
MINIMUM REQUIRED PLANT DENSITY = 50 PLANTS PER 200 SQUARE FEET OF VEGETATED SHELF
(2,760 SF / 200 SF) * 50 PLANTS = 690 MINIMUM PLANTS REQUIRED.

THE FOLLOWING PLANTS SHALL BE PLANTED ON THE 6-FOOT WIDE VEGETATED SHELF BETWEEN THE ELEVATIONS OF 369.0 - 370.0:

QUA.	BOTANICAL NAME	COMMON NAME	SPACING	NOTES
115	EUPATORIADELPHUS FISTULOSUS	JOE PYE WEED	4' O.C.	PLANT IN GROUPS OF 5
115	LOBELIA SIPHILITICA	GREAT BLUE LOBELIA	4' O.C.	PLANT IN GROUPS OF 5
115	LOBELIA CARDINALIS	CARDINAL FLOWER	4' O.C.	PLANT IN GROUPS OF 5
115	EUPATORIADELPHUS MACULATUS	SPOTTED TRUMPETWEED	4' O.C.	PLANT IN GROUPS OF 5
115	ASCLEPIAS INCARNATA	SWAMP MILKWEED	4' O.C.	PLANT IN GROUPS OF 5
115	SACCHARUM BALDWINII	NARROW PLUMEGRASS	4' O.C.	PLANT IN GROUPS OF 5

NURSERY SOURCES:
MELLOW MARSH FARM (919) 742-1200
CURE NURSERY (919) 542-6186

S:\324243385-Wheeler_Timed\DWG\Sheet\CD\43398C-CD-1-SCM.dwg | Printed on 06/20/2023 9:25 AM | 1/4 Alexei Pivov



09/06/2023

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DESIGNED BY: P. BARBEAU
CHECKED BY: P. BARBEAU
SCALE: AS SHOWN

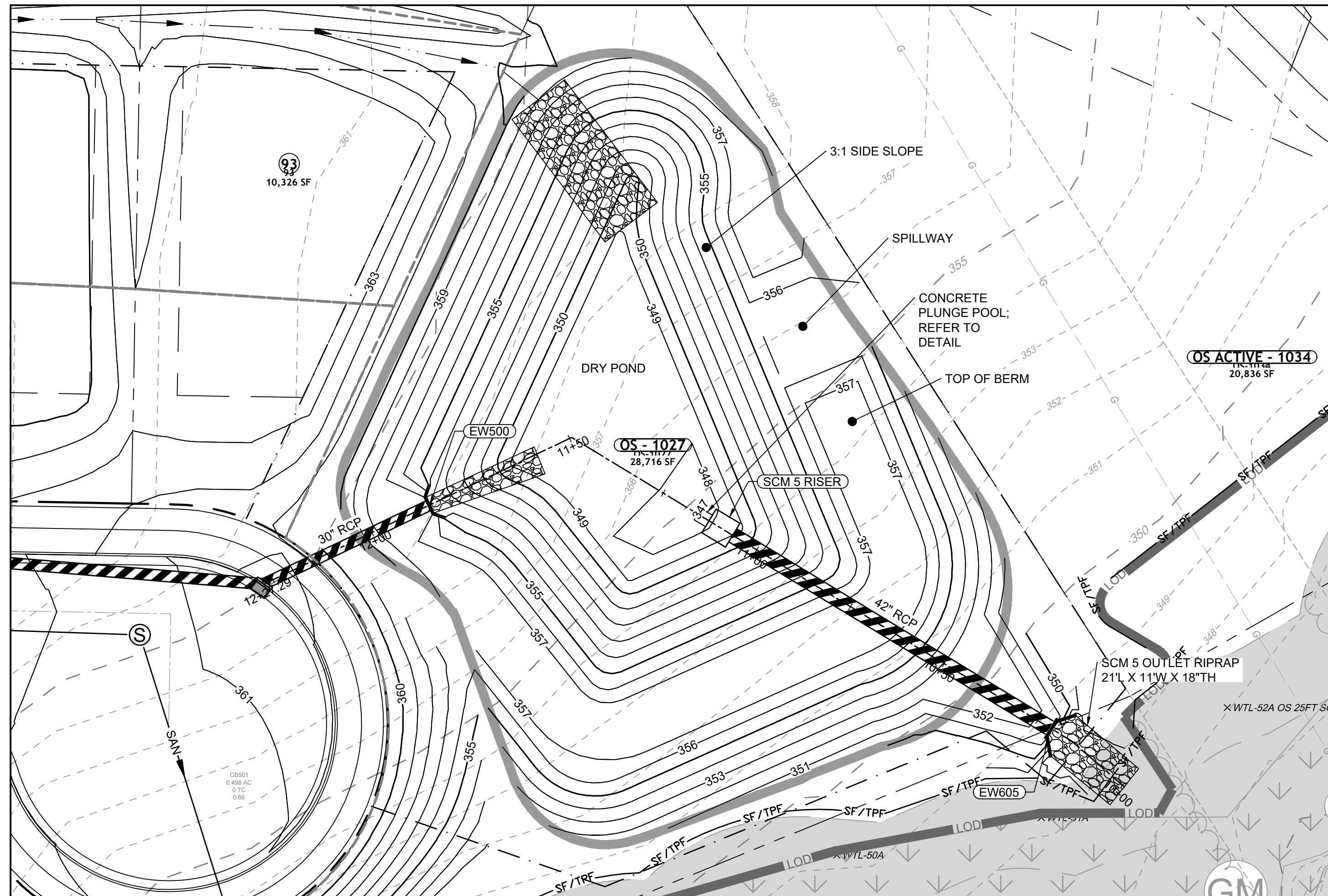
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ROLESVILLE CROSSING - CD 21-08
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

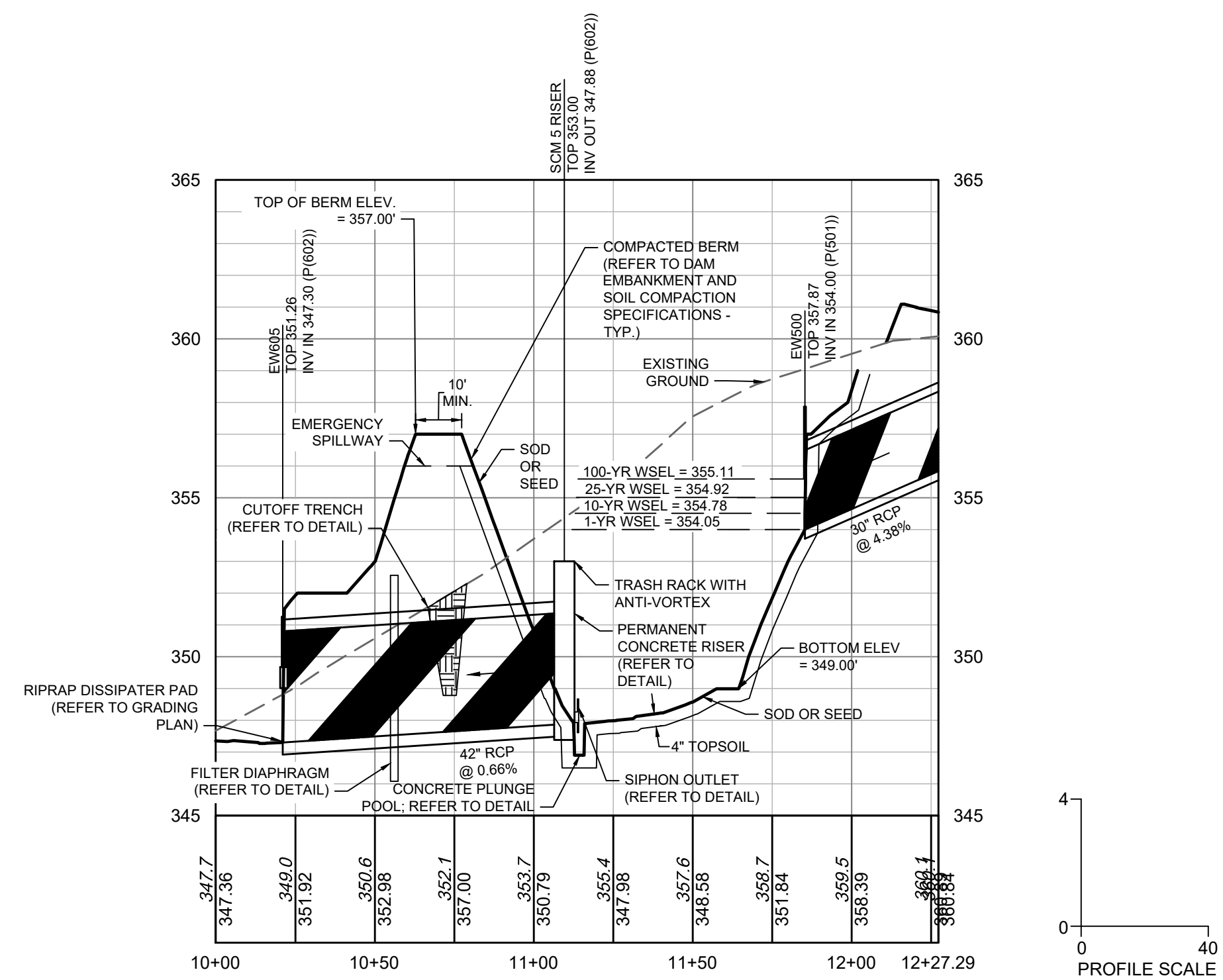
SCM 4 DETAILS

JOB NO. 43398
SHEET NO. C8.3

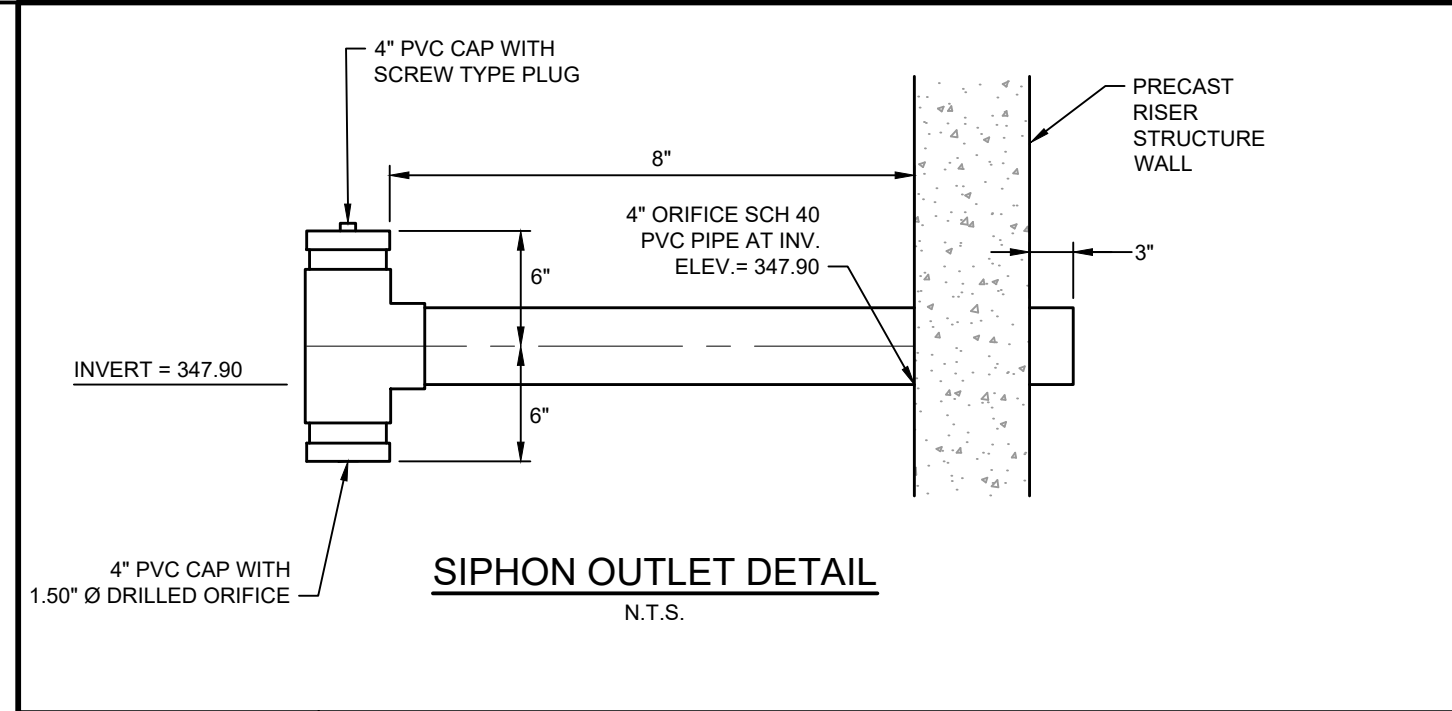
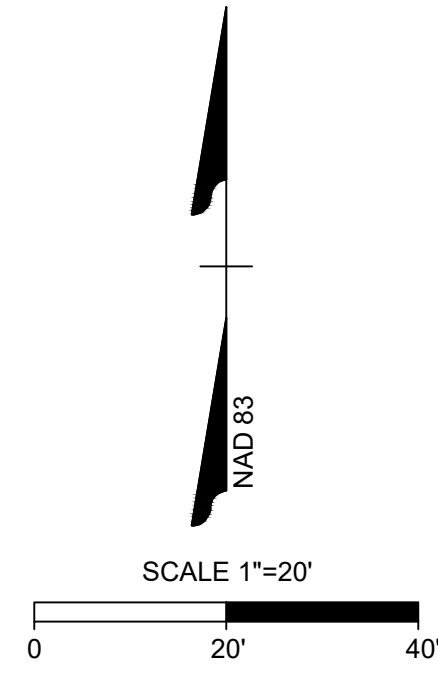
ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



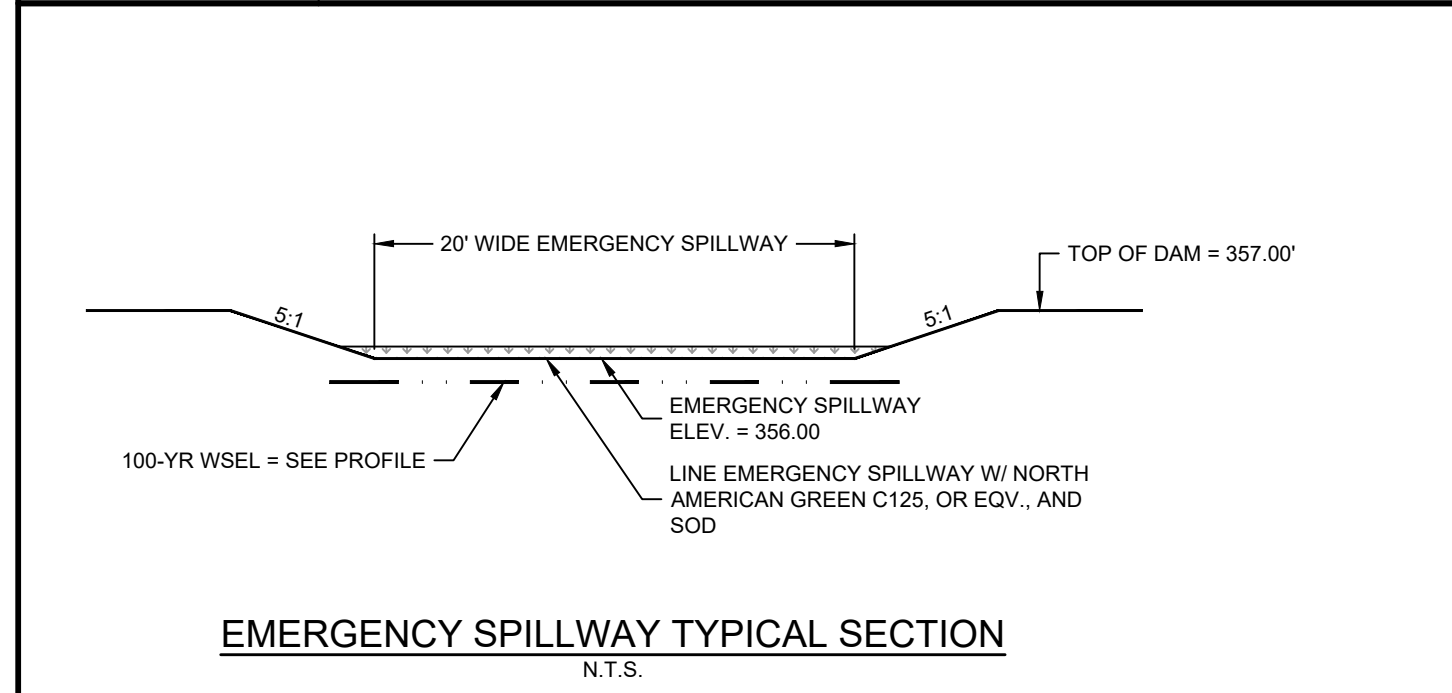
DRY POND PLAN VIEW



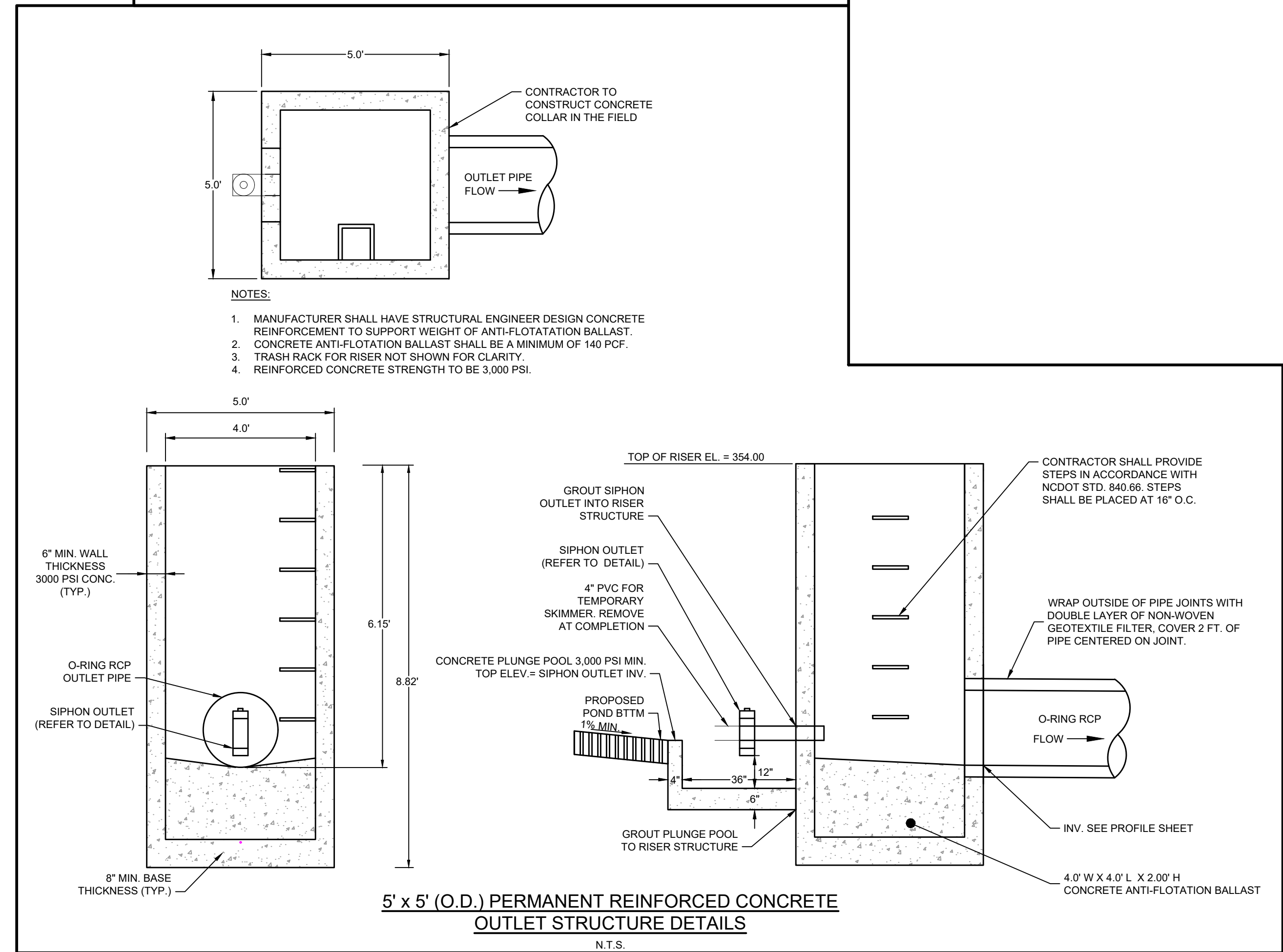
DRY POND PROFILE VIEW



SIPHON OUTLET DETAIL
N.T.S.



EMERGENCY SPILLWAY TYPICAL SECTION
N.T.S.



5' x 5' (O.D.) PERMANENT REINFORCED CONCRETE
OUTLET STRUCTURE DETAILS
N.T.S.



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09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS

DATE
09/17/2021
DRAWN BY
R. WINGATE
DESIGNED BY
P. BARBEAU
CHECKED BY
P. BARBEAU
SCALE
AS SHOWN

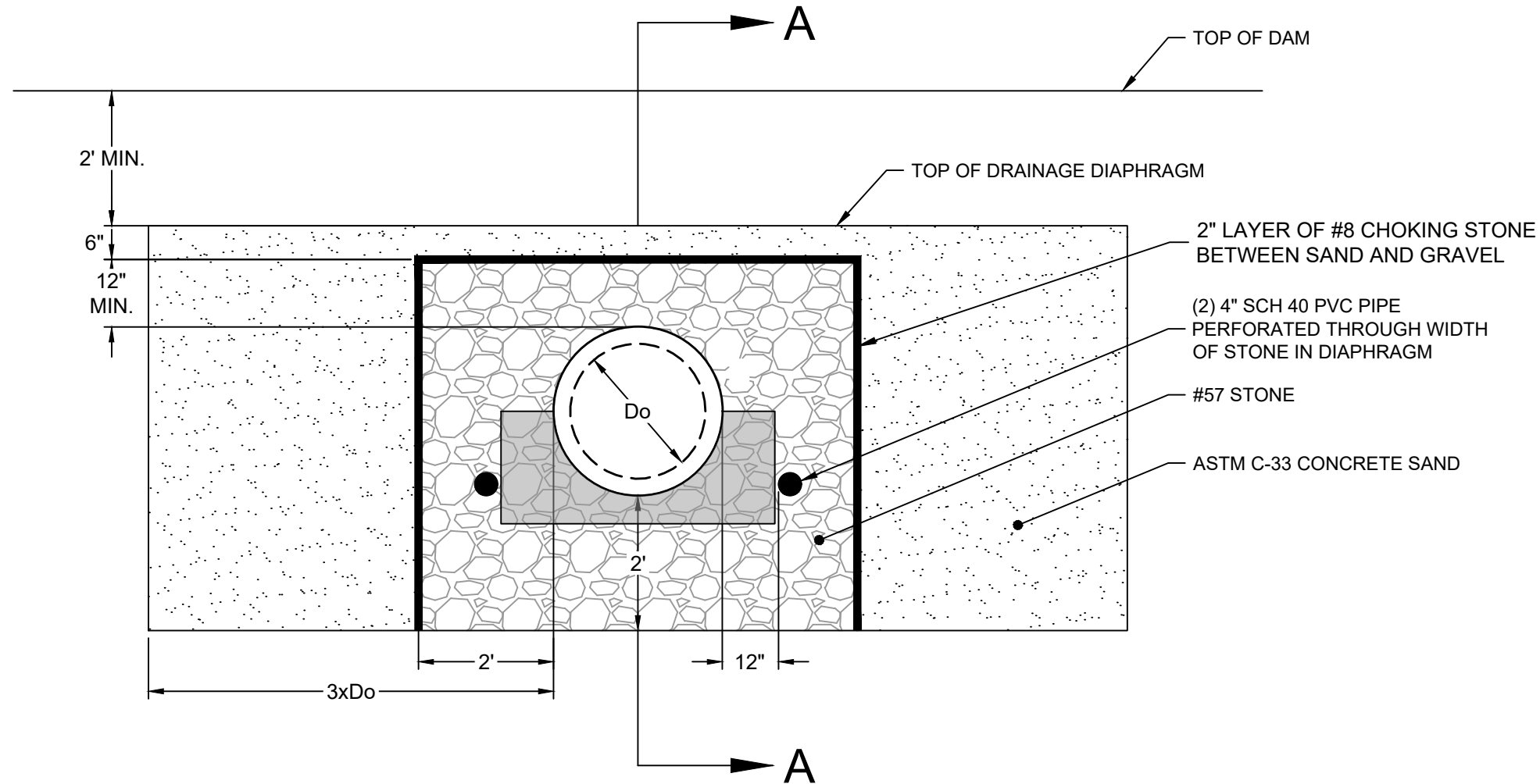
TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ROLESVILLE CROSSING - CD 21-08
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
SCM 5 DETAILS

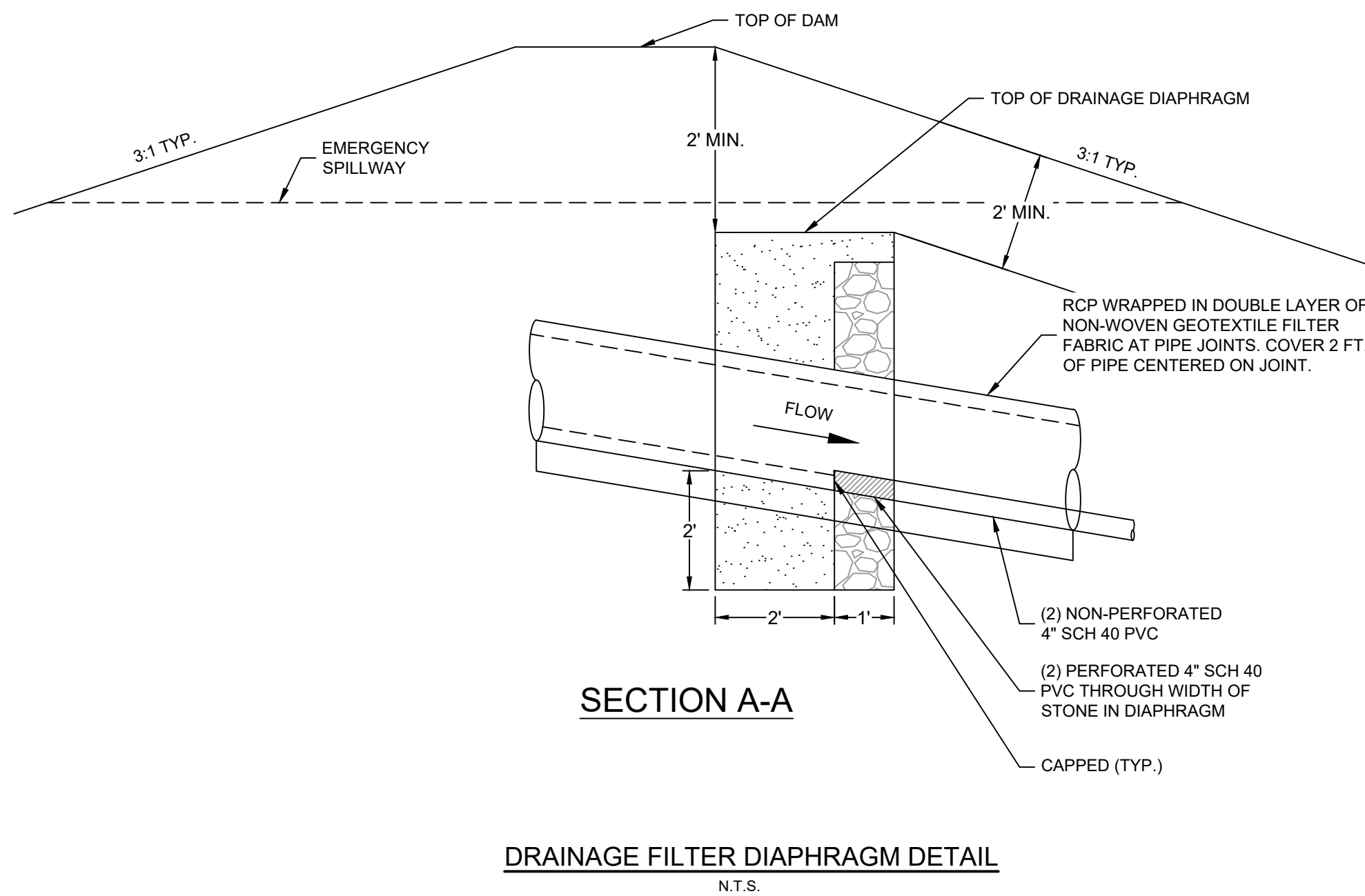
JOB NO.
43398
SHEET NO.
C8.4

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

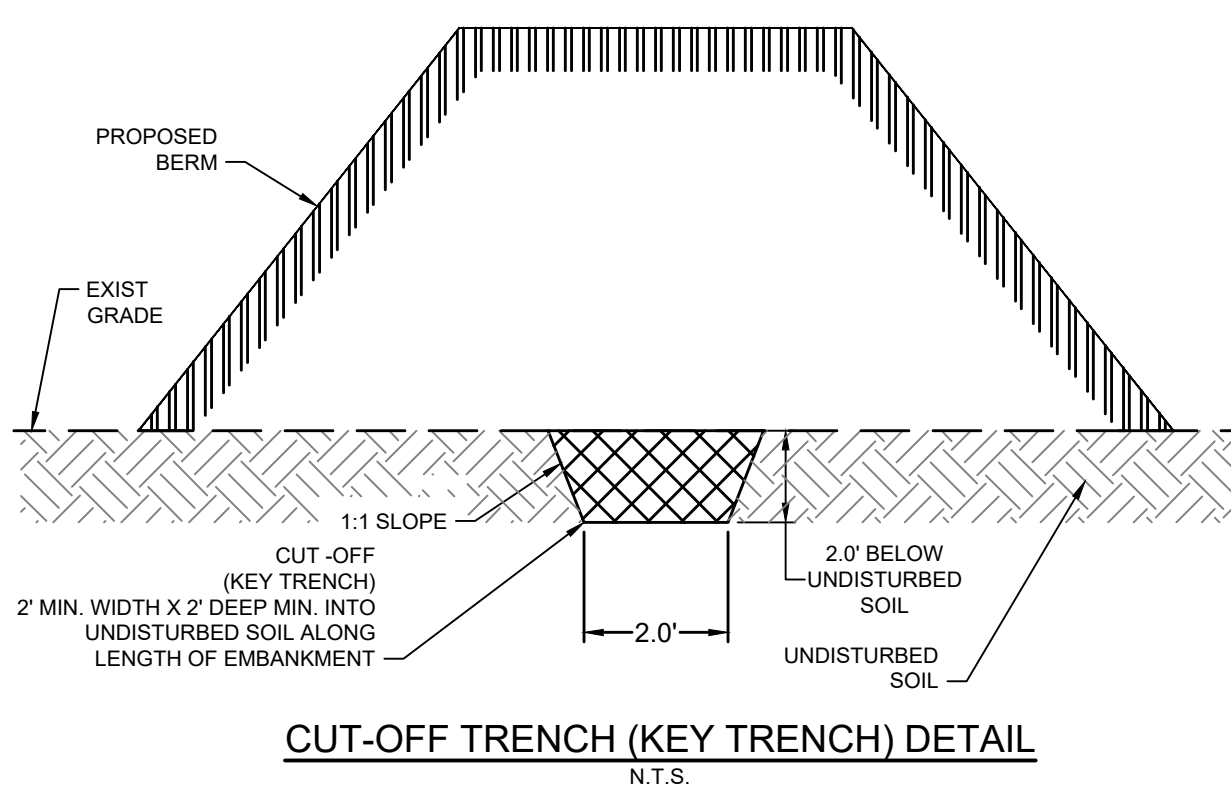
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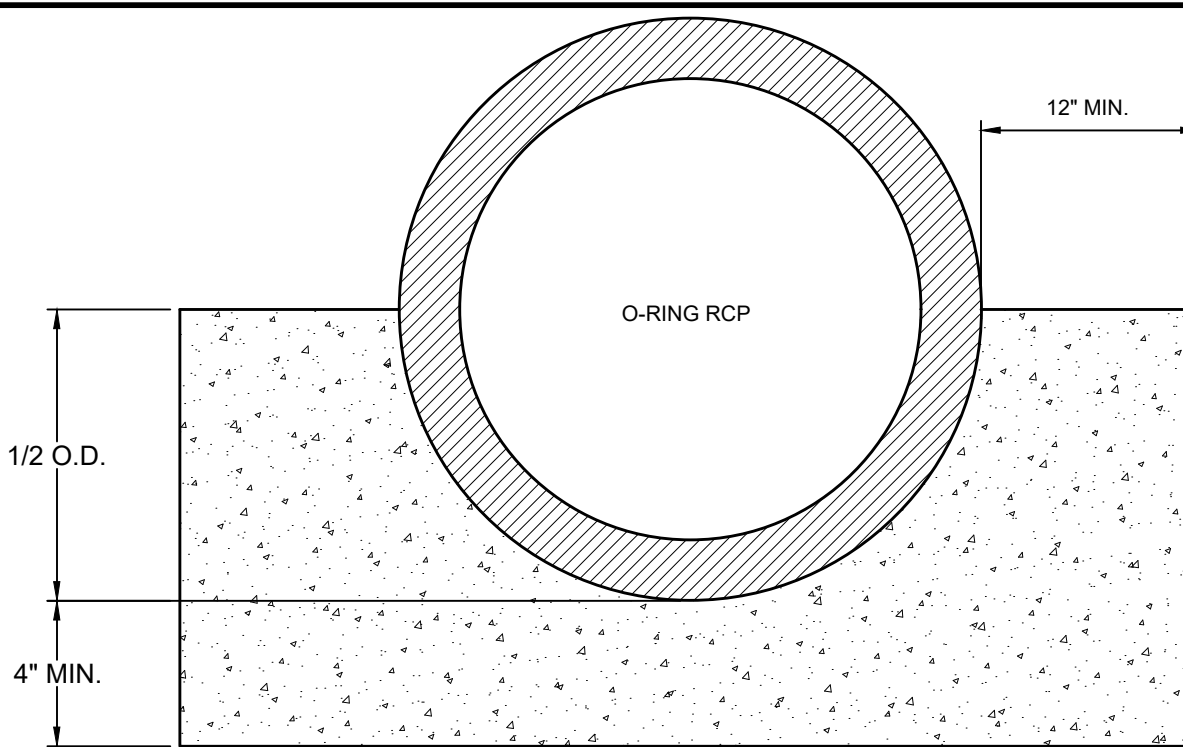
- NOTE:
- 4" DRAIN OUTLETS FOR DIAPHRAGM SHALL BE PROTECTED BY AN APPROPRIATE RODENT GUARD: 1/2" X 1/2" STAINLESS STEEL MESH SECURED WITH STAINLESS STEEL CLAMP OR APPROVED EQUAL.
 - JOINTS WRAPPED WITH DOUBLE LAYER OF NON-WOVEN GEOTEXTILE FILTER FABRIC ON OUTSIDE OF PIPE SHALL COVER 2 FEET OF PIPE CENTERED ON JOINT.



DRAINAGE FILTER DIAPHRAGM DETAIL
N.T.S.

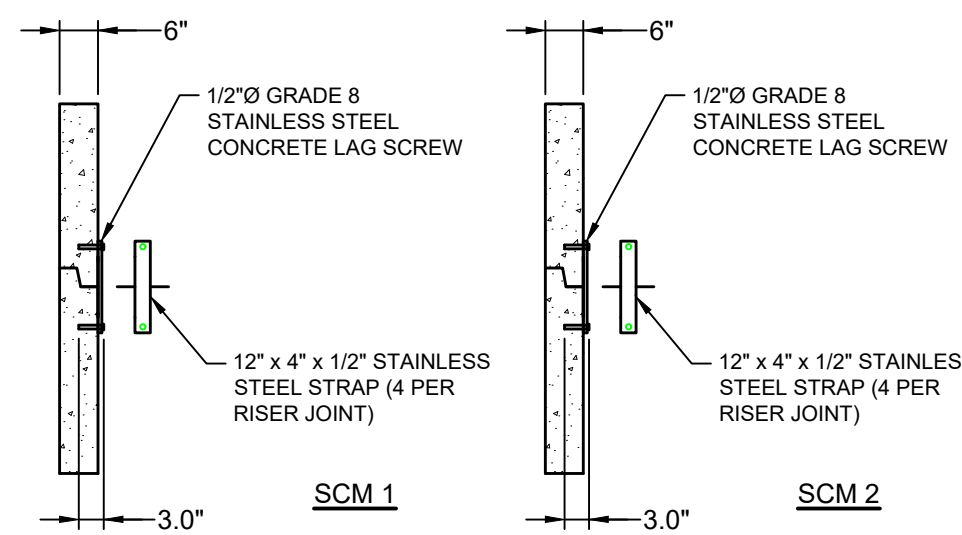


CUT-OFF TRENCH (KEY TRENCH) DETAIL
N.T.S.



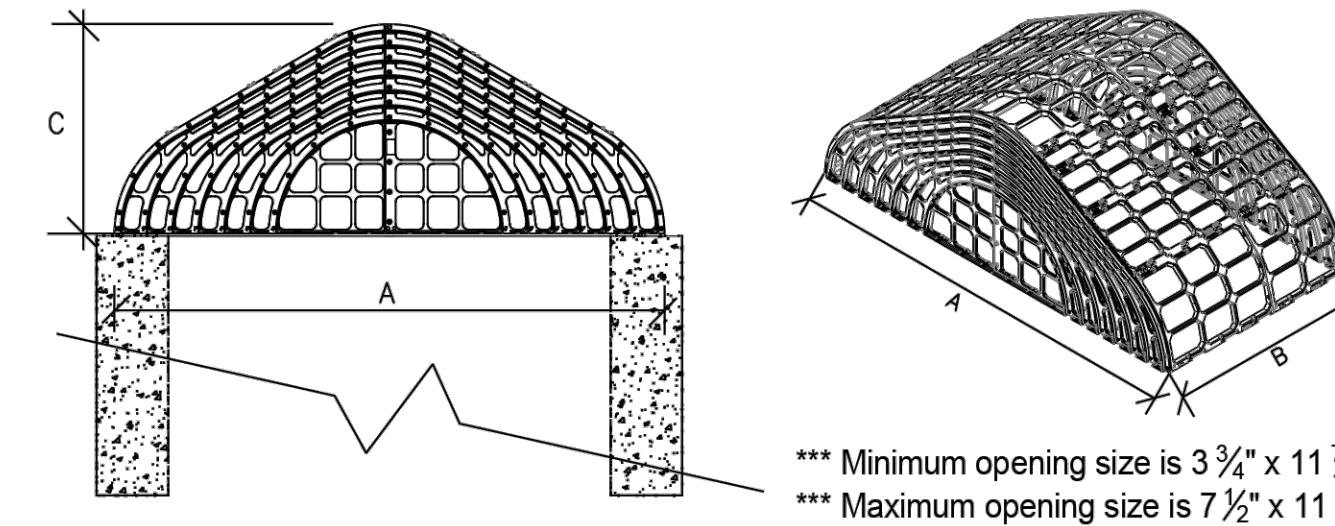
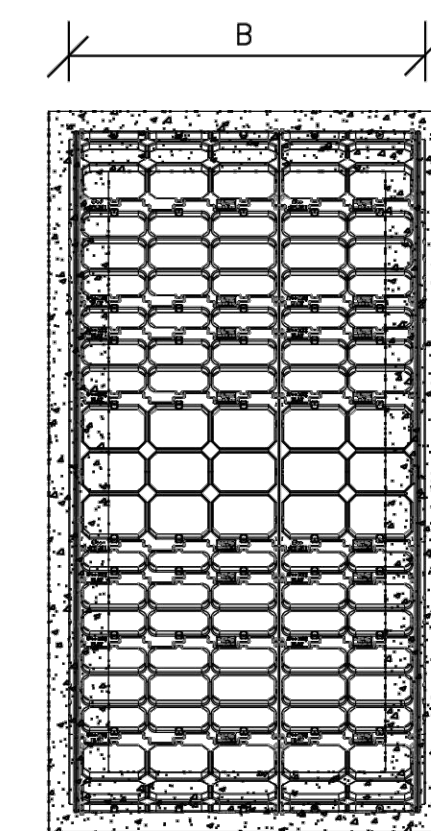
- NOTES:
- CONCRETE CRADLE SHALL ARTICULATE AT PIPE JOINTS.
 - CONCRETE STRENGTH TO BE AT LEAST 3,000 PSI.
 - NO FLOWABLE FILL ALLOWED.

CONCRETE CRADLE DETAIL
N.T.S.



RISER JOINT CONNECTION DETAIL
N.T.S.

StormRax
Peak Roof Series
Square/Rectangular Trash Racks
(Standard Sizes)



- Available Options:
 **** Removable Access Hatch
 **** HDPE Anti Vortex Plates
 **** Additional Lengths Available
ALIGN ACCESS HATCH WITH STEPS

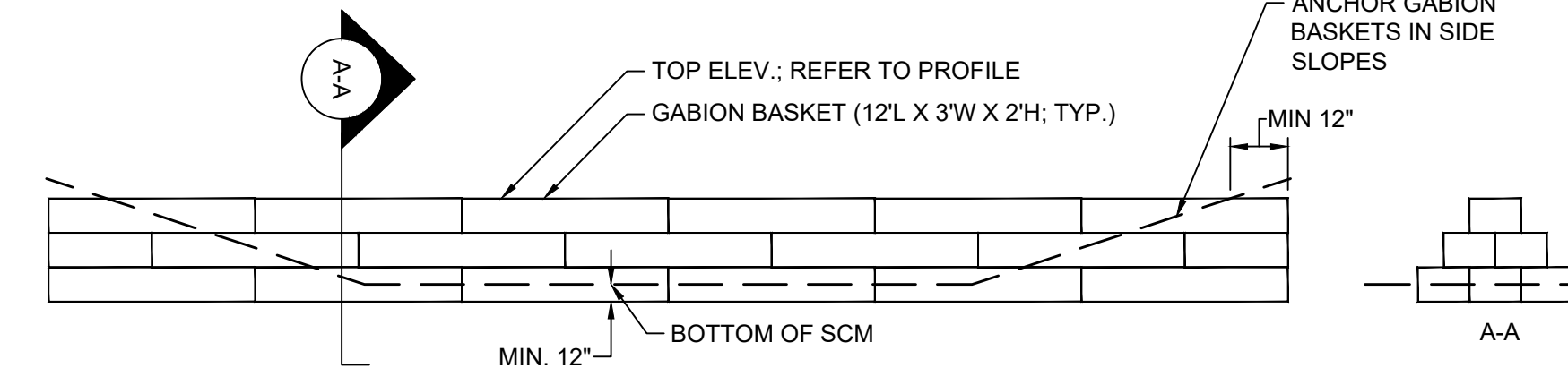
HOST STRUCTURE INFORMATION	
STR. ID LENGTH	48"
STR. ID WIDTH	48"
WALL THICKNESS (REVD)	6"

Dimension Codes (A, B, C)	
Width A	55 1/2" 67 1/2" 78" 91" 103" 115" 128 1/2"
Code	04 05 06 07 08 09 010
Length B	29" 40 3/4" 54 1/8" 66" 79" 93 1/2" 105 1/4" 117 1/8" 131 1/8" 143 1/4" 155 1/4"
Code	02 03 04 05 06 07 08 09 010
Height C	27 5/8" 31 1/4" 35 3/4" 38 1/8" 41 3/4" 45 1/4" 48 1/4"
Code	A=04 A=05 A=06 A=07 A=08 A=09 A=10

PEAK ROOF	55.5 -	54.12 -	27.63 -
	Width A	Length B	Height C

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CUSTOMER:
PROJECT:



- NOTES:
- BASKETS AND GABION ROCK ARE TO BE FREE OF DEBRIS AND SEDIMENT.
 - GABION ROCK SHALL BE 4" TO 6" IN DIAMETER.
 - ALL GABION BASKETS SHALL MEET OR EXCEED REQUIREMENTS OF ASTM A975-20.
 - ALL GABION BASKETS SHALL BE SECURELY FASTENED TO ONE ANOTHER WITH LACING WIRE OR RING FASTENERS.
 - INSTALLATION OF PREMANUFACTURED GABION BASKETS SHALL FOLLOW MANUFACTURER'S GUIDELINES.

GABION WEIR DETAIL
N.T.S.

KEY TRENCH & CLAY LINER NOTES

- THE ON-SITE GEOTECHNICAL ENGINEER SHALL INSPECT THE KEY TRENCH EXCAVATION PRIOR TO PLACEMENT OF ANY BACKFILL WITHIN THE KEY TRENCH.
- THE CONTRACTOR WILL NEED TO INSTALL A CLAY LINER A MINIMUM OF 1-FOOT BELOW THE LOWEST GRADE. THE CLAY LINER SHALL BE AT LEAST 12" THICK AND MEET THE FOLLOWING SPECIFICATIONS:
 - UNIFIED SOIL CLASSIFICATION SYSTEM DESIGNATION OF CL, CH, ML
 - MINIMUM PLASTICITY INDEX OF 12
 - MINIMUM OF 2 TESTS OF EACH ABOVE PARAMETER SHALL BE COMPLETED BY THE CONTRACTOR ON THE LINER MATERIAL AND PRESENTED TO THE ON-SITE GEOTECHNICAL ENGINEER FOR APPROVAL. SHOULD THESE TESTS NOT MEET THE ABOVE REQUIREMENTS, THE ON-SITE GEOTECHNICAL ENGINEER MAY PROVIDE PERMEABILITY TESTING DEMONSTRATING AN INFILTRATION RATE OF NO MORE THAN 0.01 IN/HR
 - COMPACTION TO A MINIMUM OF 95% PER ASTM D698 AND WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT (1 COMPACTION DENSITY TEST PER 2500 SQ. FT.)
 - MAXIMUM INFILTRATION RATE OF 0.01 IN/HR.
 IF IT IS DETERMINED BY THE ON-SITE GEOTECHNICAL ENGINEER THAT A LINER IS NOT NEEDED, THEN A LETTER TO THE DESIGN ENGINEER CERTIFYING THE INFILTRATION RATE SHALL BE PROVIDED, WHICH WILL BE USED DURING THE AS-BUILT CERTIFICATION PROCESS.
- THE GRADES SHOWN ON THIS PLAN ARE FINISHED GRADES AND INCLUDE THE CLAY LINER.

WET POND CONSTRUCTION SEQUENCE:

- DO NOT BEGIN CONSTRUCTION OF WET POND AREAS UNTIL SITE CONSTRUCTION IS COMPLETE. ALL PARKING SURFACES ARE PAVED, AND THE ENTIRE SITE HAS AN ESTABLISHED WITH A GOOD STAND OF GRASS.
- ALL EROSION SEDIMENT AND EROSION CONTROL PRACTICES SHALL BE IN PLACE AND THE SLOPES DRAINING TO THE WET POND AREA SHALL BE STABILIZED BEFORE CONSTRUCTION OF THE BIORETENTION BEGINS.
- INSTALL TEMPORARY SILT FENCE AROUND THE WET POND AREA AS NEEDED.
- EXCAVATE WET POND AREA PER THE GRADES AND DETAILED ELEVATIONS SHOWN ON THE CONSTRUCTION PLANS.
- CONTACT ENGINEER SO AN AS-BUILT SURVEY CAN BE PERFORMED OF THE WET POND.
- INSTALL ANY REMAINING STORM DRAINAGE PIPES AND INLETS.
- FINE GRADE THE SIDE SLOPES OF THE WET POND AREA. DRESS UP VELOCITY DISSIPATOR AS NEEDED PER THE PLANS.
- INSTALL GRASS PER GRASS SPECIFICATIONS.
- PLANT ALL PROPOSED VEGETATION PER WET POND PLANTING PLAN. CONTACT THE PROJECT LANDSCAPE ARCHITECT TO COORDINATE AS NEEDED.
- FINE GRADE, SEED AND STABILIZE ANY REMAINING DISTURBED AREAS AROUND THE OUTSIDE OF THE WET POND AREA. REMOVE SILT FENCE.
- UPON COMPLETION OF WORK, CONTACT THE PROJECT ENGINEER AND LANDSCAPE ARCHITECT FOR AN INSPECTION AND TO BEGIN THE AS-BUILT CERTIFICATION PROCESS. AN AS-BUILT SURVEY OF ALL ASPECTS OF THIS FACILITY WILL BE PERFORMED BY THE ENGINEER. CERTIFICATIONS WILL NOT BE ISSUED IF THE SCM DOES NOT MEET OR EXCEED THE REQUIREMENTS CONTAINED IN THE CONSTRUCTION DOCUMENTS. SHOULD REMEDIAL WORK BE REQUIRED, ALL COSTS ASSOCIATED WITH THE REMEDIAL WORK INCLUDING RE-SURVEY AND RE-INSPECTIONS WILL BE BORNE BY THE CONTRACTOR.

DAM EMBANKMENT AND SOIL COMPACTION SPECIFICATIONS

- CONTROLLED FILL, AS SPECIFIED BY THE GEOTECHNICAL ENGINEER, IN THE DAM EMBANKMENT KEY TRENCH SHALL BE PLACED IN 6-INCH LOOSE LAYERS (3-INCH LOOSE LAYERS WITHIN 5-FEET OF EITHER SIDE OF THE PRINCIPAL SPILLWAY PIPE TO A DEPTH OF 2-FEET OVER THE PIPE) AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF + OR - TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698.
- ALL VISIBLE ORGANIC DEBRIS SUCH AS ROOTS AND LIMBS SHALL BE REMOVED FROM THE FILL MATERIAL PRIOR TO COMPACTION TO THE REQUIRED DENSITY. SOILS WITH ORGANIC MATTER CONTENT EXCEEDING 5% BY WEIGHT SHALL NOT BE USED. STONES GREATER THAN 3-INCH (IN ANY DIRECTION) SHALL BE REMOVED FROM THE FILL PRIOR TO COMPACTION.
- FILL MATERIAL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITIES OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED RANGES OR OTHERWISE NOT CONFORMING TO SPECIFIED REQUIREMENTS SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIALS.
- ANY FILL LAYER THAT IS SMOOTH DRUM ROLLED TO REDUCE MOISTURE PENETRATION DURING A STORM EVENT SHALL BE PROPERLY SCARIFIED PRIOR TO THE PLACEMENT OF THE NEXT SOIL LIFT.
- SURFACE WATER AND STREAM FLOW SHALL BE CONTINUOUSLY CONTROLLED THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
- FOUNDATION AREAS MAY REQUIRE UNDERCUTTING OF COMPRESSIBLE AND/OR UNSUITABLE SOILS IN ADDITION TO THAT INDICATED ON THE PLANS. ALL SUCH UNDERCUTTING SHALL BE PERFORMED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER AND SHALL BE MONITORED AND DOCUMENTED. IN NO CASE SHALL THERE BE AN ATTEMPT TO STABILIZE ANY PORTIONS OF THE FOUNDATION SOILS WITH CRUSHED STONE.
- TREATMENT OF SEEPAGE AREAS, SUBGRADE PREPARATION, FOUNDATION DEWATERING AND ROCK FOUNDATION PREPARATION (I.E., TREATMENT WITH SLUSH GROUTING, DENTAL CONCRETE, ETC.) MAY BE REQUIRED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER. ALL SUCH ACTIVITIES SHALL BE CLOSELY MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER.
- FILL ADJACENT TO THE RISER AND PRINCIPAL SPILLWAY PIPE SHALL BE PLACED SO THAT LIFTS ARE AT THE SAME LEVEL ON BOTH SIDES OF THE STRUCTURES.
- EARTHWORK COMPACTION WITHIN 3-FEET OF ANY STRUCTURES SHALL BE ACCOMPLISHED BY MEANS OF HAND TAMPERS, MANUALLY DIRECTED POWER TAMPERS OR PLATE COMPACTORS OR MINIATURE SELF-PROPELLED ROLLERS.
- COMPACTION BY MEANS OF DROP WEIGHTS FROM A CRANE OR HOIST SHALL NOT BE PERMITTED.

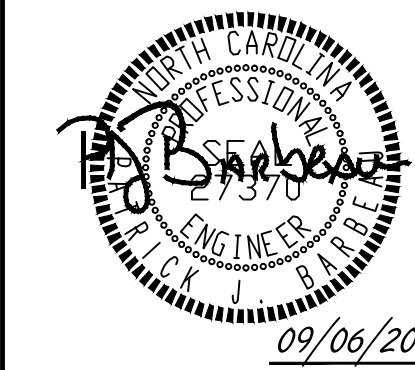
- HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER CAST-IN-PLACE STRUCTURES (INCLUDING THE CRADLE) UNTIL ADEQUATE CURING TIME HAS ELAPSED.
- TO RE-ESTABLISH VEGETATION AFTER CONSTRUCTION, A 4-INCH LAYER OF TOPSOIL SHALL BE PLACED ON THE DISTURBED EMBANKMENT SURFACE AND THE AREA SEEDED AND MULCHED OR HYDROSEEDED.

TESTING, OBSERVATION, AND CERTIFICATION

- TESTS OF THE DEGREE (%) OF COMPACTION OF THE PLACED FILL IN THE DAM (KEY TRENCH SHALL BE PERFORMED AS A PART OF THE PERMITTEE'S NORMAL QUALITY CONTROL PROGRAM FOR THE CONSTRUCTION OF THE DAM. TESTS SHALL BE CONDUCTED CONCURRENT WITH THE INSTALLATION OF THE COMPACTED FILL AND THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF THE DAM SO THAT THE TESTING CAN BE COMPLETED. SHOULD THE RESULTS OF THE TESTS INDICATE THAT THE SPECIFIED DEGREE OF COMPACTION HAS NOT BEEN OBTAINED, THE PORTIONS OF THE DAM REPRESENTED BY SUCH TESTS SHALL BE REWORKED OR REBUILT. ALL PORTIONS OF THE DAM SHALL ACHIEVE THE SPECIFIED MINIMUM DEGREE OF COMPACTION.
- CONSTRUCTION OF CLASS A, B AND C DAM EMBANKMENTS SHALL BE DONE UNDER THE OBSERVATION OF A QUALIFIED GEOTECHNICAL ENGINEER, WHO IS REGISTERED AS A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA. THE GEOTECHNICAL ENGINEER MUST HAVE EXPERIENCE IN THE DESIGN AND CONSTRUCTION MONITORING OF DAMS OF THE SIZE AND SCOPE COVERED BY THESE STANDARDS AND GUIDELINES.
- ON CLASS A, B, AND C DAMS (WITH THE EXCEPTION OF DETENTION ONLY CLASS C DAMS THAT COLLECT DRAINAGE FROM AN AREA OF 25-ACRES OR LESS), THE GEOTECHNICAL ENGINEER, AS DEFINED ABOVE, SHALL OBSERVE ALL ASPECTS OF THE CONSTRUCTION OF THE DAM (I.E., PREPARATION OF THE FOUNDATION, INSTALLATION OF THE CUT-OFF TRENCH, INSTALLATION OF THE PRINCIPAL SPILLWAY PIPE, INSTALLATION OF THE INTERNAL DRAINAGE, INSTALLATION OF COMPACTED FILL, ETC.). THE FREQUENCY OF OBSERVATION AND TESTING MUST BE SUFFICIENT FOR THE GEOTECHNICAL ENGINEER OR THE DESIGN ENGINEER ON CLASS D DAMS AND CLASS C, DETENTION ONLY, DAMS) TO STATE, IN HIS/HER PROFESSIONAL OPINION, THAT THE SPECIFIC ITEMS OBSERVED AND TESTED WERE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS AND SPECIFICATIONS. REFERENCE IS MADE TO THE CITY OF DURHAM "REFERENCE GUIDE FOR DEVELOPMENT" SECTIONS 4.1 TO 4.5 REGARDING GEOTECHNICAL CERTIFICATION OF DAM EMBANKMENTS.

GENERAL NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF DURHAM, NC DEQ AND NCDOT STANDARDS, SPECIFICATIONS AND DETAILS.
- SEE GRADING PLAN FOR MORE INFORMATION ON ENTIRE SITE GRADING.



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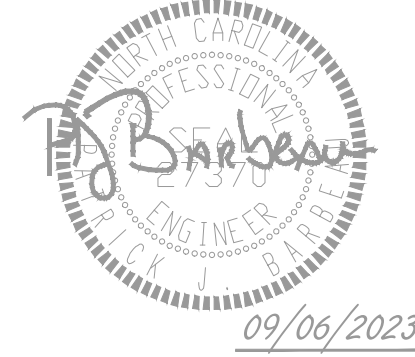
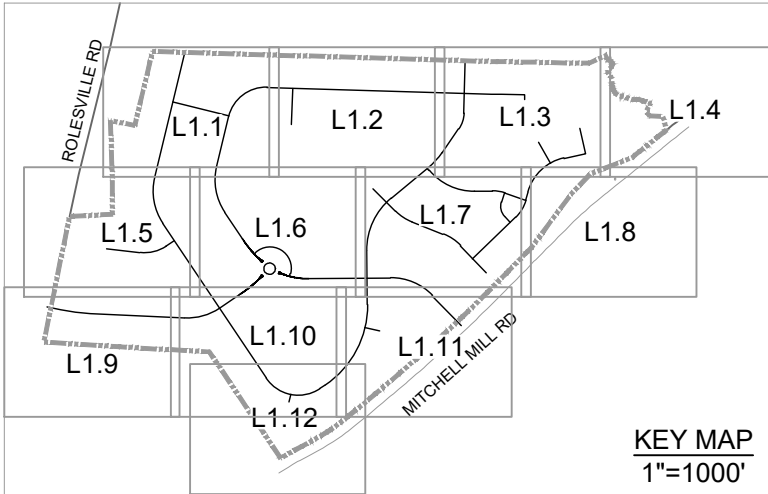
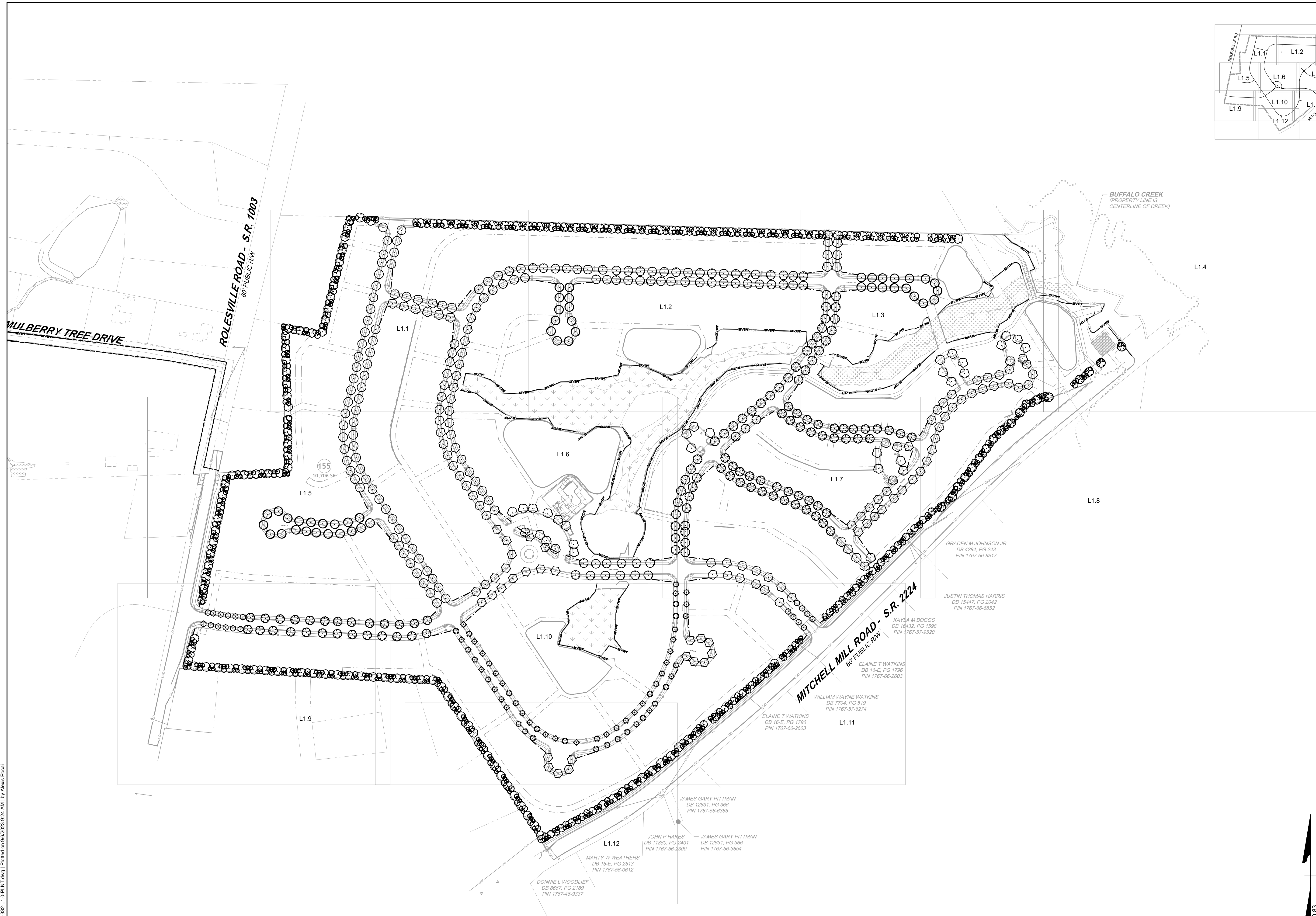
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ROLESVILLE CROSSING - CD 21-08
 WAKE COUNTY - NORTH CAROLINA
SCM NOTES & DETAILS

JOB NO. 43398
 SHEET NO. C8.5

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07/22/2022	CONSTRUCTION DOCUMENT SUBMITTAL
04/06/2023	REVISIONS PER NCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS

DATE	09/17/2021
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DESIGNED BY	S. FANTAYE
CHECKED BY	J. BLASCO
SCALE	AS SHOWN

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROLESVILLE CROSSING - CD 21-08

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

OVERALL LANDSCAPE PLAN

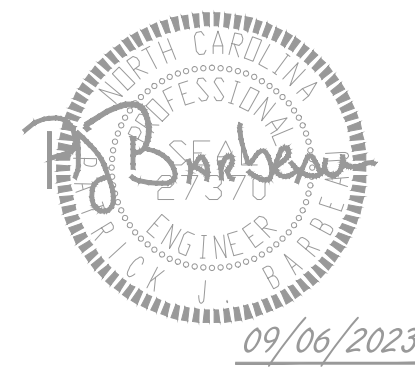
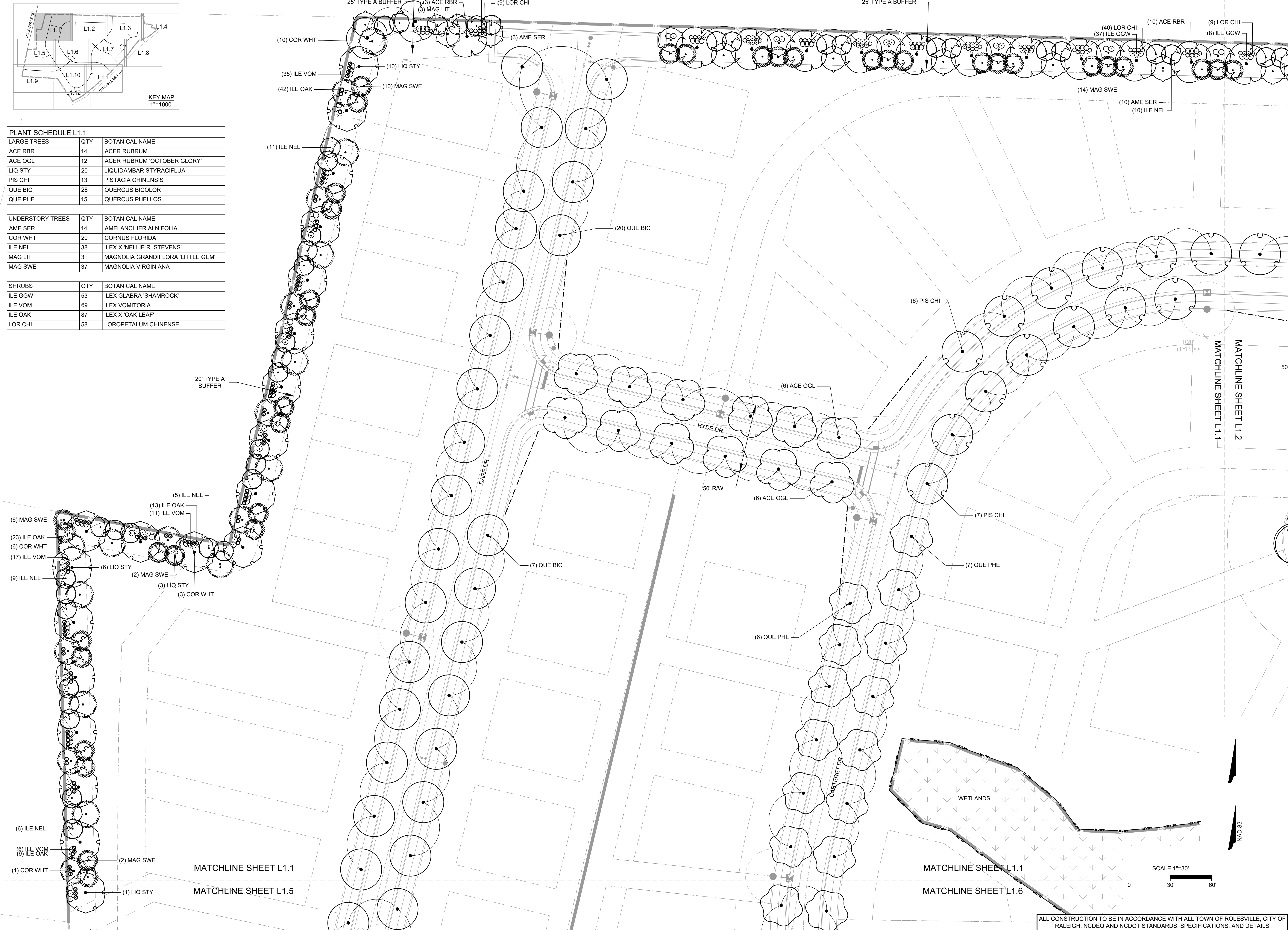
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SHEET NO.	L1.0

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PLANT SCHEDULE L1.1		
LARGE TREES	QTY	BOTANICAL NAME
ACE RBR	14	ACER RUBRUM
ACE OGL	12	ACER RUBRUM 'OCTOBER GLORY'
LIQ STY	20	LIQUIDAMBAR STYRACIFLUA
PIS CHI	13	PISTACIA CHINENSIS
QUE BIC	28	QUERCUS BICOLOR
QUE PHE	15	QUERCUS PHELLOS
UNDERSTORY TREES	QTY	BOTANICAL NAME
AME SER	14	AMELANCHIER ALNIFOLIA
COR WHT	20	CORNUS FLORIDA
ILE NEL	38	ILEX X 'NELLIE R. STEVENS'
MAG LIT	3	MAGNOLIA GRANDIFLORA 'LITTLE GEM'
MAG SWE	37	MAGNOLIA VIRGINIANA
SHRUBS	QTY	BOTANICAL NAME
ILE GGW	53	ILEX GLABRA 'SHAMROCK'
ILE VOM	69	ILEX VOMITORIA
ILE OAK	87	ILEX X 'OAK LEAF'
LOR CHI	58	LOROPETALUM CHINENSE



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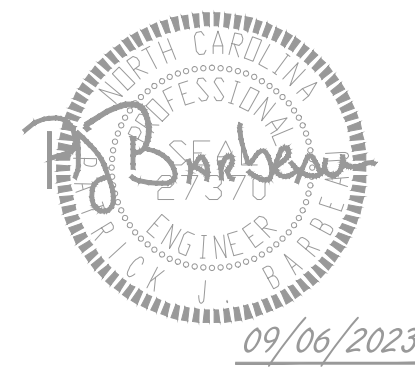
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ROLESVILLE CROSSING - CD 21-08
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
LANDSCAPE PLAN

REVISION DESCRIPTION	DATE
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REVISIONS PER WAKE COUNTY COMMENTS	06/24/2022
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REVISIONS PER NCDOT COMMENTS	04/06/2023
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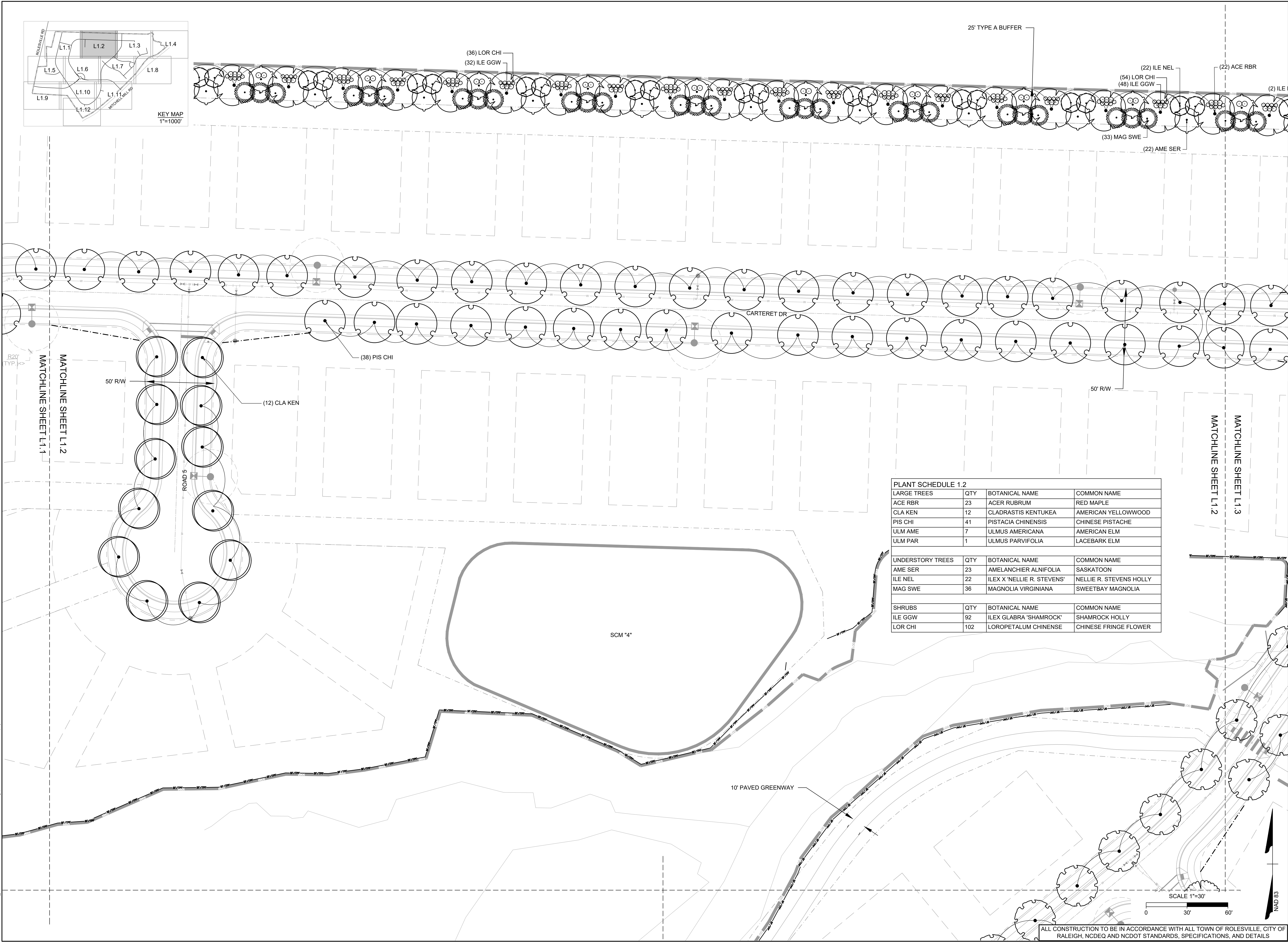
ROLESVILLE CROSSING - CD 21-08

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

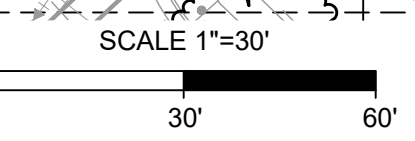
LANDSCAPE PLAN

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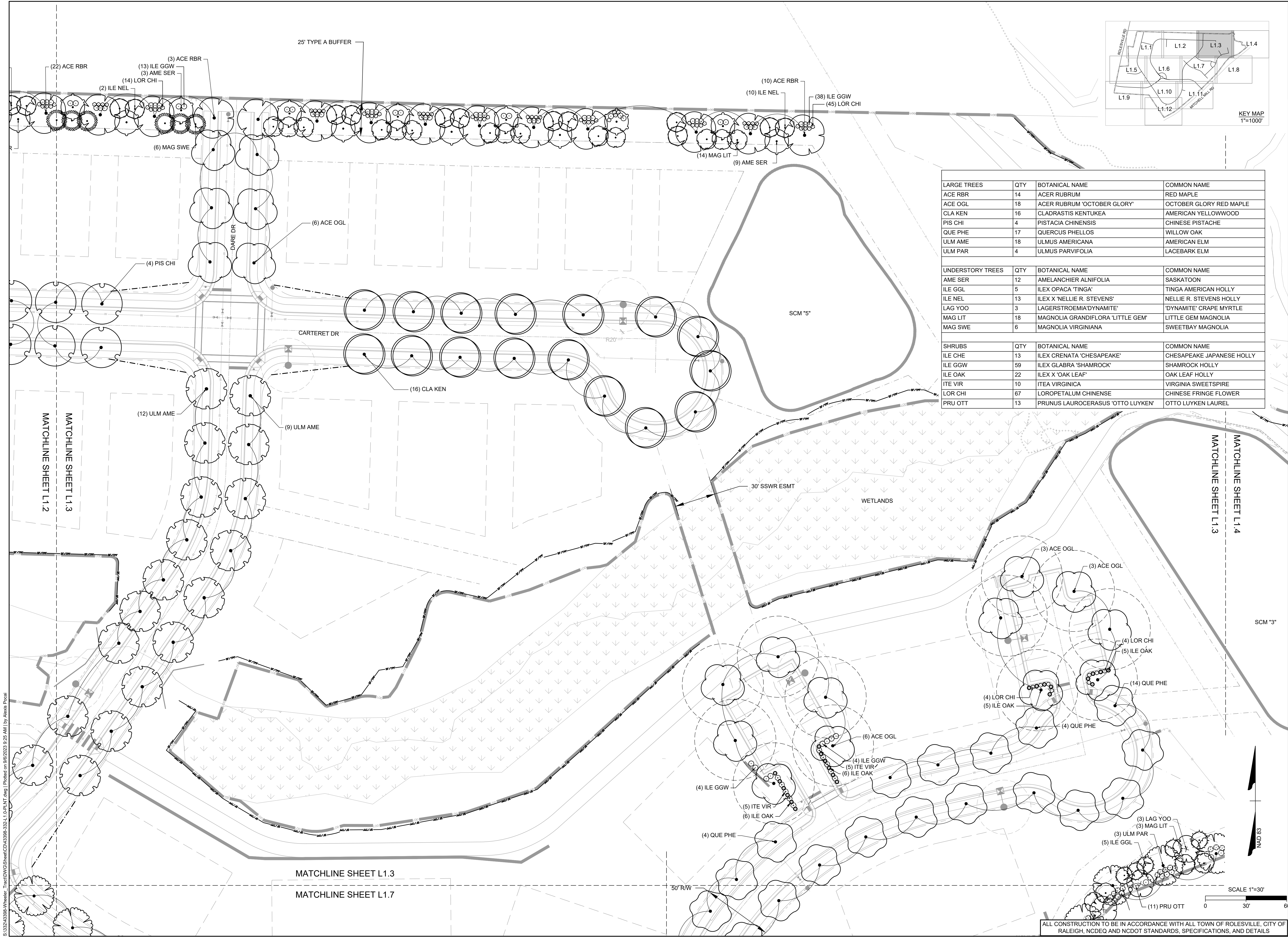
PLANT SCHEDULE 1.2			
LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME
ACE RBR	23	ACER RUBRUM	RED MAPLE
CLA KEN	12	CLADRASTIS KENTUKEA	AMERICAN YELLOWWOOD
PIS CHI	41	PISTACIA CHINENSIS	CHINESE PISTACHE
ULM AME	7	ULMUS AMERICANA	AMERICAN ELM
ULM PAR	1	ULMUS PARVIFOLIA	LACEBARK ELM
UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME
AME SER	23	AMELANCHIER ALNIFOLIA	SASKATOON
ILE NEL	22	ILEX X 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY
MAG SWE	36	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
ILE GGW	92	ILEX GLABRA 'SHAMROCK'	SHAMROCK HOLLY
LOR CHI	102	LOROPETALUM CHINENSE	CHINESE FRINGE FLOWER



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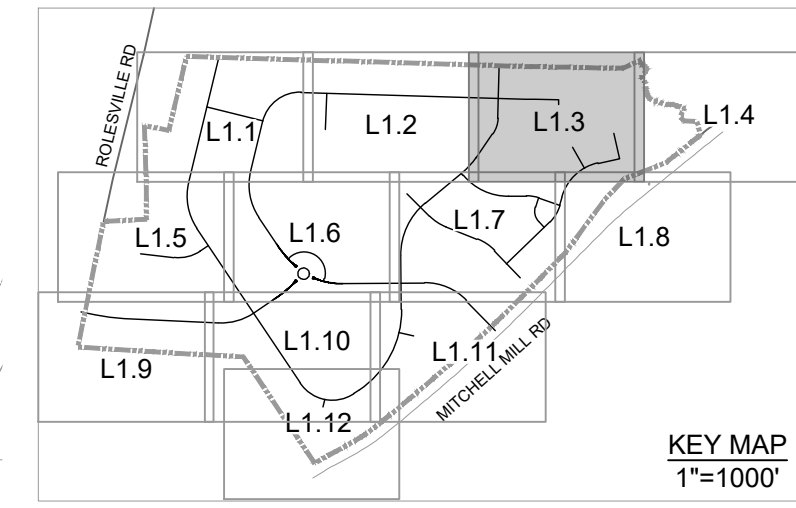
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LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME
ACE RBR	14	ACER RUBRUM	RED MAPLE
ACE OGL	18	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE
CLA KEN	16	CLADRASTIS KENTUCKEA	AMERICAN YELLOWWOOD
PIS CHI	4	PISTACIA CHINENSIS	CHINESE PISTACHE
QUE PHE	17	QUERCUS PHELLOS	WILLOW OAK
ULM AME	18	ULMUS AMERICANA	AMERICAN ELM
ULM PAR	4	ULMUS PARVIFOLIA	LACEBARK ELM

UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME
AME SER	12	AMELANCHIER ALNIFOLIA	SASKATOON
ILE GGL	5	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY
ILE NEL	13	ILEX X 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY
LAG YOO	3	LAGERSTROEMIA'DYNAMITE'	'DYNAMITE' CRAPE MYRTLE
MAG LIT	18	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA
MAG SWE	6	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
ILE CHE	13	ILEX CRENATA 'CHESAPEAKE'	CHESAPEAKE JAPANESE HOLLY
ILE GGW	59	ILEX GLABRA 'SHAMROCK'	SHAMROCK HOLLY
ILE OAK	22	ILEX X 'OAK LEAF'	OAK LEAF HOLLY
ITE VIR	10	ITEA VIRGINICA	VIRGINIA SWEETSPICE
LOR CHI	67	LOROPETALUM CHINENSE	CHINESE FRINGE FLOWER
PRU OTT	13	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL



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ROLESVILLE CROSSING - CD 21-08

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

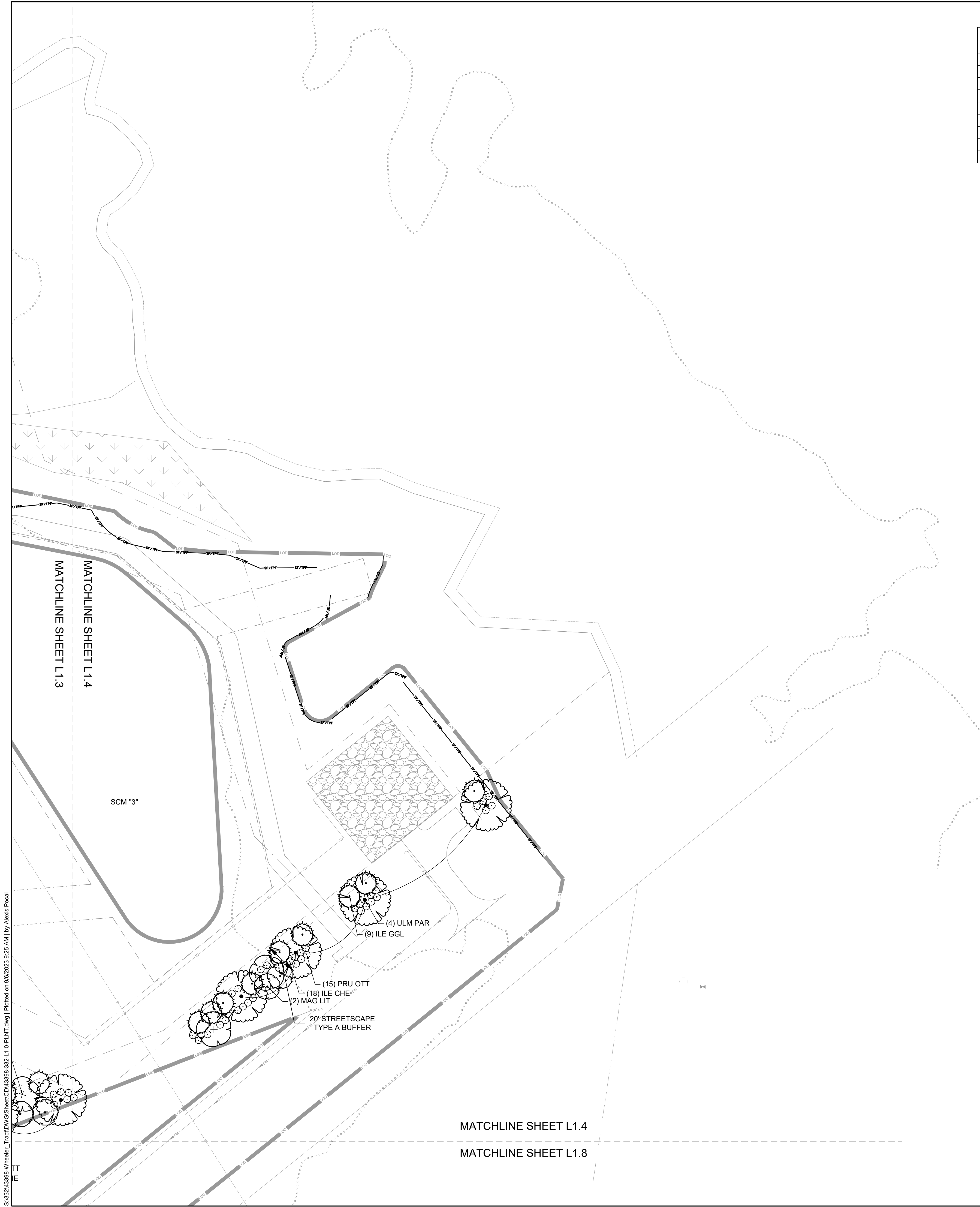
LANDSCAPE PLAN

JOB NO. 43398
 SHEET NO. L1.3

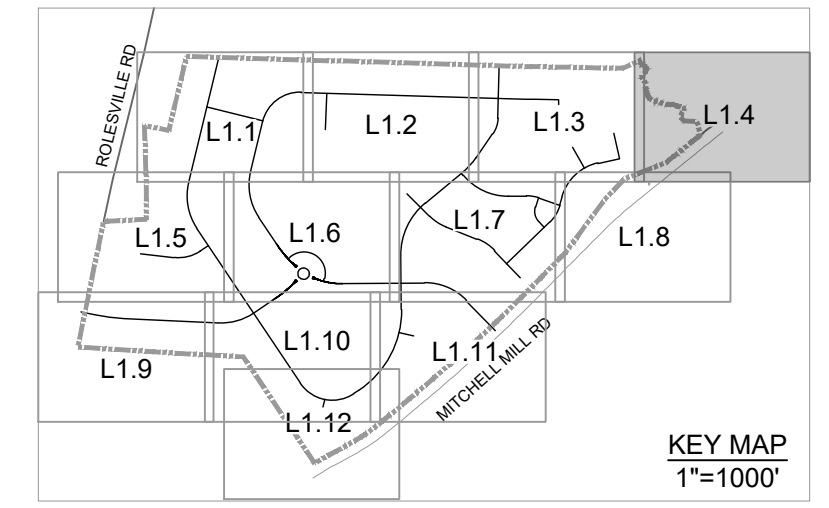
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LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME
ULM PAR	4	ULMUS PARVIFOLIA	LACEBARK ELM
UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME
ILE GGL	9	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY
MAG LIT	2	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
ILE CHE	18	ILEX CRENATA 'CHESAPEAKE'	CHESAPEAKE JAPANESE HOLLY
PRU OTT	15	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL



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ROLESVILLE CROSSING - CD 21-08
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
LANDSCAPE PLAN

JOB NO. 43398
 SHEET NO. L1.4

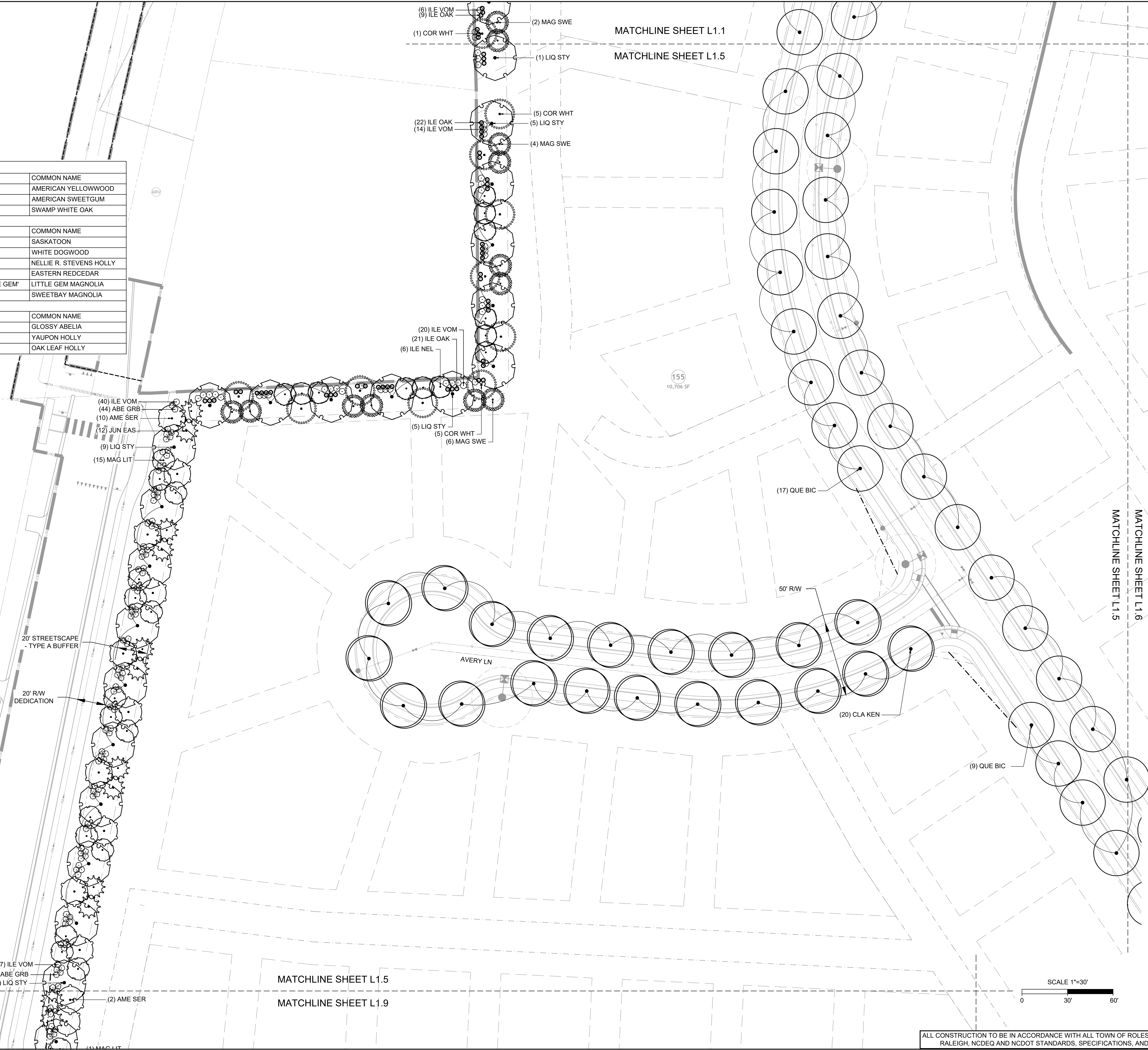
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PLANT SCHEDULE L 1.5			
LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME
CLA KEN	20	CLADRASTIS KENTUKEA	AMERICAN YELLOWWOOD
LIQ STY	21	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEETGUM
QUE BIC	30	QUERCUS BICOLOR	SWAMP WHITE OAK
UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME
AME SER	12	AMELANCHIER ALNIFOLIA	SASKATOON
COR WHT	11	CORNUS FLORIDA	WHITE DOGWOOD
ILE NEL	12	ILEX X 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY
JUN EAS	12	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR
MAG LIT	15	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA
MAG SWE	12	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
ABE GRB	51	ABELIA GRANDIFLORA	GLOSSY ABELIA
ILE VOM	85	ILEX VOMITORIA	YAUPON HOLLY
ILE OAK	52	ILEX X 'OAK LEAF'	OAK LEAF HOLLY



(7) ILE VOM
(12) ABE GRB
(2) LIQ STY
(2) AME SER

MATCHLINE SHEET L1.5
MATCHLINE SHEET L1.9

(20) ILE VOM
(21) ILE OAK
(6) ILE NEL
(5) LIQ STY
(5) COR WHT
(6) MAG SWE

(6) ILE VOM
(9) ILE OAK
(1) COR WHT
(2) MAG SWE
(1) LIQ STY
(5) COR WHT
(5) LIQ STY
(4) MAG SWE

MATCHLINE SHEET L1.1
MATCHLINE SHEET L1.5

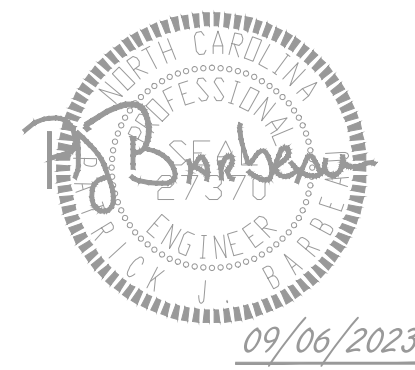
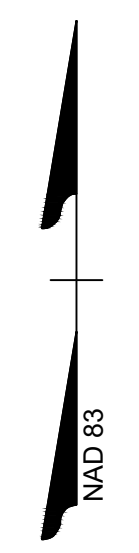
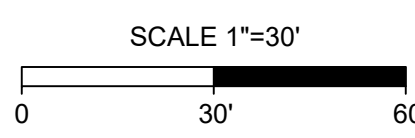
(17) QUE BIC

50' R/W

(20) CLA KEN

(9) QUE BIC

MATCHLINE SHEET L1.6
MATCHLINE SHEET L1.5



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DESIGNED BY: P. BARBEAU
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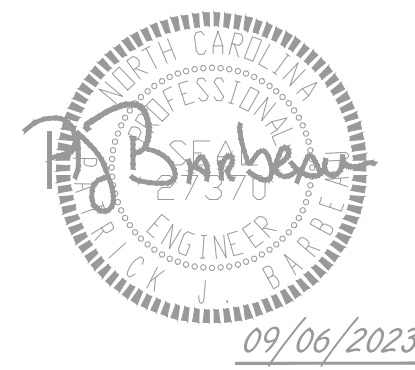
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NORTH CAROLINA LICENSE NO. C-1652
ROLESVILLE CROSSING - CD 21-08
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
LANDSCAPE PLAN

JOB NO. 43398
SHEET NO. L1.5

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

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 REVISIONS PER WAKE COUNTY COMMENTS
 CONSTRUCTION DOCUMENT SUBMITTAL
 REVISIONS PER NCDOT COMMENTS
 REVISIONS PER CITY OF RALEIGH COMMENTS

DATE
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DESIGNED BY
 P. BARBEAU

CHECKED BY
 P. BARBEAU

SCALE
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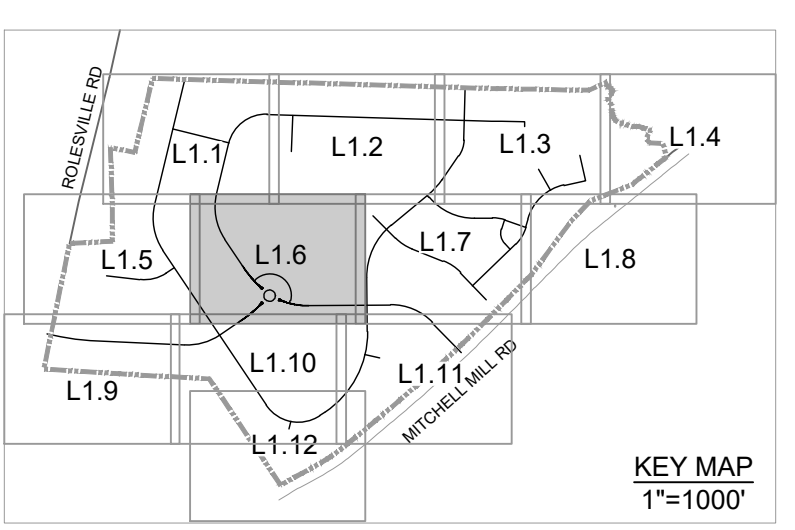
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ROLESVILLE CROSSING - CD 21-08
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
 LANDSCAPE PLAN

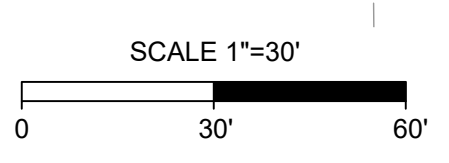
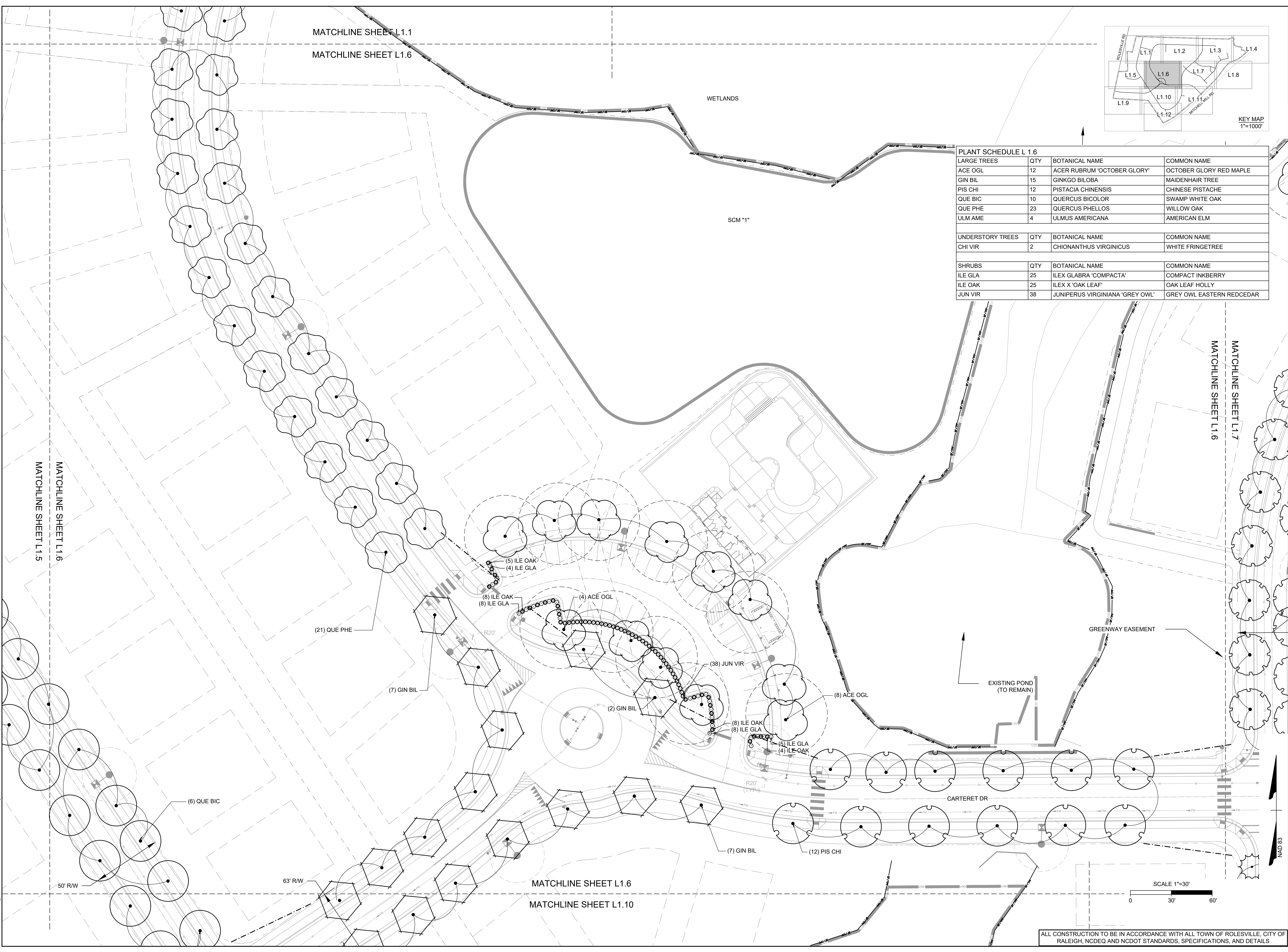
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 43398

SHEET NO.
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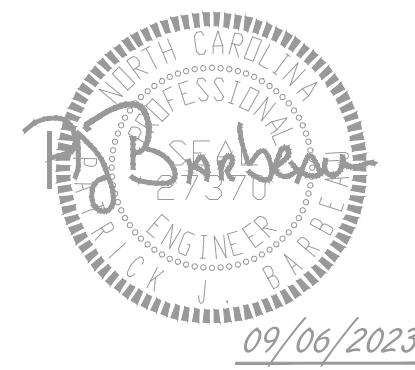
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PLANT SCHEDULE L 1.6			
	QTY	BOTANICAL NAME	COMMON NAME
LARGE TREES			
ACE OGL	12	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE
GIN BIL	15	GINKGO BILOBA	MAIDENHAIR TREE
PIS CHI	12	PISTACIA CHINENSIS	CHINESE PISTACHE
QUE BIC	10	QUERCUS BICOLOR	SWAMP WHITE OAK
QUE PHE	23	QUERCUS PHELLOS	WILLOW OAK
ULM AME	4	ULMUS AMERICANA	AMERICAN ELM
UNDERSTORY TREES			
CHI VIR	2	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE
SHRUBS			
ILE GLA	25	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY
ILE OAK	25	ILEX X 'OAK LEAF'	OAK LEAF HOLLY
JUN VIR	38	JUNIPERUS VIRGINIANA 'GREY OWL'	GREY OWL EASTERN REDCEDAR



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 REVISIONS PER WAKE COUNTY COMMENTS
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 REVISIONS PER CITY OF RALEIGH COMMENTS

DATE
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DESIGNED BY
 P. BARBEAU

CHECKED BY
 P. BARBEAU

SCALE
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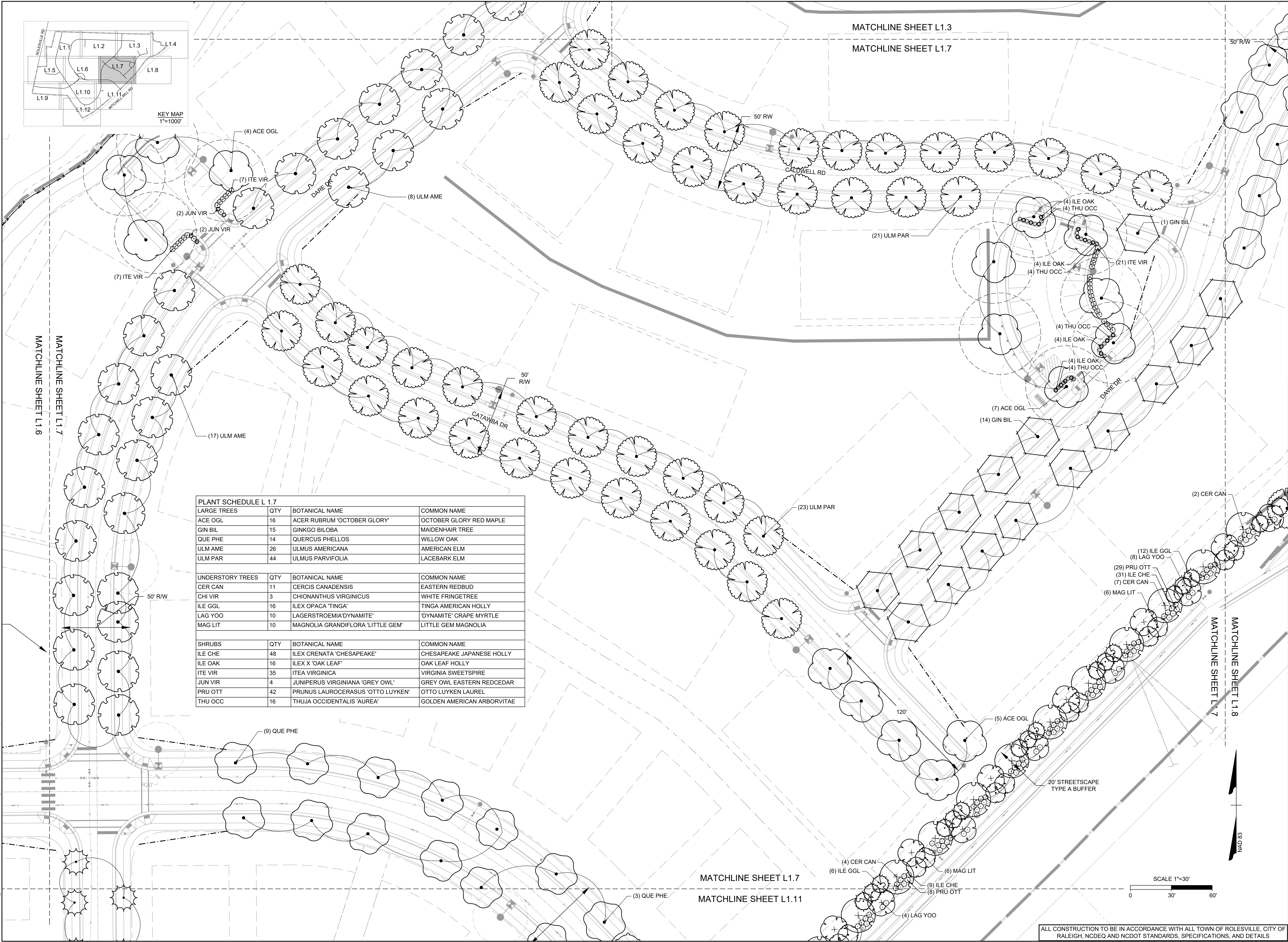
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ROLESVILLE CROSSING - CD 21-08
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
LANDSCAPE PLAN

JOB NO.
43398

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L1.7

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PLANT SCHEDULE L 1.7			
LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME
ACE OGL	16	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE
GIN BIL	15	GINKGO BILOBA	MAIDENHAIR TREE
QUE PHE	14	QUERCUS PHELLOS	WILLOW OAK
ULM AME	26	ULMUS AMERICANA	AMERICAN ELM
ULM PAR	44	ULMUS PARVIFOLIA	LACEBARK ELM
UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME
CER CAN	11	CERCIS CANADENSIS	EASTERN REDBUD
CHI VIR	3	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE
ILE GGL	16	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY
LAG YOO	10	LAGERSTROEMIA 'DYNAMITE'	'DYNAMITE' CRAPE MYRTLE
MAG LIT	10	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
ILE CHE	48	ILEX CRENATA 'CHESAPEAKE'	CHESAPEAKE JAPANESE HOLLY
ILE OAK	16	ILEX X 'OAK LEAF'	OAK LEAF HOLLY
ITE VIR	35	ITEA VIRGINICA	VIRGINIA SWEETSPIRE
JUN VIR	4	JUNIPERUS VIRGINIANA 'GREY OWL'	GREY OWL EASTERN REDCEDAR
PRU OTT	42	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL
THU OCC	16	THUJA OCCIDENTALIS 'AUREA'	GOLDEN AMERICAN ARBORVITAE

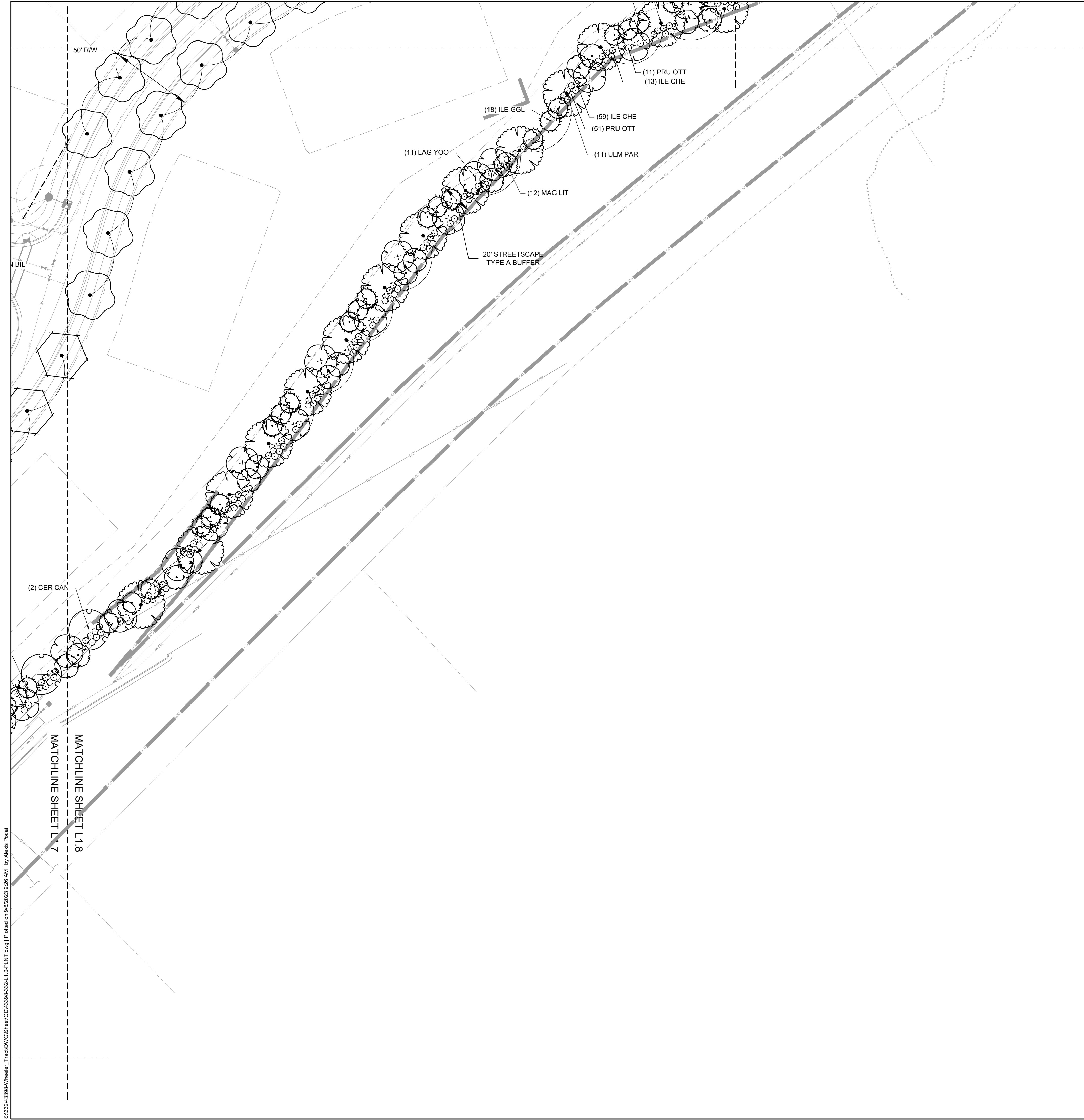
MATCHLINE SHEET L1.6
 MATCHLINE SHEET L1.7

MATCHLINE SHEET L1.7
 MATCHLINE SHEET L1.11

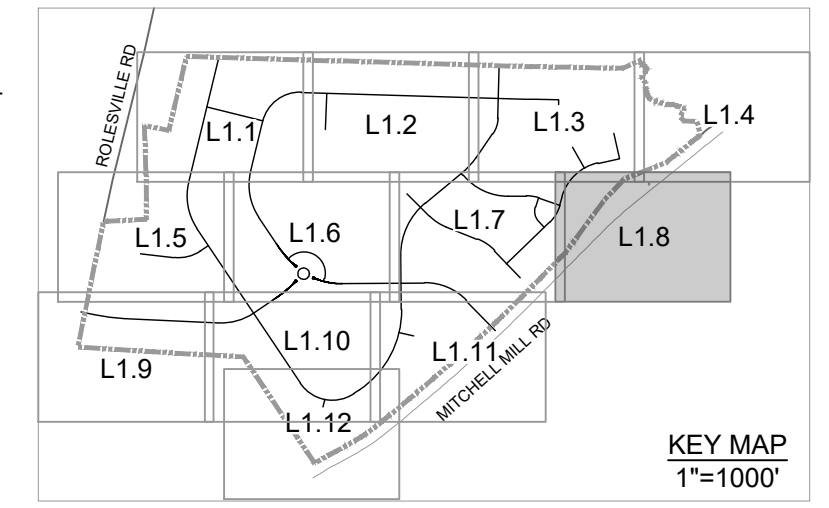
MATCHLINE SHEET L1.7
 MATCHLINE SHEET L1.8

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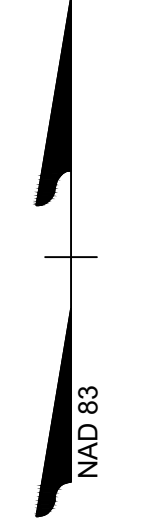
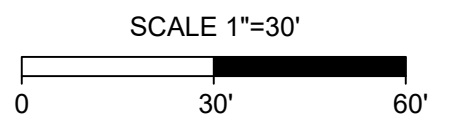
MATCHLINE SHEET L1.4
MATCHLINE SHEET L1.8



LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME
GIN BIL	2	GINKGO BILOBA	MAIDENHAIR TREE
QUE PHE	9	QUERCUS PHELLOS	WILLOW OAK
ULM PAR	14	ULMUS PARVIFOLIA	LACEBARK ELM

UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME
CER CAN	2	CERCIS CANADENSIS	EASTERN REDBUD
ILE GGL	22	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY
LAG YOO	14	LAGERSTROEMIA'DYNAMITE'	'DYNAMITE' CRAPE MYRTLE
MAG LIT	16	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
ILE CHE	69	ILEX CRENATA 'CHESAPEAKE'	CHESAPEAKE JAPANESE HOLLY
PRU OTT	63	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL



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DESIGNED BY
P. BARBEAU

CHECKED BY
P. BARBEAU

SCALE
AS SHOWN

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ROLESVILLE CROSSING - CD 21-08
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

LANDSCAPE PLAN

JOB NO.
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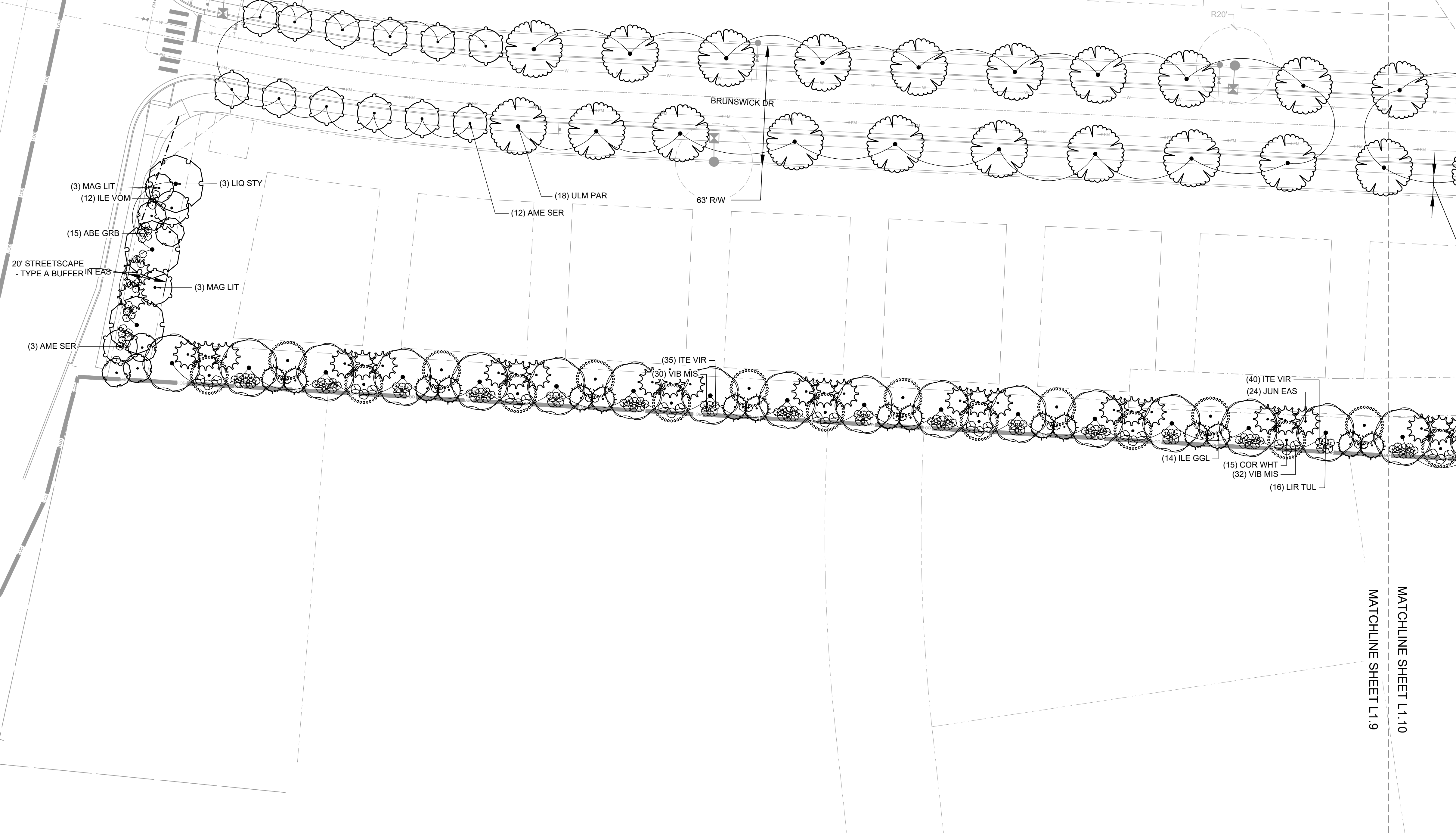
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KEY MAP
1"=1000'

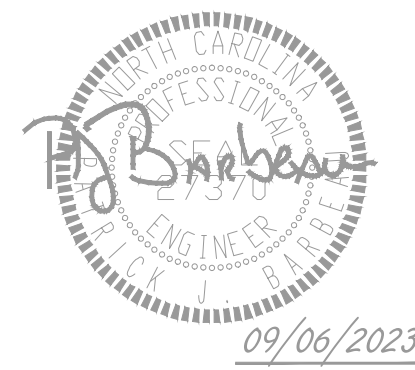
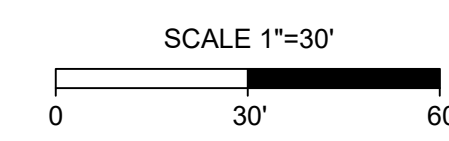
(7) ILE VOM
(12) ABE GRB
(2) LIQ STY

MATCHLINE SHEET L1.5
MATCHLINE SHEET L1.9



MATCHLINE SHEET L1.10
MATCHLINE SHEET L1.9

PLANT SCHEDULE L 1.9			
LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME
LIQ STY	5	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEETGUM
LIR TUL	17	LIRIODENDRON TULIPIFERA	TULIP POPLAR
ULM PAR	20	ULMUS PARVIFOLIA	LACEBARK ELM
UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME
AME SER	17	AMELANCHIER ALNIFOLIA	SASKATOON
COR WHT	16	CORNUS FLORIDA	WHITE DOGWOOD
ILE GGL	16	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY
JUN EAS	29	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR
MAG LIT	8	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
ABE GRB	27	ABELIA GRANDIFLORA	GLOSSY ABELIA
ILE VOM	19	ILEX VOMITORIA	YAUPON HOLLY
ITE VIR	82	ITEA VIRGINICA	VIRGINIA SWEETSPIRE
VIB MIS	66	VIBURNUM OBOVATUM 'MRS. SCHILLER'S DELIGHT'	VIBURNUM



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09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS

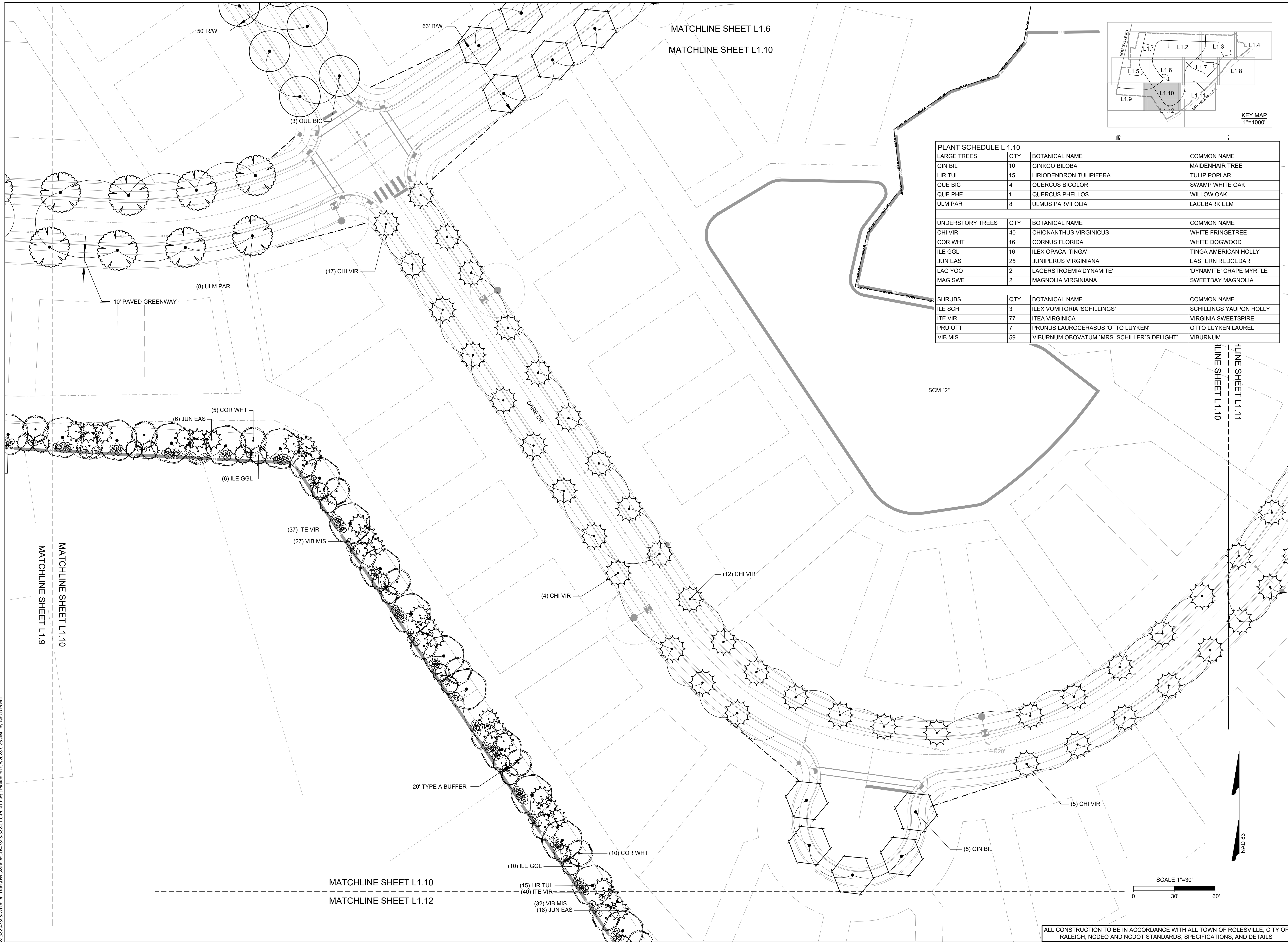
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ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
LANDSCAPE PLAN

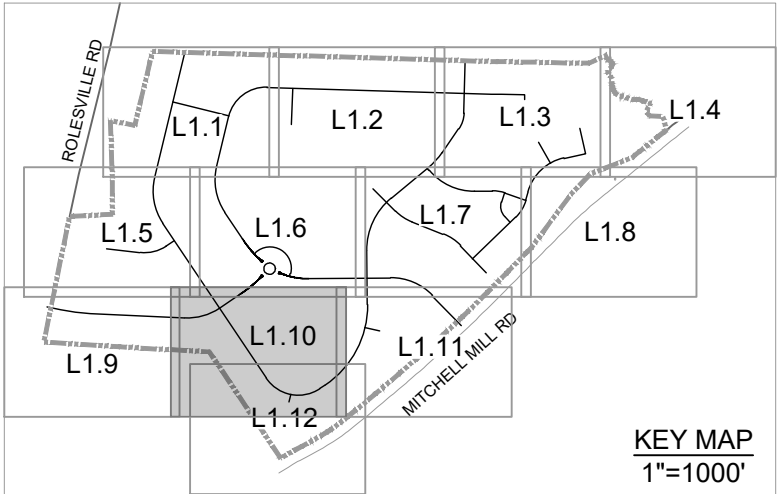
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SHEET NO.
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MATCHLINE SHEET L1.6

MATCHLINE SHEET L1.10



PLANT SCHEDULE L 1.10

LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME
GIN BIL	10	GINKGO BILOBA	MAIDENHAIR TREE
LIR TUL	15	LIRIODENDRON TULIPIFERA	TULIP POPLAR
QUE BIC	4	QUERCUS BICOLOR	SWAMP WHITE OAK
QUE PHE	1	QUERCUS PHELLOS	WILLOW OAK
ULM PAR	8	ULMUS PARVIFOLIA	LACEBARK ELM
UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME
CHI VIR	40	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE
COR WHT	16	CORNUS FLORIDA	WHITE DOGWOOD
ILE GGL	16	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY
JUN EAS	25	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR
LAG YOO	2	LAGERSTROEMIA'DYNAMITE'	'DYNAMITE' CRAPE MYRTLE
MAG SWE	2	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
ILE SCH	3	ILEX VOMITORIA 'SCHILLINGS'	SCHILLINGS YAUPON HOLLY
ITE VIR	77	ITEA VIRGINICA	VIRGINIA SWEETSPIRE
PRU OTT	7	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL
VIB MIS	59	VIBURNUM OBOVATUM 'MRS. SCHILLER'S DELIGHT'	VIBURNUM



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04/06/2023	REVISIONS PER NCDOT COMMENTS
09/06/2023	REVISIONS PER CITY OF RALEIGH COMMENTS

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09/17/2021
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 DESIGNED BY
S. FANTAYE
 CHECKED BY
J. BLASCO
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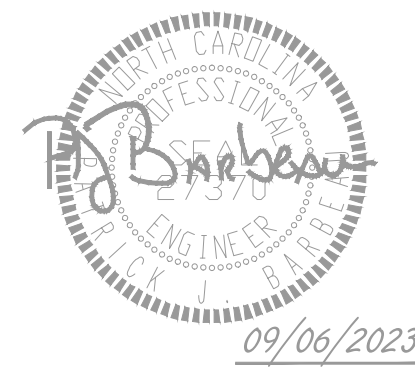
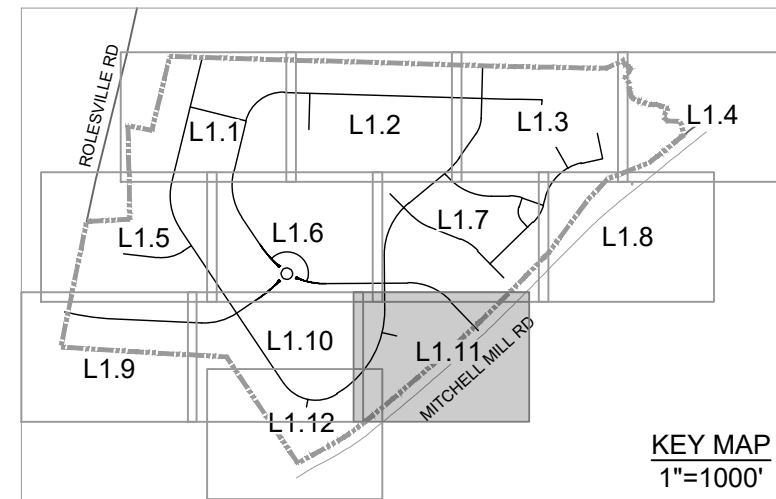
ROLESVILLE CROSSING - CD 21-08
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
LANDSCAPE PLAN

JOB NO.
43398
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L1.10

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ROLESVILLE CROSSING - CD 21-08

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

LANDSCAPE PLAN

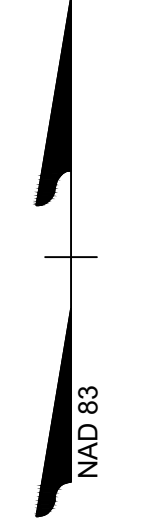
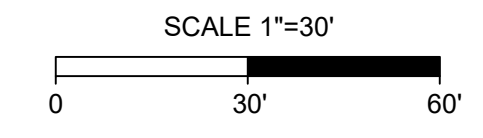
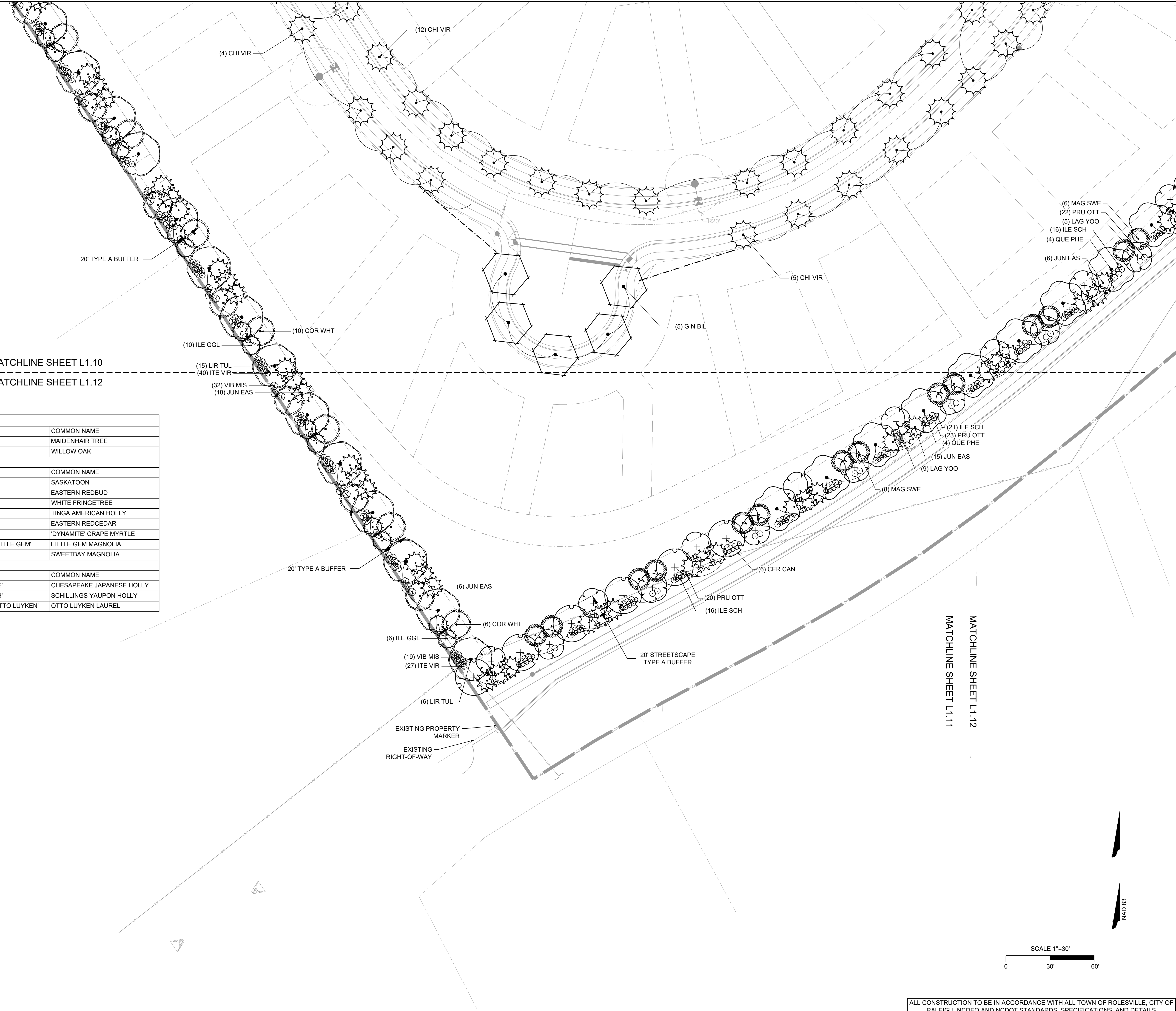
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SHEET NO.
L1.11

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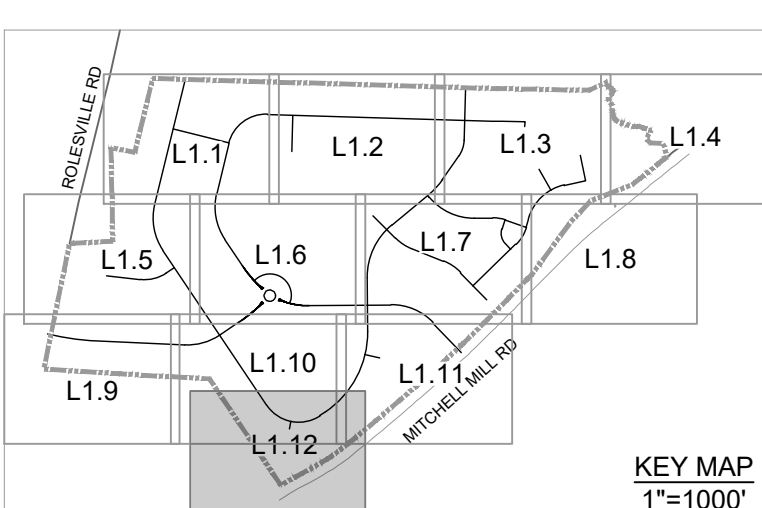
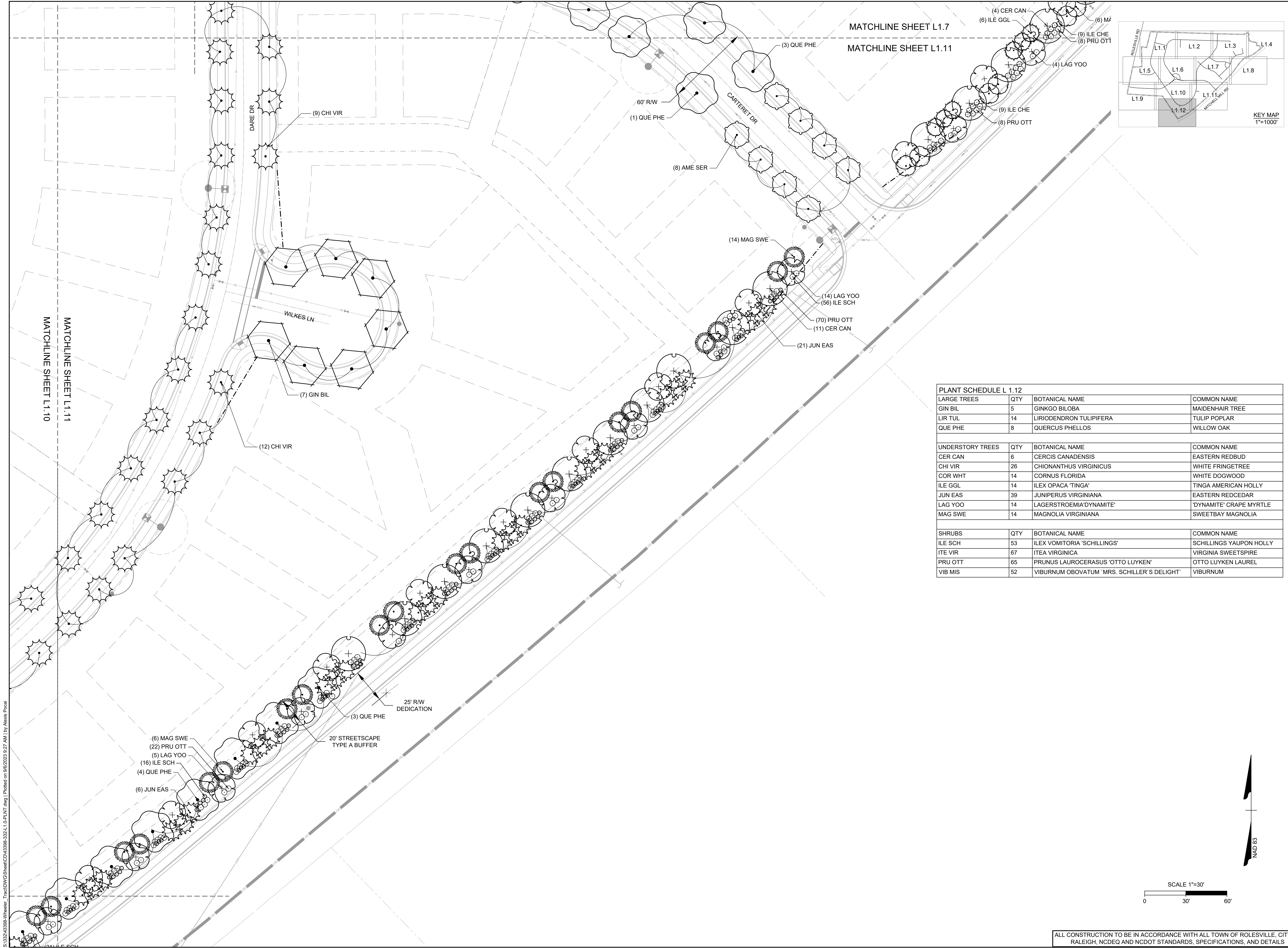
PLANT SCHEDULE L 1.11			
LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME
GIN BIL	7	GINKGO BIL OBA	MAIDENHAIR TREE
QUE PHE	12	QUERCUS PHELLOS	WILLOW OAK
UNDERSTORY TREES			
AME SER	QTY	BOTANICAL NAME	COMMON NAME
CER CAN	15	CERCIS CANADENSIS	EASTERN REDBUD
CHI VIR	23	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE
ILE GGL	6	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY
JUN EAS	27	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR
LAG YOO	23	LAGERSTROEMIA 'DYNAMITE'	'DYNAMITE' GRAPE MYRTLE
MAG LIT	6	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA
MAG SWE	20	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA
SHRUBS			
ILE CHE	QTY	BOTANICAL NAME	COMMON NAME
ILE SCH	72	ILEX VOMITORIA 'SCHILLINGS'	SCHILLINGS YAUPON HOLLY
PRU OTT	108	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL

MATCHLINE SHEET L1.10
 MATCHLINE SHEET L1.12



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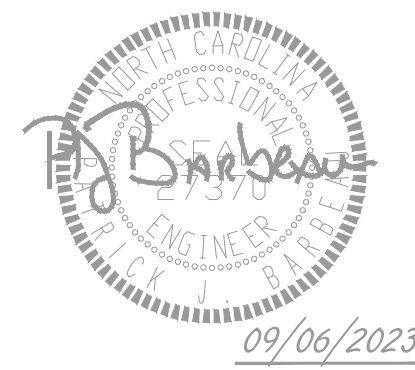
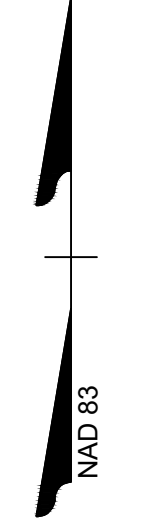
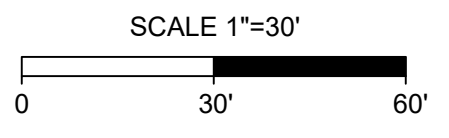


PLANT SCHEDULE L 1.12

LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME
GIN BIL	5	GINKGO BILOBA	MAIDENHAIR TREE
LIR TUL	14	LIRIODENDRON TULIPIFERA	TULIP POPLAR
QUE PHE	8	QUERCUS PHELLOS	WILLOW OAK

UNDERSTORY TREES	QTY	BOTANICAL NAME	COMMON NAME
CER CAN	6	CERCIS CANADENSIS	EASTERN REDBUD
CHI VIR	26	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE
COR WHT	14	CORNUS FLORIDA	WHITE DOGWOOD
ILE GGL	14	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY
JUN EAS	39	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR
LAG YOO	14	LAGERSTROEMIA 'DYNAMITE'	'DYNAMITE' CRAPE MYRTLE
MAG SWE	14	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
ILE SCH	53	ILEX VOMITORIA 'SCHILLINGS'	SCHILLINGS YAUPON HOLLY
ITE VIR	67	ITEA VIRGINICA	VIRGINIA SWEETSPIRE
PRU OTT	65	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL
VIB MIS	52	VIBURNUM OBOVATUM 'MRS. SCHILLER'S DELIGHT'	VIBURNUM



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DATE 09/17/2021
 DRAWN BY S. FANTAYE
 DESIGNED BY S. FANTAYE
 CHECKED BY J. BLASCO
 SCALE AS SHOWN

TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652

ROLESVILLE CROSSING - CD 21-08
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

LANDSCAPE PLAN

JOB NO. 43398
 SHEET NO. L1.12

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

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DATE	REVISION DESCRIPTION
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06/24/2022	REVISIONS PER WAKE COUNTY COMMENTS
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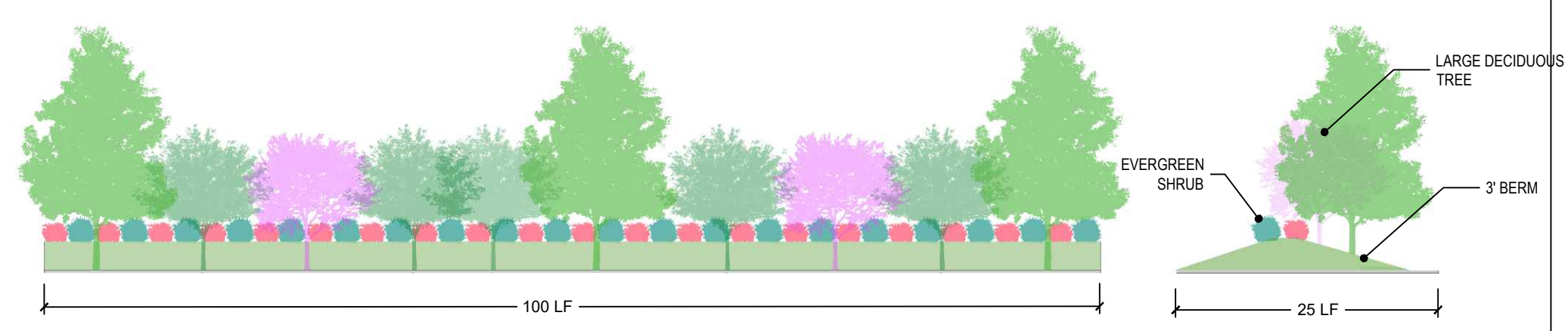
TIMMONS GROUP
 NORTH CAROLINA LICENSE NO. C-1652
ROLESVILLE CROSSING - CD 21-08
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
LANDSCAPE NOTES & DETAILS 1

JOB NO. 43398
 SHEET NO. L2.0

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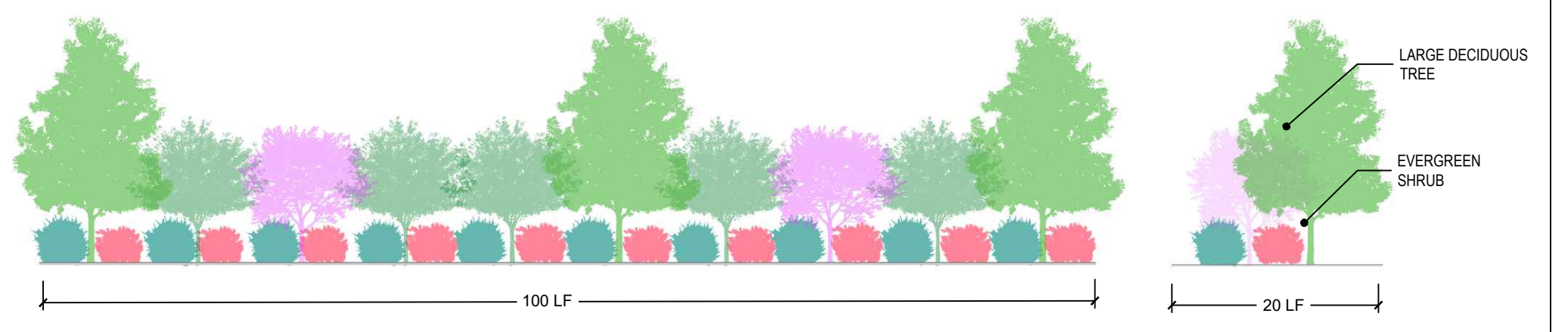
CODE	QTY	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	ROOT	TYPE
LARGE TREES						
ACE RBR	48	ACER RUBRUM	RED MAPLE	2.5" CAL., 10' HT. MIN.	B&B	PERIMETER BUFFER
ACE OGL	58	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2.5" CAL., 10' HT. MIN.	B&B	STREET TREES
CLA KEN	48	CLADRASTIS KENTUKEA	AMERICAN YELLOWWOOD	2.5" CAL., 10' HT. MIN.	B&B	STREET TREES
GIN BIL	43	GINKGO BILOBA	MAIDENHAIR TREE	2.5" CAL., 10' HT. MIN.	B&B	STREET TREES
LIQ STY	44	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEETGUM	2.5" CAL., 10' HT. MIN.	B&B	PERIMETER BUFFER
LIR TUL	37	LIRIODENDRON TULIPIFERA	TULIP POPLAR	2.5" CAL., 10' HT. MIN.	B&B	PERIMETER BUFFER
PIS CHI	67	PISTACIA CHINENSIS	CHINESE PISTACHE	2.5" CAL., 10' HT. MIN.	B&B	STREET TREES
QUE BIC	62	QUERCUS BICOLOR	SWAMP WHITE OAK	2.5" CAL., 10' HT. MIN.	B&B	STREET TREES
QUE PHE	80	QUERCUS PHELLOS	WILLOW OAK	2.5" CAL., 10' HT. MIN.	B&B	STREET TREES
ULM AME	46	ULMUS AMERICANA	AMERICAN ELM	2.5" CAL., 10' HT. MIN.	B&B	STREET TREES
ULM PAR	88	ULMUS PARVIFOLIA	LACEBARK ELM	2.5" CAL., 10' HT. MIN.	B&B	STREET TREES
UNDERSTORY TREES						
AME SER	82	AMELANCHIER ALNIFOLIA	SASKATOON	1.5" CAL., 8' HT. MIN.	B&B	PERIMETER BUFFER
CER CAN	30	CERCIS CANADENSIS	EASTERN REDBUD	1.5" CAL., 8' HT. MIN.	B&B	PERIMETER BUFFER
CHI VIR	59	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	1.5" CAL., 8' HT. MIN.	B&B	STREET TREES
COR WHT	66	CORNUS FLORIDA	WHITE DOGWOOD	1.5" CAL., 8' HT. MIN.	B&B	PERIMETER BUFFER
ILE GGL	86	ILEX OPACA 'TINGA'	TINGA AMERICAN HOLLY	1.5" CAL., 8' HT. MIN.	B&B	PERIMETER BUFFER
ILE NEL	84	ILEX X 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY	1.5" CAL., 8' HT. MIN.	B&B	PERIMETER BUFFER
JUN EAS	110	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	1.5" CAL., 8' HT. MIN.	B&B	PERIMETER BUFFER
LAG YOO	57	LAGERSTROEMIA 'DYNAMITE'	'DYNAMITE' CRAPE MYRTLE	1.5" CAL., 8' HT. MIN.	B&B	PERIMETER BUFFER
MAG LIT	69	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA	1.5" CAL., 8' HT. MIN.	B&B	PERIMETER BUFFER
MAG SWE	111	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	1.5" CAL., 8' HT. MIN.	B&B	PERIMETER BUFFER
SHRUBS						
ABE GRB	71	ABELIA GRANDIFLORA	GLOSSY ABELIA	24" HT. MIN.		PERIMETER BUFFER
ILE CHE	139	ILEX CRENATA 'CHESAPEAKE'	CHESAPEAKE JAPANESE HOLLY	24" HT. MIN.		PERIMETER BUFFER
ILE GLA	25	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	24" HT. MIN.		SCREENING
ILE GGW	192	ILEX GLABRA 'SHAMROCK'	SHAMROCK HOLLY	24" HT. MIN.		PERIMETER BUFFER
ILE VOM	162	ILEX VOMITORIA	YAUPON HOLLY	24" HT. MIN.		PERIMETER BUFFER
ILE SCH	109	ILEX VOMITORIA 'SCHILLINGS'	SCHILLINGS YAUPON HOLLY	24" HT. MIN.		PERIMETER BUFFER
ILE OAK	193	ILEX X 'OAK LEAF'	OAK LEAF HOLLY	24" HT. MIN.		SCREENING
ITE VIR	224	ITEA VIRGINICA	VIRGINIA SWEETSPIRE	24" HT. MIN.		SCREENING
JUN VIR	42	JUNIPERUS VIRGINIANA 'GREY OWL'	GREY OWL EASTERN REDCEDAR	24" HT. MIN.		SCREENING
LOR CHI	215	LOROPETALUM CHINENSE	CHINESE FRINGE FLOWER	24" HT. MIN.		SCREENING
PRU OTT	257	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL	24" HT. MIN.		PERIMETER BUFFER
THU OCC	16	THUJA OCCIDENTALIS 'AUREA'	GOLDEN AMERICAN ARBORVITAE	24" HT. MIN.		SCREENING
VIB MIS	140	VIBURNUM OBOVATUM 'MRS. SCHILLER'S DELIGHT'	VIBURNUM	24" HT. MIN.		PERIMETER BUFFER

NOTE:
 NO SINGLE SPECIES SHALL COMPRISE MORE THAN 50% OF PLANT TYPE IN BUFFERS.



25' TYPE A: OPAQUE YARD BUFFER W/ BERM
 3 CANOPY TREES MIN 40' @ MATURITY
 7 UNDERSTORY TREES MIN 20' @ MATURITY
 35-40 EVERGREEN SHRUBS 90 (3" H" 5" W)

- | | | |
|--|---|--|
| CANOPY TREES
Quercus phellos / WILLOW OAK
Ulmus americana / AMERICAN ELM
Liriodendron tulipifera / TULIP POPLAR
Acer rubrum / RED MAPLE
Liquidambar styraciflua / FRUITLESS SWEETGUM | UNDERSTORY EVERGREEN
Magnolia grandiflora 'little gem' / LITTLE GEM MAGNOLIA
Magnolia virginiana / SWEETBAY MAGNOLIA
Ilex nellie / NELLIE R. STEVENS HOLLY
Juniperus virginiana / EASTERN CEDAR
Ilex opaca 'tinga' / TINGA AMERICAN HOLLY | UNDERSTORY DECIDUOUS
Amelanchier alnifolia / SERVICEBERRY
Cercis sp. / REDBUD
Cornus sp. / DOGWOOD |
| EVERGREEN SHRUB - 3' H
Itea virginica / VIRGINIA SWEETSPIRE
Ilex vomitoria / DWARF YAUPON HOLLY
Ilex glabra 'georgia wine' / INKBERRY HOLLY
LOROPETALUM SP. / FRINGE | | |



20' TYPE A: OPAQUE YARD BUFFER - NO BERM
 3 CANOPY TREES MIN 40' @ MATURITY
 7 UNDERSTORY TREES MIN 20' @ MATURITY
 20 EVERGREEN SHRUBS (3" H" 5" W)

- | | | |
|--|---|--|
| CANOPY TREES
Quercus phellos / WILLOW OAK
Ulmus americana / AMERICAN ELM
Liriodendron tulipifera / TULIP POPLAR
Acer rubrum / RED MAPLE
Liquidambar styraciflua / FRUITLESS SWEETGUM | UNDERSTORY EVERGREEN
Magnolia grandiflora 'little gem' / LITTLE GEM MAGNOLIA
Magnolia virginiana / SWEETBAY MAGNOLIA
Ilex nellie / NELLIE R. STEVENS HOLLY
Juniperus virginiana / EASTERN CEDAR
Ilex opaca 'tinga' / TINGA AMERICAN HOLLY | UNDERSTORY DECIDUOUS
Amelanchier alnifolia / SERVICEBERRY
Cercis sp. / REDBUD
Cornus sp. / DOGWOOD |
| EVERGREEN SHRUB - 6' H
Ilex glabra 'cape cod' / INKBERRY HOLLY
Chinese Fringe / LOROPETALUM CHINENSIS
Glossy Abelia / ABELIA GRANDIFLORA
Sasanqua camellia / CAMELIA SASANQUA | | |

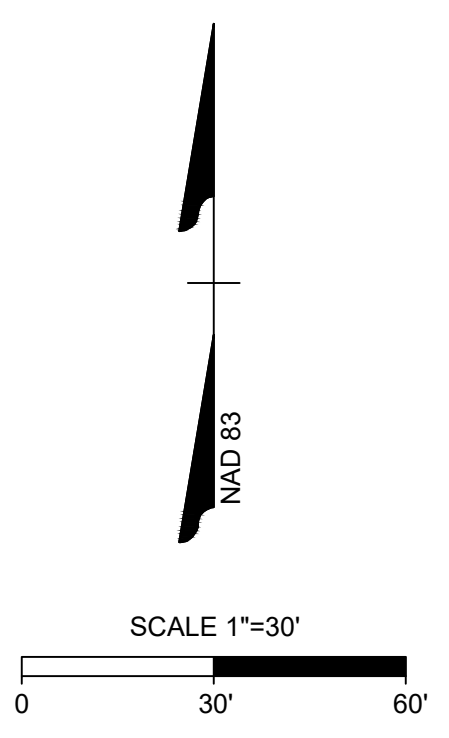
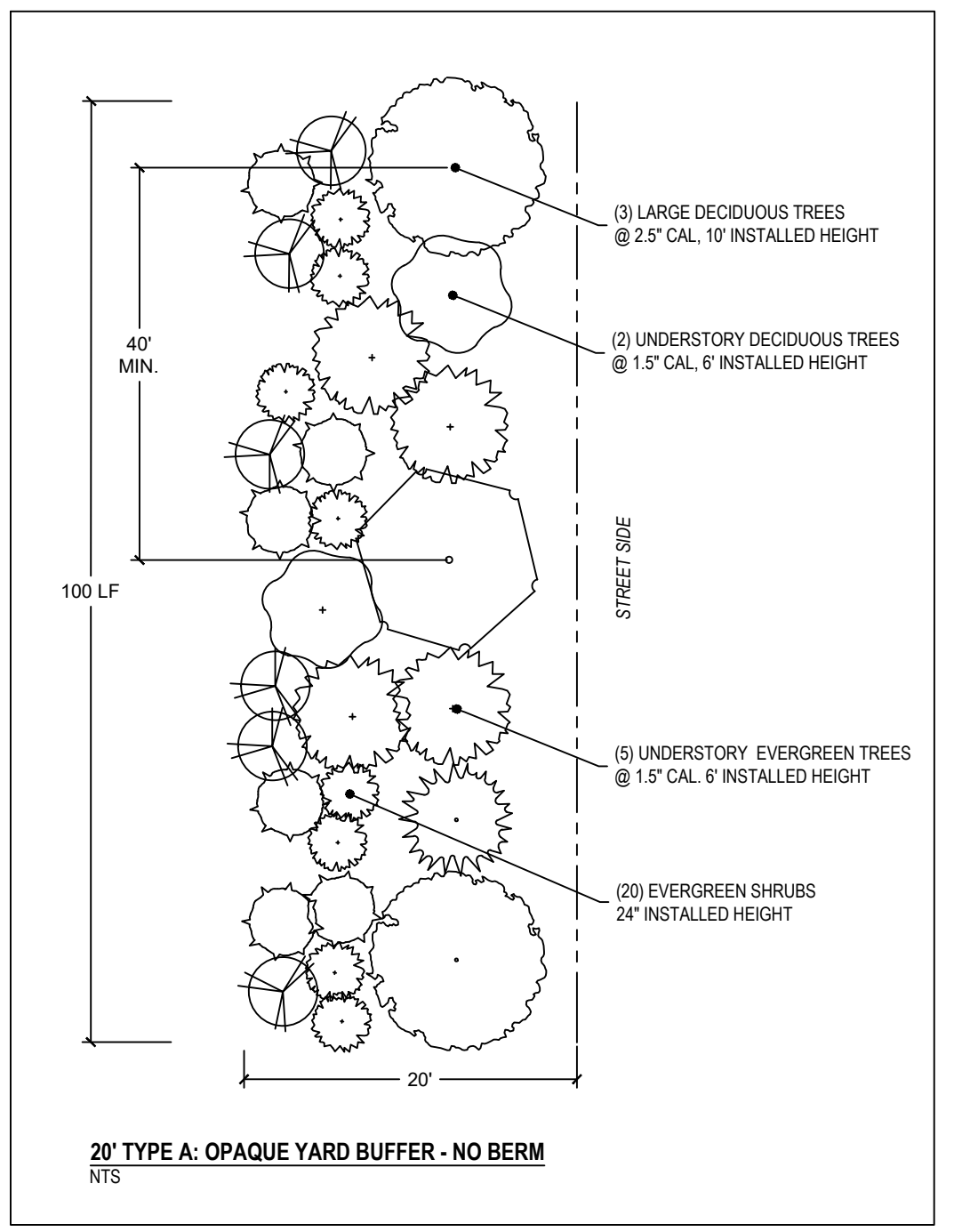
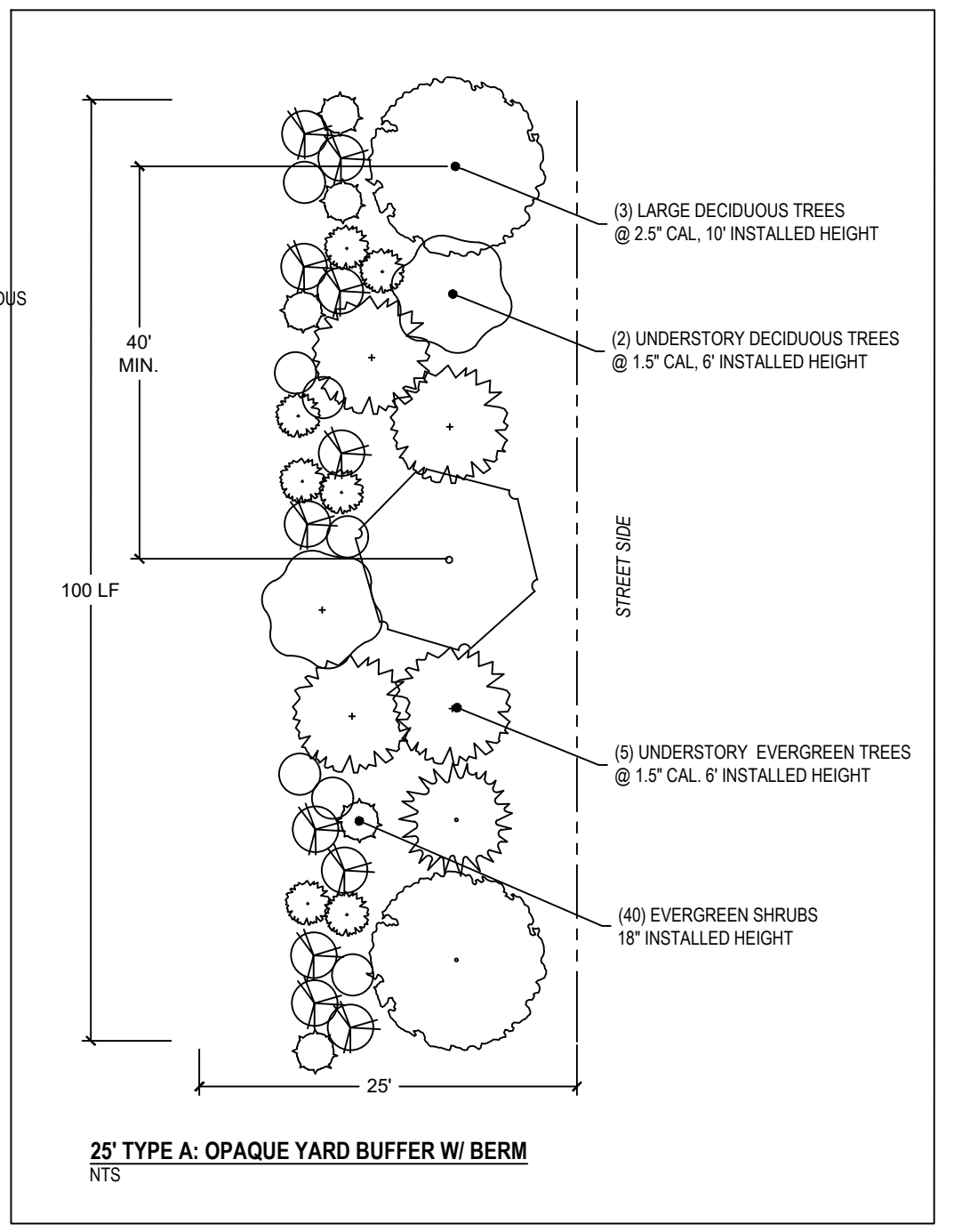
LANDSCAPE CALCULATIONS:
PERIMETER AND STREETScape YARD BUFFERS

20' AND 25' TYPE A:
 OPAQUE TYPE A
 THIS BUFFER FUNCTIONS AS AN OPAQUE SCREEN FROM THE GROUND TO A HEIGHT OF AT LEAST SIX FEET. PLANTINGS OF DECIDUOUS AND EVERGREEN TREES ARE EXPECTED TO REACH A HEIGHT OF NO LESS THAN 20 FEET AND TO HAVE NO UNOBSTRUCTED OPENINGS WIDER THAN TEN FEET BETWEEN TREE CANOPIES AT MATURITY.

THE TYPE "A" BUFFER SHALL INCLUDE A WALL, AN OPAQUE FENCE, LANDSCAPED EARTHEN BERM, EXISTING OR PLANTED VEGETATION, OR ANY APPROPRIATE COMBINATION OF THESE ELEMENTS WHICH WILL CREATE THE DESIRED SPATIAL SEPARATION BETWEEN LAND USES. AT LEAST 50 PERCENT OF THE REQUIRED TREES AND SHRUBS MUST BE OF THE EVERGREEN SPECIES. SHRUBBERY IS TO BE PLANTED SUFFICIENTLY CLOSE TOGETHER TO FORM AN OPAQUE SCREEN WITHIN THREE YEARS AFTER PLANTING.

STREET TREES REQUIRED: SHADE TREES 40' OC OR UNDERSTORY TREES 20' OC	DARE DR 7,650 LF 191.25 SHADE TREES REQUIRED 191 SHADE TREES PROVIDED*	BRUNSWICK DR 1,650 LF 41.25 SHADE TREES REQUIRED 35 SHADE TREES PROVIDED* 12 UNDERSTORY TREES PROVIDED	ROAD 5 450 LF 11.25 SHADE TREES REQUIRED 13 SHADE TREES PROVIDED
CARTERET RD 6,750 LF 168.75 SHADE TREES REQUIRED 165 SHADE TREES PROVIDED* 8 UNDERSTORY TREES PROVIDED	DAVIE RD 1500 LF 37.5 SHADE TREES REQUIRED 37 SHADE TREES PROVIDED*	EVERY LANE 750 LF 18.75 SHADE TREES REQUIRED 20 SHADE TREES PROVIDED	CALDWELL DR 950 LF 23.75 SHADE TREES REQUIRED 25 SHADE TREES PROVIDED
		HYDE DR 450 LF 11.25 SHADE TREES REQUIRED 12 SHADE TREES PROVIDED	CATAWBA DR 1250 LF 31.25 SHADE TREES REQUIRED 30 SHADE TREES PROVIDED*

*SIGHT DISTANCE TRIANGLES AND LIGHT POLES PREVENT ADDITIONAL TREES FROM BEING PLANTED.

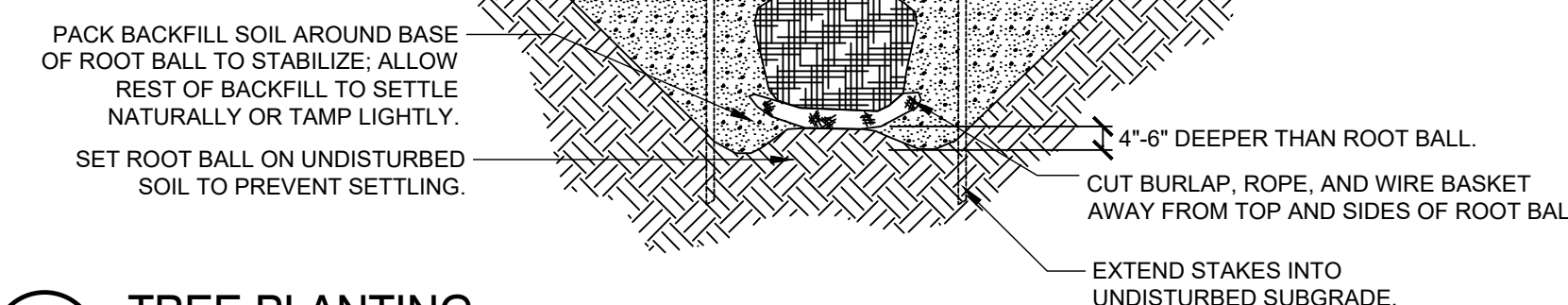


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NOTES:

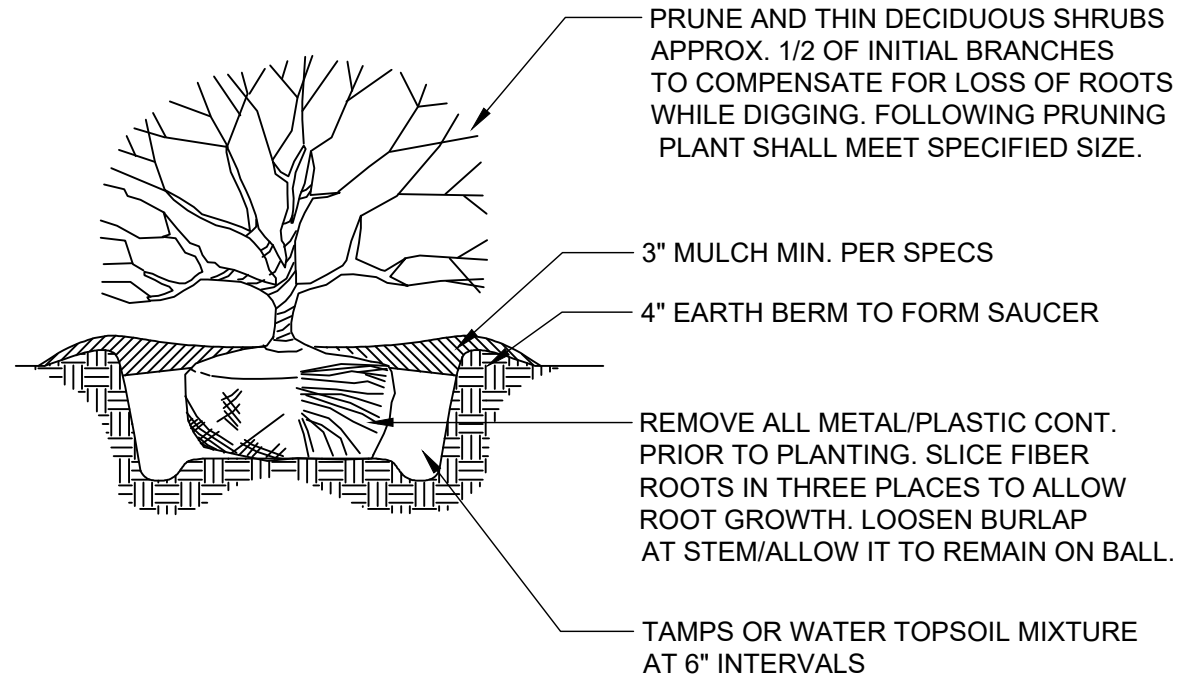
- WHERE SEVERAL TREES WILL BE PLANTED CLOSE TOGETHER SUCH THAT THEY WILL LIKELY SHARE ROOT SPACE, TILL IN SOIL AMENDMENTS TO A DEPTH OF 4'-6" (10-15CM) OVER THE ENTIRE AREA.
- FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
- DURING THE DESIGN PHASE, CONFIRM THAT WATER DRAINS OUT OF THE SOIL; USE LOWERED PLANTING HOLE DEPTH AND DESIGN ALTERNATE DRAINAGE SYSTEM AS REQUIRED.
- THOROUGHLY SOAK ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
- THE PLANTING PROCESS IS SIMILAR FOR DECIDUOUS AND EVERGREEN TREES.
- DO NOT WRAP TRUNK; MARK THE NORTH SIDE OF THE TREE IN THE NURSERY AND LOCATE TO THE NORTH IN THE FIELD.
- AVOID PURCHASING TREES WITH TWO LEADERS OR REMOVE ONE AT PLANTING. OTHERWISE, DO NOT PRUNE TREE AT PLANTING EXCEPT FOR SPECIFIC STRUCTURAL CORRECTIONS.
- BEFORE PLANTING, ADD 3-4" OF WELL-COMPOSTED LEAVES, RECYCLED YARD WASTE OR OTHER COMPOST AND TILL INTO TOP 6" OF PREPARED SOIL. ADD COMPOST AT 20-35% BY VOLUME TO BACKFILL SOIL.



1 TREE PLANTING
NTS

LANDSCAPE NOTES:

- ALL PLANT MATERIAL INSTALLED MUST MEET STANDARDS SET BY AMERICAN ASSOCIATION OF NURSERYMEN, INC., "STANDARDS FOR NURSERY STOCK."
- THE MINIMUM NUMBER OF PLANTS REQUIRED, REGARDLESS OF AREA CALCULATIONS, IS (3) TREES AND (20) SHRUBS.
- PLANTING AREAS SHALL BE PERMANENTLY PROTECTED FROM DAMAGE BY VEHICULAR TRAFFIC THROUGH THE USE OF CURBING AND/OR WHEEL STOPS. WHEEL STOPS SHALL BE USED IN PARKING AREAS WHERE:
 - CURBING HAS NOT BEEN USED OR IS LESS THAN 6" IN HEIGHT.
 - PROPOSED NEW TREES AND SHRUBS ARE PLANTED WITHIN 5' FROM ADJACENT CURBING OR EDGE OF VEHICULAR SURFACE AREA PAVING.
- A CERTIFICATE OF OCCUPANCY SHALL BE ISSUED ONLY WHEN ALL PLANTINGS HAVE BEEN INSTALLED AND ALL THE WORK SHOWN ON THE APPROVED LANDSCAPE PLAN HAS BEEN COMPLETED. SUBSTANTIAL CHANGES IN PLANTINGS WHICH HAVE CHANGED THE INTENT OF THE APPROVED PLANS AND CHANGED THE CREDIT TOTALS USED TO MEET THE ORDINANCE REQUIREMENTS SHALL BE REVIEWED BY THE TOWN STAFF FOR COMPLIANCE PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
- WHERE SUPPLEMENTAL PLANTING IS REQUIRED IN BUFFERS, THE PLANNING DIRECTOR SHALL HAVE THE AUTHORITY TO SPECIFY THE LOCATION TO ACCOUNT FOR AND PROVIDE MAXIMUM SCREENING IN THE EVENT OF SIGNIFICANT GRADE DIFFERENCES BETWEEN PROPERTIES TO WHICH THE BUFFER STANDARD APPLIES. PROPOSED VEGETATION SHALL ADHERE TO THE FOLLOWING BUFFER PLANTING REQUIREMENTS:
 - IN CALCULATING BUFFER PLANTING REQUIREMENTS, AREAS OF DRIVEWAYS AND SIGHT DISTANCE TRIANGLES SHALL BE EXCLUDED.
 - DECIDUOUS OVERSTORY TREES, SMALL TREES OR LARGE SHRUBS, EVERGREEN SHRUBS AND EVERGREEN TREES SHALL BE DISTRIBUTED ALONG THE ENTIRE LENGTH OF THE BUFFER. DUE TO UNIQUE CHARACTERISTICS OF A SITE, OR DESIGN OBJECTIVES, ALTERNATIVE DESIGNS THAT ACHIEVE THE REQUIRED SCREENING MAY BE APPROVED BY THE PLANNING DIRECTOR.
- NO SCREENING OR BUFFERING SHALL INTERFERE WITH THE SIGHT DISTANCE TRIANGLES REQUIRED FOR SAFE TRAFFIC MOVEMENTS AT DRIVEWAY OR STREET INTERSECTIONS.
 - PLANTINGS MUST NOT CREATE ANY VISUAL OBSTRUCTION BETWEEN 30" AND 7' IN HEIGHT WITHIN SIGHT DISTANCE TRIANGLES.
 - THE PRUNING OF VSA SCREENING SHRUBS SHALL ALLOW LATERAL GROWTH OF BRANCHES AS TO FORM A HEDGE.
- ALL LANDSCAPE ISLANDS SHALL BE GRADED FOR POSITIVE DRAINAGE WITH NO LOW SPOTS ALLOWING WATER TO BE TRAPPED

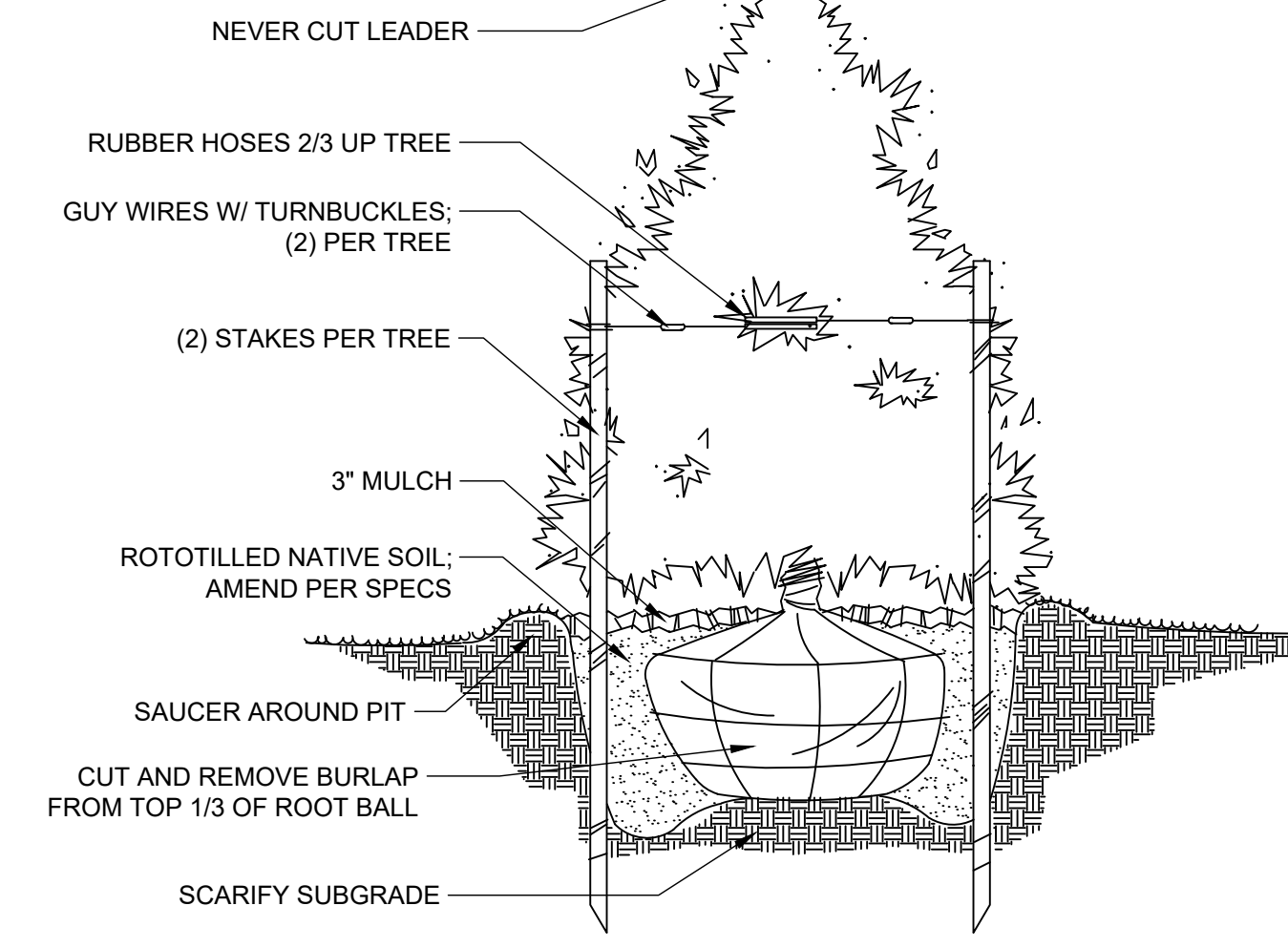


- NOTES:**
- SOIL MIX: 1/3 ORGANIC MATTER, 2/3 EXIST SOIL.
 - WIDTH OF PLANT PIT: SANDY SOIL, 24" WIDER THAN PLANT BALL; CLAY SOIL, 12" WIDER THAN PLANT BALL.
 - FOR PLANTING AREAS WHERE SOIL HAS BEEN COMPACTED BY EQUIP. CONTACT LA PRIOR TO PLANTING.
 - FOR CAMELLIAS, RHODOS, AZALEAS, AND LAURELS: SOIL MIX, 2/3 ORGANIC AND 1/3 EXISTING SOIL
 - SHRUB SHALL BEAR SAME RELATIONSHIP TO GRADE AS IT DID PRIOR TO DIGGING.

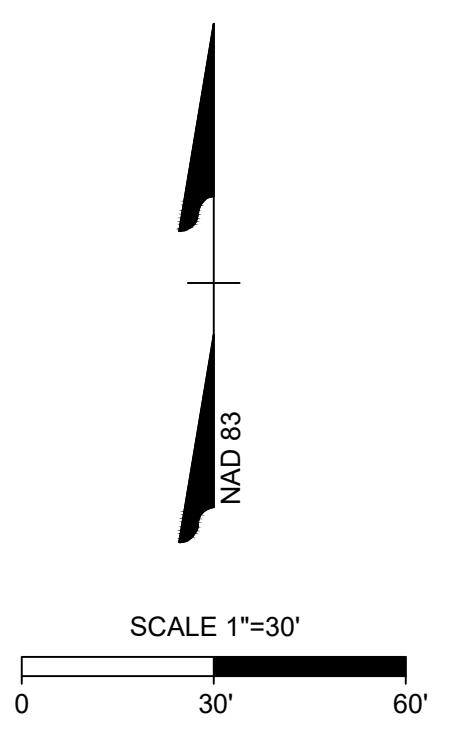
2 SHRUB PLANTING
NTS

NOTES:

- Tree shall have same relation to grade as it had in nursery



3 EVERGREEN PLANTING
NTS



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DATE
09/17/2021

DRAWN BY
S. FANTAYE

DESIGNED BY
S. FANTAYE

CHECKED BY
J. BLASCO

SCALE
AS SHOWN

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ROLESVILLE CROSSING - CD 21-08
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
LANDSCAPE NOTES & DETAILS 2

JOB NO.
43398

SHEET NO.
L2.1

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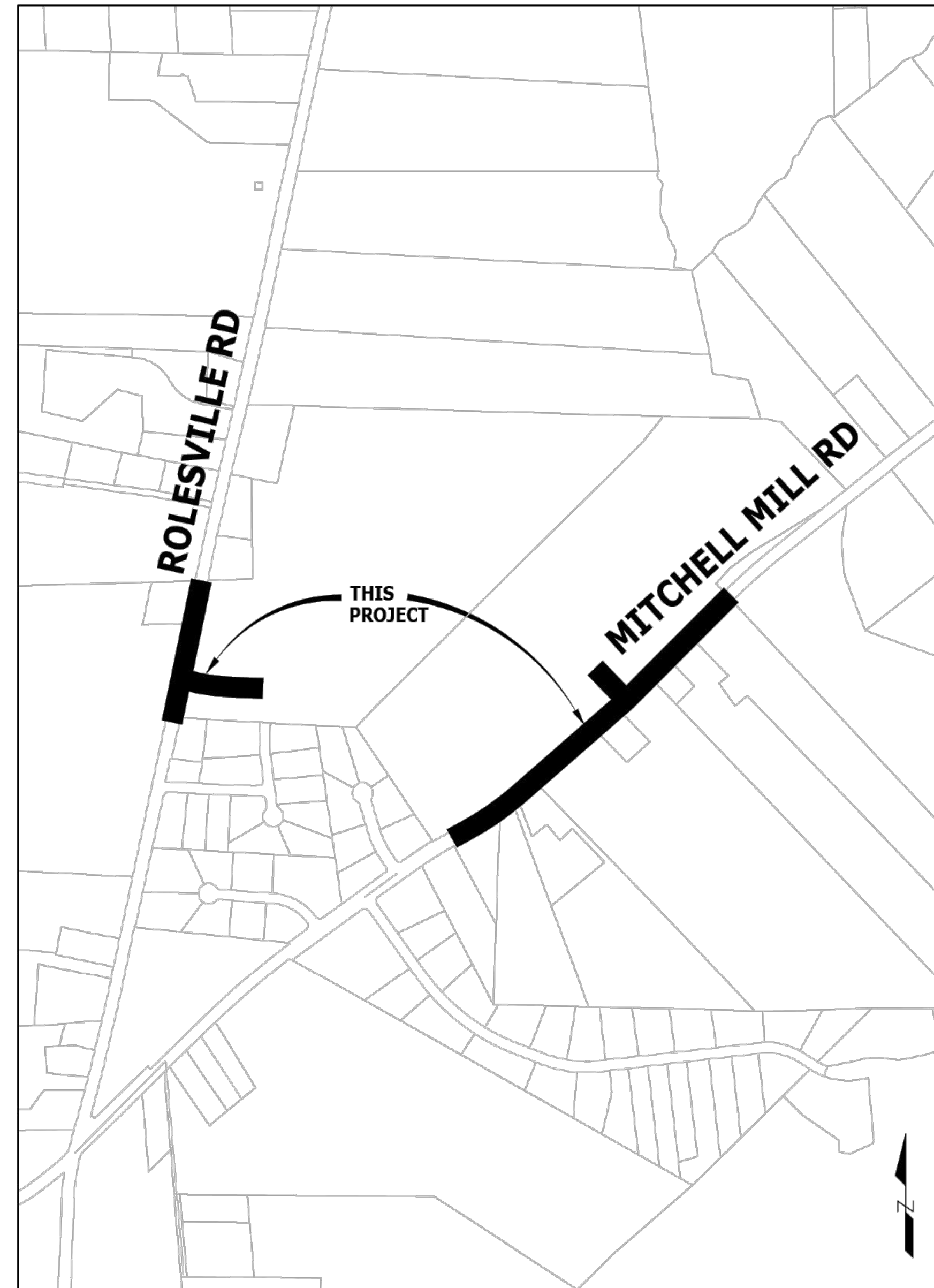
WHEELER TRACT OFFSITE IMPROVEMENTS

TOWN OF ROLESVILLE WAKE COUNTY, NORTH CAROLINA

DATE: 07/21/22

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OVERALL VICINITY MAP
SCALE: 1" = 500'



ALL CONSTRUCTION SHALL CONFORM WITH THE LATEST VERSION OF NCDOT STANDARDS AND SPECIFICATIONS.

SURVEY NOTES:

- HORIZONTAL CONTROL (BASIS OF THE BEARINGS) IS BASED ON NC STATE GRID, NAD83 (2011); VERTICAL CONTROL IS BASED ON NAVD83, AS ESTABLISHED BY GPS. ALL DISTANCES SHOWN HEREON ARE GROUND DISTANCES.
- CONTOUR INTERVALS ARE 1'.
- THE LOCATION OF SUB-SURFACE UTILITIES AS SHOWN HEREON, IF ANY, ARE BASED ON FIELD LOCATION OF SURFACE FEATURES AND MARKINGS PROVIDED BY NC 811 AND ARE APPROXIMATE. OTHER SUB-SURFACE UTILITIES MAY EXIST ON THIS SITE THAT ARE NOT INCLUDED IN THIS SURVEY.
- THIS MAP CONSTITUTES NEITHER A SUBDIVISION NOR A RECOMBINATION PLAT OF THE PARCELS OF LAND SHOWN HEREON. THIS MAP HAS NOT BEEN PREPARED IN ACCORDANCE WITH NC G.S. 47-30 AND IS NOT SUITABLE FOR RECORDING.
- THERE ARE NO RECOVERABLE NGS MONUMENTS WITHIN 2000' OF THIS PROPERTY.

EXISTING CONDITIONS NOTES:

- OTHER SOURCES OF INFORMATION INCLUDE TOWN GIS AND AERIAL IMAGERY.
- THE UTILITIES ON THESE PLANS ARE APPROXIMATE ONLY, AND ARE NOT ACCURATE FOR CONSTRUCTION PURPOSES. FOR FIELD MARKS CALL 811.

DEMOLITION NOTES:

- ALL UTILITIES OR STRUCTURES NOT INDICATED FOR REMOVAL OR MODIFICATION ARE TO REMAIN AND BE PROTECTED FROM DAMAGE.
- ALL WASTE MATERIAL GENERATED FROM CLEARING AND DEMOLITION ACTIVITIES SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE RULES AND REGULATIONS.
- REMOVE TOPSOIL AND STOCKPILE APPROPRIATELY ON-SITE. ON-SITE TEMPORARY STOCKPILES SHALL BE LOCATED WITHIN CONSTRUCTION LIMITS.
- ALL PAVEMENT OR CONCRETE TO BE REMOVED SHALL BE SAW CUT TO PROVIDE A STRAIGHT AND UNIFORM JOINT WITH NEW CONSTRUCTION. ANY EXISTING PAVEMENT, SIDEWALK, CURB & GUTTER, ETC. THAT MUST BE REMOVED TO ALLOW NEW CONSTRUCTION SHALL BE REMOVED AND REPAIRED PER THE SPECIFICATIONS AND DETAILS OR TO MATCH EXISTING CONDITIONS (WHETHER OR NOT SHOWN ON THE DRAWINGS TO BE REMOVED). UTILITY INSTALLATIONS MAY UTILIZE OPEN CUT OF PAVEMENTS UNLESS INDICATED OTHERWISE. TRENCH IN EXISTING ASPHALT SHALL BE PATCHED PER PAVEMENT REPAIR DETAIL.
- PROTECT ALL ADJACENT PROPERTIES, THE GENERAL PUBLIC AND ALL OF THE OWNER'S FACILITIES. SHOULD DAMAGE OCCUR, NOTIFY ENGINEER IMMEDIATELY.
- THE CONTRACTOR SHALL USE NC ONE CALL (811) TO LOCATE ALL UNDERGROUND UTILITIES.
- VERIFY ALL ILLUSTRATED KNOWN UNDERGROUND ELEMENTS. EXERCISE REASONABLE EFFORTS TO PROTECT ANY UNKNOWN UNDERGROUND ELEMENTS. NOTIFY THE ENGINEER IMMEDIATELY IF UNKNOWN ELEMENTS ARE DISCOVERED THAT WOULD NECESSITATE MODIFICATION TO THE PROPOSED DESIGN.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND OSHA REGULATIONS.
- EXISTING MANHOLES, VALVE BOXES, VAULTS, CLEANOUTS, UTILITY POLES ETC. TO REMAIN WITHIN THE GRADING LIMITS SHALL BE ADJUSTED AS NEEDED TO FUNCTION PROPERLY WITH THE PROPOSED FINISHED GRADES (WHETHER OR NOT INDICATED TO BE MODIFIED).
- GENERAL CONTRACTOR TO COORDINATE ALL PEDESTRIAN ACCESS PATHS, LOCATIONS, LIGHTING ETC. WITH THE OWNER.
- CONTRACTOR TO COORDINATE ALL WORK AS NEEDED WITH UTILITY COMPANIES, MUNICIPALITY, AND INSPECTORS.
- CONTRACTOR TO COORDINATE ALL DEMOLITION WORK AS NEEDED WITH UTILITY COMPANIES AND MUNICIPALITIES. ALL WORK SHALL BE IN COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.
- CONTRACTOR TO CONFIRM LOCATION OF ALL ON-SITE UTILITY SERVICES AND COORDINATE REMOVAL AS NEEDED.

GRADING AND STORM DRAINAGE NOTES:

- CONTRACTOR SHALL CALL "NORTH CAROLINA ONE CALL" (1-800-632-4949) AT LEAST 48 HOURS PRIOR TO DIGGING TO HAVE EXISTING UTILITIES LOCATED. REPORT ANY DISCREPANCIES TO THE ENGINEER.
- CONTRACTOR TO COORDINATE ACTIVITIES WITH UTILITY COMPANIES INVOLVED IN ANY RELATED RELOCATION (I.E. POWER POLES, TELEPHONE PEDESTALS, WATER METERS, ETC.).
- EXISTING UTILITIES SHOWN ARE BASED ON FIELD SURVEYS AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE PLANS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
- ALL EXISTING VAULTS, MANHOLES, STORM DRAIN STRUCTURES, VALVE BOXES, CLEANOUTS, ETC. SHALL BE ADJUSTED AS NEEDED TO MATCH FINISHED GRADE.
- ALL BACKFILL, COMPACTION, SOILS TESTING, ETC. SHALL BE PERFORMED BY THE CONTRACTOR'S INDEPENDENT TESTING LABORATORY.
- A PRE-CONSTRUCTION MEETING MUST BE SCHEDULED PRIOR TO ANY WORK, GRADING OR INSTALLATION OF EROSION CONTROL MEASURES.
- IF CONTRACTOR NOTICES ANY DISCREPANCIES IN ANY OF THESE SLOPE REQUIREMENTS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE ENGINEER PRIOR TO POURING ANY ASPHALT SO THAT A SOLUTION CAN BE FOUND.
- SPOT ELEVATIONS ARE GIVEN AT THE MAJORITY OF THE MAJOR BREAK POINTS BUT IT SHOULD NOT BE ASSUMED THAT ALL NECESSARY SPOT ELEVATIONS ARE SHOWN. DUE TO SPACE LIMITATIONS, THERE MAY BE OTHER CRITICAL SPOTS NOT LABELED THAT SHOULD BE TAKEN INTO CONSIDERATION. THE CONTRACTOR SHALL REVIEW THE GRADING PLAN IN DETAIL AND SHALL ENSURE THAT ALL CRITICAL GRADE POINTS ARE STAKED AND FOLLOWED TO PROVIDE POSITIVE DRAINAGE.
- EXISTING VEGETATION WITHIN TREE PROTECTIVE AREAS SHALL REMAIN UNDISTURBED UNLESS NOTED OTHERWISE. ANY AND ALL LANDSCAPING AND EXISTING TREES & SHRUBS TO REMAIN WHICH ARE DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR USING A LICENSED LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- THE GRADING CONTRACTOR SHALL COMPLY WITH ALL STATE CODES IN OBSERVING EROSION CONTROL MEASURES BOTH ON AND OFF-SITE. THE GRADING CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES AFTER EACH RAINFALL EVENT OR AS DIRECTED BY THE EROSION CONTROL INSPECTOR OR THE ENGINEER.
- THE GRADING CONTRACTOR SHALL BE RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL CLEARING AND GRADING WASTE MATERIALS GENERATED DURING CONSTRUCTION AND FOR OBTAINING ALL APPLICABLE PERMITS FOR OFF-SITE STOCKPILES AND/OR WASTE AREAS.

DESIGN DATA

Rolesville Road (SR-1003)	Mitchell Mill Road (SR-2224)
ADT 2019 = 4,300	ADT 2019 = 1,900
Vd = 50 mph	Vd = 50 mph
F.C. = Minor Arterial	F.C. = Major Collector

NOTE: SEE TRAFFIC STUDY FOR FUTURE VOLUMES

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FINAL PLANS
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TIMMONS GROUP
WHEELER TRACT - OFFSITE IMPROVEMENTS
ROLESVILLE - WAKE COUNTY, NORTH CAROLINA
COVER SHEET
JOB NO.
43398
SHEET NO.
R1.00



HORIZONTAL ALIGNMENT DATA

Alignment Name: MMRD
Station Range: Start: 200+00.00, End: 231+84.86
Description:

Table with 4 columns: Station Range, Stationing, Description, and Stationing. Contains data for MMRD alignment including curve data, direction back, and direction ahead.

Alignment Name: RVRD
Station Range: Start: 100+00.00, End: 110+50.00
Description:

Table with 4 columns: Station Range, Stationing, Description, and Stationing. Contains data for RVRD alignment including curve data, direction back, and direction ahead.

NCDOT GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 07-27-2021
REVISED:

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

GRADING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED OR FUTURE SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

SURFACING:

THE ROUGH GRADING AND STRUCTURES ON THIS PROJECT HAVE BEEN DONE OR ARE NOW BEING DONE UNDER A PREVIOUS CONTRACT. THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

EFF. 07-27-2021

REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

- STD.NO. TITLE
DIVISION 2 - EARTHWORK
200.02 Method of Clearing - Method II
DIVISION 8 - INCIDENTALS
815.03 Pipe Underdrain and Blind Drain
816.01 Concrete Pads - for Shoulder Drain Installation
838.01 Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.02 Concrete Catch Basin - 12" thru 54" Pipe
840.03 Frame, Grates and Hood - for Use on Standard Catch Basin
840.14 Concrete Drop Inlet - 12" thru 30" Pipe
840.16 Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
846.01 Concrete Curb, Gutter and Curb & Gutter
848.01 Concrete Sidewalk
848.03 Driveway Turnout - Drop Curb Type
848.04 Street Turnout
848.05 Curb Ramp - Proposed Curb & Gutter
876.02 Guide for Rip Rap at Pipe Outlets



6/3/2024 3:28:48 PM - Wheeler - Timm-DWG\Share\CD\2024\2303\2303-203-00.dwg | Plotted on 7/21/2022 2:28 PM by Brian Welch

Vertical information block containing: 'THIS DRAWING PREPARED AT THE RALEIGH OFFICE', project address, phone/fax, website, and 'YOUR VISION ACHIEVED THROUGH O.U.M.S.' logo.

Table with 2 columns: DATE, REVISION DESCRIPTION. Includes revision 07/21/22.

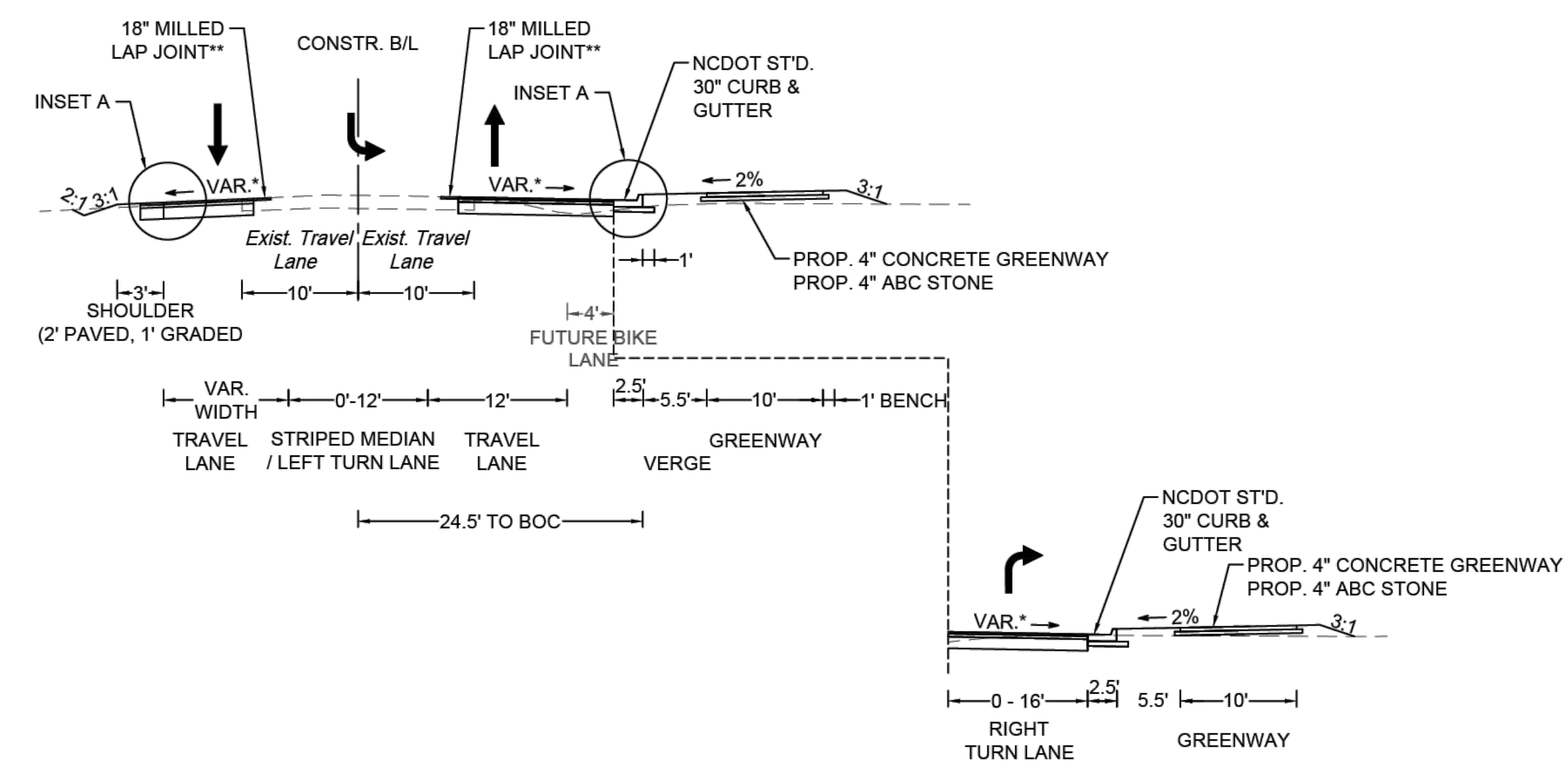
Large vertical logo for TIMMONS GROUP and project title: WHEELER TRACT - OFFSITE IMPROVEMENTS, ROLESVILLE - WAKE COUNTY, NORTH CAROLINA. Includes 'GENERAL NOTES, DETAILS & CONVENTIONAL SYMBOLS' and job/sheet numbers.

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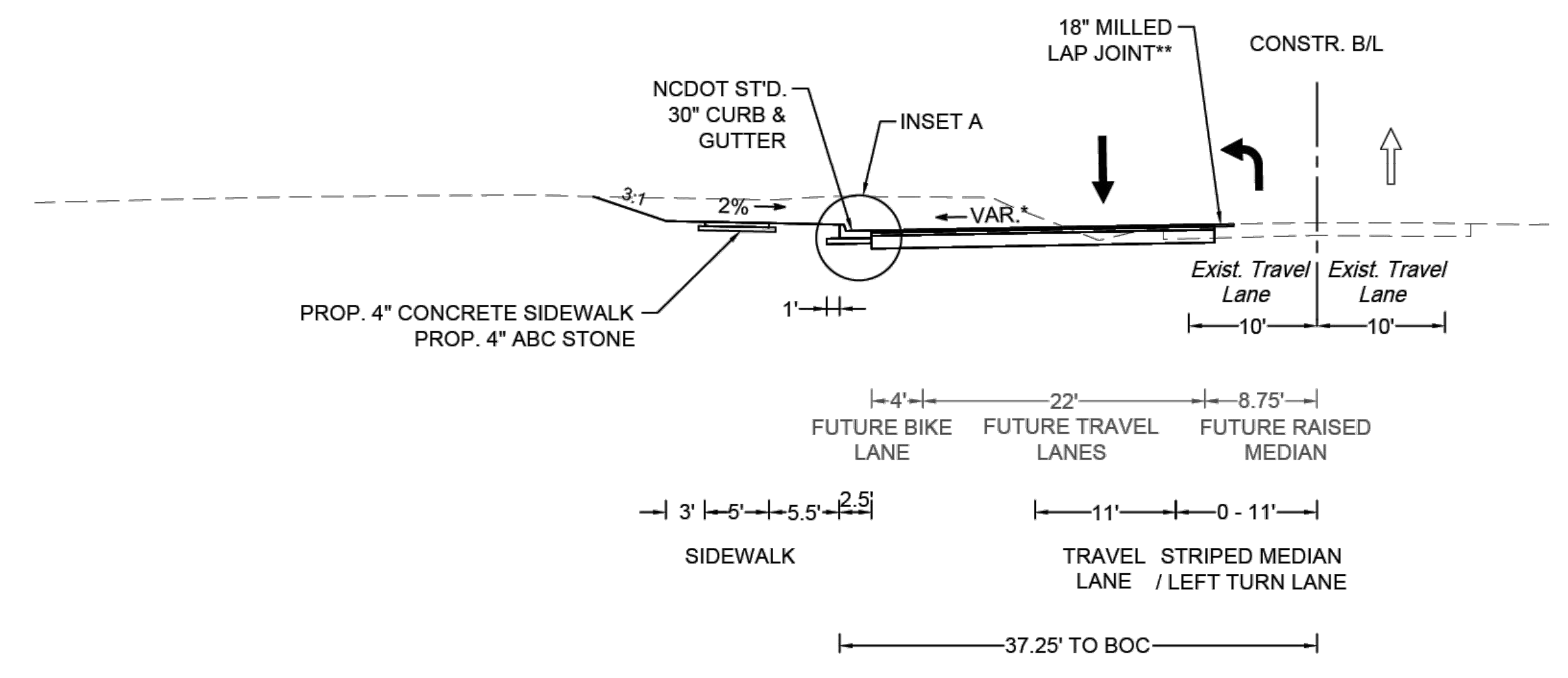


TYPICAL SECTIONS

ROLESVILLE ROAD
PROPOSED TYPICAL SECTION
STA. 102+70 TO 110+00

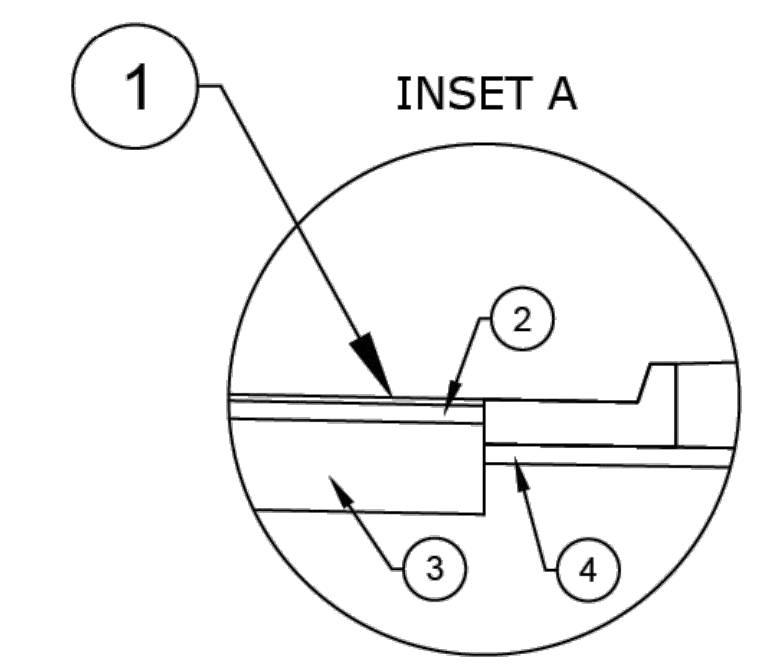


MITCHELL MILL ROAD
PROPOSED TYPICAL SECTION
STA. 203+00 TO 220+75



* OR AS CONTROLLED BY SUPERELEVATION, SEE CROSS SECTIONS FOR FURTHER DETAILS

** SAW CUT 18" INTO EXISTING PAVEMENT TO KEY-IN PAVEMENT WIDENING AREAS. MATCH AND REPLACE EXISTING.



- ① 3" ASPHALT CONCRETE SURFACE COURSE (NCDOT S9.5C)
- ② 4" ASPHALT INTERMEDIATE COURSE (NCDOT I19.0C)
- ③ 10" AGGREGATE BASE MATERIAL (NCDOT ABC STONE)
* USE 5" DEPTH ASPHALT CONCRETE BASE COURSE (NCDOT B25.0C) IF WIDENING < 6'
- ④ 4" AGGREGATE BASE MATERIAL (NCDOT ABC STONE)

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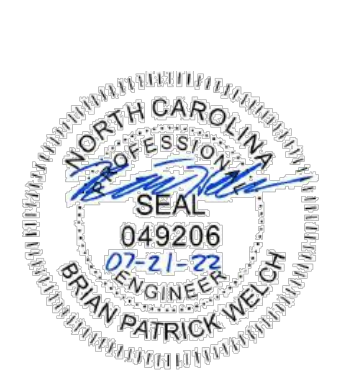
WHEELER TRACT - OFFSITE IMPROVEMENTS

ROLESVILLE - WAKE COUNTY, NORTH CAROLINA

TYPICAL SECTIONS

JOB NO.
43398

SHEET NO.
R2.01



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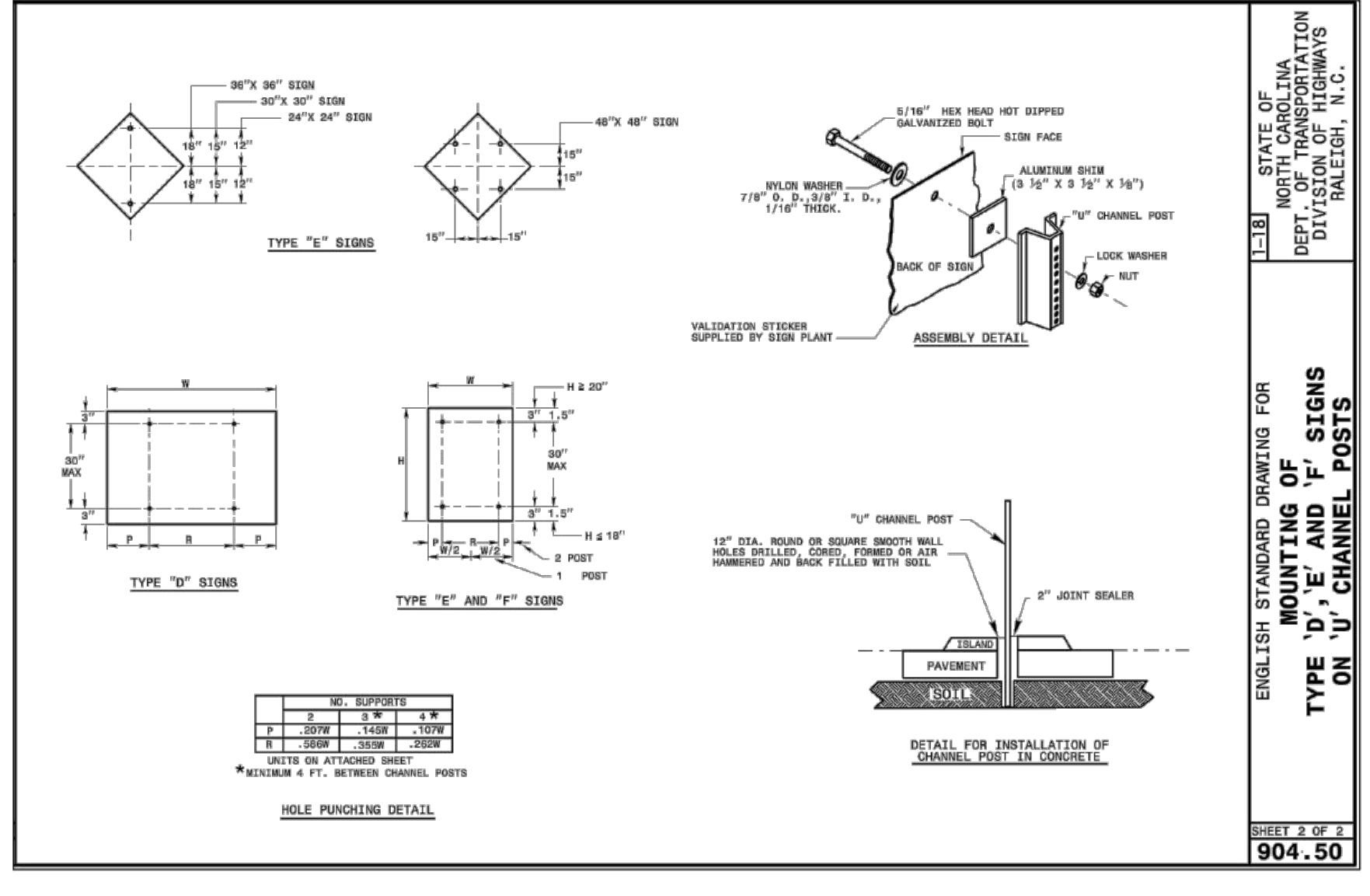
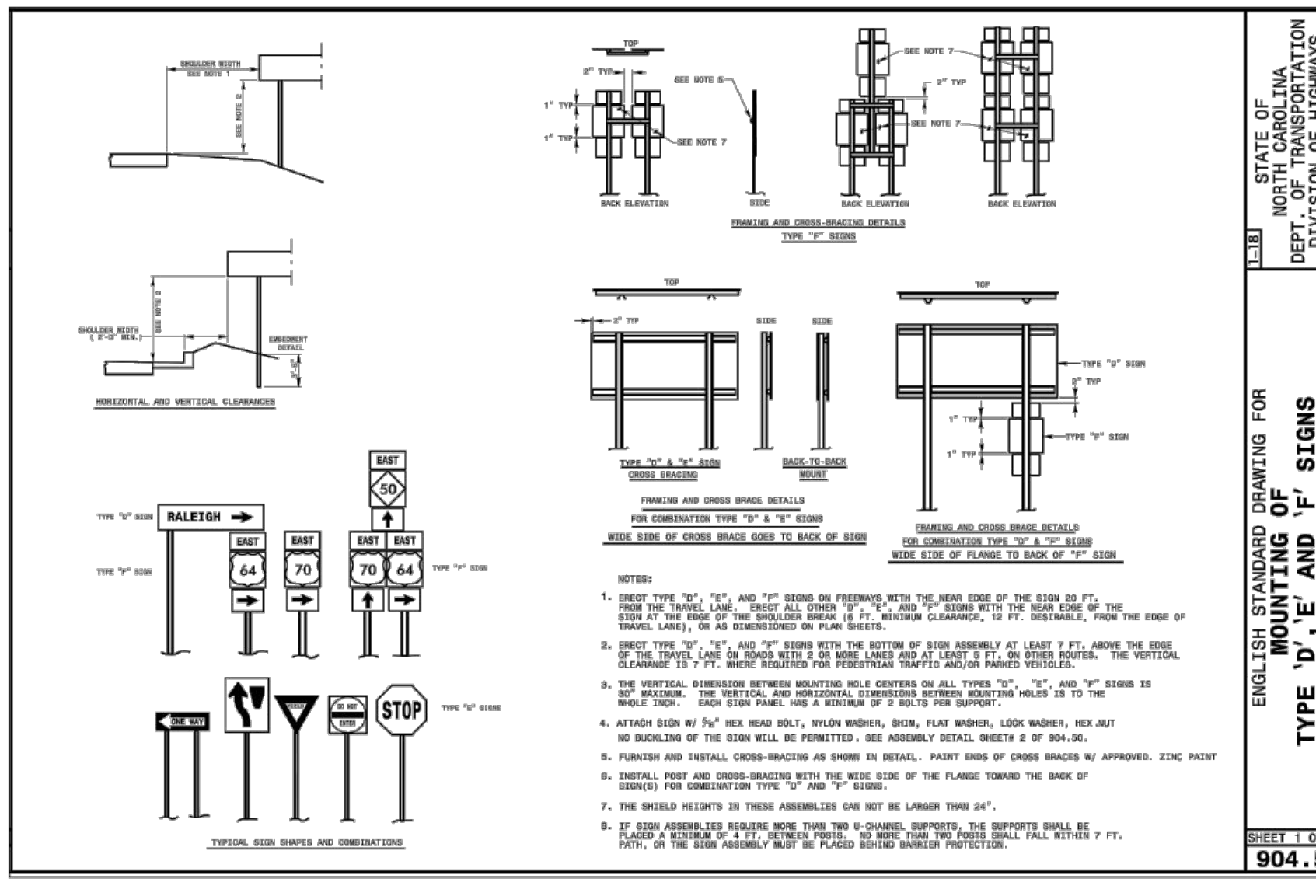
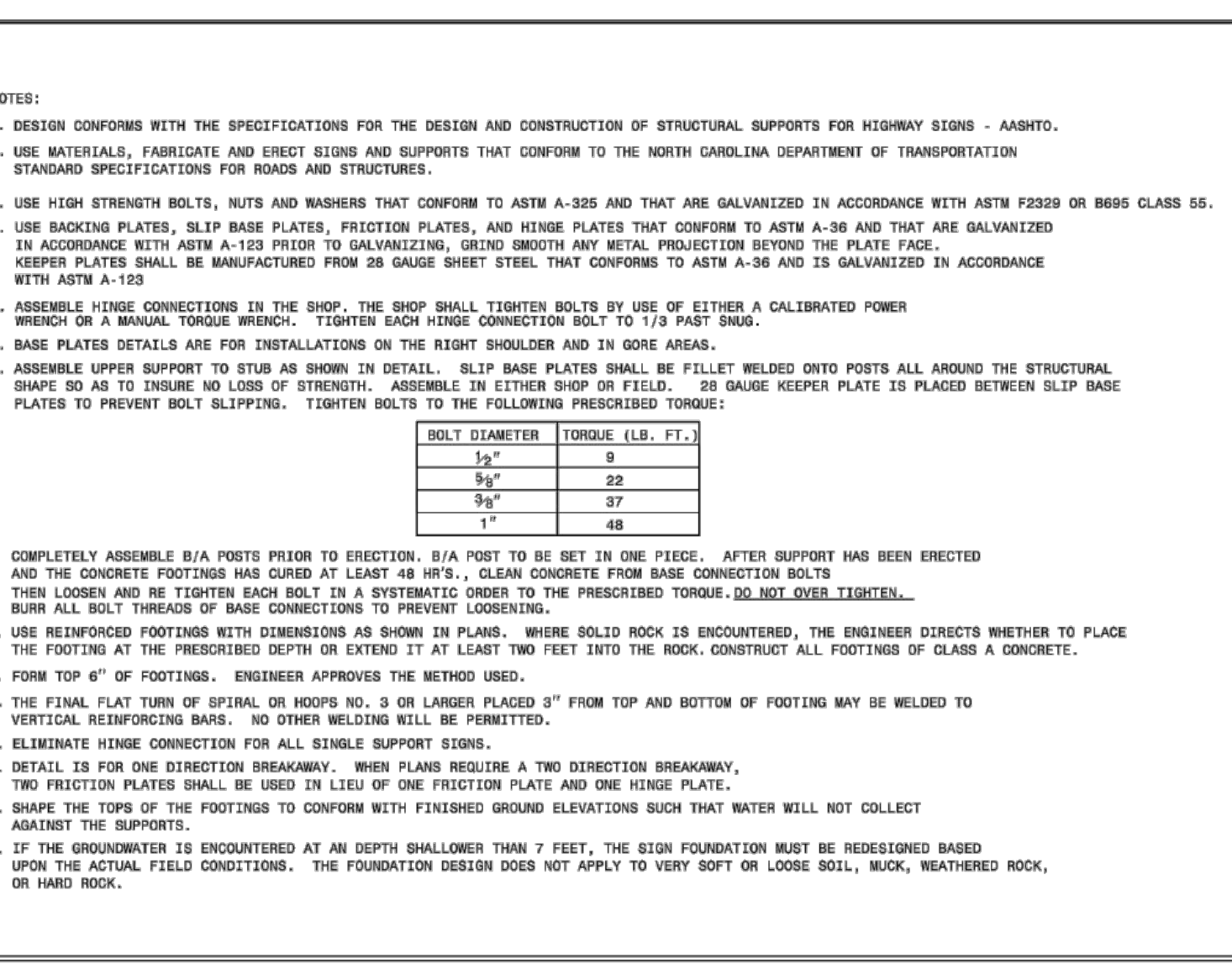
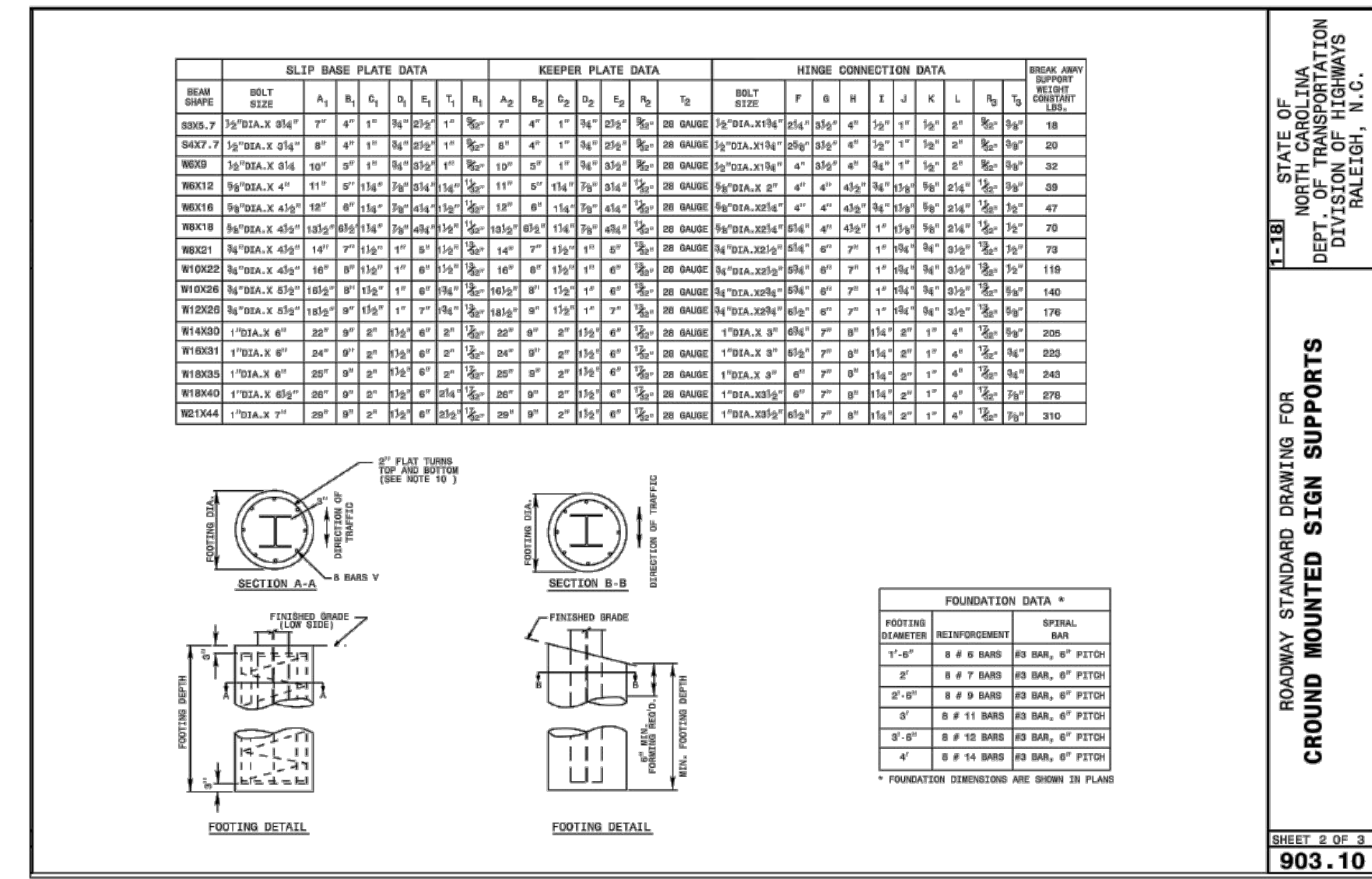
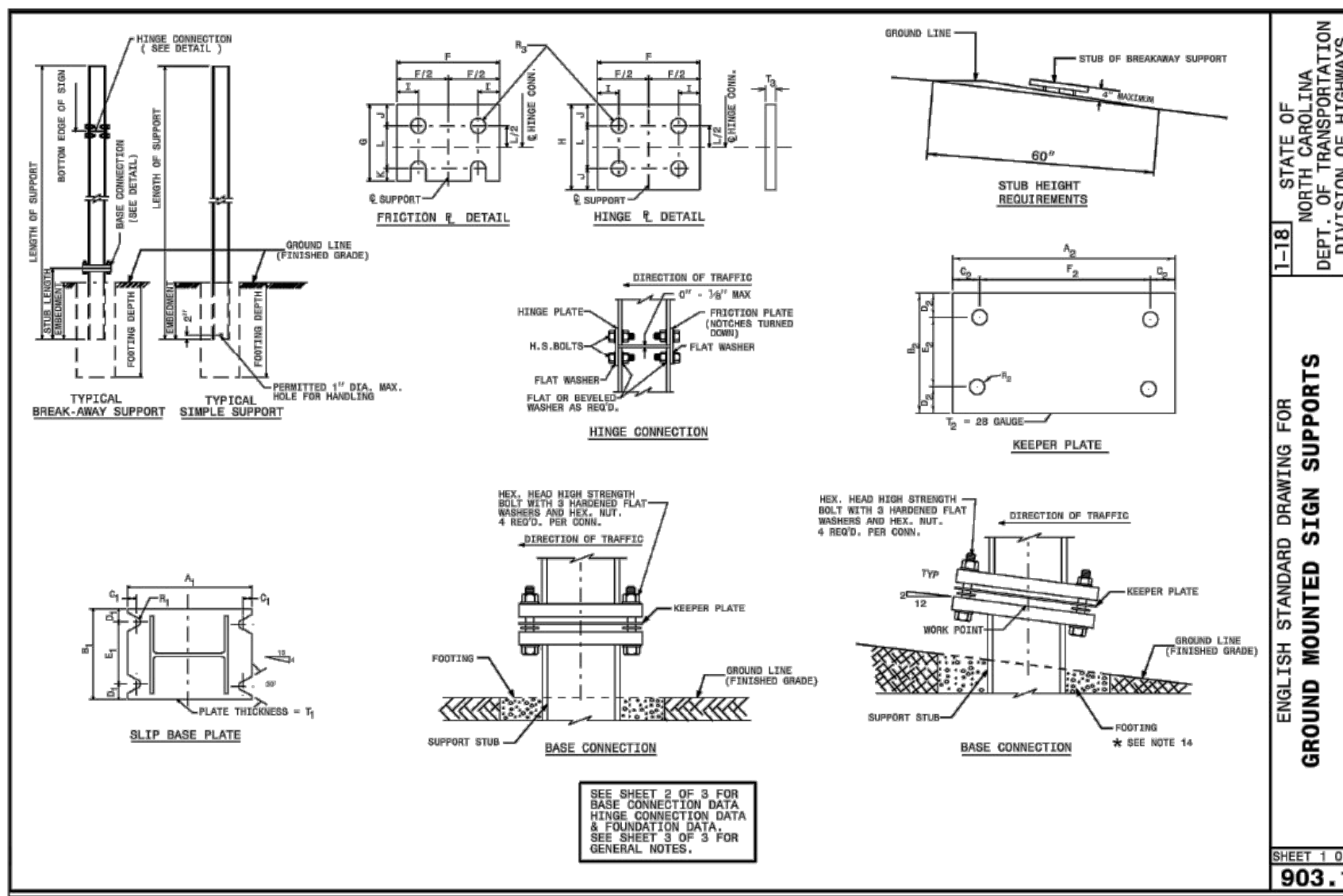
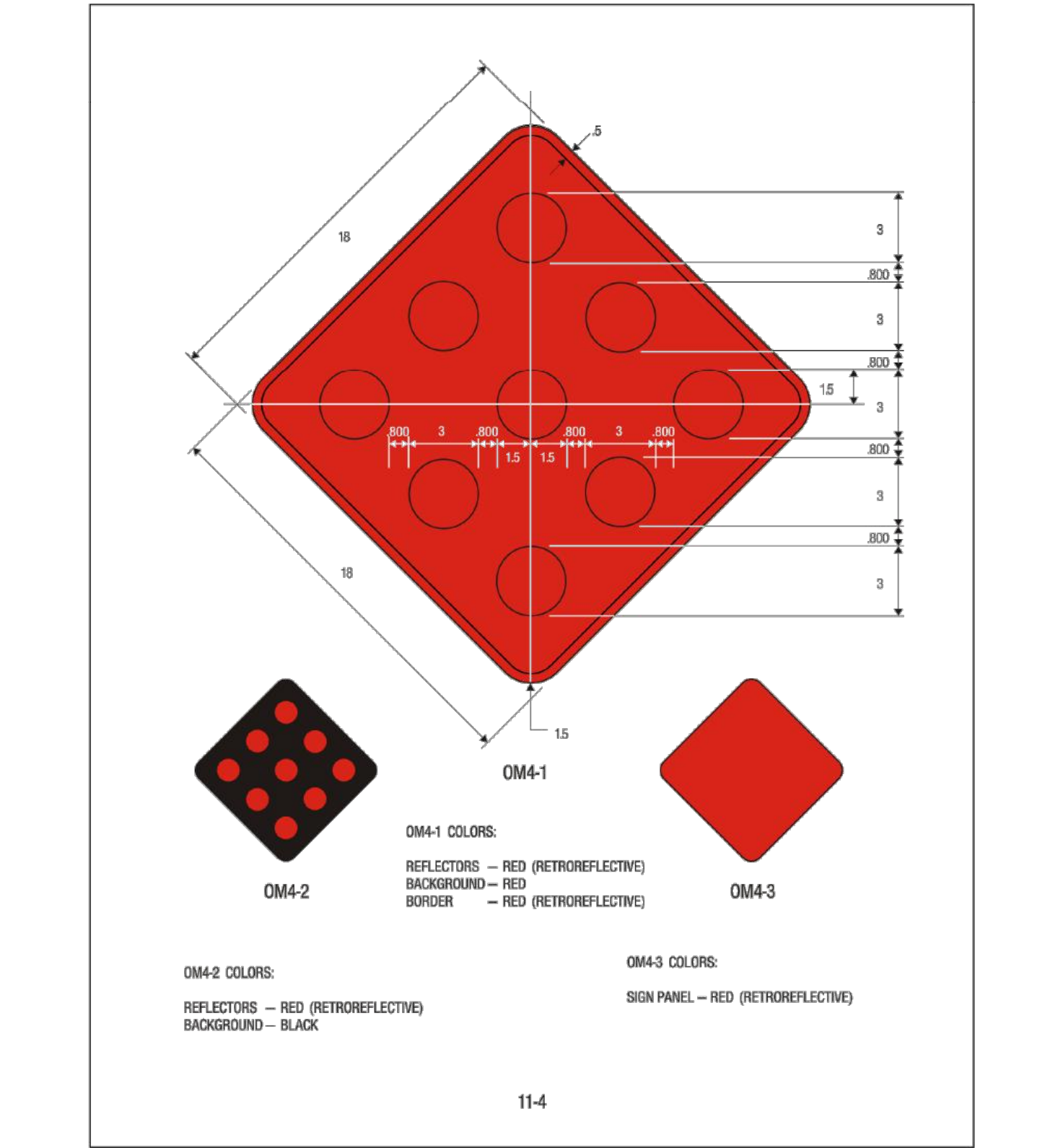
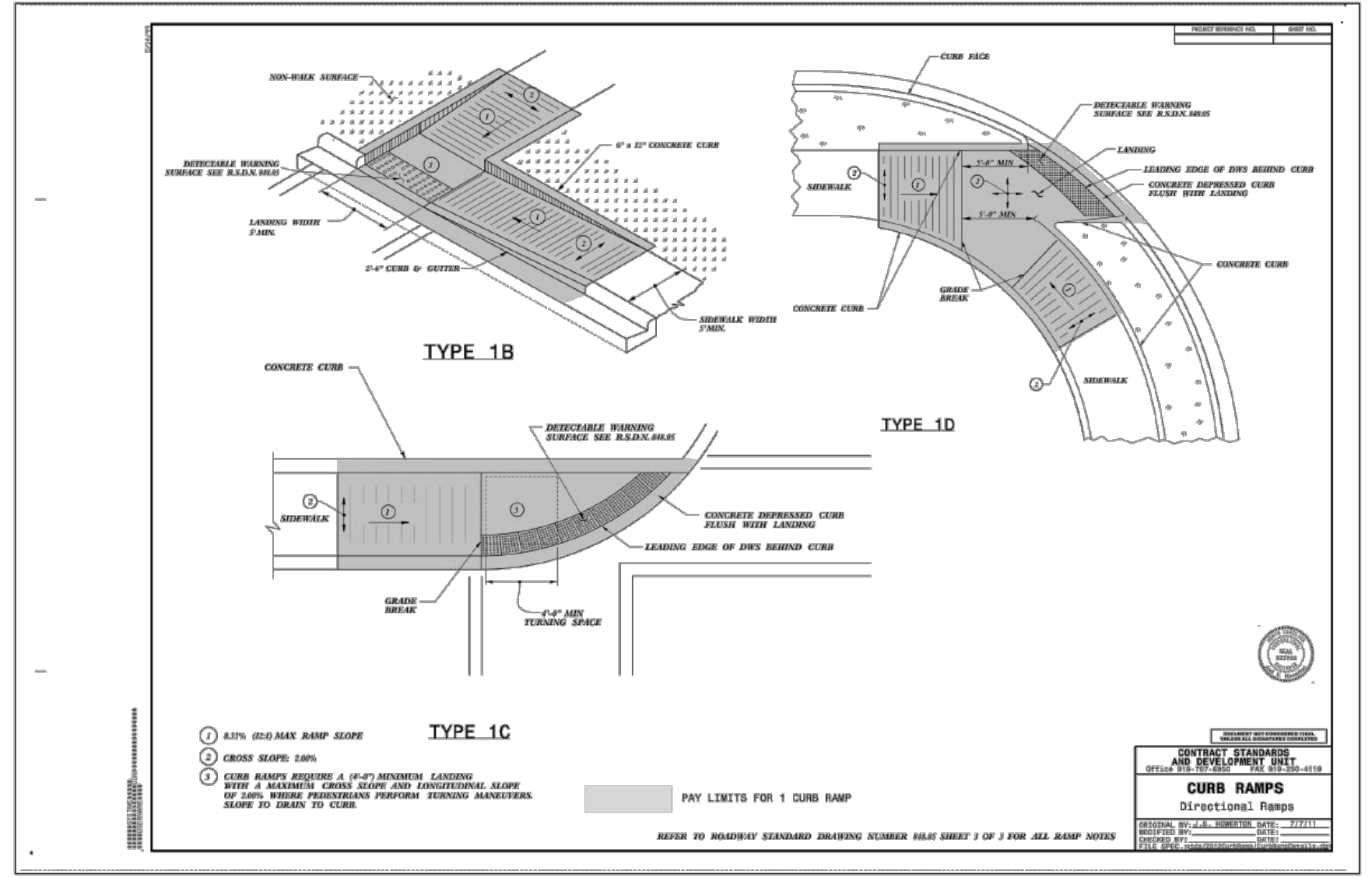
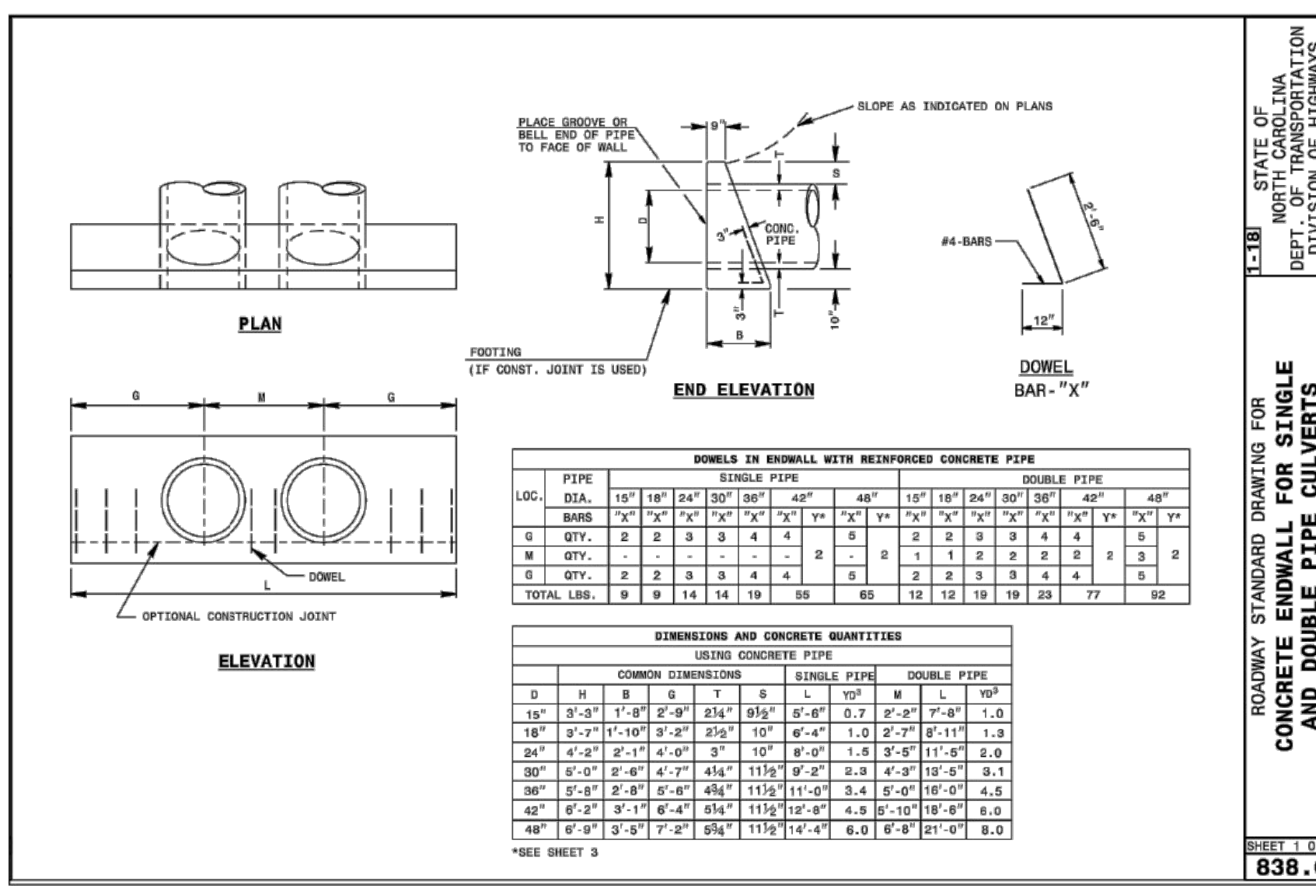
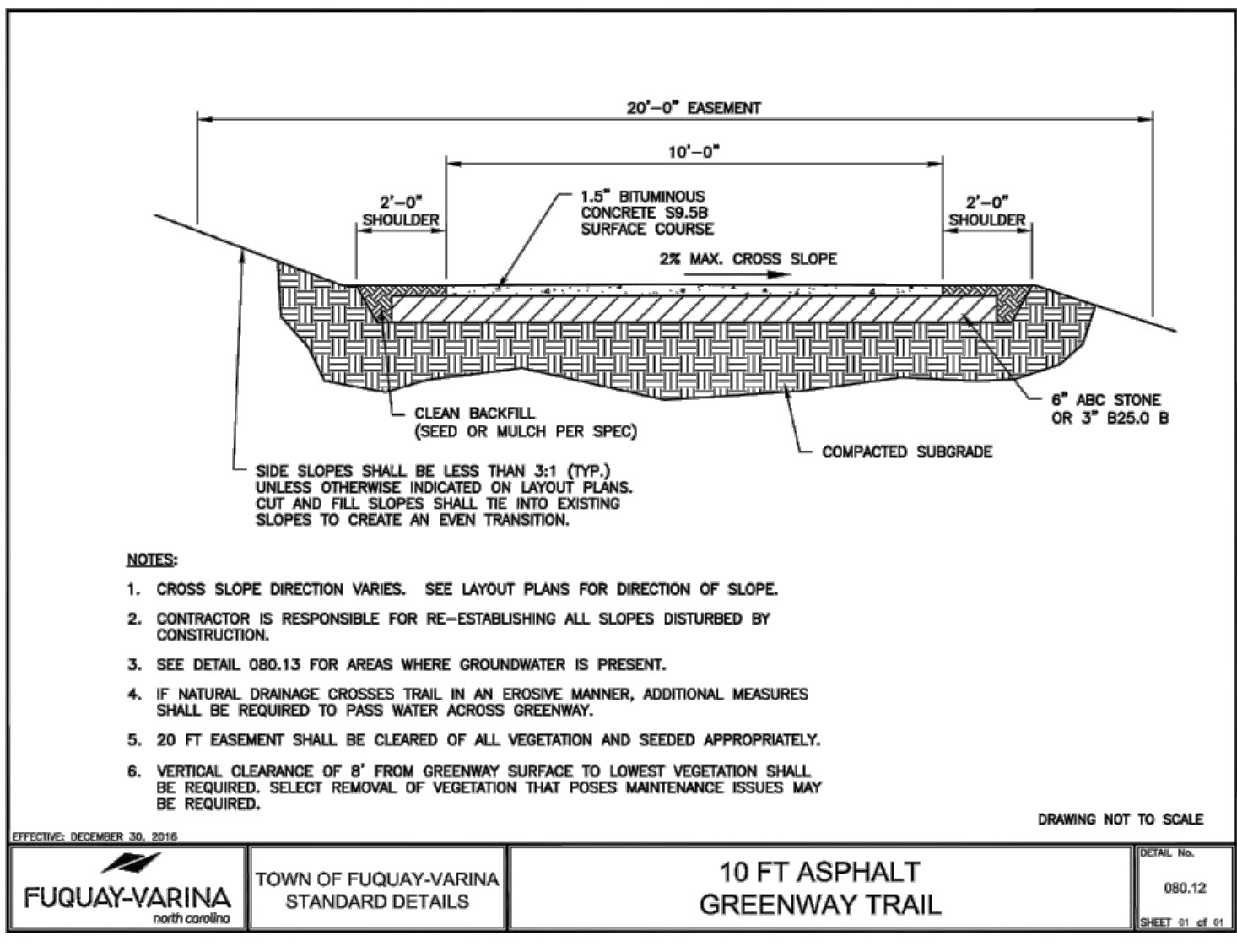
TIMMONS GROUP

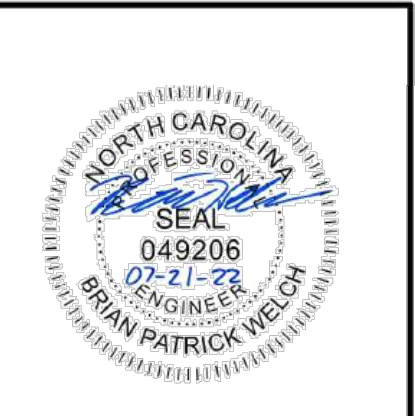
WHEELER TRACT - OFFSITE IMPROVEMENTS
ROLESVILLE - WAKE COUNTY STATE - NORTH CAROLINA
STANDARD DETAILS

JOB NO.
43398

SHEET NO.
R2.02

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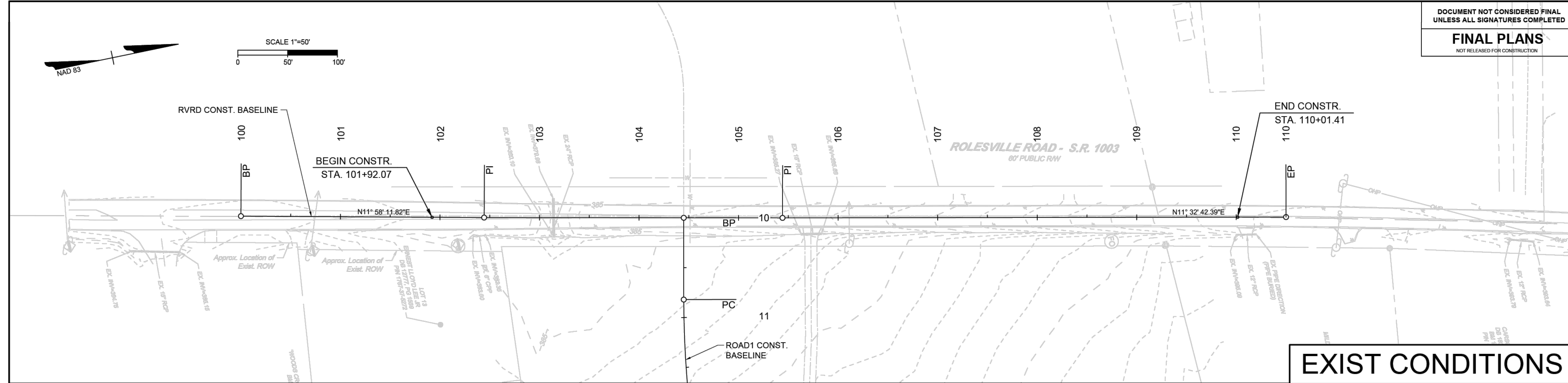
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ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

EXISTING CONDITIONS & PLAN & STRIPING SHEET

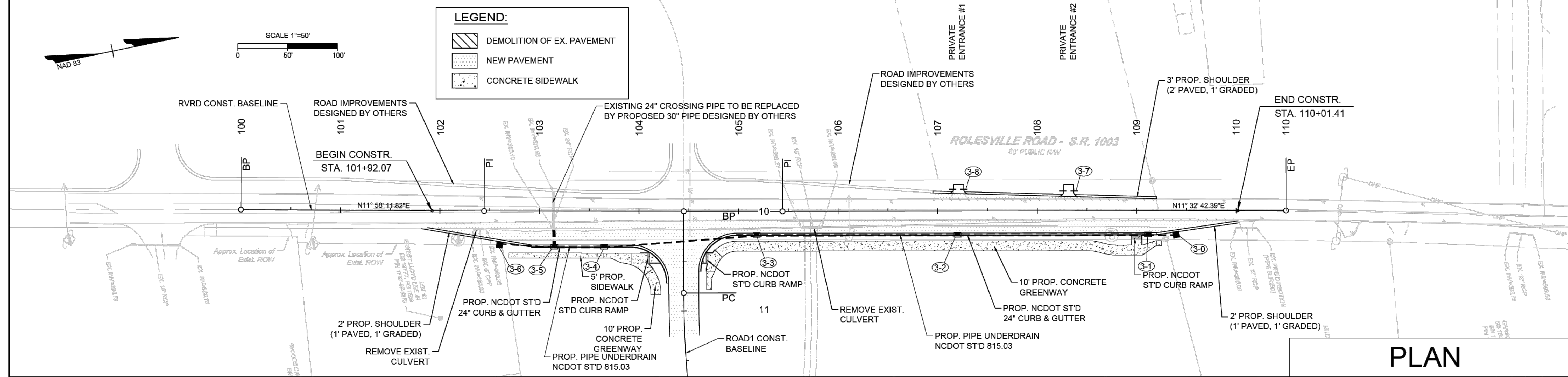
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SHEET NO.
R3.01

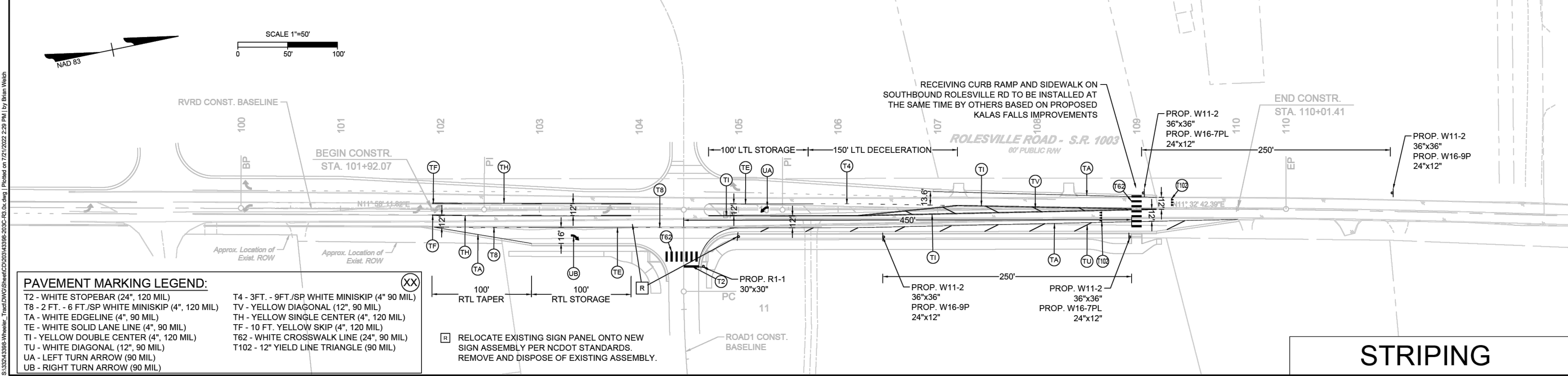
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EXIST CONDITIONS



PLAN



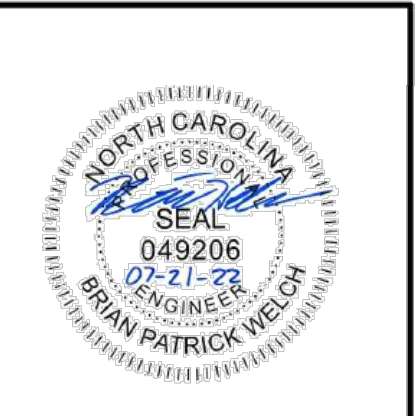
STRIPING

PAVEMENT MARKING LEGEND:

T2 - WHITE STOPEBAR (24", 120 MIL)	T4 - 3FT. - 9FT./SP WHITE MINISKIP (4" 90 MIL)
T8 - 2 FT. - 6 FT./SP WHITE MINISKIP (4", 120 MIL)	TV - YELLOW DIAGONAL (12", 90 MIL)
TA - WHITE EDGELINE (4", 90 MIL)	TH - YELLOW SINGLE CENTER (4", 120 MIL)
TE - WHITE SOLID LANE LINE (4", 90 MIL)	TF - 10 FT. YELLOW SKIP (4", 120 MIL)
TI - YELLOW DOUBLE CENTER (4", 120 MIL)	T62 - WHITE CROSSWALK LINE (24", 90 MIL)
TU - WHITE DIAGONAL (12", 90 MIL)	T102 - 12" YIELD LINE TRIANGLE (90 MIL)
UA - LEFT TURN ARROW (90 MIL)	
UB - RIGHT TURN ARROW (90 MIL)	

XX RELOCATE EXISTING SIGN PANEL ONTO NEW SIGN ASSEMBLY PER NCDOT STANDARDS. REMOVE AND DISPOSE OF EXISTING ASSEMBLY.

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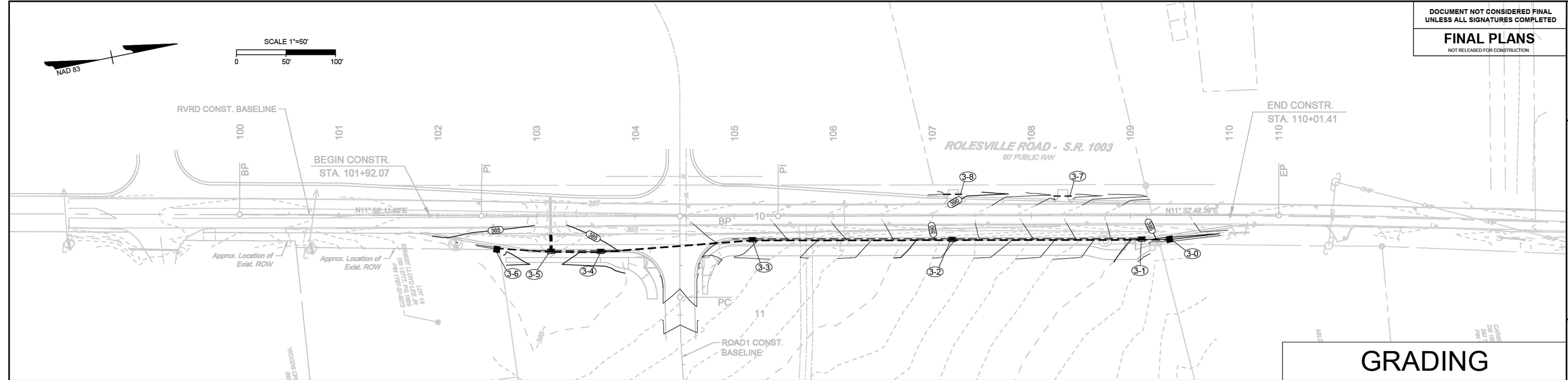
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WHEELER TRACT - OFFSITE IMPROVEMENTS
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
GRADING & PROFILE SHEET

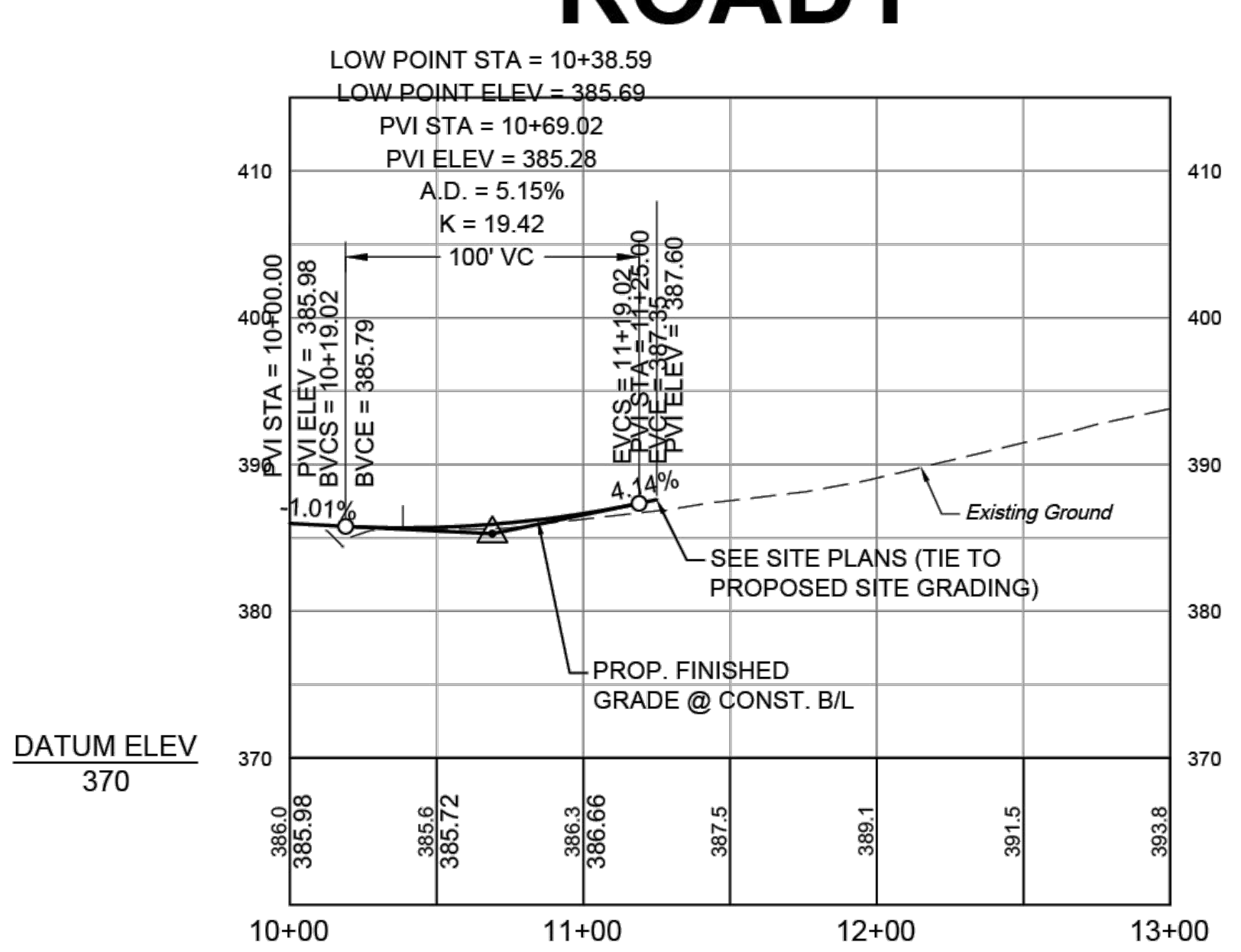
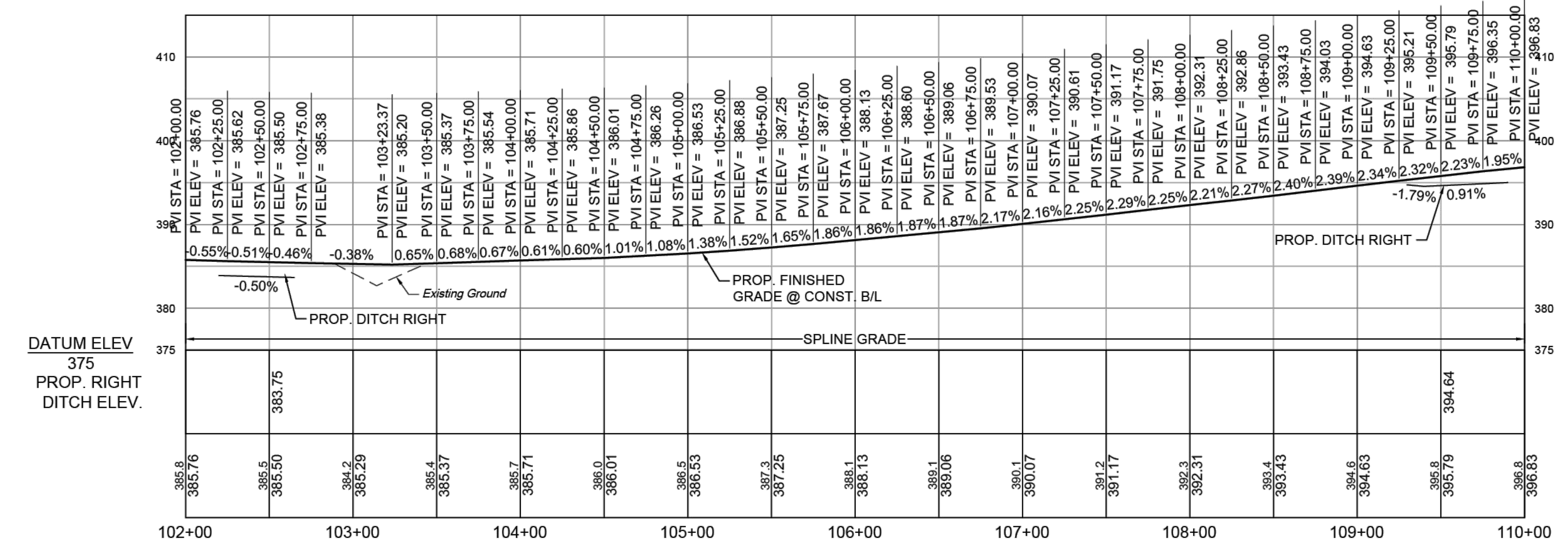
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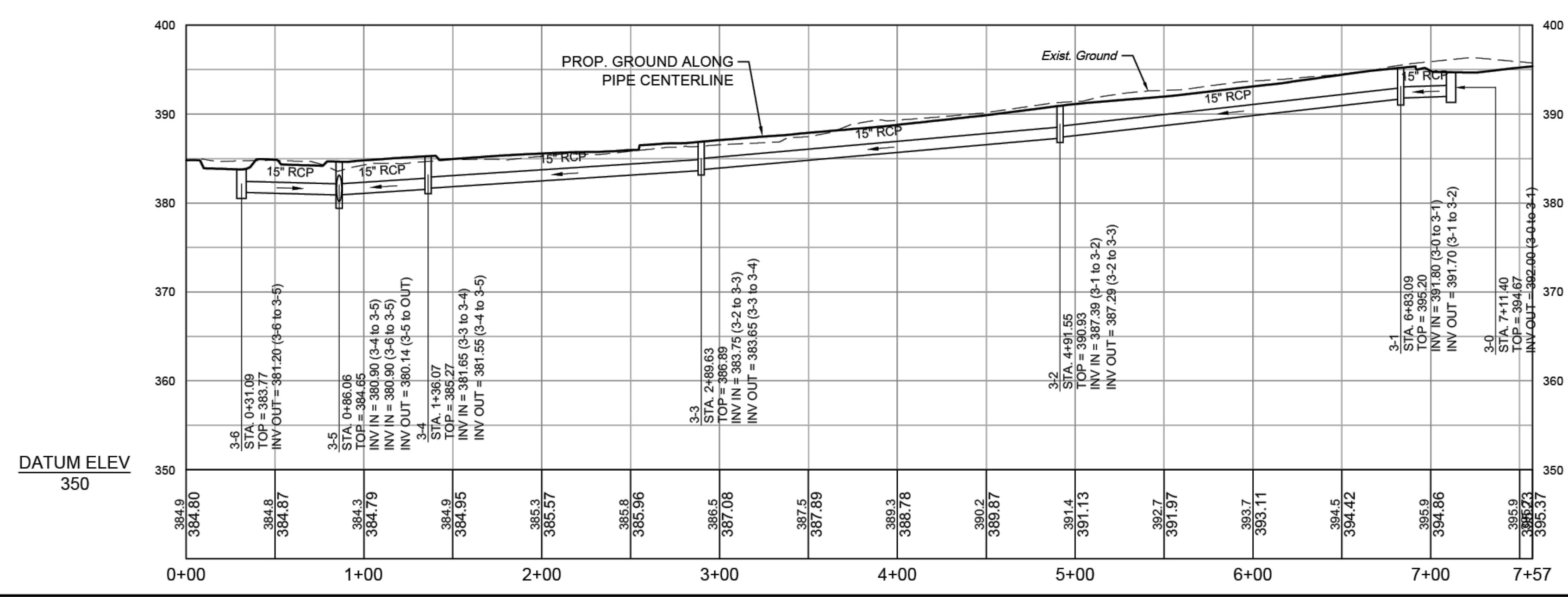
PROFILE

RVRD

ROAD1



STM ROLESVILLE RD



STR. #	TOP	INV. IN	INV. OUT	DESCRIPTION
3-6	383.77	381.20	381.20	(15" RCP TO 3-5) NCDOT 840.14 CONCRETE DI
3-5	384.65	380.90	380.90	(15" RCP FROM 3-4) NCDOT 840.02 CONCRETE CB
3-4	385.27	381.65	381.65	(15" RCP FROM 3-3) NCDOT 840.02 CONCRETE CB
3-3	386.89	383.75	383.65	(15" RCP FROM 3-2) NCDOT 840.02 CONCRETE CB
3-2	390.93	387.39	387.29	(15" RCP FROM 3-1) NCDOT 840.02 CONCRETE CB
3-1	394.67	391.80	391.70	(15" RCP FROM 3-0) NCDOT 840.14 CONCRETE DI
3-0	395.20	391.80	391.70	(15" RCP FROM 3-0) NCDOT 840.02 CONCRETE CB

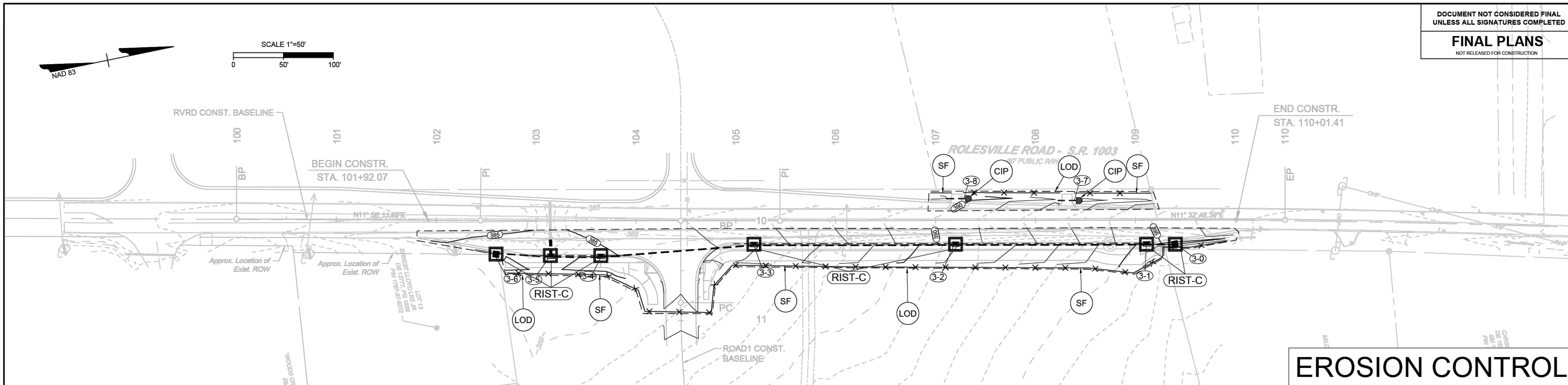
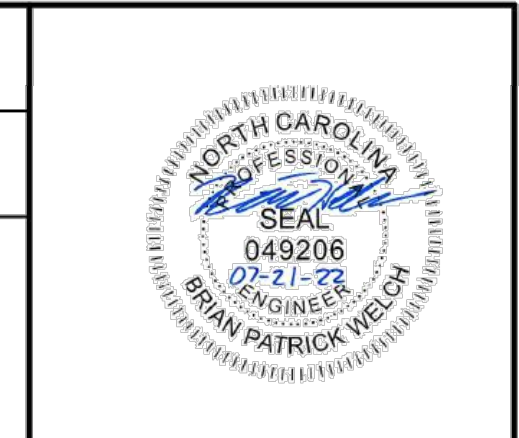
FROM - TO	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DIA.	MATERIAL	DESCRIPTION
3-0 - 3-1	392.00'	391.80'	0.71%	28.30 LF	15"	RCP	CLASS III
3-1 - 3-2	391.70'	387.39'	2.25%	191.54 LF	15"	RCP	CLASS III
3-2 - 3-3	387.29'	383.75'	1.75%	201.92 LF	15"	RCP	CLASS III
3-3 - 3-4	383.65'	381.65'	1.30%	153.56 LF	15"	RCP	CLASS III
3-4 - 3-5	381.55'	380.90'	1.30%	50.00 LF	15"	RCP	CLASS III
3-6 - 3-5	381.20'	380.90'	0.55%	54.98 LF	15"	RCP	CLASS III
OUT - 3-5	379.98'	380.14'	0.29%	55.64 LF	36"	EXIST PIP	

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FINAL PLANS
NOT RELEASED FOR CONSTRUCTION



EROSION CONTROL

EROSION CONTROL NOTES & DETAILS

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO WIDEN ROLESVILLE ROAD AND MITCHELL MILL ROAD TO THE ONE-HALF THE ULTIMATE CROSS SECTION PER THE TOWN'S COMPREHENSIVE TRANSPORTATION PLAN. THESE IMPROVEMENTS SPAN FOR THE ENTIRE FRONTAGE SITE DEVELOPMENT PER TOWN UDO REQUIREMENTS. ADDITIONAL IMPROVEMENTS INCLUDE STRIPING AND DITCHES.

EROSION AND SEDIMENT CONTROL MEASURES:

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION EROSION AND SEDIMENT CONTROL DESIGN AND CONSTRUCTION MANUAL. THE MINIMUM STANDARDS SET FORTH BY THIS MANUAL SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE.

EROSION CONTROL SEQUENCE OF CONSTRUCTION

A SINGLE-PHASED EROSION CONTROL APPROACH IS PROVIDED BELOW TO DESCRIBE GENERAL MEASURES REQUIRED TO MAINTAIN THE SITE THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL APPLY PHASE I AS DESCRIBED HEREIN TO THE VARIOUS WORK AREAS ASSOCIATED WITH THIS PROJECT. DUE TO THE NATURE OF WORK AREAS, THE CONTRACTOR SHALL ENSURE EROSION CONTROL MEASURES ARE PROVIDED AS DESCRIBED THROUGH PROJECT COMPLETION AND ACCEPTANCE.

PHASE I:

1. PROVIDE MINIMAL CLEARING TO INSTALL SILT FENCE AS SHOWN ON THE PLANS. INSTALL CULVERT PROTECTION AS REQUIRED FOR EXISTING PIPES. TAKE SPECIAL CARE TO KEEP SOIL BUILD-UP FROM ENTERING THE EXISTING ROAD PAVEMENT.
2. THE CONTRACTOR WILL NOTIFY THE INSPECTOR OF THE PERMITTED LOCATION EXCESS SOIL MATERIAL IS HAULED TO OR BORROW MATERIAL IS BROUGHT IN FROM. CLEAR AND GRUB AS INDICATED IN THE PLANS. MAINTAIN ACCESS ALONG EXISTING ROADS AND TO EXISTING DRIVEWAYS AT ALL TIMES.
4. TEMPORARY GRADING AND SEEDING IS REQUIRED FOR ALL AREAS WHEN DIRECTED:
 - 4.1. WHEN IT IS IMPOSSIBLE OR IMPRACTICAL TO BRING AN AREA TO THE FINAL LINE, GRADE AND FINISH SO THAT PERMANENT SEEDING AND MULCHING OPERATIONS CAN BE PERFORMED WITHOUT SUBSEQUENT SERIOUS DISTURBANCE BY ADDITIONAL GRADING
 - 4.2. WHEN EROSION OCCURS OR IS CONSIDERED TO BE POTENTIALLY SUBSTANTIAL ON AREAS OF GRADED ROADBED WHERE CONSTRUCTION OPERATIONS ARE TEMPORARILY SUSPENDED OR WHEN THE GRADING OF THE ROADBED HAS BEEN COMPLETED SUBSTANTIALLY IN ADVANCE OF THE PAVING CONSTRUCTION DURING SEASONS OF THE YEAR WHEN PERMANENT SEEDING AND MULCHING IS PROHIBITED BY THE CONTRACT
 - 4.4. WHEN AN IMMEDIATE COVER WOULD BE DESIRABLE TO MINIMIZE EROSION, SILTATION OR POLLUTION ON ANY AREA
 - 4.5. 7-14-DAY SOIL STABILIZATION REQUIREMENTS APPLY TO ANY SECTION OF THE PROJECT WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED AND SHALL SUPERSEDE ANY LESS STRINGENT STABILIZATION REQUIREMENTS ON THE PLANS. [G.S. 143-215.1]
6. CONTRACTOR SHALL REMOVE AND REPLACE ANY DAMAGED EROSION CONTROL MEASURES UNTIL FINAL APPROVAL OF CONSTRUCTION.
7. THE SITE SHALL BE PERMANENTLY STABILIZED AFTER ALL GRADING HAS BEEN COMPLETED BY SEEDING ALL DISTURBED AREAS.
8. UPON CONSTRUCTION COMPLETION, THE CONTRACTOR MUST CONTACT THE INSPECTOR FOR EROSION CONTROL INSPECTION OF SLOPE STABILITY. EROSION CONTROL MEASURES MAY NOT BE REMOVED WITHOUT AUTHORIZATION BY THE ASSIGNED INSPECTOR.
9. UPON APPROVAL CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES.

NOTE:

1. CONTRACTOR MUST KEEP THE EXISTING ROAD FREE FROM BUILDUP OF SOIL.

EROSION & SEDIMENT CONTROL LEGEND	
[Symbol: Dashed line]	LOD LIMITS OF DISTURBANCE
[Symbol: X-X]	SF TEMPORARY SILT FENCE (NCDOT STD. 1605.01)
[Symbol: Circle with W]	W WATTLE WITH FLOCCULANT
[Symbol: Rectangle with dots]	RIST-C ROCK INLET SEDIMENT TRAP - TYPE C (NCDOT STD. 1632.03)
[Symbol: Circle with CIP]	CIP ROCK PIPE SEDIMENT TRAP - TYPE B (NCDOT STD. 1635.02)

STABILIZATION REQUIREMENTS:

Stabilization for this project shall comply with the time frame guidelines as specified by the NCC-010000 general construction permit effective April 1, 2019 issued by the North Carolina Department of Environmental Quality Division of Water Resources. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 2:1 or flatter, with a slope length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 0A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

SEEDING AND MULCHING: (East)

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

Seed/Fertilizer	Rate
March 1 - August 31	September 1 - February 28
50# Tall Fescue	50# Tall Fescue
10# Centipede	10# Centipede
25# Bermudagrass (bald)	35# Bermudagrass (bald)
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

Waste and Borrow Locations

Seed/Fertilizer	Rate
March 1 - August 31	September 1 - February 28
75# Tall Fescue	75# Tall Fescue
25# Bermudagrass (bald)	35# Bermudagrass (bald)
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

Approved Tall Fescue Cultivars

06 Dura	Escalade	Justice	Shergold
2nd Millennium	Essential	Kelly Hawk 2000	Sheridan
Apache III	Falcon 2	Legitimate	Sigma
Averger	Falcon NG	Lightning	Silver Hawk
Burlock	Falcon V	LSI	Silverstar
Burlock II	Fairb	Magellan	Shenandoah Elite
Bar Pa	Fat Cat	Minador	Sidewinder
Barron	Festiva	Millennium SRP	Skyline
Barrington	Fidelity	Minot	Solara
Barroberto	Finch	Mustang 4	Southern Choice II
Barvado	Finch	Ninja 2	Speedway
Bilmore	Finch	Of Glory	Spayer LS
Blago	Firebird	Olympic Gold	Sunset Gold
Bloom	Firehawk	Patagonia	Tacos
Blackwatch	Firestar	Patagonia	Tanzania
Blackwater	Five Point	Polgro	Trio
Blade Runner II	Focus	Poncho	Tulosa II
Bonni	Forto	Profront	Tulalaga
Breveheart	Forto	Plantation	Turkey
Breno	Forto	Prosser 5901	Terrano
Bullseye	Gold Medal	Prospect	Titanium LS
Camavaro	Gold Medal	Quest	Tracer
Canary	Greenbrook	Quint	Traverse SRP
Cayenne	Greenkeeper	Raptor II	Tuba Time
Cosmo Rz	Greenline	Rebel Exotic	Turbo
Chapper	Greystone	Rebel Senry	Turbo RZ
Cochise IV	Guardian 21	Rebel IV	Tuxedo RZ
Constitution	Guardian 41	Regiment II	Ultimate
Cong	Hera	Recon	Ultimate
Corona	Hera	Rhambler 2 SRP	Unshella
Coyote	Honey Tank	Rosebud	Van Gogh
Darlington	Hot Rod	Rosebud	Walden
Dawson	Hunter	Rosebud	Wolfpeak II
Deane	Infano	RNP	Xtremgreen
Dominion	Innovator	Rocket	
Dynasty	Integrity	Scorpion	
Dynasty	Jaguar 3		
Lindavow	Jamboree		

On cut and fill slopes 2:1 or steeper; Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Leporeola from January 1 - December 31.

Mulching Materials and Application Rates

Material	Rate Per Acre	Quality	Notes
Organic Mulches (Saw)	1-2 tons	Dry, unchipped, unwet, avoid woods.	Should come from wheat or oats; spread by hand or machine; must be tacked down.
Wood chips	5-6 tons	Air dry	Treat with 12 lbs nitrogen/ton; Apply with mulch blower, chip handler, or by hand; Not for use in fine turf.
Wood fiber	0.5-1 tons		Also referred to as wood cellulose. May be hydrosieved. Do not use in hot, dry weather.
Bark	35 cubic yards	Air dry, shredded or hammer-milled, or chips	Apply with mulch blower; chip handler; or by hand; Do not use asphalt tack.
Corn stalks	4-6 tons	Cut or shredded in 4-6 in. lengths.	Apply with mulch blower or by hand; Not for use in fine turf.
Senecio jacobaea (seed-bearing stems)	1-3 tons	Green or dry; should contain mature seed.	
Net and Mats (Jute net)	Cover area	Heavy, uniform; woven of single jute yarn.	Withstands waterflow. Best when used with organic mulch.
Fiberglass net	Cover area		Withstands waterflow. Best when used with organic mulch.
Excelsior (wood fiber) mat	Cover area		Withstands waterflow.
Fiberglass roving	0.5-1 tons	Continuous fibers of drawn glass bound together with a non-toxic agent.	Apply with a compressed air ejector; Back with emulsified asphalt at a rate of 25-35 gal/1,000 sq ft.
Chemical Stabilizers (Aquastain, Aerospray, Curasol AK, Petroseal SIB, Terra Tack, Tru-Tack 600, Geopack 743, M-145)	Follow manufacturer's specifications		Not beneficial to plant growth.

Refer to Practice No. 6-30, Grass Lined Channels.

Use of trade names does not imply endorsement of product.

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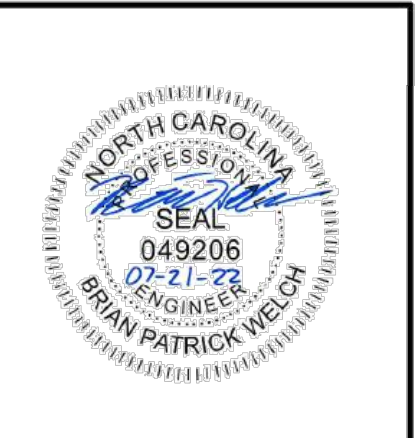
WHEELER TRACT - OFFSITE IMPROVEMENTS

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

EROSION CONTROL PLAN

JOB NO. 43398
SHEET NO. R3.03

NOTES



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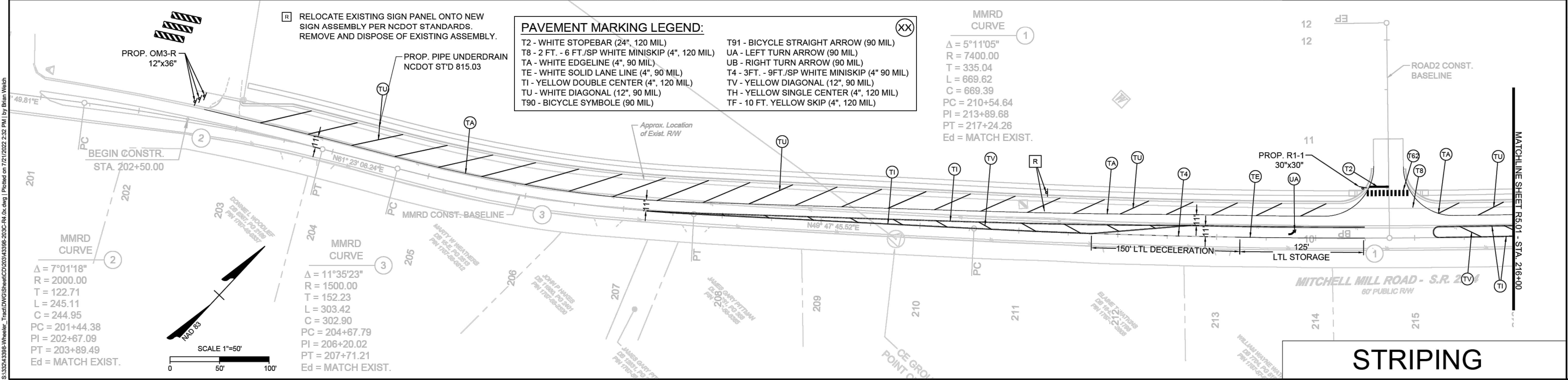
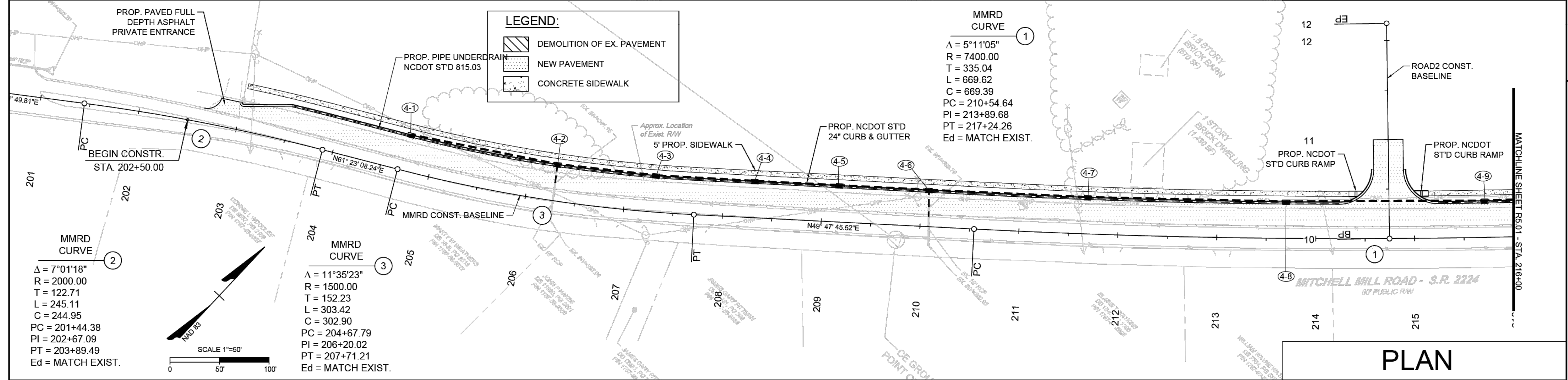
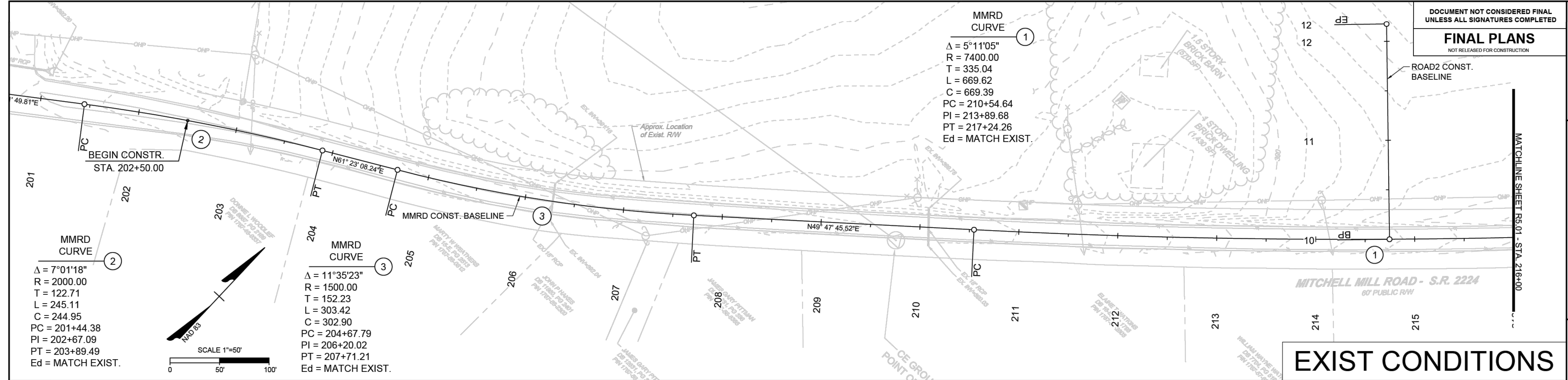
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EXISTING CONDITIONS & PLAN & STRIPING SHEET

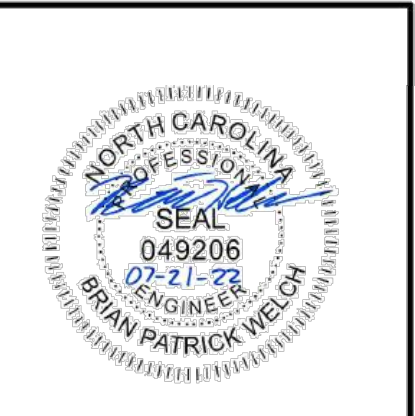
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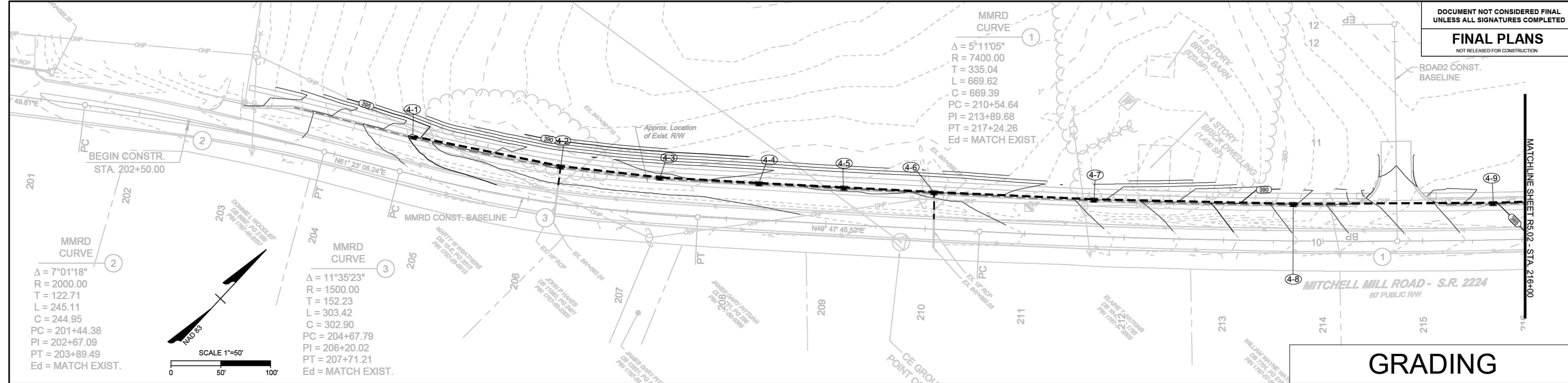


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GRADING & PROFILE SHEET

JOB NO.
43398

SHEET NO.
R4.02

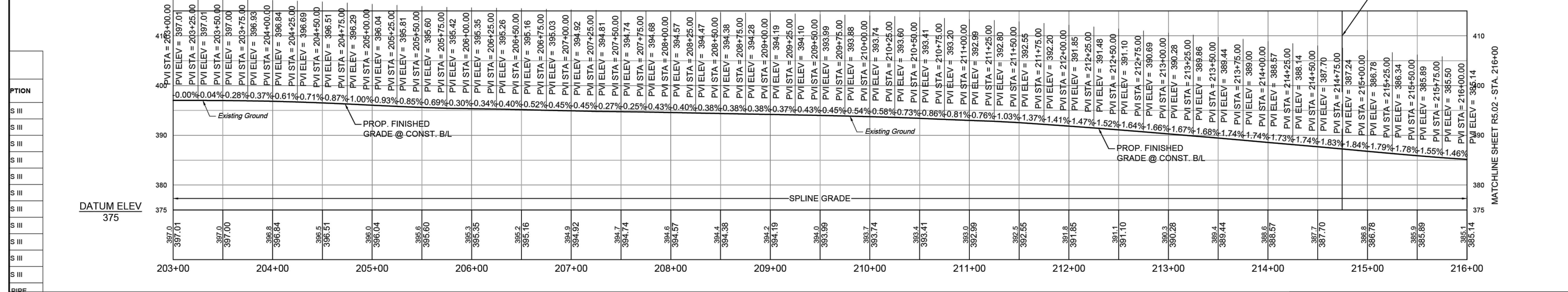
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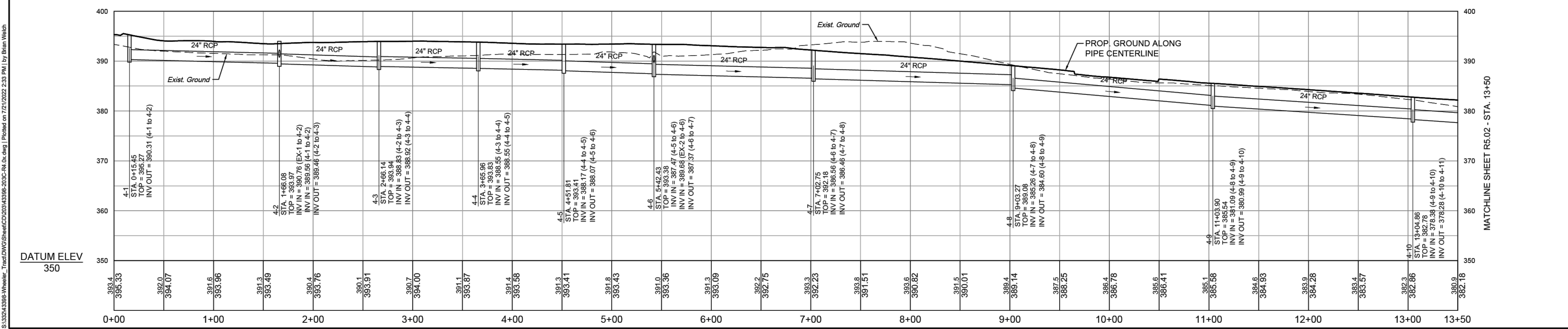
MMRD

GRADING



STM MITCHELL MILL ROAD

PROFILE





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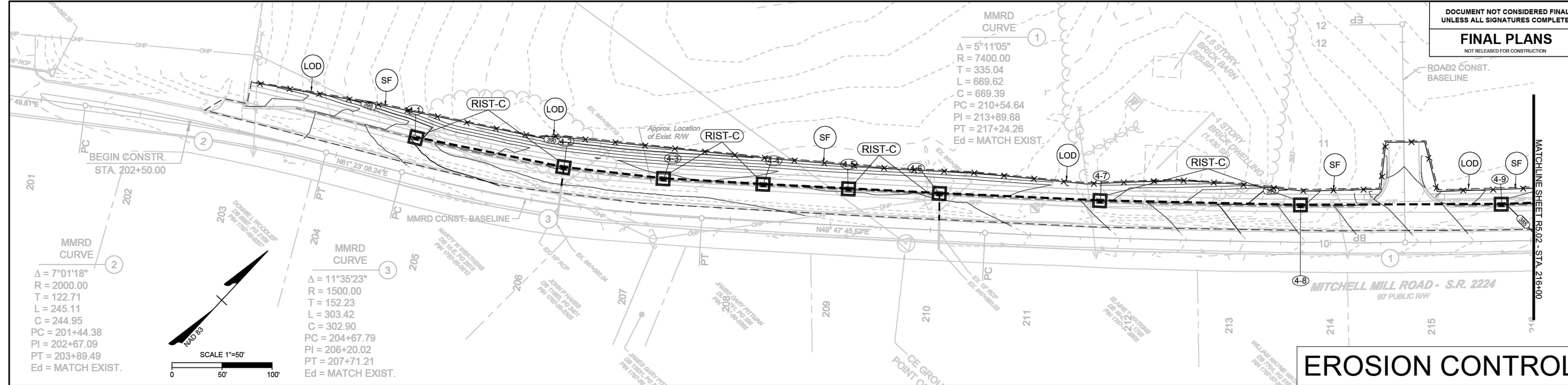
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ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
EROSION CONTROL PLAN

JOB NO.
43398
SHEET NO.
R4.03



EROSION CONTROL

EROSION CONTROL NOTES & DETAILS

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO WIDEN ROLESVILLE ROAD AND MITCHELL MILL ROAD TO THE ONE-HALF THE ULTIMATE CROSS SECTION PER THE TOWN'S COMPREHENSIVE TRANSPORTATION PLAN. THESE IMPROVEMENTS SPAN FOR THE ENTIRE FRONTAGE SITE DEVELOPMENT PER TOWN UDO REQUIREMENTS. ADDITIONAL IMPROVEMENTS INCLUDE STRIPING AND DITCHES.

EROSION AND SEDIMENT CONTROL MEASURES:

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION EROSION AND SEDIMENT CONTROL DESIGN AND CONSTRUCTION MANUAL. THE MINIMUM STANDARDS SET FORTH BY THIS MANUAL SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE.

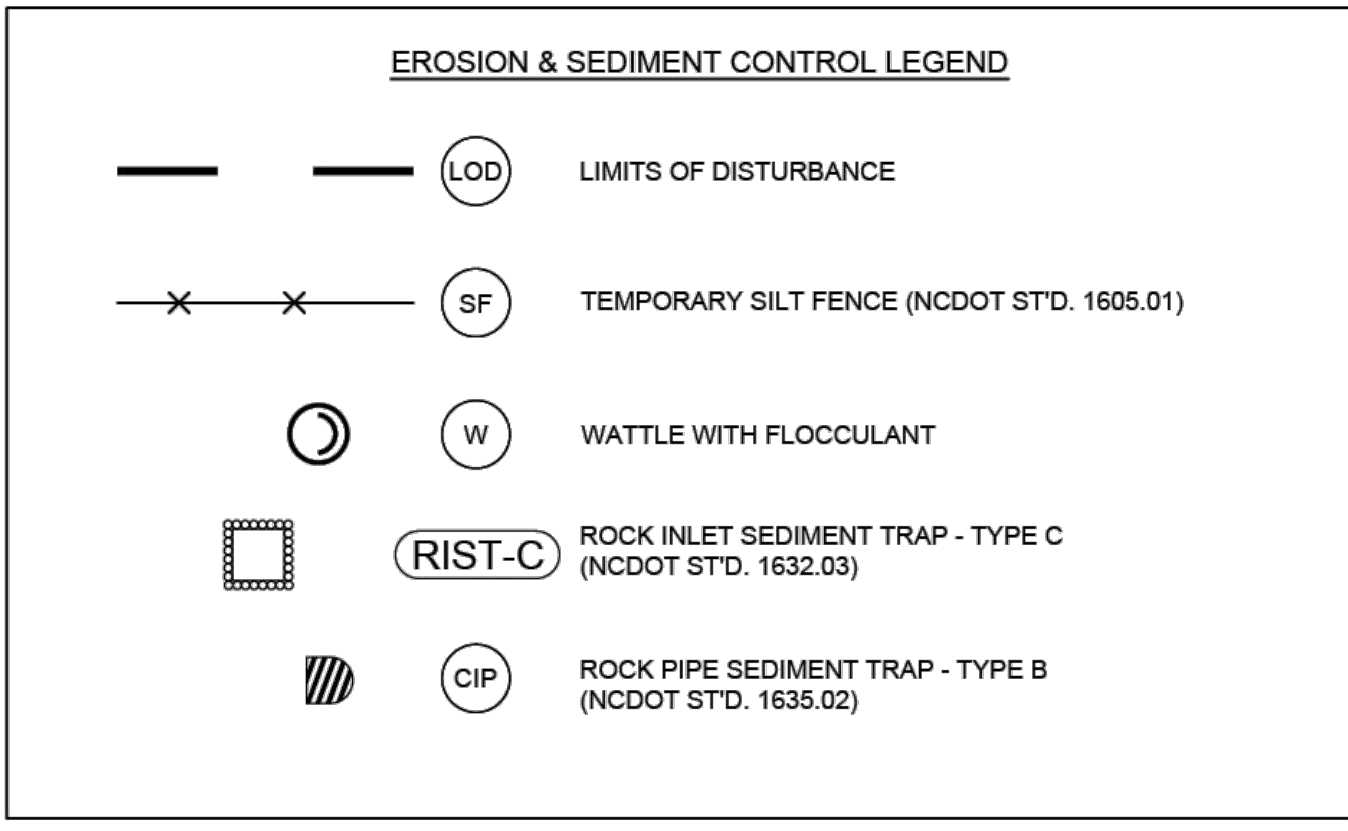
EROSION CONTROL SEQUENCE OF CONSTRUCTION

A SINGLE-PHASED EROSION CONTROL APPROACH IS PROVIDED BELOW TO DESCRIBE GENERAL MEASURES REQUIRED TO MAINTAIN THE SITE THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL APPLY PHASE I AS DESCRIBED HEREIN TO THE VARIOUS WORK AREAS ASSOCIATED WITH THIS PROJECT. DUE TO THE NATURE OF WORK AREAS, THE CONTRACTOR SHALL ENSURE EROSION CONTROL MEASURES ARE PROVIDED AS DESCRIBED THROUGH PROJECT COMPLETION AND ACCEPTANCE.

PHASE I:

- PROVIDE MINIMAL CLEARING TO INSTALL SILT FENCE AS SHOWN ON THE PLANS. INSTALL CULVERT PROTECTION AS REQUIRED FOR EXISTING PIPES. TAKE SPECIAL CARE TO KEEP SOIL BUILD-UP FROM ENTERING THE EXISTING ROAD PAVEMENT.
- THE CONTRACTOR WILL NOTIFY THE INSPECTOR OF THE PERMITTED LOCATION EXCESS SOIL MATERIAL IS HAULED TO OR BORROW MATERIAL IS BROUGHT IN FROM. CLEAR AND GRUB AS INDICATED IN THE PLANS. MAINTAIN ACCESS ALONG EXISTING ROADS AND TO EXISTING DRIVEWAYS AT ALL TIMES.
- TEMPORARY GRADING AND SEEDING IS REQUIRED FOR ALL AREAS WHEN DIRECTED:
 - WHEN IT IS IMPOSSIBLE OR IMPRACTICAL TO BRING AN AREA TO THE FINAL LINE, GRADE AND FINISH SO THAT PERMANENT SEEDING AND MULCHING OPERATIONS CAN BE PERFORMED WITHOUT SUBSEQUENT SERIOUS DISTURBANCE BY ADDITIONAL GRADING
 - WHEN EROSION OCCURS OR IS CONSIDERED TO BE POTENTIALLY SUBSTANTIAL ON AREAS OF GRADED ROADBED WHERE CONSTRUCTION OPERATIONS ARE TEMPORARILY SUSPENDED OR WHEN THE GRADING OF THE ROADBED HAS BEEN COMPLETED SUBSTANTIALLY IN ADVANCE OF THE PAVING CONSTRUCTION DURING SEASONS OF THE YEAR WHEN PERMANENT SEEDING AND MULCHING IS PROHIBITED BY THE CONTRACT
 - WHEN AN IMMEDIATE COVER WOULD BE DESIRABLE TO MINIMIZE EROSION, SILTATION OR POLLUTION ON ANY AREA
 - 7/14-DAY SOIL STABILIZATION REQUIREMENTS APPLY TO ANY SECTION OF THE PROJECT WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED AND SHALL SUPERSEDE ANY LESS STRINGENT STABILIZATION REQUIREMENTS ON THE PLANS. [G.S. 143-215.1]
- CONTRACTOR SHALL REMOVE AND REPLACE ANY DAMAGED EROSION CONTROL MEASURES UNTIL FINAL APPROVAL OF CONSTRUCTION.
- THE SITE SHALL BE PERMANENTLY STABILIZED AFTER ALL GRADING HAS BEEN COMPLETED BY SEEDING ALL DISTURBED AREAS.
- UPON CONSTRUCTION COMPLETION, THE CONTRACTOR MUST CONTACT THE INSPECTOR FOR EROSION CONTROL INSPECTION OF SLOPE STABILITY. EROSION CONTROL MEASURES MAY NOT BE REMOVED WITHOUT AUTHORIZATION BY THE ASSIGNED INSPECTOR.
- UPON APPROVAL CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES.

NOTE:
1. CONTRACTOR MUST KEEP THE EXISTING ROAD FREE FROM BUILDUP OF SOIL.



STABILIZATION REQUIREMENTS:

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective April 1, 2019 (issued by the North Carolina Department of Environmental Quality Division of Water Resources). Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 2:1 or flatter, with a slope length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 0A.0105 (G5). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

SEEDING AND MULCHING: (East)

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

March 1 - August 31	September 1 - February 28
50# Tall Fescue	50# Tall Fescue
10# Centipede	10# Centipede
25# Bermuda (broad)	35# Bermuda (broad)
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

Waste and Borrow Locations

March 1 - August 31	September 1 - February 28
75# Tall Fescue	75# Tall Fescue
25# Bermuda (broad)	35# Bermuda (broad)
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermuda grass only upon Engineer's request.

Approved Tall Fescue Cultivars

06 Dart	Escalade	Justice	Sterngert
2nd Millennium	Isothermal	Kabard	Stetson
Apache III	Ivergreen 2	King Hawk 2000	Sigma
Averger	Falcon IV	Laguna	Silver Hawk
Burlock	Falcon NG	Leighton	Silverstar
Barlock	Falcon V	LSD	Shenandoah Elite
Barlock II	Falch	Magellan	Sidevinder
Bar Pa	Fat Cat	Millennium SRP	Skyline
Barron	Feenova	Misc	Solara
Barrington	Fidelity	Mustang 4	Southern Choice II
Barroto	Finchlaw Elite	Ninja 2	Terrano
Barvado	Finchlaw Xpress	OF Glory	Thames LS
Blissmore	Flame II	Olympic Gold	Titanium LS
Bligo	Firebird	Patagonia	Trazer
Bloom	Firemaster LS	Polgrove	Traverse SRP
Blackwatch	Firiza	Poncho	Tube Time
Blackwater II	Five Point	Profront	Turbo
Bonnie	Foca	Profront	Turbo RZ
Breweheart	Forto	Profront	Ultimate
Brewo	Garrison	Profront 5301	Unshella
Bullseye	Gardle II	Prospect	Van Gogh
Cannavero	Gold Medalion	Quint	Walrus
Candyst	Grand 3	Raptor II	Wolfspeak II
Cyanide	Greenbrook	Rebel	Xtremegreen
Cosmo RZ	Greenkeeper	Rebel 2	
Chaper	Gremlin	Rebel Exalta	
Cochise IV	Greystone	Rebel Sentry	
Constitution	Guardian 21	Rebel IV	
Cong	Guardian 41	Rebel II	
Corona	Hemal	Regenerate	
Coyote	Honky Tonk	Rendition	
Darlington	Hot Rod	Rhambler 2 SRP	
Davinci	Hunter	Rombault	
Deane	Infano	Roulette	
Demolition	Innovator	Rivenside	
Dynasty	Integrity	RNP	
Dynasty	Jaguar 3	Rocket	
Endavor	Jamboree	Scorpion	

On cut and fill slopes 2:1 or steeper; Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be provided the 1-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

TEMPORARY SEEDING:

Fertilizer shall be the same analysis as specified for Seeding and Mulching and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. Seede: Seede Grass, German Millet or Bowditch Millet shall be used in summer months and Rye Grass during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

FERTILIZER TOPDRESSING:

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 1-2-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis and as directed.

Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

SUPPLEMENTAL SEEDING:

The kinds of seed and proportions shall be the same as specified for Seeding and Mulching, with the exception that no centipede seed will be used in the seed mix for supplemental seeding. The rate of application for supplemental seeding may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a soil seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clostranor (ball and chain) may be used where degree of slope prevents the use of a soil seeder.

MOWING:

The minimum mowing height on this project shall be 4 inches.

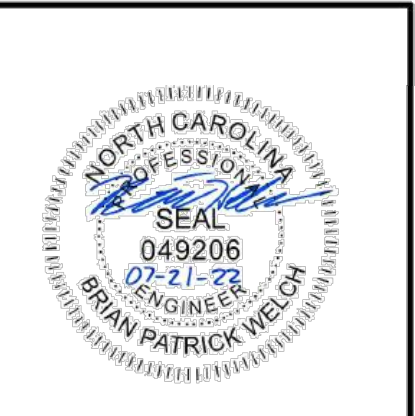
Mulching Materials and Application Rates

Material	Rate Per Acre	Quality	Notes
Organic Mulches (Saw)	1-2 tons	Dry, unchipped, unweathered, avoid weeds.	Should come from wheat or oats; spread by hand or machine; must be backed down.
Wood chips	5-6 tons	Air dry	Trials with 12 lbs nitrogen/ton; Apply with mulch blower, chip handler, or by hand. Not for use in fine turf.
Wood fiber	0.5-1 tons		Also referred to as wood cellulose. May be hydroseeded. Do not use in hot, dry weather.
Bark	35 cubic yards	Air dry; shredded or hammer-chipped; or chips	Apply with mulch blower; chip handler; or by hand. Do not use asphalt lock.
Corn stalks	4-6 tons	Cut or shredded in 4-6" lengths.	Apply with mulch blower or by hand. Not for use in fine turf.
Sericea lespedeza (seed-bearing stems)	1-3 tons	Green or dry; should contain mature seed.	
Geotextiles (Jute net)	Cover area	Heavy, uniform; woven of single jute yarn.	Withstands waterflow. Best when used with organic mulch.
Fiberglass net	Cover area		Withstands waterflow. Best when used with organic mulch.
Excelsior (wood fiber) mat	Cover area		Withstands waterflow.
Fiberglass roving	0.5-1 tons	Continuous fibers of drawn glass bound together with a non-toxic agent.	Apply with a compressed air ejector; Back with emulsified asphalt at a rate of 25-35 gal/1,000 sq ft.
Chemical Stabilizers		Follow manufacturer's specifications	Not beneficial to plant growth.

Refer to Practice No. 6.30, Grass Lined Channels.
Use of trade names does not imply endorsement of product.

NOTES

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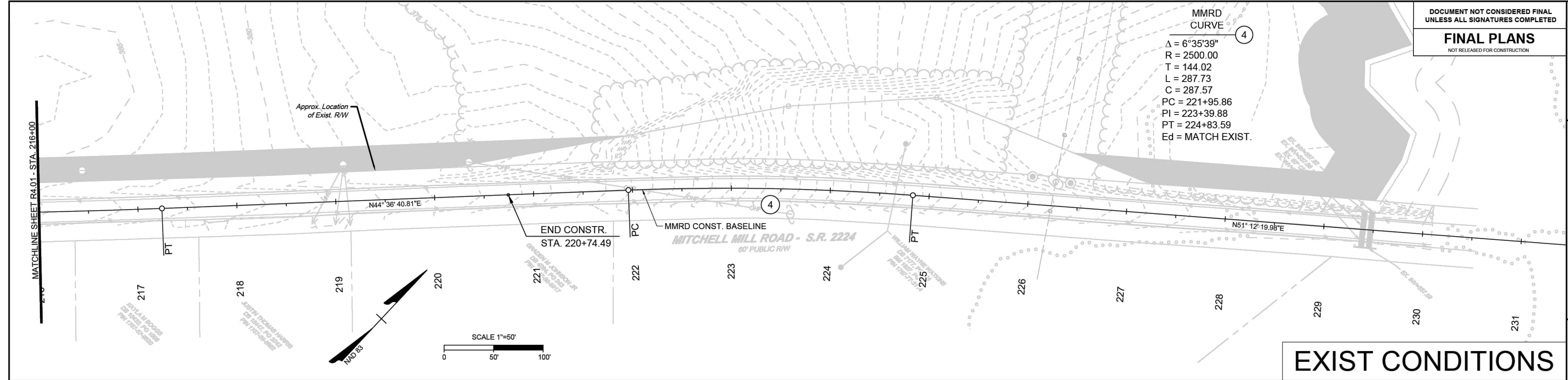
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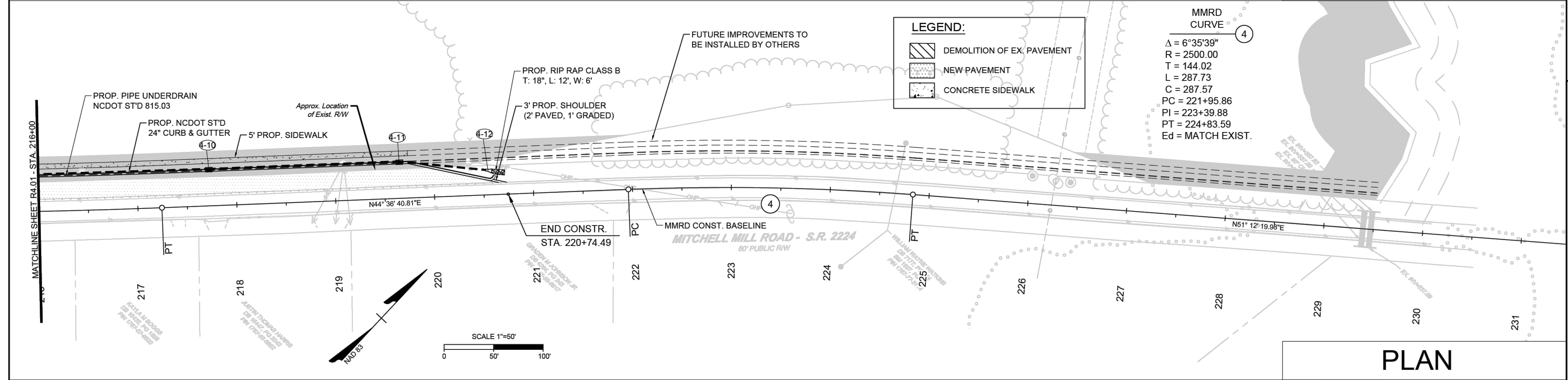
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ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
EXISTING CONDITIONS & PLAN & STRIPING SHEET

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R5.01

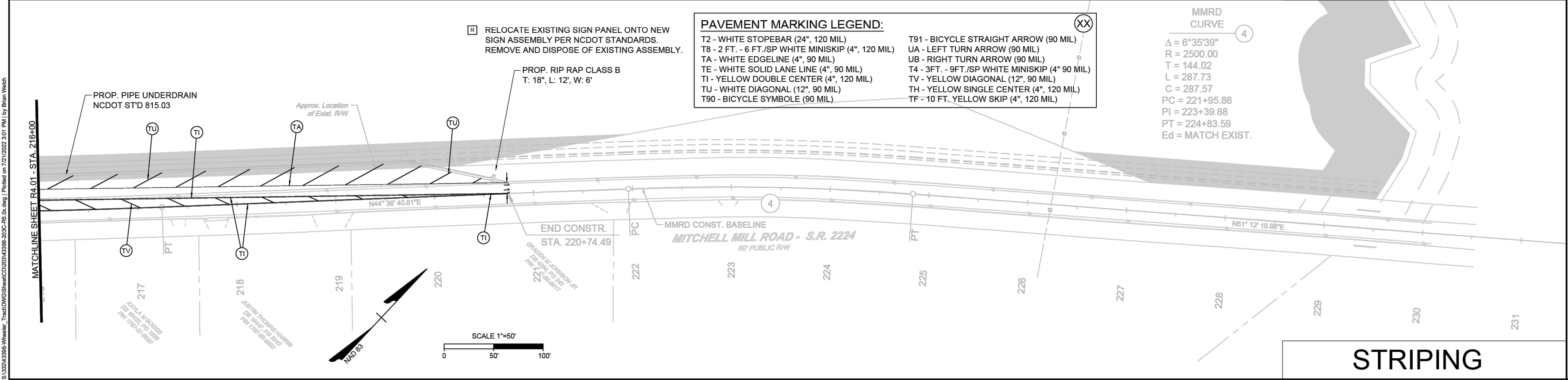
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EXIST CONDITIONS

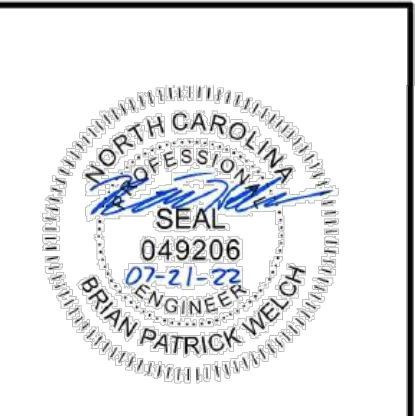


PLAN



STRIPING

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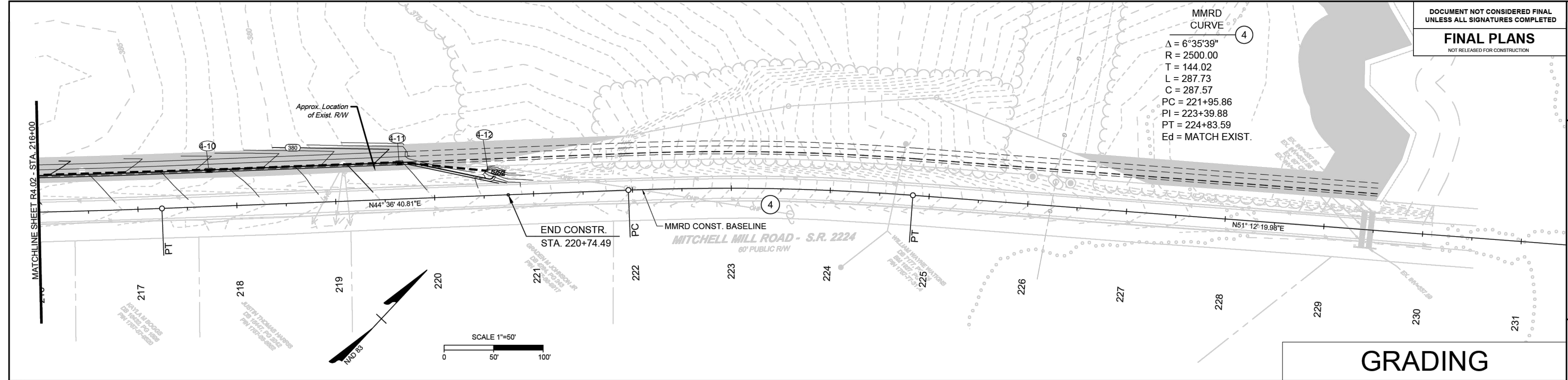
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DATE	REVISION DESCRIPTION
07/21/22 <td></td>	
	DRAWN BY BPW
	DESIGNED BY BPW
	CHECKED BY BPW
	SCALE 1" = 50'

TIMMONS GROUP

WHEELER TRACT - OFFSITE IMPROVEMENTS
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
GRADING & PROFILE SHEET

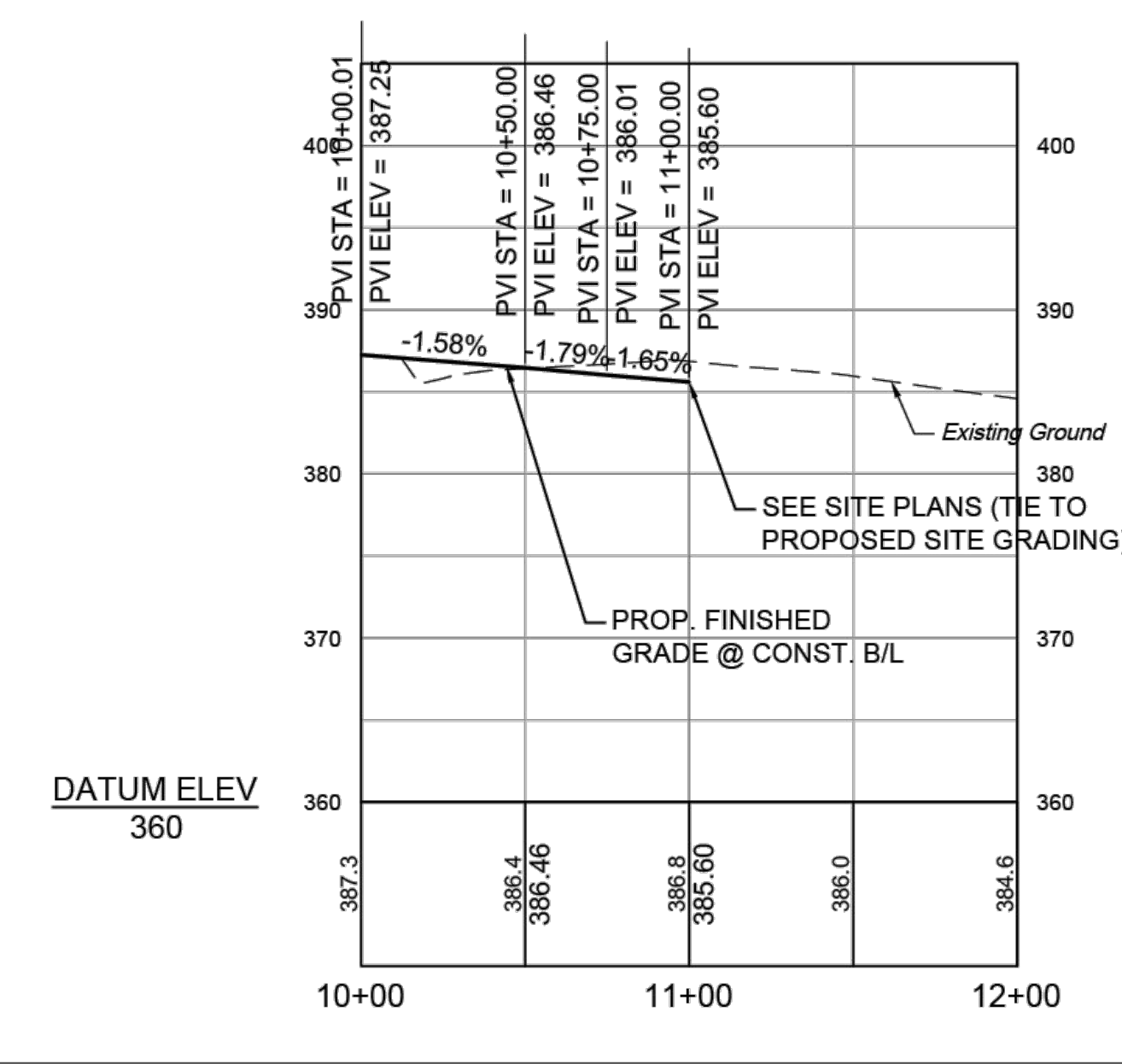
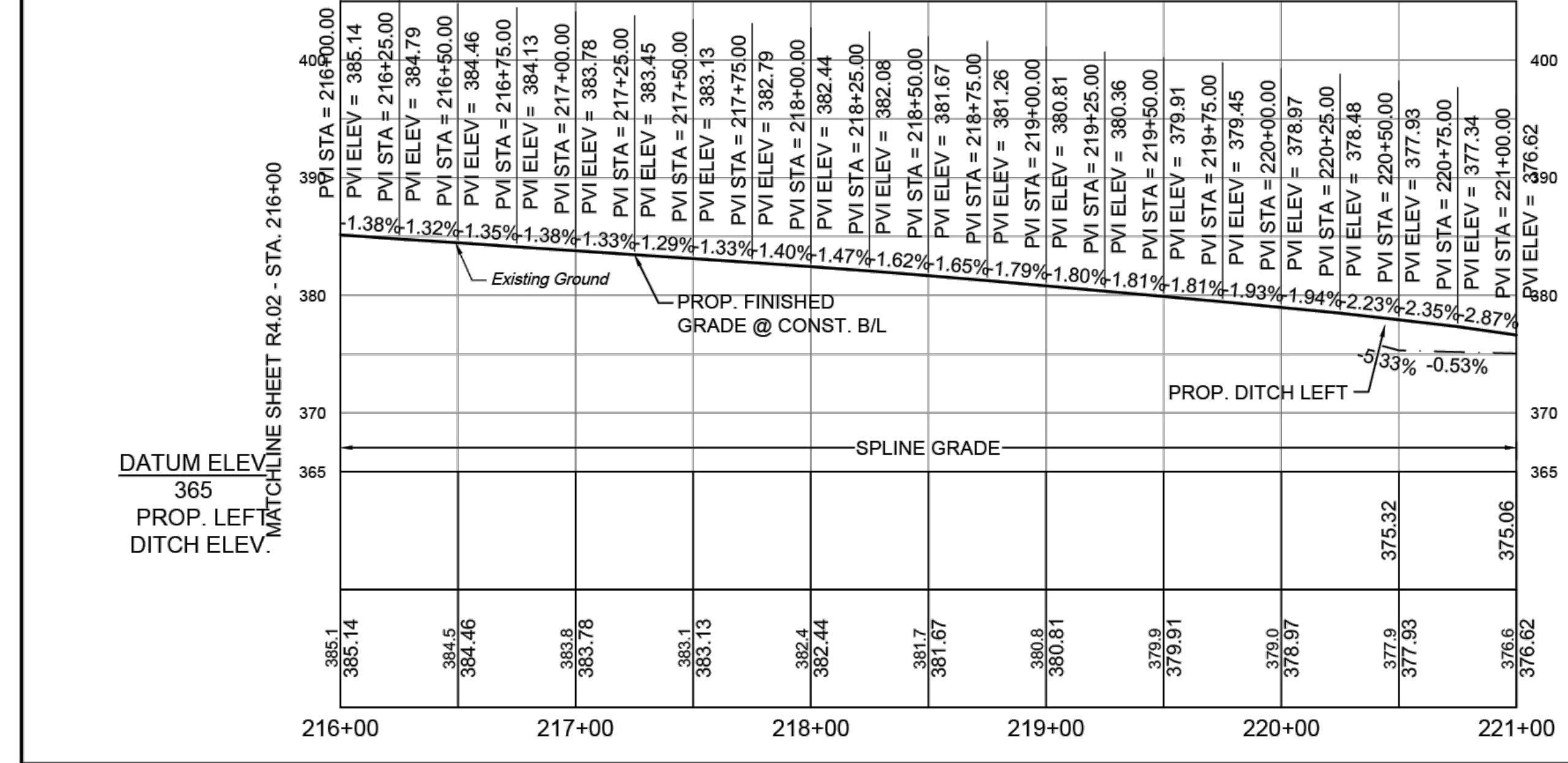
JOB NO.
43398
SHEET NO.
R5.02



GRADING

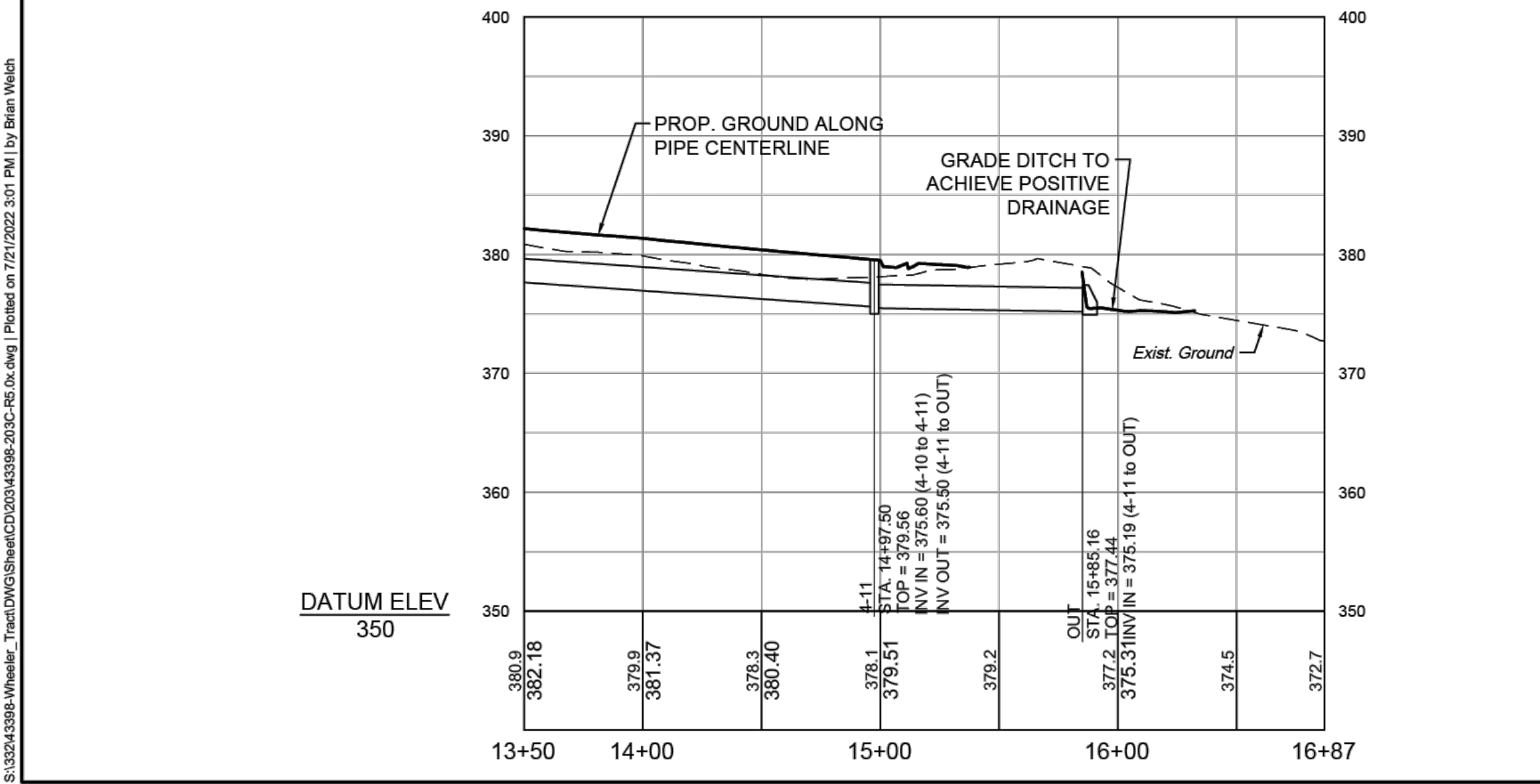
MMRD

ROAD2



PROFILE

STM MITCHELL MILL ROAD



STORM STRUCTURE TABLE
STM Mitchell Mill Road

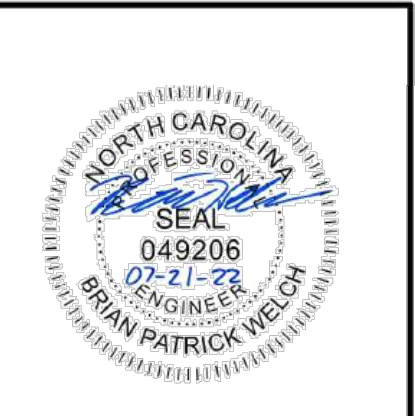
STR. #	TOP	INV. IN	INV. OUT	DESCRIPTION
OUT	377.44'	375.19' (24" RCP FROM 4-11)		NCDOT 310.02 CONCRETE ES
4-11	379.56'	375.60' (24" RCP FROM 4-10)	375.50' (24" RCP TO OUT)	NCDOT 840.02 CONCRETE CB
4-10	382.78'	378.38' (24" RCP FROM 4-9)	378.28' (24" RCP TO 4-11)	NCDOT 840.02 CONCRETE CB
4-9	385.54'	381.09' (24" RCP FROM 4-8)	380.99' (24" RCP TO 4-10)	NCDOT 840.02 CONCRETE CB
4-8	389.08'	385.26' (24" RCP FROM 4-7)	384.60' (24" RCP TO 4-9)	NCDOT 840.02 CONCRETE CB
4-7	392.18'	386.56' (24" RCP FROM 4-6)	386.46' (24" RCP TO 4-8)	NCDOT 840.02 CONCRETE CB
4-6	393.38'	387.47' (24" RCP FROM 4-5) 389.68' (18" RCP FROM IN-NORTH)	387.37' (24" RCP TO 4-7)	NCDOT 840.02 CONCRETE CB
4-5	393.41'	388.17' (24" RCP FROM 4-4)	388.07' (24" RCP TO 4-6)	NCDOT 840.02 CONCRETE CB
4-2	393.51'	390.76' (18" RCP FROM EX-1) 389.56' (24" RCP FROM 4-1)	389.46' (24" RCP TO 4-3)	NCDOT 840.02 CONCRETE CB
4-4	393.83'	388.55' (24" RCP FROM 4-3)	388.55' (24" RCP TO 4-5)	NCDOT 840.02 CONCRETE CB
4-3	393.94'	388.83' (24" RCP FROM 4-2)	388.92' (24" RCP TO 4-4)	NCDOT 840.02 CONCRETE CB
4-1	395.27'		390.31' (24" RCP TO 4-2)	NCDOT 840.02 CONCRETE CB

STORM PIPE TABLE
STM Mitchell Mill Road

FROM - TO	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DIA.	MATERIAL	DESCRIPTION
4-1 - 4-2	390.31'	389.56'	0.50%	150.63 LF	24"	RCP	CLASS III
4-2 - 4-3	389.46'	388.83'	0.63%	100.06 LF	24"	RCP	CLASS III
4-3 - 4-4	388.92'	388.55'	0.38%	99.79 LF	24"	RCP	CLASS III
4-4 - 4-5	388.55'	388.17'	0.44%	85.85 LF	24"	RCP	CLASS III
4-5 - 4-6	388.07'	387.47'	0.66%	90.61 LF	24"	RCP	CLASS III
4-6 - 4-7	387.37'	386.56'	0.51%	160.33 LF	24"	RCP	CLASS III
4-7 - 4-8	386.46'	385.26'	0.60%	200.51 LF	24"	RCP	CLASS III
4-8 - 4-9	384.60'	381.09'	1.75%	200.64 LF	24"	RCP	CLASS III
4-9 - 4-10	380.99'	378.38'	1.30%	200.96 LF	24"	RCP	CLASS III
4-10 - 4-11	378.28'	375.60'	1.39%	192.64 LF	24"	RCP	CLASS III
4-11 - OUT	375.50'	375.19'	0.35%	87.67 LF	24"	RCP	CLASS III
EX-1 - 4-2	392.04'	390.76'	2.25%	56.87 LF	18"	RCP	EXIST. PIPE
IN-NORTH - 4-6	390.03'	389.68'	0.63%	55.98 LF	18"	RCP	EXIST. PIPE

PROFILE

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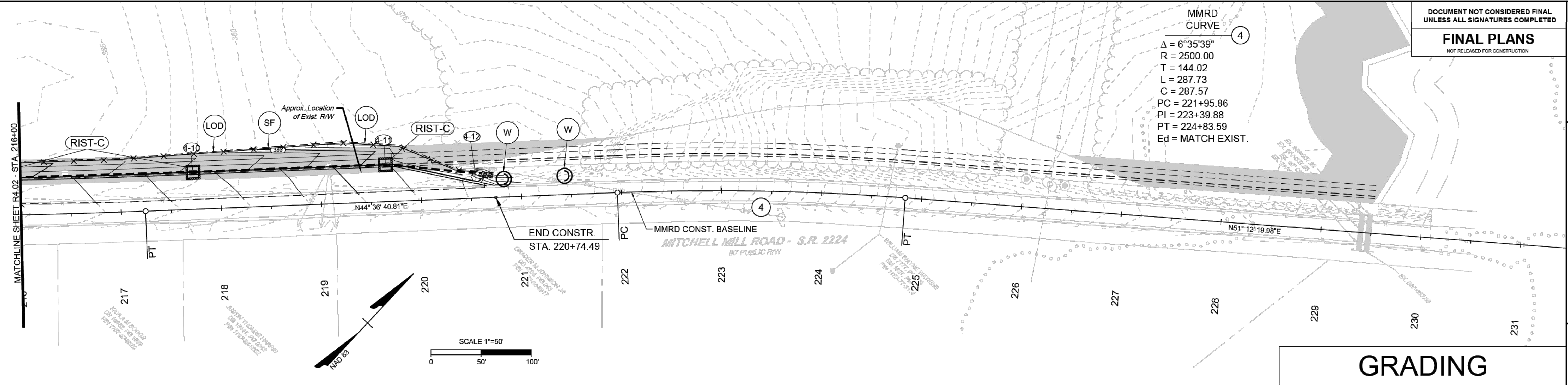
WHEELER TRACT - OFFSITE IMPROVEMENTS

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

EROSION CONTROL PLAN

JOB NO. 43398

SHEET NO. R5.03



GRADING

EROSION CONTROL NOTES & DETAILS

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO WIDEN ROLESVILLE ROAD AND MITCHELL MILL ROAD TO THE ONE-HALF THE ULTIMATE CROSS SECTION PER THE TOWN'S COMPREHENSIVE TRANSPORTATION PLAN. THESE IMPROVEMENTS SPAN FOR THE ENTIRE FRONTAGE SITE DEVELOPMENT PER TOWN UDO REQUIREMENTS. ADDITIONAL IMPROVEMENTS INCLUDE STRIPING AND DITCHES.

EROSION AND SEDIMENT CONTROL MEASURES:

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION EROSION AND SEDIMENT CONTROL DESIGN AND CONSTRUCTION MANUAL. THE MINIMUM STANDARDS SET FORTH BY THIS MANUAL SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE.

EROSION CONTROL SEQUENCE OF CONSTRUCTION

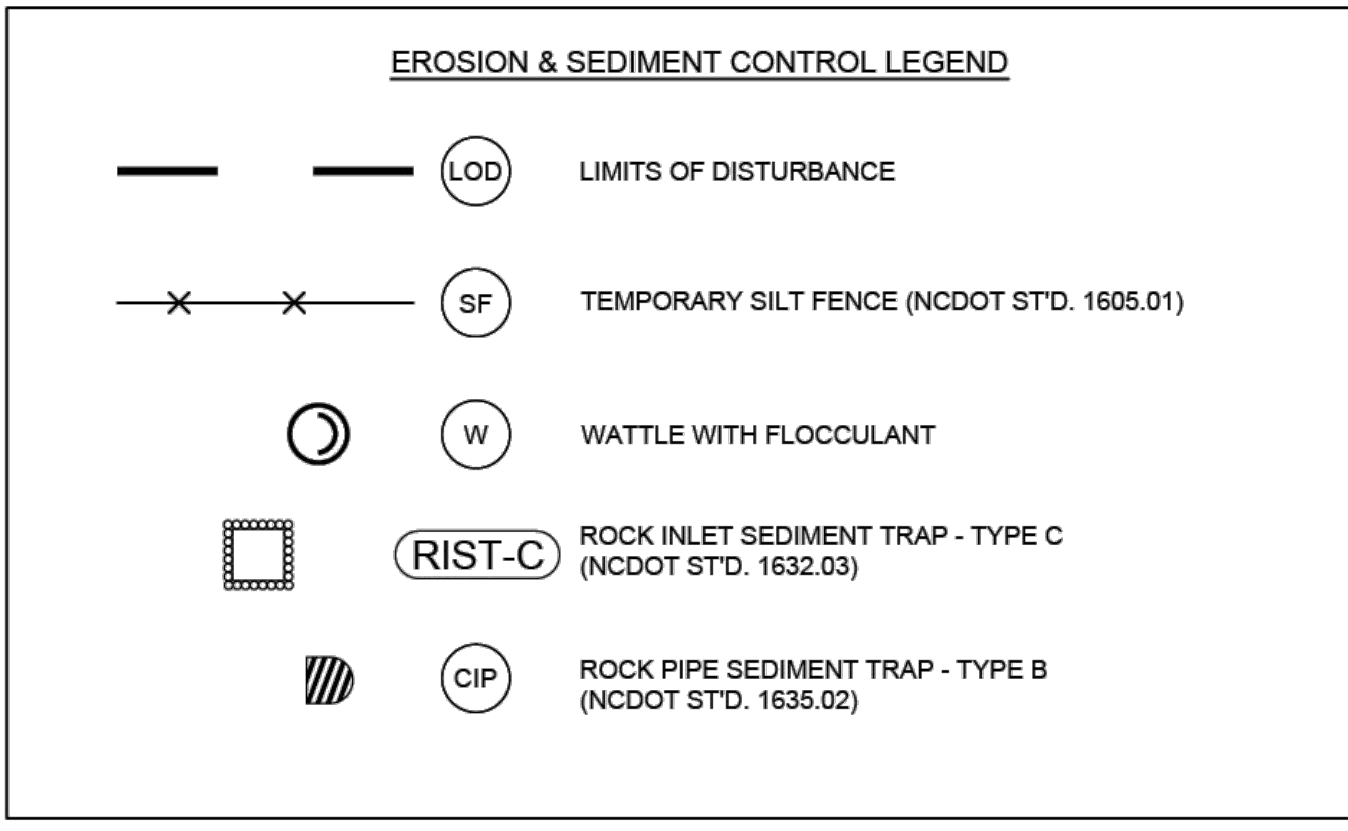
A SINGLE-PHASED EROSION CONTROL APPROACH IS PROVIDED BELOW TO DESCRIBE GENERAL MEASURES REQUIRED TO MAINTAIN THE SITE THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL APPLY PHASE I AS DESCRIBED HEREIN TO THE VARIOUS WORK AREAS ASSOCIATED WITH THIS PROJECT. DUE TO THE NATURE OF WORK AREAS, THE CONTRACTOR SHALL ENSURE EROSION CONTROL MEASURES ARE PROVIDED AS DESCRIBED THROUGH PROJECT COMPLETION AND ACCEPTANCE.

PHASE I:

1. PROVIDE MINIMAL CLEARING TO INSTALL SILT FENCE AS SHOWN ON THE PLANS. INSTALL CULVERT PROTECTION AS REQUIRED FOR EXISTING PIPES. TAKE SPECIAL CARE TO KEEP SOIL BUILD-UP FROM ENTERING THE EXISTING ROAD PAVEMENT.
2. THE CONTRACTOR WILL NOTIFY THE INSPECTOR OF THE PERMITTED LOCATION EXCESS SOIL MATERIAL IS HAULED TO OR BORROW MATERIAL IS BROUGHT IN FROM. CLEAR AND GRUB AS INDICATED IN THE PLANS. MAINTAIN ACCESS ALONG EXISTING ROADS AND TO EXISTING DRIVEWAYS AT ALL TIMES.
4. TEMPORARY GRADING AND SEEDING IS REQUIRED FOR ALL AREAS WHEN DIRECTED:
 - 4.1. WHEN IT IS IMPOSSIBLE OR IMPRACTICAL TO BRING AN AREA TO THE FINAL LINE, GRADE AND FINISH SO THAT PERMANENT SEEDING AND MULCHING OPERATIONS CAN BE PERFORMED WITHOUT SUBSEQUENT SERIOUS DISTURBANCE BY ADDITIONAL GRADING
 - 4.2. WHEN EROSION OCCURS OR IS CONSIDERED TO BE POTENTIALLY SUBSTANTIAL ON AREAS OF GRADED ROADBED WHERE CONSTRUCTION OPERATIONS ARE TEMPORARILY SUSPENDED OR WHEN THE GRADING OF THE ROADBED HAS BEEN COMPLETED SUBSTANTIALLY IN ADVANCE OF THE PAVING CONSTRUCTION DURING SEASONS OF THE YEAR WHEN PERMANENT SEEDING AND MULCHING IS PROHIBITED BY THE CONTRACT
 - 4.4. WHEN AN IMMEDIATE COVER WOULD BE DESIRABLE TO MINIMIZE EROSION, SILTATION OR POLLUTION ON ANY AREA
 - 4.5. 7/14-DAY SOIL STABILIZATION REQUIREMENTS APPLY TO ANY SECTION OF THE PROJECT WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED AND SHALL SUPERSEDE ANY LESS STRINGENT STABILIZATION REQUIREMENTS ON THE PLANS. [G.S. 143-215.1]
6. CONTRACTOR SHALL REMOVE AND REPLACE ANY DAMAGED EROSION CONTROL MEASURES UNTIL FINAL APPROVAL OF CONSTRUCTION.
7. THE SITE SHALL BE PERMANENTLY STABILIZED AFTER ALL GRADING HAS BEEN COMPLETED BY SEEDING ALL DISTURBED AREAS.
8. UPON CONSTRUCTION COMPLETION, THE CONTRACTOR MUST CONTACT THE INSPECTOR FOR EROSION CONTROL INSPECTION OF SLOPE STABILITY. EROSION CONTROL MEASURES MAY NOT BE REMOVED WITHOUT AUTHORIZATION BY THE ASSIGNED INSPECTOR.
9. UPON APPROVAL CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES.

NOTE:

1. CONTRACTOR MUST KEEP THE EXISTING ROAD FREE FROM BUILDUP OF SOIL.



STABILIZATION REQUIREMENTS:

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective April 1, 2019 issued by the North Carolina Department of Environmental Quality Division of Water Resources. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 2:1 or flatter, with a slope length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) are defined by North Carolina Administrative Code 15A NCAC 06A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

SEEDING AND MULCHING: (East)

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

All Roadway Areas			
March 1 - August 31	September 1 - February 28		
50# Tall Fescue	50# Tall Fescue		
10# Centipede	10# Centipede		
25# Bermudagrass (hulled)	35# Bermudagrass (hulled)		
500# Fertilizer	500# Fertilizer		
4000# Limestone	4000# Limestone		
Waste and Borrow Locations			
March 1 - August 31	September 1 - February 28		
75# Tall Fescue	75# Tall Fescue		
25# Bermudagrass (hulled)	35# Bermudagrass (hulled)		
500# Fertilizer	500# Fertilizer		
4000# Limestone	4000# Limestone		

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

Approved Tall Fescue Cultivars

06 Dart	Escalade	Justice	Shergold
2nd Millennium	Essential	Kelly Hawk 2000	Sheridan
Apache III	Evergreen 2	Legitimate	Sigma
Avenger	Falcon IV	Leighton	Silver Hawk
Burlexas	Falcon NG	LSD	Silverstar
Barlexas II	Falcon V	Magellan	Shenandoah Elite
Bar Fu	Faith	Manador	Sidewinder
Barron	Fasteva	Millennium SRP	Skyline
Barrington	Fidelity	Monet	Solara
Barroanto	Finchlaw Elite	Mustang 4	Southern Choice II
Barvado	Finchlaw Xpress	Ninja 2	Speedway
Bismore	Flame II	Or Glory	Speller LS
Bligo	Firebird	Olympic Gold	Sunset Gold
Blum	Firecracker LS	Palde	Tacox
Blackwatch	Firezza	Patagonia	Tanzania
Black Runner II	Five Point	Podgora	Trio
Bonni	Foca	Pisano	Tulosa II
Breveheart	Forto	Piedmont	Tullalaga
Bromo	Garrison	Plantation	Turkel
Bullseye	Grass II	Prosecco 5101	Terrano
Cannavaro	Gold Medalion	Prospect	Titanium LS
Candyst	Grass 3	Pure Gold	Tractor
Cyanite	Greenbrook	Quest	Traverse SRP
Cosmo Rz	Greenkeeper	Raptor II	Tule Time
Chaper	Greenline	Rebel Exalta	Turbo
Cochise IV	Greystone	Rebel Senry	Turbo RZ
Constitution	Guardian 21	Rebel IV	Tussock RZ
Cong	Guardian 41	Regiment II	Ultimate
Corona	Heal	Regenerate	Vastare
Coyote	Heavy Tank	Rebellion	Van Gogh
Darlington	Hummer 2 SRP	Renaissance	Walbridge
Davinci	Hunter	Riviera	Wattle II
Deane	Infano	Rocket	Xtremegreen
Demolition	Innovator	RNP	
Dynasty	Integrity	Rocket	
Dynasty	Jaguar 3	Scorpion	
Lindavoor	Jamboree		

On cut and fill slopes 2:1 or steeper; Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Leporeola from January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be provided the 1-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

TEMPORARY SEEDING:

Fertilizer shall be the same analysis as specified for Seeding and Mulching and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. Severe Sulfur Grass, German Millet or Browstrop Millet shall be used in summer months and Rye Grass during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

FERTILIZER TOPDRESSING:

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 1-2-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis and as directed.

Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

SUPPLEMENTAL SEEDING:

The kinds of seed and proportions shall be the same as specified for Seeding and Mulching, with the exception that no centipede seed will be used in the seed mix for supplemental seeding. The rate of application for supplemental seeding may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a soil seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clostrider (ball and chain) may be used where degree of slope prevents the use of a soil seeder.

MOWING:

The minimum mowing height on this project shall be 4 inches.

Mulching Materials and Application Rates

Material	Rate Per Acre	Quality	Notes
Organic Mulches (Saw)	1-2 tons	Dry, unchipped, unweathered, avoid weeds.	Should come from wheat or oats; spread by hand or machine; must be backed down.
Wood chips	5-6 tons	Air dry	Trials with 12 lbs nitrogen/ton; Apply with mulch blower, chip handler, or by hand. Not for use in fine turf.
Wood fiber	0.5-1 tons		Also referred to as wood cellulose. May be hydroseeded. Do not use in hot, dry weather.
Bark	35 cubic yards	Air dry, shredded or hammer-shredded, or chips	Apply with mulch blower, chip handler, or by hand. Do not use asphalt beds.
Corn stalks	4-6 tons	Cut or shredded in 4-6 in. lengths.	Apply with mulch blower or by hand. Not for use in fine turf.
Sericea lespedeza (seed-bearing stems)	1-3 tons	Green or dry; should contain mature seed.	
Net and Mats	Cover area	Heavy, uniform; woven of single jute yarn.	Withstands waterflow. Best when used with organic mulch.
Fiberglass net	Cover area		Withstands waterflow. Best when used with organic mulch.
Excelsior (wood fiber) mat	Cover area		Withstands waterflow.
Fiberglass roving	0.5-1 tons	Continuous fibers of drawn glass bound together with a non-toxic agent.	Apply with a compressed air ejector. Back with emulsified asphalt at a rate of 25-35 gal/1,000 sq ft.
Chemical Stabilizers	Follow manufacturer's specifications		Not beneficial to plant growth.

Refer to Practice No. 6.30, Grass Lined Channels.

Use of trade names does not imply endorsement of product.

NOTES

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CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRABLE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

Table with 2 columns: ROAD NAME, DAY AND TIME RESTRICTIONS. Rows include Rolesville Road and Mitchell Mill Road with 7am-9am, 3pm-6pm restrictions.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

Table with 2 columns: ROAD NAME, DAY AND TIME RESTRICTIONS. Rows include Rolesville Road and Mitchell Mill Road with 7am-9am, 3pm-6pm restrictions.

HOLIDAY

- 1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 7:00 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2ND.
3. FOR EASTER, BETWEEN THE HOURS OF 7:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

H) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

I) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
L) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

M) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

PAVEMENT MARKINGS AND MARKERS

N) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

O) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

P) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

Q) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING SIGNS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.

REV. OCTOBER 2017

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS.

Table with 2 columns: STD.NO., TITLE. Lists drawing numbers and titles such as 1101.01 WORK ZONE WARNING SIGNS, 1101.02 TEMPORARY LANE CLOSURES, etc.

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:

- SHOULDER CLOSURES
ONE-LANE, TWO WAY OPERATION (FLAGGING)
NIGHT WORK
WEEKEND WORK
WORK HOUR RESTRICTIONS FOR PEAK TRAVEL

TRAFFIC INCIDENT MANAGEMENT & SPEED ENFORCEMENT STRATEGIES:
COORDINATION WITH STATE TRAFFIC OPERATIONS CENTER (STOC)
COORDINATION WITH MEDIA

SEQUENCE OF CONSTRUCTION

THE FOLLOWING SEQUENCE OF CONSTRUCTION IS A RECOMMENDATION PROVIDED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING APPROVAL FOR ANY CHANGES TO THIS TRANSPORTATION MANAGEMENT PLAN RESULTING FROM ADJUSTMENTS TO THE RECOMMENDED SEQUENCES. ALL PHASES OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLANS PROVIDED.

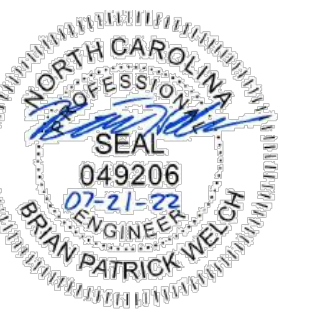
CONSTRUCTION FOR EACH LOCATION WILL FOLLOW THE SEQUENCE PROVIDED BELOW. CONSTRUCTION DURING EACH PHASE CONSISTS OF ALL WORK NECESSARY TO COMPLETE THE PROJECT.

TRAFFIC SHALL BE MAINTAINED ACCORDING TO THE N.C. DEPARTMENT OF TRANSPORTATION DETAILS FOUND ON THIS SHEET. THE CONTRACTOR SHALL MINIMIZE LANE CLOSURES TO THE GREATEST EXTENT PRACTICAL.

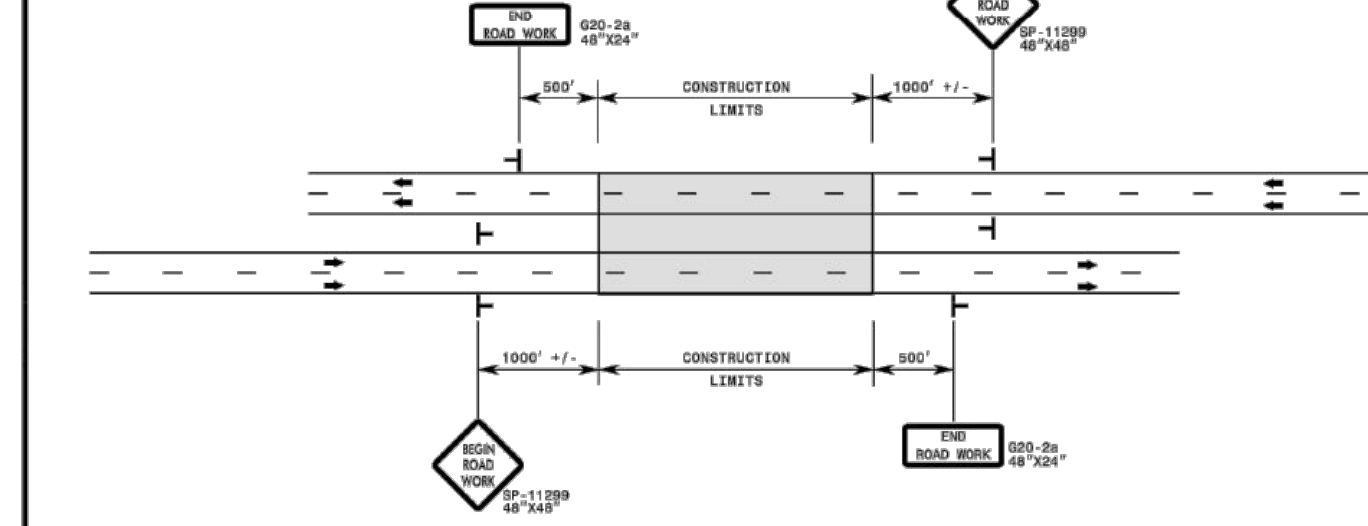
- PHASE 1: INSTALL SIGNING FOR PROJECT LIMITS PER 1101.01. ERECT ALL ADVANCE WARNING SIGNS AND CHANNELIZATION DEVICES PER NCDOT DETAILS FOR APPROPRIATE MAINTENANCE OF TRAFFIC FOR CONSTRUCTION STAGING.
PHASE 2: COMMENCE CLEARING AND INSTALLATION OF EROSION CONTROL MEASURES IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLANS. REMOVAL, ABANDONMENT AND ADJUSTMENTS OF PUBLIC UTILITIES SHALL BE COMPLETED PRIOR TO OR DURING THIS PHASE. PERFORM GRADING OPERATIONS FOR PROPOSED WIDENING.
PHASE 3: CONSTRUCT ROUGH GRADING, STORM STRUCTURES AND NETWORK, CURB AND GUTTER, PAVEMENT WIDENING, FINAL PAVING OPERATIONS, STRIPING AND INSTALLATION OF ROADSIDE SIGNS.
PHASE 4: PERFORM FINAL GRADING OPERATIONS AND PLACE FINAL SEED MIX AND STABILIZE ALL WORK AREAS.
PHASE 5: UPON COMPLETION OF ALL WORK, REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (AS APPROVED BY THE ENVIRONMENTAL ENGINEERING INSPECTOR) AND ALL TEMPORARY TRAFFIC CONTROL DEVICES.

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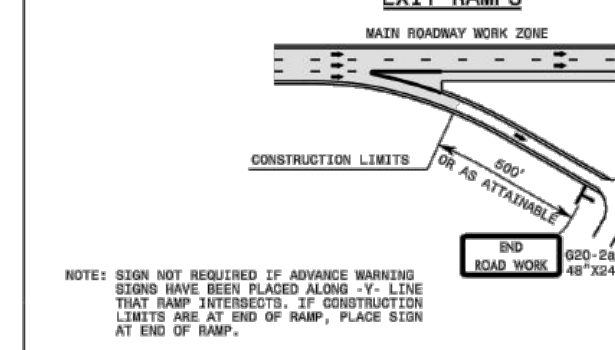
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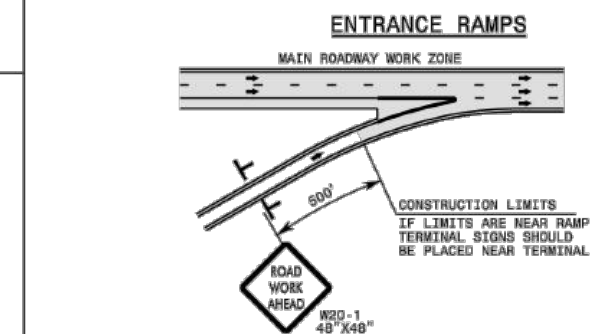
DETAIL A



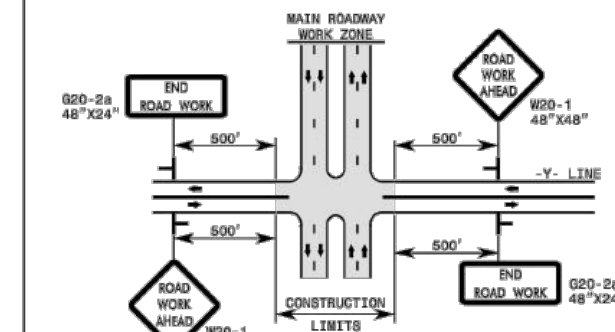
DETAIL B



DETAIL C



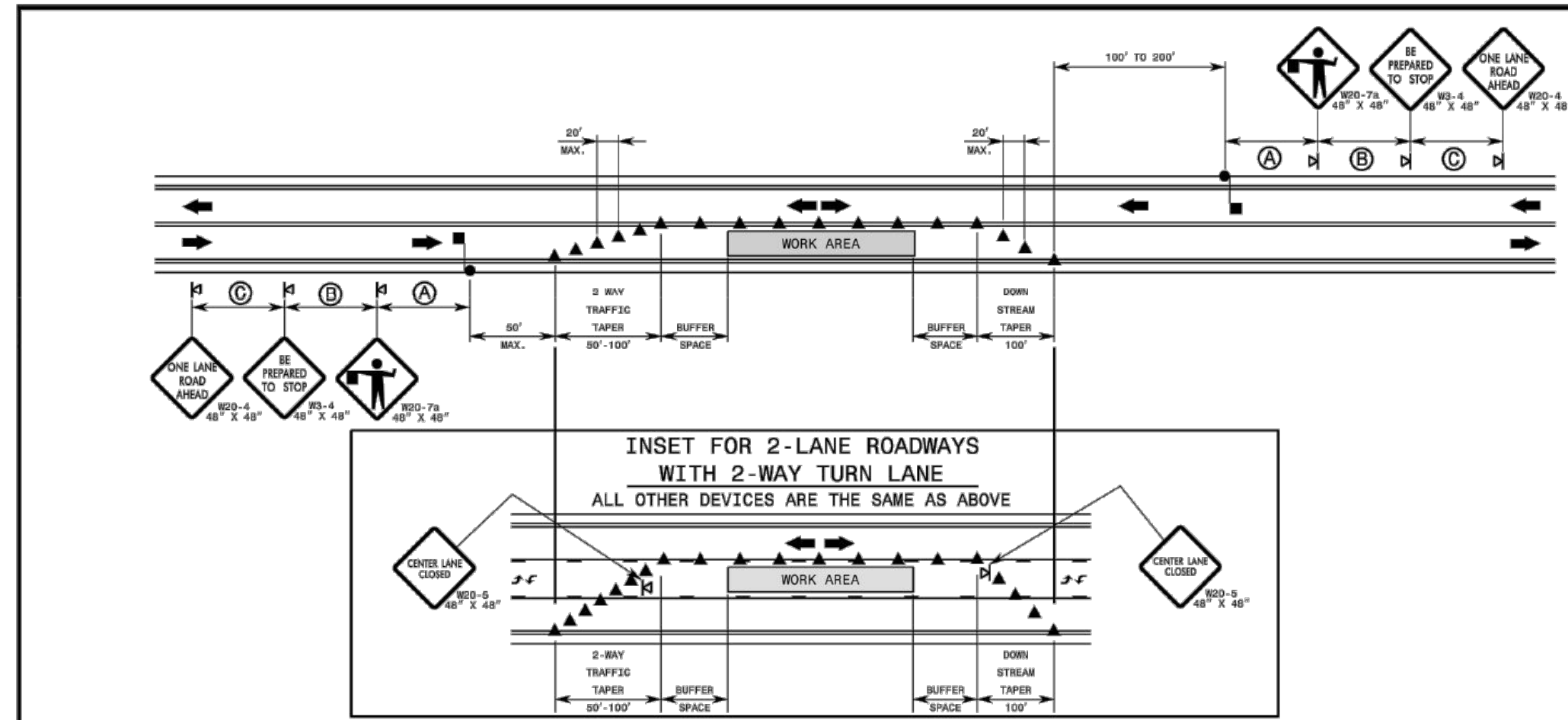
DETAIL D



- GENERAL NOTES
1- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK UNLESS COVERED.
2- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT LONGER THAN 3 CONSECUTIVE DAYS.
3- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
4- ERECT SIGNS PER RSD, 1110.01. PAYMENT FOR WOOD POSTS, SLB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATIONS FOR WORK ZONE SIGNS.
5- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH RSD, 1110.01.
6- DO NOT BACK BRACE SIGN SUPPORTS.
7- TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR WORK ZONE ADVANCE WARNING SIGNS FOR FACILITIES ≤ 55 MPH
SHEET 2 OF 3
1101.01



GENERAL NOTES FOR FLAGGING OPERATIONS

- 1- REFER TO RSD, 1101.11, SHEETS 1 & 4, FOR "L" DISTANCE AND SIGN SPACING.
2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC.
3- REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
4- PLACE CONES THRU THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.
5- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE FLAGGER (REFER TO RSD, 1101.11, SHEET 2).
6- DO NOT STOP TRAFFIC IN ANY ONE DIRECTION FOR MORE THAN 5 MINUTES AT A TIME.
7- DRUMS OR SKINNY DRUMS MAY BE USED IN LIEU OF CONES. REFER TO RSD, 1180.01 FOR SKINNY DRUM REQUIREMENTS.
8- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS PLACE SIGNALS IN THE FLASH MODE AND USE LAW ENFORCEMENT.
9- REFER TO THE CURRENT MUTCD FOR FLAGGER CONTROL, REQUIREMENTS, AND PROCEDURES.
10- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

- 11- IF VEHICLE QUEUES WILL REACH WITHIN 10' OF EITHER SIDE OF ACTIVE RAILROAD TRACKS, PROVIDE A UNIFORMED LAW ENFORCEMENT OFFICER OR FLAGGER TO PREVENT VEHICLES FROM STOPPING WITHIN THE BRIDGE CROSSING. PROVIDE OFFICER OR FLAGGER EVEN IF AUTOMATIC MARKING MEASURES ALREADY EXIST.

GENERAL NOTES FOR PILOT CAR OPERATIONS

- 1- USE PILOT CARS WHEN DIRECTED BY THE ENGINEER.
2- IF ROADWAY WIDTH IS LESS THAN 22 FEET (60' TO 80' TO 80'), CONES MAY NOT BE REQUIRED ALONG THE WORK AREA IF USING A PILOT CAR.
3- CONES ARE ALWAYS REQUIRED IN THE UPSTREAM AND DOWNSTREAM TAPERS.
4- MOUNT SIGN W8-4 "PILOT CAR FOLLOW ME" AT A CONSPICUOUS POSITION ON THE REAR OF THE PILOT VEHICLE.
5- DO NOT INSTALL MORE THAN ONE (1) MILE OF LANE CLOSURE. MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.
6- ADVISE RESIDENTS AND BUSINESSES WITHIN THE LANE CLOSURE LIMITS ABOUT METHODS OF SAFE EGRESS AND TRAFFIC SIGNAL OPERATIONS DURING FLAGGING AND PILOT CAR OPERATIONS.

LEGEND
- FLAGGER
- CONE
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR TEMPORARY LANE CLOSURES 2-LANE, 2-WAY ROADWAY-1 LANE CLOSED
SHEET 1 OF 14
1101.02

TIMMONS GROUP logo and contact information: WHEELER TRACT - OFFSITE IMPROVEMENTS, ROLESVILLE - WAKE COUNTY STATE - NORTH CAROLINA, TRAFFIC MANAGEMENT PLAN. Includes job no. 43398, sheet no. R7.00, and revision table.

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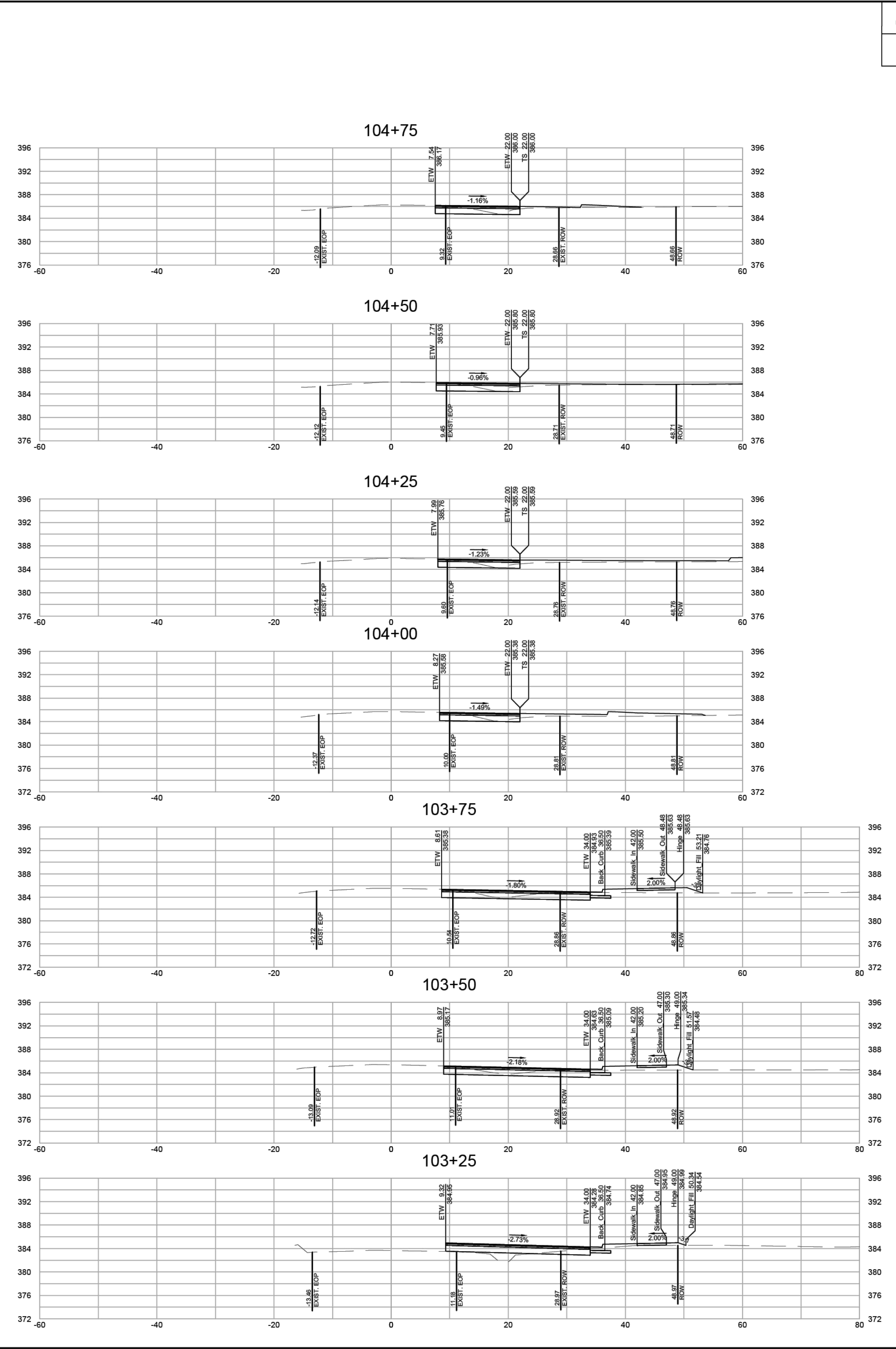
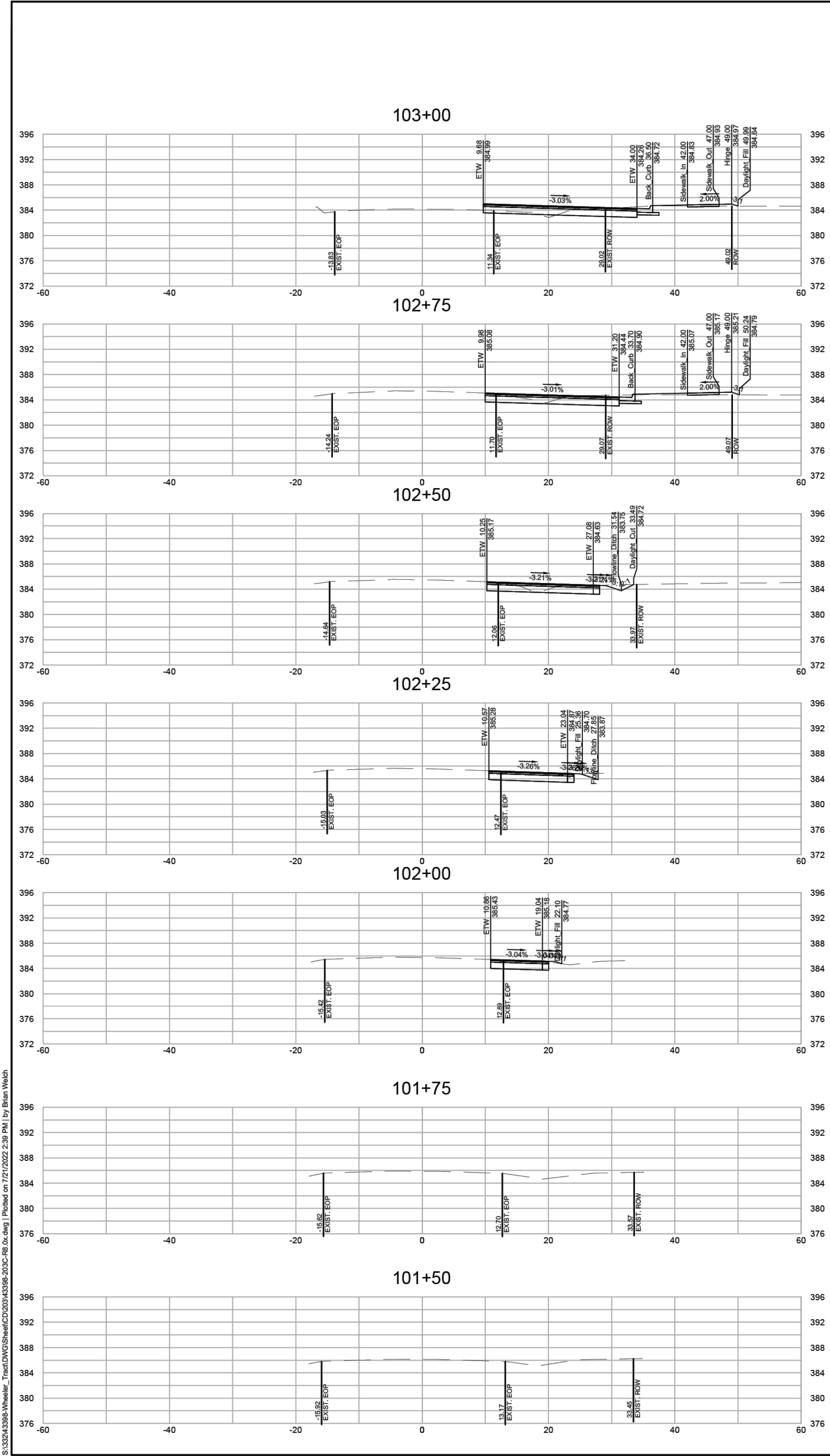
SCALE
1" = 10'

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WHEELER TRACT - OFFSITE IMPROVEMENTS
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
ROLESVILLE ROAD CROSS SECTIONS

JOB NO.
43398
SHEET NO.
R8.01

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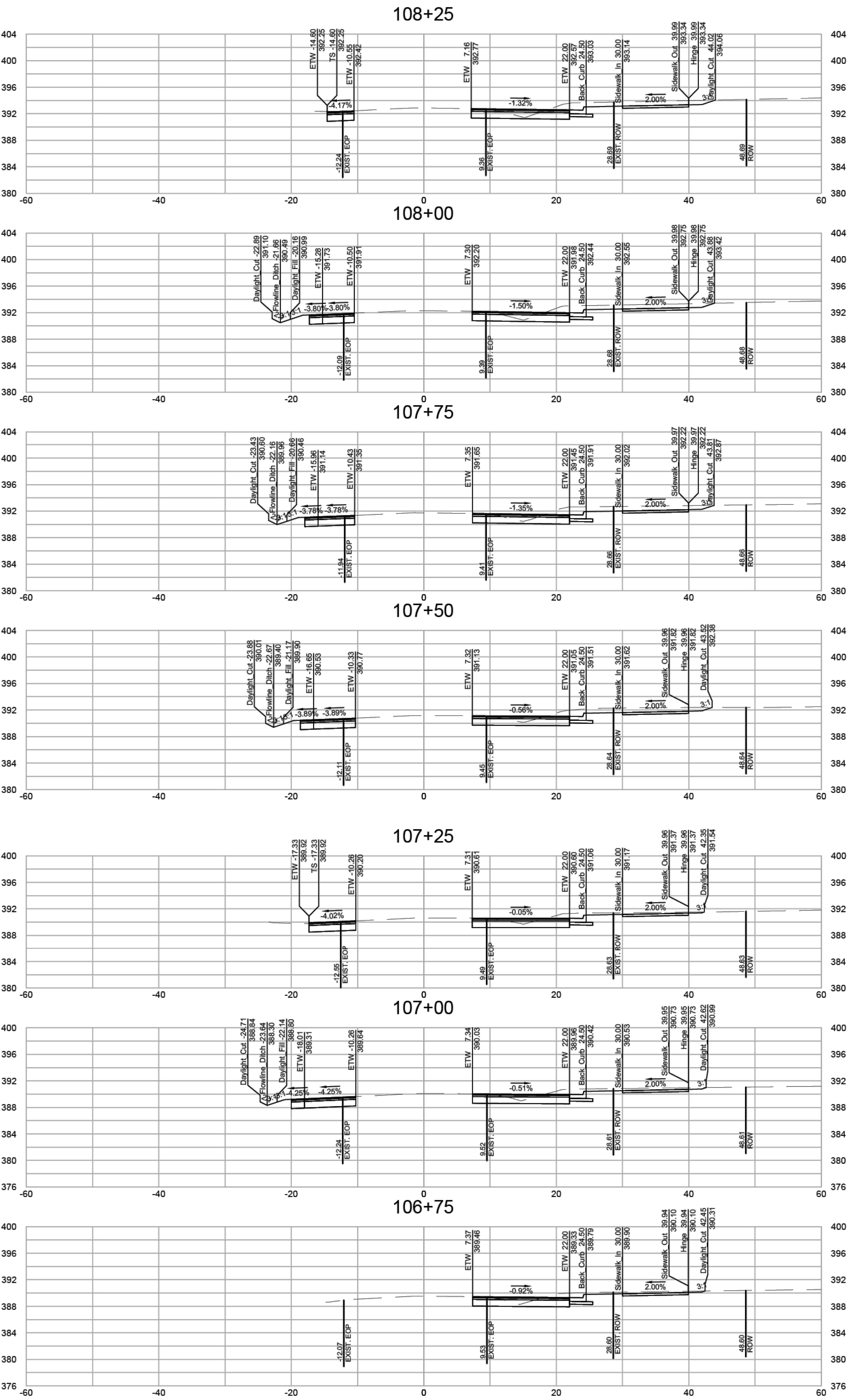
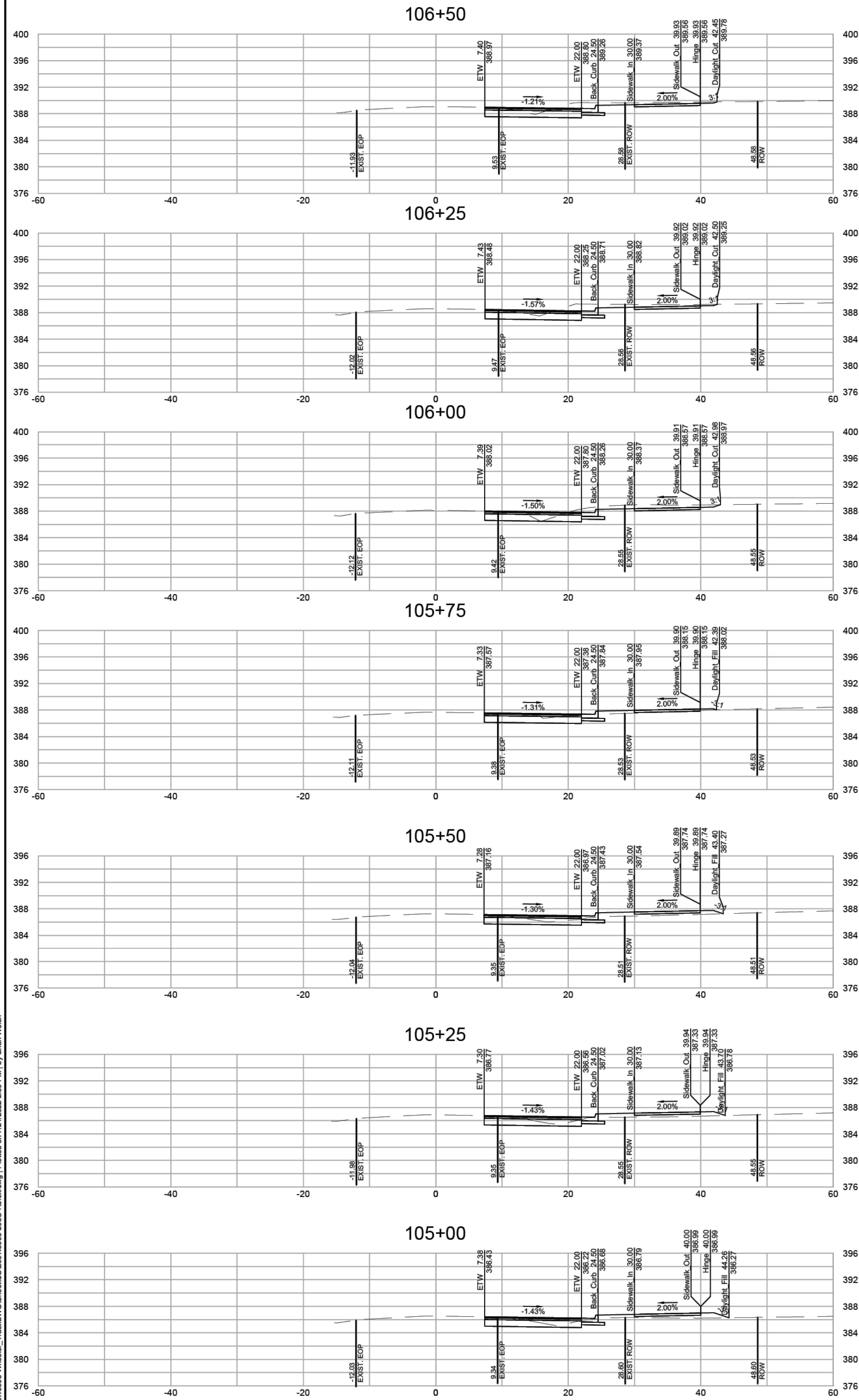
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43398

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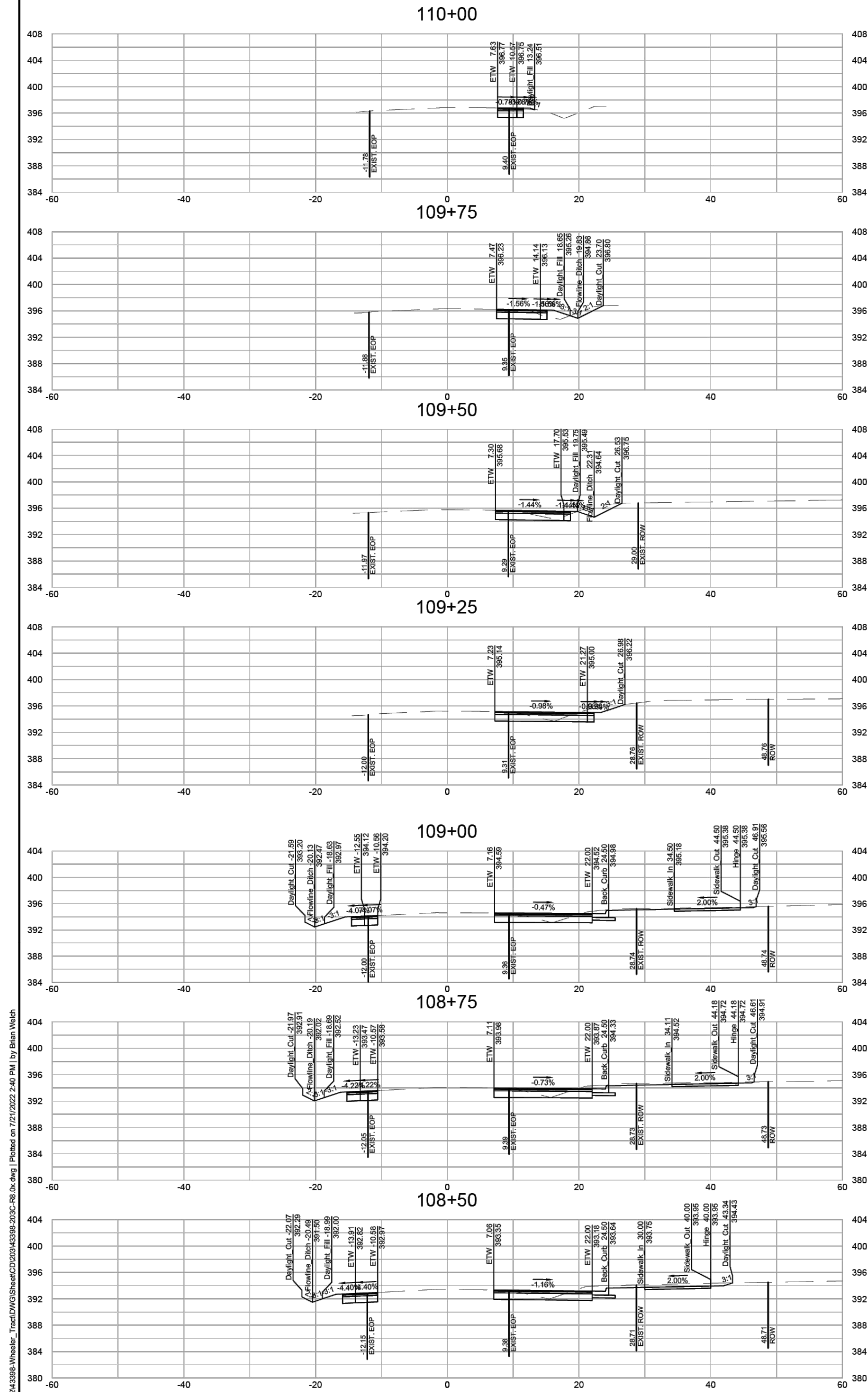
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

ROLESVILLE ROAD CROSS SECTIONS

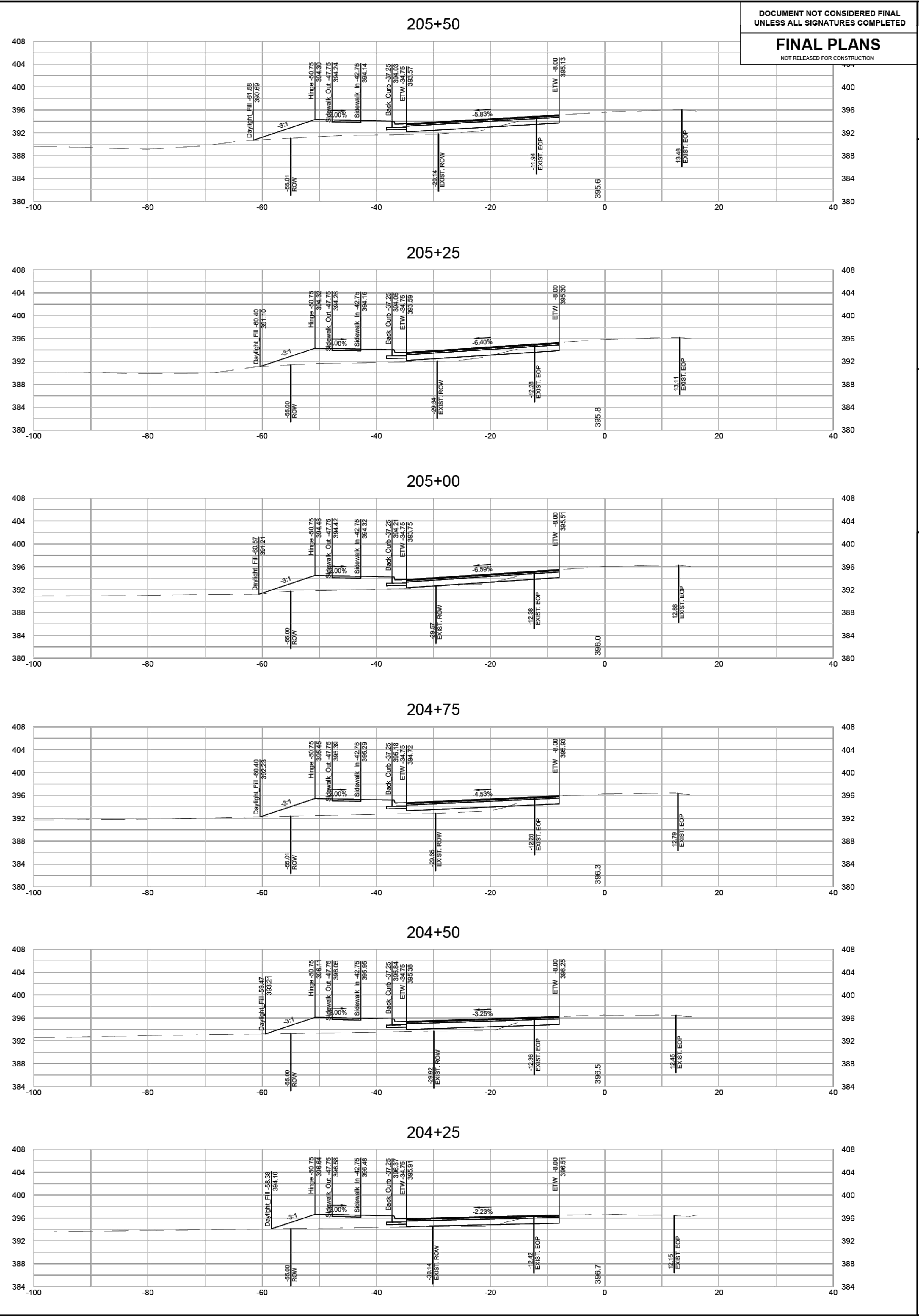
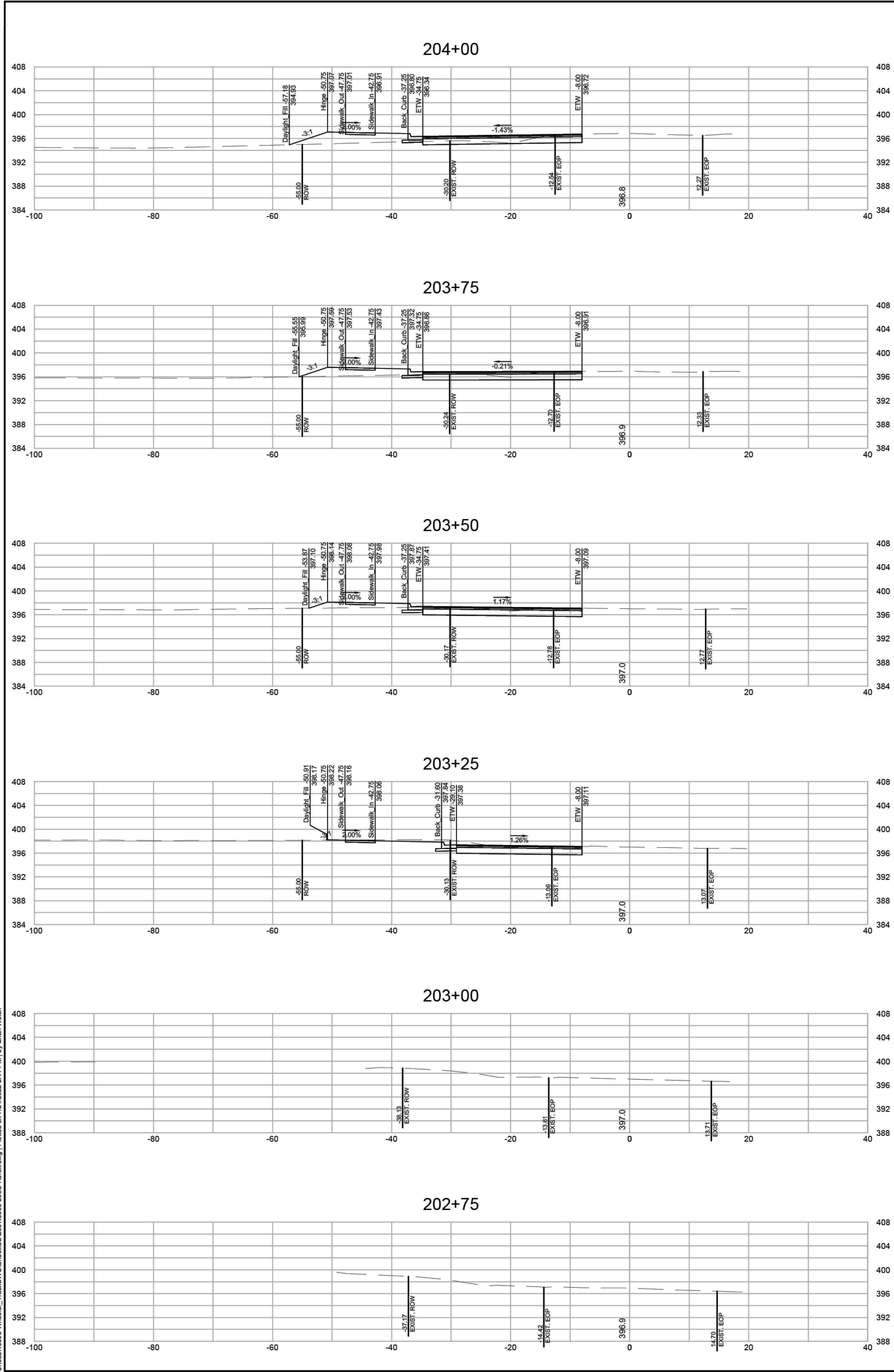
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FINAL PLANS
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MITCHELL MILL ROAD CROSS SECTIONS

JOB NO.
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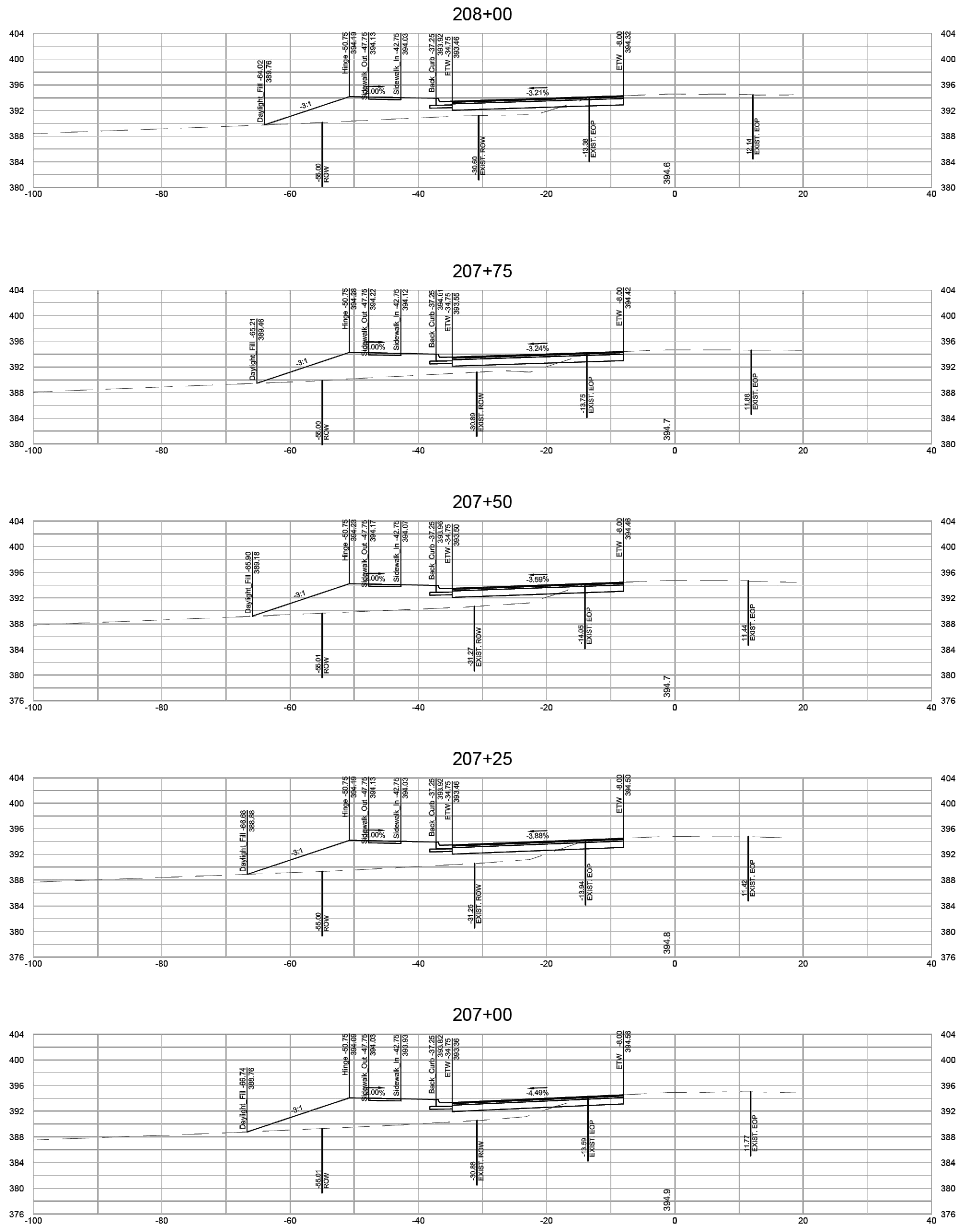
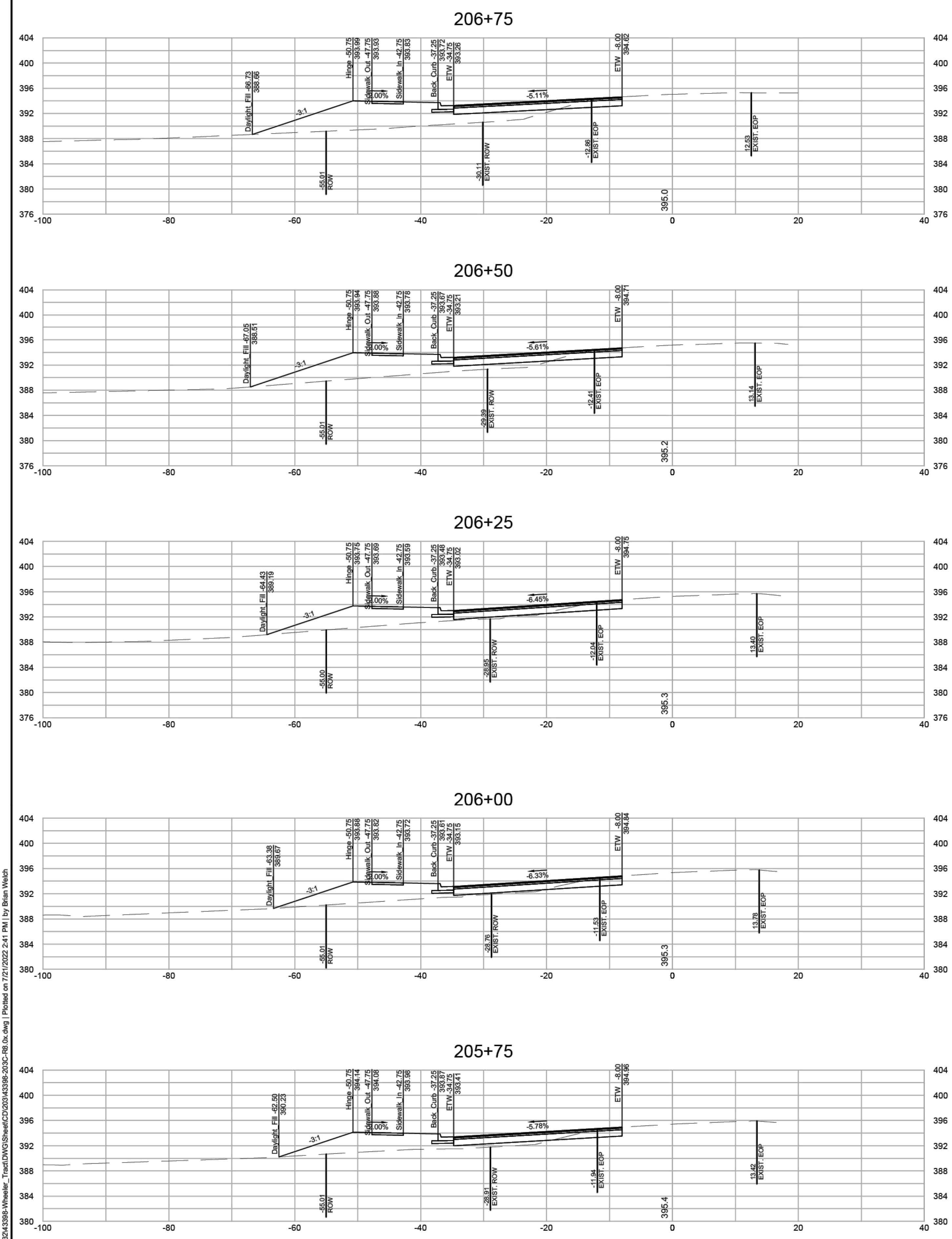
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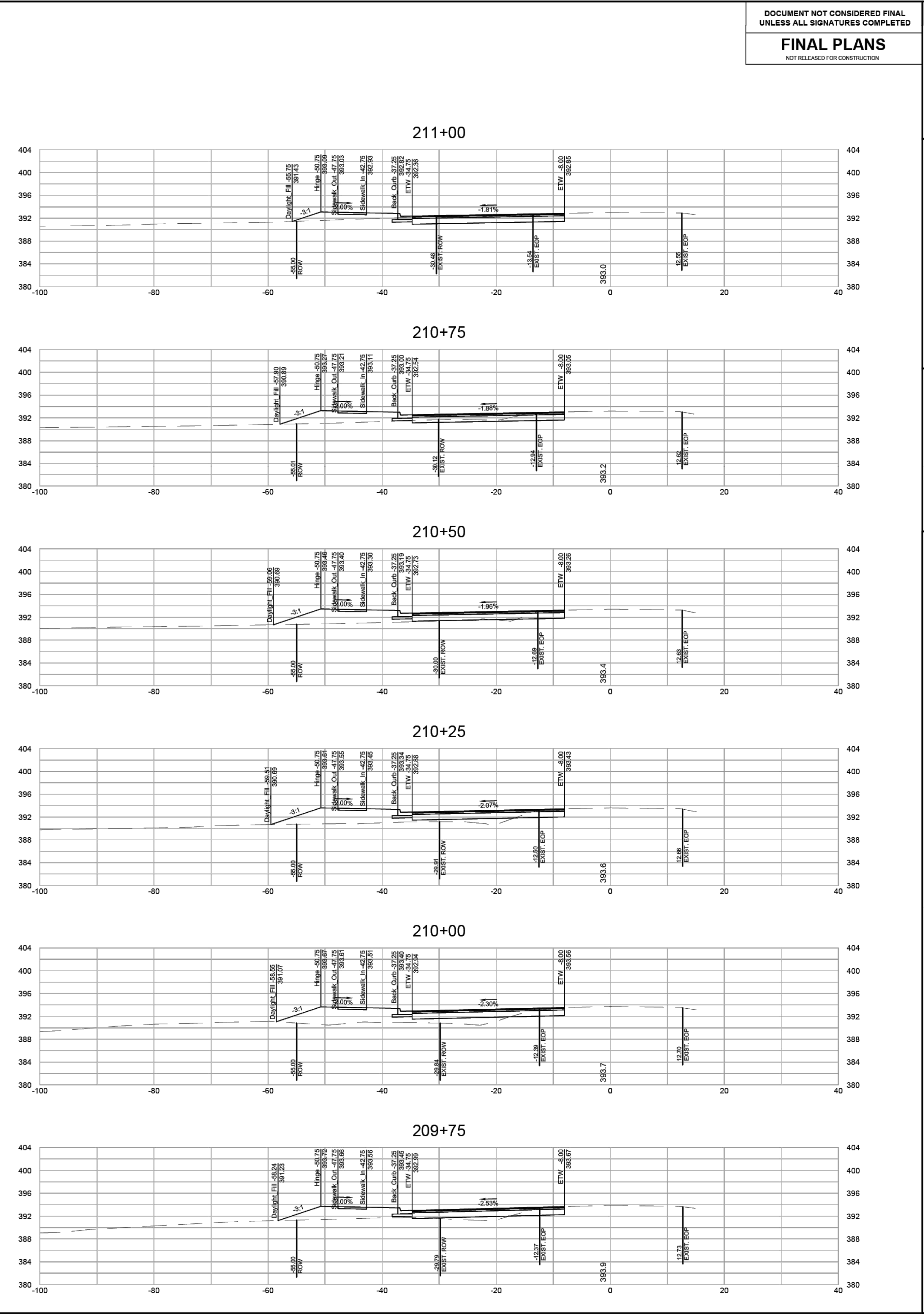
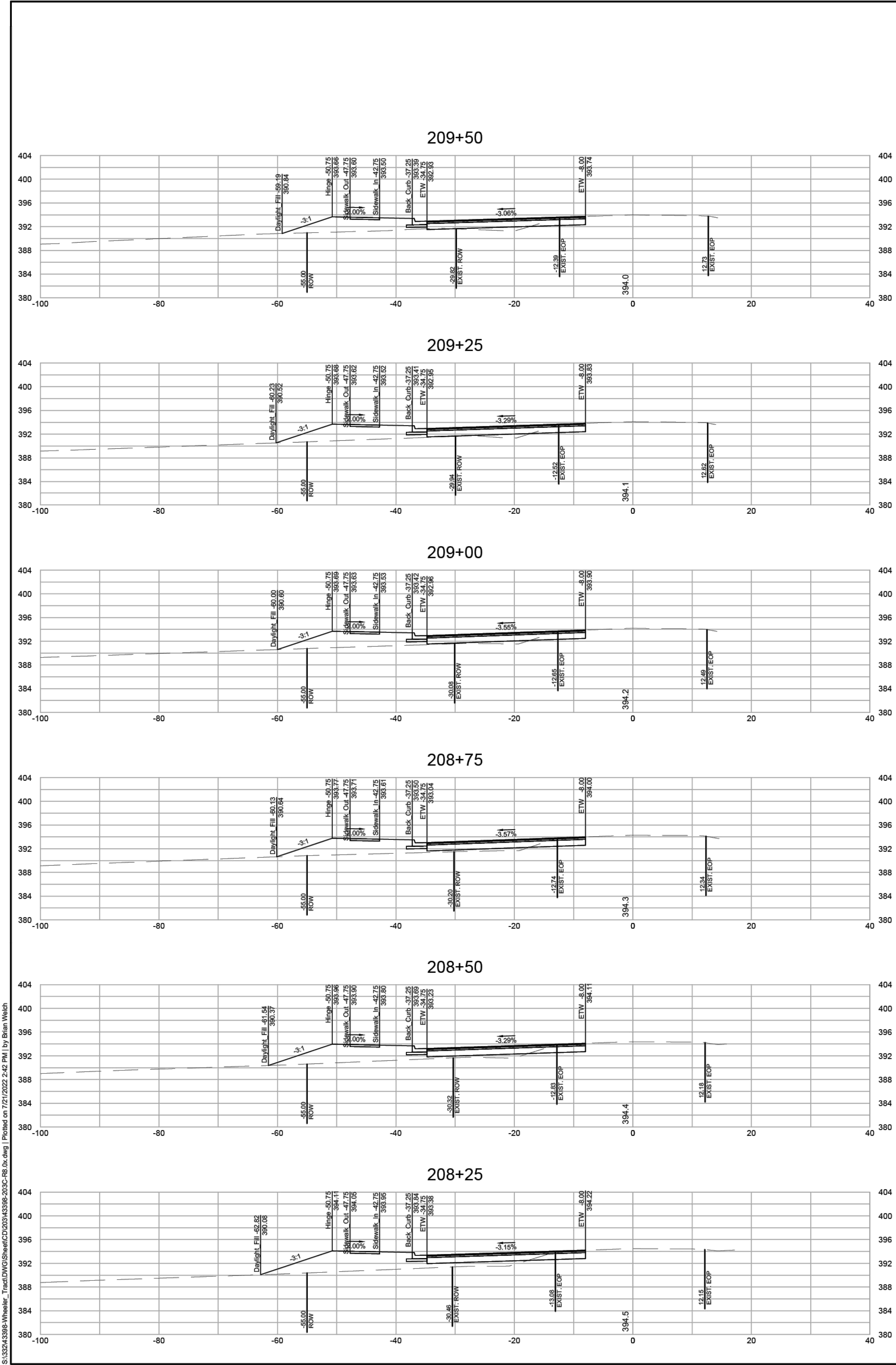
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MITCHELL MILL ROAD CROSS SECTIONS

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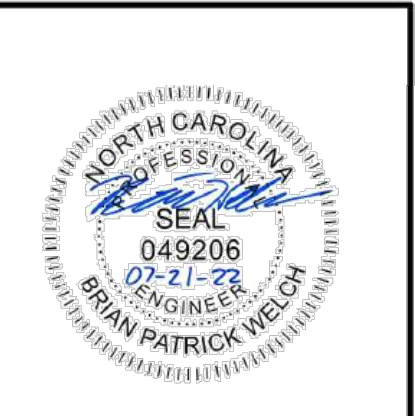
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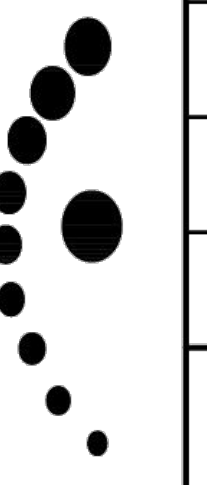
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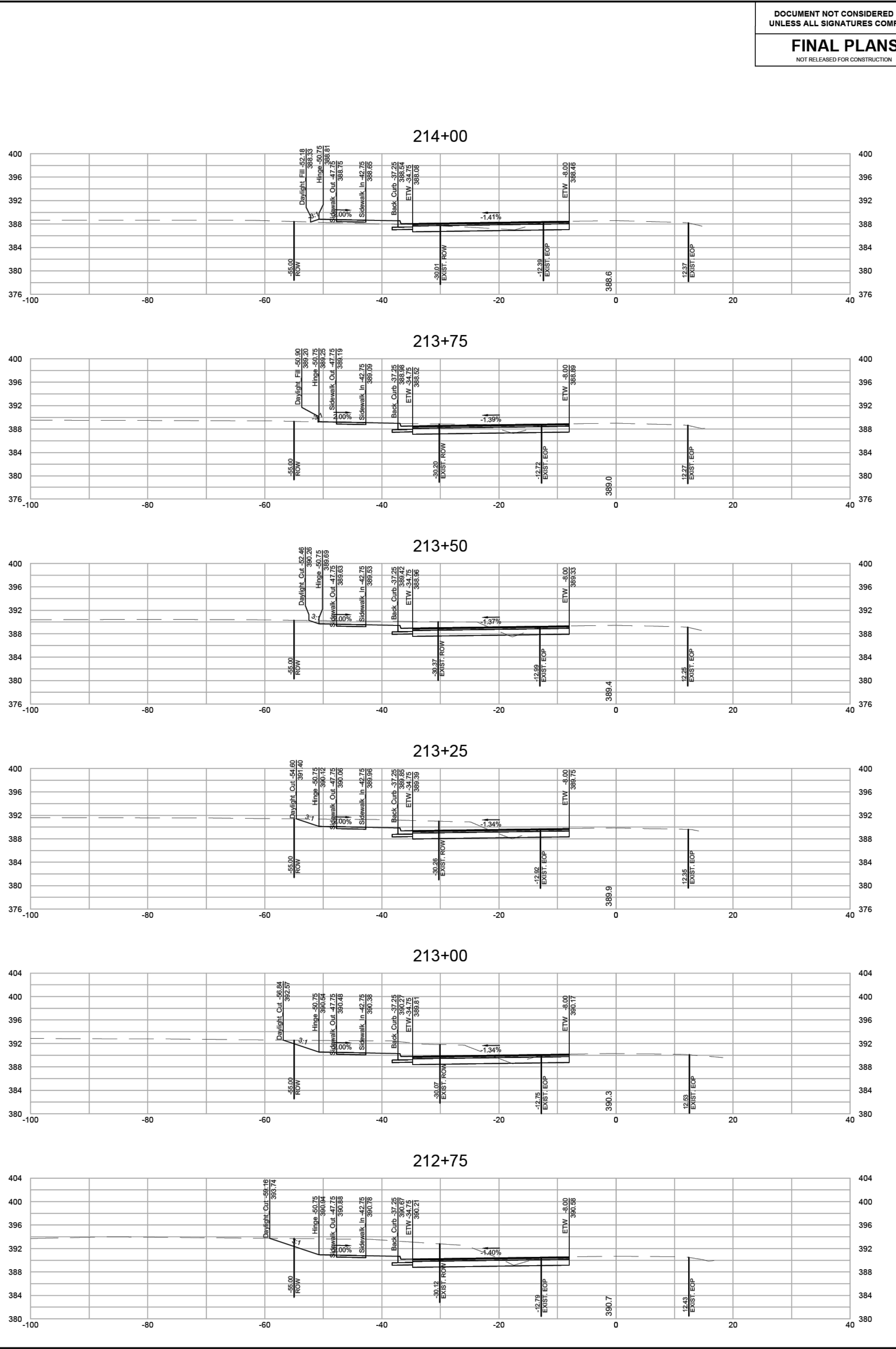
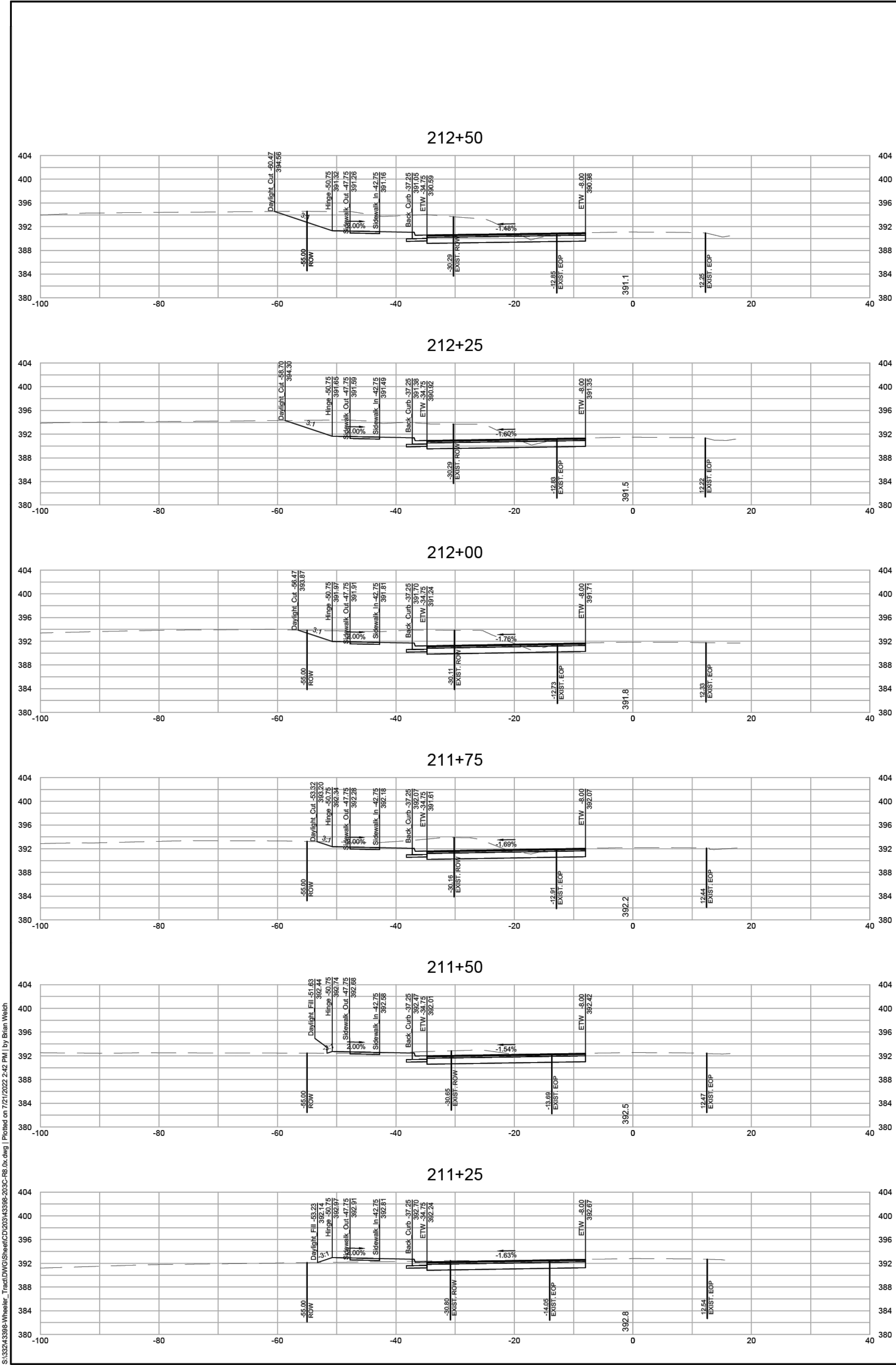
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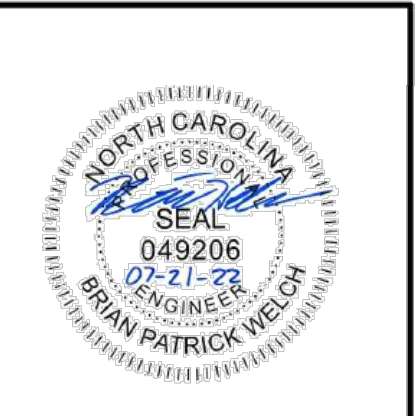
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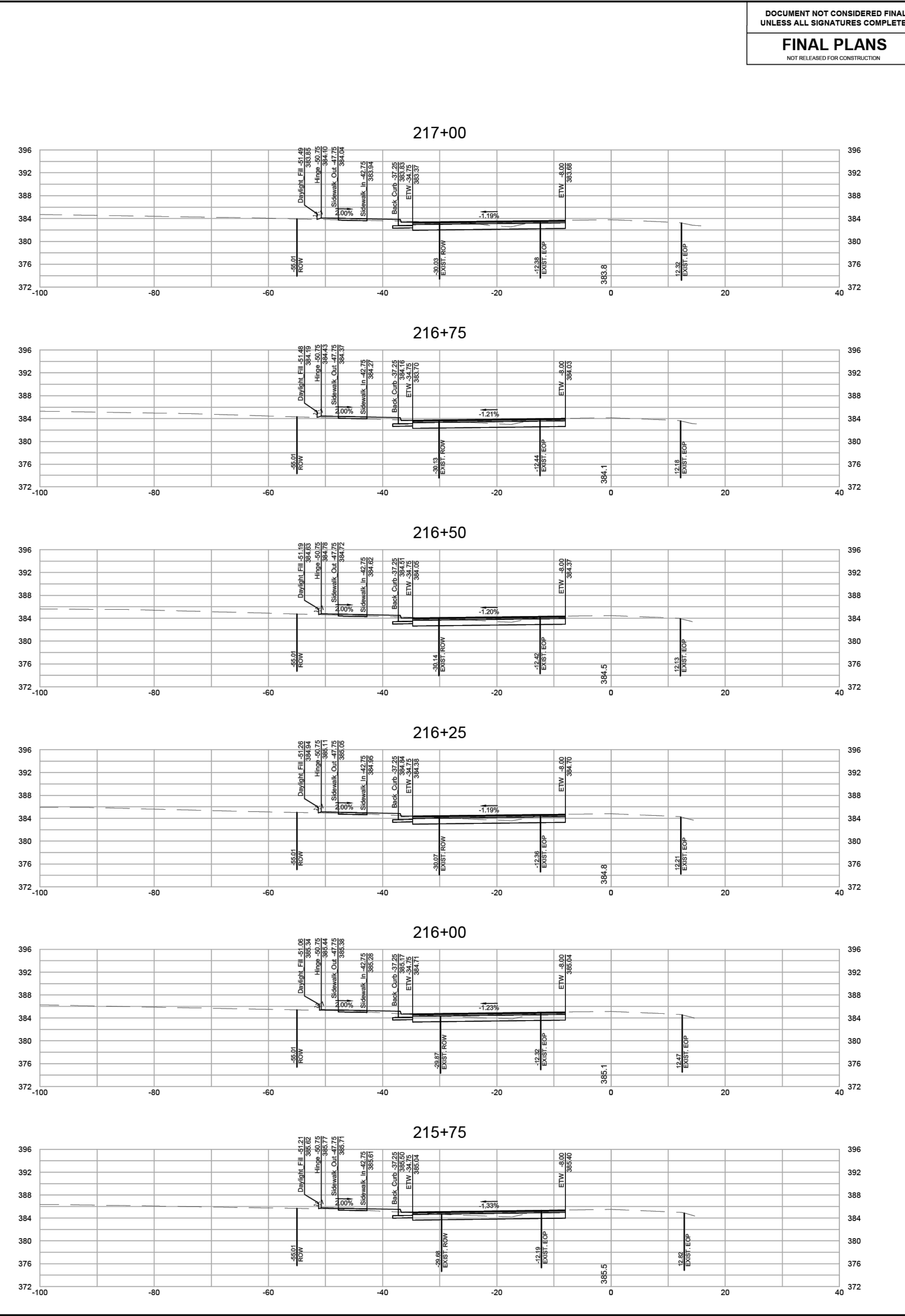
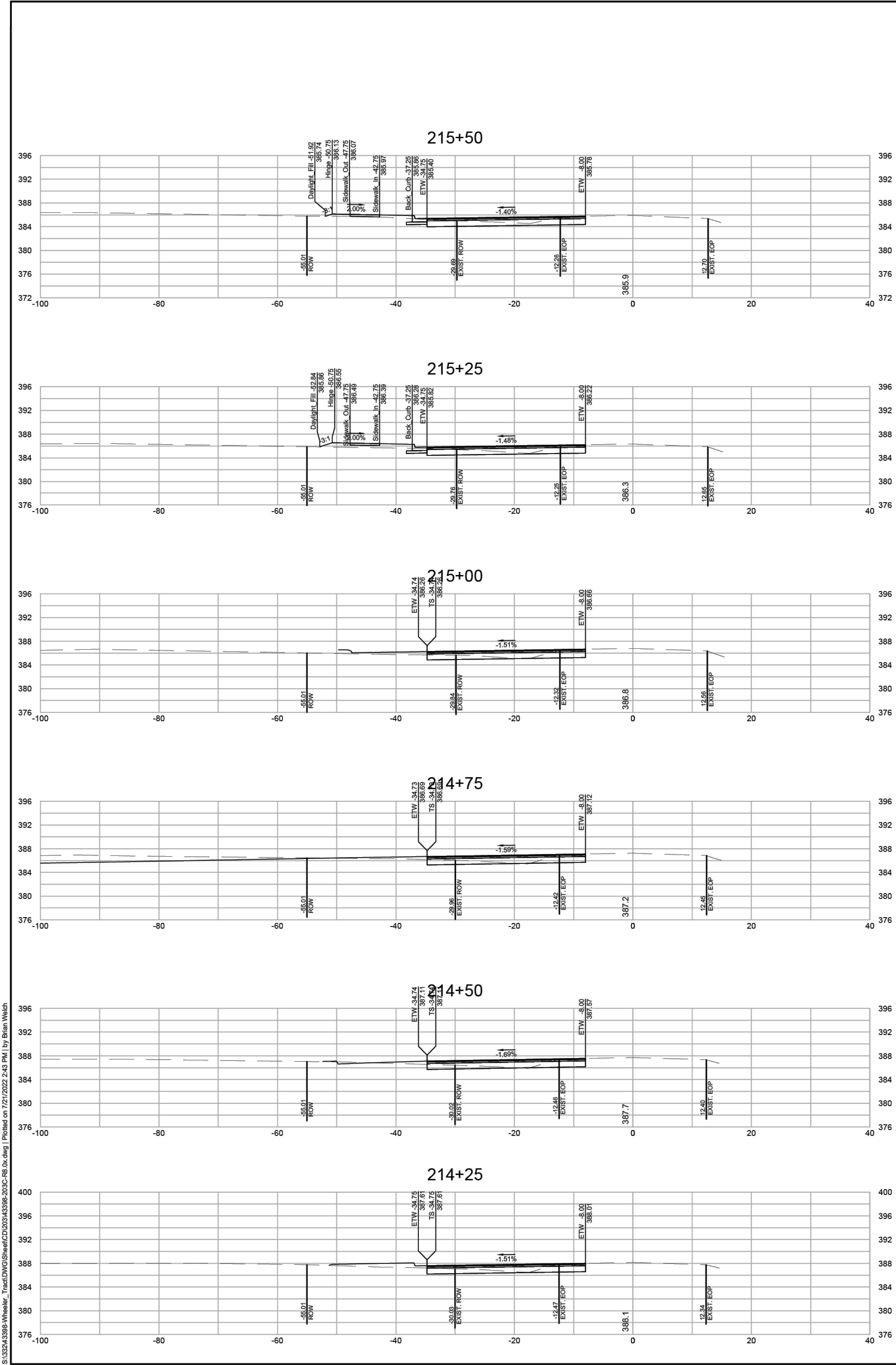
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MITCHELL MILL ROAD CROSS SECTIONS

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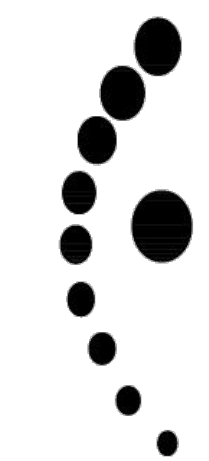


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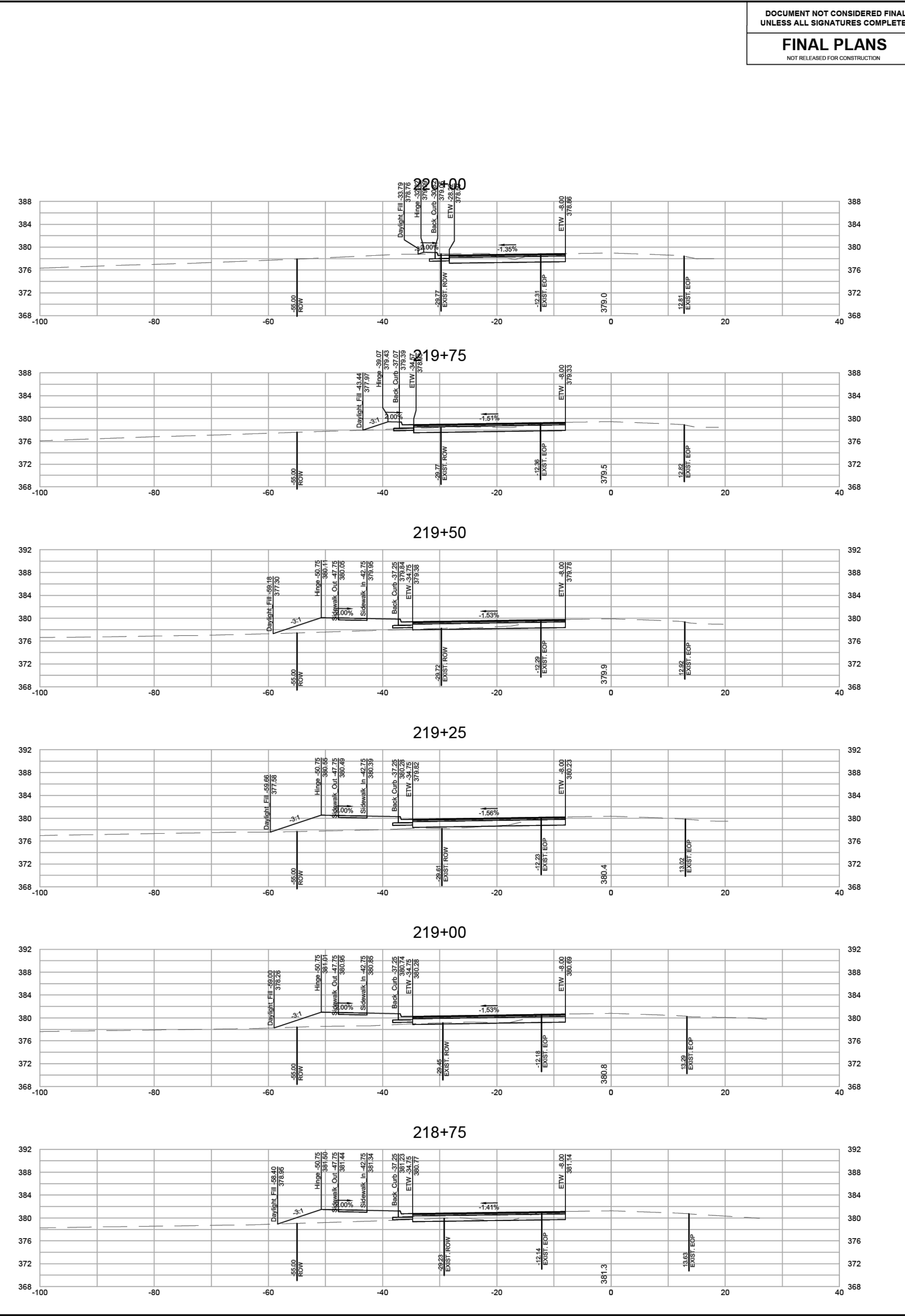
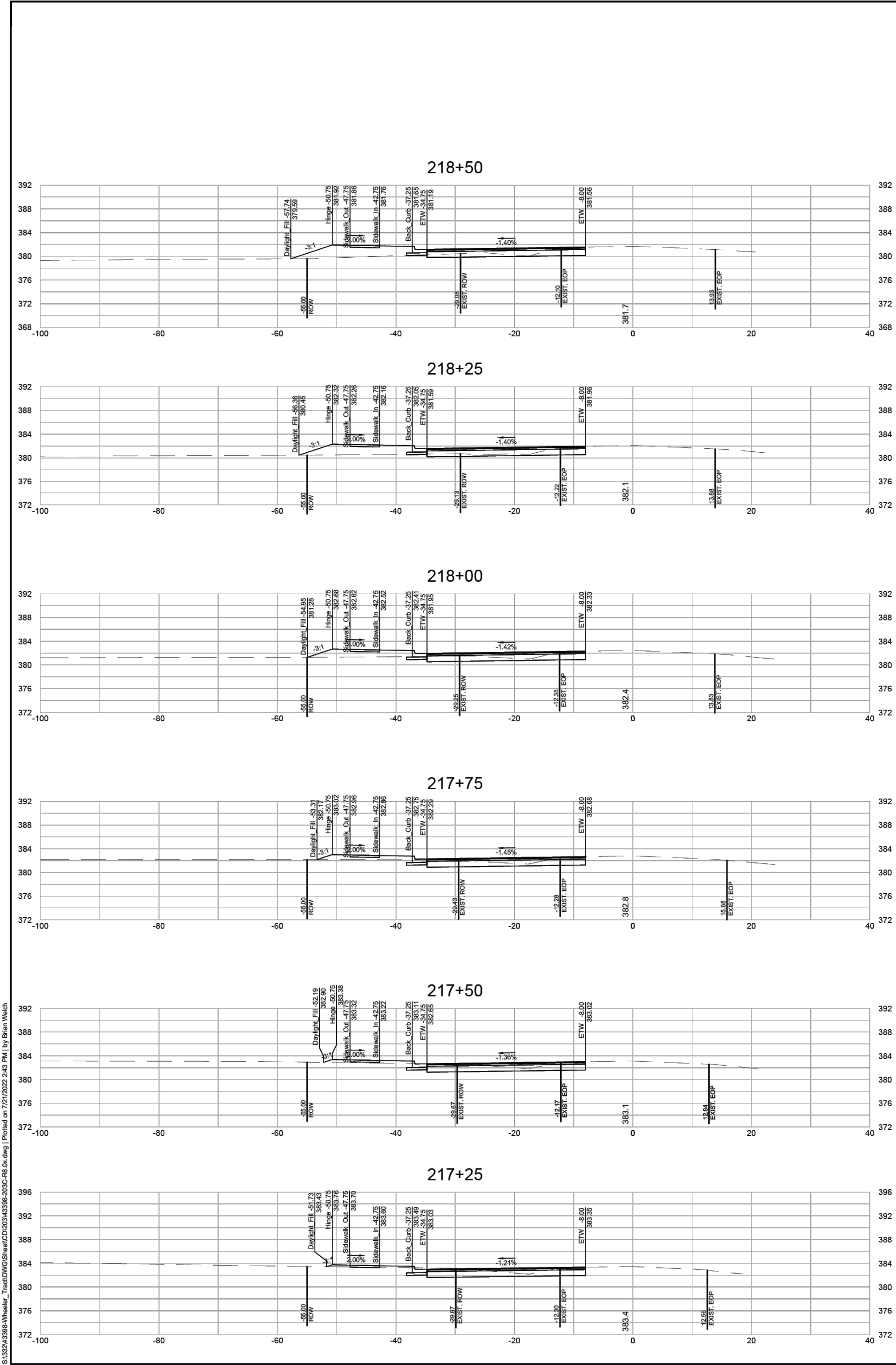
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ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

MITCHELL MILL ROAD CROSS SECTIONS

JOB NO.	43398
SHEET NO.	R8.09

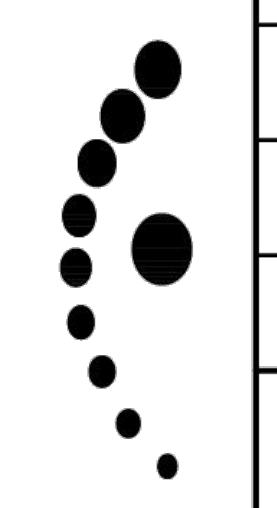
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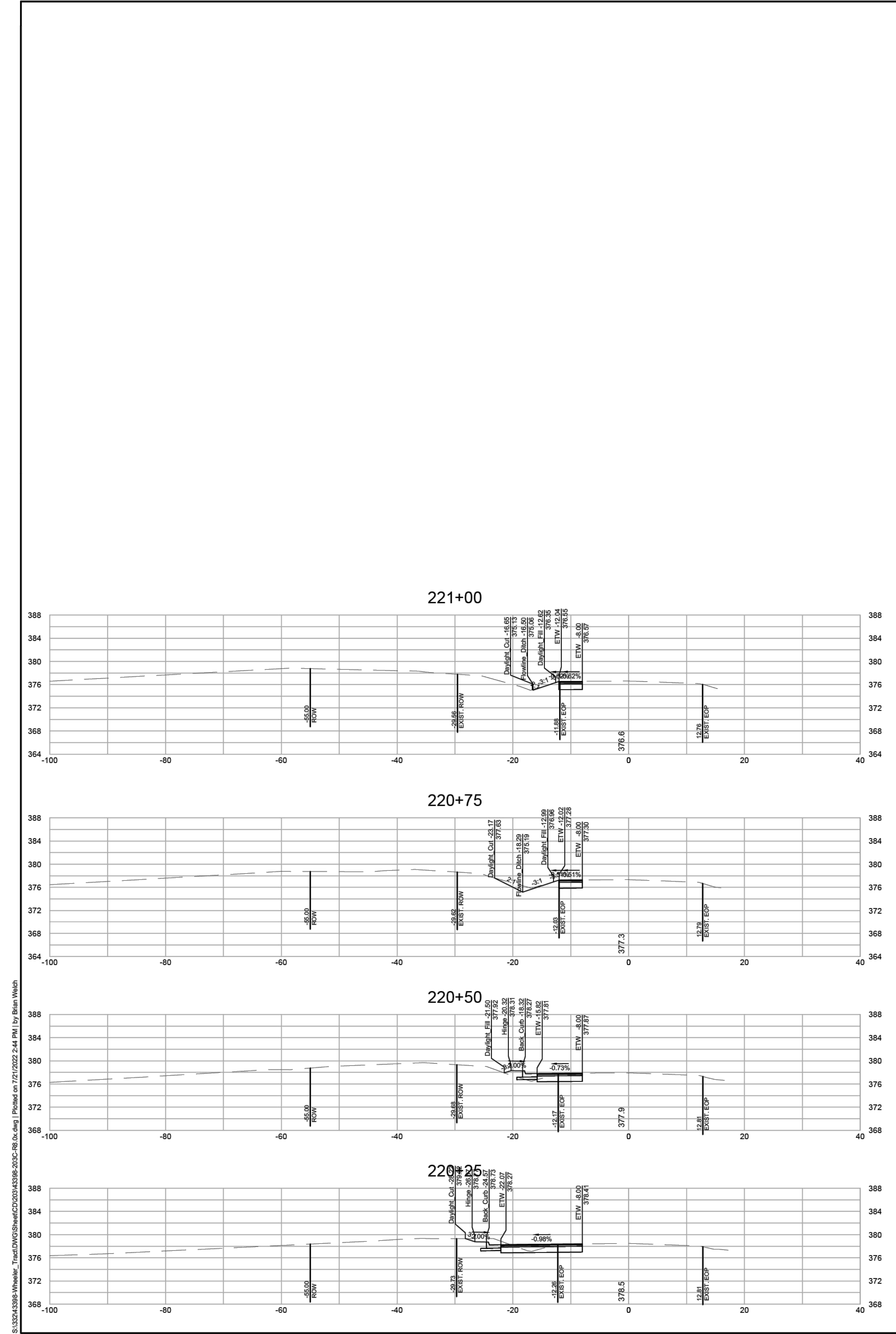
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WHEELER TRACT - OFFSITE IMPROVEMENTS
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
MITCHELL MILL ROAD CROSS SECTIONS

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STRUCTURE LOCATION TABLE						
CALLOUT	DESCRIPTION	NORTHING	EASTING	RIM	INVERT IN	INVERT OUT
1	NEW 72" Ø MANHOLE, CENTER	778384.98'	2166624.53'	349.00'	329.00'	328.80'
2	NEW 72" Ø WET WELL, CENTER	778405.93'	2166607.73'	349.50'	328.50'	N/A
3	NEW 5' x 5.5' VALVE VAULT, CENTER	778412.82'	2166616.32'	349.50'	N/A	N/A

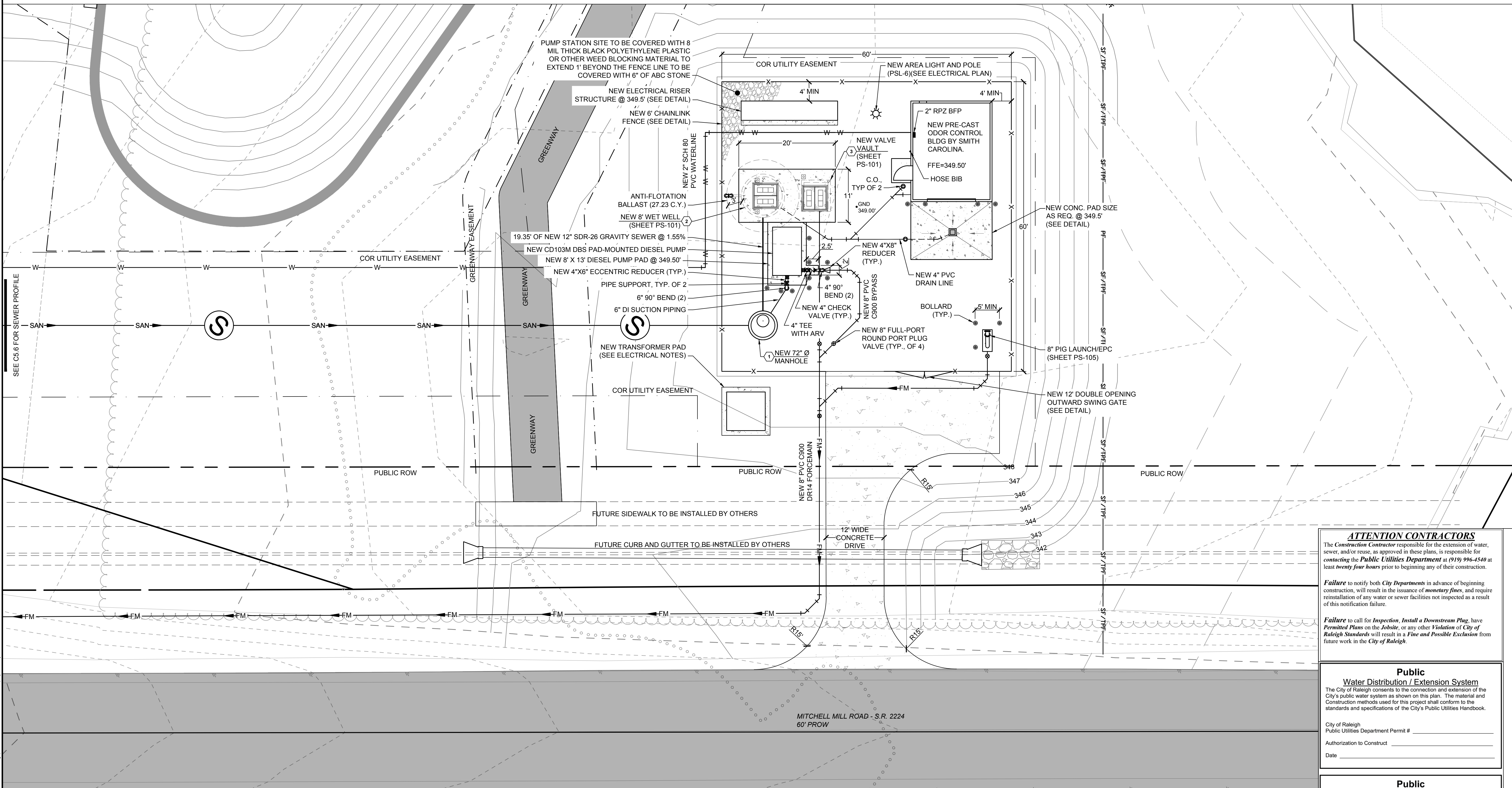
- GENERAL NOTES:**
- ALL WORK RELATED TO THE PUMP STATION, WET WELL, AND FORCE MAIN SHALL BE TO THE CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
 - WET WELL EXTERIOR TO BE COATED WITH TWO SUCCESSIVE COATS OF COAL TAR EPOXY (APPROVED BY THE CITY OF RALEIGH)
 - WET WELL SHALL BE PRE-CAST CONCRETE PER ASTM C478. MANHOLE SECTION JOINTS SHALL BE DURABLE MASTIC SEALING MATERIAL AND WATERPROOFED BY USE OF ASPHALTIC CEMENT AND WRAPPED WITH A BUTYL RESIN SEALANT WITH A 8" WIDTH.
 - ALL PENETRATIONS INTO THE WET WELL SHALL BE WATERTIGHT BY LINK SEAL OR NON SHRINK GROUT.
 - ALL HARDWARE IN THE WET WELL TO BE STAINLESS STEEL
 - THERE SHALL BE NO VALVES, ELECTRICAL JUNCTION BOXES, OR CABLE SPLICES OF ANY KIND IN THE WET WELL.

DESIGN CRITERIA:

THE WHEELER TRACT PUMP STATION HAS BEEN DESIGNED TO SERVE A TOTAL OF 177 SINGLE-FAMILY RESIDENCES (250 GPD/RESIDENCE), 120 TOWNHOMES (250 GPD/TOWNHOME), AND A CLUBHOUSE WITH A SWIMMING POOL (10 GPD/PERSON). FLOWS FROM THE ADJACENT DRAINAGE BASIN HAVE BEEN INCLUDED, WHICH INCLUDES 280 ACRES (720 GPD/ACRE). THE TOTAL DESIGN FLOW IS APPROXIMATELY 277,350 GPD. USING A 2.5 PEAKING FACTOR, THE PEAK INFLUENT RATE IS 481.51 GPM. THE STATION WILL HAVE TWO (2) SULZER XFP100G CB1 60HZ PE250/4-G-60HZ SUBMERSIBLE PUMPS. THE NEW 8-INCH PVC-C900 DR14 FORCE MAIN WILL DISCHARGE INTO THE GRAVITY SEWER PARALLEL TO HARRIS CREEK NEAR AMAZON TRAIL OWNED BY THE CITY OF RALEIGH.

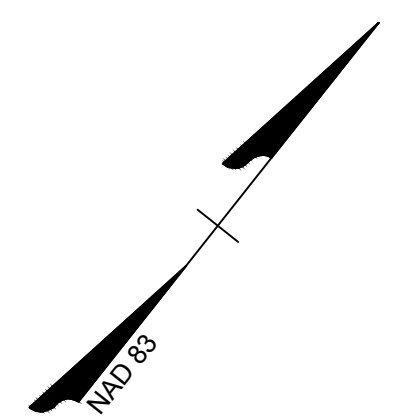
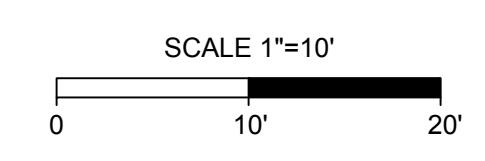
DESIGN SUMMARY:

PUMP STATION FLOWS ARE HANDLED BY TWO (2) SULZER XFP100G CB1 60HZ PE250/4-G-60HZ SUBMERSIBLE PUMPS, EACH OPERATING AT 302 GPM @ 92' TDH AT 52.59 HZ AND 482 GPM @ 112' TDH AT 60 HZ.



SEE C5.6 FOR SEWER PROFILE

PUMP STATION SITE PLAN
SCALE: 1" = 10'



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DRAWN BY
A. KABAT

DESIGNED BY
A. KABAT

CHECKED BY
C. PETREE

SCALE
1" = 10'

TIMMONS GROUP

ROLESVILLE CROSSING
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

PUMP STATION PLAN

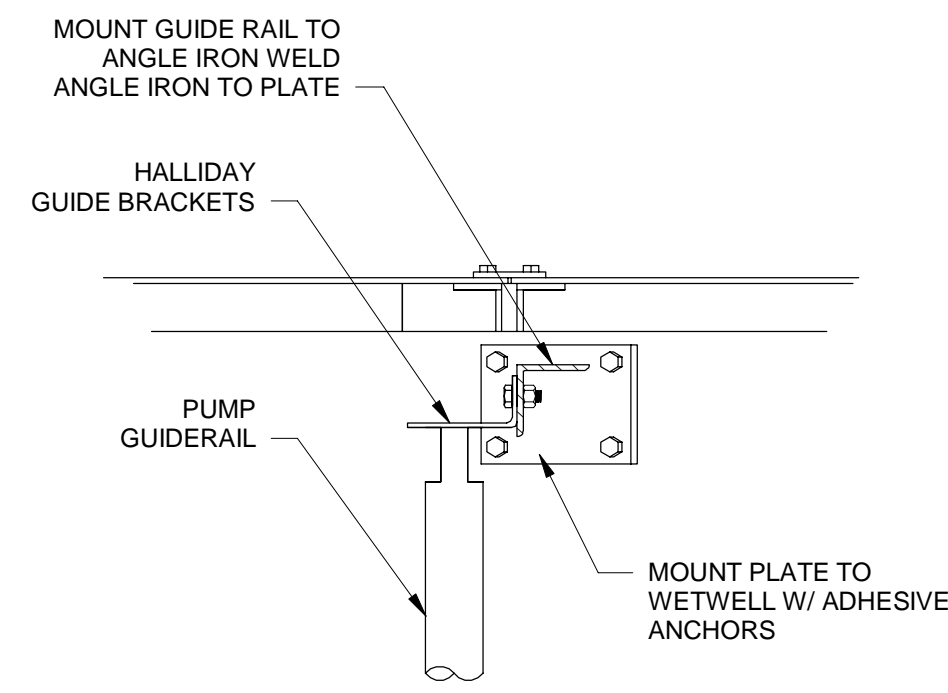
JOB NO.
43398

SHEET NO.
PS-100

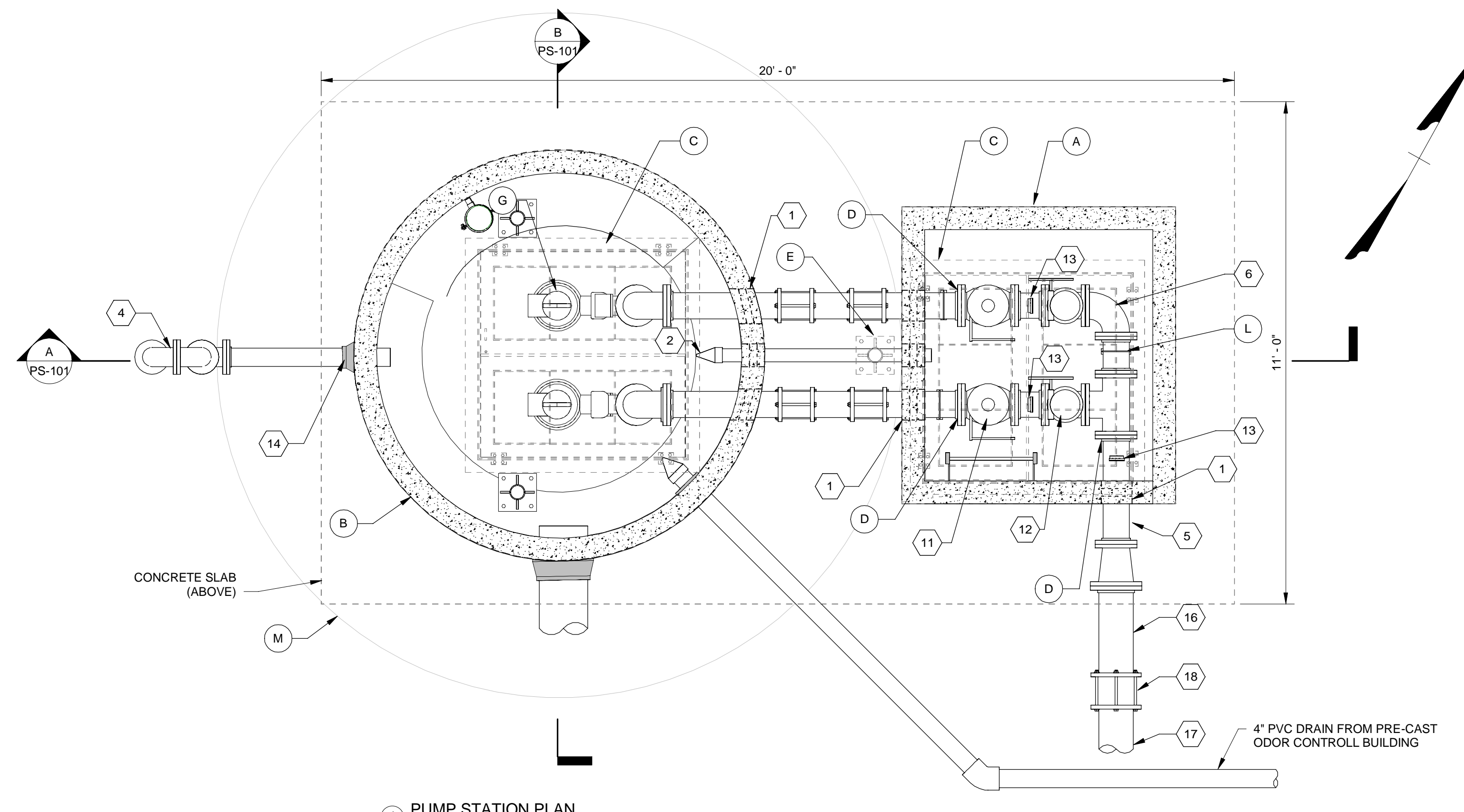


L:\24\338-Wheeler-TransDWG\Sheet\CD\338C-FSSP\AYO.dwg [Plotted on 09/06/23 5:11 PM] by Ashley Kabat

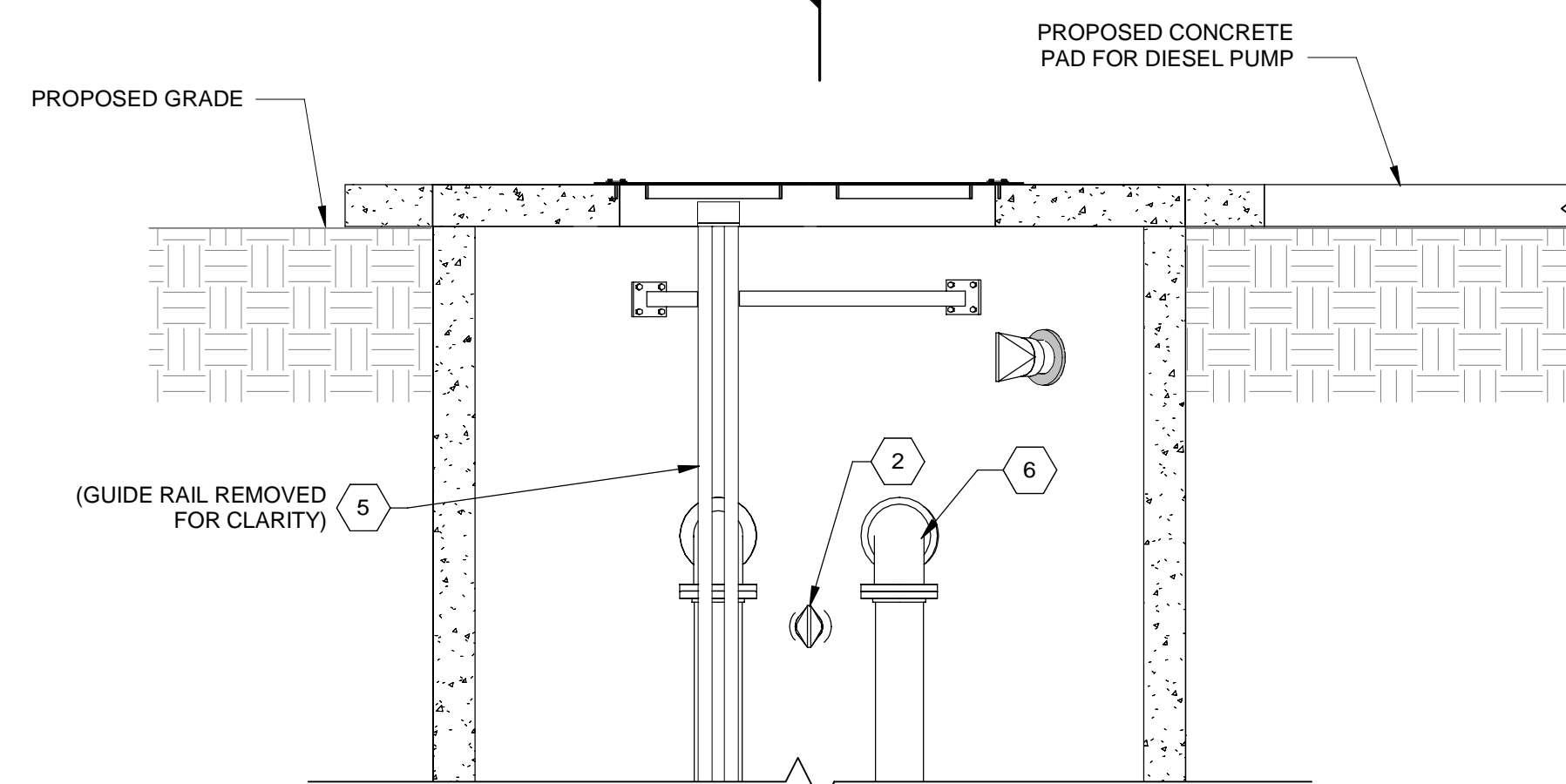
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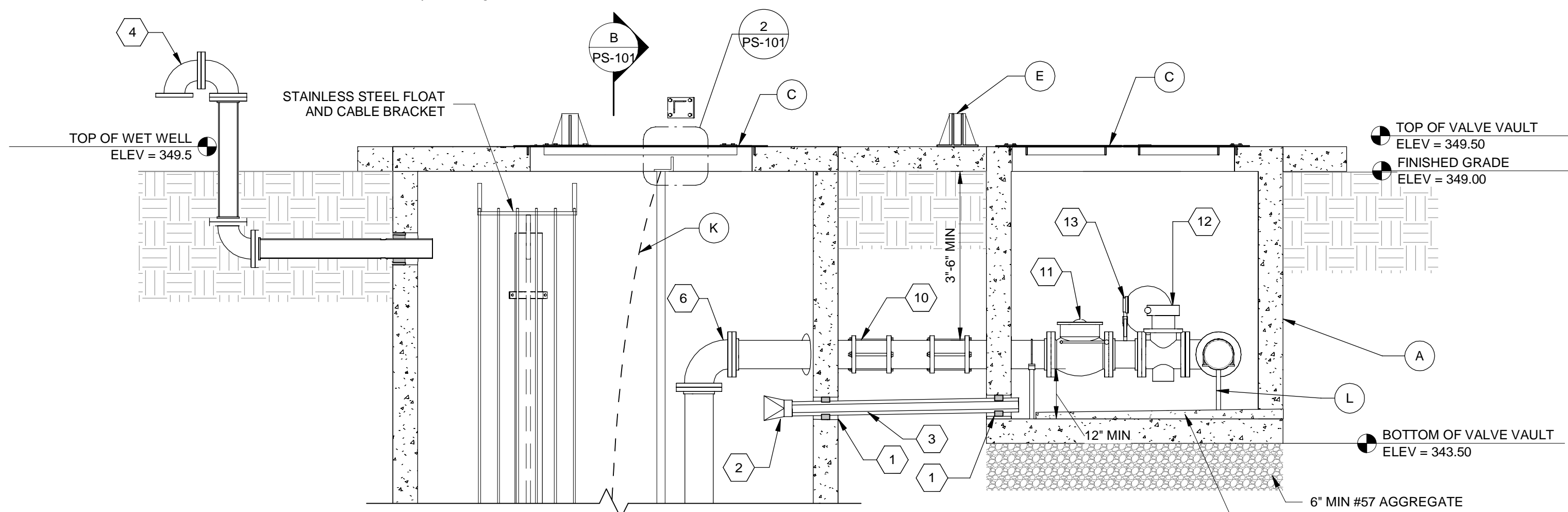
2 PUMP GUIDERAIL BRACKET MOUNTING
NOT TO SCALE



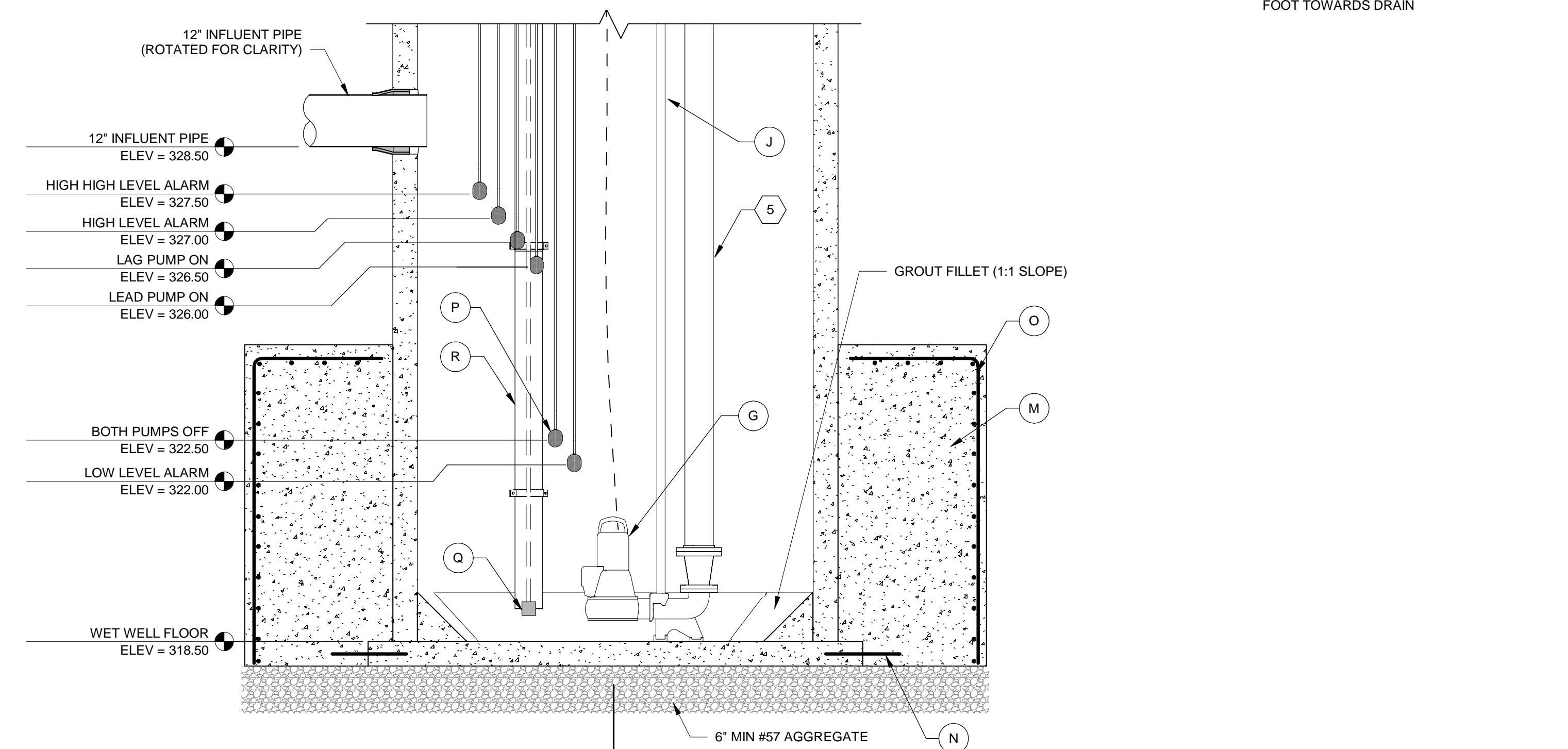
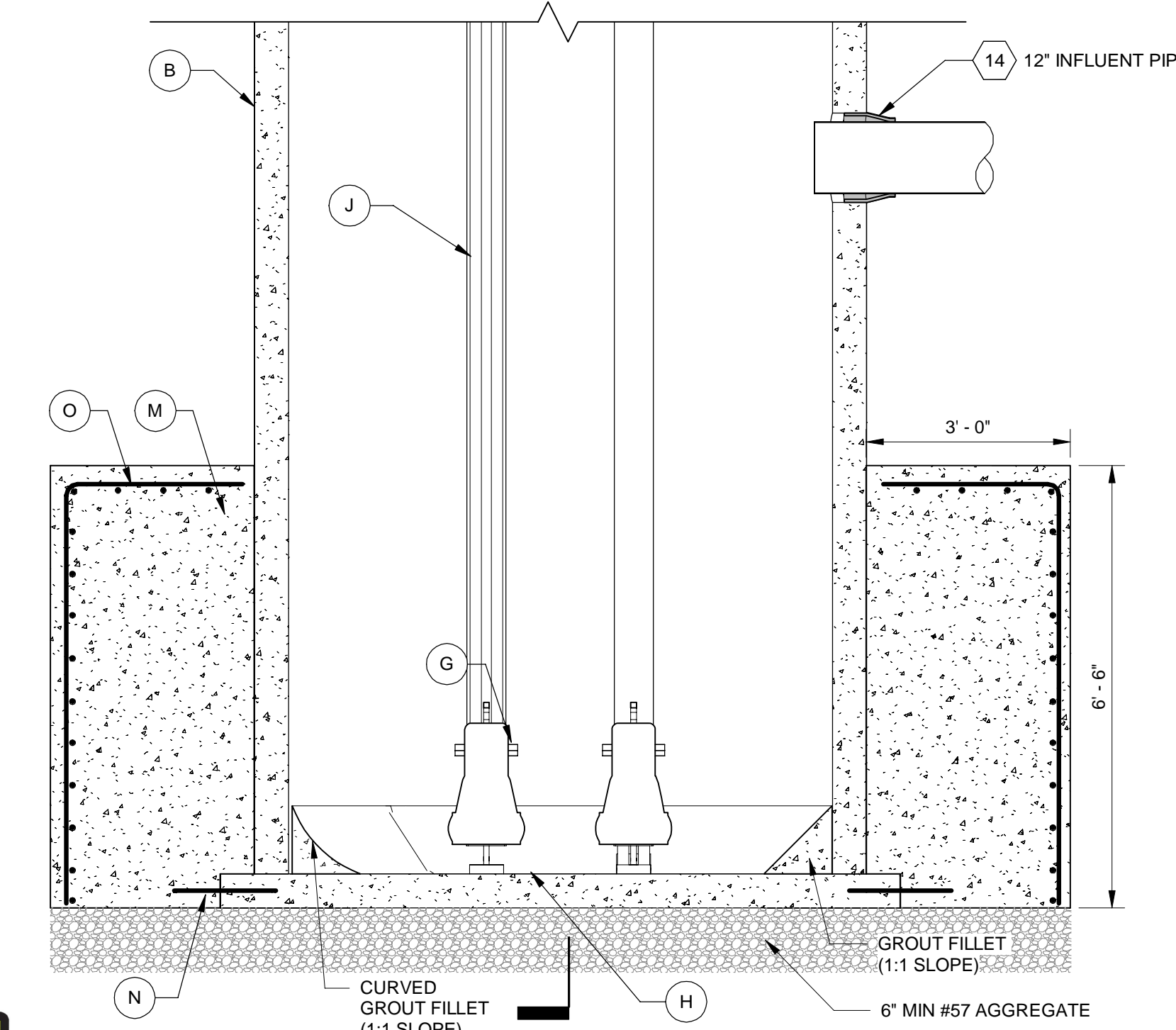
1 PUMP STATION PLAN
1/2" = 1'-0"



B SECTION B
1/2" = 1'-0"



A SECTION A
1/2" = 1'-0"



FITTING AND EQUIPMENT SCHEDULE	
LABEL	DESCRIPTION
1	LINK SEAL
2	3" TIDEFLEX TF-2 CHECK VALVE
3	3" PVC DRAIN SLOPED 1/4" PER FOOT (MIN) WITH FLEXIBLE COUPLING
4	4" VENT WITH REMOVABLE BRONZE OR ALUMINUM INSECT SCREEN
5	6" FLG CLASS 50 DI PIPE
6	6" FLG 90 DEGREE BEND
10	6" DRESSER COUPLING
11	6" SWING CHECK VALVE
12	6" GEAR OPERATED PLUG VALVE
13	PRESSURE GAUGE AND BALL VALVE (TAPPED)
14	MANHOLE BOOT
16	8" CLASS 50 DI PIPE
17	8" PVC C-900 DR14
18	8" TRANSITION COUPLING
A	5' X 5.5' PRECAST VALVE VAULT
B	8" DIAMETER PRECAST WET WELL
C	W25S454 HALLIDAY HATCH (OR APPROVED EQUAL)
D	6" FLANGE ADAPTER
E	HALLIDAY D2R HOIST SOCKET (OR APPROVED EQUAL)
G	SUMBERSIBLE NON-CLOG SEWAGE PUMP SULZER XFP100G CB1 60HZ PE250/4-G-60HZ
H	STAINLESS STEEL ANCHORS PER PUMP MANUFACTURER
J	STAINLESS STEEL GUIDE RAIL
K	STAINLESS STEEL HOIST CABLE W/ 1" STAINLESS STEEL CHAIN
L	ADJUSTABLE PIPE SUPPORT (AS REQUIRED)
M	ANTI-FLOATATION COLLAR (27.23 C.Y. MIN CONCRETE)
N	3/4"X18" STEEL ROD @ 24" O.C.
O	#4 REBAR (CONTINUOUS) @ 8" O.C.
P	FLOAT SWITCH (TYP)
Q	INTRINSICALLY SAFE PRESSURE TRANSDUCER
R	6" PVC SCH80 STILLING WELL

- GENERAL NOTES:
- BASE AND FIRST RISER UNIT TO BE CAST MONOLITHIC
 - VALVE VAULT TO HAVE SEALED FLOOR AND DRAIN
 - ALL LOCATIONS WHERE PIPES ENTER OR LEAVE THE WET WELL OR VALVE VAULT SHALL BE MADE WATERTIGHT WITH WALL SLEEVE OR NON-SHRINK GROUT
 - THERE SHALL BE NO VALVES OR ELECTRICAL JUNCTION BOXES IN THE WET WELL
 - CHECK VALVES SHALL BE IRON-BODIED, FULLY BRONZE CLAPPER DISC AND BRONZE SEAT RING, AND SHALL HAVE A SPRING LOADED LEVER ARM CAPABLE OF BEING MOUNTED ON EITHER SIDE OF THE VALVE
 - PLUG VALVES SHALL BE 1/4 TURN, ECCENTRIC ACTION AND RESILIENT PLUG FACING WITH HEAVY DUTY STAINLESS STEEL BEARINGS AND WELDED-IN CORROSION RESISTANT NICKEL SEAT. PUMP STATION PLUG VALVES SHALL BE "FULL-PORT" ROUND PORT" CROSS-SECTIONAL AREA PERPENDICULAR TO THE FLOW OF AT LEAST 100% OF THE ADJOINING PIPE
 - FLEXIBLE COUPLING SHALL BE SLEEVE TYPE
 - PUMPING SPECIFICATIONS ARE BELOW:
THE PUMPING EQUIPMENT SHALL BE A DUPLEX SOLIDS HANDLING SUBMERSIBLE SEWAGE PUMP INSTALLATION AS MANUFACTURED BY SULZER (OR APPROVED EQUIVALENT). THE INSTALLATION SHALL INCLUDE ALL MOTORS, VALVES, PIPING, HARDWARE, HATCH COVERS, CONTROLS, ALARM BELL, ALARM LIGHT, AUTO DIALER, PUMP RUN TIME INDICATOR, ELECTRICAL EQUIPMENT AND WIRING. THE PUMPING EQUIPMENT SHALL BE CAPABLE OF DELIVERING 302 GPM AT 92.0 FEET TDH AND 482 GPM AT 112.0 FEET TDH. A SULZER XFP100G CB1 60 HZ PE250/4-G-60HZ OR APPROVED EQUIVALENT SHALL BE USED.
 - PUMP MOTORS SHALL MEET ALL REQUIREMENTS OF CLASS 1, DIVISION 1, GROUP D
 - PUMP STATION MUST COMPLY WITH ALL CITY OF RALEIGH AND TOWN OF ROLESVILLE SPECIFICATIONS
 - ALL DISCHARGE PIPING SHALL BE CLASS 50 DUCTILE IRON FLANGED PIPE IN ACCORDANCE WITH AWWA C 141
 - ALL PIPING, COUPLINGS, FITTINGS, VALVES, ETC. SHALL BE CLASS 125 FLANGES MEETING ANSI B16.1 SPECIFICATIONS
 - PUMP STATION IS NOT LOCATED WITHIN 100-YR FLOODPLAIN ACCORDING TO FEMA FIRM MAP 3720176600J (EFFECTIVE DATE 05/02/2006)
 - WET WELL EXTERIOR TO BE COATED WITH TWO SUCCESSIVE COATS OF COAL TAR EPOXY AS APPROVED BY THE CITY OF RALEIGH
 - WET WELL SHALL BE PRE-CAST CONCRETE PER ASTM C478. MANHOLE SECTION JOINTS SHALL BE DURABLE MASTIC SEALING MATERIAL AND WATERPROOFED BY USE OF ASPHALTIC CEMENT AND WRAPPED WITH A BUTYL RESIN SEALANT WITH A 8" WIDTH
 - ALL PENETRATIONS INTO THE WET WELL SHALL BE WATERTIGHT BY LINK SEAL OR NON-SHRINK GROUT
 - ALL HARDWARE IN THE WET WELL TO BE STAINLESS STEEL
 - THERE SHALL BE NO VALVES, ELECTRICAL JUNCTION BOXES, OR CABLE SPLICES OF ANY KIND IN THE WET WELL

ATTENTION CONTRACTORS

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PRELIMINARY - NOT RELEASED FOR CONSTRUCTION

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDOD AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



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12/07/2021
03/18/2022
08/01/2022

DATE
09/07/2023

DRAWN BY
L. KIM

DESIGNED BY
A. KABAT

CHECKED BY
C. PETREE

SCALE
AS SHOWN

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROLESVILLE CROSSING

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

PUMP STATION LAYOUT AND SECTIONS

JOB NO.
43398

SHEET NO.
PS-101

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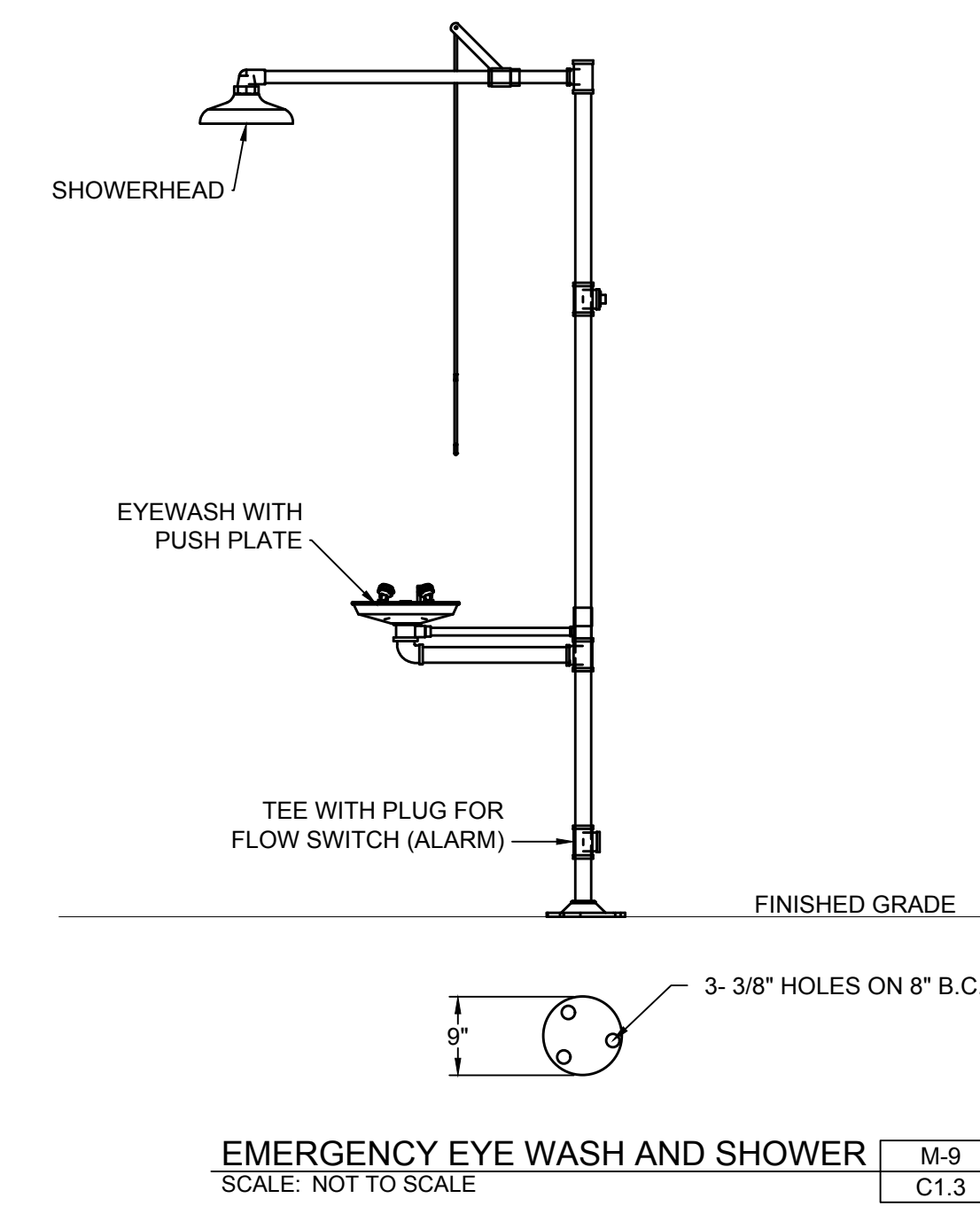
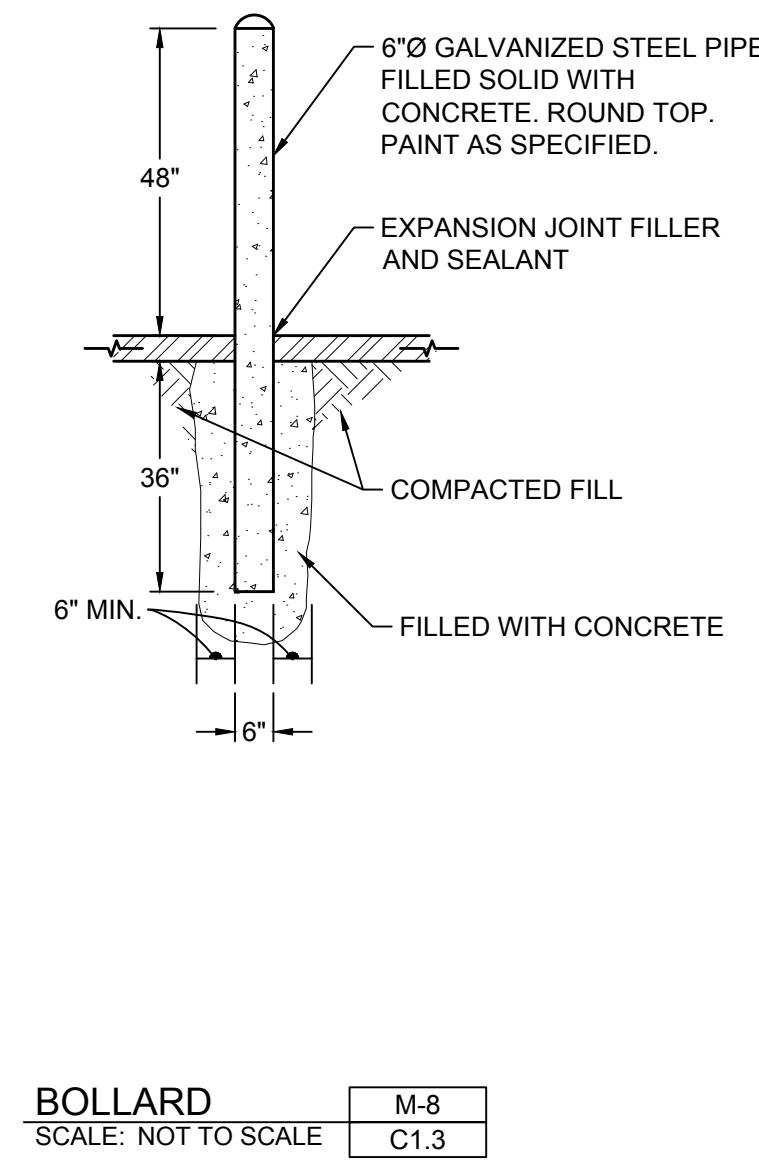
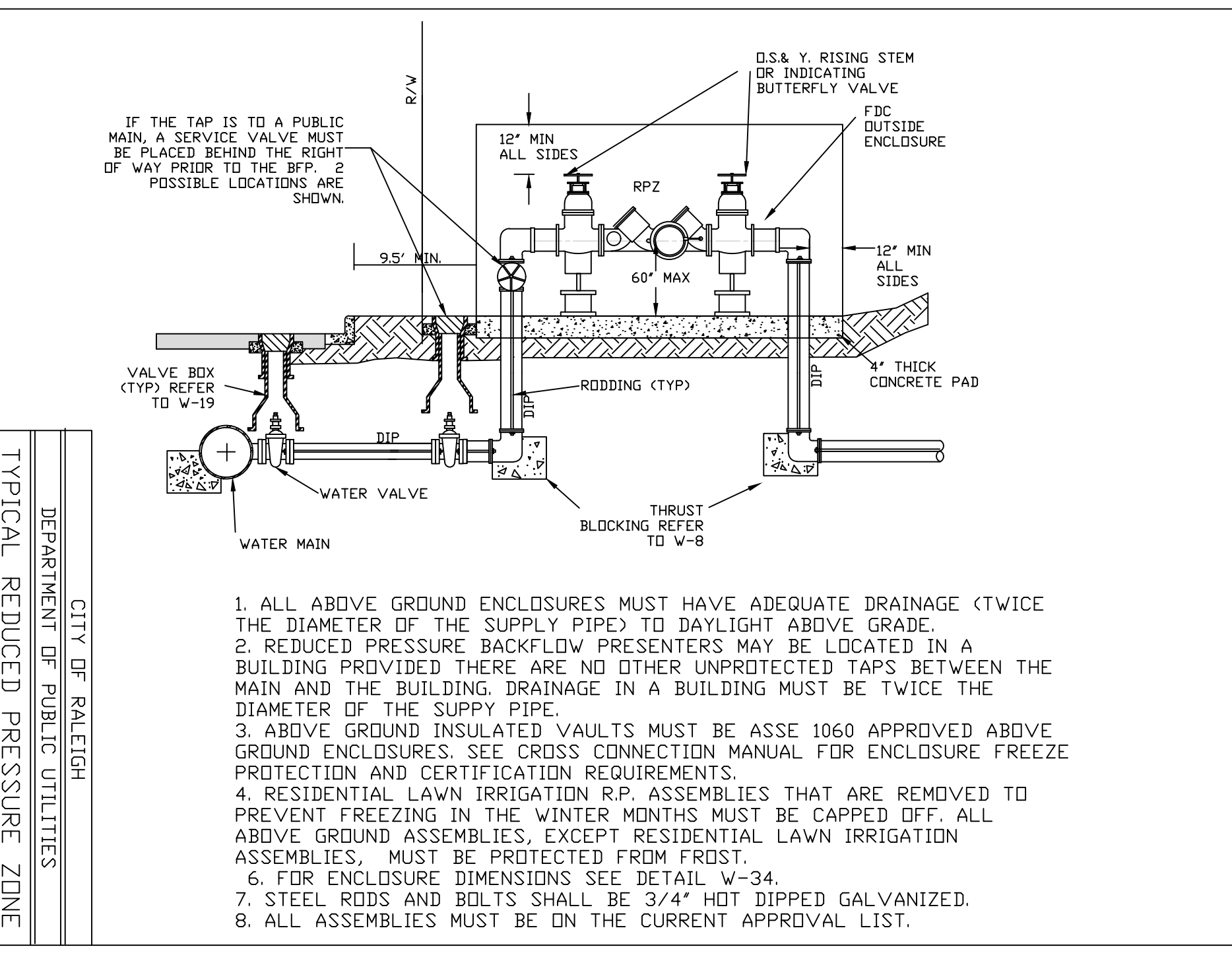
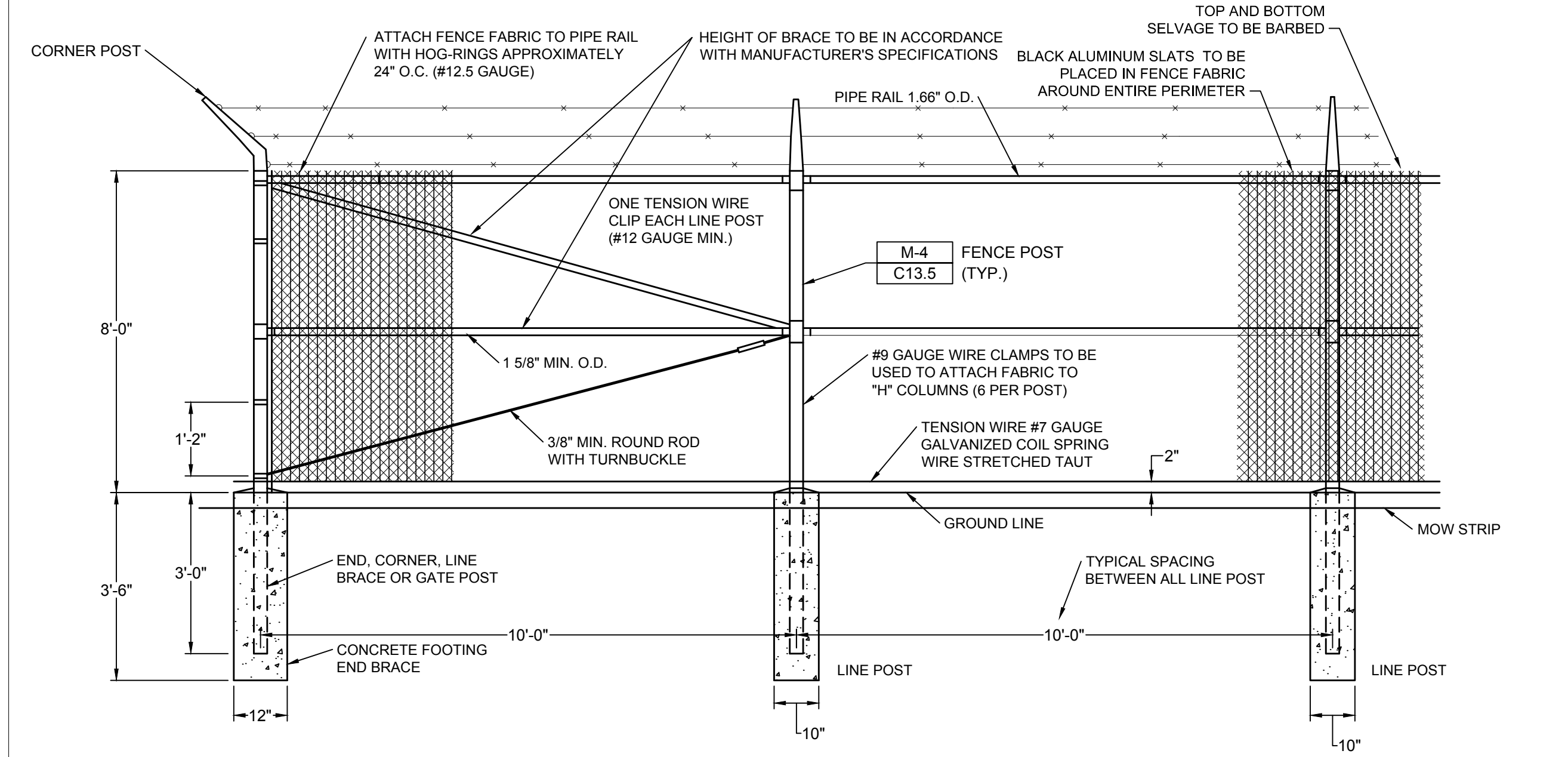
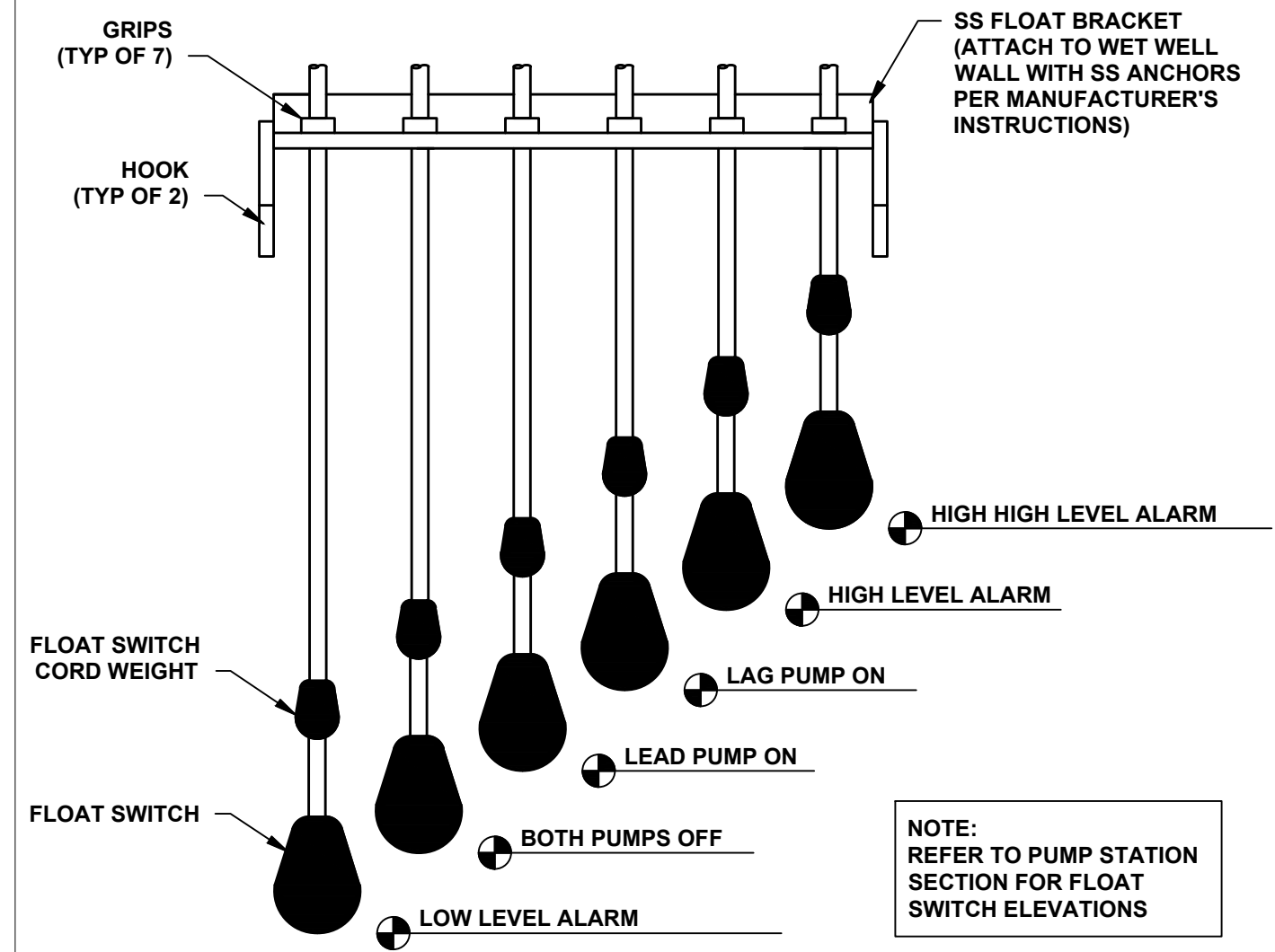
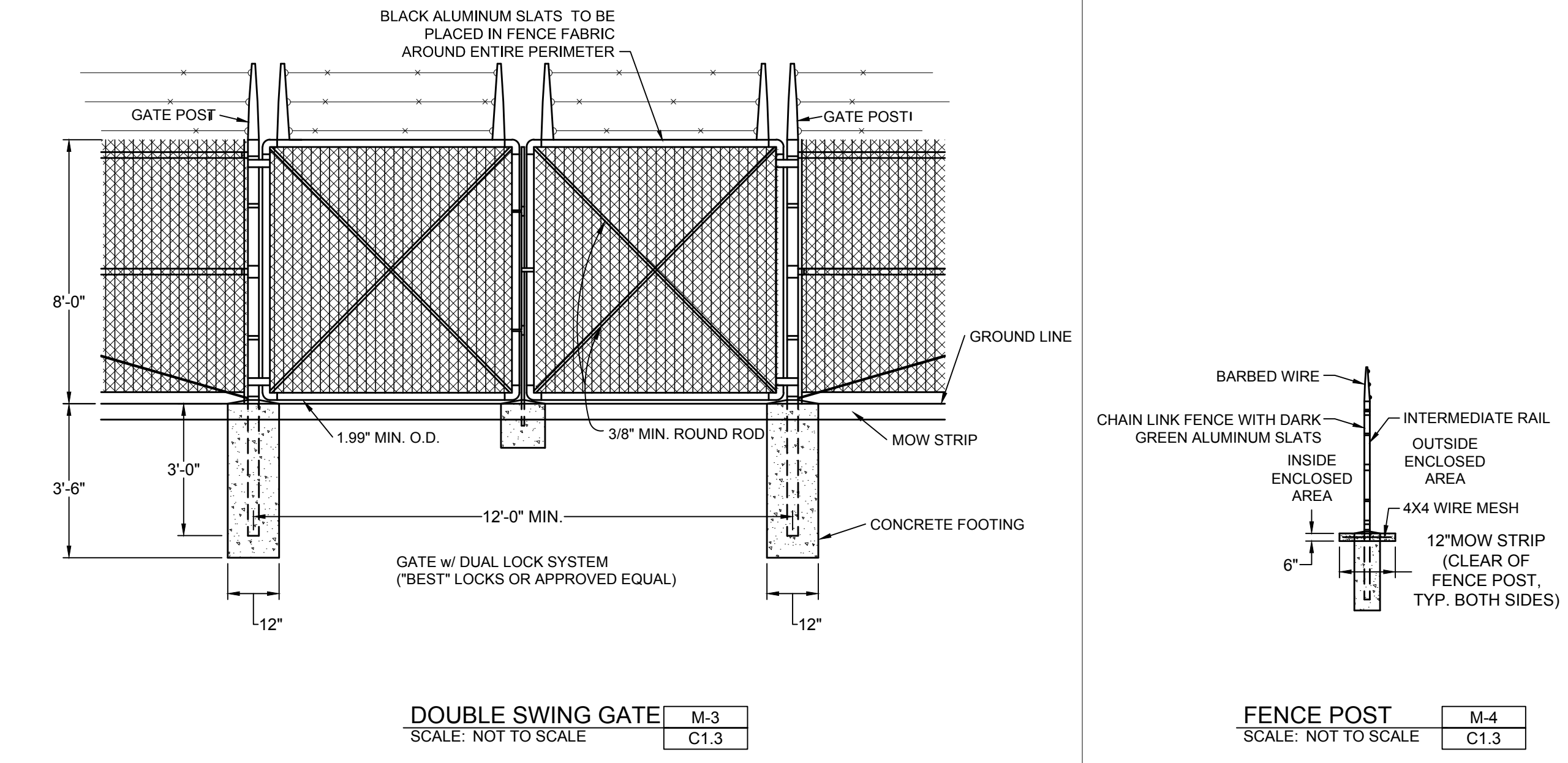
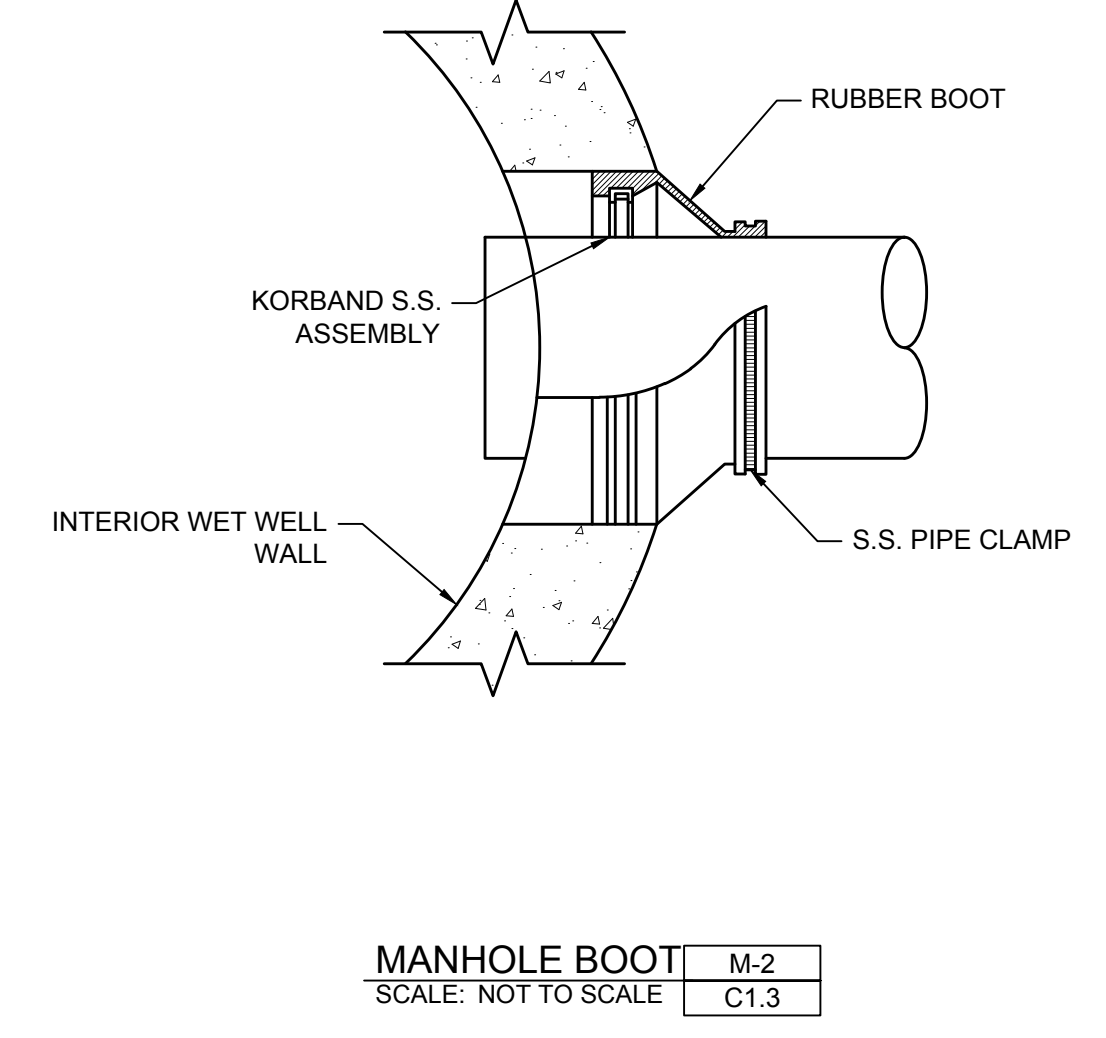
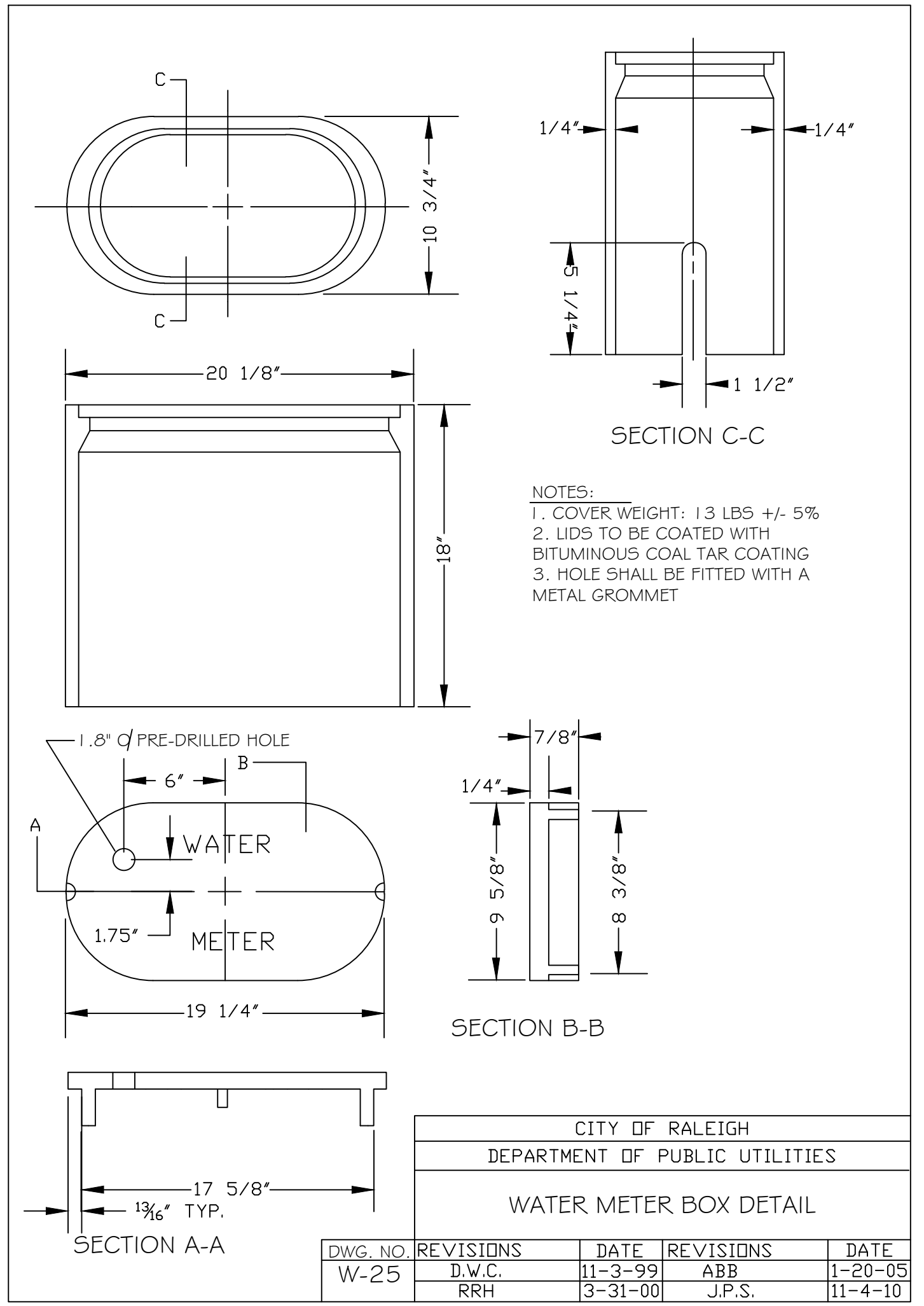
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DRAWN BY	L. KIM
DESIGNED BY	A. KABAT
CHECKED BY	C. PETREE
SCALE	AS SHOWN

TIMMONS GROUP

ROLESVILLE CROSSING ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

PUMP STATION DETAILS



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City of Raleigh
 Public Utilities Department Permit # _____
 Authorization to Construct _____
 Date _____

Public Sewer Collection / Extension System

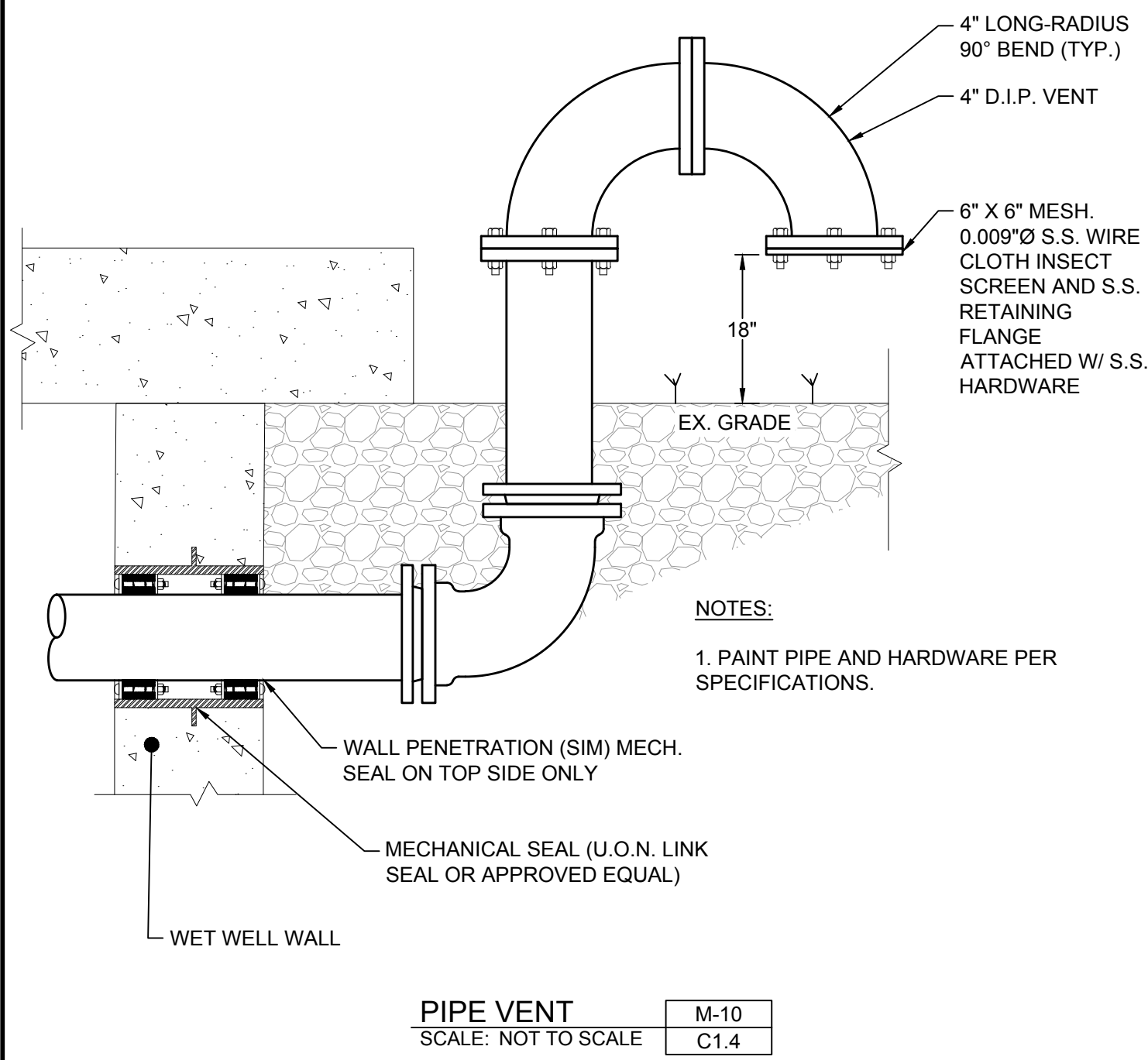
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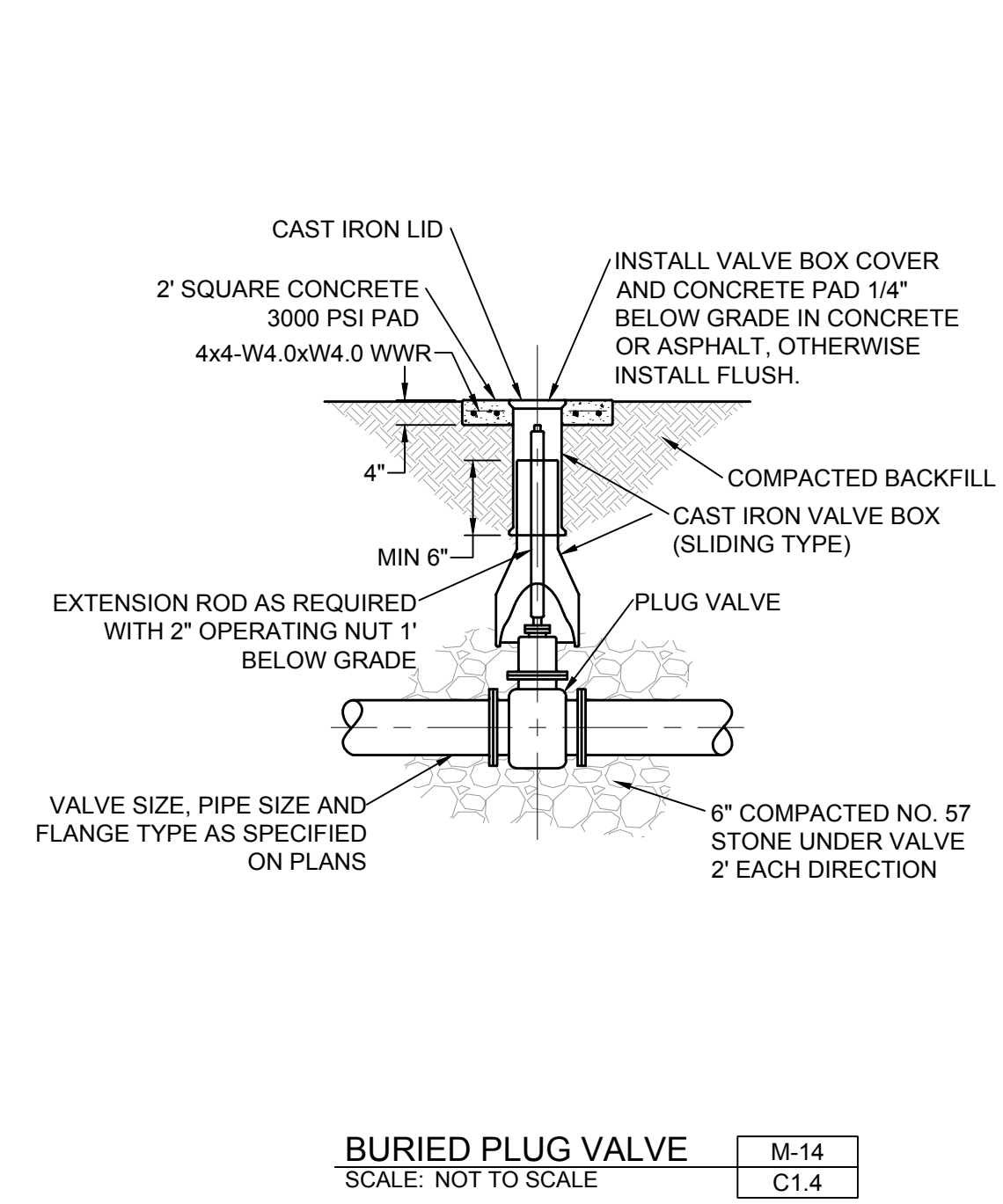
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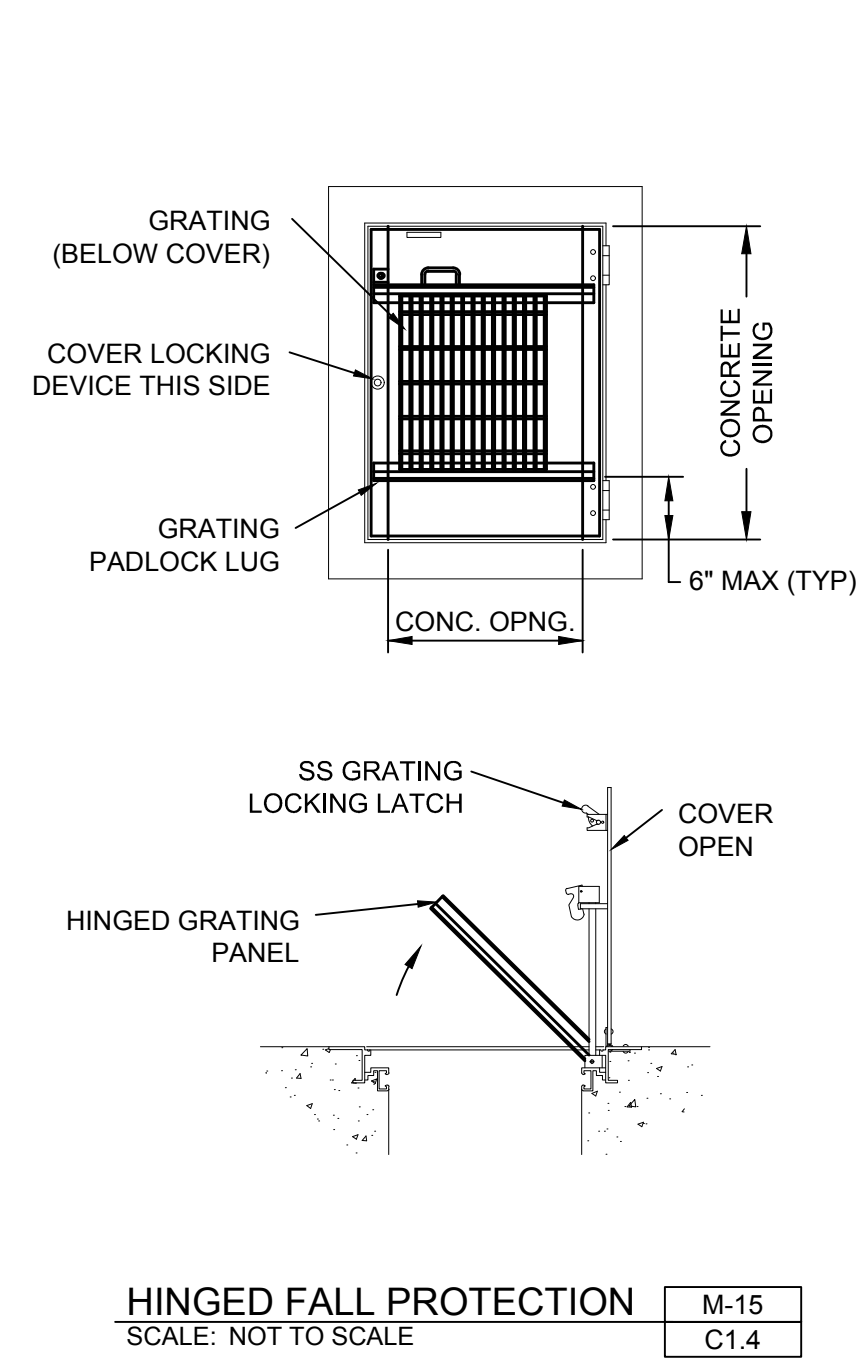
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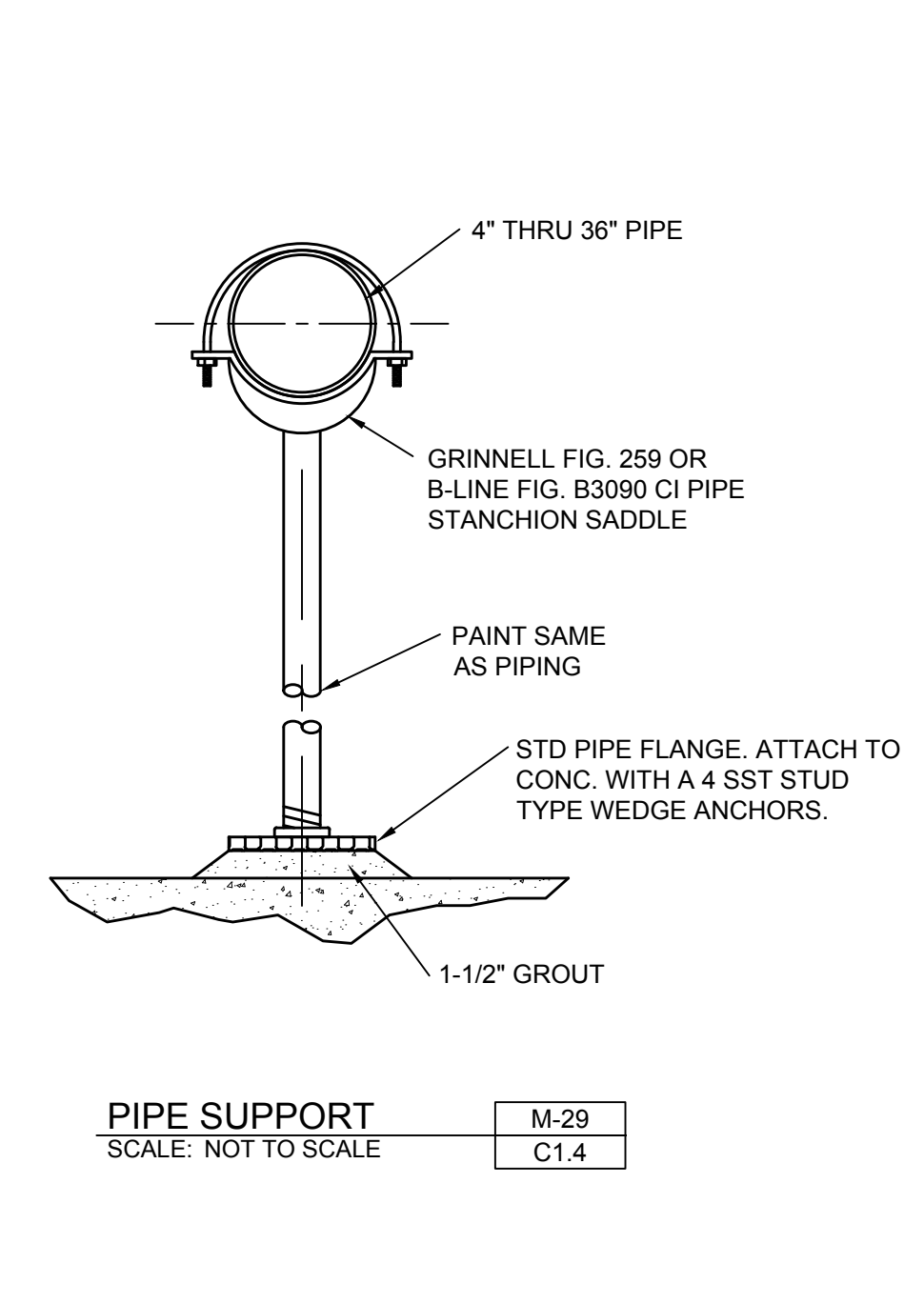
PIPE VENT
SCALE: NOT TO SCALE
M-10
C1.4



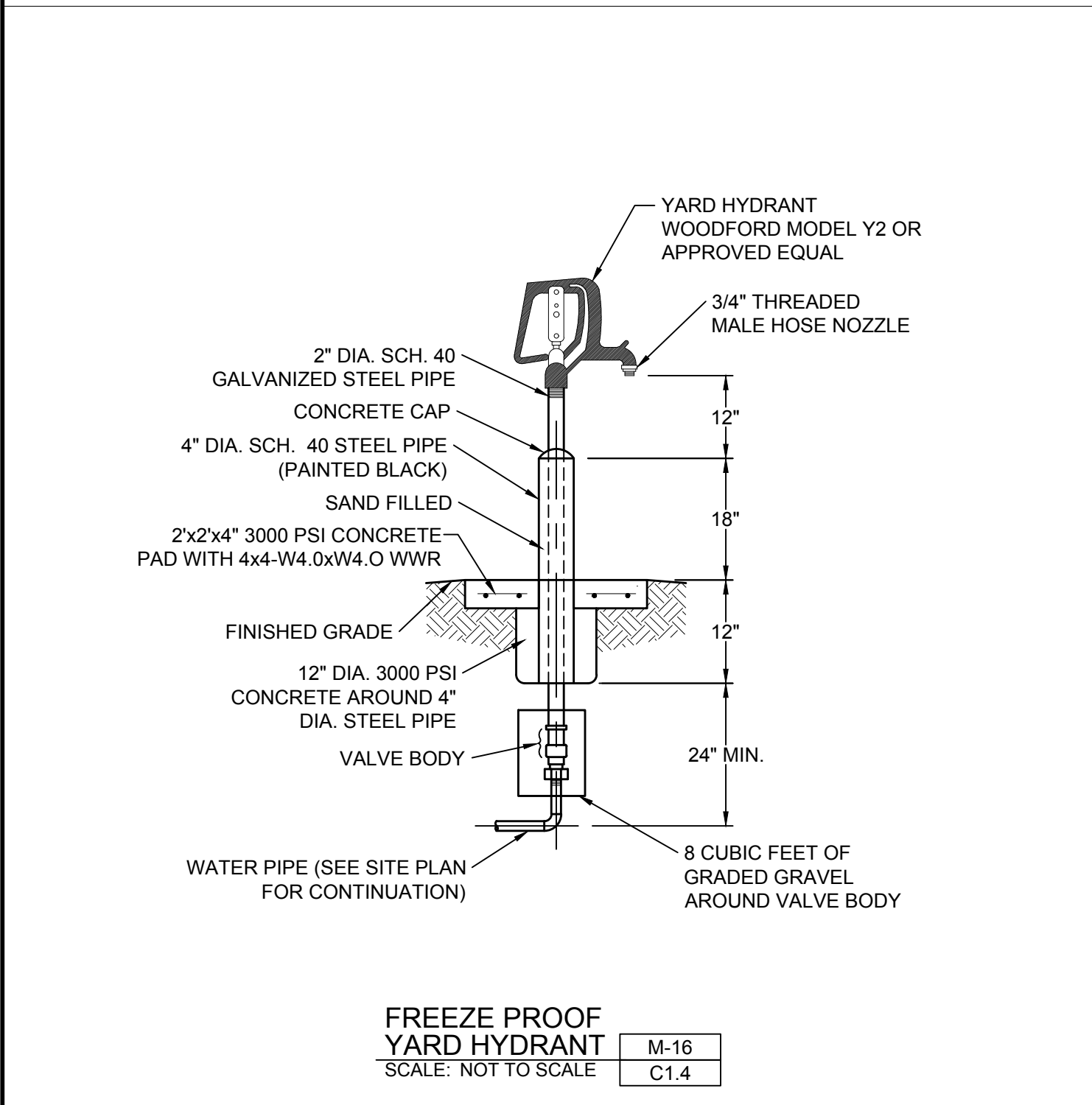
BURIED PLUG VALVE
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M-14
C1.4



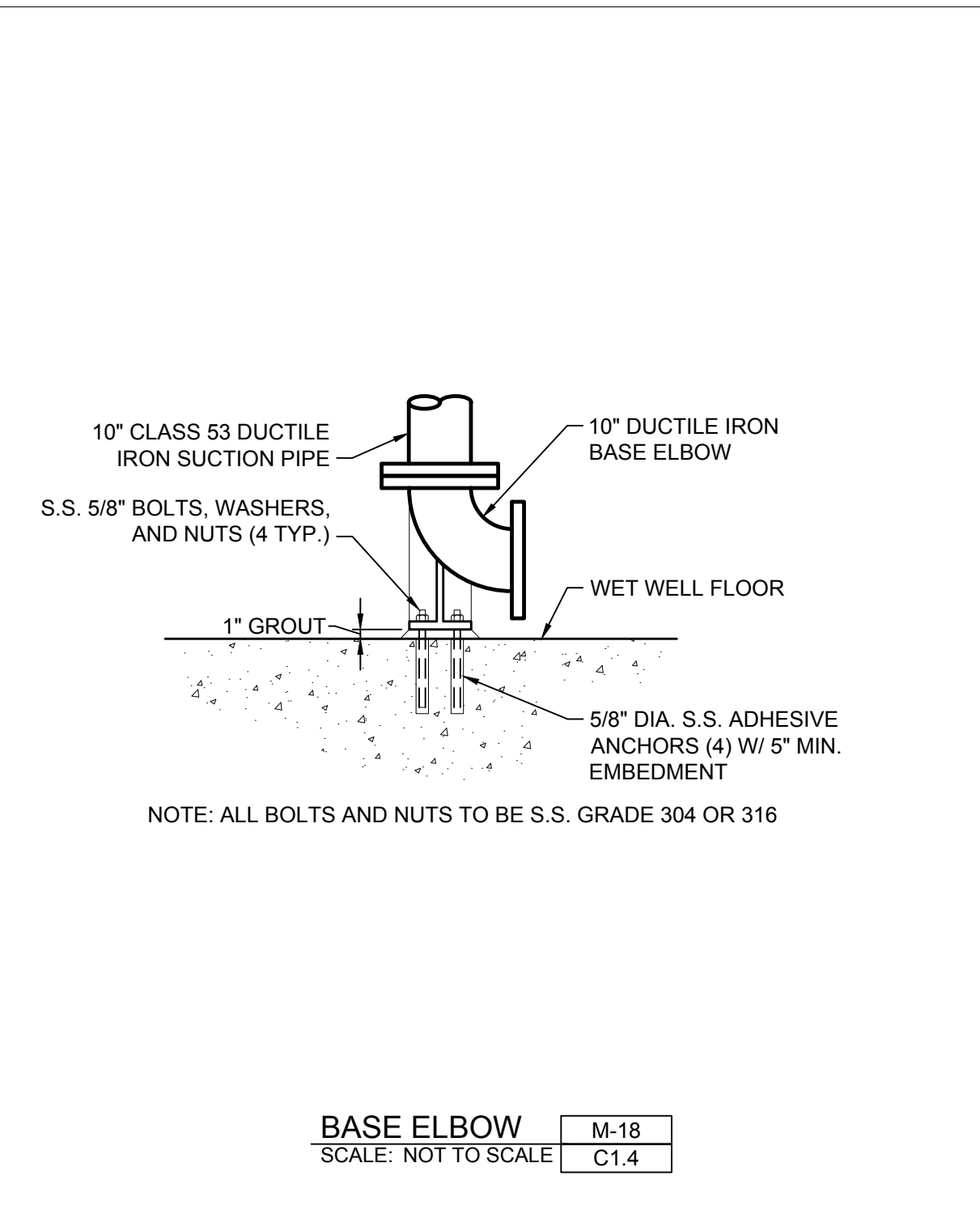
HINGED FALL PROTECTION
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M-15
C1.4



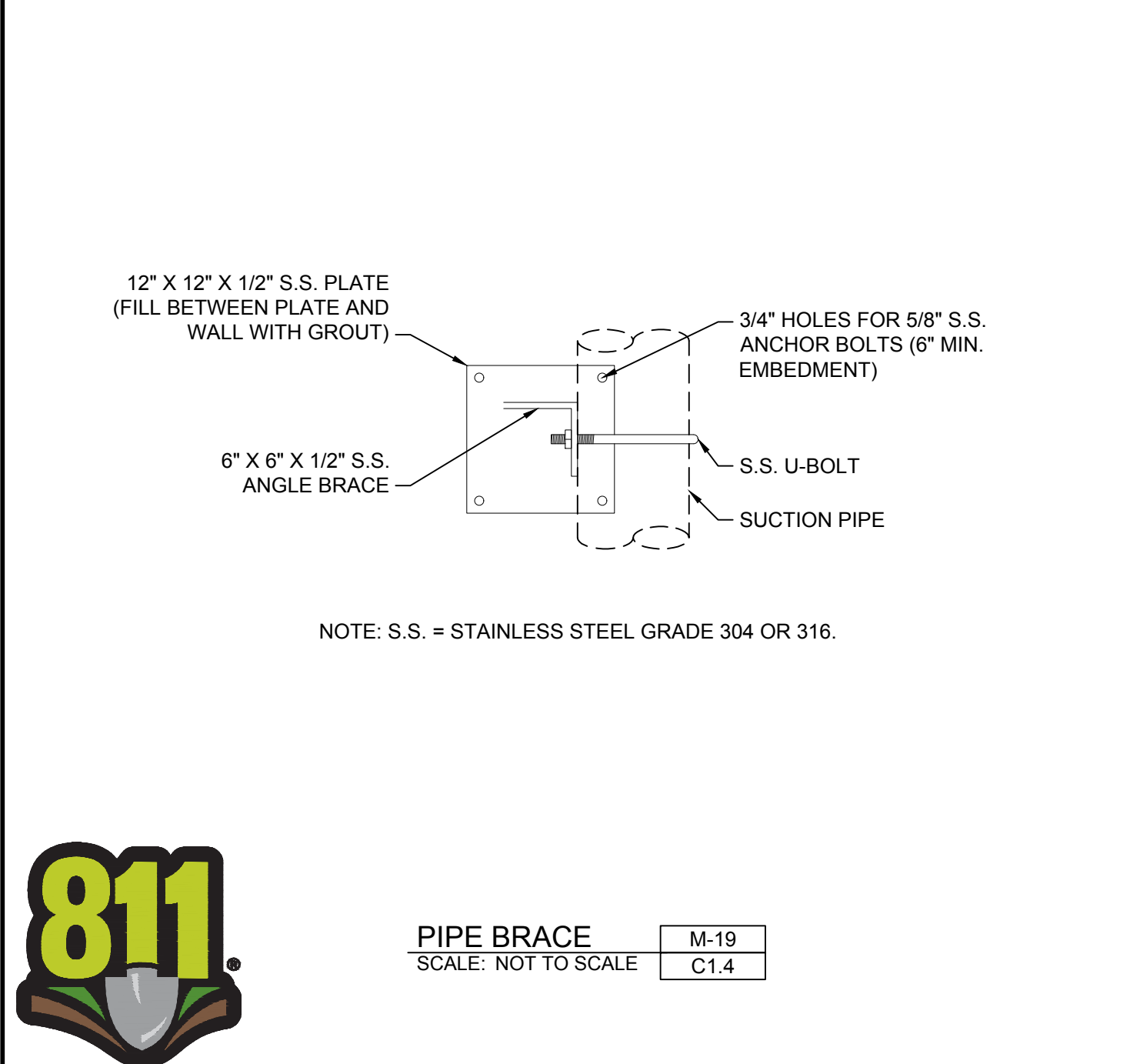
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C1.4



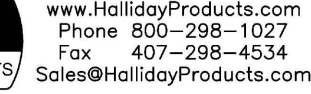
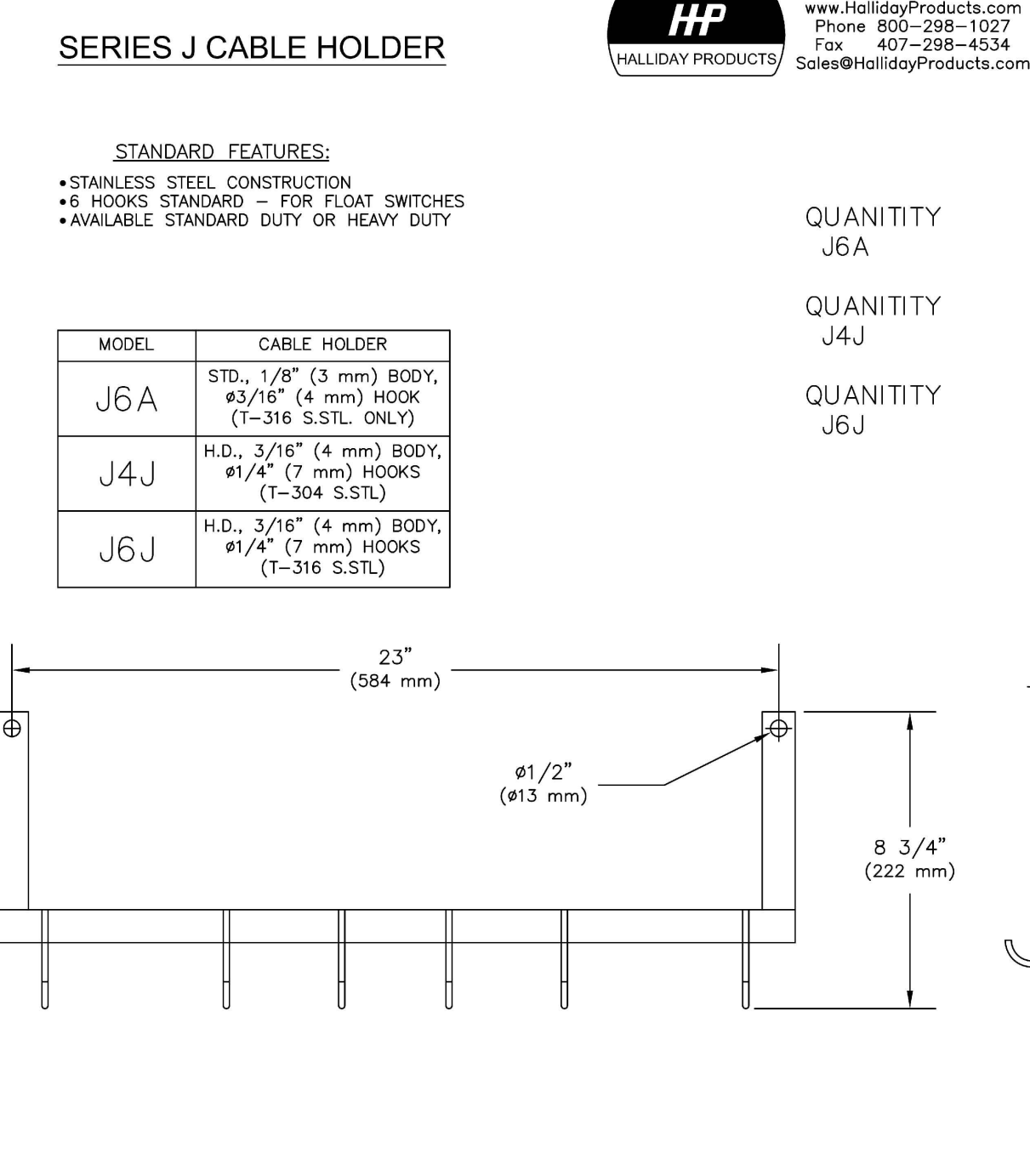
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SCALE: NOT TO SCALE
M-16
C1.4



BASE ELBOW
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M-18
C1.4

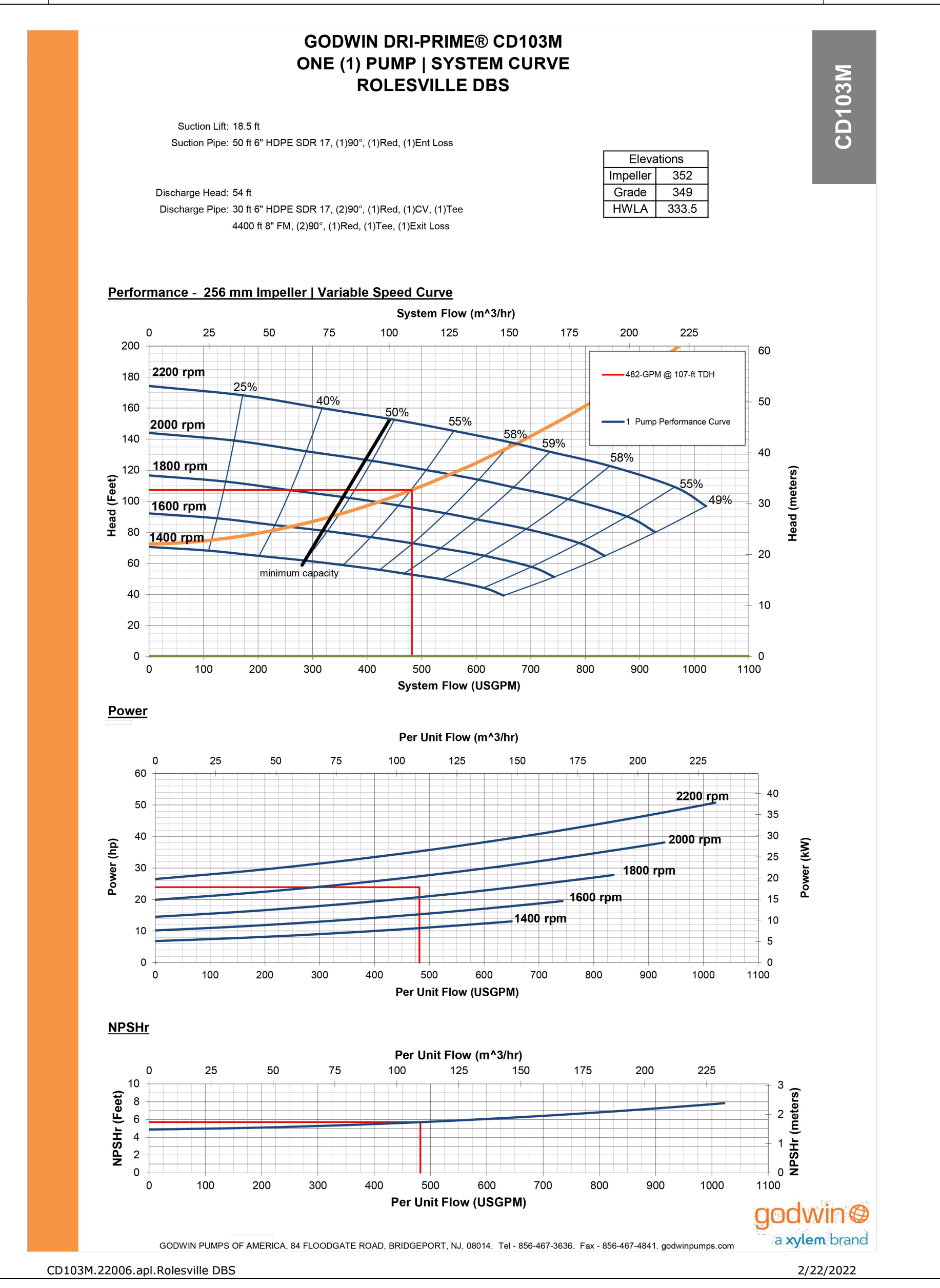


PIPE BRACE
SCALE: NOT TO SCALE
M-19
C1.4



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QUANTITY J4J
QUANTITY J6J



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City of Raleigh
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DESIGNED BY A. KABAT
CHECKED BY C. PETREE
SCALE AS SHOWN

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ROLESVILLE CROSSING
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

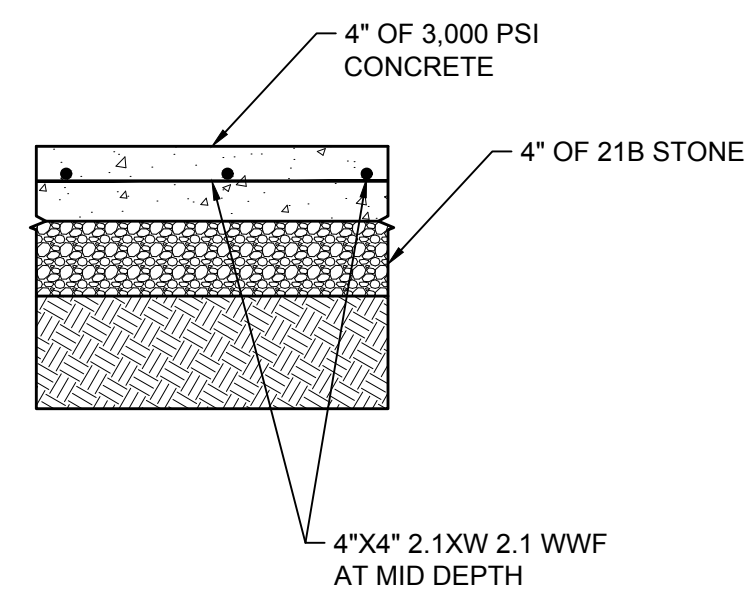
PUMP STATION DETAILS

JOB NO. 43398
SHEET NO. PS-104

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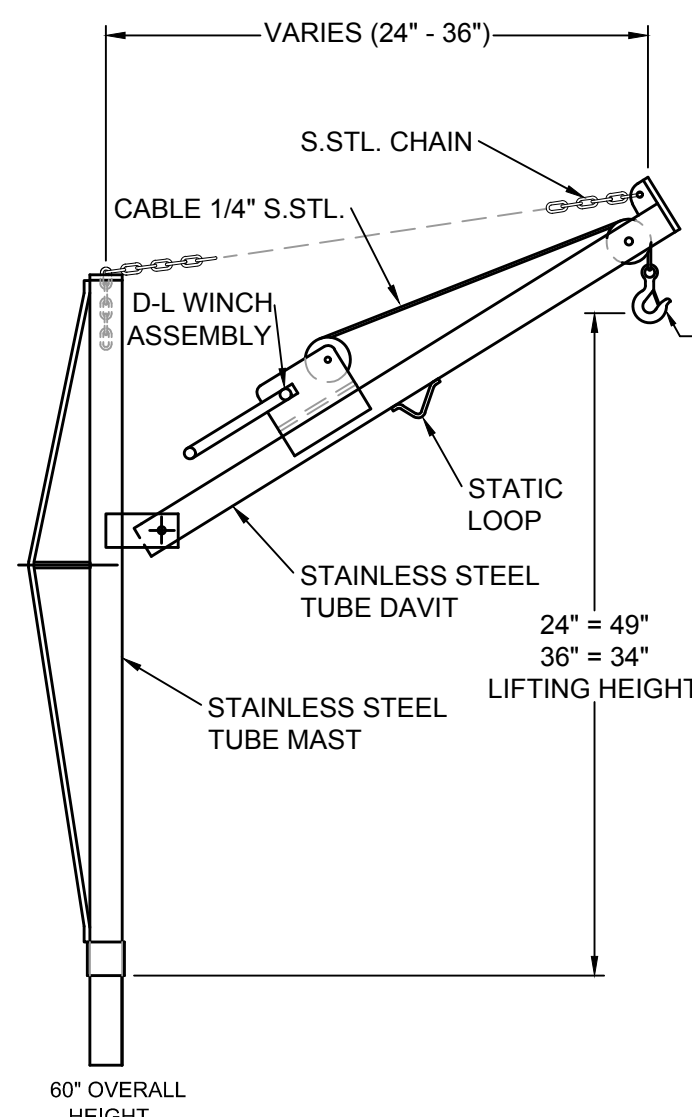


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SCALE: NOT TO SCALE

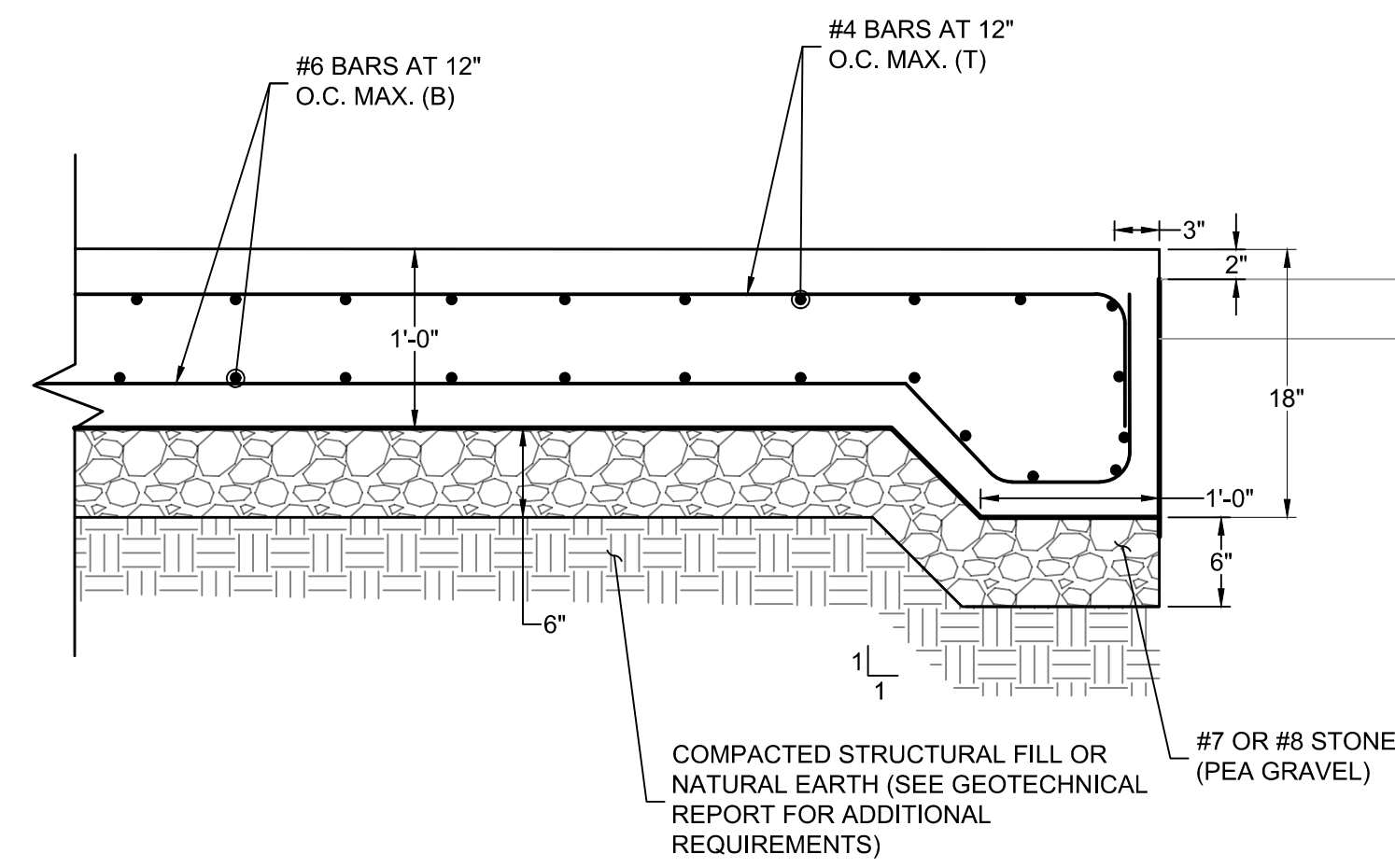
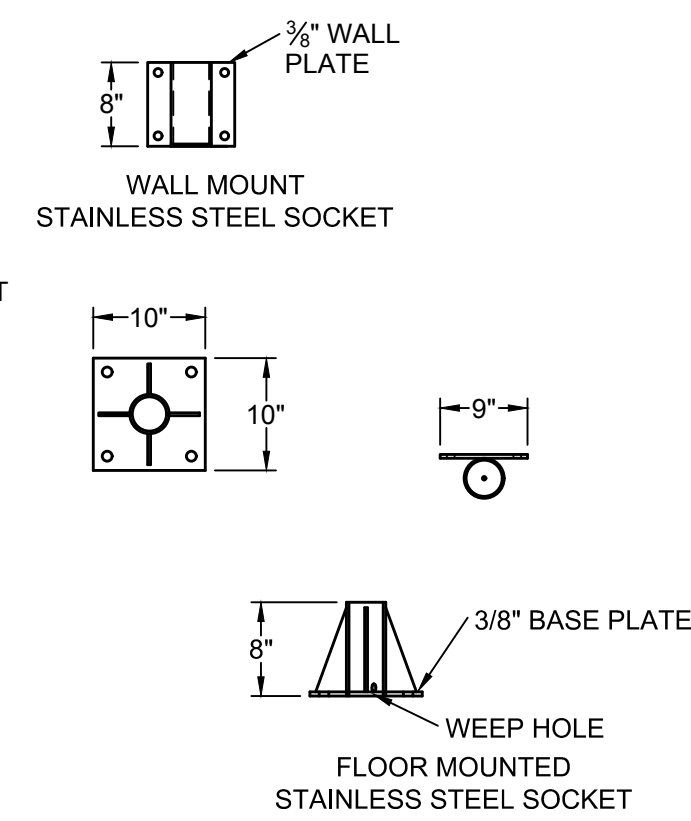
M-21
C1.5



ADJUSTABLE PORTABLE HOIST AND S.S. SOCKET
SCALE: NOT TO SCALE

M-22
C1.5

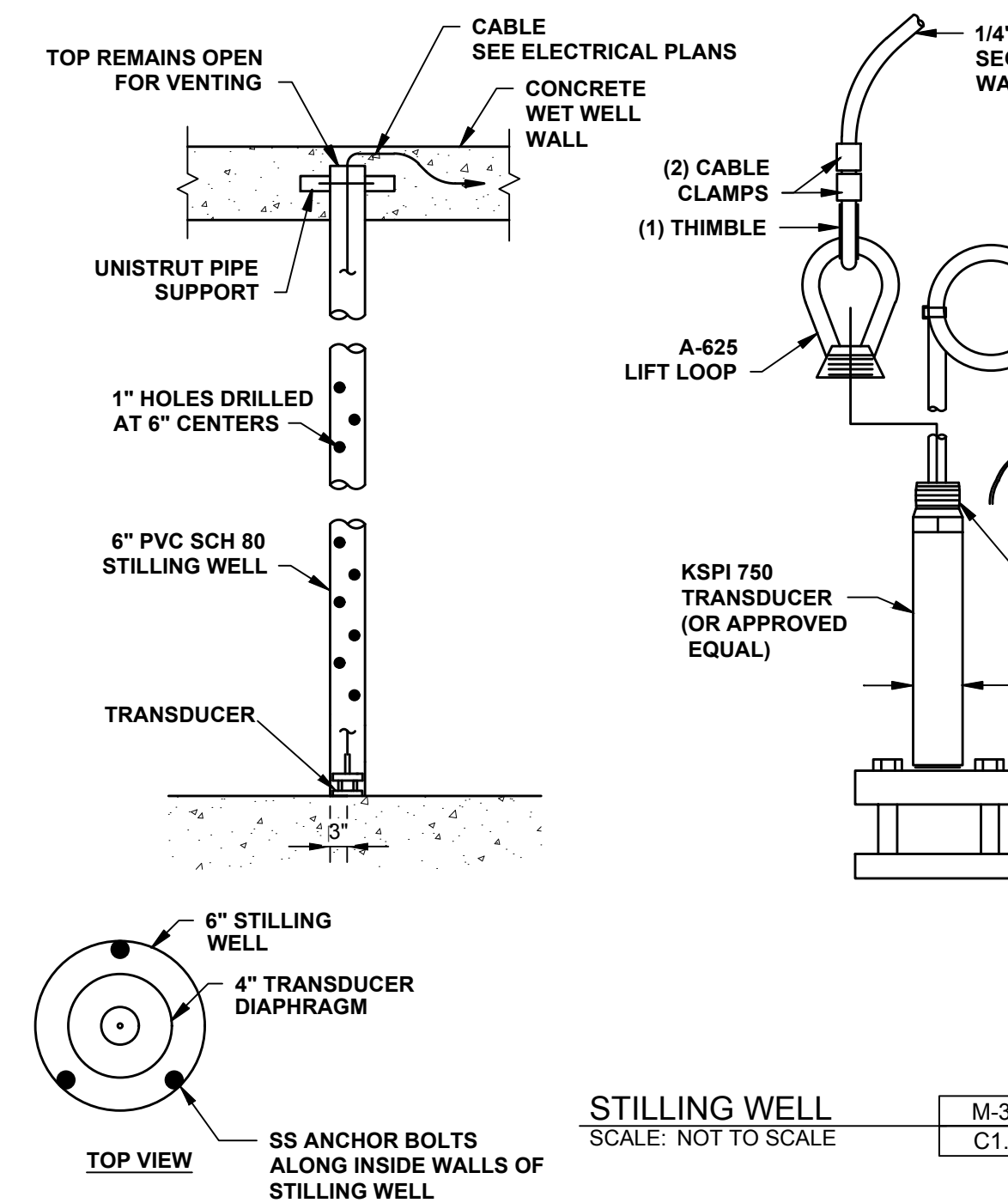
- NOTES:
- HOIST TO BE CONSTRUCTED OF STAINLESS STEEL
 - HOIST TO HAVE AN ADJUSTABLE REACH FROM 24" TO 36"
 - PROVIDE 30 FEET OF STAINLESS STEEL CABLE AND SAFETY HOOK
 - HAND WINCH TO BE DUTTON-LAINSON OR EQUAL
 - HOIST SHALL HAVE A MINIMUM LOAD OF 890 LBS FULLY EXTENDED TO 36".



CONCRETE FOUNDATION PAD
SCALE: NOT TO SCALE

M-23
C1.5

- GENERAL NOTES:
- SLAB DIMENSIONS TO BE 4" LONGER AND WIDER THAN OUTSIDE DIMENSION OF PRECAST CONCRETE BUILDING.
 - FLOOR STUB UPS MUST NOT BE ANY CLOSER THAN 4" IN FROM THE INSIDE WALL FACE TO PROVIDE CLEARANCE FOR WALL TO FLOOR ANCHORAGE.



STILLING WELL
SCALE: NOT TO SCALE

M-30
C1.5



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REVISION DESCRIPTION

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DRAWN BY
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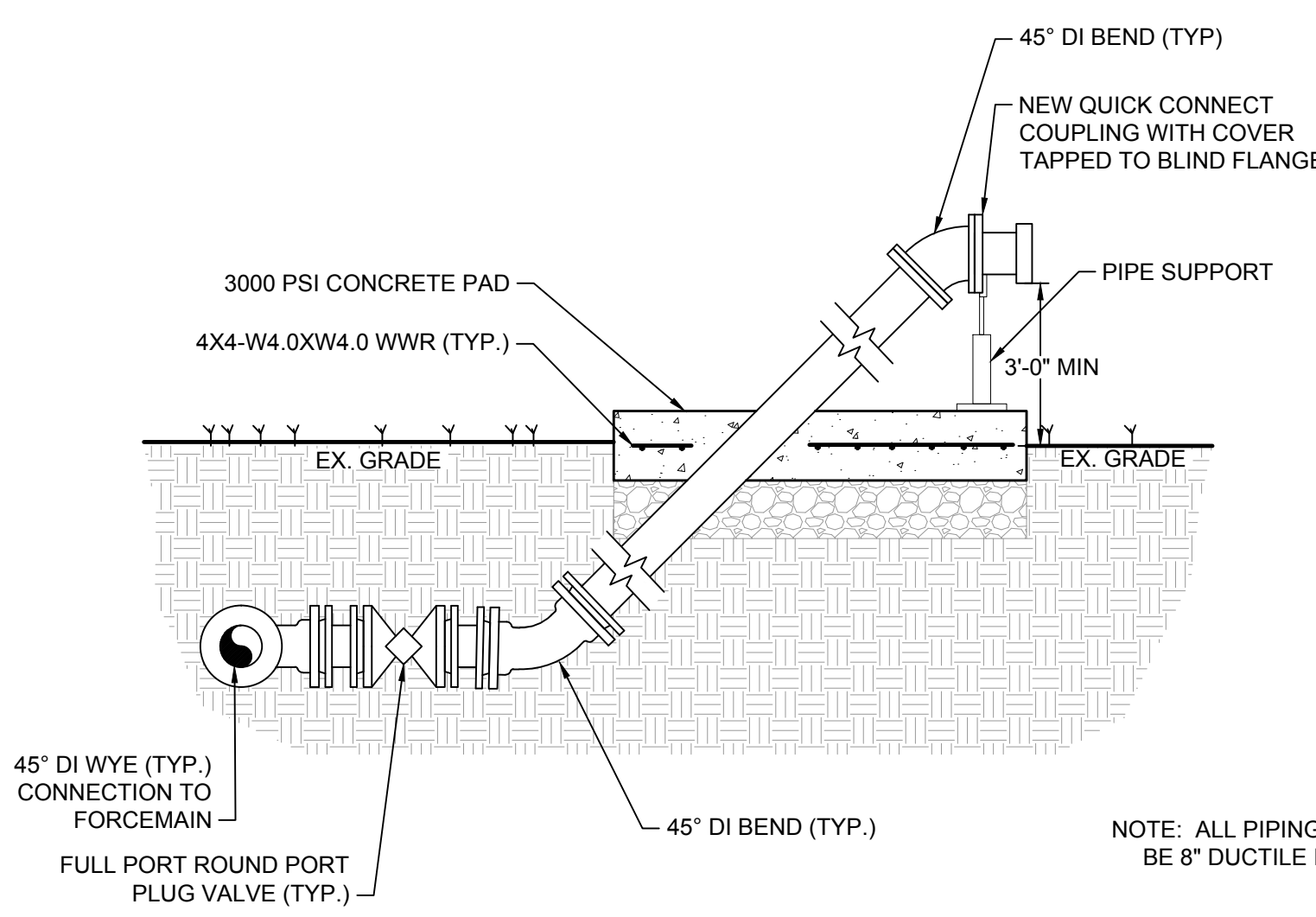
SCALE
AS SHOWN

AS SHOWN

ROLESVILLE CROSSING
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
PUMP STATION DETAILS

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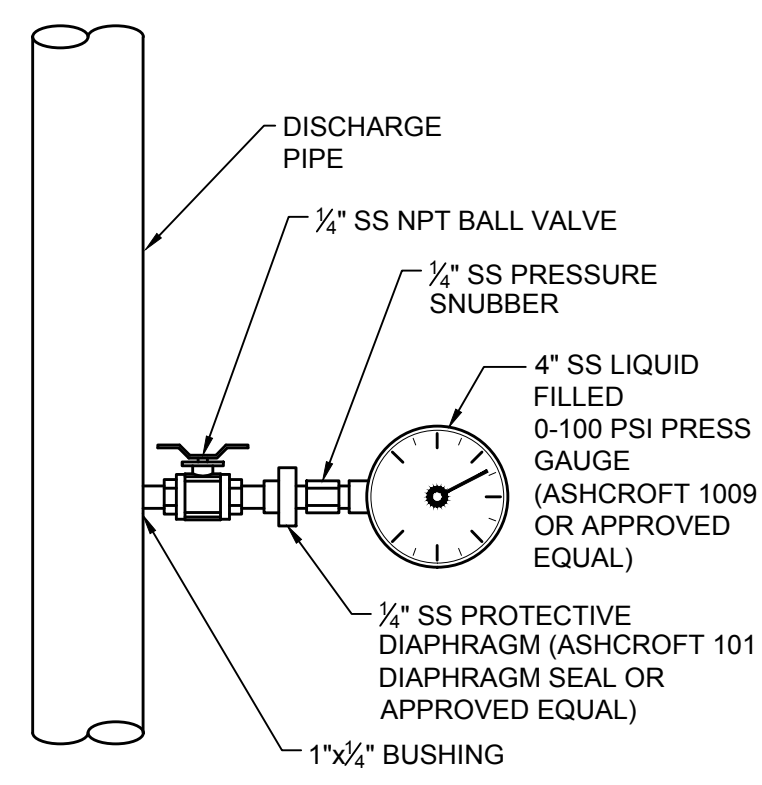
SHEET NO.
PS-105



PIG ACCESS AND EPC CONNECTION DETAIL
SCALE: NOT TO SCALE

M-27
C1.5

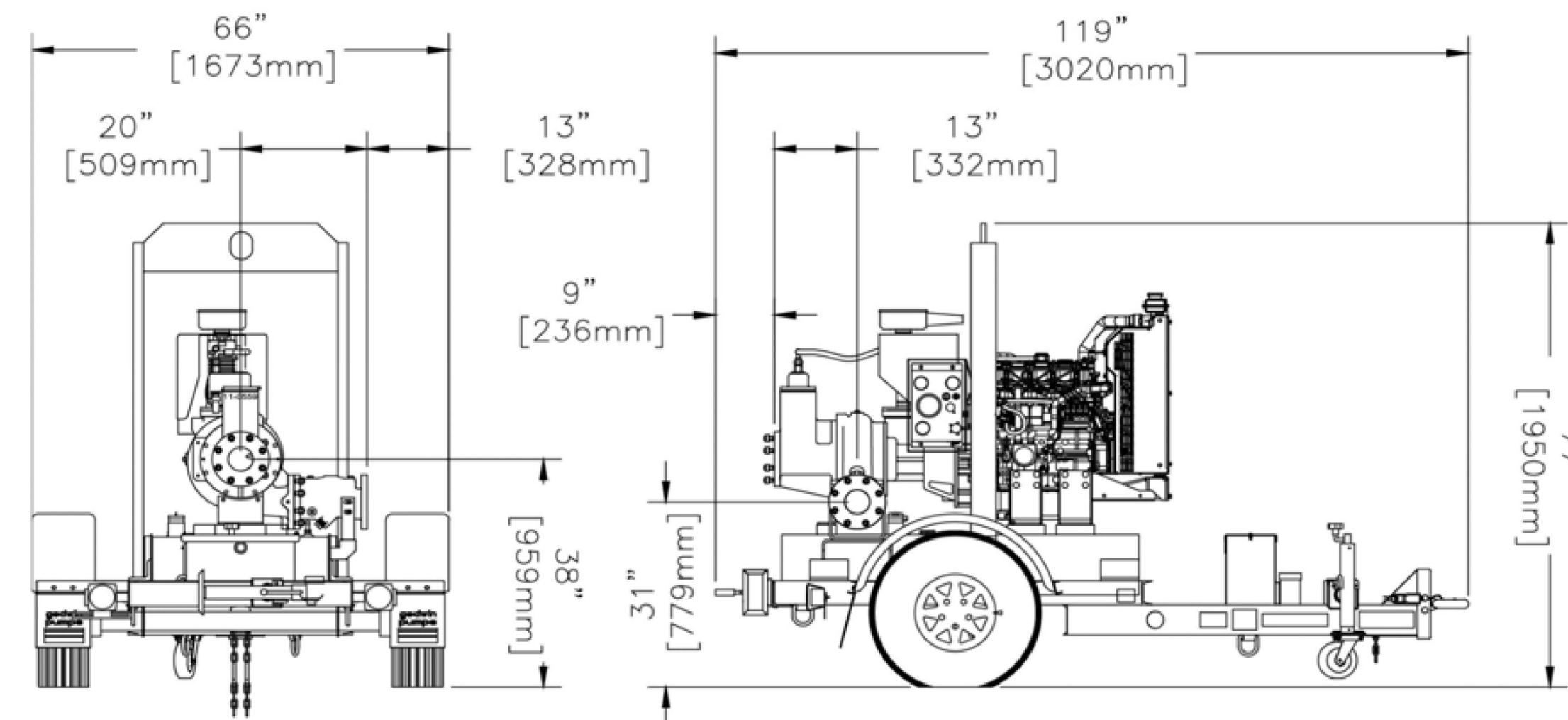
NOTE: ALL PIPING SHALL BE 8" DUCTILE IRON



NOTE: STAINLESS STEEL (SS) TO BE GRADE 304 OR 316

PRESSURE GAUGE ASSEMBLY
SCALE: NOT TO SCALE

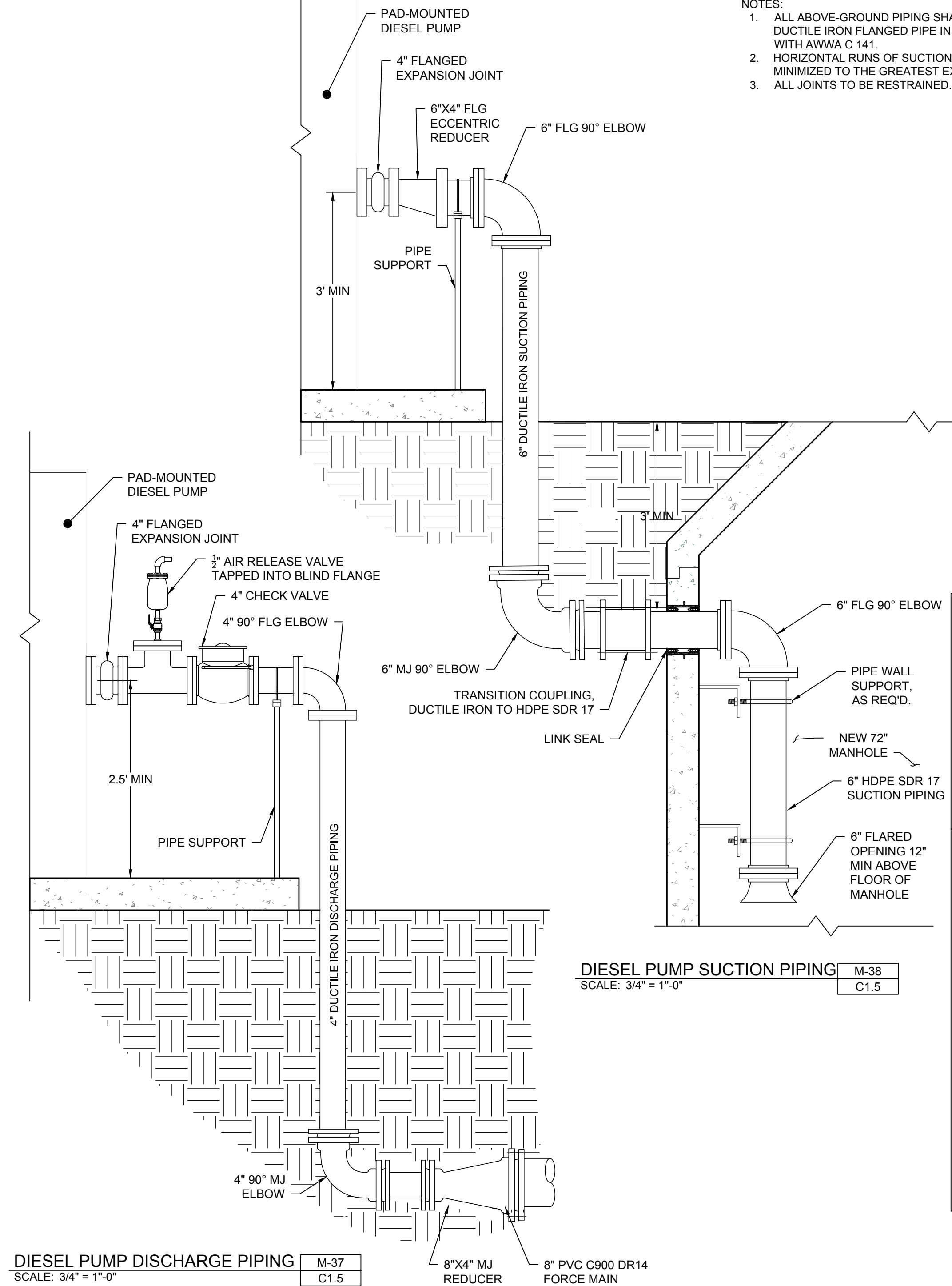
M-28
C1.5



Reference number : 95-1008-3000
Date of issue : February 26, 2014
Issue : 5
www.godwinpumps.com

DIESEL PUMP DISCHARGE PIPING
SCALE: 3/4" = 1'-0"

M-37
C1.5



DIESEL PUMP SUCTION PIPING
SCALE: 3/4" = 1'-0"

M-38
C1.5

- NOTES:
- ALL ABOVE-GROUND PIPING SHALL BE CLASS 50 DUCTILE IRON FLANGED PIPE IN ACCORDANCE WITH AWWA C 141.
 - HORIZONTAL RUNS OF SUCTION PIPING SHALL BE MINIMIZED TO THE GREATEST EXTENT POSSIBLE.
 - ALL JOINTS TO BE RESTRAINED.

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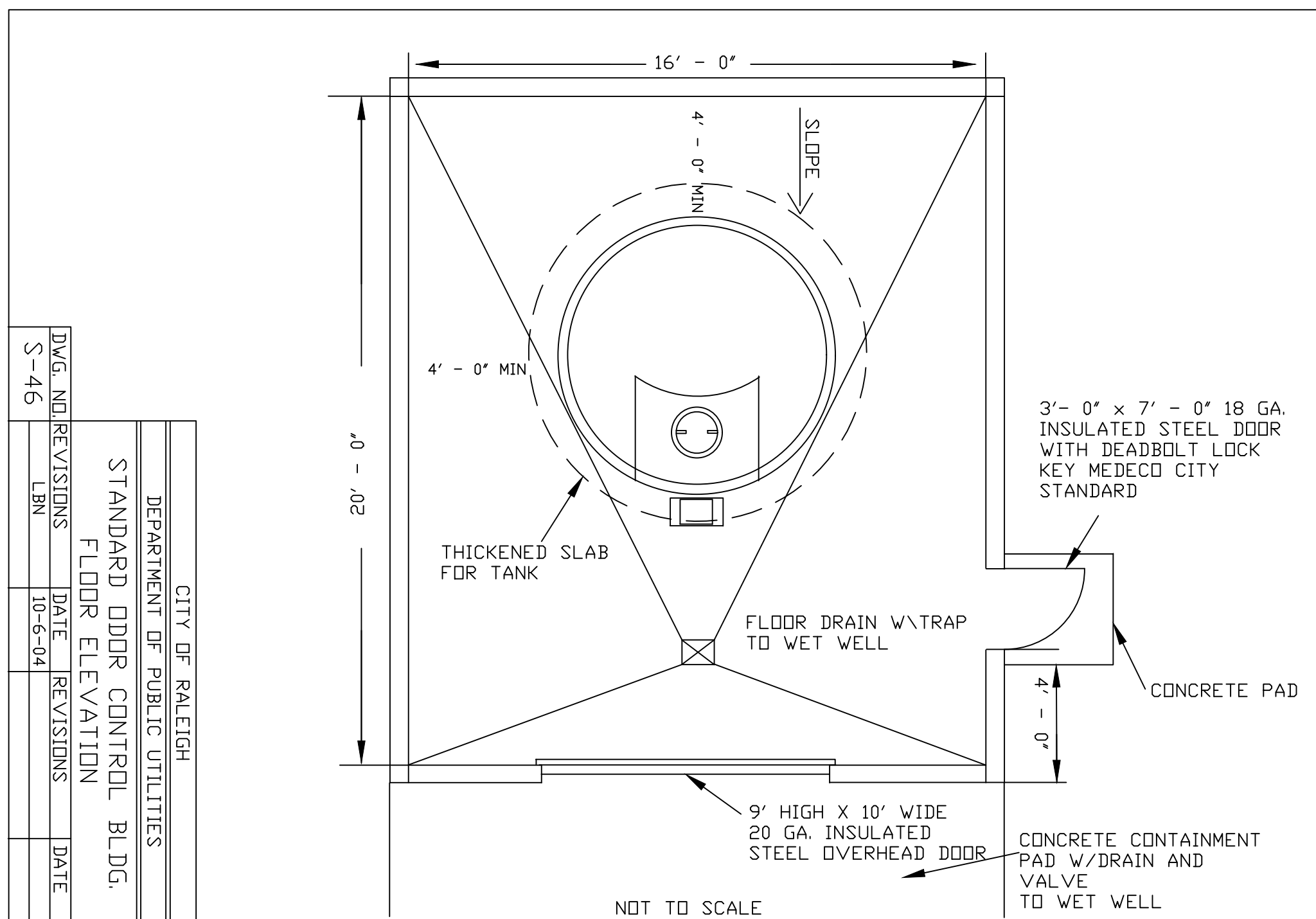
L:\214\3398-Wheeler-TransDwg-Sheet\CD\3398C-FSU\TJD.dwg | Printed on 9/7/2023 11:47 AM | by Ashley Kabat



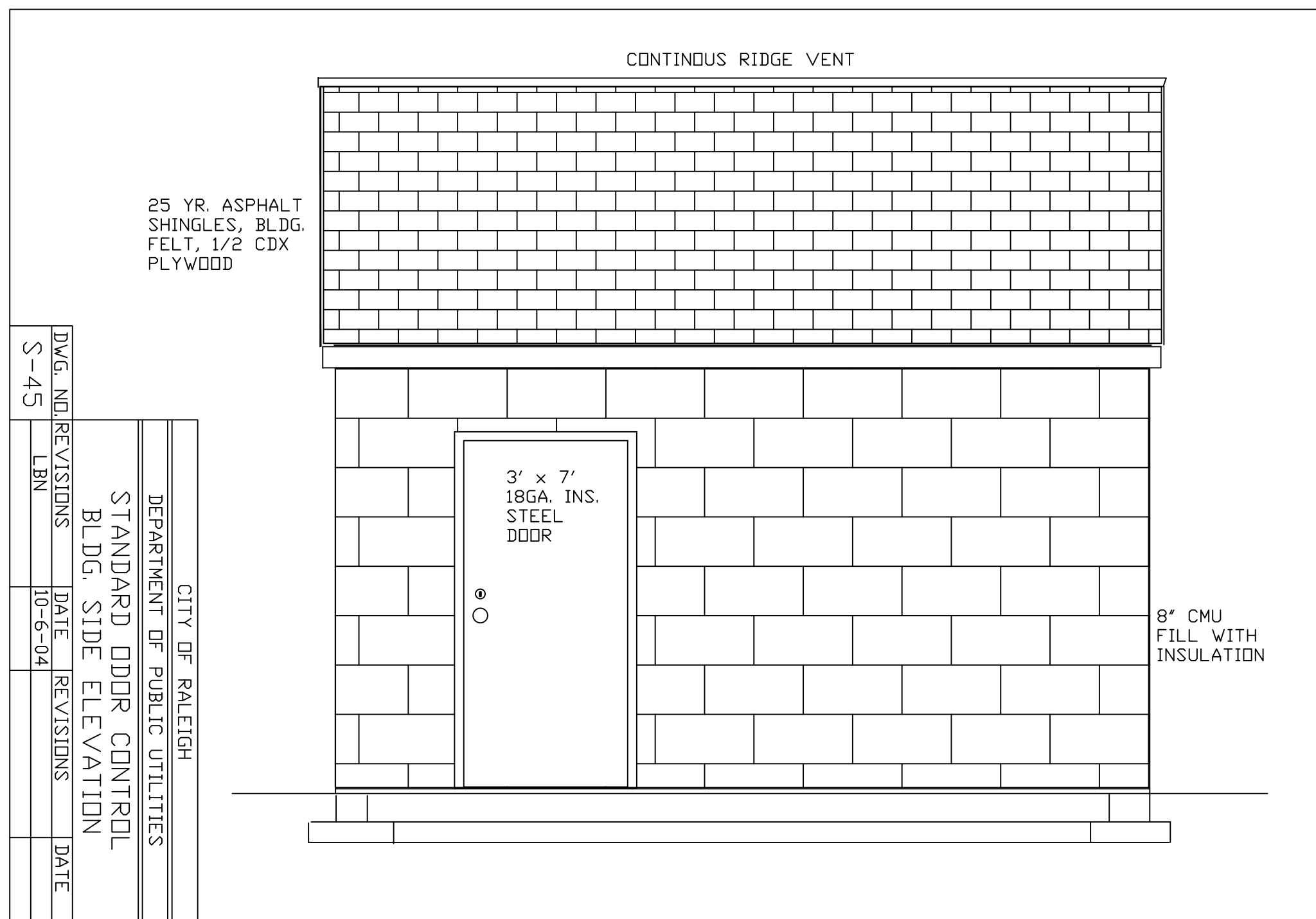
84 Floodgate Road
Bridgeport, NJ 08014 USA
(856) 467-3636 . Fax (856) 467-4841
Email: sales@godwinpumps.com

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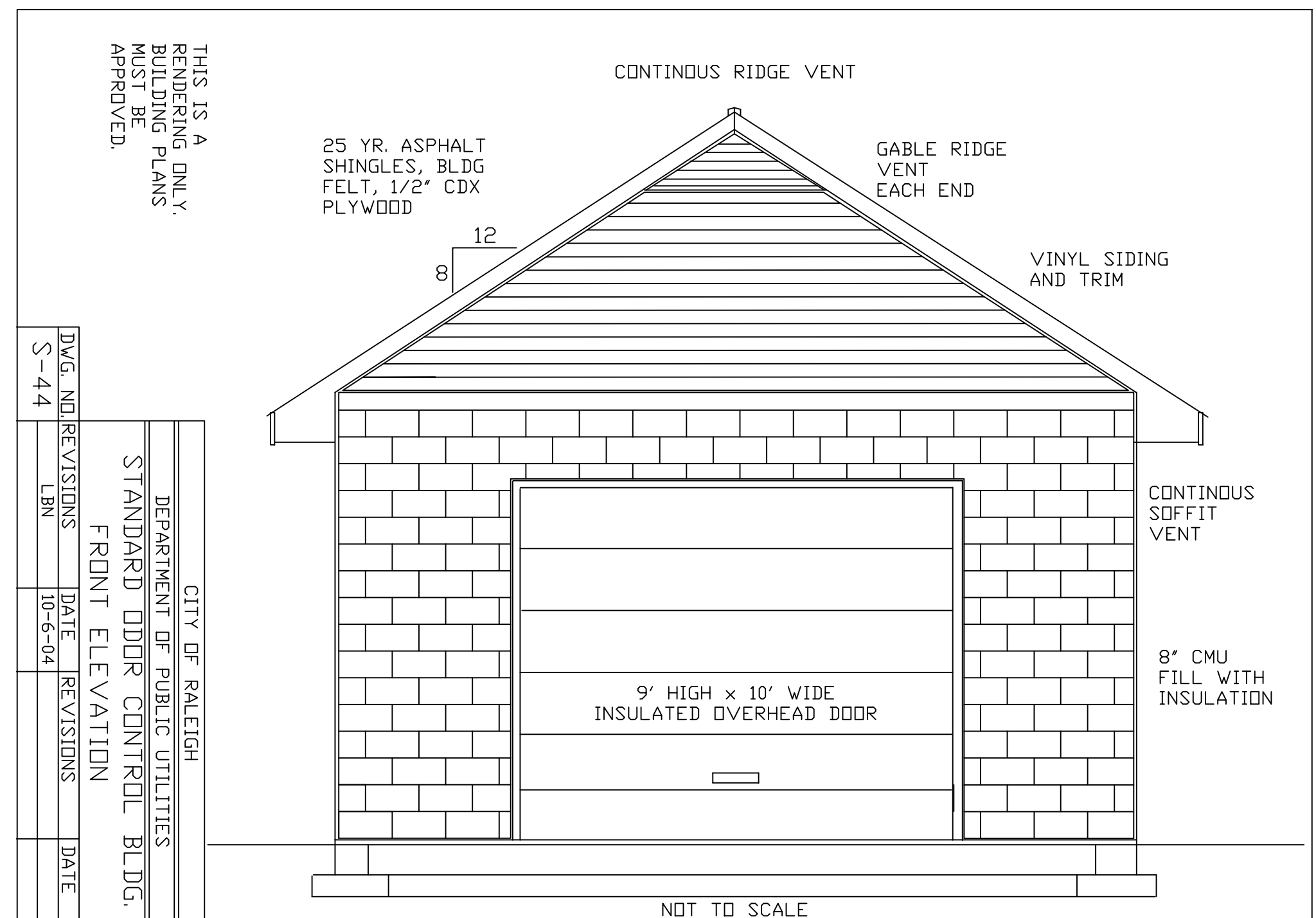
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ODOR CONTROL BLDG FLOOR ELEV. M-32
SCALE: NOT TO SCALE C1.6



ODOR CONTROL BLDG SIDE ELEV. M-33
SCALE: NOT TO SCALE C1.6



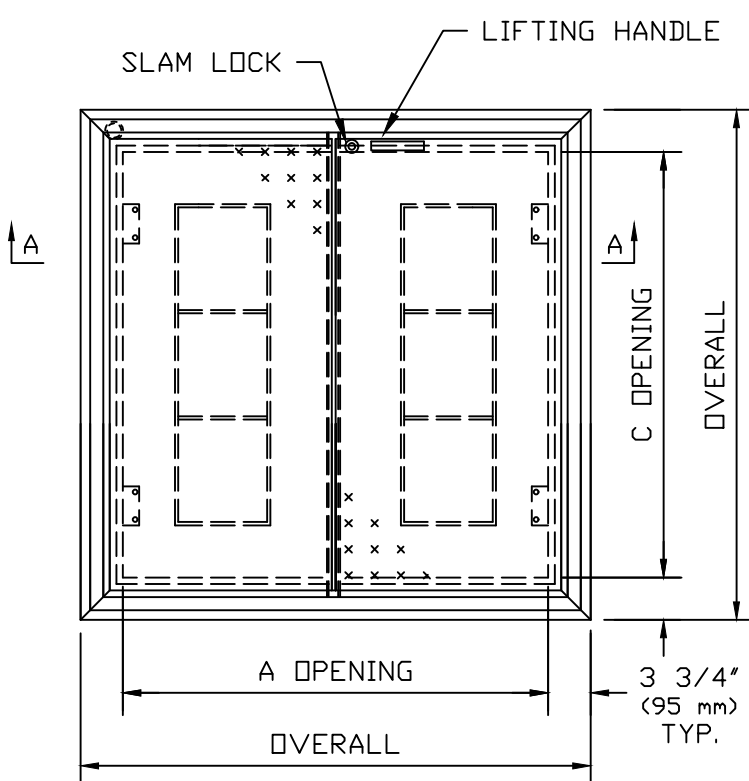
ODOR CONTROL BLDG FRONT ELEV. M-35
SCALE: NOT TO SCALE C1.6

SERIES W2S ACCESS DOOR

STANDARD FEATURES:

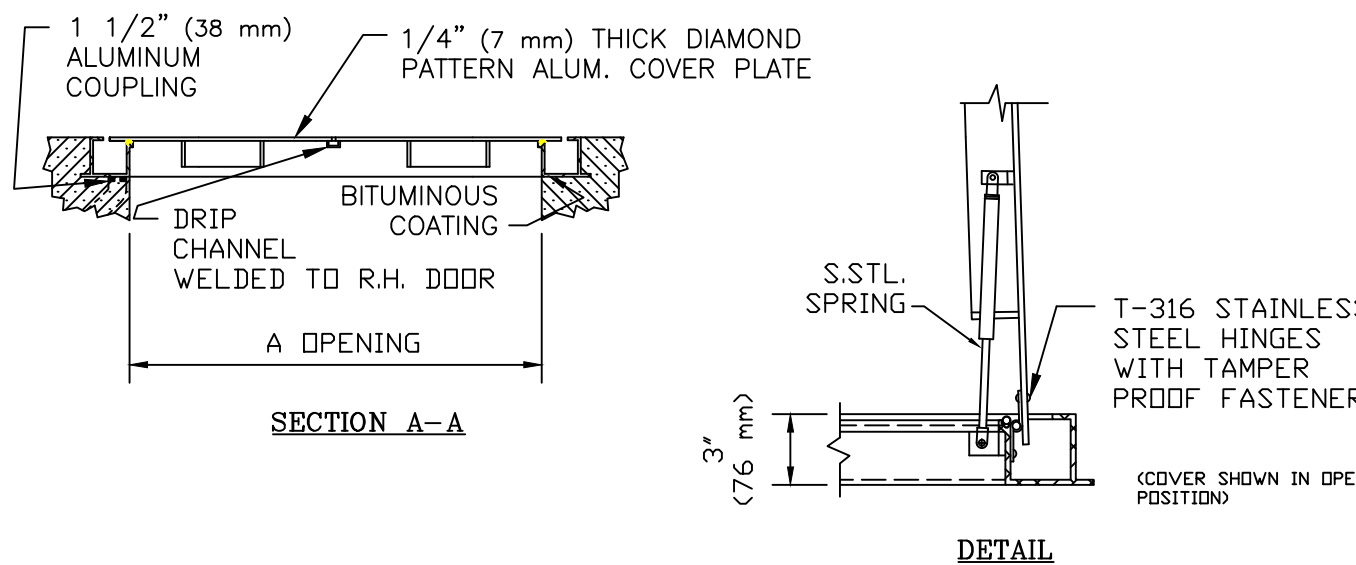
- 300 LBS. PER SQ. FT. LOAD RATING (1464 kg PER SQ. METER LOAD RATING)
- EXTRUDED ALUMINUM CHANNEL FRAME
- DOUBLE LEAF CONSTRUCTION
- AUTO-LOCK T-316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE
- T-316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE
- T-316 STAINLESS STEEL SLAM LOCK WITH REMOVABLE KEY
- STAINLESS STEEL COMPRESSION SPRING ASSIST
- BUILT-IN EPDM CUSHION/GASKET
- NON-OZONE DEPLETING BITUMINOUS COATING
- RECESSED LIFTING HANDLE
- LIFETIME GUARANTEE

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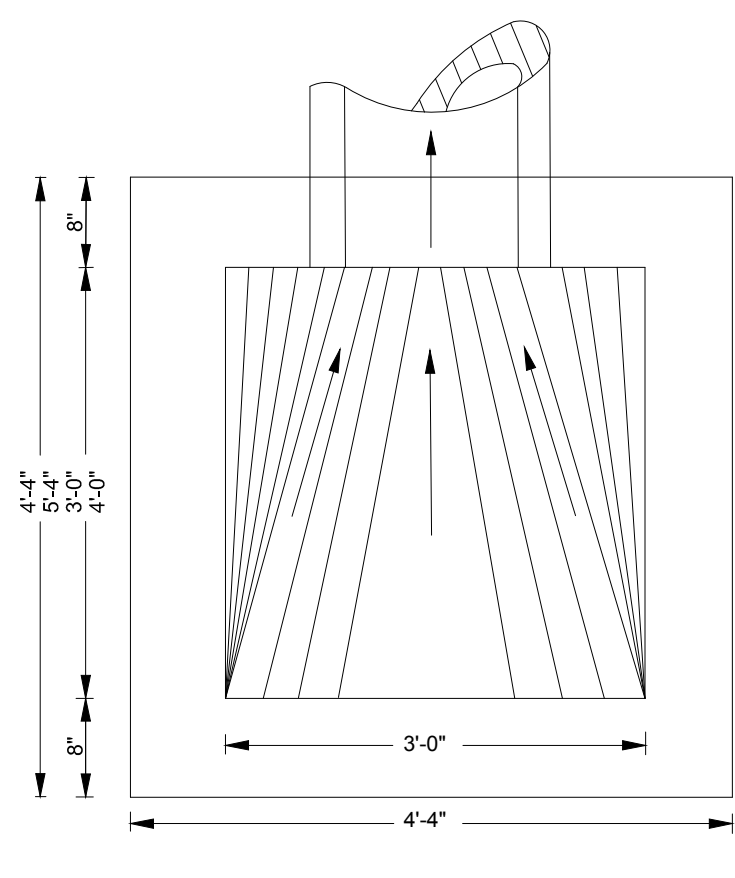
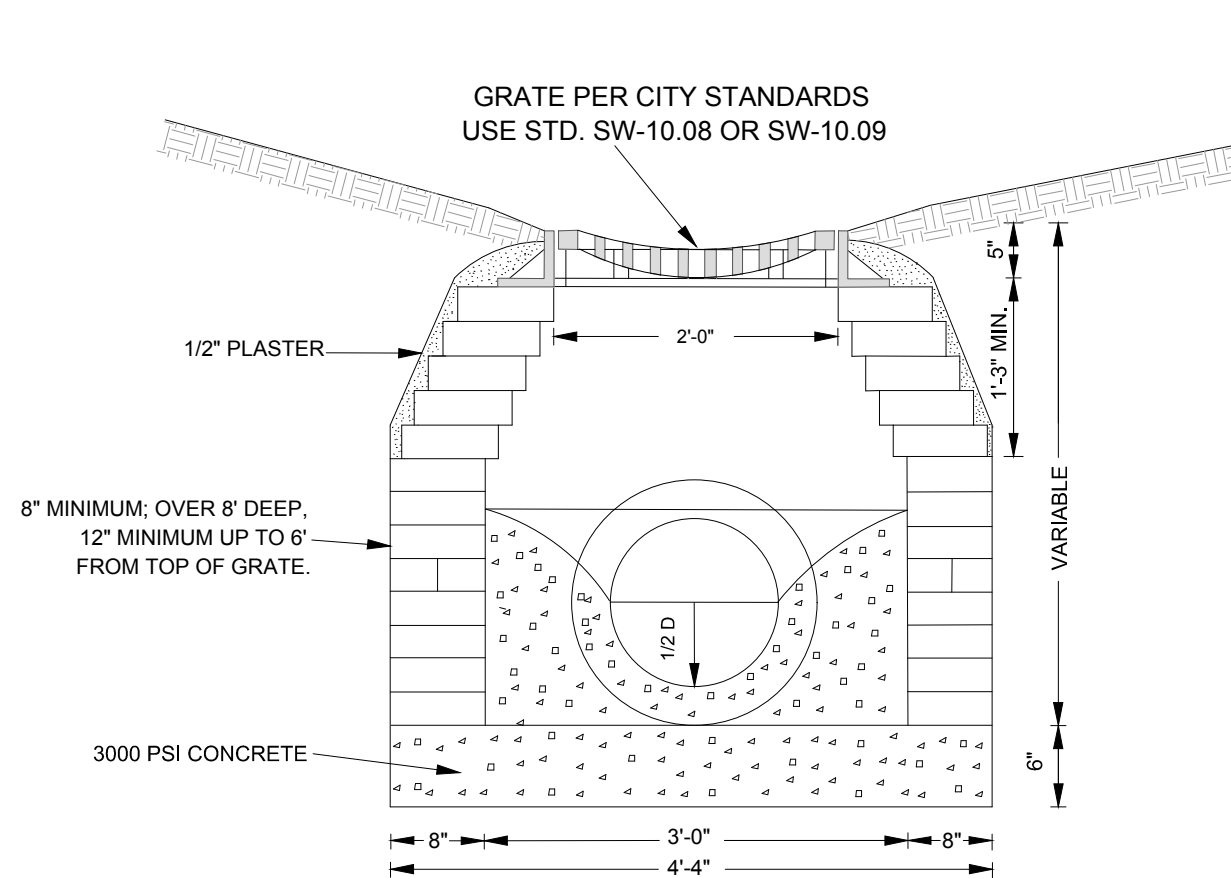


STANDARD SIZES

QTY.	MODEL NO.	A DIM. INCHES (mm)	C DIM. INCHES (mm)	UNIT WT. LBS. (kg.)
	W2S4242	42 (1067)	42 (1067)	108 (48)
	W2S4842	48 (1219)	42 (1067)	115 (52)
	W2S4848	48 (1219)	48 (1219)	126 (57)
	W2S4442	54 (1372)	42 (1067)	124 (56)
	W2S4448	54 (1372)	48 (1219)	136 (62)
2	W2S454	54 (1372)	54 (1372)	149 (68)
	W2S6030	60 (1524)	30 (762)	102 (46)
	W2S6036	60 (1524)	36 (914)	116 (53)
	W2S6042	60 (1524)	42 (1067)	132 (60)
	W2S6048	60 (1524)	48 (1219)	148 (67)
	W2S6054	60 (1524)	54 (1372)	162 (73)
	W2S6060	60 (1524)	60 (1524)	177 (80)
	W2S6636	66 (1676)	36 (914)	126 (57)
	W2S6648	66 (1676)	48 (1219)	160 (73)
	W2S7236	72 (1829)	36 (914)	135 (61)
	W2S7242	72 (1829)	42 (1067)	154 (70)
	W2S7248	72 (1829)	48 (1219)	171 (78)
	W2S7254	72 (1829)	54 (1372)	188 (85)
	W2S7260	72 (1829)	60 (1524)	203 (92)



W2S ACCESS HATCH M-36
SCALE: NOT TO SCALE C1.6



CITY OF RALEIGH DROP INLET M-31
SCALE: NOT TO SCALE C1.6

- NOTES:**
1. FOR 24" RCP & LARGER USE PIPE DIAMETER PLUS 12" FOR MINIMUM INSIDE DIMENSION.
 2. 24" x 24" CASTING WITH 12", 15" & 18" PIPE, 24" x 36" CASTING USED WITH 24" PIPE OR LARGER, IF PLACED WITHIN PUBLIC R/W CASTING MUST BE TRAFFIC BEARING TYPE PER NCDOT STANDARDS.
 3. USE 4" x 4" x 8" OR 4" x 8" x 16" SOLID CONCRETE BLOCK. CAST IN PLACE OR PRECAST CONCRETE TO MEET N.C.D.O.T. STANDARDS ACCEPTABLE.
 4. STEPS SHALL BE INSTALLED IN ALL DROP INLETS OVER 3' IN DEPTH. DEPTH SHALL BE MEASURED FROM THE TOP OF GRATE TO THE INVERT OF THE DROP INLET.

REVISIONS	DATE	NOT TO SCALE

STANDARD DROP INLET

SW-10.03

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DATE 09/06/23

DRAWN BY A. KABAT

DESIGNED BY A. KABAT

CHECKED BY C. PETREE

SCALE AS SHOWN

REVISION DESCRIPTION

DATE

TIMMONS GROUP

ROLESVILLE CROSSING
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

PUMP STATION DETAILS

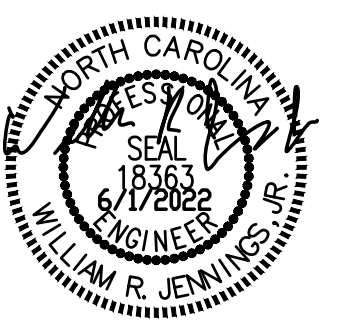
JOB NO. 43398

SHEET NO. PS-106

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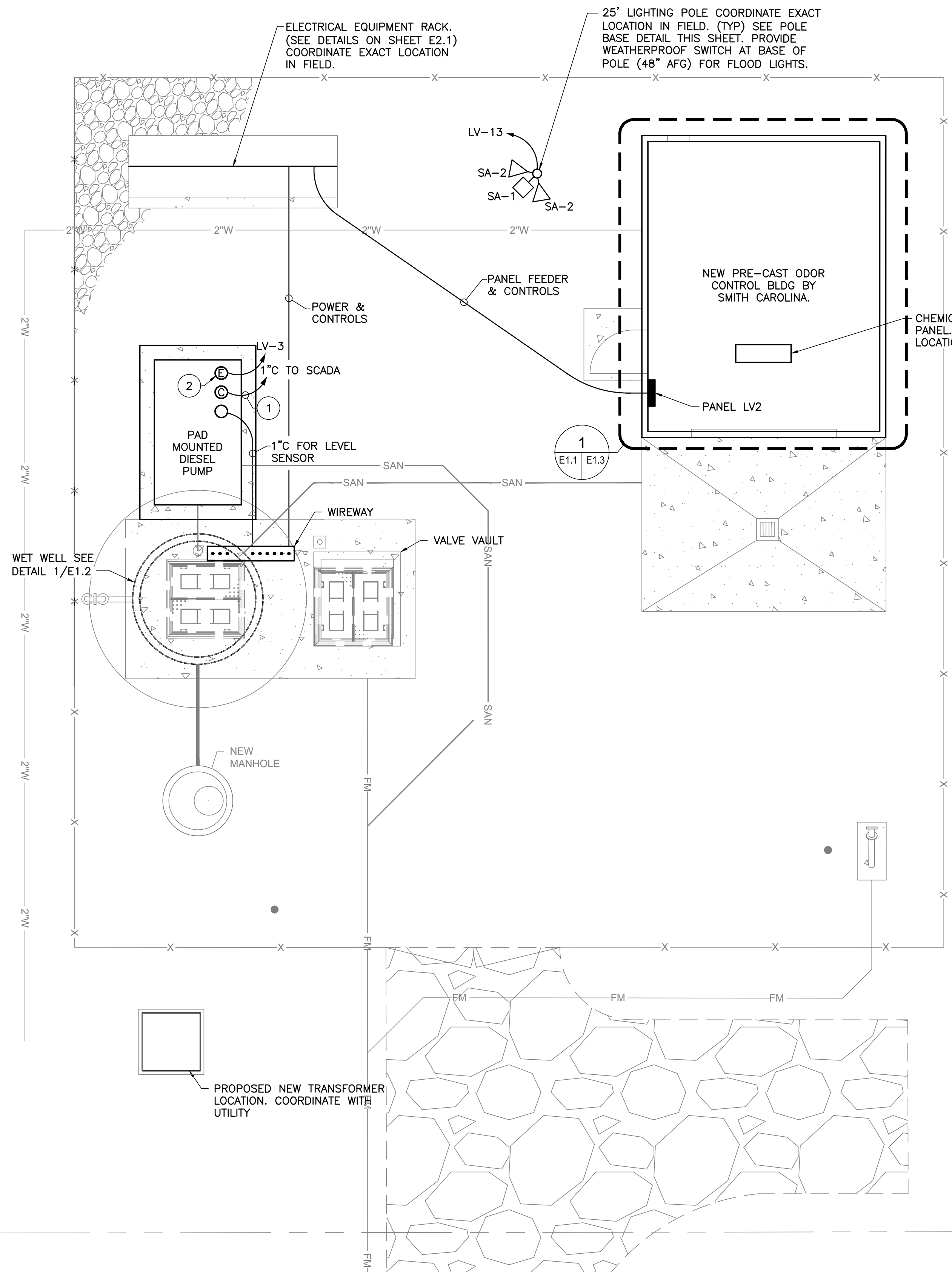
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DATE	REVISION DESCRIPTION
6/1/2022	REVISED PER COMMENTS
3/16/2022	

DATE	3/16/2022
DRAWN BY	JTP
DESIGNED BY	WRJ
CHECKED BY	WRJ
SCALE	

TIMMONS GROUP

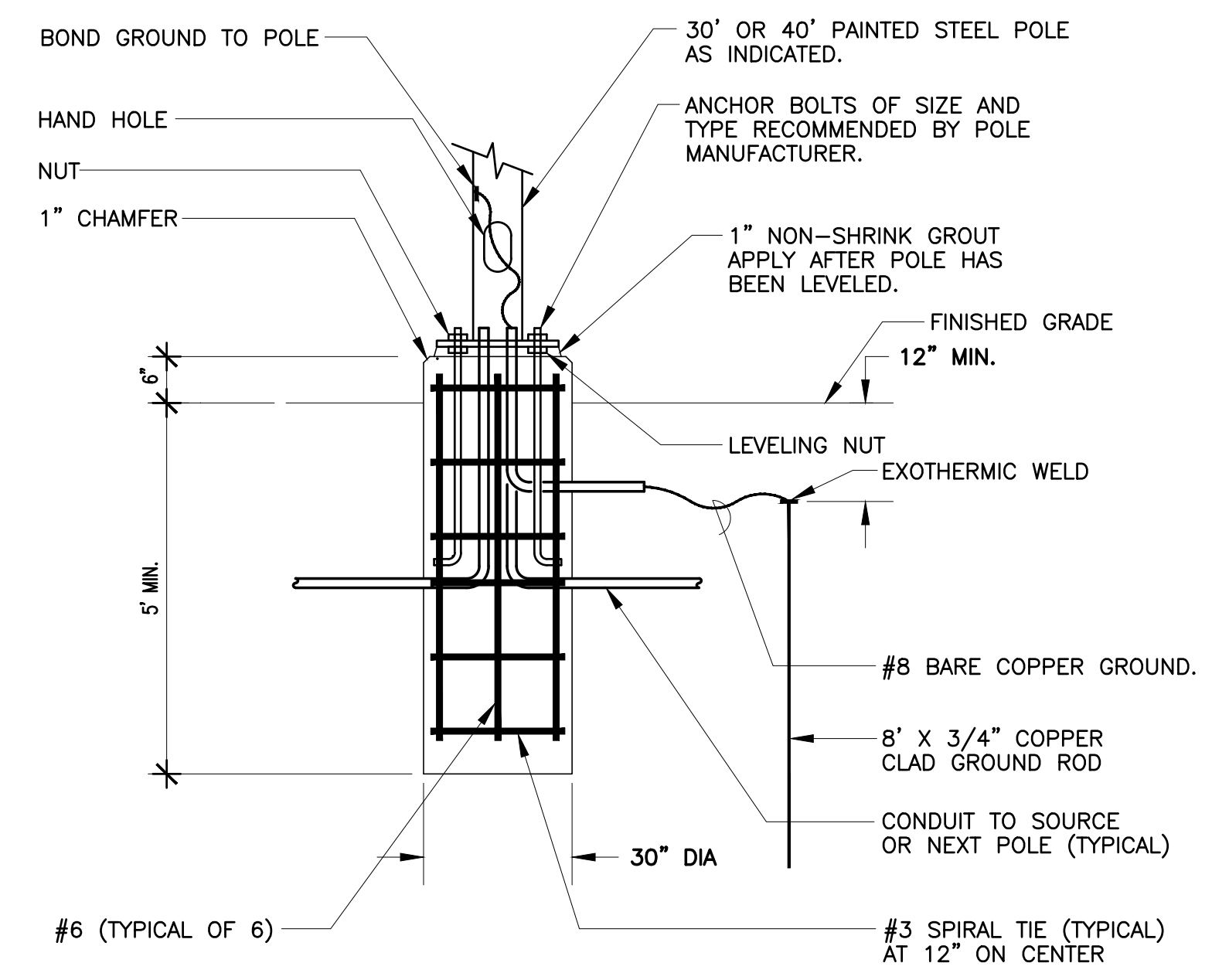
ROLESVILLE CROSSING
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
ELECTRICAL - SITE PLAN, NOTES & LEGEND



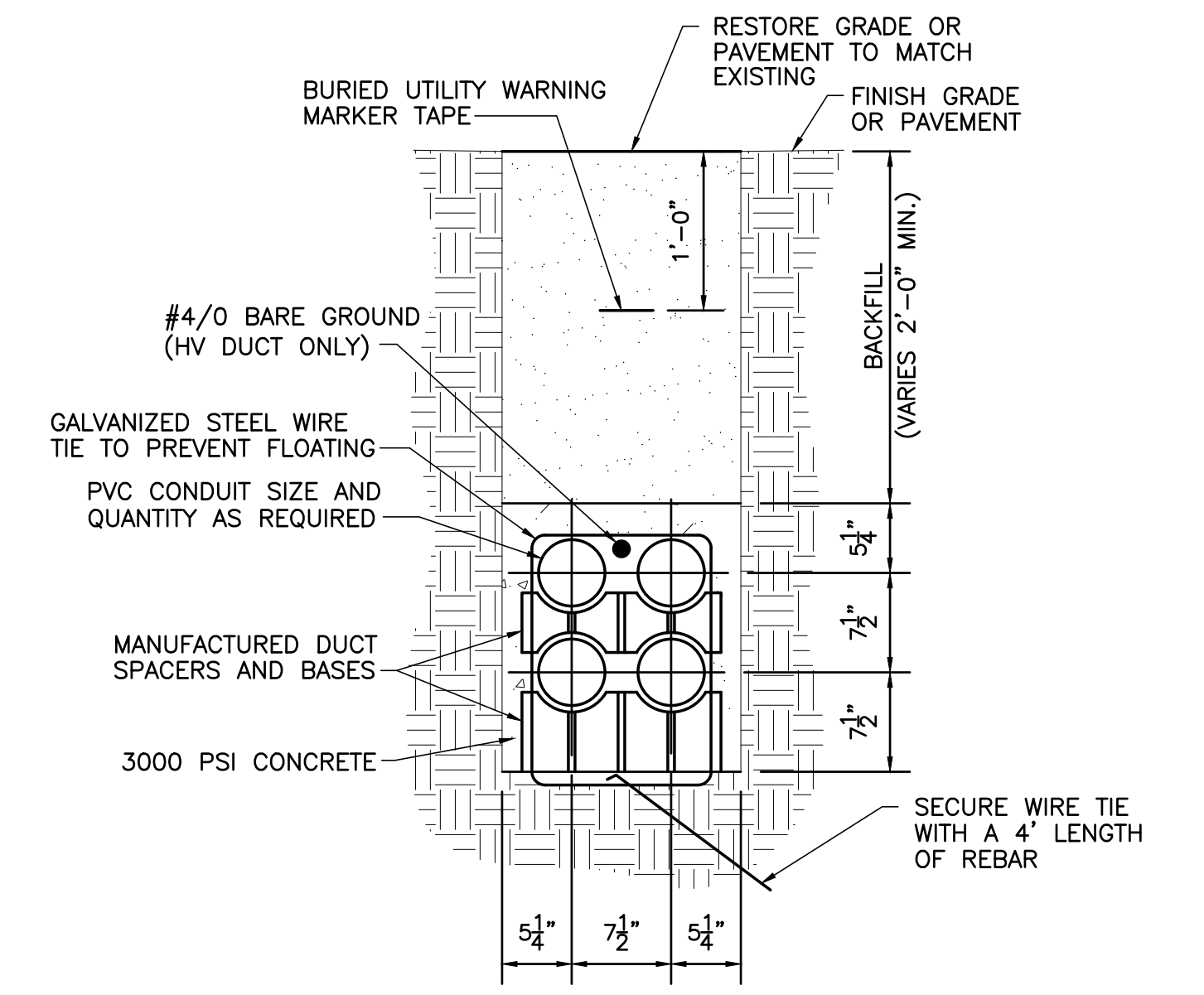
SITE PLAN - ELECTRICAL
 SCALE: 1" = 10'-0"
 1 E1.1 E1.1

SPECIFIC NOTES:

- ALARM WIRING TO RTU/SCADA TO BE 8#14 & GND IN 1-1/2" CONDUIT (VERIFY EXACT QUANTITY OF CONDUCTORS WITH RTU/SCADA PROVIDER).
- 1" CONDUIT FOR DIESEL PUMP AUXILIARY POWER WIRING (BLOCK HEATER, BATTERY CHARGER). CONNECT TO GFCI RECEPTACLE PROVIDED WITH DIESEL PUMP.



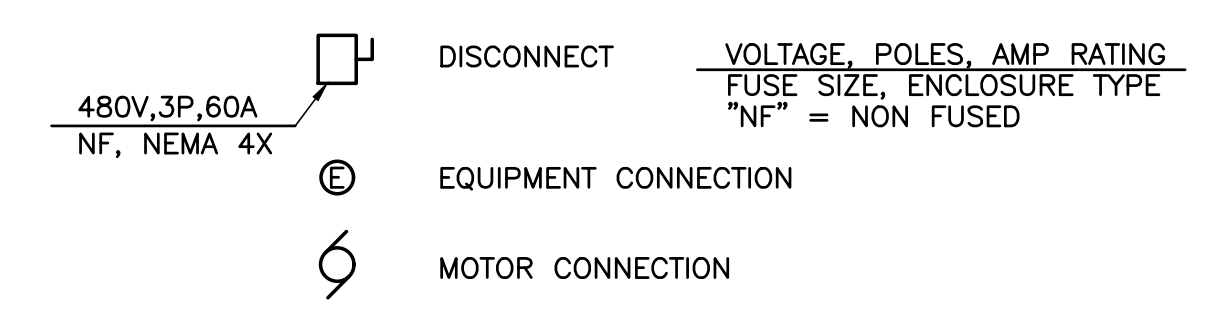
POLE BASE DETAIL
 NOT TO SCALE
 2 E1.1 E1.1



NOTE: REPEAT CONSTRUCTION SHOWN IN THIS DETAIL ON 8'-0" CENTERS ALONG LENGTH OF DUCTBANK.

TYPICAL DUCT BANK DETAIL
 NOT TO SCALE
 3 E1.1 E1.1

ELECTRIC LEGEND



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City of Raleigh
 Public Utilities Department Permit # _____
 Authorization to Construct _____
 Date _____

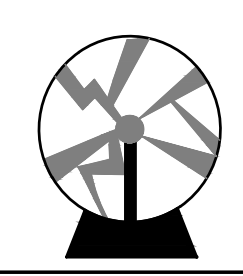
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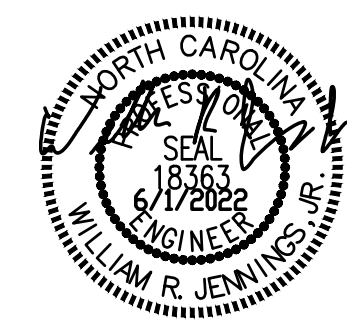
ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

T:\JOBS\21139 - Rolesville Crossing Pump Sta - Wake Co\CADD\21139 - E1_1.dwg [Plotted on 6/1/2022 1:18 PM] by JWF/Ponon



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Consulting Engineering, PC
 3212 HILL STREET, UNIT A
 LYNCHBURG, VA 24501
 Phone: (434) 525-7099
 Fax: (757) 282-2636
 Email: bjennings@jenningspe.com

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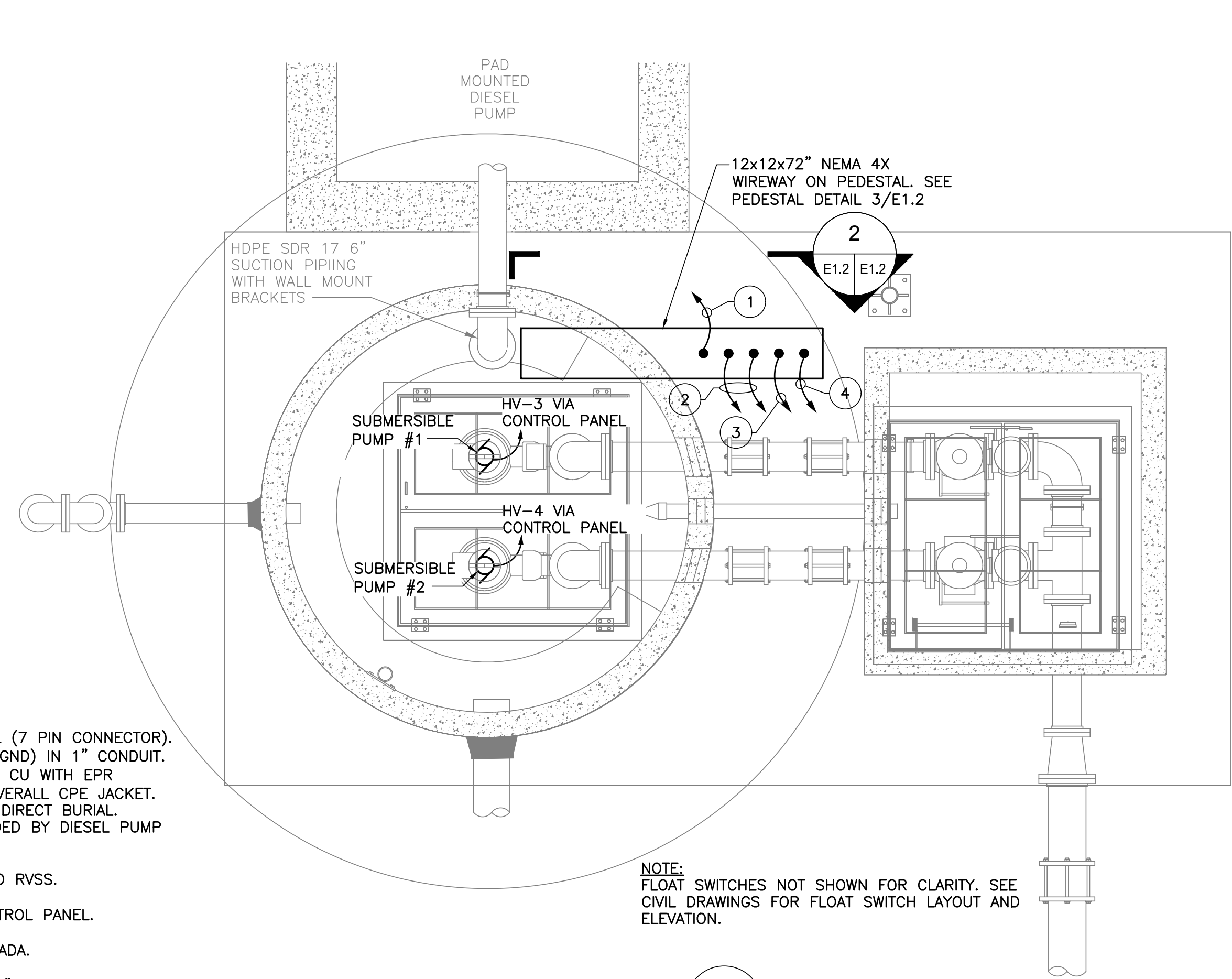
DATE: 6/1/2022
 DATE: 3/16/2022
 DRAWN BY: JTP
 DESIGNED BY: WRJ
 CHECKED BY: WRJ
 SCALE:

REVISION DESCRIPTION
 REVISED PER COMMENTS

TIMMONS GROUP

ROLESVILLE CROSSING
 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
 PUMP STATION PLAN - ELECTRICAL

JOB NO. 43398
 SHEET NO. E1.2

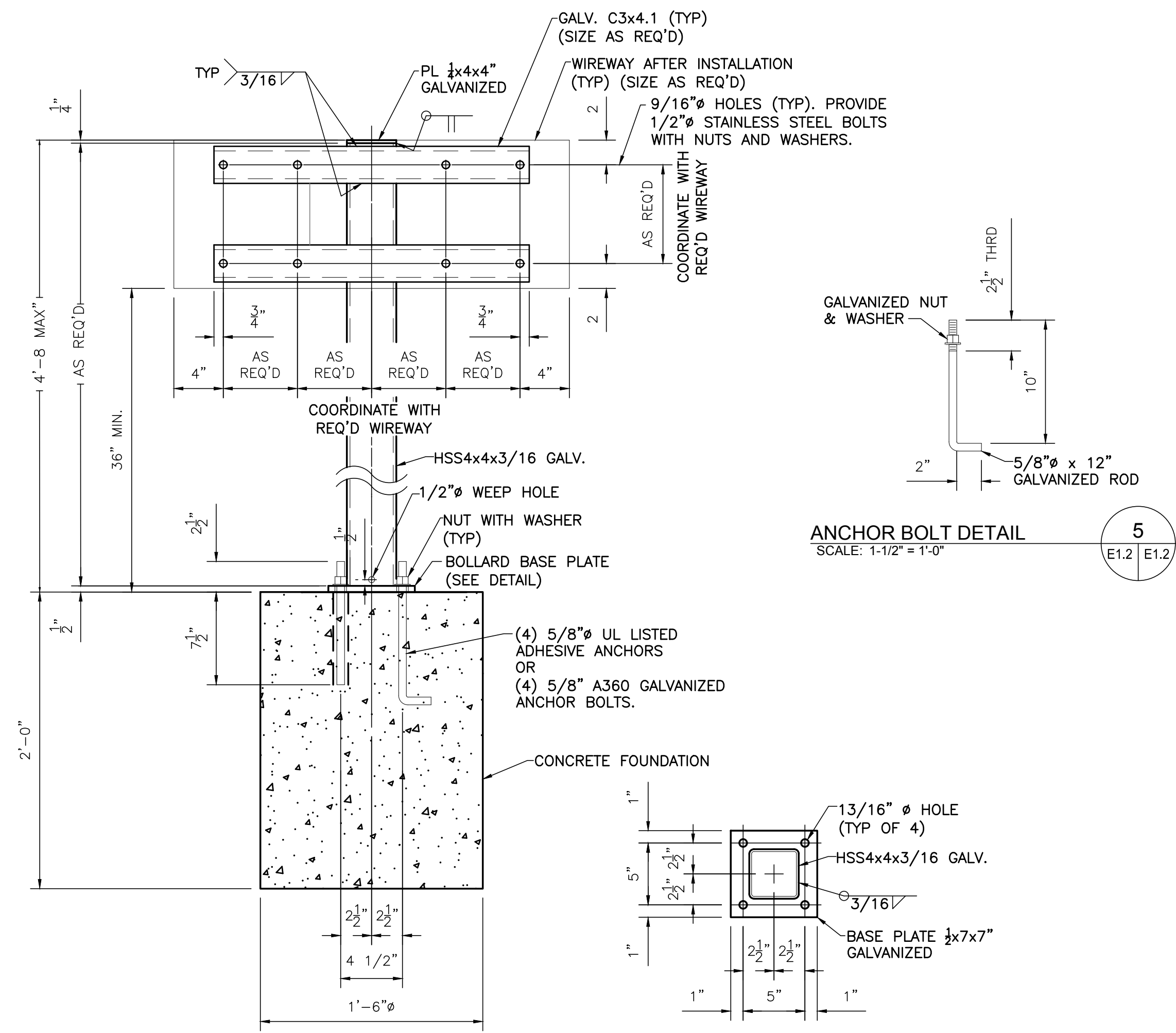


PUMP STATION PLAN VIEW - ELECTRICAL
 SCALE: 1/2" = 1'-0"
 1 E1.1 E1.2

SPECIFIC NOTES:

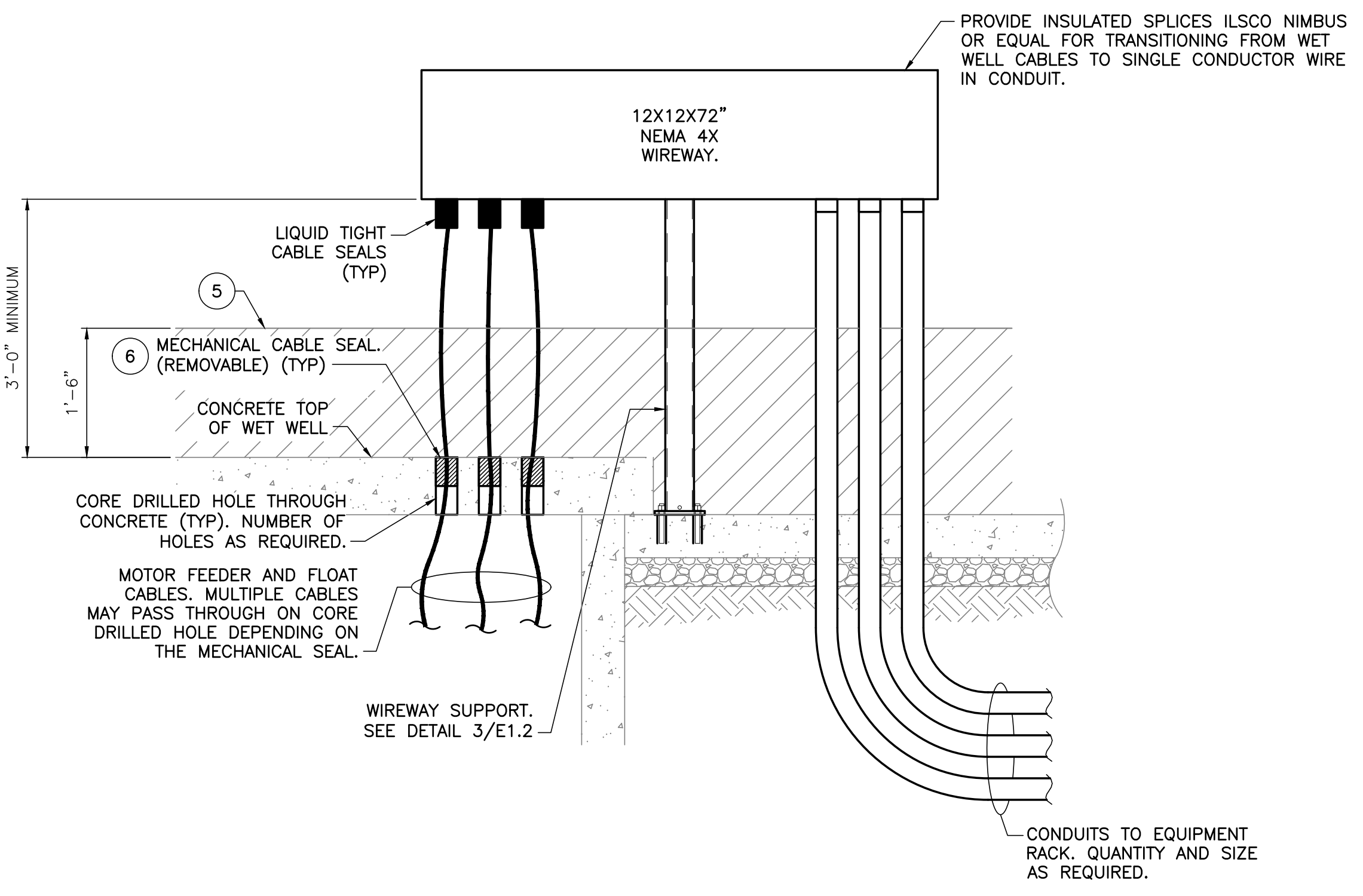
- 1 TO DIESEL PUMP CONTROL PANEL (7 PIN CONNECTOR). USE 7 CONDUCTOR CABLE (6 + GND) IN 1" CONDUIT. CONDUCTORS SHALL BE #14 AWG CU WITH EPR INSULATION (XHHW-2) AND AN OVERALL CPE JACKET. ASSEMBLY SHALL BE RATED FOR DIRECT BURIAL. TERMINATE IN CONNECTOR PROVIDED BY DIESEL PUMP SUPPLIER.
- 2 1" CONDUIT FOR PUMP POWER TO RVSS.
- 3 2" CONTROL CONDUIT PUMP CONTROL PANEL.
- 4 1" CONTROL CONDUIT TO RTU/SCADA.
- 5 CLASS 1, DIV 2 AREA EXTENDS 18" ABOVE SLAB WITHIN 3'-0" OF THE SEALED OPENINGS FOR CABLE. NOTE: IF OPENINGS ARE NOT SEALED IT IS CLASS 1, DIV 1 WITHIN 3'-0" IN ALL DIRECTIONS OF OPENING AND CLASS 1, DIV 2 WITHIN 5'-0" OF OPENINGS.
- 6 SEAL TO BE ROXTEC RS SEAL OR EQUAL. METAL PARTS TO BE STAINLESS STEEL. ENTIRE FITTING SHALL BE "ACID PROOF".

NOTE:
 FLOAT SWITCHES NOT SHOWN FOR CLARITY. SEE CIVIL DRAWINGS FOR FLOAT SWITCH LAYOUT AND ELEVATION.



WIREWAY BOLLARD DETAIL
 SCALE: 1-1/2" = 1'-0"
 3 E1.2 E1.2

BOLLARD BASE PLATE DETAIL
 SCALE: 1-1/2" = 1'-0"
 4 E1.2 E1.2



PARTIAL PUMP STATION SECTION VIEW
 SCALE: 3/4" = 1'-0"
 2 E1.2 E1.2

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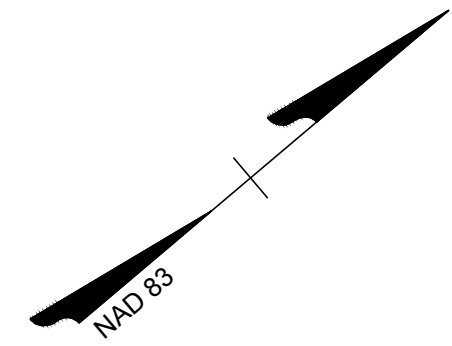
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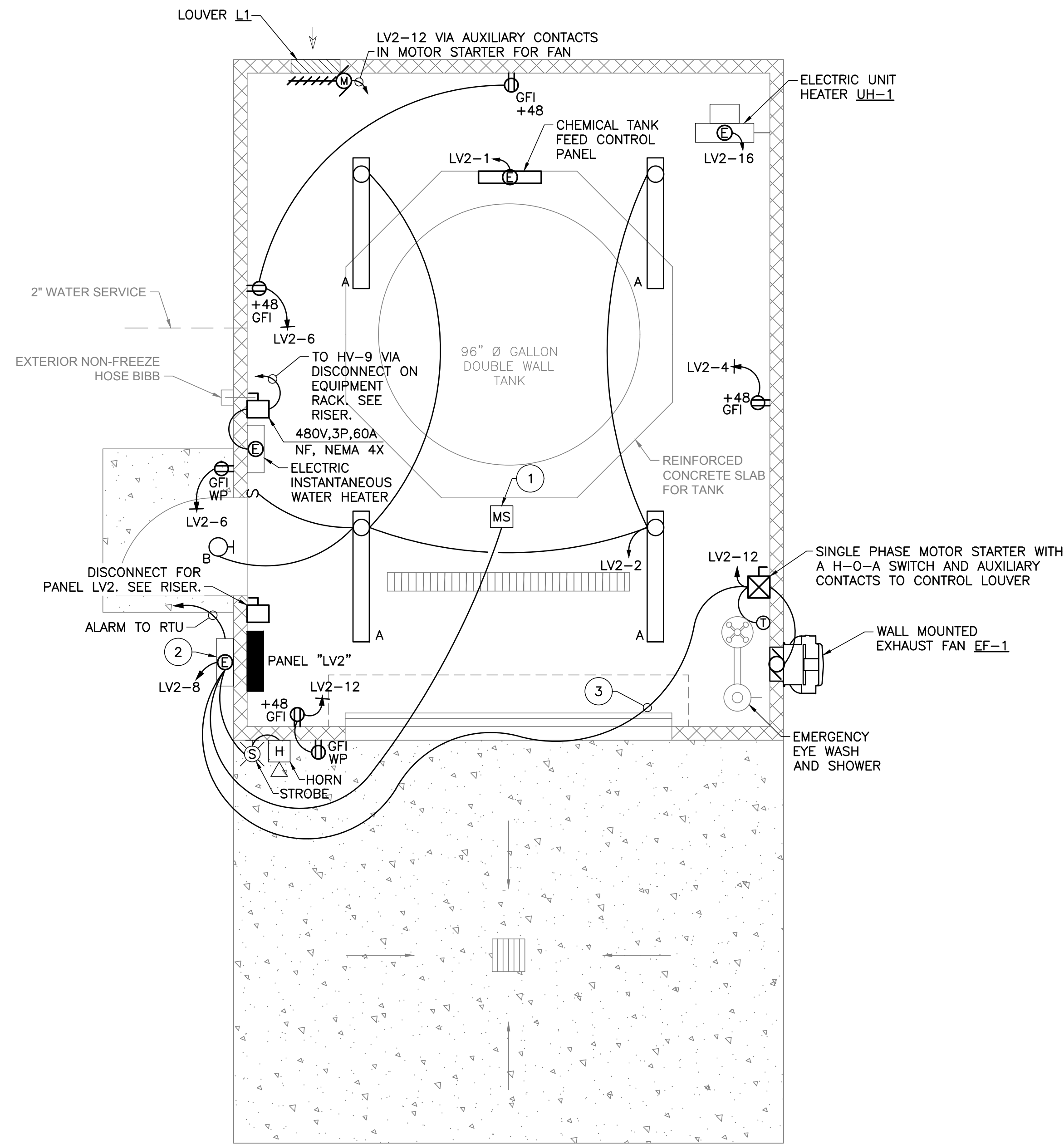
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SPECIFIC NOTES:

- ① METHANE SENSOR - RKI INSTRUMENTS 65-264RK-04 M2A OR EQUAL.
- ② GAS MONITOR - RKI INSTRUMENTS BEACON 110 MODEL IN NEMA 4X ENCLOSURE. SET SENSOR TO CLOSE CONTACTS AND ACTIVATE THE EXHAUST FAN @ 10% LEL (LOW EXPLOSIVE LIMIT). SECOND SET POINT SHALL BE AT 50% LEL AND THAT SHALL ACTIVATE THE HORN AND STROBE AND SEND A SIGNAL TO THE RTU.
- ③ FAN CONTROL WIRING CONNECTED IN PARALLEL WITH THE THERMOSTAT.



ODOR CONTROL BUILDING FLOOR PLAN - ELECTRICAL
SCALE: 3/8" = 1'-0"

1
E1.3 E1.3

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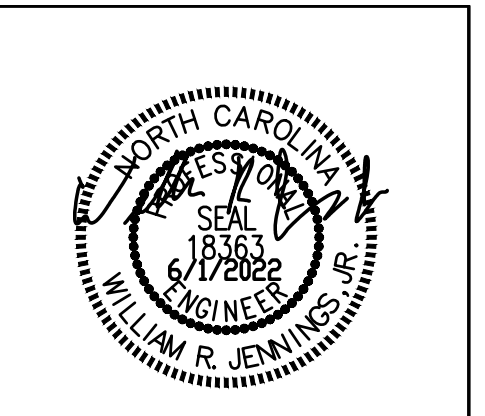
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3/16/2022	

DATE: 3/16/2022
DRAWN BY: JTP
DESIGNED BY: WRJ
CHECKED BY: WRJ
SCALE:

TIMMONS GROUP

ROLESVILLE CROSSING
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

ODOR CONTROL BUILDING FLOOR PLAN - ELECTRICAL

JOB NO. 43398
SHEET NO. E1.3

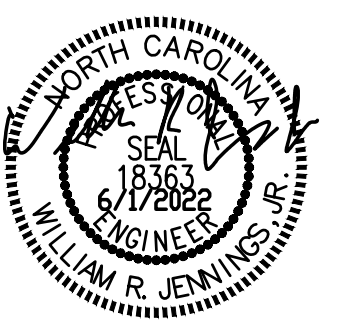
T:\JOBS\21139 - Rolesville Crossing Pump Sta - Wake ColCAD\21139 - E1_3.dwg [Plotted on 6/1/2022 1:20 PM] by: Jeff Patton



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JTP

DESIGNED BY
WRJ

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JOB NO.
43398

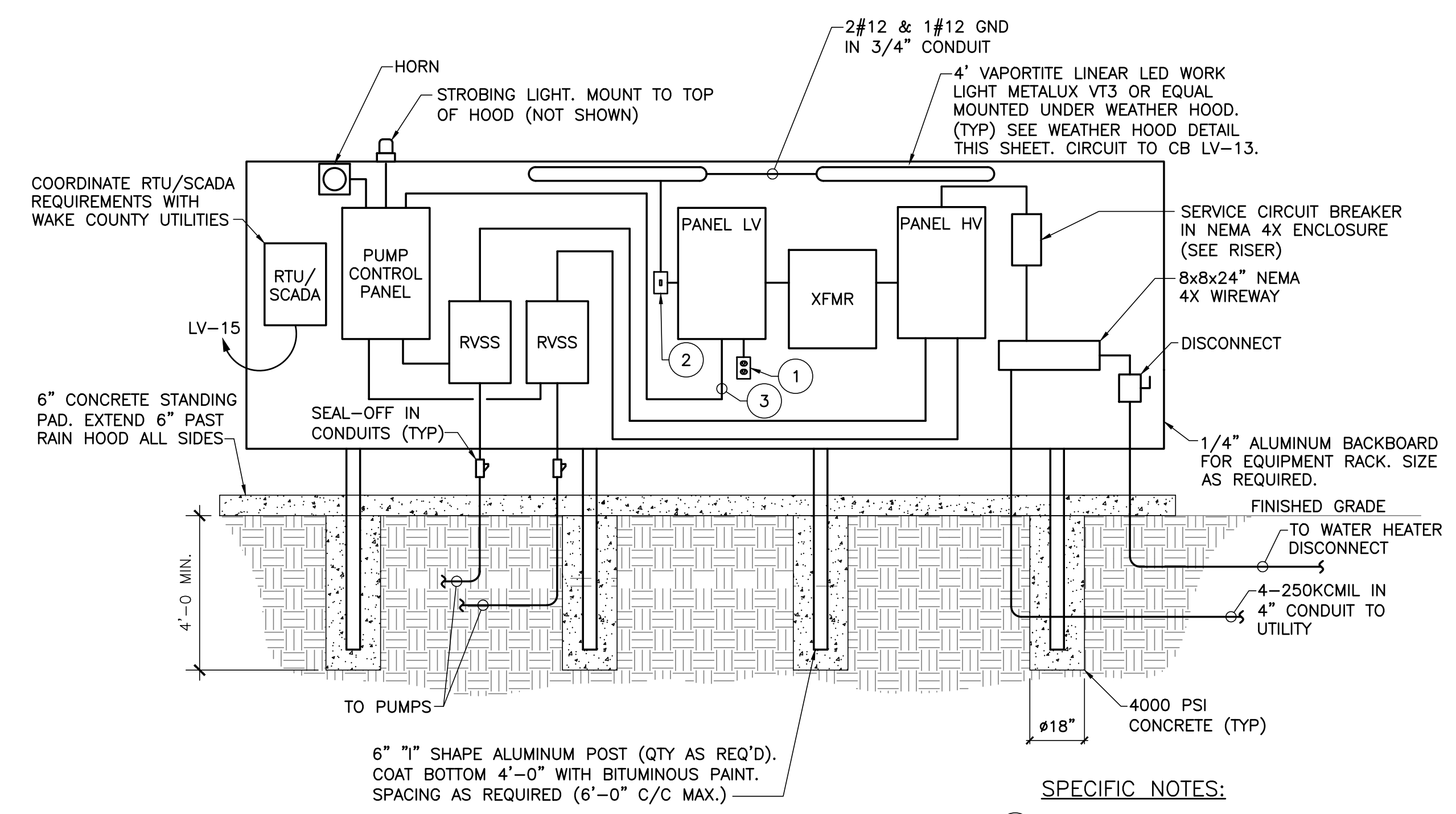
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FRONT VIEW

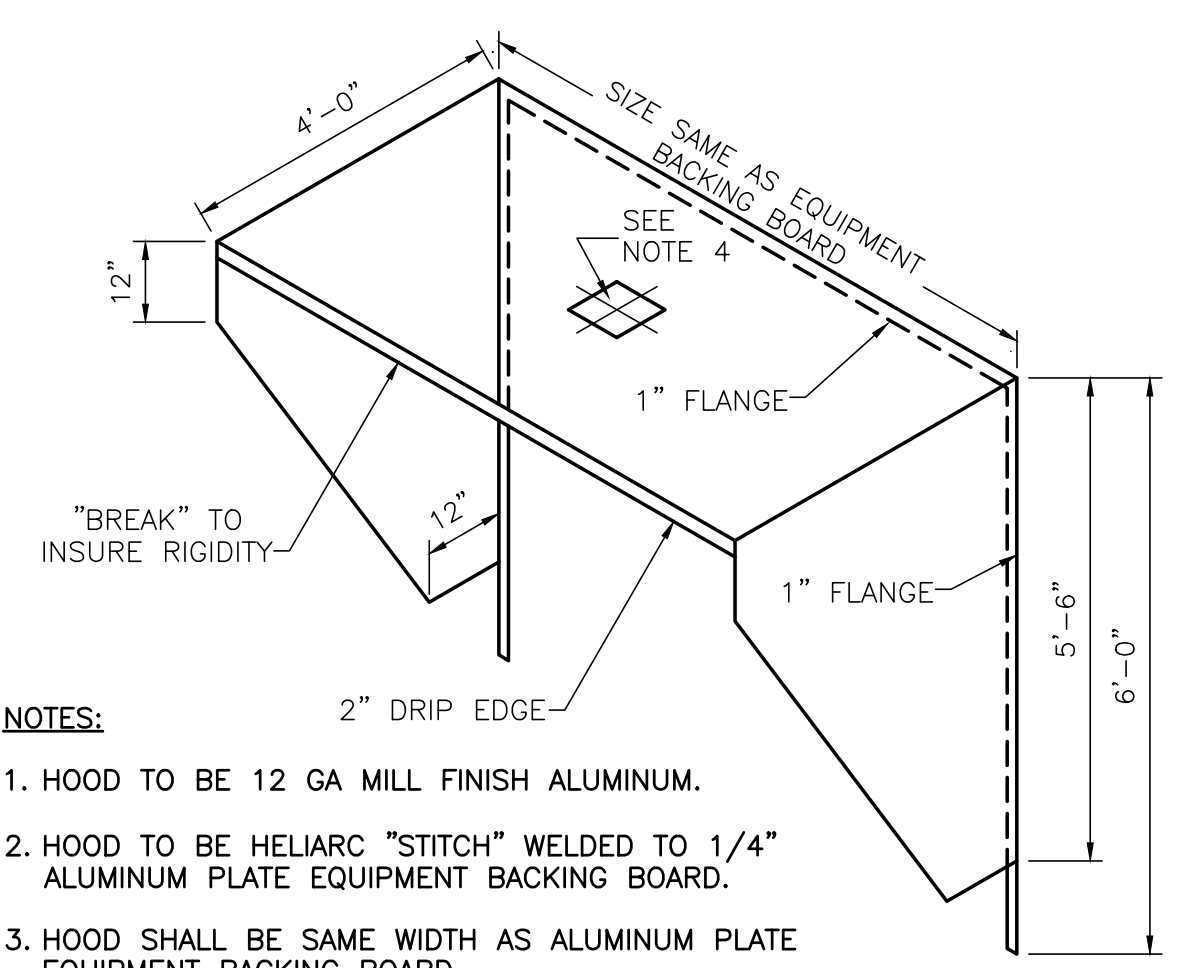
- SPECIFIC NOTES:**
- 20A GFCI RECEPTACLE WITH "IN-USE" TYPE WEATHERPROOF COVER. CIRCUIT TO CB LV-7.
 - WEATHER-PROOF SWITCH.
 - 120V PUMP CONTROL CIRCUIT TO CB LV-5.

NOTES:

- REFERENCE RISER DIAGRAM FOR CONDUIT AND WIRE SIZES.
- CONDUITS SHOWN DIAGMATICALLY. SEE CIVIL DRAWINGS FOR LAYOUT.
- BACKING PLATE TO BE 1/4" ALUMINUM. MOUNT TO I-SHAPE POSTS WITH STAINLESS STEEL NUT, BOLTS, WASHERS.
- ALL ELECTRICAL WORK SHALL CONFORM TO LATEST NATIONAL, STATE AND LOCAL CODES AND REQUIREMENTS.
- SHOW CONDUIT SIZE AND RUNS WITH WIRE SIZE AND NUMBER ON PUMP STATION PLANS.
- PANEL LAYOUT IS SCHEMATIC ONLY. ADJUST AS NEEDED TO ACCOMMODATE EQUIPMENT. MAINTAIN 4" MIN. CLEARANCE BETWEEN PANELS AND SIDE SHIELDS.
- ALL ENCLOSURES SHALL BE NEMA 4X RATED AND LOCKABLE.
- ALL ENCLOSURES SHALL BE MOUNTED TO ALUMINUM BACKING PLATE WITH NYLON SPACERS AND STAINLESS STEEL NUTS, BOLTS AND WASHERS.
- CONDUIT SHALL BE RIGID ALUMINUM OR GALVANIZED. MEYERS HUBS SHALL BE USED AT ALL PANEL CONNECTIONS.
- NO EQUIPMENT SHALL BE MOUNTED LESS THAN 36" ABOVE FINISHED GRADE. MINIMUM CLEARANCE FROM WORK LIGHT TO STANDING PAD SHALL BE 6'-6".
- SEE DETAIL 8/E2.1 FOR WEATHER HOOD DETAILS.



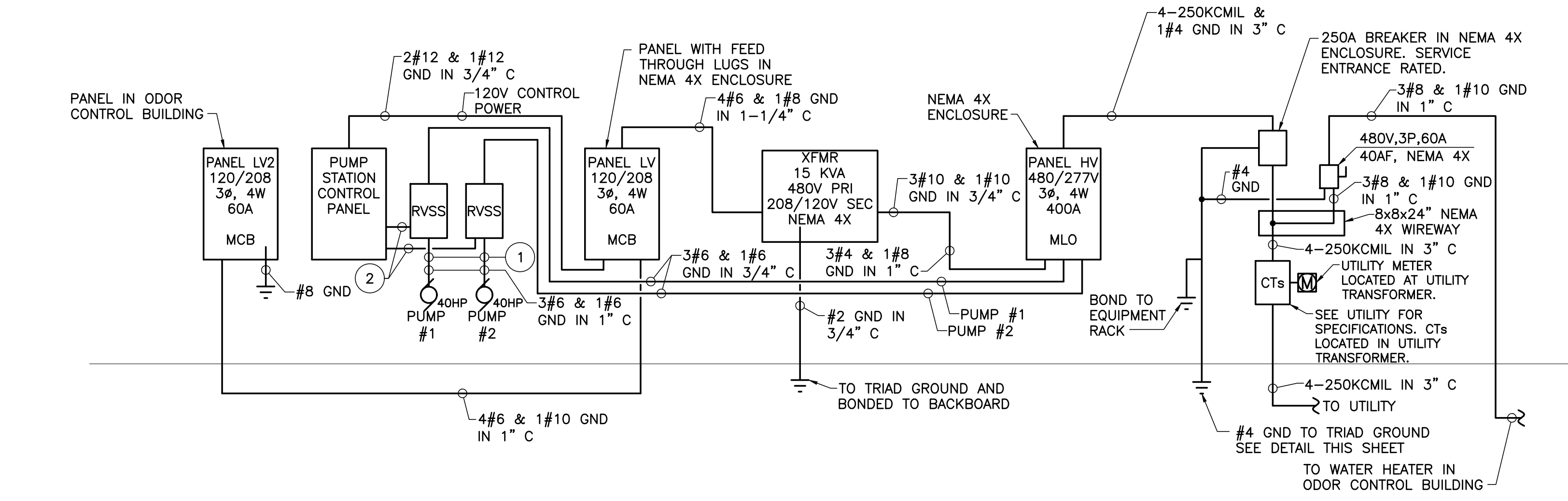
EQUIPMENT LAYOUT DETAIL



WEATHER HOOD DETAIL

NOTES:

- HOOD TO BE 12 GA MILL FINISH ALUMINUM.
- HOOD TO BE HELIARC "STITCH" WELDED TO 1/4" ALUMINUM PLATE EQUIPMENT BACKING BOARD.
- HOOD SHALL BE SAME WIDTH AS ALUMINUM PLATE EQUIPMENT BACKING BOARD.
- PROVIDE MOUNTING TABS FOR WORK LIGHT.

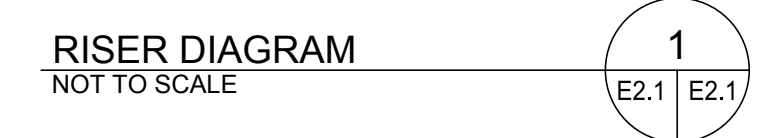


SPECIFIC NOTES:

- TO JUNCTION BOX AT WETWELL. SEE DETAIL E1.2
- 1" CONDUIT FOR CONTROL WIRING (RUN, STOP, RUNNING AND FAULT).

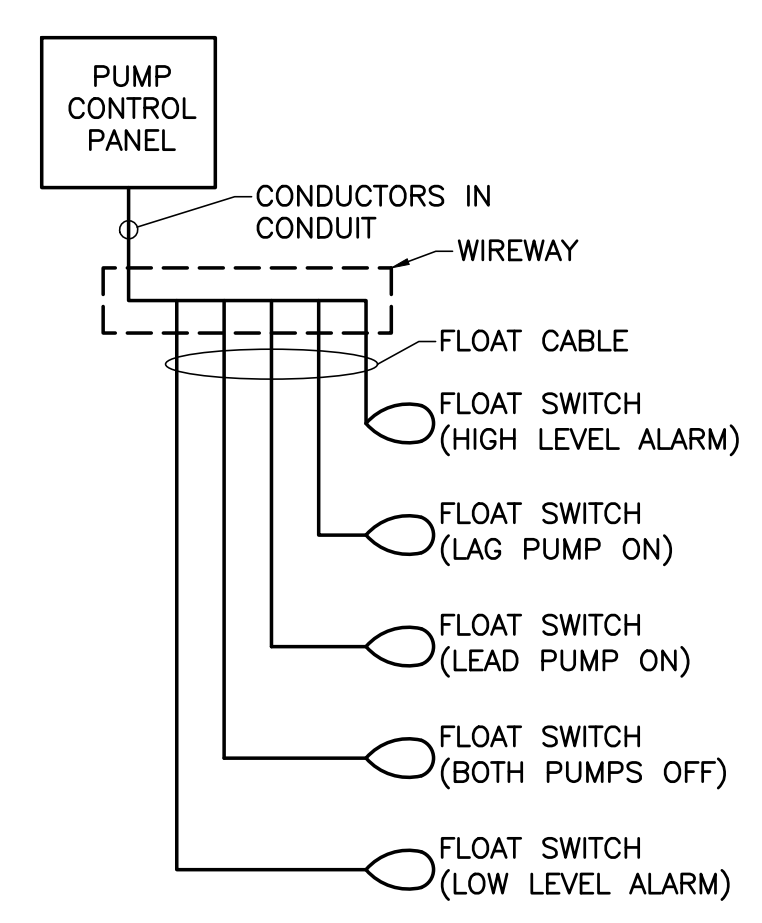
GENERAL NOTES:

- CONDUCTOR SIZES SHOWN ARE FOR COPPER.
- CONDUIT SHALL BE GALVANIZED RIGID STEEL, EXCEPT BELOW GRADE.
- BREAKERS AND EQUIPMENT CONNECTED TO THE UTILITY SHALL BE RATED FOR 50 KAIC MINIMUM.
- GENERATOR SHALL HAVE EXTERIOR E-STOP MOUNTED NO MORE THAN 6'-0 AFF.
- GENERATOR CONTROLLER SHALL PROVIDE OVERCURRENT PROTECTION FOR THE GENERATOR INDEPENDENT OF THE GENERATOR CIRCUIT BREAKER.
- PROVIDE PLC BASED PUMP CONTROL PANEL IN NEMA 4X ENCLOSURE. PANEL SHALL HAVE THE FOLLOWING FUNCTIONS:
 - HAND-OFF-AUTO TOGGLE SWITCH FOR EACH PUMP
 - RED PUMP RUN PILOT LIGHT FOR EACH PUMP
 - ALARM TEST AND SILENCE SWITCHES
 - RED ALARM BEACON INCLUDED WITH NEMA 4X ENCLOSURE SEPARATELY MOUNTED ON ELECTRICAL SHELTER (SEE DETAIL) AND AUDIBLE ALARM HORN (MOUNTED REMOTELY) WITH 83 TO 85 DECIBEL RATING FOR A HIGH-WATER CONDITION AND ALARM SILENCE SWITCH.
 - AUXILIARY DRY CONTACT FOR THE FOLLOWING:
 - HIGH WATER ALARM
 - PUMP SEAL FAILURE
 - PUMP MOTOR STARTER FAULT
 - ALTERNATING MECHANISM
 - NUMBERED TERMINAL STRIP FOR CONNECTING ALARMS AND VARIABLE LEVEL FLOAT SWITCHES AND ALL OTHER EXTERNAL CONNECTIONS.
 - NEMA 4X, WATERTIGHT ENCLOSURES
 - VARIABLE LEVEL FLOAT SWITCH CONTROL OPERATION AS INDICATED.
 - PANEL SHALL HAVE A TOUCH SCREEN DISPLAY FOR CONTROL AND MONITORING. DISPLAY SHALL BE NEMA 4X.
 - PANEL SHALL BE UL LISTED AS AN ASSEMBLY PER UL 508A
 - CONTRACTOR SHALL PROVIDE A COORDINATION STUDY PREPARED BY A NORTH CAROLINA LICENSED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SYSTEM IS IN COMPLIANCE WITH THE SELECTIVE COORDINATION REQUIREMENTS OF ARTICLE 701 OF THE NATIONAL ELECTRICAL CODE. STUDY SHALL BE SUBMITTED PRIOR TO OR IN CONJUNCTION WITH THE RELEVANT ELECTRICAL SHOP DRAWING, INCLUDING THE GENERATOR.



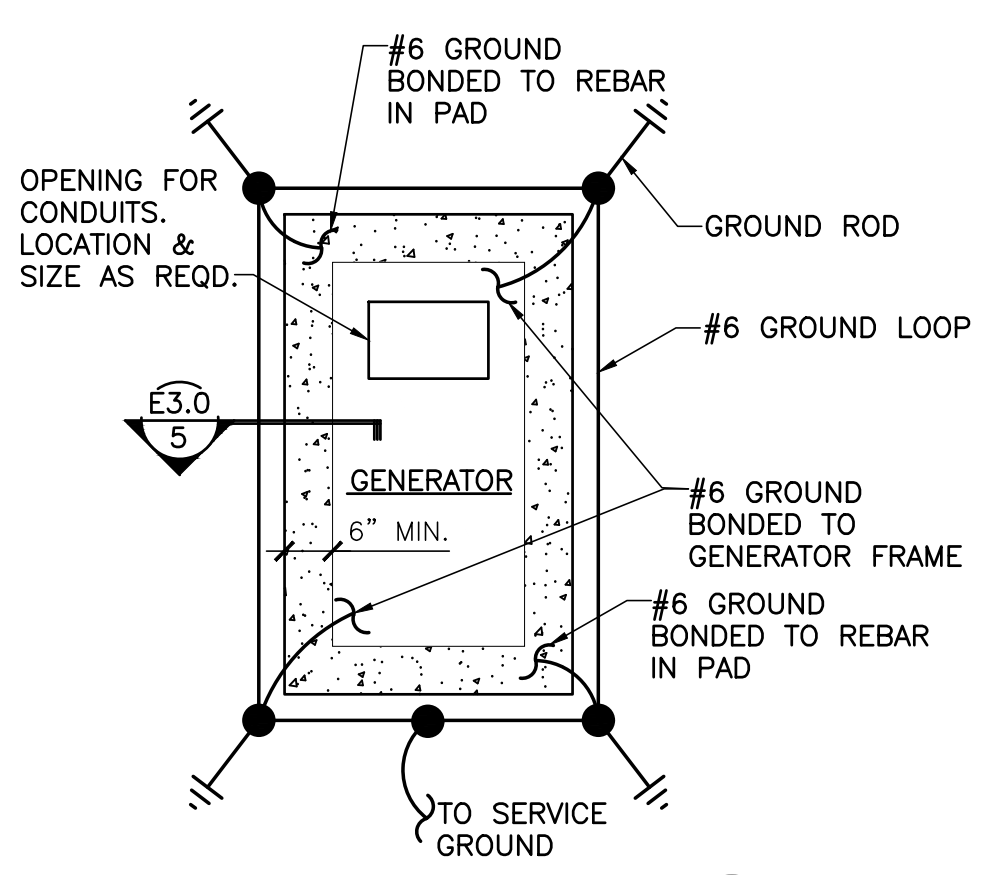
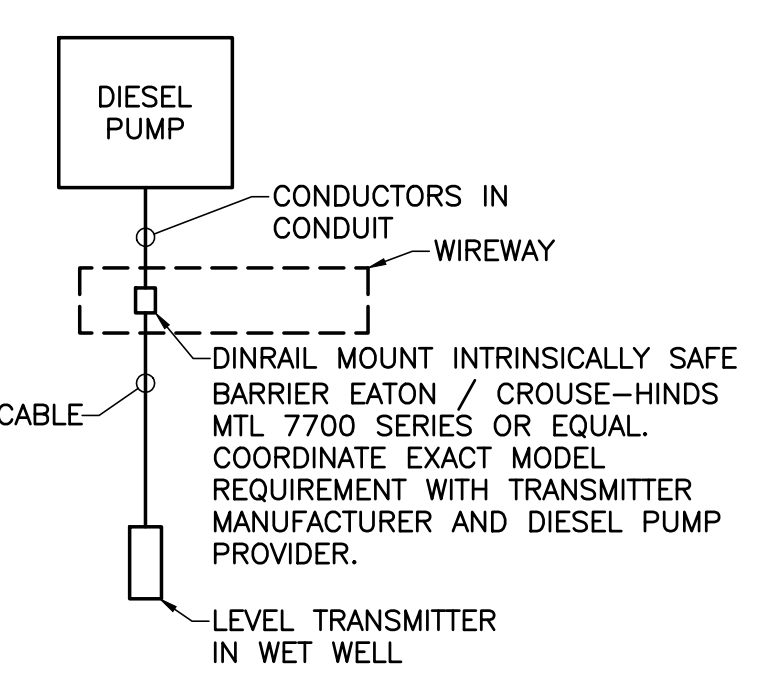
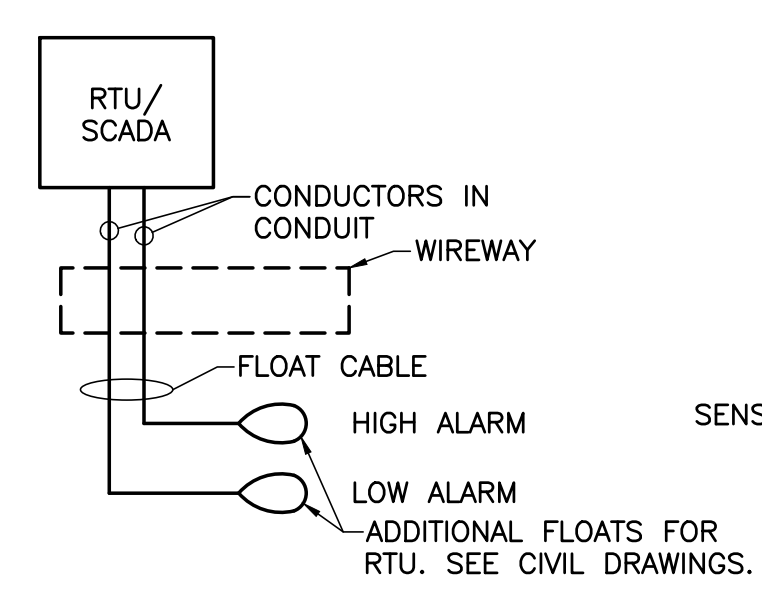
RISER DIAGRAM

NOT TO SCALE



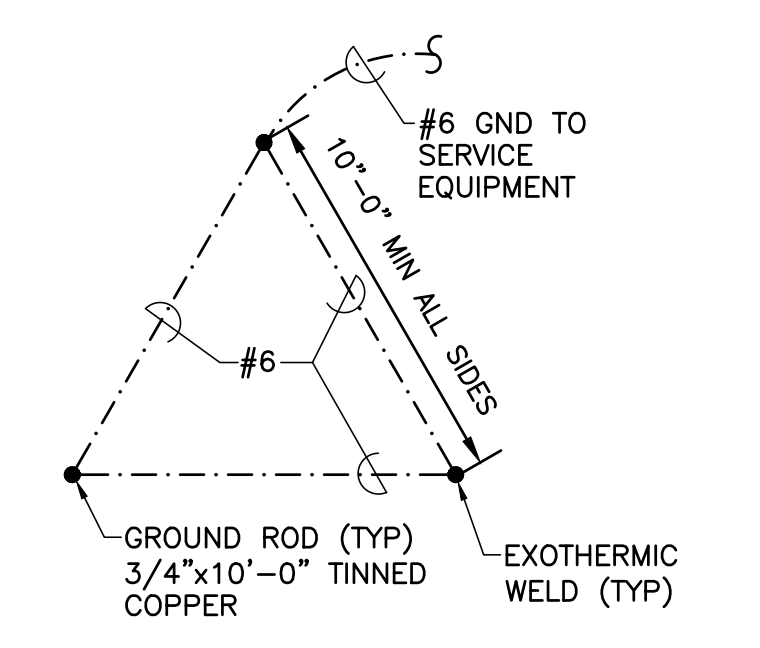
PUMP CONTROL SCHEME

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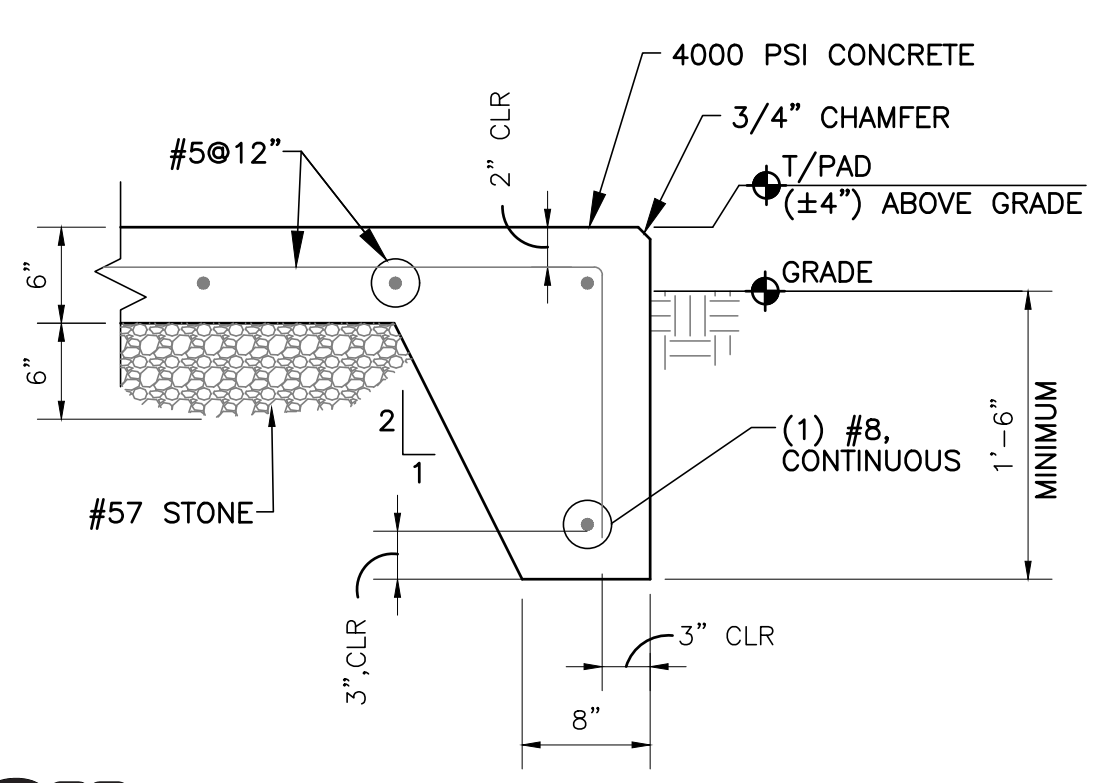
GENERATOR PAD DETAIL

NOT TO SCALE



TRIAD GROUND DETAIL

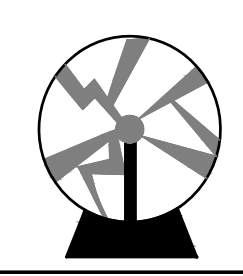
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GENERATOR PAD SECTION

NOT TO SCALE

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William R Jennings, Jr.
Consulting Engineering, PC
3212 HILL STREET, UNIT A
LYNCHBURG, VA 24501
Phone: (434) 525-7099
Fax: (757) 282-2636
Email: tjennings@jenningspe.com

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

TIMMONS GROUP
ROLESVILLE CROSSING
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
RISER AND DETAILS

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PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

- A. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.
B. Nonmetallic-sheathed cable is not permitted.
C. Underground feeder and branch-circuit cable is not permitted.
D. Service entrance cable is not permitted.
E. Armored cable is not permitted.
F. Metal-clad cable is not permitted.
G. Manufactured wiring systems are not permitted.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
B. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
C. Comply with NEMA WC 70.
D. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
E. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
F. Conductors for Grounding and Bonding: Also comply with Section 26 0526.
G. Conductor Material:

- 1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
3. Tinned Copper Conductors: Comply with ASTM B33.

- H. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

I. Conductor Color Coding:

- 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
2. Color Coding Method: Integrally colored insulation.
a. Conductors size 4 AWG and larger may have black insulation color coded using vinyl color coding electrical tape.
3. Color Code:
a. 480Y/277 V, 3 Phase, 4 Wire System:
1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.
4) Neutral/Grounded: Gray.
b. 208Y/120 V, 3 Phase, 4 Wire System:
1) Phase A: Black.
2) Phase B: Red.
3) Phase C: Blue.
4) Neutral/Grounded: White.
c. Equipment Ground, All Systems: Green.
d. For control circuits, comply with manufacturer's recommended color code.

2.03 SINGLE CONDUCTOR BUILDING WIRE

- A. Description: Single conductor insulated wire.

B. Conductor Stranding:

- 1. Feeders and Branch Circuits:
a. Size 10 AWG and Smaller: Solid.
b. Size 8 AWG and Larger: Stranded.
2. Control Circuits: Stranded.

C. Insulation Voltage Rating: 600 V.

D. Insulation:

- 1. Copper Building Wire: Type XHHW-2.

2.04 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.

- B. Connectors for Grounding and Bonding: Comply with Section 26 0526.

C. Wiring Connectors for Splices and Taps:

- 1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.

D. Wiring Connectors for Terminations:

- 1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
2. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
3. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
4. Stranded Conductors Size 10 AWG and Smaller: Use crimped terminals for connections to terminal screws.
5. Conductors for Control Circuits: Use crimped terminals for all connections.
E. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
F. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.
G. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
H. Mechanical Connectors: Provide bolted type or set-screw type.
I. Compression Connectors: Provide circumferential type or hex type crimp configuration.
J. Crimped Terminals: Nylon-insulated, with insulation grip and terminal configuration suitable for connection to be made.

2.05 ACCESSORIES

A. Electrical Tape:

- 1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F.
2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.
3. Rubber Splicing Electrical Tape: Ethylene Propylene Rubber (EPR) tape, complying with ASTM D4388; minimum thickness of 30 mil; suitable for continuous temperature environment up to 194 degrees F and short-term 266 degrees F overload service.
4. Electrical Filler Tape: Rubber-based insulating moldable putty, minimum thickness of 125 mil; suitable for continuous temperature environment up to 176 degrees F.
B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.
C. Wire Pulling Lubricant:
1. Listed and labeled as complying with UL 267.
2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
3. Suitable for use at installation temperature.
D. Cable Ties: Material and tensile strength rating suitable for application.

PART 3 EXECUTION

3.01 INSTALLATION

A. Circuiting Requirements:

- 1. Include circuit lengths required to install connected devices within 10 ft of location indicated.
2. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among up to three single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.
B. Install products in accordance with manufacturer's instructions.
C. Perform work in accordance with NECA 1 (general workmanship).
D. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
E. Install conductors with a minimum of 18 inches of slack at each outlet.
F. Make wiring connections using specified wiring connectors.
G. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

END OF SECTION 26 0519

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for grounding and bonding system components.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

- A. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
B. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
C. Grounding Electrode System:
1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
a. Provide continuous grounding electrode conductors without splice or joint.
b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.
2. Metal In-Ground Support Structure:
a. Provide connection to metal in-ground support structure that is in direct contact with earth in accordance with NFPA 70.
3. Ground Rod Electrode(s):
a. Provide three electrodes in an equilateral triangle configuration unless otherwise indicated or required.
b. Space electrodes not less than 10 feet from each other and any other ground electrode.
c. Where location is not indicated, locate electrode(s) at least 5 feet outside building perimeter foundation as near as possible to electrical service entrance; where possible, locate in softscape (uncovered) area.

D. Bonding and Equipment Grounding:

- 1. Provide bonding for equipment grounding conductors, equipment ground buses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
3. Provide bonding for interior metal piping systems in accordance with NFPA 70. This includes, but is not limited to:
a. Metal water piping where not already effectively bonded to metal underground water pipe used as grounding electrode.
b. Metal process piping.

2.02 GROUNDING AND BONDING COMPONENTS

A. General Requirements:

- 1. Provide products listed, classified, and labeled as suitable for the purpose intended.
2. Provide products listed and labeled as complying with UL 467 where applicable.
B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 0526:
1. Use insulated copper conductors unless otherwise indicated.
a. Exceptions:
1) Use bare copper conductors where installed underground in direct contact with earth.
2) Use bare copper conductors where directly encased in concrete (not in raceway).

C. Connectors for Grounding and Bonding:

- 1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
3. Unless otherwise indicated, use compression connectors or exothermic welded connections for accessible connections.
a. Exceptions:
1) Use exothermic welded connections for Metallic above ground structures.
D. Ground Rod Electrodes:
1. Comply with NEMA GR 1.
2. Material: Copper-bonded (copper-clad) steel.
3. Size: 3/4 inch diameter by 10 feet length, unless otherwise indicated.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.

- B. Perform work in accordance with NECA 1 (general workmanship).

- C. Ground Rod Electrodes: Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70.

- 1. Outdoor Installations: Unless otherwise indicated, install with top of rod 12 inches below finished grade.

END OF SECTION 26 0526

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for channel/strut framing systems, nonpenetrating rooftop supports, and post-installed concrete/masonry anchors.

1.02 QUALITY ASSURANCE

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:

- 1. Comply with the following. Where requirements differ, comply with most stringent.
a. NFPA 70.
b. Requirements of authorities having jurisdiction.
2. Do not use products for applications other than as permitted by NFPA 70 and product listing.
3. Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
4. Steel Components: Use corrosion-resistant materials suitable for environment where installed.
a. Indoor Dry Locations: Use Galvanized Steel unless otherwise indicated.
b. Outdoor and Damp or Wet Indoor Locations: Use fiberglass, galvanized steel or stainless steel unless otherwise indicated. All treatment areas shall be considered wet locations.
c. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

- B. Conduit and Cable Supports: Straps and clamps suitable for conduit or cable to be supported.

- 1. Conduit Straps: One-hole or two-hole type; malleable iron for indoor dry locations. Stainless steel for outdoor, damp or wet locations. This includes all treatment buildings and structures.
2. Conduit Clamps: Bolted type unless otherwise indicated.

- C. Outlet Box Supports: Hangers and brackets suitable for boxes to be supported.

D. Metal Channel/Strut Framing Systems:

- 1. Description: Factory-fabricated, continuous-slot, metal channel/strut and associated fittings, accessories, and hardware required for field assembly of supports.
2. Comply with MFMA-4.
3. Channel/Strut Used as Raceway, Where Indicated: Listed and labeled as complying with UL 5B.
4. Channel Material:
a. Indoor Dry Locations: Use galvanized steel.
b. Outdoor and Damp or Wet Indoor Locations: Use fiberglass or stainless steel. All fittings and hardware for stainless steel channel shall be stainless steel. All fitting and hardware for fiberglass channel shall be Glass Reinforced Polyurethane, except that components that must be metal (springs) shall be stainless steel.
5. Minimum Channel Thickness: Steel sheet, 12 gauge, 0.1046 inch.
6. Minimum Channel Dimensions: 1-5/8 inch wide by 13/16 inch high.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
B. Install hangers and supports in accordance with NECA 1.
C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
D. Unless specifically indicated or approved by Engineer, do not provide support from suspended ceiling support system or ceiling grid.
E. Unless specifically indicated or approved by Engineer, do not provide support from roof deck.
F. Do not penetrate or otherwise notch or cut structural members without approval of Engineer.
G. Equipment Support and Attachment:
1. Use metal, fabricated supports or supports assembled from metal channel/strut to support equipment as required.

SPECIFICATIONS CONTINUED ON NEXT SHEET



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Table with columns: REVISION DESCRIPTION, REVISED PER COMMENTS, DATE, and DRAWN BY. Includes entries for 6/17/2022 and 3/16/2022.

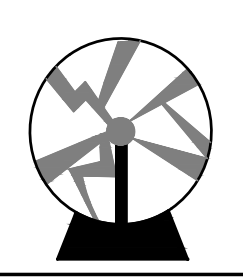
DESIGNED BY WRJ, CHECKED BY WRJ, SCALE

DATE 6/17/2022, DATE 3/16/2022, DRAWN BY JTP

TIMMONS GROUP logo and contact information for ROLESVILLE CROSSING, ROLESVILLE - WAKE COUNTY - NORTH CAROLINA SPECIFICATIONS. Includes Job No. 43398 and Sheet No. E4.1.

ATTENTION CONTRACTORS notice regarding construction permits and standards for water and sewer systems in the City of Raleigh.

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William R. Jennings, Jr. Consulting Engineering, PC 3212 HILL STREET, UNIT A LYNCHBURG, VA 24501 Phone: (434) 525-7099 Fax: (757) 262-2636 Email: bjennings@jenningspe.com

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



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DATE
3/16/2022
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TIMMONS GROUP

ROLESVILLE CROSSING

ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
SPECIFICATIONS

JOB NO.
43398
SHEET NO.
E4.2

- 2. Use metal channel/strut secured to studs to support equipment surface mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
- 3. Use metal channel/strut to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
- 4. Unless otherwise indicated, mount floor-mounted equipment on properly sized concrete pad 3 inches in height; see Section 03 3000.
- 5. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
- H. Identify independent electrical component support wires above accessible ceilings, where permitted, with color distinguishable from ceiling support wires in accordance with NFPA 70.

END OF SECTION 26 0529

PART 1 GENERAL

- 1.01 SUBMITTALS
 - A. Product Data: Provide manufacturer's standard catalog pages and data sheets for conduits and fittings.
 - B. Shop Drawings:
 - 1. Include proposed locations of roof penetrations and proposed methods for sealing.
 - C. Project Record Documents: Record actual routing for conduits installed underground and conduits 2 inch (53 mm) trade size and larger.

1.02 QUALITY ASSURANCE

PART 2 PRODUCTS

- 2.01 CONDUIT APPLICATIONS
 - A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70, manufacturer's instructions, and product listing.
 - B. Unless otherwise indicated and where not otherwise restricted, use conduit types indicated for specified applications. Where more than one listed application applies, comply with most restrictive requirements. Where conduit type for particular application is not specified, use galvanized steel rigid metal conduit.
 - C. Underground:
 - 1. Under Slab on Grade: Use galvanized steel rigid metal conduit.
 - 2. Exterior, Direct-Buried: Use galvanized steel rigid metal conduit.
 - 3. Exterior Concrete Encased Duct Bank: Use rigid PVC conduit.
 - 4. Where rigid polyvinyl chloride (PVC) conduit is provided, transition to galvanized steel rigid metal conduit (RMC) where emerging from underground.
 - D. Embedded Within Concrete:
 - 1. Within Slab on Grade: Not permitted.
 - 2. Within Slab Above Ground: Not permitted.
 - E. Exposed, Exterior: Use galvanized steel rigid metal conduit.
 - F. Connections to Luminaires: Use liquidtight flexible metal conduit.
 - 1. Maximum Length: 6 feet.
 - G. Flexible Connections to Vibrating Equipment:
 - 1. Dry Locations: Use Liquidtight Flexible Metal Conduit (LFMC).
 - 2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit (LFMC).
 - 3. Maximum Length: 6 feet unless otherwise indicated.
 - 4. Vibrating equipment includes, but is not limited to:
 - a. Transformers.
 - b. Motors.

2.02 CONDUIT - GENERAL REQUIREMENTS

- A. Fittings for Grounding and Bonding: See Section 26 0526 for additional requirements.
- B. Provide conduit, fittings, supports, and accessories required for complete raceway system.
- C. Provide products listed, classified, and labeled as suitable for purpose intended.
- D. Minimum Conduit Size, Unless Otherwise Indicated:
- E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- B. Fittings:
 - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6.
 - 2. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.
 - 3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.04 GALVANIZED STEEL INTERMEDIATE METAL CONDUIT (IMC)

- A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.
- B. Fittings:
 - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 1242.
 - 2. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.
 - 3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.05 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in accordance with NECA 1.
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
- D. Install intermediate metal conduit (IMC) in accordance with NECA 101.
- E. Conduit Support:
 - 1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 26 0529.
 - 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 - 3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
 - 4. Use conduit strap to support single surface-mounted conduit.
 - a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
 - 5. Use metal channel/strut with accessory conduit clamps to support multiple parallel surface-mounted conduits.
 - 6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
 - 7. Use trapeze hangers assembled from threaded rods and metal channel/strut with accessory conduit clamps to support multiple parallel suspended conduits.
- F. Connections and Terminations:
 - 1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
 - 2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
 - 3. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
 - 4. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
 - 5. Provide insulating bushings, insulated throats, or listed metal fittings with smooth, rounded edges at conduit terminations to protect conductors.
- G. Penetrations:
 - 1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
 - 2. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
 - 3. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
 - 4. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty.

- H. Underground Installation:
 - 1. Minimum Cover, Unless Otherwise Indicated or Required:
 - a. Underground, Exterior: 18 inches.
- I. Embedment Within Structural Concrete Slabs (only where approved by Structural Engineer):
- J. Concrete Encasement: Where conduits not otherwise embedded within concrete are indicated to be concrete-encased, provide concrete in accordance with Section 03 3000 with minimum concrete cover of 3 inches on all sides unless otherwise indicated.
- K. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:

- 1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
- 2. Where conduits are subject to earth movement by settlement or frost.
- L. Conduit Sealing:
 - 1. Use foam conduit sealant to prevent entry of moisture and gases. This includes, but is not limited to:
 - a. Where conduits enter building from outside.
 - b. Where conduits enter building from underground.
 - c. Where conduits may transport moisture to contact live parts.
 - 2. Where conduits cross barriers between areas of potential substantial temperature differential, use foam conduit sealant at accessible point near penetration to prevent condensation. This includes, but is not limited to:
 - a. Where conduits pass from outdoors into conditioned interior spaces.
 - b. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

END OF SECTION 26 0533.13

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for panelboards, enclosures, overcurrent protective devices, and other installed components and accessories.
- 1. Include characteristic trip curves for each type and rating of overcurrent protective device.
- 2. Clearly indicate whether proposed short circuit current ratings are fully rated or, where acceptable, series rated systems.
- 3. Include documentation of listed series ratings.
- C. Source Quality Control Test Reports: Include reports for tests designated in NEMA PB 1 as routine tests.
- D. Project Record Documents: Record actual installed locations of panelboards and actual installed circuiting arrangements.

1.02 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 PRODUCTS

2.01 PANELBOARDS - GENERAL REQUIREMENTS

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Short Circuit Current Rating:
 - 1. Provide panelboards with listed short circuit current rating not less than the available fault current at the installed location as determined by short circuit study performed in accordance with Section 26 0573.
 - 2. Listed series ratings are not acceptable.
- C. Panelboards Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.
- D. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.
- E. Conductor Terminations: Suitable for use with the conductors to be installed.
- F. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
 - 1. Boxes: Galvanized steel unless otherwise indicated.
 - a. Provide wiring gutters sized to accommodate the conductors to be installed.
 - b. Provide painted steel boxes for surface-mounted panelboards where indicated, finish to match fronts.
 - 2. Fronts:
 - 3. Lockable Doors: All locks keyed alike unless otherwise indicated.
- G. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.
- H. Surge Protective Devices: Surge Protective Devices shall be factory-installed, internally mounted surge protective devices are provided in accordance with Section 26 4300, list and label panelboards as a complete assembly including surge protective device.
 - 1. Provide SPD's internally mounted in all panels.
- I. Selectivity: Where the requirement for selectivity is indicated, furnish products as required to achieve selective coordination.
- J. Load centers are not acceptable.

2.02 POWER DISTRIBUTION PANELBOARDS

- A. Description: Panelboards complying with NEMA PB 1, power and feeder distribution type, circuit breaker type, and listed and labeled as complying with UL

- 67; ratings, configurations and features as indicated on the drawings.
- B. Conductor Terminations:
 - 1. Main and Neutral Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
 - 2. Main and Neutral Lug Type: Mechanical.
- C. Bussing:
 - 1. Phase and Neutral Bus Material: Aluminum or copper.
 - 2. Ground Bus Material: Aluminum or copper.
- D. Circuit Breakers:
 - 1. Provide bolt-on type or plug-in type secured with locking mechanical restraints.
 - 2. Provide thermal magnetic circuit breakers for circuit breaker frame sizes less than 100 amperes.
 - 3. Provide electronic trip circuit breakers for circuit breaker frame sizes 100 amperes and above.
- E. Enclosures:
 - 1. Provide surface-mounted enclosures unless otherwise indicated.
 - 2. Fronts: Provide lockable hinged door with concealed hinges for access to overcurrent protective device handles without exposing live parts.
 - 3. Provide clear plastic circuit directory holder mounted on inside of door.

2.03 LIGHTING AND APPLIANCE PANELBOARDS

- A. Description: Panelboards complying with NEMA PB 1, lighting and appliance branch circuit type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.
- B. Conductor Terminations:
 - 1. Main and Neutral Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
 - 2. Main and Neutral Lug Type: Mechanical.
- C. Bussing:
 - 1. Phase and Neutral Bus Material: Aluminum or copper.
 - 2. Ground Bus Material: Aluminum or copper.
- D. Circuit Breakers: Thermal magnetic bolt-on type unless otherwise indicated.
- E. Enclosures:
 - 1. Provide surface-mounted or flush-mounted enclosures as indicated.
 - 2. Fronts: Provide lockable hinged door with concealed hinges for access to overcurrent protective device handles without exposing live parts.
 - 3. Provide clear plastic circuit directory holder mounted on inside of door.

2.04 OVERCURRENT PROTECTIVE DEVICES

- A. Molded Case Circuit Breakers:
 - 1. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
 - 2. Interrupting Capacity:
 - a. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
 - 1) 10,000 rms symmetrical amperes at 240 VAC or 208 VAC.
 - 2) 14,000 rms symmetrical amperes at 480 VAC.
 - b. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.
 - 3. Conductor Terminations:
 - a. Provide mechanical lugs unless otherwise indicated.
 - b. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
 - 4. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
 - 5. Electronic Trip Circuit Breakers: Furnish solid state, microprocessor-based, true rms sensing trip units.
 - a. Provide the following field-adjustable trip response settings that are individually adjustable:
 - 1) Long time pickup, adjustable by replacing interchangeable trip unit or by setting dial.
 - 2) Long time delay.
 - 3) Short time pickup and delay.
 - 4) Instantaneous pickup.
 - 5) Ground fault pickup and delay where ground fault protection is indicated.
 - 6. Provide the following circuit breaker types where indicated:
 - a. Ground Fault Circuit Interrupter (GFCI) Circuit Breakers: Listed as complying with UL 943, class A for protection of personnel.

SPECIFICATIONS CONTINUED
ON NEXT SHEET

ATTENTION CONTRACTORS
The *Construction Contractor* responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the **Public Utilities Department** at (919) 996-4540 at least **twenty four hours** prior to beginning any of their construction.

Failure to notify both *City Departments* in advance of beginning construction, will result in the issuance of *monetary fines*, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for *Inspection*, *Install a Downstream Plug*, have *Permitted Plans* on the *Jobsite*, or any other *Violation of City of Raleigh Standards* will result in a *Fine and Possible Exclusion* from future work in the *City of Raleigh*.

Public
Water Distribution / Extension System

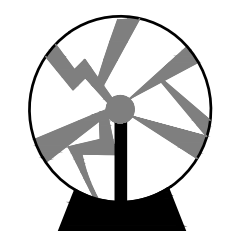
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____



William R. Jennings, Jr.
Consulting Engineering, PC
3212 HILL STREET, UNIT A
LYNCHBURG, VA 24501
Phone: (434) 525-7099
Fax: (757) 262-2636
Email: bjennings@jenningspe.com

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS

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7. Provide listed switching duty rated circuit breakers with SWD marking for all branch circuits serving fluorescent lighting.
8. Provide listed high intensity discharge lighting rated circuit breakers with HID marking for all branch circuits serving HID lighting.
9. Do not use tandem circuit breakers.
10. Do not use handle ties in lieu of multi-pole circuit breakers.

PART 3 EXECUTION

- 3.01 INSTALLATION
- A. Perform work in accordance with NECA 1 (general workmanship).
 - B. Install products in accordance with manufacturer's instructions.
 - C. Install panelboards in accordance with NECA 407 and NEMA PB 1.1.
 - D. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
 - E. Provide required support and attachment in accordance with Section 26 0529.
 - F. Mount panelboards such that the highest position of any operating handle for circuit breakers or switches does not exceed 79 inches above the floor or working platform.
 - G. Provide minimum of six spare 1 inch trade size conduits out of each flush-mounted panelboard stubbed into accessible space above ceiling and below floor.
 - H. Provide grounding and bonding in accordance with Section 26 0526.
 - I. Set field-adjustable circuit breaker tripping function settings as directed.
 - J. Set field-adjustable ground fault protection pickup and time delay settings as directed.
 - K. Provide filler plates to cover unused spaces in panelboards.

END OF SECTION 26 2416

PART 1 GENERAL

- 1.01 SUBMITTALS
- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for circuit breakers, enclosures, and other installed components and accessories.
 1. Include characteristic trip curves for each type and rating of circuit breaker upon request.

PART 2 PRODUCTS

- 2.01 ENCLOSED CIRCUIT BREAKERS
- A. Description: Units consisting of molded case circuit breakers individually mounted in enclosures.
 - B. Short Circuit Current Rating:
 1. Provide enclosed circuit breakers with listed short circuit current rating as calculated in the Power System Study.
 - C. Enclosed Circuit Breakers Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.
 - D. Conductor Terminations: Suitable for use with the conductors to be installed.
 - E. Provide electronic trip circuit breakers.
 - F. Provide solidly bonded equipment ground bus in each enclosed circuit breaker, with a suitable lug for terminating each equipment grounding conductor.
 - G. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
 1. Finish for Painted Steel Enclosures: Manufacturer's standard, factory applied grey unless otherwise indicated.
 2. Provide surface-mounted enclosures unless otherwise indicated.
 - H. Provide externally operable handle with means for locking in the OFF position.
 - I. Selectivity: Where the requirement for selectivity is indicated, furnish products as required to achieve selective coordination.

2.02 MOLDED CASE CIRCUIT BREAKERS

- A. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
- B. Interrupting Capacity:
 1. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating calculated in the power systems analysis.
- C. Conductor Terminations:
 1. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
- D. Electronic Trip Circuit Breakers: Furnish solid state, microprocessor-based, true rms sensing trip units.
 1. Provide the following field-adjustable trip response settings:
 - a. Long time pickup, adjustable by replacing interchangeable trip unit or by setting dial.
 - b. Long time delay.
 - c. Short time pickup.
 - d. Short time delay.

PART 3 EXECUTION

- 3.01 INSTALLATION
- A. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
 - B. Provide required support and attachment in accordance with Section 26 0529.
 - C. Provide grounding and bonding in accordance with Section 26 0526.
 - D. Set field-adjustable circuit breaker tripping function settings as determined by overcurrent protective device coordination study performed according to Section 26 0573.

END OF SECTION 26 2816.13

PART 1 GENERAL

- 1.01 SUBMITTALS
- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for enclosed switches and other installed components and accessories.
- 1.02 QUALITY ASSURANCE
- A. Comply with requirements of NFPA 70.
- PART 2 PRODUCTS**
- 2.01 ENCLOSED SAFETY SWITCHES
- A. Description: Quick-make, quick-break enclosed safety switches listed and labeled as complying with UL 98; heavy duty; ratings, configurations, and features as indicated on the drawings.
 - B. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - C. Horsepower Rating: Suitable for connected load.
 - D. Voltage Rating: Suitable for circuit voltage.
 - E. Short Circuit Current Rating:
 1. Minimum Ratings:
 - a. Heavy Duty Single Throw Switches Protected by Class R Fuses: 200,000 rms symmetrical amperes.
 - F. Fuse Clips for Fusible Switches: As required to accept fuses indicated.
 1. Where NEMA Class R fuses are installed, provide rejection feature to prevent installation of fuses other than Class R.
 - G. Provide safety interlock to prevent opening the cover with the switch in the ON position with capability of overriding interlock for testing purposes.
 - H. Heavy Duty Switches:
 1. Comply with NEMA KS 1.
 2. Conductor Terminations:
 - a. Provide mechanical lugs.
 - b. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
 3. Provide externally operable handle with means for locking in the OFF position, capable of accepting three padlocks.

PART 3 EXECUTION

- 3.01 INSTALLATION
- A. Install products in accordance with manufacturer's instructions.
 - B. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
 - C. Provide required support and attachment in accordance with Section 26 0529.

END OF SECTION 26 2816.16

PART 1 GENERAL

- 1.01 SUBMITTALS
- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for motor controllers, enclosures, overcurrent protective devices, and other installed components and accessories.
- PART 2 PRODUCTS**
- 2.01 ENCLOSED CONTROLLERS
- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - B. Description: Enclosed controllers complying with NEMA ICS 2, and listed and labeled as complying with UL 60947-1 and UL 60947-4-1; ratings, configurations and features as indicated on the drawings.
 - C. Service Conditions:
 1. Provide controllers and associated components suitable for operation at indicated ratings under the service conditions at the installed location.
 - D. Conductor Terminations: Suitable for use with the conductors to be installed.
 - E. Enclosures:
 1. Comply with NEMA ICS 6.
 2. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
 - a. Indoor Clean, Dry Locations: Type 1 or Type 12.
 - b. Outdoor Locations: 4X.

F. Magnetic Motor Starters: Combination or noncombination type as indicated.

1. Combination Magnetic Motor Starters: NEMA ICS 2, Class A combination motor controllers with magnetic contactor(s), externally operable disconnect and overload relay(s).
2. Configuration: Full-voltage non-reversing unless otherwise indicated.
3. Minimum Starter Size: NEMA Size 0.
4. Use of non-standard starter sizes smaller than specified standard NEMA sizes is not permitted.
5. Overload Relays: Solid-state type unless otherwise indicated.

2.02 OVERCURRENT PROTECTIVE DEVICES

- A. Overload Relays:
1. Provide overload relays and, where applicable, associated current elements/heaters, selected according to actual installed motor nameplate data, in accordance with manufacturer's recommendations and NFPA 70; include consideration for motor service factor and ambient temperature correction, where applicable.
 2. Inverse-Time Trip Class Rating: Class 20 unless otherwise indicated or required.
 3. Resettable:
 - a. Employ manual reset unless otherwise indicated.
 - b. Do not employ automatic reset with two-wire control.
 4. Solid-State Overload Relays:
 - a. Adjustable full load current.
 - b. Phase loss protection.
 - c. Phase imbalance protection.
 - d. Thermal memory.
 - e. Provide isolated alarm contact.

2.03 CONTROL ACCESSORIES

- A. Auxiliary Contacts:
1. Comply with NEMA ICS 5.
 2. Provide number and type of contacts indicated or required to perform necessary functions, including holding (seal-in) circuit and interlocking, plus one normally open (NO) and one normally closed (NC) spare contact for each magnetic motor starter, minimum.
- B. Pilot Devices:
1. Comply with NEMA ICS 5; heavy-duty type.
 2. Nominal Size: 30 mm.
 3. Pushbuttons: Unless otherwise indicated, provide momentary, non-illuminated type with flush button operator; normally open or normally closed as indicated or as required.
 4. Selector Switches: Unless otherwise indicated, provide maintained, non-illuminated type with knob operator; number of switch positions as indicated or as required.
 5. Indicating Lights: Push-to-test type unless otherwise indicated.
 6. Provide LED lamp source for indicating lights and illuminated devices.
- C. Control Power Transformers:
1. Size to accommodate burden of contactor coil(s) and all connected auxiliary devices.
 2. Include primary and secondary fuses.
- D. Control Terminal Blocks: Include 25 percent spare terminals.

PART 3 EXECUTION

- 3.01 INSTALLATION
- A. Install products in accordance with manufacturer's instructions.
 - B. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
 - C. Where accessories are not self-powered, provide control power source as indicated or as required to complete installation.
 - D. Set field-adjustable controllers and associated components according to installed motor requirements, in accordance with manufacturer's recommendations and NFPA 70.

END OF SECTION 26 2913

PART 1 GENERAL

- 1.01 SUBMITTALS
- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for motor controllers, enclosures, overcurrent protective devices, and other installed components and accessories.
 - B. Project Record Documents: Record actual installed locations of controllers and final equipment settings.
 1. Include nameplate data of actual installed motors and associated overload relay selections and settings.
 2. Motor Circuit Protectors: Include magnetic instantaneous trip settings.

PART 2 PRODUCTS

- 2.01 REDUCED VOLTAGE SOLID STATE STARTERS
- A. Output Power Section
 1. The Soft starter shall be available in Amperage ratings from 8A through 1100A at 208 to 600Vac.
 2. Three Phase
 3. Standard Three Wire L1/U, L2/V, L3/W or Six Wire Inside Delta (Programmable)
 - B. Soft Starter Keypad
 1. The Soft Starter shall be supplied with a backlit alphanumeric Liquid Crystal Display (LCD) Multi-Function Keypad. The Keypad shall be capable of programming and monitoring the Soft starter.
 2. Keypad shall be divided into 3 functional groups:
 - a. Graphical display shall two lines of 16 alphanumeric characters each with full text programming. Codes are not accepted.
 - b. LEDs – To display soft starter functions
 - c. Navigation keys to program soft starter, display operational data, and faults
 3. The Soft Starter shall have Indication LEDs as follows:
 - a. Green – The soft starter is “On”
 - b. Yellow – The soft starter is in “Ramp”
 - c. Green – The soft starter is in “Run” mode
 - d. Red – The soft starter is in “Fault” mode
 4. The Soft Starter shall display operating data, fault information, and programming parameters in English with other languages - Spanish, German and Italian available by parameter setting.
 5. The keypad shall display the last 10 faults and provides detailed information on soft starter operating conditions at the time of fault occurrence.
 6. Soft Starter shall have the following user adjustments
 - a. Two Motor full load amp settings with individual adjustments from 50 to 100% of the soft starters full load amp rating.
 - b. Two acceleration ramps with individual adjustments from 1 to 90 seconds.
 - c. Two deceleration ramps with individual adjustments from 0 to 90 seconds.
 - d. Two initial voltage settings with individual adjustments from 10 to 80% of nominal voltage.
 - e. Final torque setting adjustable from 0 to 10 (maximum level).
 - f. Two current limit settings with individual adjustments from 100 to 500% of motor full load amps.
 - g. Three selectable pump control acceleration curves.
 - h. Three selectable pump control deceleration curves.
 - i. Torque acceleration curve
 - j. Torque deceleration curve
 - k. Current control ramp
 - l. Kick-start (80% voltage boost) shall be adjustable from 0.1 to 1 second.
 - m. Maximum starting time (stall protection) shall be adjustable from 1 to 60 minutes.
 - n. Number of starts shall be adjustable from 1 to 10, in a programmable time period of 1 to 60 minutes.
 - o. The start inhibit time period shall be adjustable from 1 to 60 minutes.
 - p. Under current trip setting shall be adjustable from 20 to 90% of the motor full load amps. Under current shall be disabled when set to 'Off'.
 - q. Under current trip shall have an adjustable delay from 1 to 40 seconds.
 - r. Shear pin shall have an adjustable trip level from 100 to 850% of motor full load amps.

- C. Soft Starter I/O Control
1. The Soft starter shall have 6 digital inputs with the following assigned functions:
 - a. Start
 - b. Stop
 - c. Soft Stop
 - d. External Fault Input
 2. The Soft starter shall have 3 Form C relay outputs with the following assigned functions:
 - a. Run
 - b. End of Ramp
 - c. Fault
 3. The Soft Starter shall have 1 analog output signal with either 0/4-20mA or 0-10V settings on ratings 58A and above. The analog output must reflect the motor current.
 4. The Soft Starter shall have 1 dedicated thermistor input that is programmable for PTC or NTC type thermistors.

SPECIFICATIONS CONTINUED
ON NEXT SHEET



THIS DRAWING PREPARED AT THE
RALEIGH OFFICE
5410 Trinity Drive, Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE
REVISED PER COMMENTS	6/17/2022
DATE	3/16/2022
DRAWN BY	JTP
DESIGNED BY	WRJ
CHECKED BY	WRJ
SCALE	

TIMMONS GROUP

ROLESVILLE CROSSING
ROLESVILLE - WAKE COUNTY - NORTH CAROLINA
SPECIFICATIONS

ATTENTION CONTRACTORS
The Construction Contractor responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for contacting the **Public Utilities Department** at (919) 996-4540 at least **twenty four hours** prior to beginning any of their construction.

Failure to notify both **City Departments** in advance of beginning construction, will result in the issuance of **monetary fines**, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for **Inspection, Install a Downstream Plug, have Permitted Plans on the Jobsite, or any other Violation of City of Raleigh Standards** will result in a **Fine and Possible Exclusion** from future work in the **City of Raleigh**.

Public Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

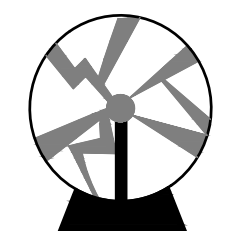
City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____

Public Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____
Authorization to Construct _____
Date _____

JOB NO.
43398
SHEET NO.
E4.3

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF ROLESVILLE, CITY OF RALEIGH, NCDEQ AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS



William R. Jennings, Jr.
Consulting Engineering, PC
3212 HILL STREET, UNIT A
LYNCHBURG, VA 24501
Phone: (434) 525-7099
Fax: (757) 282-2636
Email: wjennings@jenningspe.com



KNOW WHAT'S BELOW.
CALL 811 BEFORE YOU DIG.

T:\UBS02139 - Rolesville Crossing Pump Sta - Wake Co\CAD\02139 - E4_1.dwg | Plotted on 6/17/2022 1:20 PM | by Jeff Porion

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- D. Soft Starter Protective and Diagnostic Features
1. In the event of a fault, the soft starter will have tripped. Faults must be reset to restart operation once their cause has been rectified. The soft starter shall offer the following Faults list:
 - a. Too Many Starts
 - b. Long Start Time
 - c. Over Current Jam
 - d. Overload
 - e. Undercurrent
 - f. Undervoltage
 - g. Overvoltage
 - h. Phase Loss
 - i. Frequency out of Range
 - j. Phase Sequence
 - k. Slow Speed Time
 - l. Wrong Motor Connection
 - m. Shorted SCR
 - n. Heat Sink Over Temperature
 - o. External Fault signaled by Digital Input
 - p. Wrong Parameters
 - q. Wrong Wiring Connection

- A. Surge Protective Device.
1. Voltage: As indicated on drawings.
 2. Features: Discrete "all-mode" protection (10 modes for 3-phase wye circuits); component-level thermal fusing; internal circuit board-mounted overcurrent fusing; 200 kAIC SCCR; 25 year warranty.
 3. Include the following options:
 - a. DIAGNOSTIC:
 - 1) Basic internal audible alarm with dry relay contacts.
- B. Surge Protective Device:
1. Protection Circuits: Field-replaceable modular or non-modular.
 2. Surge Current Rating: Not less than 60 kA per mode/120 kA per phase.
 3. UL 1449 Nominal Discharge Current (I-n): 20 kA.
 4. UL 1449 Short Circuit Current Rating (SCCR): Not less than the available fault current at the installed location as indicated on the drawings.
 5. Diagnostics:
 - a. Protection Status Monitoring: Provide indicator lights to report the protection status for each phase.
 - b. Alarm Notification: Provide indicator light and audible alarm to report alarm condition. Provide button to manually silence audible alarm.

PART 3 EXECUTION
END OF SECTION 26 4300

- E. Provide products listed, classified, and labeled as suitable for the purpose intended.
- F. Conductor Terminations: Suitable for use with the conductors to be installed.
- G. Disconnects: Circuit breaker type.
1. Circuit Breakers: Thermal magnetic unless otherwise indicated or required.
 2. Overload Relays: Solid-state type unless otherwise indicated.

PART 3 EXECUTION

PART 1 GENERAL

- 1.01 SUBMITTALS
- A. Product Data: Include detailed component information, voltage, surge current ratings, repetitive surge current capacity, voltage protection rating (VPR) for all protection modes, maximum continuous operating voltage (MCOV), nominal discharge current (I-n), short circuit current rating (SCCR), connection means including any required external overcurrent protection, enclosure ratings, outline and support point dimensions, weight, service condition requirements, and installed features.
- 1.02 QUALITY ASSURANCE
- A. Comply with requirements of NFPA 70.
- 1.03 WARRANTY
- A. Manufacturer's Warranty: Provide minimum five year warranty covering repair or replacement of surge protective devices showing evidence of failure due to defective materials or workmanship.
- B. Exclude surge protective devices from any clause limiting warranty responsibility for acts of nature, including lightning, stated elsewhere.

PART 2 PRODUCTS

- 2.01 SURGE PROTECTIVE DEVICES - GENERAL REQUIREMENTS
- A. Description: Factory-assembled surge protective devices (SPDs) for 60 Hz service; listed, classified, and labeled as suitable for the purpose intended; system voltage as indicated on the drawings.
- B. Unless otherwise indicated, provide factory-installed, internally-mounted SPDs.
- C. List and label as complying with UL 1449, Type 1 when connected on line side of service disconnect overcurrent device and Type 1 or 2 when connected on load side of service disconnect overcurrent device.
- D. Protected Modes:
 1. Wye Systems: L-N, L-G, N-G, L-L.
- E. UL 1449 Voltage Protection Ratings (VPRs):
 1. 208Y/120V System Voltage: Not more than 1,000 V for L-N, L-G, and N-G modes and 1,200 V for L-L mode.
 2. 480Y/277V System Voltage: Not more than 1,500 V for L-N, L-G, and N-G modes and 2,000 V for L-L mode.
- F. UL 1449 Maximum Continuous Operating Voltage (MCOV): Not less than 115% of nominal system voltage.
- G. Enclosure Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
 1. Indoor clean, dry locations: Type 1.
 2. Outdoor locations: Type 4X.
- H. Equipment Containing Factory-installed, Internally Mounted SPDs: Listed and labeled as a complete assembly including SPD.
- 2.02 SURGE PROTECTIVE DEVICES FOR SERVICE ENTRANCE LOCATIONS
- 2.03 SURGE PROTECTIVE DEVICES FOR BRANCH PANELBOARD LOCATIONS

ATTENTION CONTRACTORS
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Failure to notify both *City Departments* in advance of beginning construction, will result in the issuance of *monetary fines*, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

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Public
Water Distribution / Extension System

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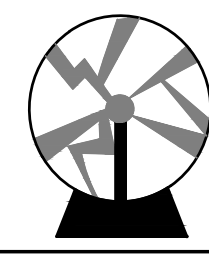
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ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

SPECIFICATIONS

JOB NO.	43398
SHEET NO.	E4.4



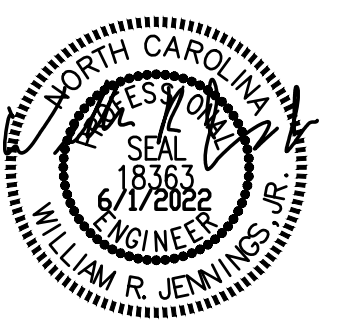
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William R. Jennings, Jr.
Consulting Engineering, PC
3212 HILL STREET, UNIT A
LYNCHBURG, VA 24501
Phone: (434) 525-7099
Fax: (757) 282-2636
Email: bjennings@jenningspe.com

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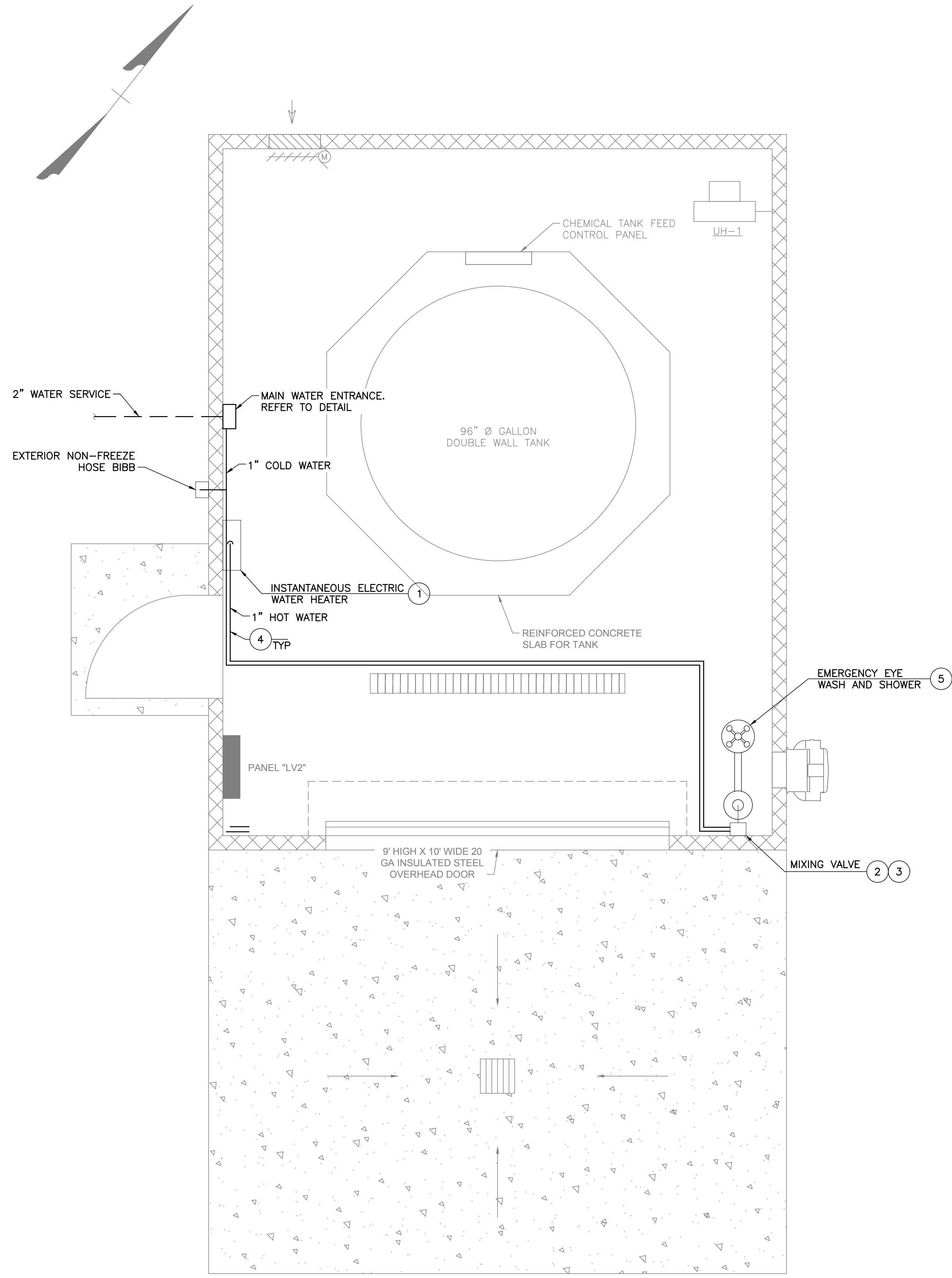
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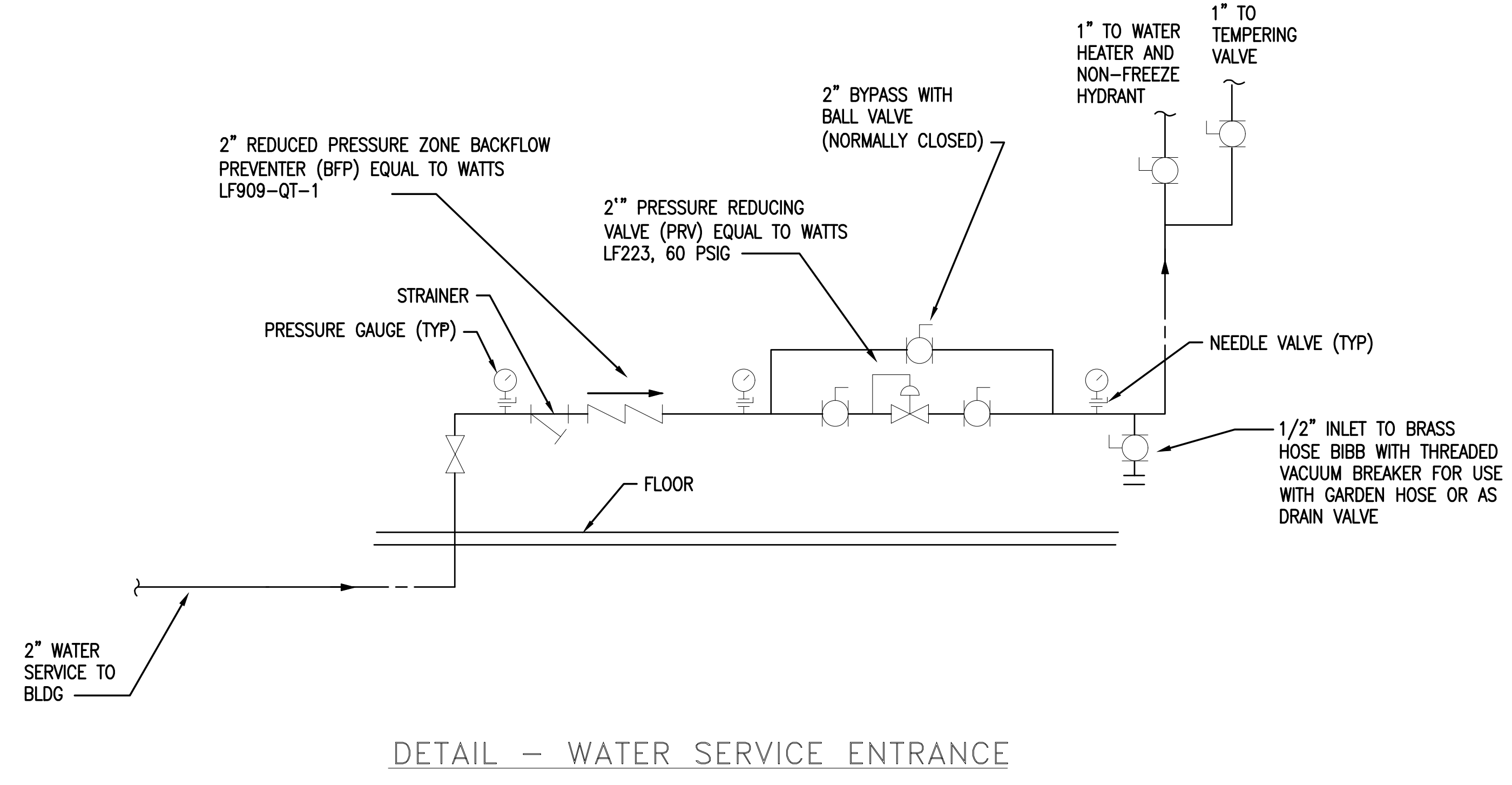
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ODOR CONTROL BUILDING FLOOR PLAN - PLUMBING

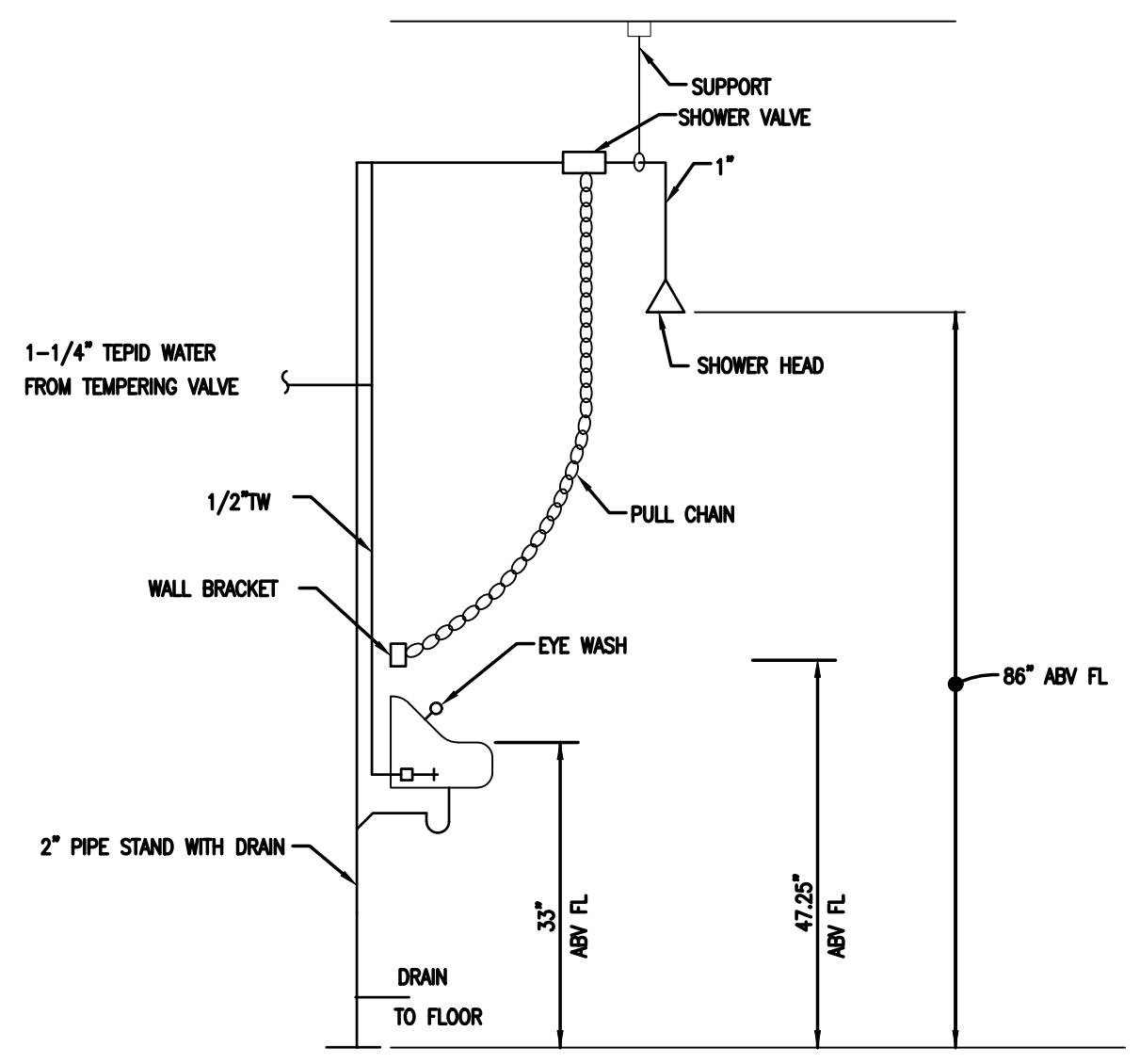
JOB NO. 43398
 SHEET NO. H1.1



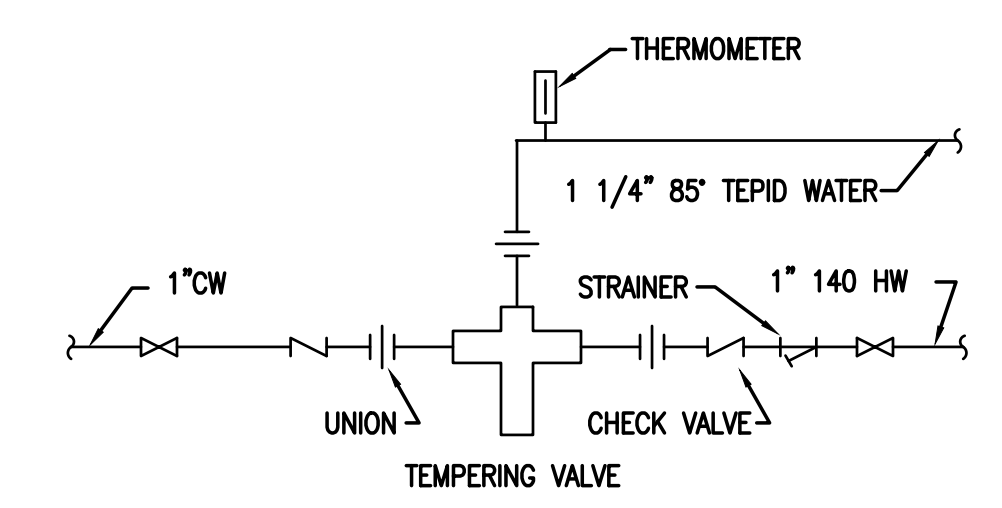
ODOR CONTROL BUILDING FLOOR PLAN - PLUMBING
 SCALE: 1/2" = 1'-0" 1
H1.1 H1.1



DETAIL - WATER SERVICE ENTRANCE



SCHEMATIC DETAIL OF CONNECTIONS TO EYE WASH & EMERGENCY SHOWER
 NOT TO SCALE



DETAIL OF CONNECTIONS FOR TEMPERING VALVE
 NO SCALE

SPECIFIC NOTES:

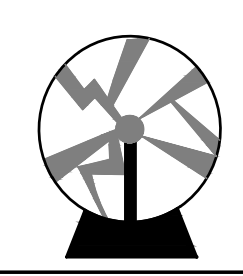
- 1 PROVIDE CHRONOMITE ELECTRIC TANKLESS WATER HEATER MODEL ER-60H/480_3P OR EQUAL. HEATER TO BE 480V, 3 PHASE I NEMA 4X ENCLOSURE. MOUNT 48" AFF MINIMUM.
- 2 SET THERMOSTATIC MIXING VALVE FOR 86 DEG F DISCHARGE OF TEPID WATER TO EYEWASH/FACEWASH.
- 3 PROVIDE THERMOSTATIC MIXING VALVE EQUAL TO PROVIDE 0.4 GPM TO EYEWASH AND 20 GPM TO SHOWER WITH TEPID WATER (60 DEG F TO 90 DEG F). PROVIDE UNIONS AND CONCENTRIC REDUCERS TO CONVERT 3/4" OUTLET TO 1-1/4" PIPING TO EYEWASH.
- 4 ALL WATER PIPING SHALL BE TYPE K COPPER. ALL COLD WATER AND HOT WATER PIPING TO BE INSULATED WITH 1 INCH THICK CLOSED-CELL FOAM INSULATION.
- 5 PROVIDE COMBINATION EYEWASH/SHOWER EQUAL TO GUARDIAN G1942. BALANCE WATERFLOW TO EYEWASH AND TO SHOWER PER OSHA STANDARDS. PROVIDE BALL VALVES AS REQUIRED TO BALANCE AS DETERMINED BY SYSTEM WATER PRESSURE.

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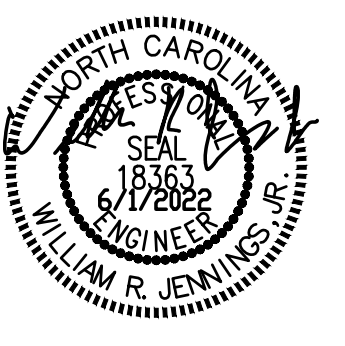
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William R. Jennings, Jr.
Consulting Engineering, PC
 3212 HILL STREET, UNIT A
 LYNCHBURG, VA 24501
 Phone: (434) 525-7099
 Fax: (757) 282-2636
 Email: tjennings@jenningspe.com

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JTP

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WRJ

CHECKED BY
WRJ

SCALE

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 ROLESVILLE - WAKE COUNTY - NORTH CAROLINA

ODOR CONTROL BUILDING FLOOR PLAN - MECHANICAL

JOB NO.
43398

SHEET NO.
M1.1

SPECIFIC NOTES:

- EF-1: PROVIDE WALL MOUNTED EXHAUST FAN EQUAL TO GREENHECK CUE-090 (650 CFM AT 0.25 INWG, 1550 RPM, 7.5 SONES, 1/6 HP MOTOR, 120V/1PH), WITH DIRECT DRIVE EC MOTOR AND MANUAL SPEED CONTROLLER EQUAL TO GREENHECK VARI-GREEN, APPROXIMATELY 12.5" X 12.5" WALL OPENING. PROVIDE WITH WALL OPENING SUPPORT FRAME. COVER FAN INTAKE WITH ALUMINUM BIRD SCREEN. PROVIDE FAN WITH BACKDRAFT DAMPER. PROVIDE WITH FAN RELAY SO THAT ASSOCIATED INTAKE MOTORIZED DAMPER IS FULLY OPEN PRIOR TO FAN ENERGIZING. PROVIDE WITH WALL MOUNTED MOTOR STARTER. CONTROL SHALL BE WALL MOUNTED THERMOSTAT (85 DEG F, ADJ).
- MOUNT TOP OF FAN APPROXIMATELY 18 INCHES BELOW ROOF STRUCTURE.
- WALL MOUNTED THERMOSTAT FOR FAN CONTROL. MOUNT AT 48 INCHES ABOVE FINISHED FLOOR.
- PROVIDE ELECTRIC UNIT HEATER EQUAL TO MARKEL F2FUH05003 (5KW, 208V/3 PHASE, 18 AMPS, 400 CFM). WITH FACTORY BUILT-IN THERMOSTAT. PROVIDE WITH WALL MOUNTING BRACKET AND DISCONNECT. SET THERMOSTAT FOR 45 DEG F (ADJ).
- L-1: PROVIDE STATIONARY WALL LOUVER FOR INTAKE AIR. MINIMUM DIMENSIONS OF 24" WIDE X 18" WIDE. EQUAL TO GREENHECK MODEL EHM-601, CONSTRUCTED OF HEAVY GAUGE ALUMINUM WITH 45 DEG DUAL DRAINABLE LOUVERS. LOUVER FINISH SHALL BE FACTORY BAKED ENAMEL, COLOR TO MATCH DOORS AND FRAME ON BUILDING. PROVIDE WITH BIRDSCREEN. PROVIDE WITH DAMPER CONNECTION FOR MOTORIZED DAMPER. MOUNT BOTTOM OF LOUVER APPROXIMATELY 12 INCHES ABOVE FINISHED FLOOR.
- PROVIDE LOW LEAKAGE MOTORIZED DAMPER, SPRING LOADED TO BE NORMALLY CLOSED. INTERLOCK WITH EXHAUST FAN EF-1. ACTUATOR SHALL BE LINE VOLTAGE. COORDINATE WITH EXHAUST FAN. DAMPER SHALL OPEN BASED ON THERMOSTAT/FAN OPERATION AND SHALL BE CLOSED WHEN FAN IS OFF.

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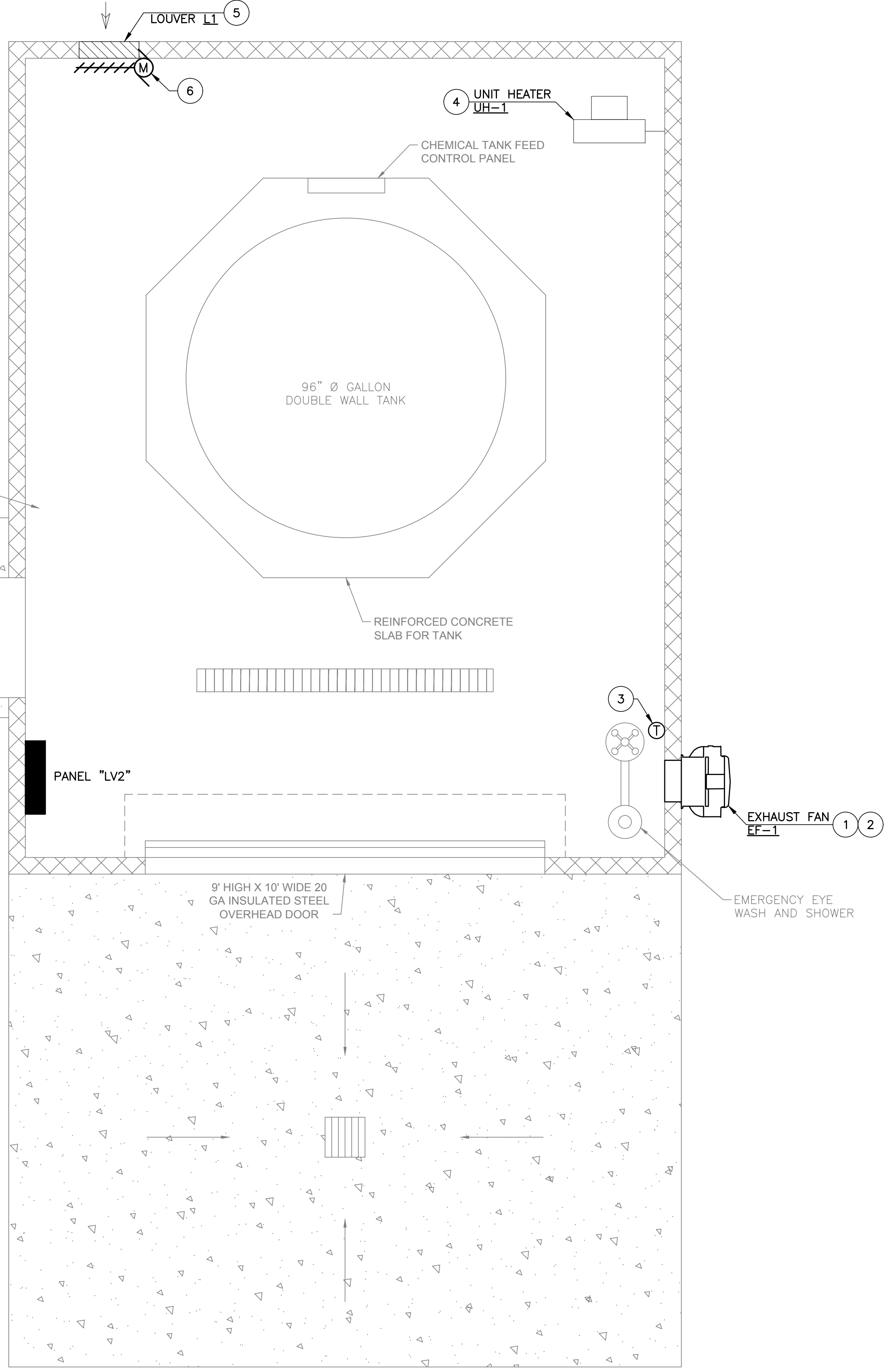
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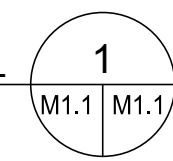
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ODOR CONTROL BUILDING FLOOR PLAN - MECHANICAL
 SCALE: 1/2" = 1'-0"



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 Fax: (757) 282-2636
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