ELIZABETH HEIGHTS

CONSTRUCTION DRAWINGS

TRACT A

TOWN OF ROLESVILLE
WAKE COUNTY, NC

DRAWING LIST	
C000	COVER
C001	NOTES AND ABBREVIATIONS
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C300	OVERALL SITE DATA
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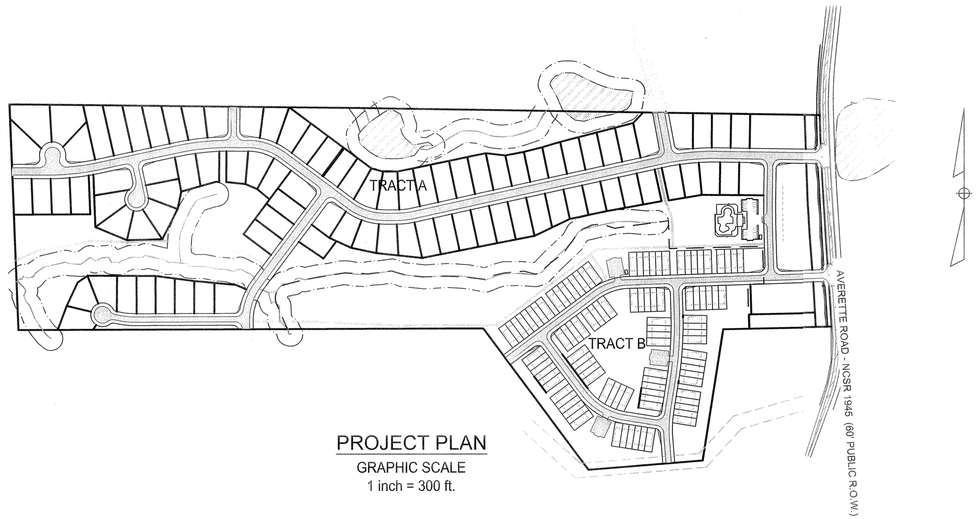
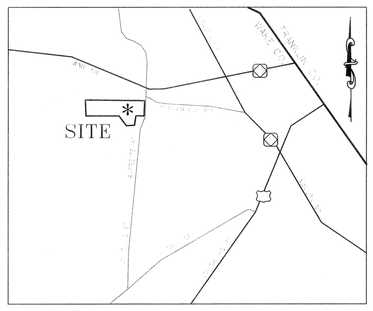
C325	OVERALL EROSION CONTROL PLAN
C326	EROSION CONTROL PLAN
C327	EROSION CONTROL PLAN
C328	EROSION CONTROL PLAN
C400	OVERALL UTILITY PLAN
C401	UTILITY PLAN
C402	UTILITY PLAN
C403	UTILITY PLAN
C404	UTILITY PROFILE
C405	UTILITY PROFILE
C407	OFFSITE WATER EXTENSION
C408	AVERETTE WATER EXTENSION
C410	SEWER CROSSING
C420	OFFSITE SEWER OUTFALL PLAN
C421	REHABILITATION PLAN OFFSITE SEWER LINE
C422	REHABILITATION PROFILES OFFSITE SEWER LINE
C501	PLAN AND PROFILE KAVANAUGH ROAD
C502	PLAN AND PROFILE KAVANAUGH ROAD
C503	PLAN AND PROFILE KAVANAUGH ROAD
C504	PLAN AND PROFILE FRAZIER PIKE ROAD
C505	PLAN AND PROFILE ROSE FINCH CIRCLE
C506	PLAN AND PROFILE GOLDEN-ASTER TRAIL
C507	PLAN AND PROFILE GEMSTONE WAY
C508	PLAN AND PROFILE CLASSICAL WAY
C509	PLAN AND PROFILE MARSH HAWK WAY
C510	PLAN AND PROFILE SHINGLE-OAK ROAD
C511	PLAN AND PROFILE SHINGLE-OAK ROAD
C512	PLAN AND PROFILE BLUE DASH LANE
C513	PLAN AND PROFILE BARRED OWL TRAIL
C514	PLAN AND PROFILE SWEETLEAF LANE
C522	BMP DETAILS - BMP 1
C523	BMP DETAILS - BMP 2
C524	BMP DETAILS - BMP 3
C525	BMP DETAILS - BMP 4
C701	ROAD WIDE PLAN
C702	CROSS SECTIONS
C703	CROSS SECTIONS
C704	CROSS SECTIONS
C801	DETAILS
C802	DETAILS
C803	DETAILS
C804	DETAILS
C805	DETAILS
C806	DETAILS
C807	DETAILS
C808	DETAILS
C809	DETAILS
C810	DETAILS

1.	REVISED PER COR COMMENTS	04/18/2019



PROJECT PLAN
GRAPHIC SCALE
1 inch = 300 ft.



VICINITY MAP
(NTS)

DEVELOPER:
WRIGHT-WHITLEY DEVELOPMENT COMPANY, LLC
1225 N WHITE ST
WAKE FOREST, NC 27583

OWNER:
DOUGLAS JONES
1109 AVERETTE RD
WAKE FOREST, NC 27587

SITE ADDRESS:
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

Rolesville

APPROVED FOR COMPLIANCE

Case #: 518-01 Project: Elizabeth Heights TRACT A SUB.
By: Danny Johnson Date: 4/25/2019

These plans have been approved for compliance with the Town Code of Ordinance & Standard specifications & Construction Details, subject to statements & conditions hereby incorporated by reference

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 # W-3599
Authorization to Construct Jim Beard
Date 4/23/19

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 # S-4523
Authorization to Construct Jim Beard
Date 4/23/19

UTILITY IMPROVEMENTS	
8" PVC PUBLIC SEWER	9,375 LF
8" DIP PUBLIC SEWER	2,085 LF
16" PVC PUBLIC SEWER	890 LF
CLASS III RCP STORM	11,445 LF
4" DIP PUBLIC WATER	110 LF
6" DIP PUBLIC WATER	225 LF
8" DIP PUBLIC WATER	4,185 LF
12" DIP PUBLIC WATER	4,646 LF
16" DIP PUBLIC WATER	900 LF

WAKE CO. STORMWATER NOTE:

RESIDENTIAL ONLY Perpetuity statement
Maximum Impervious Area Square Footage on each individual Lot will be Stringently Enforced with no Exceptions into Perpetuity. Plans approved with a maximum impervious surface of (2,500) SF per lot.

EROSION CONTROL, STORMWATER AND FLOODPLAIN MANAGEMENT
APPROVED
EROSION CONTROL ☒ S-~~EC-011532-2018~~
STORMWATER MGMT. ☒ S-~~WF-011530-2019~~
FLOOD STUDY ☐ S-
DATE
ENVIRONMENTAL CONSULTANT SIGNATURE

811 KNOW WHAT IS BELOW CALL BEFORE YOU DIG

~~PRELIMINARY NOT RELEASED FOR CONSTRUCTION 12/07/2018~~

PROJECT NUMBER: 170348

C000 - COVER

ELIZABETH HEIGHTS - CONSTRUCTION DRAWINGS

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ABBREVIATIONS

@	AT
A	AREA
A.B.C.	AGGREGATE BASE COURSE
AC	ACRE
A.D.	ALGEBRAIC DIFFERENCE
A.F.F.	ABOVE FINISHED FLOOR
AL	AREA LIGHT
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
ASSY.	ASSEMBLY
B-B	BACK TO BACK
BEAR.	BEARING
BLDG.	BUILDING
BOC	BACK OF CURB
BOT.	BOTTOM
℄	CENTERLINE
C.A.B.C.	CRUSHED AGGREGATE BASE COURSE
CB	CATCH BASIN
C-C	CENTER TO CENTER
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
C&G	CURB AND GUTTER
CH	CHORD
CI	CURB INLET
CL.	CLASS
CNST	CONSTRUCTION
C.O.	CLEAN-OUT
CO.	COMPANY
COL	COLUMN
CONC.	CONCRETE
CONN	CONNECTION
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
CULV.	CULVERT
°	DEGREE(S)
△	DELTA ANGLE
Ø / DIA.	DIAMETER
D	DEPTH / DEEP
DB	DEED BOOK
Dc	DEGREE OF CURVATURE
DET	DETAIL
DI	DROP INLET
DIP	DUCTILE IRON PIPE
DN	DOWN
D/W	DRIVEWAY
DWG(S).	DRAWING(S)
E	EAST
EA.	EACH
EL/ELEV	ELEVATION
ELEC.	ELECTRICAL
EOP	EDGE OF PAVEMENT
ESMT	EASEMENT
EX/EXIST	EXISTING
F.D.	FLOOR DRAIN
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FHA	FIRE HYDRANT ASSEMBLY
FI	FLOW INDICATOR
FLEX.	FLEXIBLE
FL	FLANGE
FM	FORCE MAIN
FO	FIBER OPTIC CABLE
FOP	FIBER OPTIC POST
FOSC	FIBER OPTIC SIGNAL CABLE
FOC	FACE OF CURB
FT	FEET
FUT	FUTURE
GA	GAUGE
GAL.	GALLON
GALV.	GALVANIZED
GEN	GENERATOR
G/L	GUTTER LINE
GV	GATE VALVE
GW	GUY WIRE/ANCHOR
HD	HEAVY DUTY
HEX.	HEXAGONAL
HOR(IZ).	HORIZONTAL
HP	HIGH POINT
HWL	HIGH WATER LEVEL
HWY.	HIGHWAY
ICV	IRRIGATION CONTROL VALVE
ID	INSIDE DIAMETER
IN	INCH(ES)
INV.	INVERT
JB	JUNCTION BOX
K	CURVE COEFFICIENT
L	LENGTH
LB	POUND(S)
LD	LIGHT DUTY
LF	LINEAR FEET
LG	LONG
LP	LIGHT POLE
LT	LEFT
LWL	LOW WATER LEVEL

MAX.	MAXIMUM
MECH.	MECHANICAL
MFR.	MANUFACTURER
MH	MANHOLE
MIN.	MINIMUM
MI	MILE
MJ	MECHANICAL JOINT
# / NO.	NUMBER
N	NORTH
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
N/F	NOW OR FORMERLY
N.I.C.	NOT IN CONTRACT
NTS	NOT TO SCALE
O.C.	ON CENTER(S)
O.D.	OUTSIDE DIAMETER
OHE	OVERHEAD ELECTRIC
OPER	OPERATION
OPNG	OPENING
PB	PLAT BOOK
PC	POINT OF CURVATURE
PERM.	PERMANENT
PG	PAGE
PI	POINT OF INTERSECTION
PITO	POINT OF INTERSECTION - TURN OUT
PL	PROPERTY LINE
PROP.	PROPOSED
PS	POINT OF SWITCH
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PT	POINT
PVC	POLYVINYL CHLORIDE
P.V.C.	POINT OF VERTICAL CURVATURE
P.V.I.	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
P.V.T.	POINT OF VERTICAL TANGENCY
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RED.	REDUCER
REQ'D.	REQUIRED
RJ	RESTRAINED JOINT
RR	RAILROAD
RT	RIGHT
R/W	RIGHT OF WAY
S	SOUTH
SAN	SANITARY
SCH	SCHEDULE
SDMH	STORM DRAIN MANHOLE
SEC.	SECONDS
SECT.	SECTION
SED.	SEDIMENT
SEW	SEWER
SF	SQUARE FEET
SHT. / SH.	SHEET
SP	SERVICE POLE
SPEC.	SPECIFICATION
SQ.	SQUARE
SR	STATE ROAD
SS	STAINLESS STEEL
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
STA.	STATION
STD.	STANDARD
STL	STEEL
S/W	SIDEWALK
T/C	TOP OF CURB
TEL.	TELEPHONE
TEMP.	TEMPORARY
TK	THICK
T/G	TOP OF GRATING
T.O.	TOP OF...
TP	TELEPHONE PEDESTAL
T/S	TOP OF SLAB
TSB	TRAFFIC SIGNAL BOX
TST	TEMPORARY SEDIMENT TRAP
T/W	TOP OF WALL
TYP.	TYPICAL
U/G	UNDER GROUND
UGE	UNDER GROUND ELECTRIC
UV	ULTRAVIOLET
V	VALVE
VC	VERTICAL CURVE
VERT.	VERTICAL
W	WIDTH
W	WEST
W/	WITH
WD	WIDE
WL	WATER LEVEL
W/L	WATER LINE
WM	WATER METER
WSE	WATER SURFACE ELEVATION
WV	WATER VALVE
WWF	WELDED WIRE FABRIC
YD	YARD
YI	YARD INLET
YH	YARD HYDRANT
YR	YEAR

GENERAL NOTES

FOR THE PURPOSE OF THE FOLLOWING NOTES:

- "CONTRACTOR" REFERS TO GENERAL CONTRACTOR
- "OWNER" REFERS TO DOUGLAS JONES OR HIS AUTHORIZED AGENTS
- "ENGINEER" REFERS TO BATEMAN CIVIL SURVEY COMPANY

GENERAL SITE/CIVIL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH PERMITS AS ISSUED, AND ANY AND ALL APPLICABLE STATE, COUNTY AND LOCAL CODES.
2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, AND/OR ANY OTHER REQUIREMENTS WHICH MUST BE MET UNDER CONTRACT.
3. ALL DIMENSIONS ARE IN RADII, TO OUTSIDE FACE OF BUILDING, TO CENTERLINE, CENTER TO CENTER ON STRIPES, AND/OR TO FACE OF CURB, UNLESS OTHERWISE NOTED.
4. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE CAUSED BY HIS OPERATIONS TO EXISTING UTILITIES AND FACILITIES WHICH ARE NOT INCLUDED AS PART OF THE INTENDED WORK. DAMAGED UTILITIES AND FACILITIES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR, TO THE SATISFACTION OF THE OWNERS' REPRESENTATIVE, AT NO ADDITIONAL COST TO THE OWNER.
5. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION OPERATIONS WITH ANY AND ALL OTHER CONSTRUCTION ACTIVITIES WHICH MAY BE OCCURRING SIMULTANEOUSLY ON THE SITE. LACK OF COORDINATION ON THE CONTRACTOR'S PART RESULTING IN EXTRA WORK OR SCHEDULE DELAYS SHALL NOT CONSTITUTE A CHANGE ORDER.
6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
7. THE CONTRACTOR SHALL CONTACT THE NC ONE CALL CENTER, AT 1-800-632-4949, AT LEAST 48 HOURS BEFORE THE START OF CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE AT NO ADDITIONAL COST TO THE OWNER, FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES UNTIL SUCH TIME AS THE APPROPRIATE STATE, COUNTY, OR MUNICIPAL AUTHORITY RELEASES THE SITE AT WHICH TIME THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AS DIRECTED BY THE ENGINEER.
9. CONSTRUCTION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE CORRESPONDING SECTIONS OF THE NORTH CAROLINA EROSION AND SEDIMENTATION CONTROL PLANNING AND DESIGN MANUAL, LATEST EDITION AND THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN.
10. THE LOCATION OF ALL STRUCTURES SHOWN REPRESENTS THE BEST INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF THE SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION, SIZE, AND TYPE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELOCATION (AS DIRECTED BY THE ENGINEER) OF ANY CONFLICTING UNDERGROUND UTILITIES, IF REQUIRED, AT NO ADDITIONAL COST TO THE OWNER. IT IS ADVISABLE THE CONTRACTOR VISIT THE SITE PRIOR TO BIDDING AND BECOME FAMILIAR WITH THE SITE AND ANY POTENTIAL CONFLICTS.
11. THE CONTRACTOR IS RESPONSIBLE FOR ALL SITE LAYOUTS AND STAKING AND THE COST THEREOF SHALL BE INCLUDED IN HIS BID.
12. THE CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES THE CONTRACTOR SHALL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO THE NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXEMPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
13. ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE OWNER AND ENGINEER AT THE CONTRACTOR'S SOLE EXPENSE.
14. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES, INCLUDING, BUT NOT LIMITED TO BRACING AND SHORING. OBSERVATION VISITS TO THE SITE BY THE ENGINEER AND/OR THE ENGINEER'S REPRESENTATIVE(S) SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
15. ALL WORK WITHIN NCDOT RIGHTS-OF-WAY SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. THE CONTRACTOR SHALL ABIDE BY THE NCDOT DRIVEWAY AND ENCROACHMENT PERMITS AND THEIR CONDITIONS.
16. SITE DEVELOPMENT SHALL BE IN ACCORDANCE WITH THE TOWN OF ROLESVILLE LAND DEVELOPMENT ORDINANCE.
17. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ADHERING TO ALL OSHA SAFETY REQUIREMENTS, INCLUDING TRENCH SAFETY DURING ALL PHASES OF CONSTRUCTION.
18. CONSTRUCTION TO BE IN ACCORDANCE WITH TOWN OF ROLESVILLE & NCDOT STANDARDS AND SPECIFICATIONS.

GENERAL UTILITY NOTES

1. THE APPROXIMATE LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE TRUE LOCATION PRIOR TO COMMENCING WORK. IN THE EVENT A CONFLICT OR POTENTIAL CONFLICT IS IDENTIFIED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
2. THE CONTRACTOR SHALL COORDINATE ALL WORK AFFECTING UTILITIES WITH THE RESPECTIVE UTILITY COMPANY OWNER. ALL DETAILS OF CONSTRUCTION AND/OR RELOCATION SHALL BE APPROVED BY THE UTILITY OWNERS AND OTHER APPROVING AGENCIES, IF REQUIRED.
3. PROTECTION OF ALL EXISTING STRUCTURES TO REMAIN DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
4. ALL UTILITY CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
5. RELATION BETWEEN WATER MAINS AND SEWER LINES:
   A. HORIZONTAL AND VERTICAL SEPARATION:
      1.) WATERLINES SHALL BE LAID AT LEAST 10 FEET HORIZONATALLY FROM ANY EXISTING OR PROPOSED SEWER LINE. THE DISTANCE SHALL BE MEASURED FROM EDGE TO EDGE. IF AN OBSTRUCTION PROHIBITS A 10-FOOT SEPARATION, THE CONTRACTOR SHALL CONTACT THE ENGINEER. INSTALLATION OF THE WATER MAIN CLOSER TO A SEWER LINE IS ALLOWED PROVIDED THAT THE WATER MAIN IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AND AT AN ELEVATION SO THE BOTTOM OF THE WATER MAIN IS AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER.
      2.) IF IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS DESCRIBED ABOVE OR ANY TIME THE SEWER IS OVER THE WATER MAIN, BOTH THE WATER MAIN AND SEWER LINE MUST BE CONSTRUCTED OF FERROUS PIPE COMPLYING WITH PUBLIC WATER SUPPLY DESIGN STANDARDS AND PRESSURE TESTED TO 150 PSI (MINIMUM) TO ASSURE WATERTIGHTNESS BEFORE BACKFILLING.
   B. CROSSINGS
      1.) FOR WATER MAINS CROSSING UNDER SEWER LINES: LINES SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18-INCHES BETWEEN THE OUTSIDE EDGE OF THE WATER MAIN AND THE OUTSIDE EDGE OF THE SEWER LINE. THE CROSSING SHALL BE ARRANGED SO THAT ONE 20-FOOT SECTION OF WATERLINE SHALL BE CENTERED AT THE CROSSING. ONE OF THE FOLLOWING METHODS MUST THEN BE UTILIZED AS DIRECTED BY THE ENGINEER:
         I.) THE SEWER SHALL BE DESIGNED AND CONSTRUCTED OF FERROUS PIPE AND SHALL BE PRESSURE TESTED AT 150 PSI TO ASSURE WATERTIGHTNESS PRIOR TO BACKFILLING OR,
         II.) EITHER THE WATER MAIN OR SEWER LINE MAY BE ENCASED IN A WATERTIGHT CARRIER PIPE WHICH EXTENDS 10-FEET BEYOND BOTH SIDES OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER MAIN. THE CARRIER PIPE SHALL BE OF A MATERIAL APPROVED BY THE REGULATORY AGENCY FOR USE IN WATER MAIN CONSTRUCTION.
      2.) FOR WATER MAINS CROSSING OVER A SEWER LINE: LINES SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18-INCHES BETWEEN THE OUTSIDE EDGE OF THE WATER MAIN AND THE OUTSIDE EDGE OF THE SEWER. IN AN 18-INCH MINIMUM VERTICAL SEPARATION CANNOT BE MET, THEN THE WATERLINE SHALL BE CONSTRUCTED OF A FERROUS MATERIAL WITH ONE 20-FOOT SECTION OF PIPE CENTERED AT THE CROSSING. ONE OF THE CROSSING CONSTRUCTION METHODS ABOVE: 6.B.1.)I) OR II) SHALL BE UTILIZED.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING RECORDS AND SUBMIT AS BUILT DRAWINGS FOR UTILITIES.
7. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL CONCRETE STRUCTURES, CASTINGS AND PIPING MATERIALS FOR APPROVAL PRIOR TO PURCHASING. ENGINEER SHALL HAVE 10 DAYS TO REVIEW INITIAL SUBMITTALS AND 5 DAYS FOR RESUBMITTALS.

DRAINAGE NOTES

1. CONTRACTOR SHALL EXERCISE CARE, ESPECIALLY AT INTERSECTIONS AND GUTTER LINES, TO PROVIDE POSITIVE DRAINAGE. ANY AREAS WHERE WATER IS IMPOUNDED AS A RESULT OF THIS CONSTRUCTION SHALL BE CORRECTED BY CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. POSITIVE DRAINAGE OF ALL ROADWAY AREAS TO THE STORM DRAIN INLETS OR OTHER ACCEPTABLE DRAINAGE CHANNELS SHALL BE MAINTAINED AT ALL TIMES.
2. CONTRACTOR SHALL MAINTAIN EXISTING STREAMS, DITCHES, DRAINAGE STRUCTURES, CULVERTS AND FLOWS AT ALL TIMES DURING THE WORK. CONTRACTOR SHALL PAY FOR ALL PERSONAL INJURY AND PROPERTY DAMAGE WHICH MAY OCCUR AS A RESULT OF FAILING TO MAINTAIN ADEQUATE DRAINAGE.
3. ALL PIPES, DRAINAGE INLETS AND OTHER STRUCTURES UNCOVERED DURING CONSTRUCTION SHALL BE INSPECTED BY THE ENGINEER BEFORE BEING BACKFILLED OR BURIED. THE ENGINEER MAY REQUIRE CONTRACTOR, AT NO ADDITIONAL COST TO THE OWNER, TO UNCOVER AND RE-COVER SUCH STRUCTURES IF THEY HAVE BEEN BACKFILLED OR BURIED WITHOUT SUCH INSPECTION.
4. ELEVATIONS GIVEN FOR CATCH BASINS ARE MEASURED AT THE TOP OF CURB AT TH CENTER OF STRUCTURE. ELEVATIONS FOR MANHOLES, JUNCTION BOXES AND DROP INLETS ARE MEASURED AT THE CENTER OF GRATE COVER.
5. CONSTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL CONCRETE STRUCTURES, CASTINGS AND PIPING MATERIALS FOR APPROVAL PRIOR TO PURCHASING. ENGINEER SHALL HAVE 10 DAYS TO REVEIW INITIAL SUBMITTALS AND 5 DAYS FOR RESUBMITTALS.

GENERAL GRADING NOTES

1. ALL PROPOSED ELEVATIONS SHOWN HEREIN ARE FINISHED GRADE ELEVATIONS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING SEWER RIM ELEVATIONS IN RELATION TO PROPOSED GRADE PRIOR TO INSTALLATION, ALL EXISTING MANHOLE COVERS, CATCH BASINS, VALVE COVERS, ETC. THAT ARE TO REMAIN SHALL BE ADJUSTED (RAISED OR LOWERED) TO FINISHED GRADE.
3. CLEAR AND GRUB SITE TO GRADING LIMITS SHOWN ON THE SITE GRADING PLANS.
4. ALL TOPSOIL AND UNSUITABLE FILL MATERIAL SHALL BE REMOVED PRIOR TO PLACEMENT OF SUBBASE MATERIAL AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
5. ALL EXCAVATED MATERIAL PLACEMENT TO BE COORDINATED WITH THE OWNER FOR AVAILABLE SPOIL LOCATIONS.
6. ALL MATERIAL THAT IS UNSUITABLE FOR GRADING/EMBANKMENT WILL BE RELOCATED OFF-SITE BY THE CONTRACTOR TO A SUITABLE LOCATION AS DIRECTED BY THE OWNER IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
7. AREAS SCHEDULED FOR EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
8. ALL EMBANKMENTS SHALL BE COMPACTED AS SPECIFIED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.
9. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO EMBANKMENT SLOPES OF STRUCTURAL FILLS.
10. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF THREE INCHES PRIOR TO PLACEMENT OF TOPSOIL.
11. THE PROPOSED CONTOURS AND GRADIENTS ARE APPROXIMATE. THE ELEVATIONS SHOWN ARE FOR FINISH GRADE ASPHALT AND FINISH GROUND.
12. ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE AND AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION.

TRAFFIC AND SIGNAGE

1. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, BARRICADES, SIGNS, FLAGGERS OR OTHER DEVICES AS NECESSARY TO PROVIDE FOR SAFETY.
2. THE CONTRACTOR SHALL MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS TO ALL PROPERTY OWNERS ALONG THE PROJECT ALIGNMENT.
3. THE CONTRACTOR SHALL MAINTAIN EXISTING TRAFFIC PATTERNS WHEN POSSIBLE. IF CONSTRUCTION ACTIVITIES DEEM NECESSARY, THE CONTRACTOR SHALL UTILIZE TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE FEDERAL, STATE AND LOCAL AGENCIES TO MAINTAIN SAFE TRAFFIC FLOW.
4. CONTRACTOR SHALL NOTIFY PROPERTY OWNER(S) FIVE (5) BUSINESS DAYS IN ADVANCE OF BLOCKING ANY ENTRANCE. NO ENTRANCE SHALL BE BLOCKED MORE THAN TWELVE (12) HOURS IN ANY 24 HOUR PERIOD WITHOUT APPROVAL OF THE PROPERTY OWNER.

EARTHWORK AND SITE CONDITIONS

1. UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, IN AREAS OUTSIDE OF NCDOT RIGHT-OF-WAYS, ALL FILL MATERIALS SHALL BE COMPACTED TO 95% OF THE THEORETICAL MAXIMUM DENSITY AS DETERMINED BY AASHTO-99 METHOD A, WITHIN PLUS OR MINUS 2% OF OPTIMUM MOISTURE, FOR THE FULL WIDTH AND DEPTH OF THE FILL. ALL FILL MATERIAL UNDER PAVED AREAS SHALL BE NCDOT #21B CRUSHED STONE, APPROVED SOIL, OR SELECTED MATERIAL, 95% COMPACTED WITH CBR OF 30, COMPACTED IN 6-INCH DEEP LIFTS AS DIRECTED BY THE PROJECT INSPECTOR.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND LOCATIONS PRIOR TO BEGINNING WORK, AND IMMEDIATELY NOTIFY THE OWNER AND ENGINEER IN THE EVENT THERE ARE ANY DISCREPANCIES BETWEEN SUCH CONDITIONS AND THOSE SHOWN ON THE PLANS AND SPECIFICATIONS.
3. TOPSOIL STOCKPILED FROM CLEARING AND GRUBBING SHALL BE FREE FROM ROOTS, BRUSH, DEBRIS AND ROCKS. EXCESS STOCKPILED TOPSOIL MAY BE PLACED ON SITE AT THE DIRECTION OF THE ENGINEER OR DISPOSED OF OFFSITE.
4. THE CONTRACTOR SHALL USE QUALITY STRUCTURAL FILL DIRT AS REQUIRED TO COMPLETE THE WORK AS SOWN ON THE PLANS. IMPORTED FILL DIRT SHALL BE TESTED BY A REGISTERED GEOTECHNICAL ENGINEER IN NORTH CAROLINA AND THE RESULTS SUBMITTED TO THE ENGINEER PRIOR TO IMPORTING AND PLACING ANY FILL MATERIAL.
5. UNSUITABLE MATERIAL PLACED AS FILL WILL BE REMOVED AND REPLACED WITH APPROVED MATERIAL AT THE CONTRACTORS EXPENSE.
6. FILL SHALL BE PLACED AND COMPACTED ACCORDING TO NC DOT STANDARD SPECIFICATIONS. THIS ALSO APPLIES TO AREAS OUTSIDE OF THE DOT RIGHT-OF-WAY.

VEGETATION

1. PRIOR TO REMOVING ANY TREES, CONTRACTOR SHALL MEET WITH THE PROPERTY OWNERS AND THE ENGINEER TO REVIEW THE LIMITS OF CONSTRUCTION AND OBTAIN PERMISSION TO REMOVE TREES REQUIRED TO DO THE WORK.
2. TREE AND PLANT ROOTS OR BRANCHES THAT MAY INTERFERE WITH THE WORK SHALL BE TRIMMED OR CUT ONLY WITH THE APPROVAL OF THE OWNER. ANY TREES OR PLANTS WHICH ARE SHOWN TO REMAIN THAT DO NOT INTERFERE WITH THE WORK, BUT ARE DAMAGED BY CONTRACTOR OR HIS SUBCONTRACTORS, SHALL BE REPAIRED OR REPLACED BY CONTRACTOR AT NO ADDITIONAL COST.
3. TREES CUT DOWN SHALL BE COMPLETELY REMOVED, INCLUDING THEIR ROOTS.
4. ON-SITE BURNING IS NOT PERMITTED.
5. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL DEBRIS OFF SITE AT AN APPROVED DISPOSAL FACILITY. DEBRIS INCLUDES, BUT IS NOT LIMITED TO, TREES, ROOTS AND STUMPS.

WORK IN NCDOT RIGHTS OF WAY

1. ALL WORK WITHIN NCDOT RIGHTS-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NCDOT "ROADWAY STANDARD DRAWING" AND "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES." THIS INCLUDES LANE CLOSURES, ROAD CLOSURES, POSITIVE PROTECTION AND/OR ANY OTHER WARNING OR POSITIVE PROTECTION DEVICES NECESSARY FOR THE SAFETY OF THE ROAD USERS DURING CONSTRUCTION AND ANY SUBSEQUENT MAINTENANCE. WHEN THERE IS NO GUIDANCE PROVIDED IN THE ROADWAY STANDARD DRAWINGS OR SPECIFICATIONS THE CONTRACTOR SHALL COMPLY WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS."
2. THE CONTRACTOR SHALL FOLLOW ALL SPECIAL PROVISIONS INCLUDED AS PART OF THE RIGHT-OF-WAY ENCROACHMENT AGREEMENT AND DRIVEWAY CONSTRUCTION PERMIT.
3. THE CONTRACTOR SHALL NOTIFY THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) TEN WORKING DAYS IN ADVANCE OF INITIATING EITHER OPEN-CUT OR JACK-AND-BORE INSTALLATION OF PIPELINE WITHIN/UNDERNEATH ANY COUNTY ROAD FOR LAYING THE NEW WATER MAIN.
4. DURING NON-WORKING HOURS, EQUIPMENT SHALL NOT BE PARKED IN THE RIGHT-OF-WAY.
5. ALL FILL AREAS/BACKFILL IN NCDOT RIGHTS-OF-WAY SHALL BE COMPACTED TO 95% DENSITY IN ACCORDANCE WITH AASHTO T99 AS MODIFIED BY THE NCDOT. ALL MATERIAL TO A DEPTH OF 8-INCHES BELOW THE FINISHED SURFACE OF THE SUBGRADE SHALL BE COMPACTED TO A DENSITY EQUAL TO AT LEAST 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T99 AS MODIFIED BY THE DEPARTMENT. THE SUBGRADE SHALL BE COMPACTED AT A MOISTURE CONTENT WHICH IS APPROXIMATELY THAT REQUIRED TO PRODUCE THE MAXIMUM DENSITY INDICATED BY THE ABOVE TEST METHOD. THE CONTRACTOR SHALL DRY OR ADD MOISTURE TO THE SUBGRADE WHEN REQUIRED TO PROVIDE A UNIFORMLY COMPACTED AND ACCEPTABLE SUBGRADE.
6. DISTURBED OR DAMAGED STRUCTURES WITHIN THE NCDOT RIGHT-OF-WAY INCLUDING SIGNAGE, GUIDERAILS, AND DRAINAGE STRUCTURES SHALL BE RESTORED TO ITS ORIGINAL CONDITION. RIGHT-OF-WAY MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE REFERENCED BY A REGISTERED LAND SURVEYOR AND RESET AFTER CONSTRUCTION.
7. ACCESS, PARKING, OR MATERIAL STORAGE SHALL NOT BE ALLOWED ALONG ANY STATE-MAINTAINED ROADWAY WITHOUT FIRST RECEIVING APPROVAL FROM THE NCDOT.
8. DIRECTIONAL DRILLING / BORING UNDER NCDOT ROADWAYS:
   - UNDER NO CONDITION SHALL JETTING ALONG OR WET BORING WITH WATER OF UTILITY PIPELINES BE ALLOWED.
   - DIRECTIONAL BORING USING JETTING WITH BENTONITE (OR EQUIVALENT MATERIAL) SLURRY IS APPROVED AT A MINIMUM DEPTH OF THREE-FEET (COVER) BELOW THE GROUND SURFACE AND OUTSIDE THE THEORETICAL 1:1 SLOPE FROM THE EXISTING EDGE OF PAVEMENT EXCEPT WHERE THE PARALLEL INSTALLATION CROSSES A PAVED ROADWAY.
   - DIRECTIONAL BORES ARE NOT ALLOWED BENEATH BRIDGE FOOTINGS, CULVERT WINGWALL FOOTINGS, OR RETAINING WALLS.
   - THE TIP OF THE DRILL STRING SHALL HAVE A CUTTER HEAD.
   - DETECTION WIRE SHALL BE INSTALLED WITH NON-FERROUS MATERIAL.
   - ALL DIRECTIONAL BORES SHALL MAINTAIN A MINIMUM DISTANCE OF 5-FEET FROM THE NEAREST PART OF PIPE CULVERTS AND BOX CULVERTS AND TEN-FOOT MINIMUM CLEARANCE FROM BRIDGES AND FOOTINGS.
   - OVERBORING SHALL NOT BE MORE THAN TWO-INCHES GREATER THAN THE DIAMETER OF EITHER THE PIPE OR ENCASEMENT. AN OVERBORE GREATER THAN TWO-INCHES WILL BE CONSIDERED IF THE ENCROACHMENT AGREEMENT INCLUDES A STATEMENT SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA THAT SAID OVERBORE WILL NOT DAMAGE EITHER THE PAVEMENT OR SUBGRADE.
9. THE CONTRACTOR SHALL PERFORM AND PROVIDE COPIES TO THE ENGINEER OF ALL REQUIRED COMPACTION TESTS, CONCRETE CYLINDER TESTS AND ASPHALT TESTS.
10. ALL MATERIALS SHALL BE FROM A NCDOT CERTIFIED PLANT.
11. ENCROACHMENT AGREEMENT(S) SHALL BE OBTAINED FROM NCDOT FOR ANY WORK WITHIN NCDOT RIGHT OF WAY.

PROJECT SPECIFIC NOTES

1.

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

P:\2017 Projects\170348 Elizabeth Heights\Eng\CAD\DWG\Sheets\Construction Drawings\C001 Notes and Abbreviations.dwg

Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS

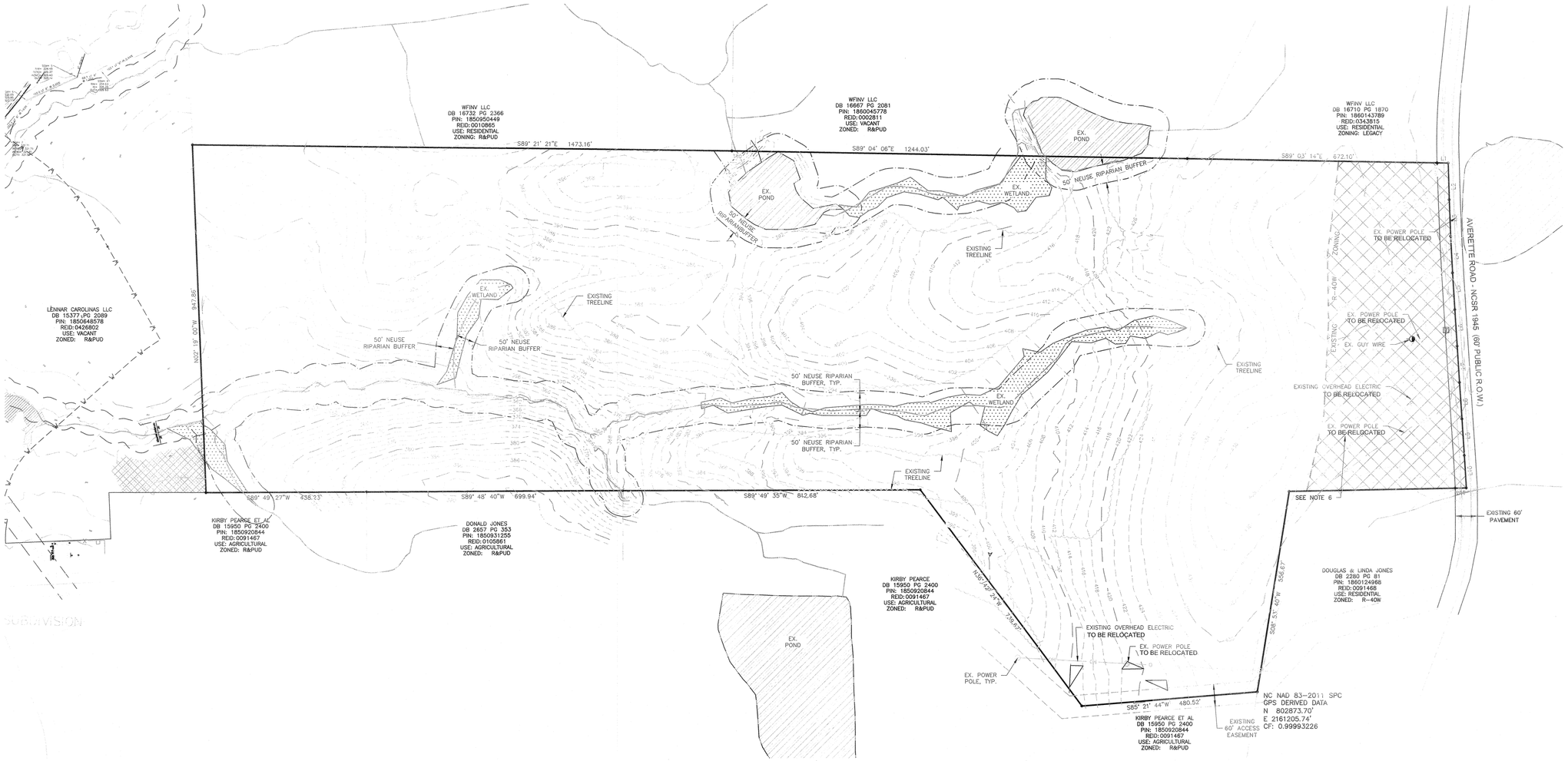
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

NOTES

Project Engineer:	TSS
Designed By:	RAJ
Drawn By:	RAJ
Checked By:	TSS
Scale:	NTS
Date:	10/30/2018
Project Number:	170348

~~PRELIMINARY~~
~~NOT RELEASED FOR CONSTRUCTION~~
~~12/07/2018~~

SHEET
C001



PARCEL LINE DATA		
SEGMENT	LENGTH	DIRECTION
L1	30.56	S89° 03' 14"E
L2	100.25	S1° 44' 46"E
L3	100.00	S2° 19' 26"E
L4	100.00	S3° 06' 18"E
L5	100.00	S3° 36' 38"E
L6	100.00	S3° 41' 51"E
L7	100.00	S3° 44' 15"E
L8	100.00	S3° 49' 56"E
L9	100.00	S3° 49' 58"E
L10	88.72	S3° 25' 52"E
L11	30.03	S88° 55' 16"W

LEGEND:

- EXISTING POND
- EXISTING WETLAND
- EXISTING WATERSHED (R-40W)
- EXISTING STREAM / TOP OF BANK
- EXISTING 50' NEUSE RIVER BASIN RIPARIAN BUFFER

EXISTING TRACT DATA:

DEVELOPER:
WRIGHT-WHITLEY DEVELOPMENT COMPANY, LLC
1225 N. WHITE ST.
WAKE FOREST, NC 27588
CONTACT NO: (919) 349-5220
NC PIN: 1860-03-8619
DEED REFERENCE: DB 017035, PG 01542
REAL ESTATE ID: 0002813

TOTAL TRACT AREA : 82.22 AC
AREA WITHIN ROW: 0.61 AC
NEW TOAL AREA: 81.61 AC
ZONING: R & PUD, R40W
EXISTING USE: VACANT / UNDEVELOPED WOODS

OWNER:
DOUGLAS JONES
1109 AVERETTE RD
WAKE FOREST, NC 27587

NOTES

1. PER FEMA MAPS 3720185001 & 3720186000J FOR NORTH CAROLINA, THERE ARE NO FLOOD HAZARD AREAS WITHIN THE DEVELOPMENT BOUNDARIES.
2. EXISTING BOUNDARY TAKEN FROM A SURVEY BY BATEMAN CIVIL SURVEY COMPANY ON AUG. 8, 2017.
3. EXISTING TOPOGRAPHY DOWNLOADED FROM WAKE COUNTY GIS.
4. WETLANDS AND STREAMS HAVE RECIEVED A PRELIMINARY JURISDICTIONAL DELINIATION FROM THE CORPS. (CURRENTLY PENDING).
5. ARRANGEMENTS HAVE BEEN MADE WITH AUSTIN CREEK DEVELOPER TO EXTEND UTLITIES TO SITE PROPERTY LINE. IN THE EVENT THIS DEVELOPMENT PRECEEDS THE AUSTIN CREEK DEVELOPMENT, PERMISSION HAS BEEN GRANTED TO TIE INTO EXISTING UTILITIES.
6. DUKE ENERGY COORDINATION

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=150' 150 0 150 300

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~~12/07/2018~~

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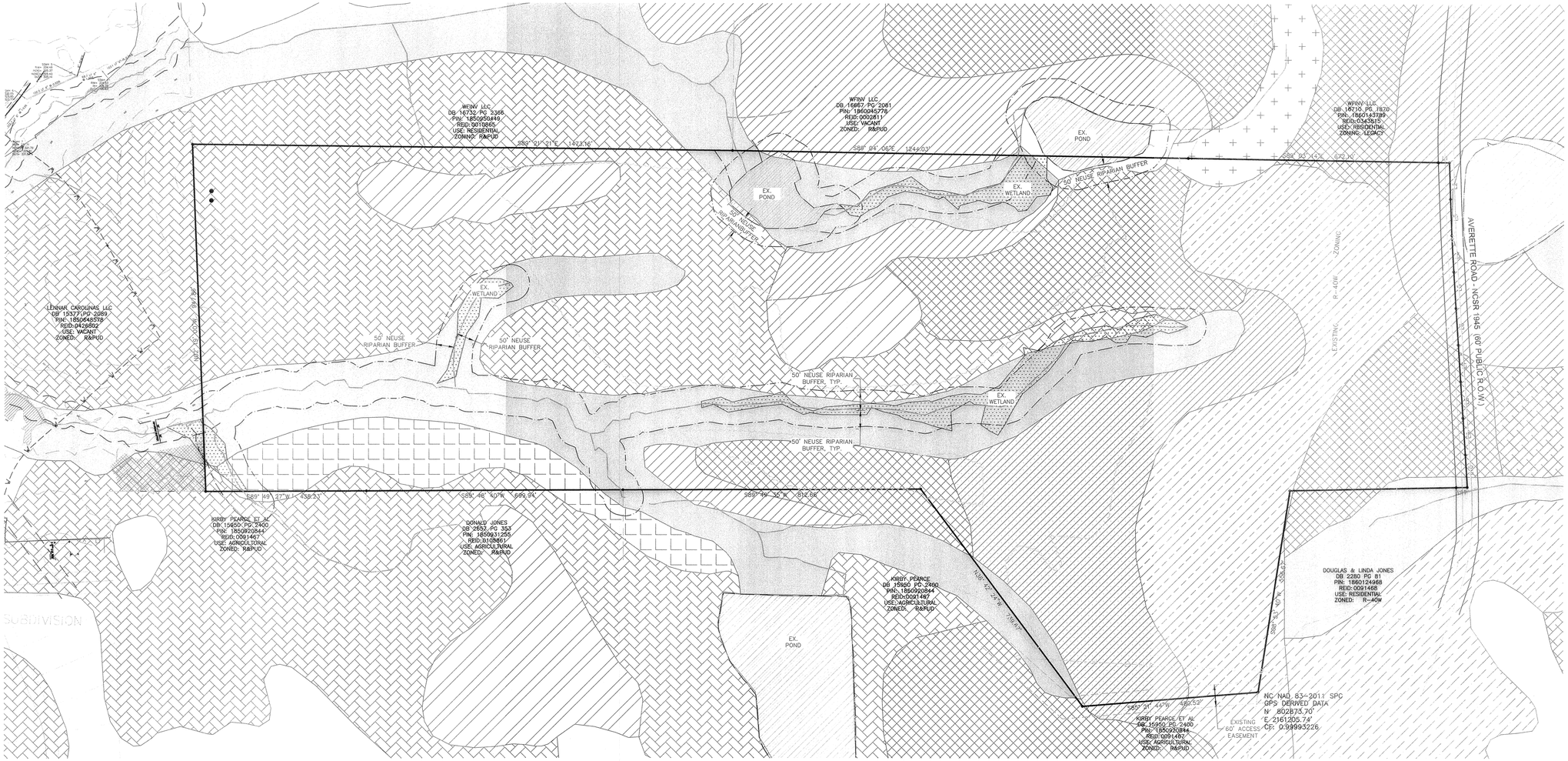
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS

1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

EXISTING CONDITIONS PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=150'
Date:	10/30/2018
Project Number:	170348

SHEET
C101



LEGEND:

- DuB - Durham loamy sand
- LoC - Lousiburg loamy sand
- Cn - Colfax sandy loam
- LoB - Louisburg loamy sand
- LoD - Louisburg loamy sand
- VaC2 - Vance sandy loam
- VaB2 - Vance sandy loam
- ApB2 - Appling sandy loam
- LoC - Louisburg loamy sand
- ApB - Appling sandy loam
- Wy - Warsham sandy loam

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

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1"=150' 150 0 150 300

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ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
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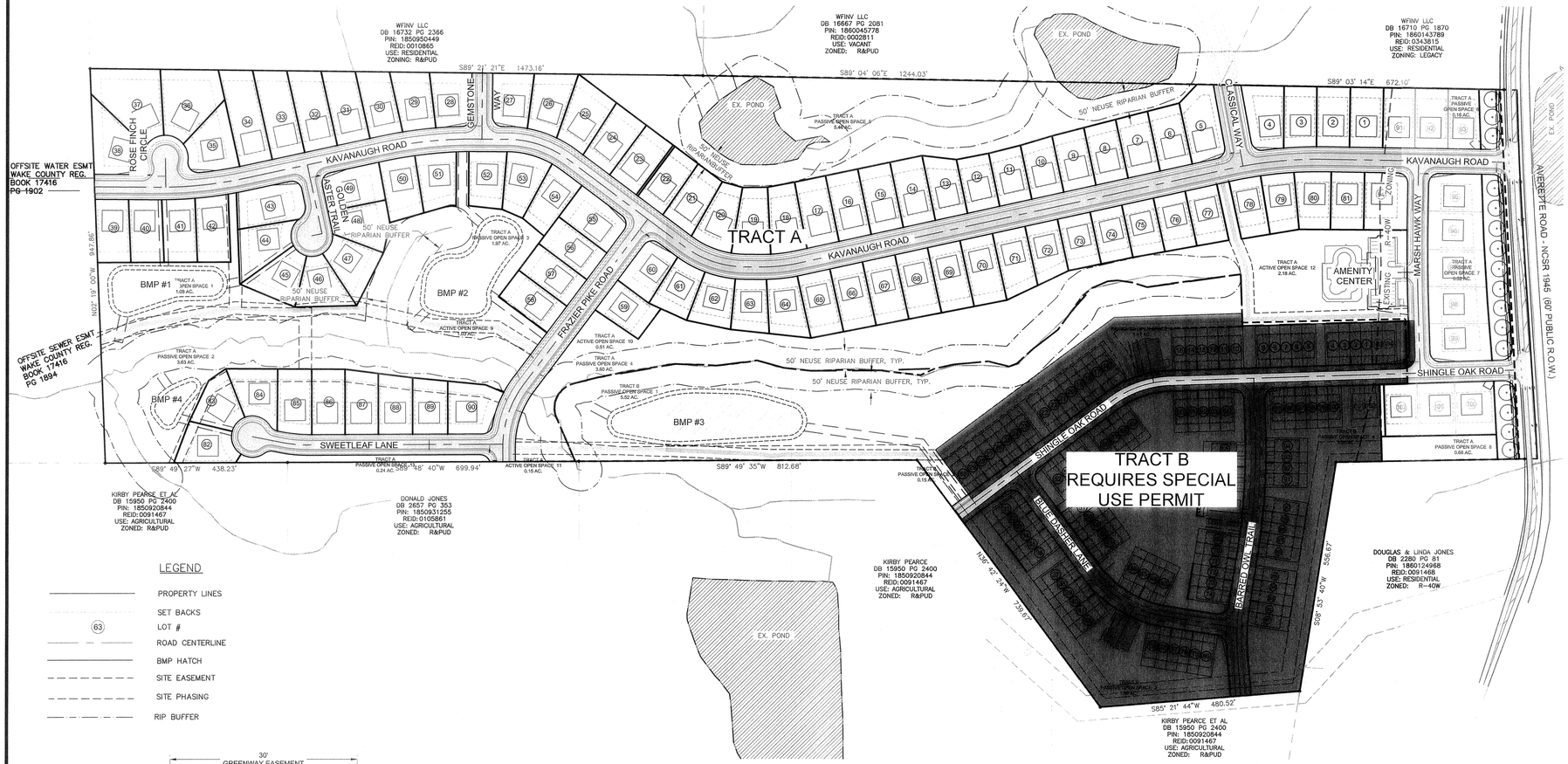
WAKE COUNTY, NC

SOILS MAP

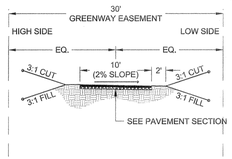
Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=150'
Date:	10/30/2018
Project Number:	170348

SHEET
C102

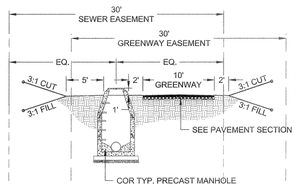


LEGEND

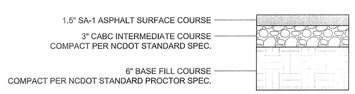
- PROPERTY LINES
- SET BACKS
- (63) LOT #
- ROAD CENTERLINE
- BMP HATCH
- SITE EASEMENT
- SITE PHASING
- RIP BUFFER



30' ROLESVILLE PUBLIC GREENWAY EASEMENT TYPICAL SECTION



30' ROLESVILLE PUBLIC GREENWAY EASEMENT & 30' RALEIGH PUBLIC SEWER EASEMENT TYPICAL SECTION



GREENWAY PAVEMENT SECTION DETAIL

SITE PLAN NOTES

1. PER FEMA MAPS 3720185000J & 3720186000J FOR NORTH CAROLINA, THERE ARE NO FLOOD HAZARD AREAS WITHIN THE DEVELOPMENT BOUNDARIES.
2. WATER SUPPLY AND WASTE WATER FOR ALL LOTS IN THIS DEVELOPMENT SHALL BE BY PROVIDED BY THE CITY OF RALEIGH THROUGH A MERGER AGREEMENT WITH THE TOWN OF ROLESVILLE.
3. ROAD NAMES SHALL BE SUBMITTED AND APPROVED PRIOR TO APPROVAL OF THE FINAL PLAT.
4. ALL OPEN SPACE PARCELS SHALL BE OWNED BY A LEGALLY ORGANIZED HOME OWNERS ASSOCIATION THAT WILL BE RESPONSIBLE FOR MANAGING AND ENSURING RESIDENTS' ACCESS.
5. AS PER THE TOWN OF ROLESVILLE UDO 15.4.8.2.B.4, THE PROPOSED PASSIVE OPEN SPACE MAY CONTAIN ENVIRONMENTALLY SENSITIVE AREAS, LIKE BODIES OF WATER, NEUSE RIVER RIPARIAN BUFFERS, WETLANDS, SPECIAL FLOOD HAZARD AREAS, ROCK OUTCROPS AND STEEP SLOPES. PASSIVE OPEN SPACE WILL BE USED FOR CONSERVATION OF NATURAL RESOURCES, MEADOWS, WOODLANDS, WETLANDS, WILDLIFE CORRIDORS AND SIMILAR CONSERVATION ORIENTED ACTIVITIES.
6. IT IS THE INTENT OF THIS PROJECT THAT THE 6.53 AC. ZONED R-40W WILL BE REGRADED AT CONSTRUCTION SO THAT IT CAN BE REMOVED FROM THE WATERSHED. FOLLOWING THE WATERSHED ADJUSTMENT, A REZONING REQUEST WILL BE FILED. THE 12 SINGLE FAMILY DETACHED LOTS AND 4 TOWNHOME LOTS CURRENTLY LOCATED IN THE R-40W HAVE NOT BEEN SHOWN ON THIS PRELIMINARY SUBDIVISION PLAT BUT, WILL BE SUBMITTED FOR TOWN APPROVAL ONCE THE WATERSHED ADJUSTMENT HAS BEEN FINALIZED AND THE REZONING APPROVED.
7. FRONT FACING TOWNHOME GARAGES SHALL HAVE AT LEAST TWENTY FEET (20') SEPARATING THE NEIGHBORING DRIVEWAYS OR NO MORE THAN FIVE FEET (5') SEPARATING NEIGHBORING DRIVEWAYS. IF THE SEPARATION MEASURES FIVE FEET (5') OR LESS, THE NEXT SEPARATION MUST BE AT LEAST TWENTY FEET (20'). REAR FACING GARAGES MAY BE ACCESSED BY A PRIVATE ALLEY WITH NO SEPARATION REQUIREMENTS.
8. HANDICAP RAMPS WILL BE INSTALLED AT ALL INTERSECTIONS NECCESSARY FOR SIDEWALK CONNECTIVITY.

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

SITE DEVELOPMENT DATA

GROSS TRACT AREA:	82.399 AC.
AREA IN EXISTING ROW:	0.613 AC.
AREA IN NEW DEDICATED ROW:	0.261 AC.
NEW GROSS TRACT AREA:	81.525 AC.
PROPOSED USE:	RESIDENTIAL
MAXIMUM BUILDING HEIGHT:	45 FT, 3 STORIES

ALLOWED DENSITY

SINGLE FAMILY DWELLINGS (TRACT "A")	4 / AC.
TOWNHOUSES (TRACT "B")	8 / AC.
TOTAL TRACT	4 / AC.

PROPOSED DENSITY

AREA IN TRACT "A", SINGLE FAMILY DWELLINGS:	58.38 AC.
PROPOSED LOTS:	89 LOTS
PROPOSED DENSITY TRACT "A":	1.52 LOTS / AC.
AREA IN TRACT "B":	23.15 AC.
PROPOSED UNITS:	98 UNITS
PROPOSED DENSITY TRACT "B":	4.23 UNITS / AC.
TOTAL PROPOSED DENSITY:	2.28 UNITS / AC.

LOT DIMENSIONS

TRACT "A" (SINGLE FAMILY)	
MINIMUM WIDTH:	50'
PROPOSED:	80'
AVERAGE LOT SIZE:	11,382 SF
TRACT "B" (TOWNHOUSES)	
MINIMUM LOT WIDTH:	20'
PROPOSED:	26'

SETBACKS

TRACT "A" (SINGLE FAMILY)	
FRONT	25'
REAR	25'
SIDE	5'
TRACT "B" (TOWNHOUSES)	
FRONT	15' (FROM R.O.W.)
PROPOSED	20'
REAR	15' (FROM PROPERTY LINE)

IMPERVIOUS AREA SUMMARY

-EXISTING IMPERVIOUS AREA:	0 SF
-PROPOSED IMPERVIOUS AREA:	
-SITE AREA IN ROADS, PARKING, ETC. :	347,814 SF
-TOTAL AREA IN LOTS:	225,000 SF
AVERAGE IMPERVIOUS AREA PER LOT:	*2,500 SF*
-TOTAL IMPERVIOUS AREA:	572,814 SF

PARKING

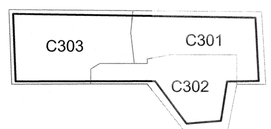
TRACT "A" (SINGLE FAMILY DETACHED)	
NUMBER OF UNITS:	89
CLUSTER MAILBOX UNITS:	
REQUIRED:	4 SPACES (79-104 DWELLING UNITS)
PROPOSED:	5 SPACES AT AMENITY CENTER
TRACT "B" (TOWNHOUSES)	
NUMBER OF UNITS:	98
REQUIRED:	3 / TOWNHOUSE 98 x 3 = 294)
PROPOSED:	324
REQUIRED GUEST PARKING:	1 / 4 TOWNHOUSES (98 / 4 = 24.5)
PROPOSED GUEST PARKING:	42
CLUSTER MAILBOX UNITS:	
REQUIRED PARKING SPACES:	4 SPACES (79-104 DWELLING UNITS)
PROVIDED PARKING SPACES:	6 SPACES AT NORTH PARKING LOT

PERIMETER LANDSCAPE BUFFERS

TRACT "A" (SINGLE FAMILY)	
CLASS II ADJOINING CLASS II:	NONE
STREETSCAPE AVERETTE ROAD:	50'
TRACT "B" (TOWNHOUSES)	
CLASS III ADJOINING CLASS II:	20' TYPE B LANDSCAPE 50' PERIMETER YARD BUFFER

RECREATION & OPEN SPACE

REQUIRED	
TRACT "A" (SINGLE FAMILY)	
10% OF SFD (58.38 AC.):	5.84 AC.
PROPOSED:	21.43 AC
50% OF 5.84 AC. TO BE SUITABLE FOR ACTIVE:	2.92 AC.
PROPOSED ACTIVE OPEN SPACE:	4.17 AC.
PROPOSED PASSIVE OPEN SPACE:	17.26 AC
TRACT "B" (TOWNHOUSES)	
15% OF TH (23.15 AC):	3.47 AC.
PROPOSED:	11.47 AC.
35% OF REQUIRED SPACE TO BE IMPROVED:	1.22 AC.
PROPOSED IMPROVED OPEN SPACE:	3.16 AC.
PROPOSED PASSIVE OPEN SPACE:	8.31 AC.



SITE PLAN SHEET KEY

811 KNOW WHAT IS BELOW CALL BEFORE YOU DIG

1"=150' 150 0 150 300

~~PRELIMINARY NOT RELEASED FOR CONSTRUCTION~~ ~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S. SPEIGHT, JR.

Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS

1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

OVERALL SITE DATA

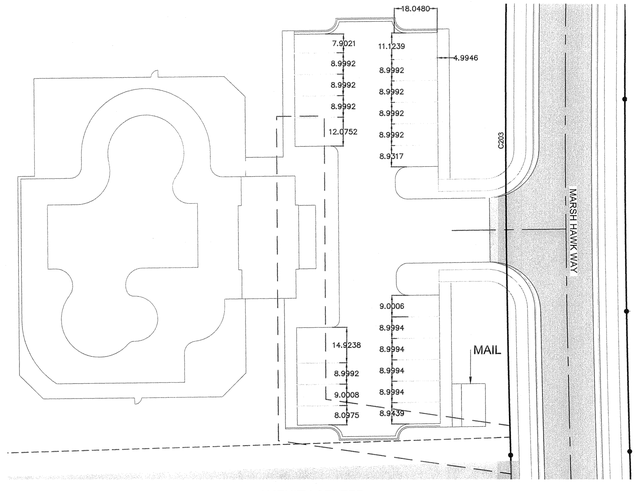
Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=150'
Date:	10/30/2018
Project Number:	170348

SHEET
C300



LEGEND

- PROPERTY LINES
- SET BACKS
- (63) LOT #
- ROAD CENTERLINE
- BMP HATCH
- SITE EASEMENT
- SITE PHASING
- RIP BUFFER



AMENITY CENTER
SCALE 1" = 30'

TRACT B
REQUIRES SPECIAL
USE PERMIT

Curve Table		
Curve #	Length	Radius
C199	40.55	25.00
C200	39.27	25.00
C201	37.42	25.00
C202	239.47	4966.99
C203	196.19	5025.00
C204	43.69	26.92
C205	39.27	25.00
C206	39.92	25.00
C207	38.43	25.00
C208	150.71	998.78
C209	150.71	998.78
C210	37.90	25.00
C211	225.35	970.00
C212	225.35	970.00
C213	225.35	970.00

SYMBOL LEGEND

- END OF STREET SIGNAGE
- STOP SIGN AND STREET NAME SIGN LOCATION
- ACCESSIBILITY RAMP
- LARGE STREET TREE, TYP 2½" CALIPER MIN

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=60' 60 60 120

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

~~PRELIMINARY~~
~~NOT RELEASED~~
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~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20236 ENGINEER THOMAS S SPEIGHT, JR.

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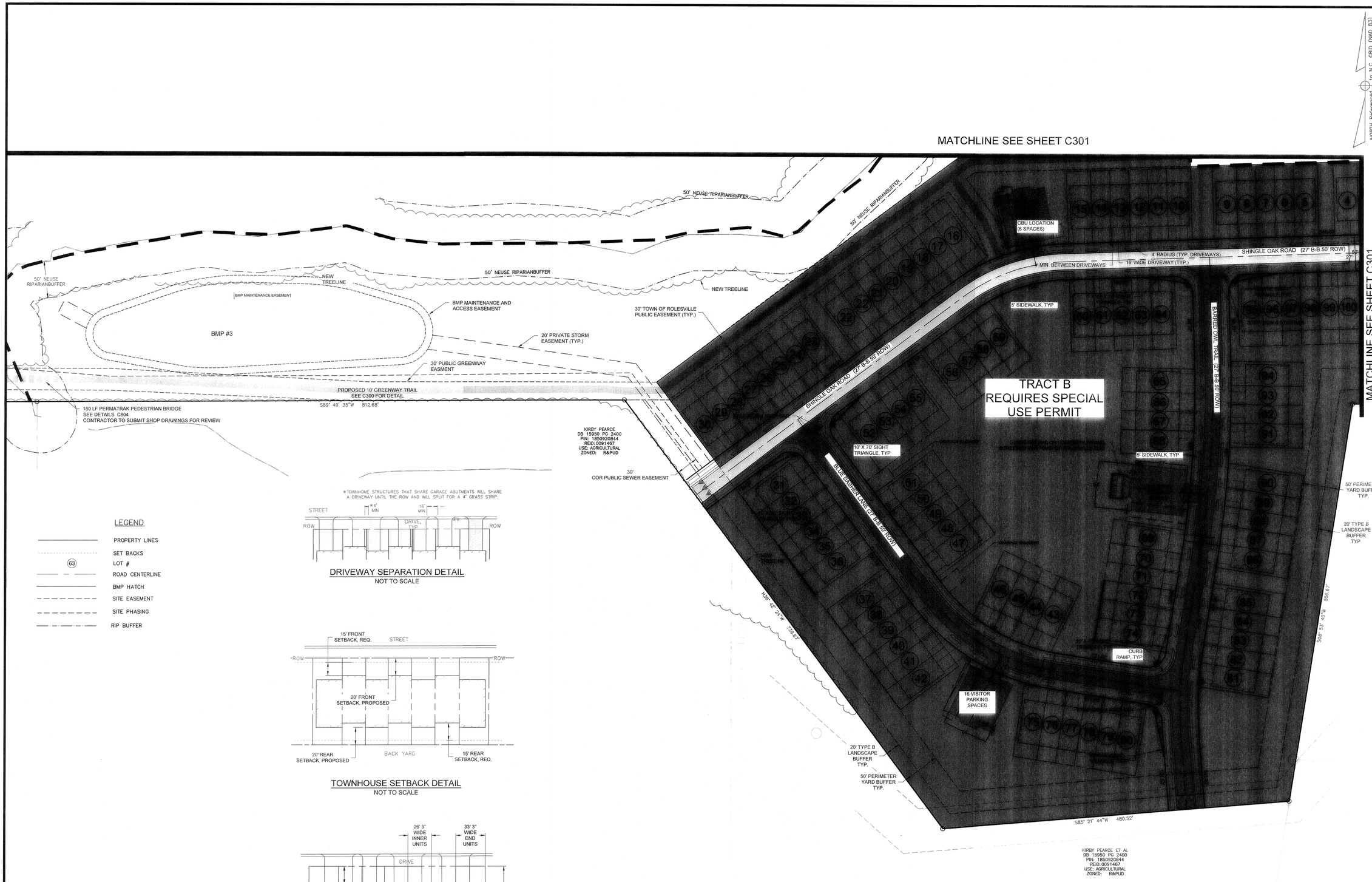
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

SITE PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C301



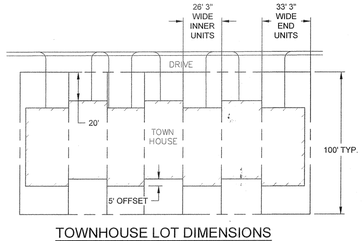
LEGEND

- PROPERTY LINES
- SET BACKS
- (63) LOT #
- ROAD CENTERLINE
- BMP HATCH
- SITE EASEMENT
- SITE PHASING
- RIP BUFFER

*TOWNHOME STRUCTURES THAT SHARE GARAGE ABUTMENTS WILL SHARE A DRIVEWAY UNTIL THE ROW AND WILL SPLIT FOR A 4' GRASS STRIP.

DRIVEWAY SEPARATION DETAIL
NOT TO SCALE

TOWNHOUSE SETBACK DETAIL
NOT TO SCALE



TOWNHOUSE LOT DIMENSIONS
NOT TO SCALE

SYMBOL LEGEND

- END OF STREET SIGNAGE
- STOP SIGN AND STREET NAME SIGN LOCATION
- ACCESSIBILITY RAMP
- LARGE STREET TREE, TYP 2½" CALIPER MIN

811 KNOW WHAT IS BELOW CALL BEFORE YOU DIG

1"=60' 60 60 120

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

~~PRELIMINARY~~
~~NOT RELEASED FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S. SPEIGHT, JR.

Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

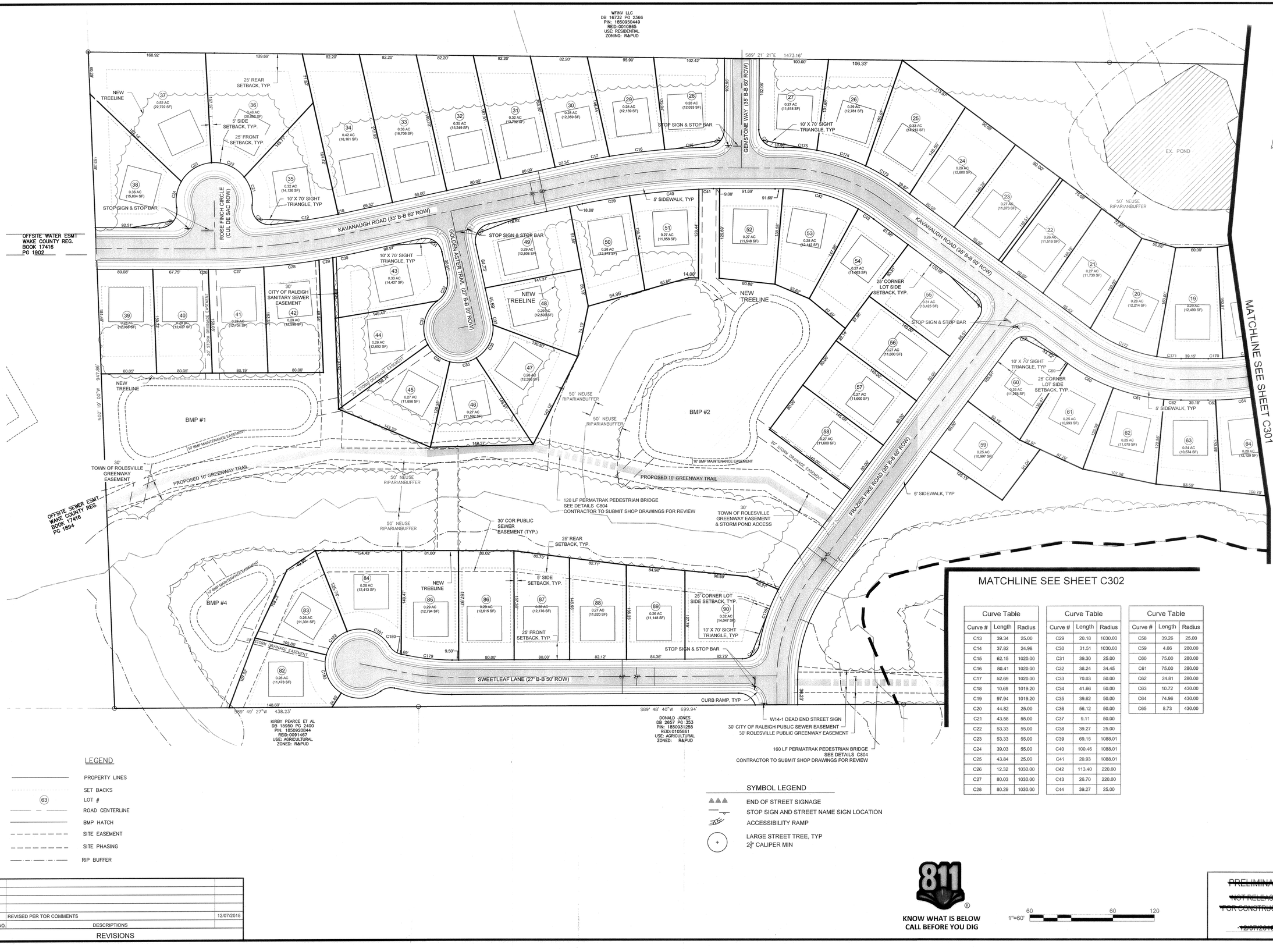
ELIZABETH HEIGHTS CONSTRUCTION DRAWINGS

1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

SITE PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C302



Curve Table

Curve #	Length	Radius
C13	39.34	25.00
C14	37.82	24.98
C15	62.15	1020.00
C16	80.41	1020.00
C17	52.69	1020.00
C18	10.69	1019.20
C19	97.94	1019.20
C20	44.82	25.00
C21	43.58	55.00
C22	53.33	55.00
C23	53.33	55.00
C24	39.03	55.00
C25	43.84	25.00
C26	12.32	1030.00
C27	80.03	1030.00
C28	80.29	1030.00

Curve Table

Curve #	Length	Radius
C29	20.18	1030.00
C30	31.51	1030.00
C31	39.30	25.00
C32	38.24	34.45
C33	70.03	50.00
C34	41.66	50.00
C35	39.62	50.00
C36	56.12	50.00
C37	9.11	50.00
C38	39.27	25.00
C39	69.15	1088.01
C40	100.46	1088.01
C41	20.93	1088.01
C42	113.40	220.00
C43	26.70	220.00
C44	39.27	25.00

Curve Table

Curve #	Length	Radius
C58	39.26	25.00
C59	4.06	280.00
C60	75.00	280.00
C61	75.00	280.00
C62	24.81	280.00
C63	10.72	430.00
C64	74.96	430.00
C65	8.73	430.00

LEGEND

- PROPERTY LINES
- SET BACKS
- (63) LOT #
- ROAD CENTERLINE
- BMP HATCH
- SITE EASEMENT
- SITE PHASING
- RIP BUFFER

SYMBOL LEGEND

- END OF STREET SIGNAGE
- STOP SIGN AND STREET NAME SIGN LOCATION
- ACCESSIBILITY RAMP
- LARGE STREET TREE, TYP 2½" CALIPER MIN

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

KNOW WHAT IS BELOW CALL BEFORE YOU DIG

1"=60' 60 60 120

~~PRELIMINARY NOT RELEASED FOR CONSTRUCTION~~ ~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT, JR.

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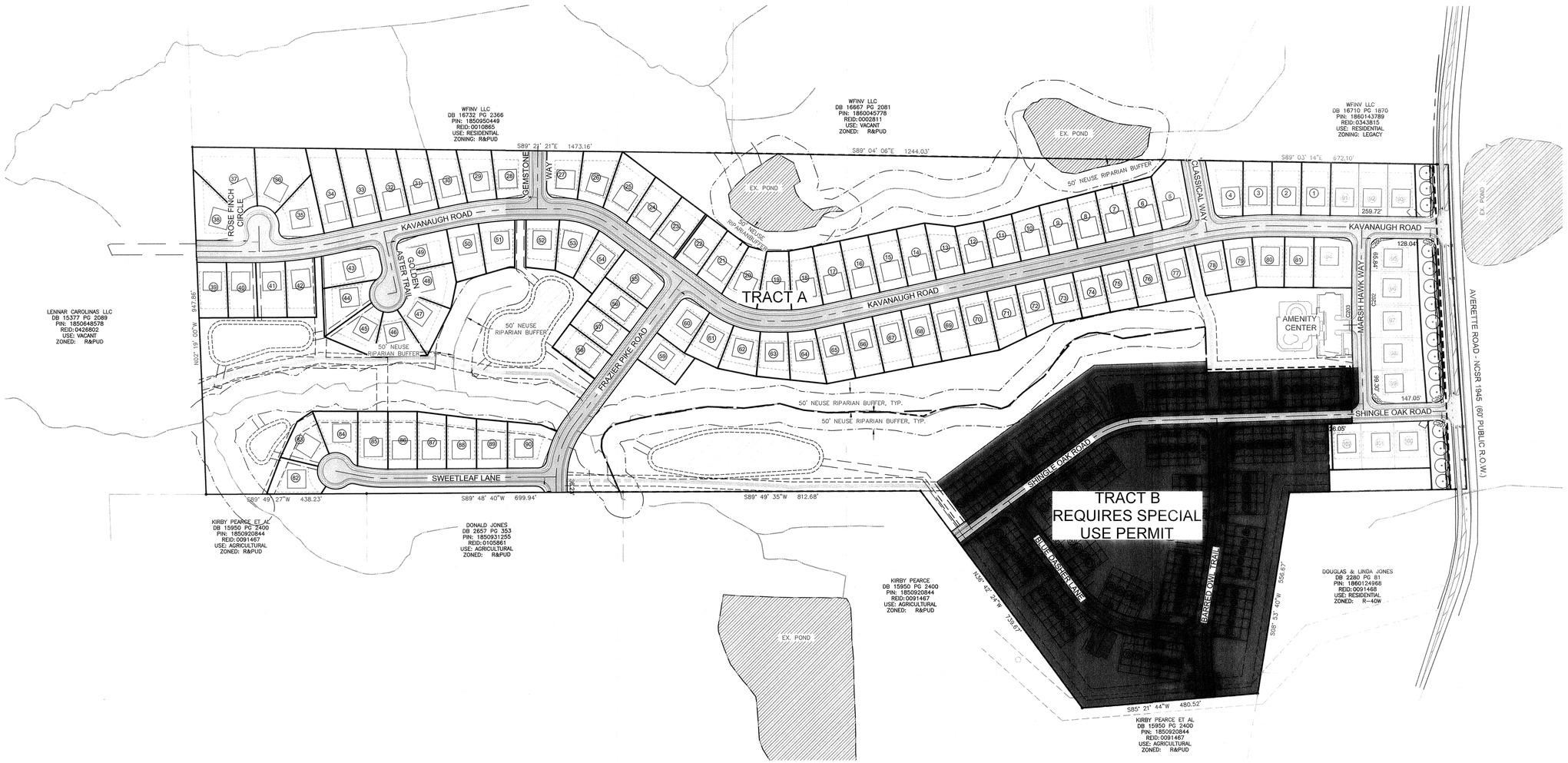
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

SITE PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C303



LEGEND

- PROPERTY LINES
- SET BACKS
- (63) LOT #
- ROAD CENTERLINE
- BMP HATCH
- SITE EASEMENT
- SITE PHASING
- RIP BUFFER

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

120' 0' 120' 240'
1"=120'

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

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NCBELS FIRM No. C-2378

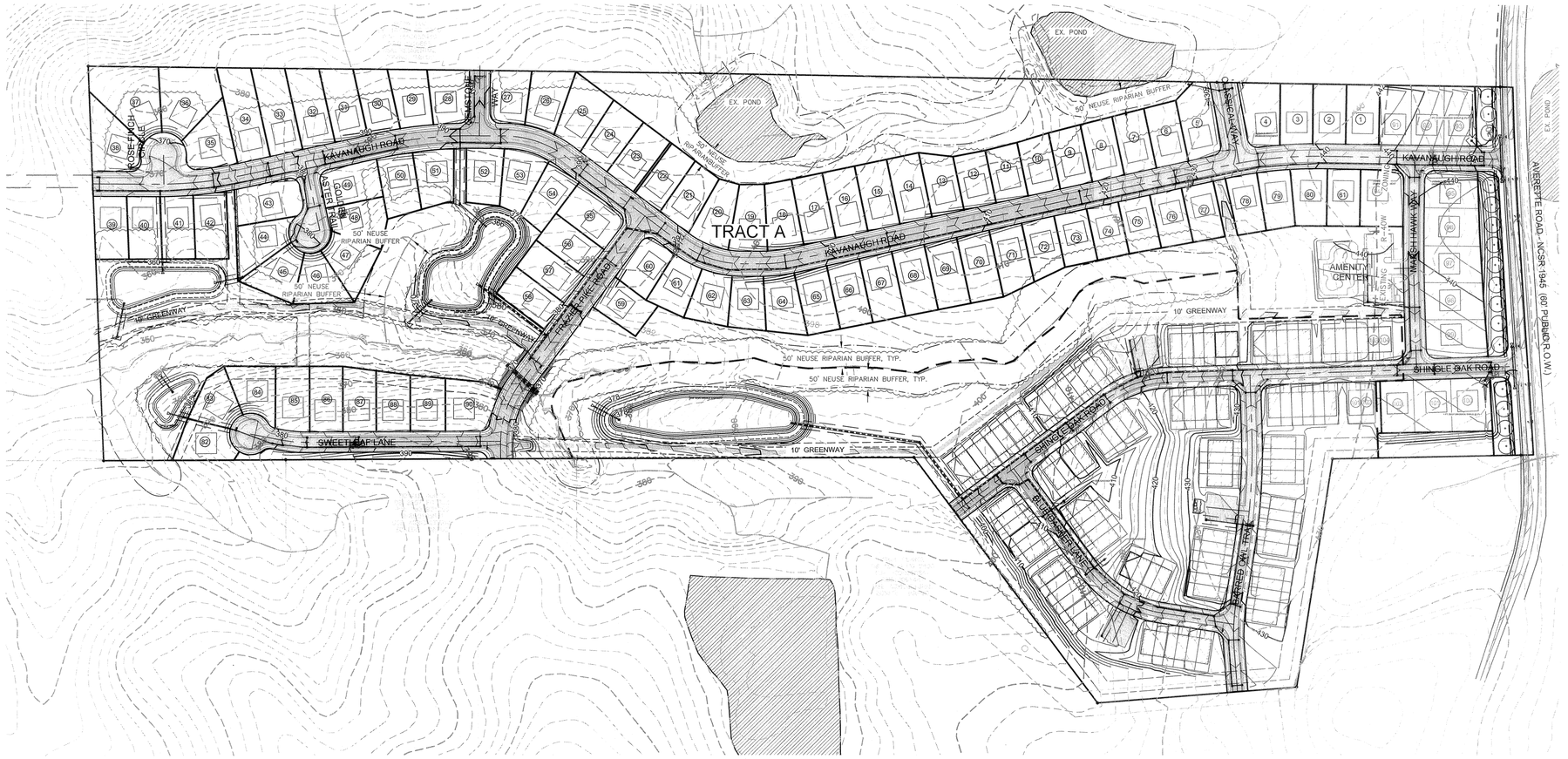
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

ELIZABETH HEIGHTS----

PHASING MAP

Project Engineer:	TSS
Designed By:	RAJ
Drawn By:	RAJ
Checked By:	TSS
Scale:	NTS
Date:	10/30/2018
Project Number:	.170348

SHEET
C304



LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=150' 150 0 150 300

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

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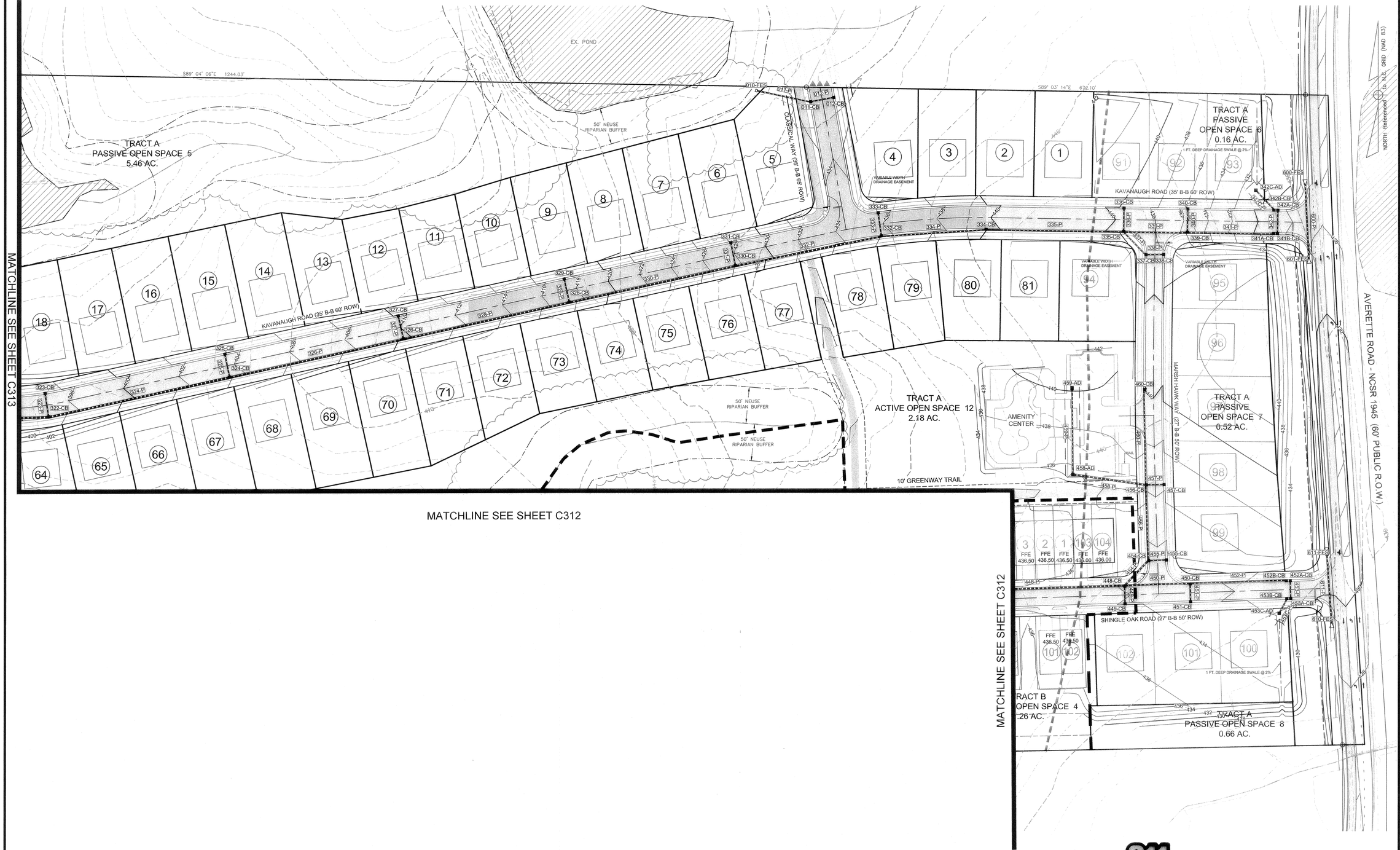
NCBELS FIRM No.: C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

OVERALL GRADING PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=150'
Date:	10/30/2018
Project Number:	170348

SHEET
C310



REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=60'

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT, JR.

Bateman Civil Survey Company
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NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

GRADING PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C311

MATCHLINE SEE SHEET C311



NORTH Referenced to N.C. GRID (NAD 83)

MATCHLINE SEE SHEET C311

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=60' (60 0 60 120)

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

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NCBELS FIRM No. C-2378

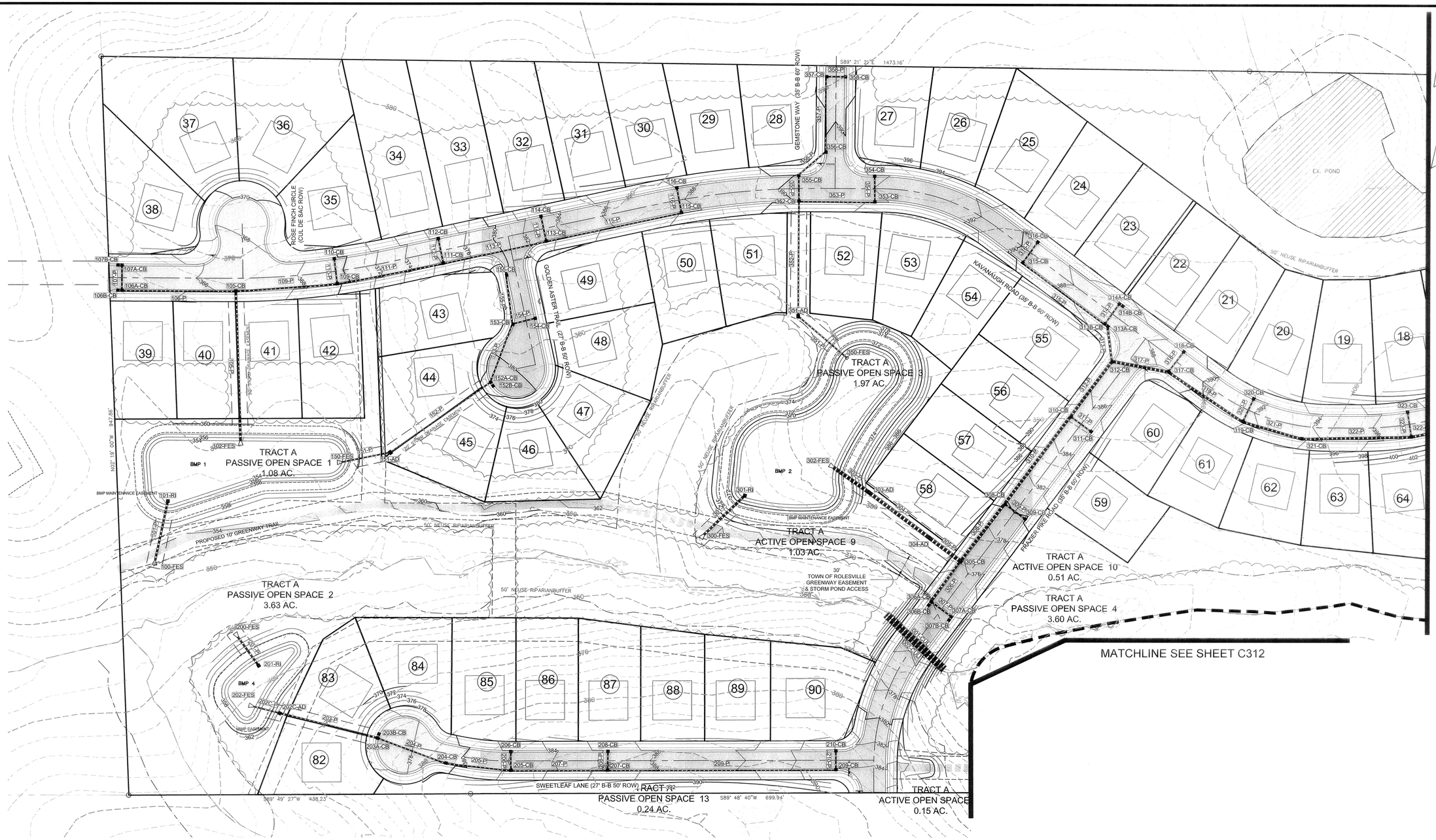
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS

1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

GRADING PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C312



REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

KNOW WHAT IS BELOW CALL BEFORE YOU DIG

1"=60' 60 60 120

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20236 ENGINEER THOMAS S SPEIGHT, JR

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NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

GRADING PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C313

STRUCTURE TABLE			
NAME	RIM	PIPES IN	PIPES OUT
010-FES	RIM = 428.22 SUMP = 425.28	011-P - 15" RCP - INV IN = 425.28	
011-CB	RIM = 433.13 SUMP = 426.03	012-P - 15" RCP - INV IN = 429.48	011-P - 15" RCP - INV OUT = 426.03
012-CB	RIM = 433.13 SUMP = 429.82		012-P - 15" RCP - INV OUT = 429.82
100-FES	RIM = 354.33 SUMP = ???	101-P - 24" RCP - INV IN = 352.00	
101-RI	RIM = 357.00 SUMP = 352.77		101-P - 24" RCP - INV OUT = 352.77
102-FES	RIM = 357.46 SUMP = ???	105-P - 30" RCP - INV IN = 354.00	
105-CB	RIM = 366.31 SUMP = 356.28	109-P - 18" RCP - INV IN = 361.09 106-P - 18" RCP - INV IN = 357.00	105-P - 30" RCP - INV OUT = 356.28
106A-CB	RIM = 364.46 SUMP = 359.58	107-P - 15" RCP - INV IN = 359.78	106-P - 18" RCP - INV OUT = 359.58
106B-CB	RIM = 364.39 SUMP = 359.58		
107A-CB	RIM = 364.45 SUMP = 360.12		107-P - 15" RCP - INV OUT = 360.12
107B-CB	RIM = 364.39 SUMP = 360.12		
109-CB	RIM = 369.28 SUMP = 364.60	110-P - 15" RCP - INV IN = 364.96 111-P - 15" RCP - INV IN = 364.80	109-P - 18" RCP - INV OUT = 364.60
110-CB	RIM = 369.29 SUMP = 365.30		110-P - 15" RCP - INV OUT = 365.30
111-CB	RIM = 376.08 SUMP = 371.55	113-P - 15" RCP - INV IN = 372.07 112-P - 15" RCP - INV IN = 371.75	111-P - 15" RCP - INV OUT = 371.55
112-CB	RIM = 376.09 SUMP = 372.09		112-P - 15" RCP - INV OUT = 372.09
113-CB	RIM = 382.96 SUMP = 378.41	114-P - 15" RCP - INV IN = 378.61 115-P - 15" RCP - INV IN = 378.94	113-P - 15" RCP - INV OUT = 378.41
114-CB	RIM = 382.95 SUMP = 378.95		114-P - 15" RCP - INV OUT = 378.95

STRUCTURE TABLE			
NAME	RIM	PIPES IN	PIPES OUT
115-CB	RIM = 387.55 SUMP = 383.01	116-P - 15" RCP - INV IN = 383.21	115-P - 15" RCP - INV OUT = 383.01
116-CB	RIM = 387.54 SUMP = 383.55		116-P - 15" RCP - INV OUT = 383.55
150-FES	RIM = 354.52 SUMP = ???	151-P - 15" RCP - INV IN = 354.00	
151-AD	RIM = 366.49 SUMP = 358.03	152-P - 15" RCP - INV IN = 358.23	151-P - 15" RCP - INV OUT = 358.03
152A-CB	RIM = 379.19 SUMP = 374.98	153-P - 15" RCP - INV IN = 375.18	152-P - 15" RCP - INV OUT = 374.98
152B-CB	RIM = 379.75 SUMP = 374.98		
153-CB	RIM = 380.91 SUMP = 376.63	155-P - 15" RCP - INV IN = 376.83 154-P - 15" RCP - INV IN = 376.83	153-P - 15" RCP - INV OUT = 376.63
154-CB	RIM = 381.14 SUMP = 377.14		154-P - 15" RCP - INV OUT = 377.14
155-CB	RIM = 380.40 SUMP = 377.46		155-P - 15" RCP - INV OUT = 377.46
200-FES	RIM = 351.13 SUMP = ???	201-P - 24" RCP - INV IN = 351.00	
201-RI	RIM = 356.00 SUMP = 351.45		201-P - 24" RCP - INV OUT = 351.45
202-FES	RIM = 350.52 SUMP = ???	202C-P - 15" RCP - INV IN = 353.00	
202C-AD	RIM = 364.33 SUMP = 354.96	203-P - 24" RCP - INV IN = 360.66	202C-P - 15" RCP - INV OUT = 354.96
203A-CB	RIM = 376.61 SUMP = 372.10	204-P - 15" RCP - INV IN = 372.30	203-P - 24" RCP - INV OUT = 372.10
203B-CB	RIM = 377.05 SUMP = 372.10		
204-CB	RIM = 379.06 SUMP = 374.12	205-P - 15" RCP - INV IN = 374.32	204-P - 15" RCP - INV OUT = 374.12
205-CB	RIM = 381.89 SUMP = 375.16	207-P - 15" RCP - INV IN = 375.36 206-P - 15" RCP - INV IN = 377.62	205-P - 15" RCP - INV OUT = 375.16

STRUCTURE TABLE			
NAME	RIM	PIPES IN	PIPES OUT
206-CB	RIM = 381.88 SUMP = 377.88		206-P - 15" RCP - INV OUT = 377.88
207-CB	RIM = 386.19 SUMP = 376.60	208-P - 15" RCP - INV IN = 381.94 209-P - 15" RCP - INV IN = 376.80	207-P - 15" RCP - INV OUT = 376.60
208-CB	RIM = 386.20 SUMP = 382.20		208-P - 15" RCP - INV OUT = 382.20
209-CB	RIM = 383.94 SUMP = 379.73	210-P - 15" RCP - INV IN = 379.93	209-P - 15" RCP - INV OUT = 379.73
210-CB	RIM = 383.60 SUMP = 380.66		210-P - 15" RCP - INV OUT = 380.66
300-FES	RIM = 368.38 SUMP = ???	301-P - 30" RCP - INV IN = 364.00	
301-RI	RIM = 371.00 SUMP = 364.73		301-P - 30" RCP - INV OUT = 364.73
302-FES	RIM = 370.50 SUMP = ???	303-P - 48" RCP - INV IN = 366.00	
303-AD	RIM = 382.45 SUMP = 367.55	304-P - 48" RCP - INV IN = 367.75	303-P - 48" RCP - INV OUT = 367.55
304-AD	RIM = 378.06 SUMP = 368.85	305-P - 48" RCP - INV IN = 369.05	304-P - 48" RCP - INV OUT = 368.85
305-CB	RIM = 376.36 SUMP = 369.55	308-P - 36" RCP - INV IN = 369.75 306-P - 30" RCP - INV IN = 369.75	305-P - 48" RCP - INV OUT = 369.55
306A-CB	RIM = 374.93 SUMP = 370.39	307-P - 18" RCP - INV IN = 370.59	306-P - 30" RCP - INV OUT = 370.39
306B-CB	RIM = 374.93 SUMP = 370.39		
307A-CB	RIM = 374.93 SUMP = 370.93		307-P - 18" RCP - INV OUT = 370.93
307B-CB	RIM = 374.93 SUMP = 370.93		
308-CB	RIM = 379.75 SUMP = 374.50	310-P - 36" RCP - INV IN = 374.70 309-P - 18" RCP - INV IN = 374.70	308-P - 36" RCP - INV OUT = 374.50
309-CB	RIM = 379.76 SUMP = 375.76		309-P - 18" RCP - INV OUT = 375.76

STRUCTURE TABLE			
NAME	RIM	PIPES IN	PIPES OUT
310-CB	RIM = 385.04 SUMP = 380.21	311-P - 15" RCP - INV IN = 380.72 312-P - 36" RCP - INV IN = 380.41	310-P - 36" RCP - INV OUT = 380.21
311-CB	RIM = 385.05 SUMP = 381.06		311-P - 15" RCP - INV OUT = 381.06
312-CB	RIM = 386.71 SUMP = 381.29	317-P - 36" RCP - INV IN = 381.49 313-P - 24" RCP - INV IN = 381.50	312-P - 36" RCP - INV OUT = 381.29
313A-CB	RIM = 387.17 SUMP = 382.48		313-P - 24" RCP - INV OUT = 382.48
313B-CB	RIM = 387.22 SUMP = 382.48	315-P - 15" RCP - INV IN = 382.68 314-P - 15" RCP - INV IN = 382.90	
314A-CB	RIM = 387.24 SUMP = 383.24		314-P - 15" RCP - INV OUT = 383.24
314B-CB	RIM = 387.24 SUMP = 383.24		
315-CB	RIM = 389.24 SUMP = 384.70	316-P - 15" RCP - INV IN = 384.90	315-P - 15" RCP - INV OUT = 384.70
316-CB	RIM = 389.24 SUMP = 385.24		316-P - 15" RCP - INV OUT = 385.24
317-CB	RIM = 388.51 SUMP = 383.49	319-P - 30" RCP - INV IN = 383.69 318-P - 15" RCP - INV IN = 384.23	317-P - 36" RCP - INV OUT = 383.49
318-CB	RIM = 388.56 SUMP = 384.57		318-P - 15" RCP - INV OUT = 384.57
319-CB	RIM = 391.44 SUMP = 386.42	321-P - 30" RCP - INV IN = 386.62 320-P - 15" RCP - INV IN = 387.11	319-P - 30" RCP - INV OUT = 386.42
320-CB	RIM = 391.45 SUMP = 387.45		320-P - 15" RCP - INV OUT = 387.45
321-CB	RIM = 393.36 SUMP = 388.34	322-P - 30" RCP - INV IN = 388.54	321-P - 30" RCP - INV OUT = 388.34
322-CB	RIM = 396.88 SUMP = 391.86	324-P - 30" RCP - INV IN = 392.06 323-P - 15" RCP - INV IN = 392.55	322-P - 30" RCP - INV OUT = 391.86
323-CB	RIM = 396.89 SUMP = 392.89		323-P - 15" RCP - INV OUT = 392.89
324-CB	RIM = 403.41 SUMP = 398.39	326-P - 24" RCP - INV IN = 398.59 325-P - 15" RCP - INV IN = 399.08	324-P - 30" RCP - INV OUT = 398.39

STRUCTURE TABLE			
NAME	RIM	PIPES IN	PIPES OUT
325-CB	RIM = 403.42 SUMP = 399.42		325-P - 15" RCP - INV OUT = 399.42
326-CB	RIM = 409.69 SUMP = 404.19	327-P - 15" RCP - INV IN = 405.35 328-P - 24" RCP - INV IN = 404.39	326-P - 24" RCP - INV OUT = 404.19
327-CB	RIM = 409.68 SUMP = 405.69		327-P - 15" RCP - INV OUT = 405.69
328-CB	RIM = 417.07 SUMP = 412.53	329-P - 15" RCP - INV IN = 412.73 330-P - 24" RCP - INV IN = 413.06	328-P - 24" RCP - INV OUT = 412.53
329-CB	RIM = 417.07 SUMP = 413.07		329-P - 15" RCP - INV OUT = 413.07
330-CB	RIM = 427.58 SUMP = 416.20	331-P - 15" RCP - INV IN = 423.27 332-P - 24" RCP - INV IN = 416.40	330-P - 24" RCP - INV OUT = 416.20
331-CB	RIM = 427.61 SUMP = 423.61		331-P - 15" RCP - INV OUT = 423.61
332-CB	RIM = 435.54 SUMP = 418.43	333-P - 15" RCP - INV IN = 429.10 334-P - 15" RCP - INV IN = 418.63	332-P - 24" RCP - INV OUT = 418.43
333-CB	RIM = 435.53 SUMP = 431.52		333-P - 15" RCP - INV OUT = 431.52
334-CB	RIM = 439.48 SUMP = 420.06	335-P - 18" RCP - INV IN = 420.26	334-P - 15" RCP - INV OUT = 420.06
335-CB	RIM = 439.33 SUMP = 422.14	339-P - 18" RCP - INV IN = 422.34 336-P - 15" RCP - INV IN = 434.99 337-P - 15" RCP - INV IN = 433.43	335-P - 18" RCP - INV OUT = 422.14
336-CB	RIM = 439.32 SUMP = 435.33		336-P - 15" RCP - INV OUT = 435.33
337-CB	RIM = 438.83 SUMP = 433.86	338-P - 15" RCP - INV IN = 434.06	337-P - 15" RCP - INV OUT = 433.86
338-CB	RIM = 438.32 SUMP = 434.32		338-P - 15" RCP - INV OUT = 434.32
339-CB	RIM = 435.38 SUMP = 423.21	341-P - 18" RCP - INV IN = 423.41 340-P - 15" RCP - INV IN = 431.04	339-P - 18" RCP - INV OUT = 423.21
340-CB	RIM = 435.38 SUMP = 431.38		340-P - 15" RCP - INV OUT = 431.38
341A-CB	RIM = 428.67 SUMP = 424.59		341-P - 18" RCP - INV OUT = 424.59

STRUCTURE TABLE			
NAME	RIM	PIPES IN	PIPES OUT
341B-CB	RIM = 428.42 SUMP = 424.59	342-P - 15" RCP - INV IN = 424.59	
342A-CB	RIM = 428.42 SUMP = 424.93		342-P - 15" RCP - INV OUT = 424.93
342B-CB	RIM = 428.92 SUMP = 425.99	342C-P - 15" RCP - INV IN = 425.99	
342C-AD	RIM = 430.34 SUMP = 424.35		342C-P - 15" RCP - INV OUT = 426.35
350-FES	RIM = 368.94 SUMP = 366.00	351-P - 15" RCP - INV IN = 366.00	
351-AD	RIM = 379.53 SUMP = 374.00	352-P - 15" RCP - INV IN = 374.00	351-P - 15" RCP - INV OUT = 374.00
352-CB	RIM = 390.09 SUMP = 382.12	353-P - 15" RCP - INV IN = 386.09 355-P - 15" RCP - INV IN = 382.32	352-P - 15" RCP - INV OUT = 382.12
353-CB	RIM = 392.20 SUMP = 387.14	354-P - 15" RCP - INV IN = 387.34	353-P - 15" RCP - INV OUT = 387.14
354-CB	RIM = 391.69 SUMP = 387.69		354-P - 15" RCP - INV OUT = 387.69
355-CB	RIM = 390.49 SUMP = 382.66	356-P - 15" RCP - INV IN = 382.86	355-P - 15" RCP - INV OUT = 382.66
356-CB	RIM = 390.16 SUMP = 383.31	357-P - 15" RCP - INV IN = 383.51	356-P - 15" RCP - INV OUT = 383.31
357-CB	RIM = 388.94 SUMP = 384.48	358-P - 15" RCP - INV IN = 384.68	357-P - 15" RCP - INV OUT = 384.48
358-CB	RIM = 388.93 SUMP = 384.94		358-P - 15" RCP - INV OUT = 384.94
400-FES	RIM = 379.33 SUMP = ???	401-P - 24" RCP - INV IN = 373.22	
401-RI	RIM = 382.00 SUMP = 373.91		401-P - 24" RCP - INV OUT = 373.91
402-FES	RIM = 380.50 SUMP = ???	403-P - 48" RCP - INV IN = 376.00	
403-AD	RIM = 398.00 SUMP = 389.47	404-P - 48" RCP - INV IN = 389.67	403-P - 48" RCP - INV OUT = 389.47

STRUCTURE TABLE			
NAME	RIM	PIPES IN	PIPES OUT
404-CB	RIM = 398.67 SUMP = 391.40	406-P - 36" RCP - INV IN = 392.40 405-P - 15" RCP - INV IN = 393.60	404-P - 48" RCP - INV OUT = 391.40
405-CB	RIM = 398.14 SUMP = 393.67		405-P - 15" RCP - INV OUT = 393.87
406-CB	RIM = 402.33 SUMP = 397.46	432-P - 30" RCP - INV IN = 398.04 407-P - 36" RCP - INV IN = 397.66	406-P - 36" RCP - INV OUT = 397.46
407-CB	RIM = 402.96 SUMP = 397.92	408-P - 36" RCP - INV IN = 398.12	407-P - 36" RCP - INV OUT = 397.92
408-CB	RIM = 404.10 SUMP = 399.27	409-P - 36" RCP - INV IN = 399.47	408-P - 36" RCP - INV OUT = 399.27
409-CB	RIM = 404.76 SUMP = 399.73	410-P - 36" RCP - INV IN = 399.93	409-P - 36" RCP - INV OUT = 399.73
410-CB	RIM = 407.58 SUMP = 400.85	411-P - 24" RCP - INV IN = 401.05 413-P - 24" RCP - INV IN = 402.81 412-P - 15" RCP - INV IN = 404.06	410-P - 36" RCP - INV OUT = 400.85
411-AD	RIM = 405.69 SUMP = 401.42		411-P - 24" RCP - INV OUT = 401.42
412-AD	RIM = 407.60 SUMP = 404.32		412-P - 15" RCP - INV OUT = 404.32
413-CB	RIM = 414.09 SUMP = 407.10	416-P - 24" RCP - INV IN = 408.99 415-P - 15" RCP - INV IN = 410.35 414-P - 18" RCP - INV IN = 407.30	413-P - 24" RCP - INV OUT = 407.10
414-AD	RIM = 411.88 SUMP = 407.61		414-P - 18" RCP - INV OUT = 407.61
415-AD	RIM = 414.11 SUMP = 410.61		415-P - 15" RCP - INV OUT = 410.61
416-CB	RIM = 417.90 SUMP = 411.45	417-P - 15" RCP - INV IN = 411.65 420-P - 24" RCP - INV IN = 413.03	416-P - 24" RCP - INV OUT = 411.45
417-CB	RIM = 417.96 SUMP = 411.91	419-P - 15" RCP - INV IN = 412.11 418-P - 15" RCP - INV IN = 414.30	417-P - 15" RCP - INV OUT = 411.91
418-CB	RIM = 419.79 SUMP = 416.08		418-P - 15" RCP - INV OUT = 416.08
419-AD	RIM = 417.00 SUMP = 413.00		419-P - 15" RCP - INV OUT = 413.00
420-CB	RIM = 421.32 SUMP = 416.22	421-P - 24" RCP - INV IN = 416.42	420-P - 24" RCP - INV OUT = 416.22

STRUCTURE TABLE			
NAME	RIM	PIPES IN	PIPES OUT
421-CB	RIM = 426.59 SUMP = 417.81	427-P - 18" RCP - INV IN = 422.59 422-P - 18" RCP - INV IN = 418.01	421-P - 24" RCP - INV OUT = 417.81
422-CB	RIM = 426.73 SUMP = 418.28	423-P - 15" RCP - INV IN = 418.48	422-P - 18" RCP - INV OUT = 418.28
423-CB	RIM = 427.21 SUMP = 418.98	425-P - 15" RCP - INV IN = 419.18 424-P - 15" RCP - INV IN = 423.03	423-P - 15" RCP - INV OUT = 418.98
424-CB	RIM = 427.28 SUMP = 423.29		424-P - 15" RCP - INV OUT = 423.29
425-CB	RIM = 424.74 SUMP = 420.29	426-P - 15" RCP - INV IN = 420.49	425-P - 15" RCP - INV OUT = 420.29
426-CB	RIM = 424.75 SUMP = 420.75		426-P - 15" RCP - INV OUT = 420.75
427-CB	RIM = 429.25 SUMP = 424.83	428-P - 15" RCP - INV IN = 425.03 429-P - 15" RCP - INV IN = 425.14	427-P - 18" RCP - INV OUT = 424.83
428-CB	RIM = 429.17 SUMP = 425.29		428-P - 15" RCP - INV OUT = 425.29
429-CB	RIM = 433.71 SUMP = 427.06	431-P - 15" RCP - INV IN = 427.26 430-P - 15" RCP - INV IN = 429.45	429-P - 15" RCP - INV OUT = 427.06
430-AD	RIM = 433.71 SUMP = 429.71		430-P - 15" RCP - INV OUT = 429.71
431-AD	RIM = 432.13 SUMP = 428.13		431-P - 15" RCP - INV OUT = 428.13
432-AD	RIM = 405.80 SUMP = 401.15	433-P - 15" RCP - INV IN = 401.35 434-P - 30" RCP - INV IN = 401.53	432-P - 30" RCP - INV OUT = 401.15
433-CB	RIM = 405.88 SUMP = 401.61		433-P - 15" RCP - INV OUT = 401.61
434-AD	RIM = 411.03 SUMP = 406.29	435-P - 18" RCP - INV IN = 406.49 436-P - 30" RCP - INV IN = 406.75	434-P - 30" RCP - INV OUT = 406.29
435-CB	RIM = 411.16 SUMP = 406.75		435-P - 18" RCP - INV OUT = 406.75
436-AD	RIM = 415.79 SUMP = 410.92	438-P - 30" RCP - INV IN = 411.12 437-P - 15" RCP - INV IN = 411.57	436-P - 30" RCP - INV OUT = 410.92
437-CB	RIM = 415.82 SUMP = 411.83		437-P - 15" RCP - INV OUT = 411.83

STRUCTURE TABLE			
NAME	RIM	PIPES IN	PIPES OUT
438-CB	RIM = 419.42 SUMP = 412.03	439-P - 15" RCP - INV IN = 412.23 440-P - 30" RCP - INV IN = 414.94	438-P - 30" RCP - INV OUT = 412.03
439-AD	RIM = 419.14 SUMP = 413.12		439-P - 15" RCP - INV OUT = 413.12
440-CB	RIM = 422.31 SUMP = 417.55	441-P - 15" RCP - INV IN = 417.78 442-P - 30" RCP - INV IN = 417.75	440-P - 30" RCP - INV OUT = 417.55
441-CB	RIM = 422.31 SUMP = 418.04		441-P - 15" RCP - INV OUT = 418.04
442-AD	RIM = 428.88 SUMP = 419.33	447-P - 24" RCP - INV IN = 419.53 443-P - 15" RCP - INV IN = 424.22	442-P - 30" RCP - INV OUT = 419.33
443-CB	RIM = 428.86 SUMP = 424.48	444-P - 15" RCP - INV IN = 424.68	443-P - 15" RCP - INV OUT = 424.48
444-CB	RIM = 430.64 SUMP = 426.05	445-P - 15" RCP - INV IN = 426.25	444-P - 15" RCP - INV OUT = 426.05
445-CB	RIM = 431.30 SUMP = 426.51	446-P - 15" RCP - INV IN = 426.71	445-P - 15" RCP - INV OUT = 426.51
446-CB	RIM = 432.32 SUMP = 428.46		446-P - 15" RCP - INV OUT = 428.46
447-CB	RIM = 432.08 SUMP = 420.31	448-P - 24" RCP - INV IN = 420.51	447-P - 24" RCP - INV OUT = 420.31
448-CB	RIM = 433.89 SUMP = 423.69	450-P - 18" RCP - INV IN = 423.89 449-P - 15" RCP - INV IN = 429.54 454-P - 24" RCP - INV IN = 428.34	448-P - 24" RCP - INV OUT = 423.69
449-CB	RIM = 433.85 SUMP = 429.80		449-P - 15" RCP - INV OUT = 429.80
450-CB	RIM = 432.55 SUMP = 424.79	452-P - 18" RCP - INV IN = 424.99 451-P - 15" RCP - INV IN = 428.26	450-P - 18" RCP - INV OUT = 424.79
451-CB	RIM = 432.59 SUMP = 428.52		451-P - 15" RCP - INV OUT = 428.52
452A-CB	RIM = 430.74 SUMP = 426.30		452-P - 18" RCP - INV OUT = 426.30
452B-CB	RIM = 430.67 SUMP = 426.30	453-P - 15" RCP - INV IN = 426.30	
453A-CB	RIM = 430.67 SUMP = 426.56		453-P - 15" RCP - INV OUT = 426.56

STRUCTURE TABLE			
NAME	RIM	PIPES IN	PIPES OUT
453B-CB	RIM = 430.74 SUMP = 426.76	453C-P - 15" RCP - INV IN = 426.76	
453C-AD	RIM = 430.94 SUMP = 424.98		453C-P - 15" RCP - INV OUT = 426.98
454-CB	RIM = 433.53 SUMP = 428.80	456-P - 18" RCP - INV IN = 429.00 455-P - 15" RCP - INV IN = 429.34	454-P - 24" RCP - INV OUT = 428.80
455-CB	RIM = 433.42 SUMP = 429.60		455-P - 15" RCP - INV OUT = 429.60
456-CB	RIM = 436.24 SUMP = 430.04	460-P - 15" RCP - INV IN = 432.47 458-P - 24" RCP - INV IN = 430.24 457-P - 15" RCP - INV IN = 432.20	456-P - 18" RCP - INV OUT = 430.04
457-CB	RIM = 436.22 SUMP = 432.46		457-P - 15" RCP - INV OUT = 432.46
458-AD	RIM = 432.95 SUMP = 431.25	459-P - 15" RCP - INV IN = 431.52	458-P - 24" RCP - INV OUT = 431.25
459-AD	RIM = 440.17 SUMP = 436.14		459-P - 15" RCP - INV OUT = 436.14
460-CB	RIM = 439.94 SUMP = 436.01		460-P - 15" RCP - INV OUT = 436.01
600-FES	RIM = 428.30 SUMP = ???	600-P - 18" RCP - INV IN = 424.47	
601-FES	RIM = 429.33 SUMP = ???		600-P - 18" RCP - INV OUT = 425.50
610-FES	RIM = 428.26 SUMP = ???	611-P - 18" RCP - INV IN = 426.80	
611-FES	RIM = 430.10 SUMP = ???		611-P - 18" RCP - INV OUT = 427.77

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=150' 150 0 150 300

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20234 THOMAS S SPEIGHT, JR

Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
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NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

STORM STRUCTURE TABLES

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=150'
Date:	10/30/2018
Project Number:	170348

SHEET
C314

PIPE TABLE					
NAME	CONNECT	SIZE	LENGTH	SLOPE	MATERIAL
001-CUL	UP: DOWN:	48"	102.24'	1.47%	RCP
002-CUL	UP: DOWN:	48"	102.15'	1.47%	RCP
011-P	UP: 011-CB DOWN: 010-FES	15"	74.95'	1.00%	RCP
012-P	UP: 012-CB DOWN: 011-CB	15"	34.00'	1.00%	RCP
101-P	UP: 101-RI DOWN: 100-FES	24"	77.45'	1.00%	RCP
105-P	UP: 105-CB DOWN: 102-FES	30"	191.18'	1.19%	RCP
106-P	UP: 106A-CB DOWN: 105-CB	18"	145.96'	1.77%	RCP
107-P	UP: 107A-CB DOWN: 106A-CB	15"	34.00'	1.00%	RCP
109-P	UP: 109-CB DOWN: 105-CB	18"	130.45'	2.69%	RCP
110-P	UP: 110-CB DOWN: 109-CB	15"	34.00'	1.00%	RCP
111-P	UP: 111-CB DOWN: 109-CB	15"	138.64'	4.87%	RCP
112-P	UP: 112-CB DOWN: 111-CB	15"	34.00'	1.00%	RCP
113-P	UP: 113-CB DOWN: 111-CB	15"	134.96'	4.70%	RCP
114-P	UP: 114-CB DOWN: 113-CB	15"	34.00'	1.00%	RCP
115-P	UP: 115-CB DOWN: 113-CB	15"	177.07'	2.29%	RCP
116-P	UP: 116-CB DOWN: 115-CB	15"	34.00'	1.00%	RCP
151-P	UP: 151-AD DOWN: 150-FES	15"	63.19'	6.38%	RCP
152-P	UP: 152A-CB DOWN: 151-AD	15"	156.05'	10.74%	RCP
153-P	UP: 153-CB DOWN: 152A-CB	15"	80.31'	1.80%	RCP
154-P	UP: 154-CB DOWN: 153-CB	15"	31.17'	1.00%	RCP
155-P	UP: 155-CB DOWN: 153-CB	15"	63.34'	1.00%	RCP
201-P	UP: 201-RI DOWN: 200-FES	24"	45.47'	1.00%	RCP
202C-P	UP: 202C-AD DOWN: 202-FES	15"	34.37'	5.69%	RCP
203-P	UP: 203A-CB DOWN: 202C-AD	24"	128.71'	8.89%	RCP
204-P	UP: 204-CB DOWN: 203A-CB	15"	94.61'	1.92%	RCP
205-P	UP: 205-CB DOWN: 204-CB	15"	83.99'	1.00%	RCP
206-P	UP: 206-CB DOWN: 205-CB	15"	26.00'	1.00%	RCP
207-P	UP: 207-CB DOWN: 205-CB	15"	124.06'	1.00%	RCP
208-P	UP: 208-CB DOWN: 207-CB	15"	26.00'	1.00%	RCP
209-P	UP: 209-CB DOWN: 207-CB	15"	292.87'	1.00%	RCP
210-P	UP: 210-CB DOWN: 209-CB	15"	26.00'	2.81%	RCP
301-P	UP: 301-RI DOWN: 300-FES	30"	72.63'	1.00%	RCP
303-P	UP: 303-AD DOWN: 302-FES	48"	54.98'	2.82%	RCP
304-P	UP: 304-AD DOWN: 303-AD	48"	98.08'	1.12%	RCP
305-P	UP: 305-CB DOWN: 304-AD	48"	49.75'	1.00%	RCP
306-P	UP: 306A-CB DOWN: 305-CB	30"	64.25'	1.00%	RCP
307-P	UP: 307A-CB DOWN: 306A-CB	18"	34.00'	1.00%	RCP
308-P	UP: 308-CB DOWN: 305-CB	36"	92.95'	5.11%	RCP
309-P	UP: 309-CB DOWN: 308-CB	18"	34.00'	3.13%	RCP
310-P	UP: 310-CB DOWN: 308-CB	36"	140.84'	3.91%	RCP
311-P	UP: 311-CB DOWN: 310-CB	15"	34.00'	1.00%	RCP
312-P	UP: 312-CB DOWN: 310-CB	36"	88.39'	1.00%	RCP
313-P	UP: 313A-CB DOWN: 312-CB	24"	44.73'	2.19%	RCP
314-P	UP: 314A-CB DOWN: 313B-CB	15"	34.01'	1.00%	RCP
315-P	UP: 315-CB DOWN: 313B-CB	15"	131.78'	1.53%	RCP
316-P	UP: 316-CB DOWN: 315-CB	15"	34.00'	1.00%	RCP
317-P	UP: 317-CB DOWN: 312-CB	36"	73.57'	2.72%	RCP
318-P	UP: 318-CB DOWN: 317-CB	15"	34.00'	1.00%	RCP

PIPE TABLE					
NAME	CONNECT	SIZE	LENGTH	SLOPE	MATERIAL
319-P	UP: 319-CB DOWN: 317-CB	30"	115.17'	2.37%	RCP
320-P	UP: 320-CB DOWN: 319-CB	15"	33.99'	1.00%	RCP
321-P	UP: 321-CB DOWN: 319-CB	30"	78.89'	2.18%	RCP
322-P	UP: 322-CB DOWN: 321-CB	30"	141.00'	2.35%	RCP
323-P	UP: 323-CB DOWN: 322-CB	15"	34.00'	1.00%	RCP
324-P	UP: 324-CB DOWN: 322-CB	30"	253.14'	2.50%	RCP
325-P	UP: 325-CB DOWN: 324-CB	15"	34.00'	1.00%	RCP
326-P	UP: 326-CB DOWN: 324-CB	24"	242.80'	2.31%	RCP
327-P	UP: 327-CB DOWN: 326-CB	15"	34.00'	1.00%	RCP
328-P	UP: 328-CB DOWN: 326-CB	24"	231.89'	3.51%	RCP
329-P	UP: 329-CB DOWN: 328-CB	15"	34.00'	1.00%	RCP
330-P	UP: 330-CB DOWN: 328-CB	24"	232.42'	1.35%	RCP
331-P	UP: 331-CB DOWN: 330-CB	15"	34.01'	1.00%	RCP
332-P	UP: 332-CB DOWN: 330-CB	24"	203.39'	1.00%	RCP
333-P	UP: 333-CB DOWN: 332-CB	15"	34.00'	7.14%	RCP
334-P	UP: 334-CB DOWN: 332-CB	15"	143.19'	1.00%	RCP
335-P	UP: 335-CB DOWN: 334-CB	18"	187.95'	1.00%	RCP
336-P	UP: 336-CB DOWN: 335-CB	15"	34.00'	1.00%	RCP
337-P	UP: 337-CB DOWN: 335-CB	15"	43.00'	1.00%	RCP
338-P	UP: 338-CB DOWN: 337-CB	15"	26.01'	1.00%	RCP
339-P	UP: 339-CB DOWN: 335-CB	18"	86.97'	1.00%	RCP
340-P	UP: 340-CB DOWN: 339-CB	15"	34.00'	1.00%	RCP
341-P	UP: 341A-CB DOWN: 339-CB	18"	117.75'	1.00%	RCP
342-P	UP: 342A-CB DOWN: 341B-CB	15"	34.00'	1.00%	RCP
342C-P	UP: 342C-AD DOWN: 342B-CB	15"	36.34'	1.00%	RCP
351-P	UP: 351-AD DOWN: 350-FES	15"	82.80'	9.66%	RCP
352-P	UP: 352-CB DOWN: 351-AD	15"	146.38'	5.54%	RCP
353-P	UP: 353-CB DOWN: 352-CB	15"	97.42'	1.08%	RCP
354-P	UP: 354-CB DOWN: 353-CB	15"	34.79'	1.00%	RCP
355-P	UP: 355-CB DOWN: 352-CB	15"	34.51'	1.00%	RCP
356-P	UP: 356-CB DOWN: 355-CB	15"	44.80'	1.00%	RCP
357-P	UP: 357-CB DOWN: 356-CB	15"	96.60'	1.00%	RCP
358-P	UP: 358-CB DOWN: 357-CB	15"	26.00'	1.00%	RCP
401-P	UP: 401-RI DOWN: 400-FES	24"	69.06'	1.00%	RCP
403-P	UP: 403-AD DOWN: 402-FES	48"	312.32'	4.31%	RCP
404-P	UP: 404-CB DOWN: 403-AD	48"	172.83'	1.00%	RCP
405-P	UP: 405-CB DOWN: 404-CB	15"	26.55'	1.00%	RCP
406-P	UP: 406-CB DOWN: 404-CB	36"	99.73'	5.08%	RCP
407-P	UP: 407-CB DOWN: 406-CB	36"	26.00'	1.00%	RCP
408-P	UP: 408-CB DOWN: 407-CB	36"	39.46'	2.91%	RCP
409-P	UP: 409-CB DOWN: 408-CB	36"	26.25'	0.99%	RCP
410-P	UP: 410-CB DOWN: 409-CB	36"	91.99'	1.00%	RCP
411-P	UP: 411-AD DOWN: 410-CB	24"	37.03'	1.00%	RCP
412-P	UP: 412-AD DOWN: 410-CB	15"	26.00'	1.00%	RCP
413-P	UP: 413-CB DOWN: 410-CB	24"	173.24'	2.47%	RCP
414-P	UP: 414-AD DOWN: 413-CB	18"	31.26'	1.00%	RCP
415-P	UP: 415-AD DOWN: 413-CB	15"	26.00'	1.00%	RCP
416-P	UP: 416-CB DOWN: 413-CB	24"	96.21'	2.55%	RCP

PIPE TABLE					
NAME	CONNECT	SIZE	LENGTH	SLOPE	MATERIAL
417-P	UP: 417-CB DOWN: 416-CB	15"	26.05'	1.00%	RCP
418-P	UP: 418-CB DOWN: 417-CB	15"	50.87'	3.50%	RCP
419-P	UP: 419-AD DOWN: 417-CB	15"	89.22'	1.00%	RCP
420-P	UP: 420-CB DOWN: 416-CB	24"	86.61'	3.68%	RCP
421-P	UP: 421-CB DOWN: 420-CB	24"	136.50'	1.02%	RCP
422-P	UP: 422-CB DOWN: 421-CB	18"	27.32'	0.99%	RCP
423-P	UP: 423-CB DOWN: 422-CB	15"	44.24'	1.13%	RCP
424-P	UP: 424-CB DOWN: 423-CB	15"	26.02'	1.00%	RCP
425-P	UP: 425-CB DOWN: 423-CB	15"	111.06'	1.00%	RCP
426-P	UP: 426-CB DOWN: 425-CB	15"	26.00'	1.00%	RCP
427-P	UP: 427-CB DOWN: 421-CB	18"	49.15'	4.54%	RCP
428-P	UP: 428-CB DOWN: 427-CB	15"	26.48'	1.00%	RCP
429-P	UP: 429-CB DOWN: 427-CB	15"	192.19'	1.00%	RCP
430-P	UP: 430-AD DOWN: 429-CB	15"	26.00'	1.00%	RCP
431-P	UP: 431-AD DOWN: 429-CB	15"	87.58'	1.00%	RCP
432-P	UP: 432-AD DOWN: 406-CB	30"	83.62'	3.72%	RCP
433-P	UP: 433-CB DOWN: 432-AD	15"	26.03'	1.00%	RCP
434-P	UP: 434-AD DOWN: 432-AD	30"	125.14'	3.81%	RCP
435-P	UP: 435-CB DOWN: 434-AD	18"	26.22'	0.99%	RCP
436-P	UP: 436-AD DOWN: 434-AD	30"	114.32'	3.65%	RCP
437-P	UP: 437-CB DOWN: 436-AD	15"	26.01'	1.00%	RCP
438-P	UP: 438-CB DOWN: 436-AD	30"	90.80'	1.00%	RCP
439-P	UP: 439-AD DOWN: 438-CB	15"	89.76'	1.00%	RCP
440-P	UP: 440-CB DOWN: 438-CB	30"	72.57'	3.60%	RCP
441-P	UP: 441-CB DOWN: 440-CB	15"	26.00'	1.00%	RCP
442-P	UP: 442-AD DOWN: 440-CB	30"	157.61'	1.00%	RCP
443-P	UP: 443-CB DOWN: 442-AD	15"	26.00'	1.00%	RCP
444-P	UP: 444-CB DOWN: 443-CB	15"	40.77'	3.37%	RCP
445-P	UP: 445-CB DOWN: 444-CB	15"	25.99'	1.00%	RCP
446-P	UP: 446-CB DOWN: 445-CB	15"	40.98'	4.26%	RCP
447-P	UP: 447-CB DOWN: 442-AD	24"	77.48'	1.01%	RCP
448-P	UP: 448-CB DOWN: 447-CB	24"	318.76'	1.00%	RCP
449-P	UP: 449-CB DOWN: 448-CB	15"	25.98'	1.00%	RCP
450-P	UP: 450-CB DOWN: 448-CB	18"	89.44'	1.00%	RCP
451-P	UP: 451-CB DOWN: 450-CB	15"	26.00'	1.00%	RCP
452-P	UP: 452A-CB DOWN: 450-CB	18"	131.38'	1.00%	RCP
453-P	UP: 453A-CB DOWN: 452B-CB	15"	26.00'	1.00%	RCP
453C-P	UP: 453C-AD DOWN: 453B-CB	15"	21.89'	1.00%	RCP
454-P	UP: 454-CB DOWN: 448-CB	24"	46.40'	1.00%	RCP
455-P	UP: 455-CB DOWN: 454-CB	15"	26.00'	1.00%	RCP
456-P	UP: 456-CB DOWN: 454-CB	18"	103.95'	1.00%	RCP
457-P	UP: 457-CB DOWN: 456-CB	15"	26.00'	1.00%	RCP
458-P	UP: 458-AD DOWN: 456-CB	24"	100.50'	1.00%	RCP
459-P	UP: 459-AD DOWN: 458-AD	15"	117.46'	3.94%	RCP
460-P	UP: 460-CB DOWN: 456-CB	15"	130.03'	2.72%	RCP
600-P	UP: 601-FES DOWN: 600-FES	18"	102.70'	1.00%	RCP CLASS IV
611-P	UP: 611-FES DOWN: 610-FES	18"	97.16'	1.00%	RCP CLASS IV

REVISIONS		
REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=150'
150 0 150 300

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPECHT

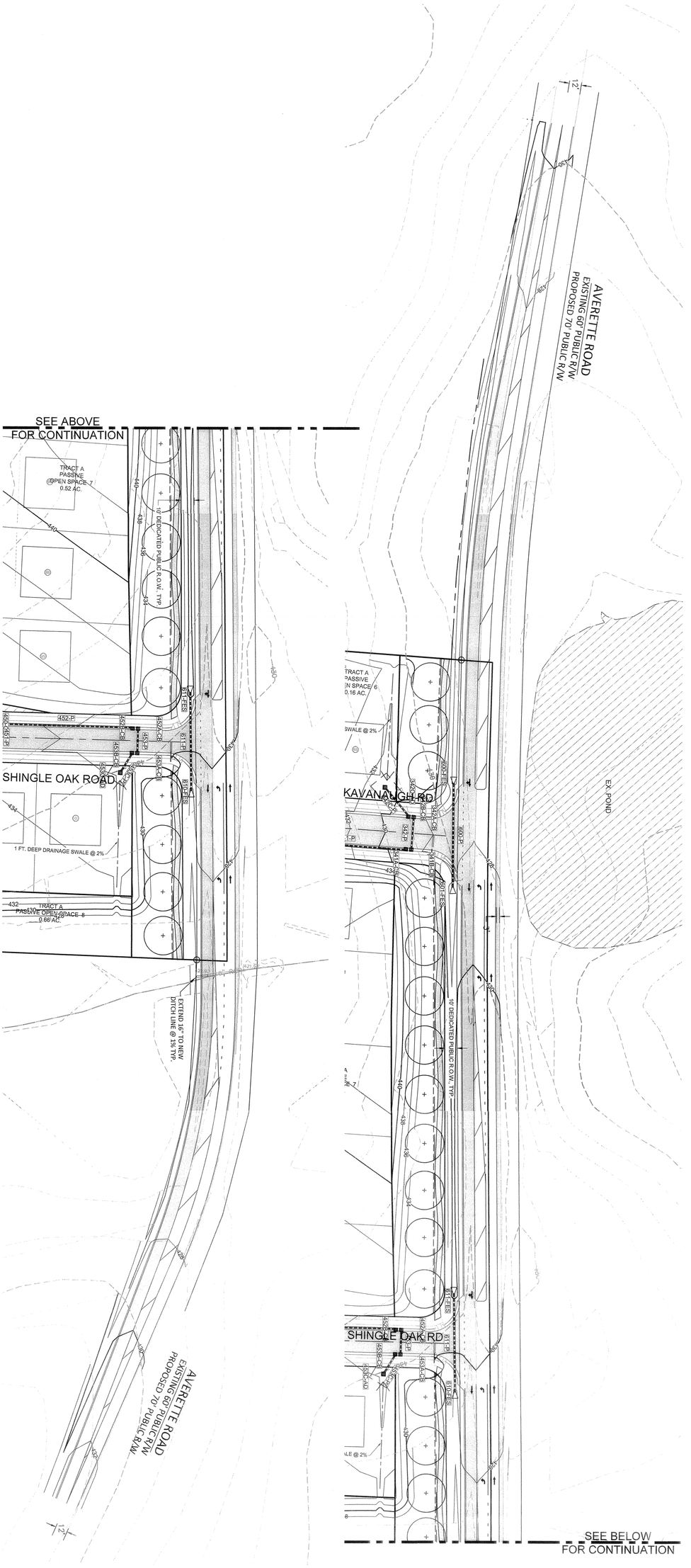
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

STORM PIPE TABLES

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=150'
Date:	10/30/2018
Project Number:	170348

SHEET
C315



REVISIONS

RE/IAD	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

NORTH

SCALE 1"=50' 0 50 100

PRELIMINARY
NOT RELEASED FOR CONSTRUCTION

AVERETTE ROAD
GRADING PLAN

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS

1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

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Engineers • Surveyors • Planners
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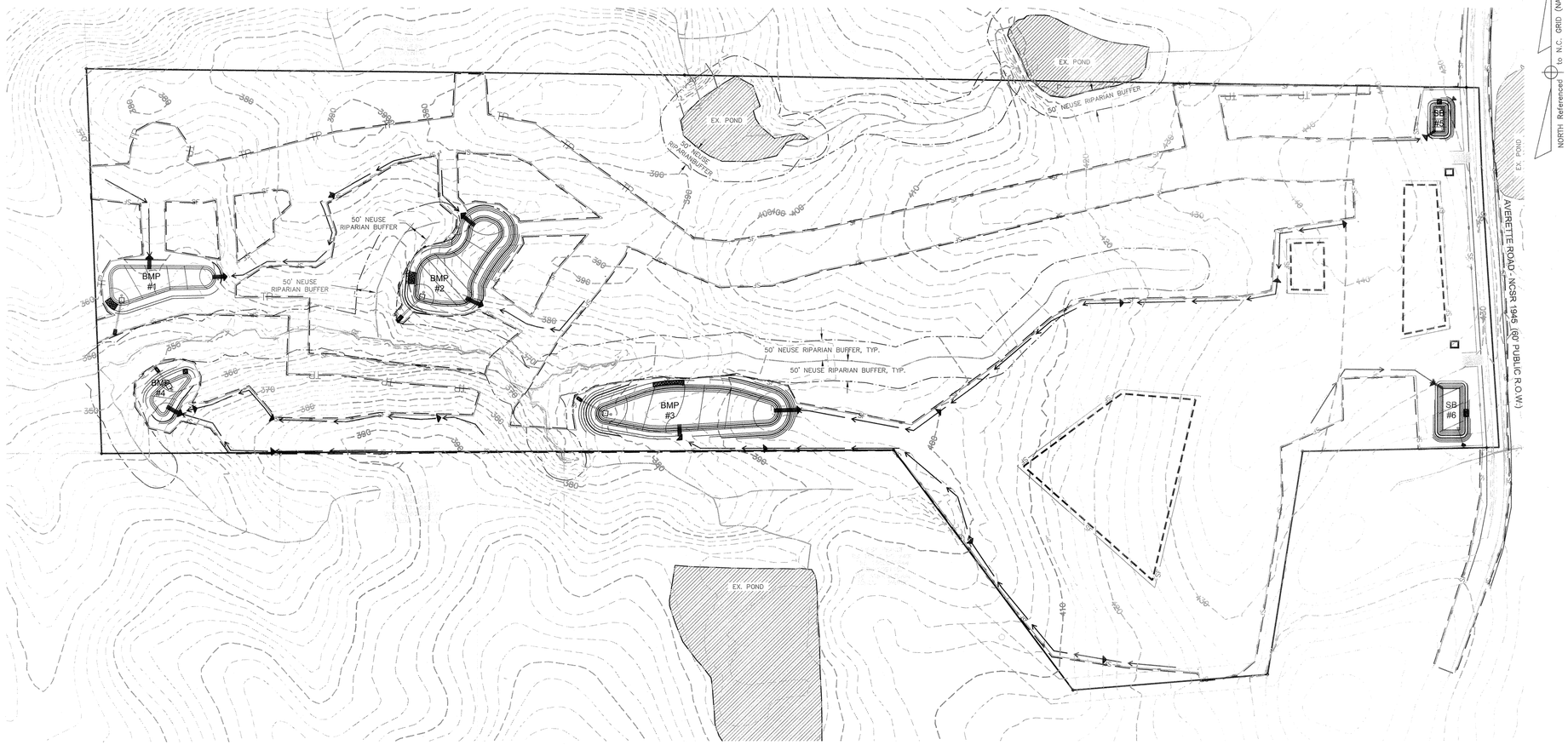
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

SEAL 20234 NORTH CAROLINA PROFESSIONAL ENGINEER THOMAS S. SILVER

Project Engineer:	TSS
Designed By:	RAJ
Drawn By:	RAJ
Checked By:	TSS
Scale:	N.T.S.
Date:	10/30/2018
Project Number:	170348

SHEET **C316**



WAKE COUNTY BASIN REMOVAL SEQUENCE:

1. SCHEDULE A SITE MEETING WITH THE ENVIRONMENT ENGINEER/CONSULTANT TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCE OR OTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
2. REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF CULVERT PIPES NEED TO BE EXTENDED, PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
3. PERFORM SEEDBED PREPARATION, SEED, MULCH, AND ASPHALT TACK ANY RESULTING BARE AREAS IMMEDIATELY.
4. INSTALL VELOCITY DISSIPATERS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
5. WHEN SITE IS FULLY STABILIZED, CALL ENVIRONMENTAL ENGINEER/CONSULTANT FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION.

LEGEND:

- SILT FENCE
- TREE PROTECTION FENCE
- SILT FENCE OUTLET
- EX CONTOUR LINE
- PROP CONTOUR LINE
- LIMITS OF DISTURBANCE
- CONSTRUCTION ENTRANCE
- TEMPORARY DIVERSION DITCH
- CONCRETE WASHOUT
- STOCKPILE AREA
- ROCK CHECK DAM

TOTAL DISTURBED AREA =
194,3458 SF
44.6 AC

811 KNOW WHAT IS BELOW CALL BEFORE YOU DIG

1"=150' 150 0 150 300

~~PRELIMINARY~~
~~NOT RELEASED FOR CONSTRUCTION~~
~~12/07/2018~~

REV.NO.	DESCRIPTIONS

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT, JR.

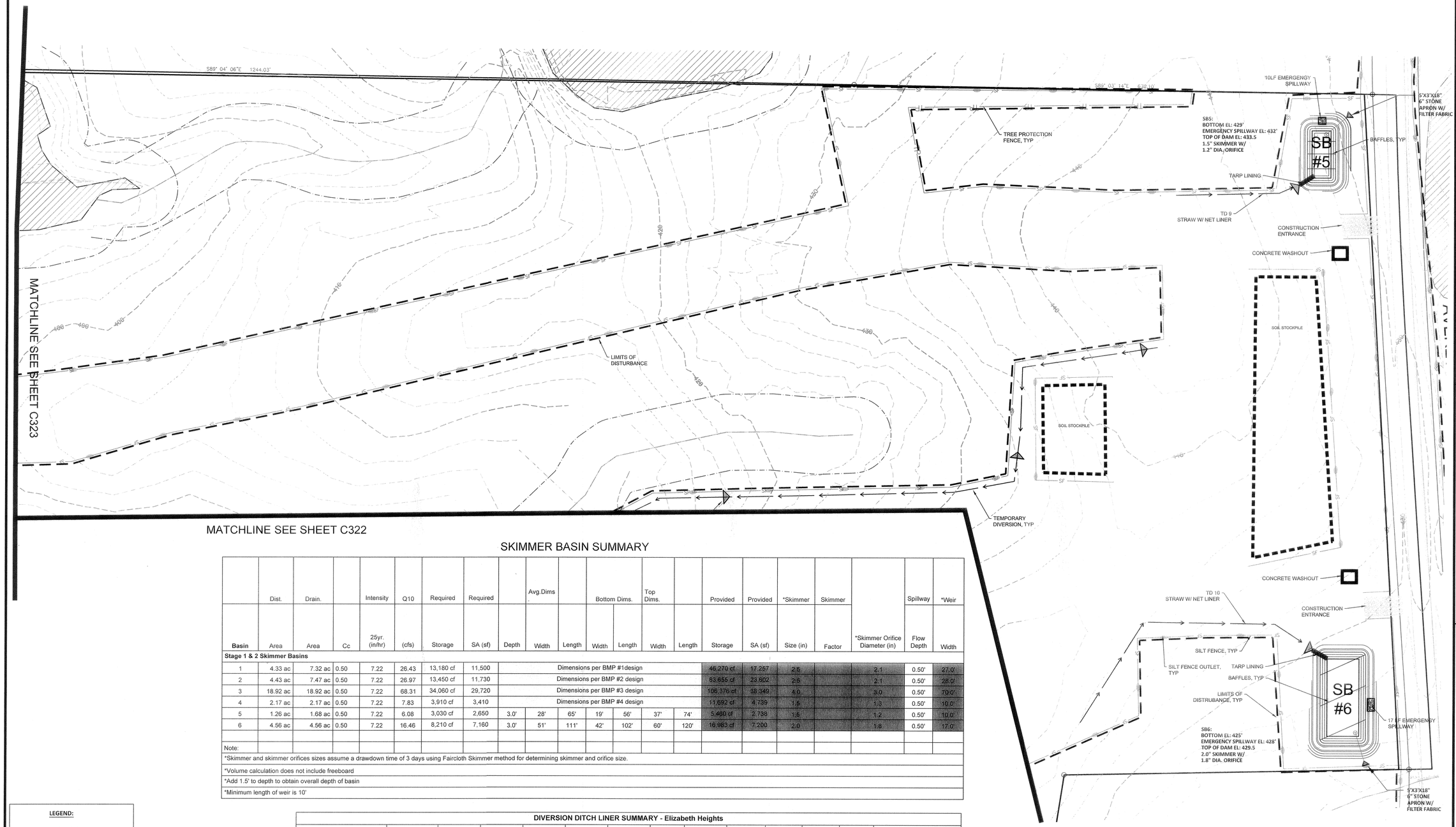
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

OVERALL
EROSION CONTROL PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=150'
Date:	10/30/2018
Project Number:	170348

SHEET
C320



SKIMMER BASIN SUMMARY

Basin	Dist. Area	Drain. Area	Cc	Intensity 25yr. (in/hr)	Q10 (cfs)	Required Storage	Required SA (sf)	Depth	Avg.Dims. Width	Avg.Dims. Length	Bottom Dims. Width	Bottom Dims. Length	Top Dims. Width	Top Dims. Length	Provided Storage	Provided SA (sf)	*Skimmer Size (in)	Skimmer Factor	*Skimmer Orifice Diameter (in)	Spillway Flow Depth	*Weir Width
Stage 1 & 2 Skimmer Basins																					
1	4.33 ac	7.32 ac	0.50	7.22	26.43	13,180 cf	11,500	Dimensions per BMP #1design							46,270 cf	17,257	2.5		2.1	0.50'	27.0'
2	4.43 ac	7.47 ac	0.50	7.22	26.97	13,450 cf	11,730	Dimensions per BMP #2 design							83,655 cf	23,602	2.5		2.1	0.50'	28.0'
3	18.92 ac	18.92 ac	0.50	7.22	68.31	34,060 cf	29,720	Dimensions per BMP #3 design							105,376 cf	38,349	4.0		3.0	0.50'	70.0'
4	2.17 ac	2.17 ac	0.50	7.22	7.83	3,910 cf	3,410	Dimensions per BMP #4 design							11,692 cf	4,739	1.5		1.3	0.50'	10.0'
5	1.26 ac	1.68 ac	0.50	7.22	6.08	3,030 cf	2,650	3.0'	28'	65'	19'	56'	37'	74'	5,460 cf	2,738	1.5		1.2	0.50'	10.0'
6	4.56 ac	4.56 ac	0.50	7.22	16.46	8,210 cf	7,160	3.0'	51'	111'	42'	102'	60'	120'	16,983 cf	7,200	2.0		1.8	0.50'	17.0'
Note:																					
*Skimmer and skimmer orifices sizes assume a drawdown time of 3 days using Faircloth Skimmer method for determining skimmer and orifice size.																					
*Volume calculation does not include freeboard																					
*Add 1.5' to depth to obtain overall depth of basin																					
*Minimum length of weir is 10'																					

DIVERSION DITCH LINER SUMMARY - Elizabeth Heights

Temporary Diversion #	Total Area (ac)	Total Length	Begin Elevation	End Elevation	Δ Elevation	Tc	Slope	C	Intensity	Q	Depth	Shear	Liner
Stage 1 Diversions													
1	0.42	296.0	366.0	360.0	6.0	2.80	0.020	0.5	7.22	1.50	0.37	0.47	Straw w/ Net
2	1.58	726.0	389.5	362.0	27.5	4.40	0.038	0.5	7.22	5.70	0.54	1.28	Straw w/ Net
3	0.50	179.0	389.5	378.0	11.5	1.22	0.064	0.5	7.22	1.79	0.32	1.28	Straw w/ Net
4	0.80	385.0	390.5	378.0	12.5	2.86	0.032	0.5	7.22	2.90	0.44	0.89	Straw w/ Net
5	7.73	1634.0	443.5	398.0	45.5	9.24	0.028	0.5	7.22	27.90	1.04	1.81	Synthetic Mat
6	7.30	1550.0	425.5	384.0	41.5	9.01	0.027	0.5	7.22	26.34	1.02	1.70	Synthetic Mat
7	0.95	862.0	386.0	364.0	22.0	5.84	0.026	0.5	7.22	3.43	0.48	0.76	Straw w/ Net
8	0.33	565.0	392.0	364.0	28.0	3.27	0.050	0.5	7.22	1.18	0.29	0.90	Straw w/ Net
9	0.22	185.0	442.5	434.0	8.5	1.42	0.046	0.5	7.22	0.80	0.25	0.72	Straw w/ Net
10	0.81	424.0	436.0	429.5	6.5	4.12	0.015	0.5	7.22	2.93	0.50	0.48	Straw w/ Net

LEGEND:

- SILT FENCE
- TREE PROTECTION FENCE
- SILT FENCE OUTLET
- EX CONTOUR LINE
- PROP CONTOUR LINE
- LIMITS OF DISTURBANCE
- CONSTRUCTION ENTRANCE
- TEMPORARY DIVERSION DITCH
- CONCRETE WASHOUT
- STOCKPILE AREA
- ROCK CHECK DAM

REV.NO.	DESCRIPTIONS
	REVISIONS

KNOW WHAT IS BELOW CALL BEFORE YOU DIG

1"=60' 60 60 120

~~PRELIMINARY NOT RELEASED FOR CONSTRUCTION 12/07/2016~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT, JR

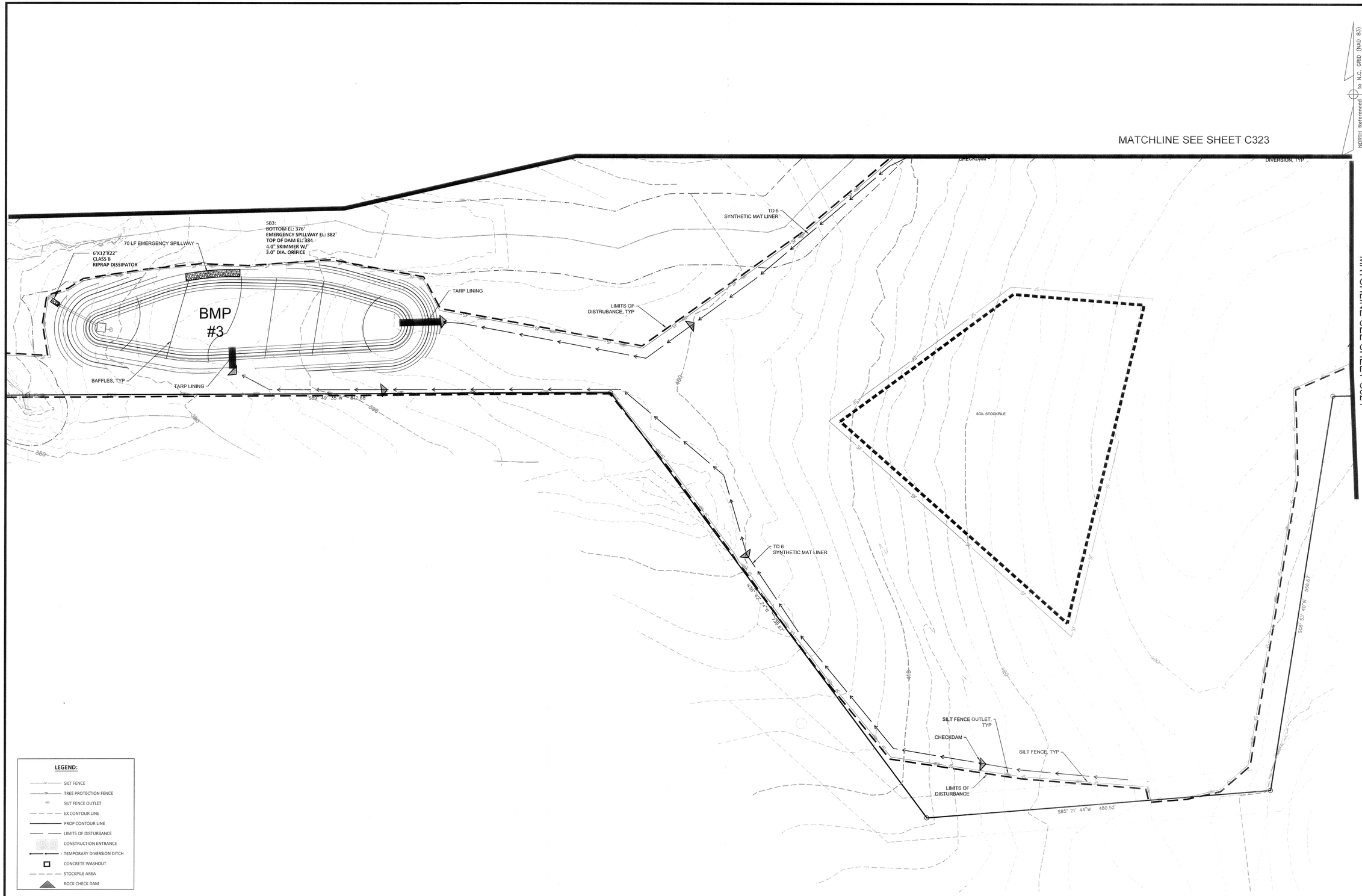
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

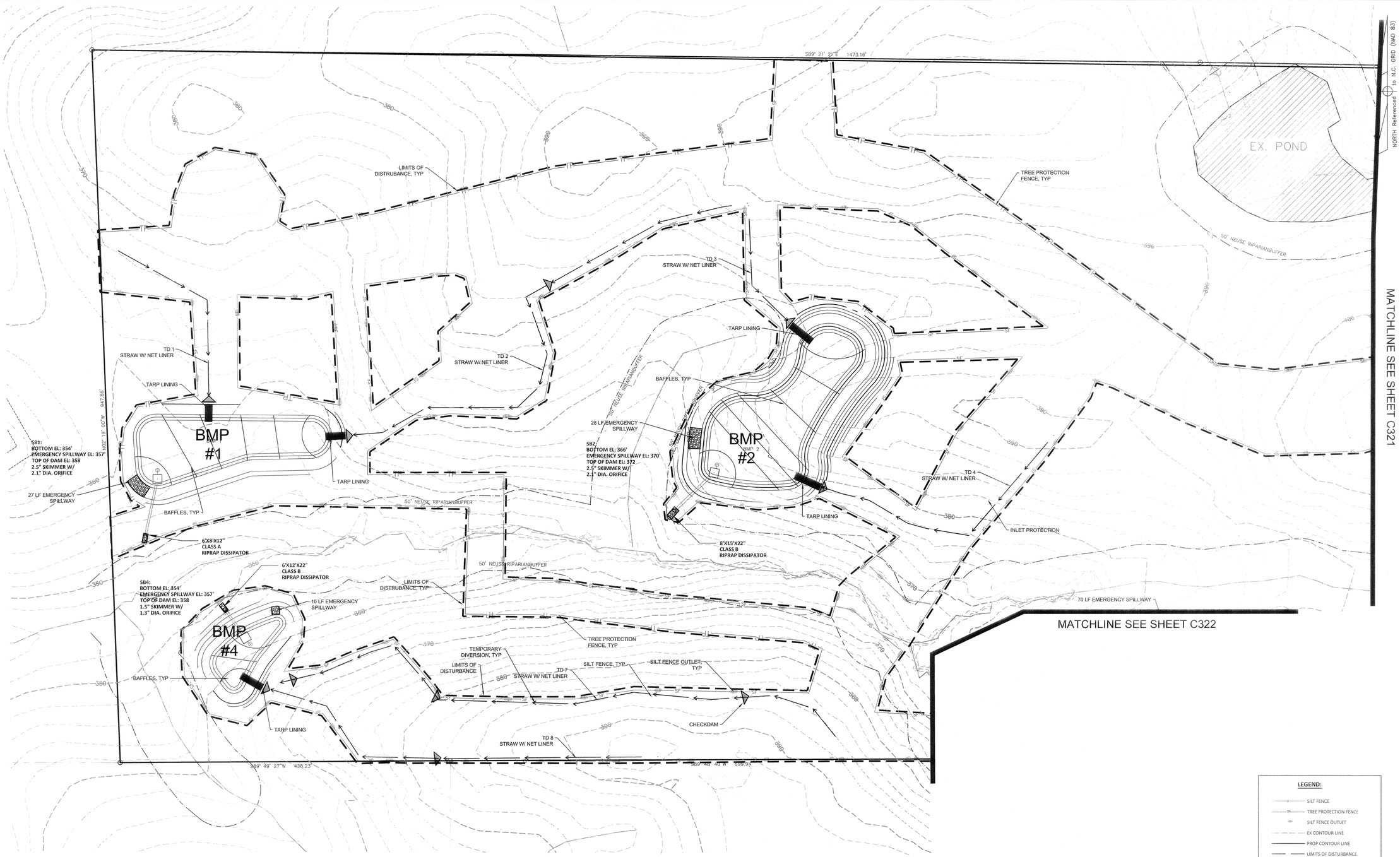
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

EROSION CONTROL PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2016
Project Number:	170348

SHEET
C321


MATCHLINE SEE SHEET C323
MATCHLINE SEE SHEET C321
NORTH Referenced to N.C. GRID (NAD 83)
SB3:
BOTTOM EL: 376'
EMERGENCY SPILLWAY EL: 382'
TOP OF DAM EL: 384
4.0" SKIMMER W/
3.0" DIA. ORIFICE
70 LF EMERGENCY SPILLWAY
6'X12'X22"
CLASS B
RIPRAP DISSIPATOR
BMP
#3
BAFFLES, TYP
TARP LINING
TARP LINING
LIMITS OF
DISTRUBANCE, TYP
TD 5
SYNTHETIC MAT LINER
CHECKDAM
DIVERSION, TYP
SOIL STOCKPILE
TD 6
SYNTHETIC MAT LINER
SILT FENCE OUTLET,
TYP
CHECKDAM
SILT FENCE, TYP
LIMITS OF
DISTURBANCE
S89° 49' 35" W 842.68'
N36° 12' 21" W 759.67'
S08° 53' 46" W 556.67'
S85° 21' 44" W 480.52'
380
400
420
440
460
480
500
520
540
560
580
600
620
640
660
680
700
720
740
760
780
800
820
840
860
880
900
920
940
960
980
1000
1020
1040
1060
1080
1100
1120
1140
1160



LEGEND:

- SILT FENCE
- TREE PROTECTION FENCE
- SILT FENCE OUTLET
- EX CONTOUR LINE
- PROP CONTOUR LINE
- LIMITS OF DISTURBANCE
- CONSTRUCTION ENTRANCE
- TEMPORARY DIVERSION DITCH
- CONCRETE WASHOUT
- STOCKPILE AREA
- ROCK CHECK DAM

REV.NO.	DESCRIPTIONS

REVISIONS

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=60' 60 60 120

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT JR

Bateman Civil Survey Company
Engineers • Surveyors • Planners
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Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2376

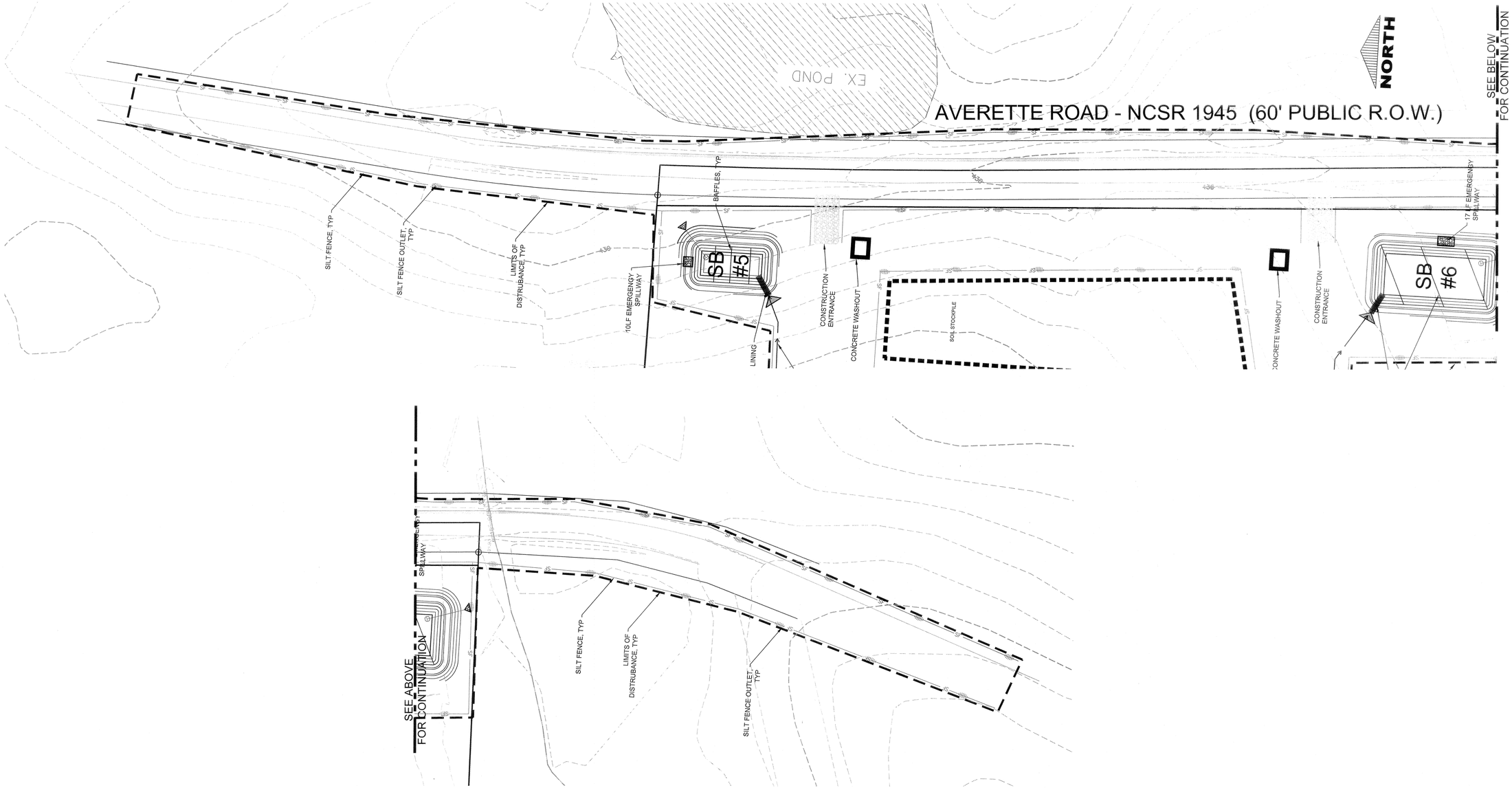
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS

1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

EROSION CONTROL PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C323



LEGEND:

- SILT FENCE
- TREE PROTECTION FENCE
- SILT FENCE OUTLET
- EX CONTOUR LINE
- PROP CONTOUR LINE
- LIMITS OF DISTURBANCE
- CONSTRUCTION ENTRANCE
- TEMPORARY DIVERSION DITCH
- CONCRETE WASHOUT
- STOCKPILE AREA
- ROCK CHECK DAM

SCALE

1"=50' 50 0 50 100

REV.NO.	DESCRIPTIONS

REVISIONS

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT

Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1061
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

AVERETTE ROAD
EROSION CONTROL PLAN

Project Engineer:	TSS
Designed By:	RAJ
Drawn By:	RAJ
Checked By:	TSS
Scale:	NTS
Date:	10/30/2018
Project Number:	.170348

SHEET
C324

LEGEND:

- SILT FENCE
- TREE PROTECTION FENCE
- SILT FENCE OUTLET
- EX CONTOUR LINE
- PROP CONTOUR LINE
- LIMITS OF DISTURBANCE
- CONSTRUCTION ENTRANCE
- TEMPORARY DIVERSION DITCH
- CONCRETE WASHOUT
- STOCKPILE AREA
- INLET PROTECTION
- ROCK CHECK DAM

TOTAL DISTURBED AREA =
194,3458 SF
44.6 AC

REV.NO.	DESCRIPTIONS

REVISIONS

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=150' 150 0 150 300

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT, JR.

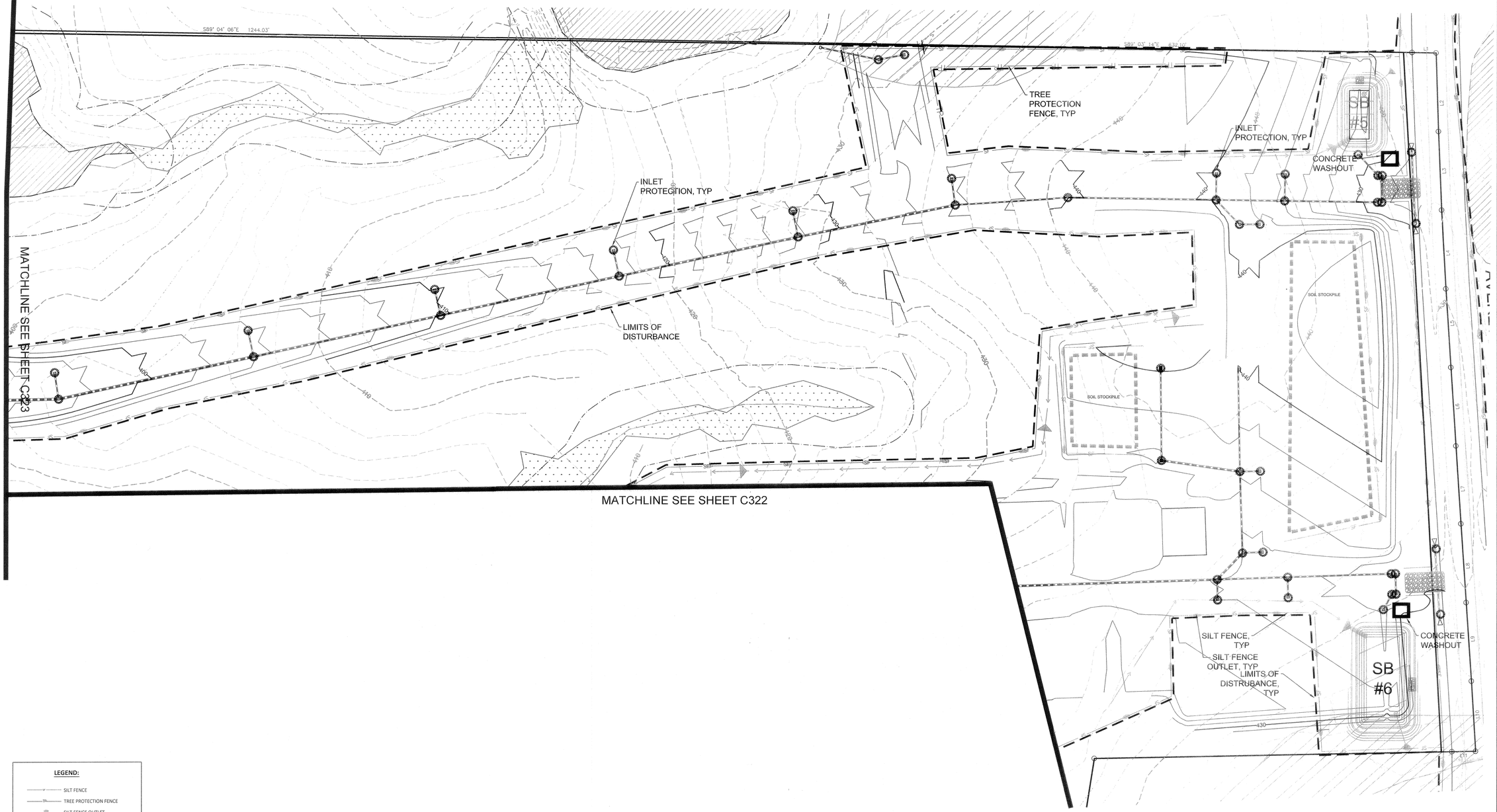
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

OVERALL EROSION CONTROL PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=150'
Date:	10/30/2018
Project Number:	170348

SHEET
C325



LEGEND:

- SILT FENCE
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- TEMPORARY DIVERSION DITCH
- CONCRETE WASHOUT
- STOCKPILE AREA
- INLET PROTECTION
- ROCK CHECK DAM

REV.NO.	DESCRIPTIONS

REVISIONS

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=60' 60 0 60 120

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/3/2018~~

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20234 THOMAS S SPEIGHT, JR

Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

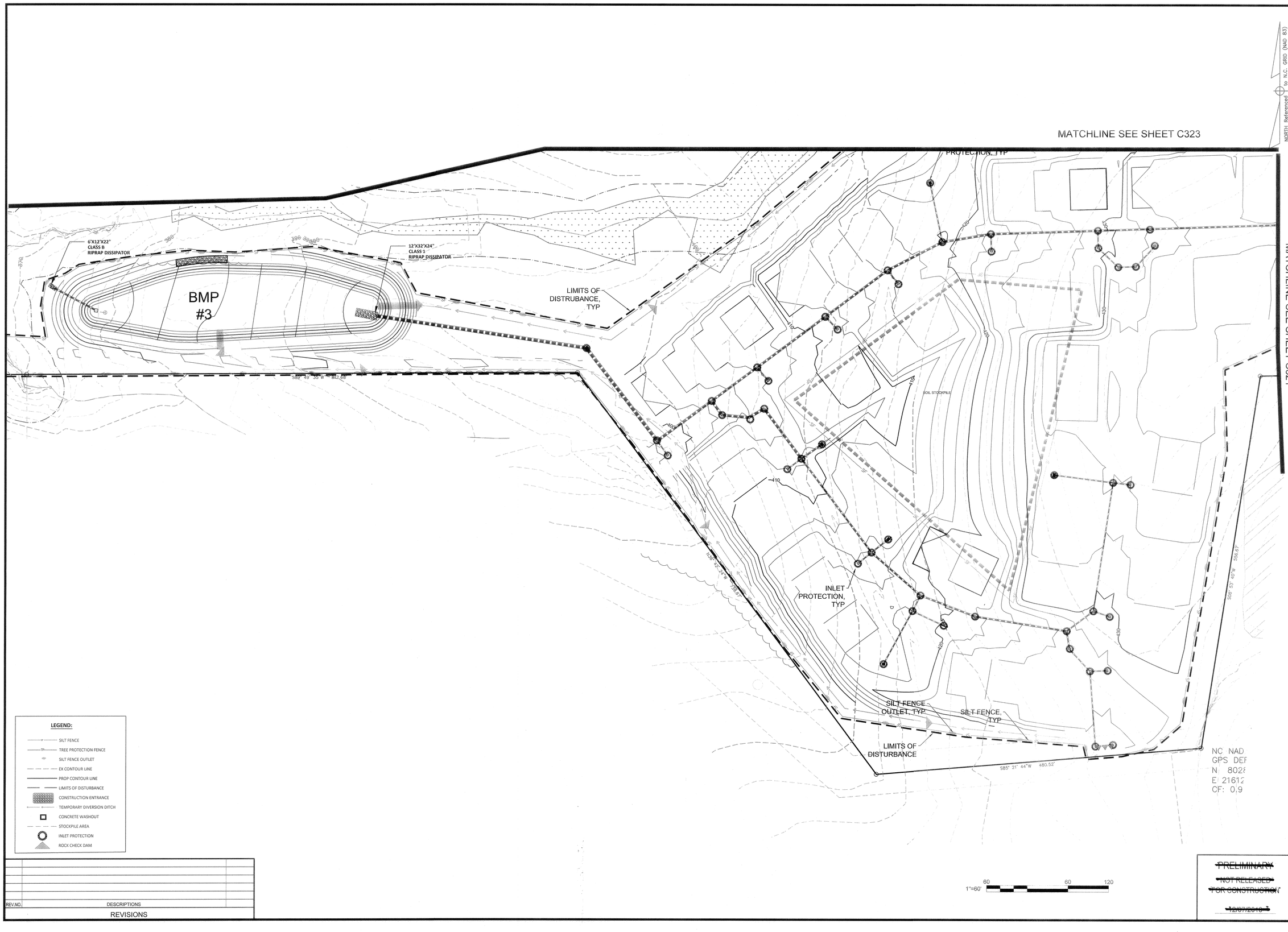
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

EROSION CONTROL PLAN

-

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C326



LEGEND:

- SILT FENCE
- TREE PROTECTION FENCE
- SILT FENCE OUTLET
- EX CONTOUR LINE
- PROP CONTOUR LINE
- LIMITS OF DISTURBANCE
- CONSTRUCTION ENTRANCE
- TEMPORARY DIVERSION DITCH
- CONCRETE WASHOUT
- STOCKPILE AREA
- INLET PROTECTION
- ROCK CHECK DAM

REV.NO.	DESCRIPTIONS

REVISIONS

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT JR

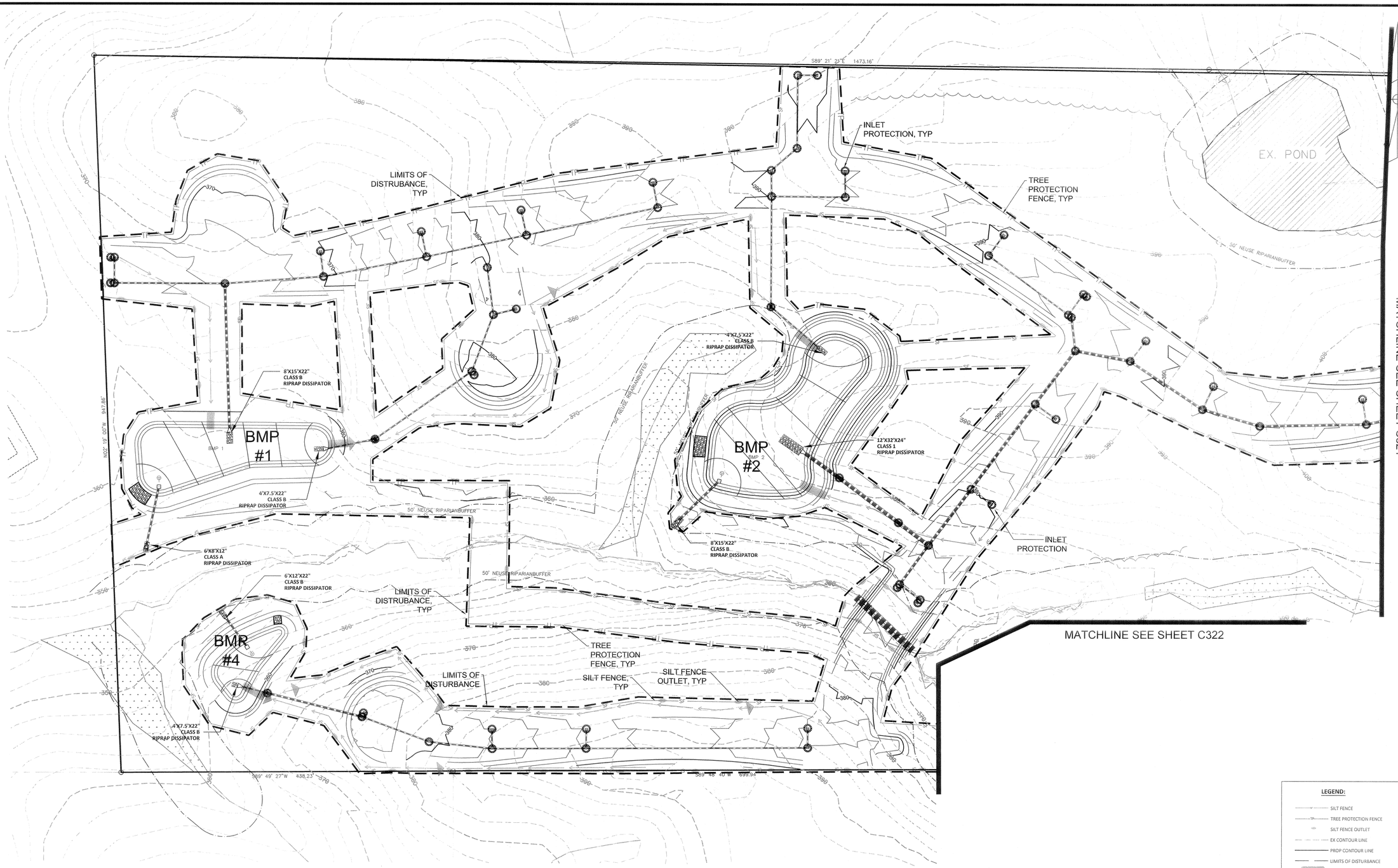
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

EROSION CONTROL PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C327



LEGEND:

- SILT FENCE
- TREE PROTECTION FENCE
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- EX CONTOUR LINE
- PROP CONTOUR LINE
- LIMITS OF DISTURBANCE
- CONSTRUCTION ENTRANCE
- TEMPORARY DIVERSION DITCH
- CONCRETE WASHOUT
- STOCKPILE AREA
- INLET PROTECTION
- ROCK CHECK DAM

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

1"=60' 60 60 120

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

REV.NO.	DESCRIPTIONS

REVISIONS

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT, JR.

Bateman Civil Survey Company
Engineers • Surveyors • Planners
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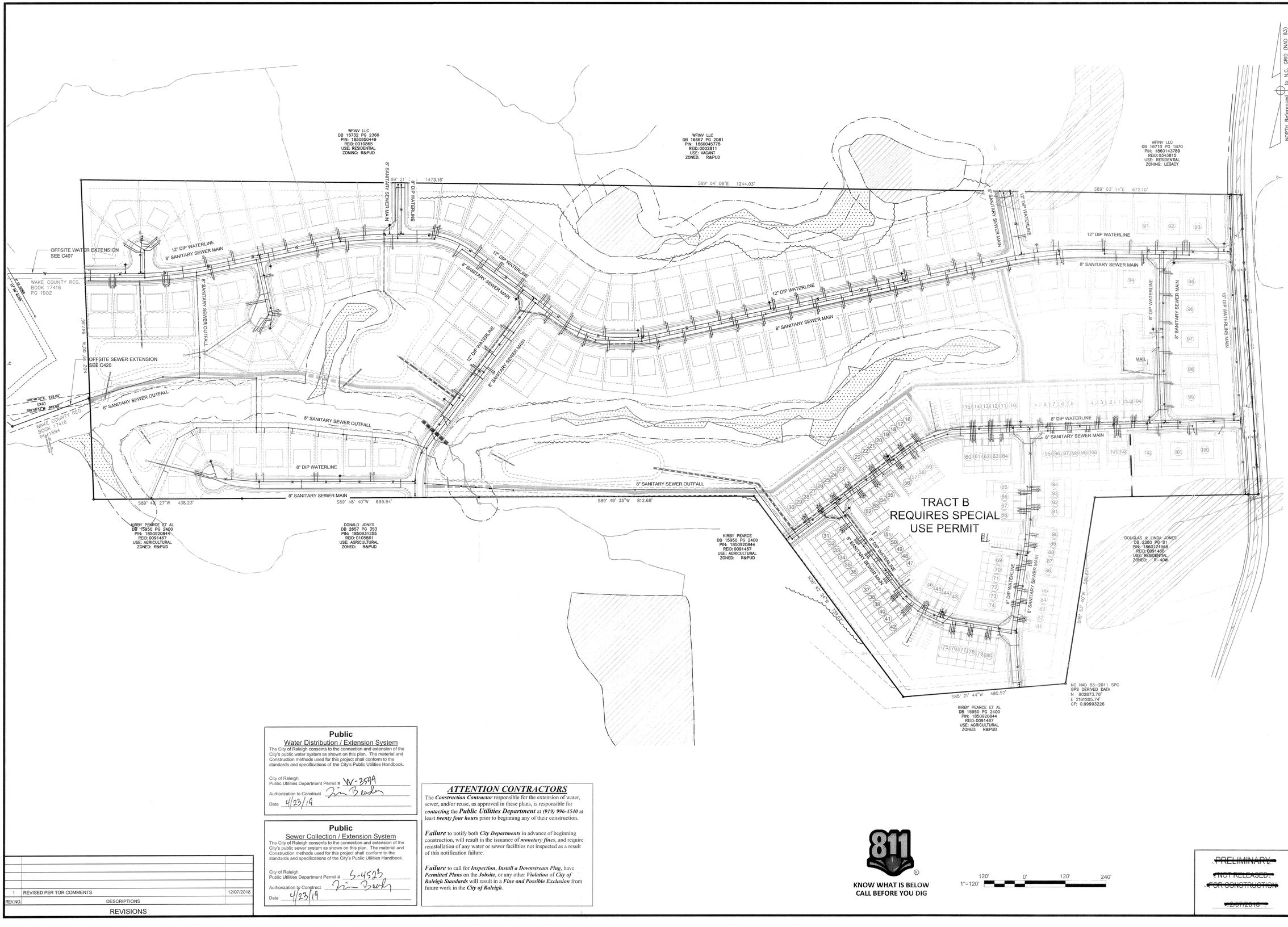
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

EROSION CONTROL PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C328



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 # W-3599

Authorization to Construct

Date 4/23/19

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 # S-4523

Authorization to Construct

Date 4/23/19

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***.

811 KNOW WHAT IS BELOW CALL BEFORE YOU DIG

1"=120' 120' 0' 120' 240'

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20236 ENGINEER THOMAS S SPEIGHT

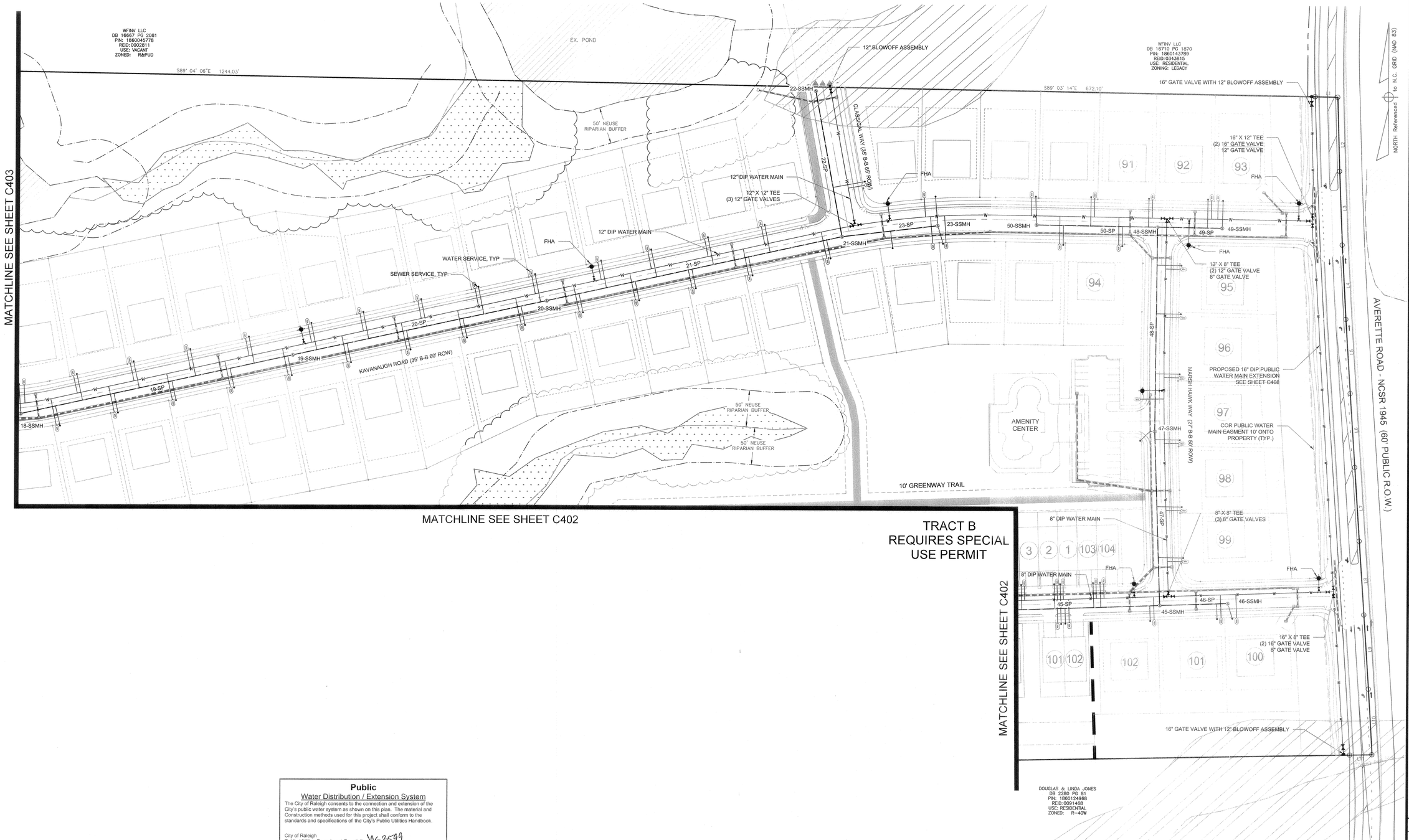
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2624 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No.: C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

OVERALL UTILITY PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=120'
Date:	10/30/2018
Project Number:	170348

SHEET
C400



MATCHLINE SEE SHEET C402

TRACT B
REQUIRES SPECIAL
USE PERMIT

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 # W-3599

Authorization to Construct

Date 4/23/19

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 # S-4525

Authorization to Construct

Date 4/23/19

ATTENTION CONTRACTORS

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811
KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

1"=60' 60 0 60 120

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT JR

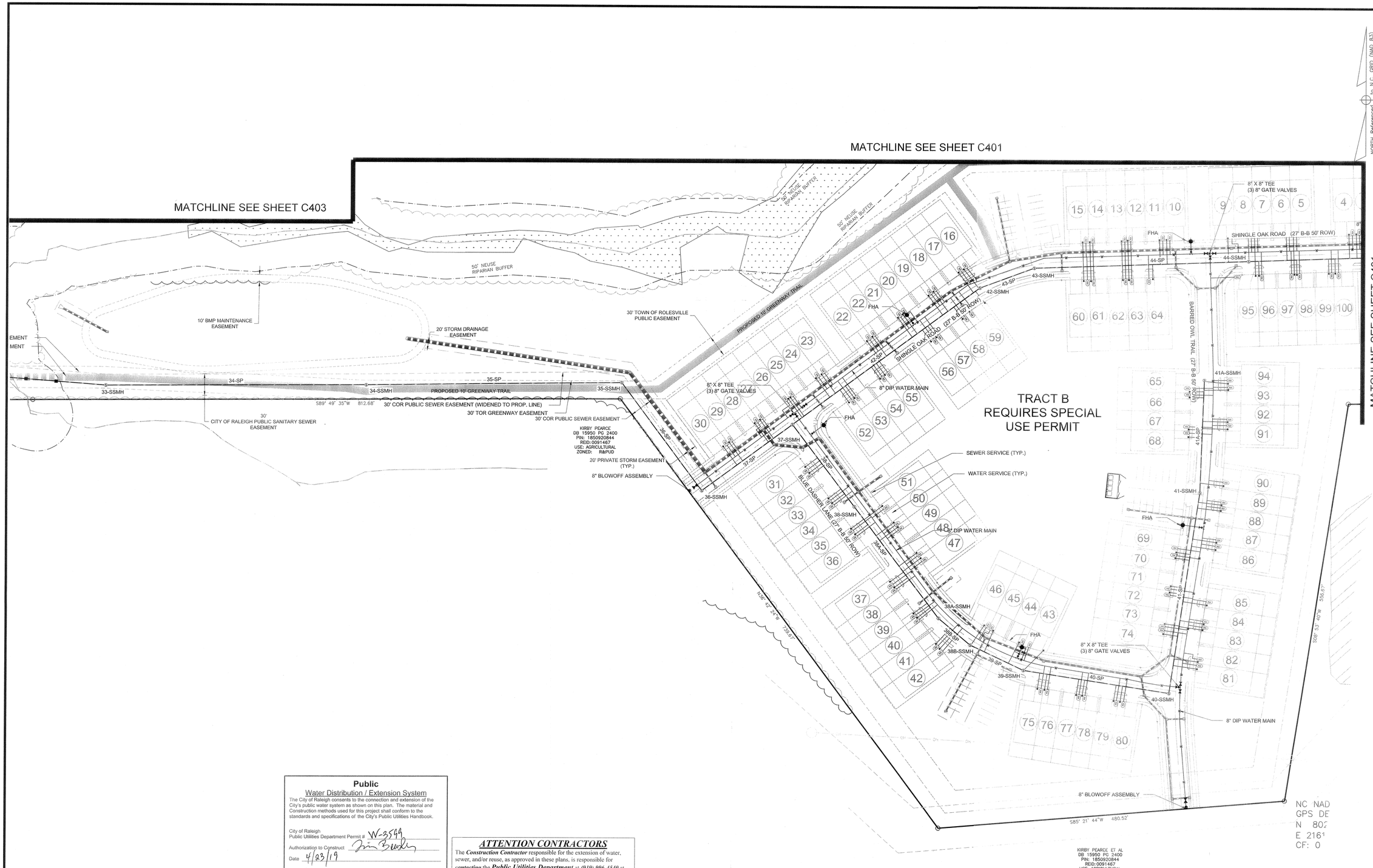
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

UTILITY PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C401



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 # W-3549
Authorization to Construct
Date 4/23/19

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 # S-4523
Authorization to Construct
Date 4/23/19

ATTENTION CONTRACTORS

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811
KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT, JR.

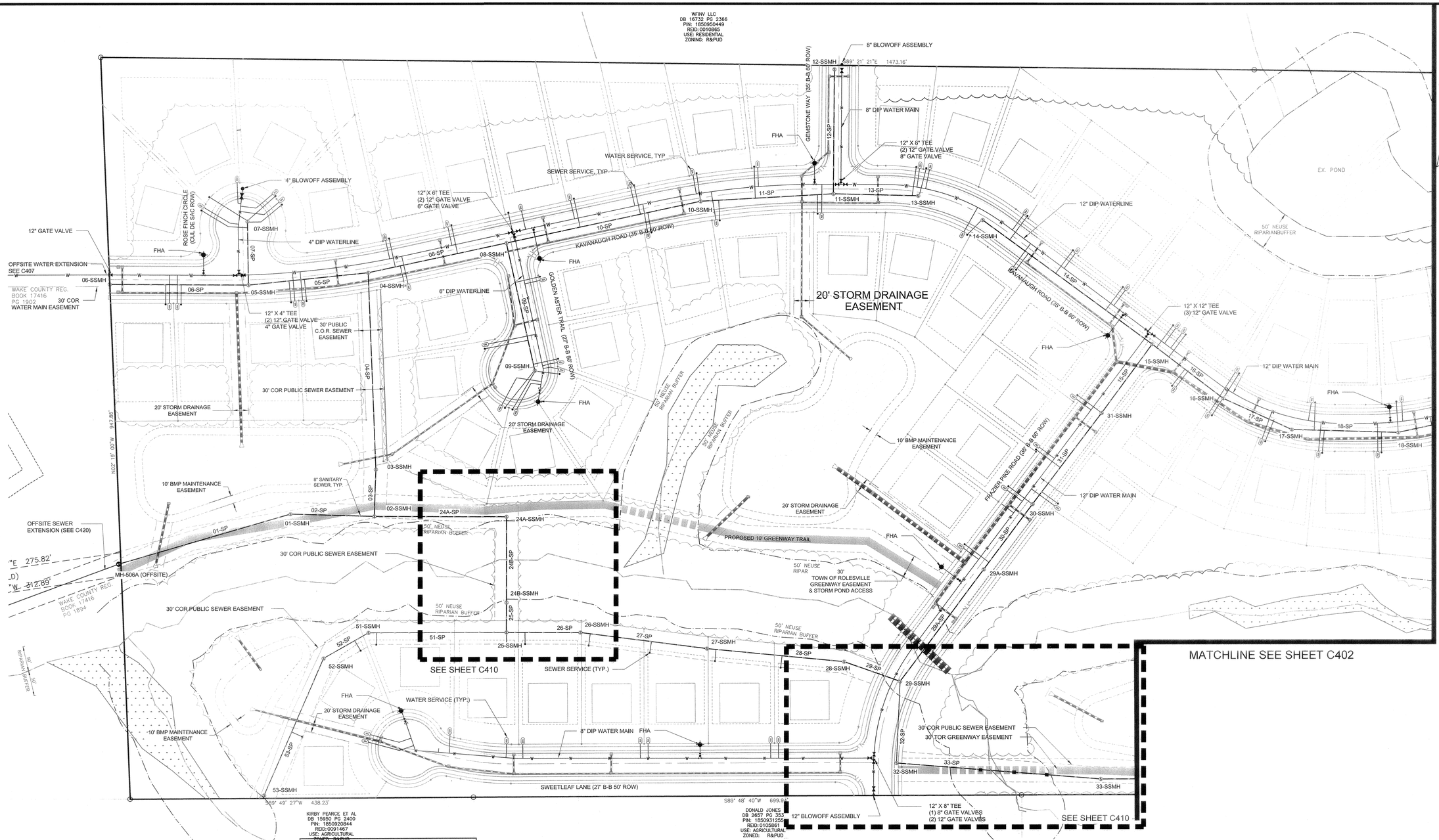
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2376

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

UTILITY PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C402



Public
Water Distribution / Extension System

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City of Raleigh Public Utilities Department Permit # W-3599

Authorization to Construct Jim Bowling

Date 4/23/19

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 # S-4523

Authorization to Construct Jim Bowling

Date 4/23/19

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.

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REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

1"=60'

KNOW WHAT IS BELOW CALL BEFORE YOU DIG

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20234 THOMAS S SPEIGHT, JR.

Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

UTILITY PLAN

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C403

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 # W-3594

Authorization to Construct Jim Bewley

Date 4/23/19

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 # S-4503

Authorization to Construct Jim Bewley

Date 4/23/19

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.

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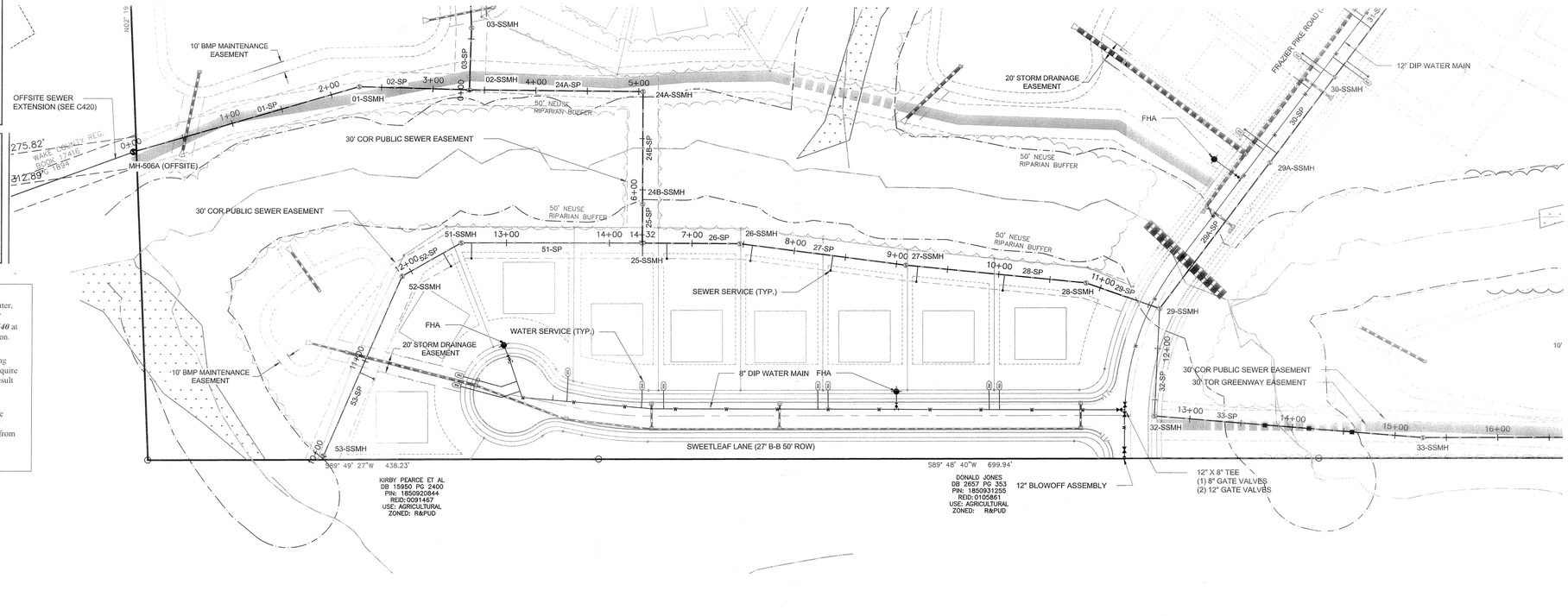
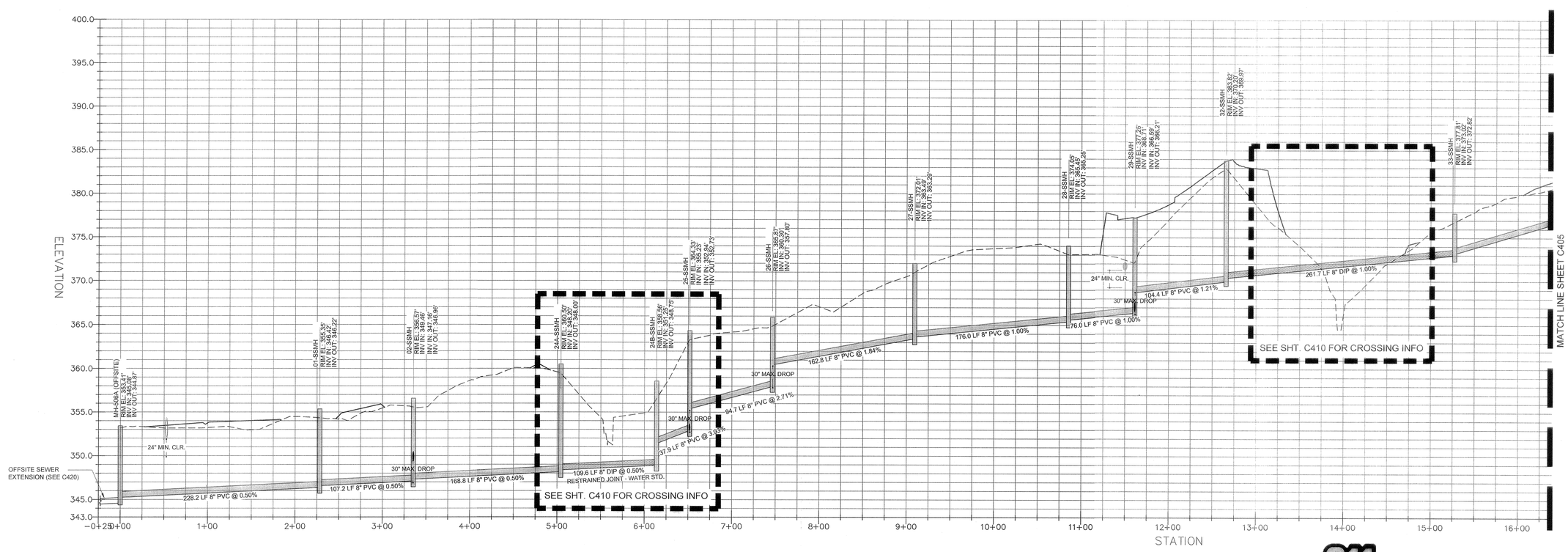




REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

1"=60'

KNOW WHAT IS BELOW CALL BEFORE YOU DIG

~~PRELIMINARY~~
~~NOT RELEASED FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20239 ENGINEER THOMAS S SPEIGHT, JR.

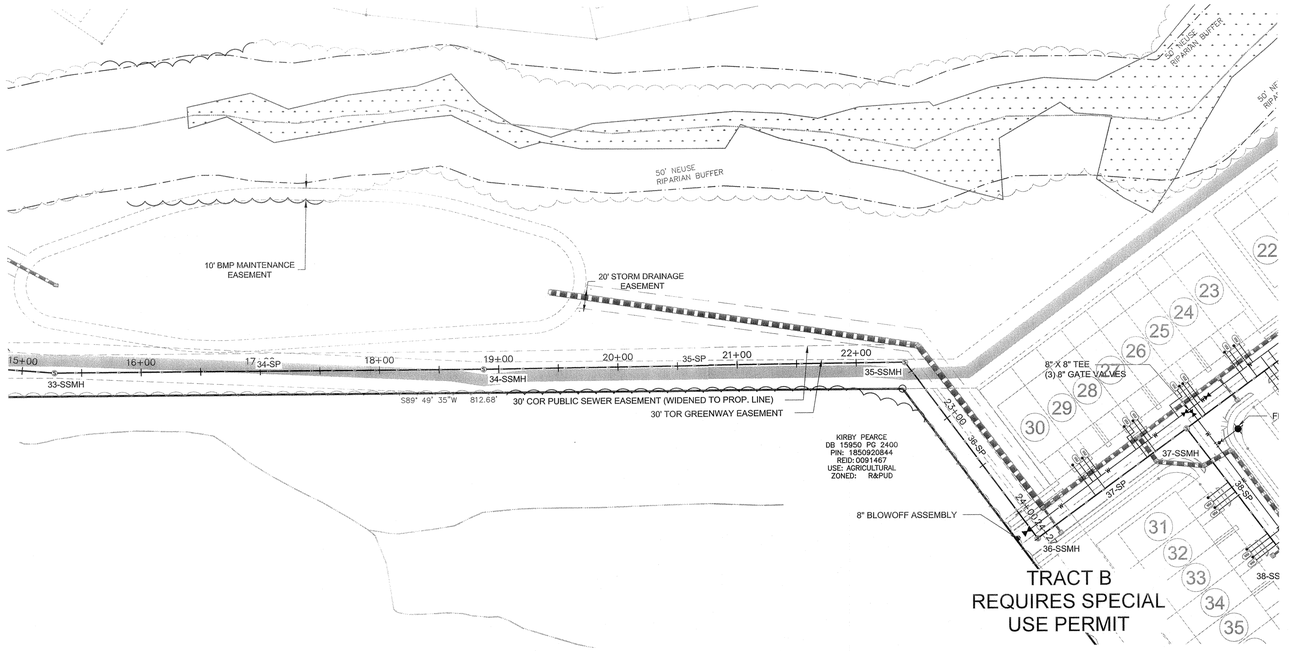
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone 919.577.1080 Fax 919.577.1081
NCBELS FIRM No. C-2378

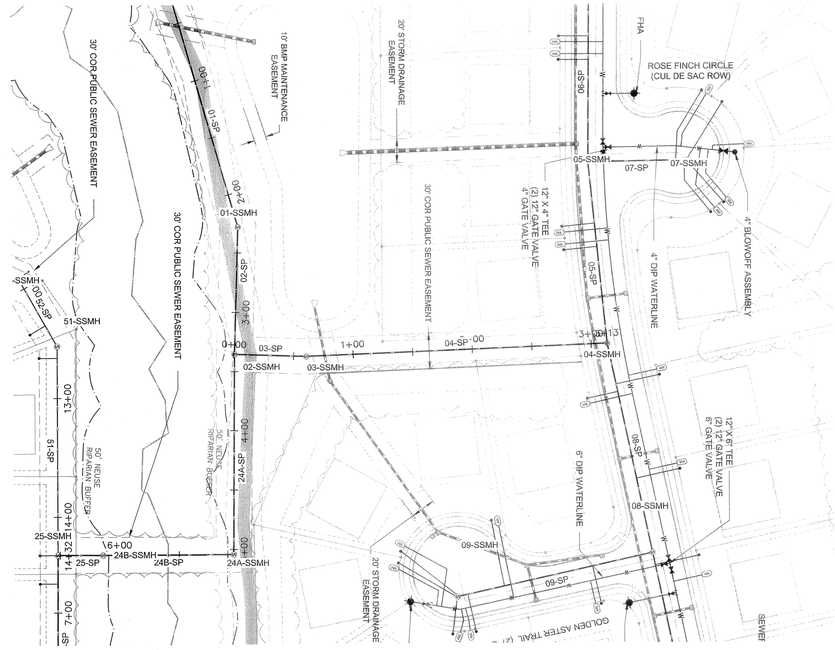
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

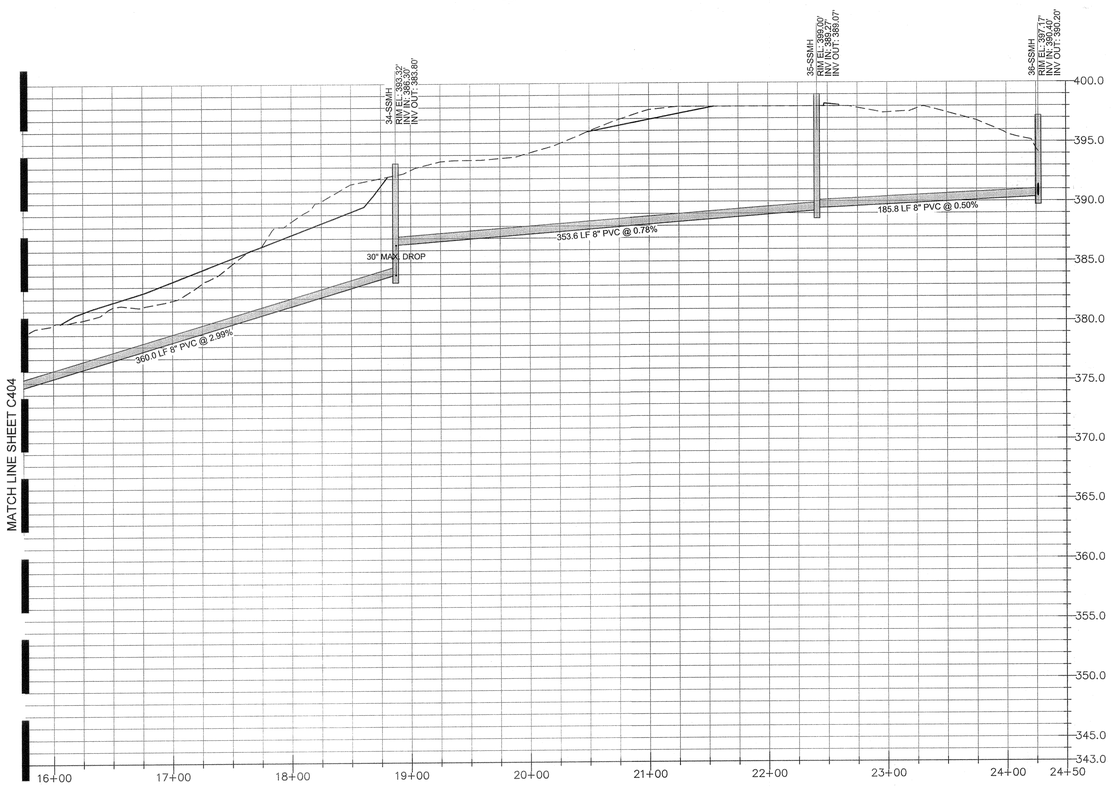
SANITARY SEWER PROFILE

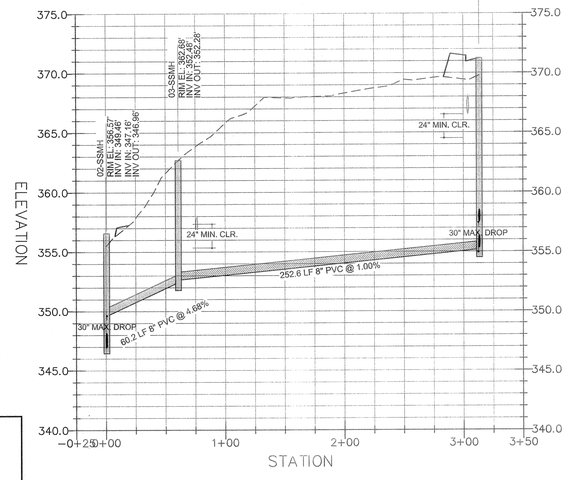
Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C404









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 # W-3549

Authorization to Construct

Date 4/23/19

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 # S-4523

Authorization to Construct

Date 4/23/19

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.

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1"=60' 60 60 120

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S. SPEIGHT, JR.

Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

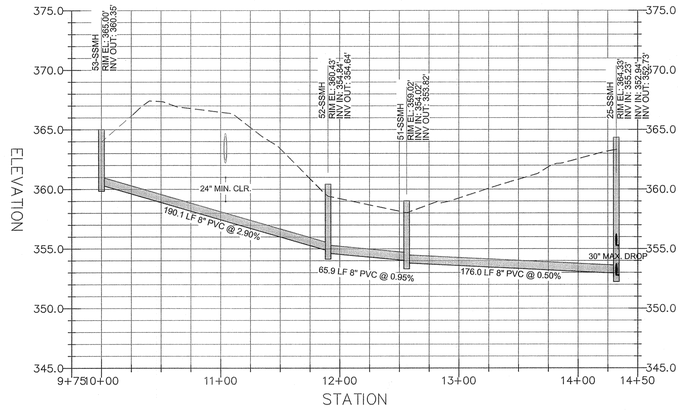
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

SANITARY SEWER PROFILE

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C405





Public
Water Distribution / Extension System

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City of Raleigh Public Utilities Department Permit # W-3599

Authorization to Construct _____

Date 4/23/19

Public
Sewer Collection / Extension System

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City of Raleigh Public Utilities Department Permit # S-4523

Authorization to Construct _____

Date 4/23/19

ATTENTION CONTRACTORS

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1"=60' 60 60 120

811 KNOW WHAT IS BELOW CALL BEFORE YOU DIG

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20234 THOMAS S. SPEIGHT, JR. 12-20-18

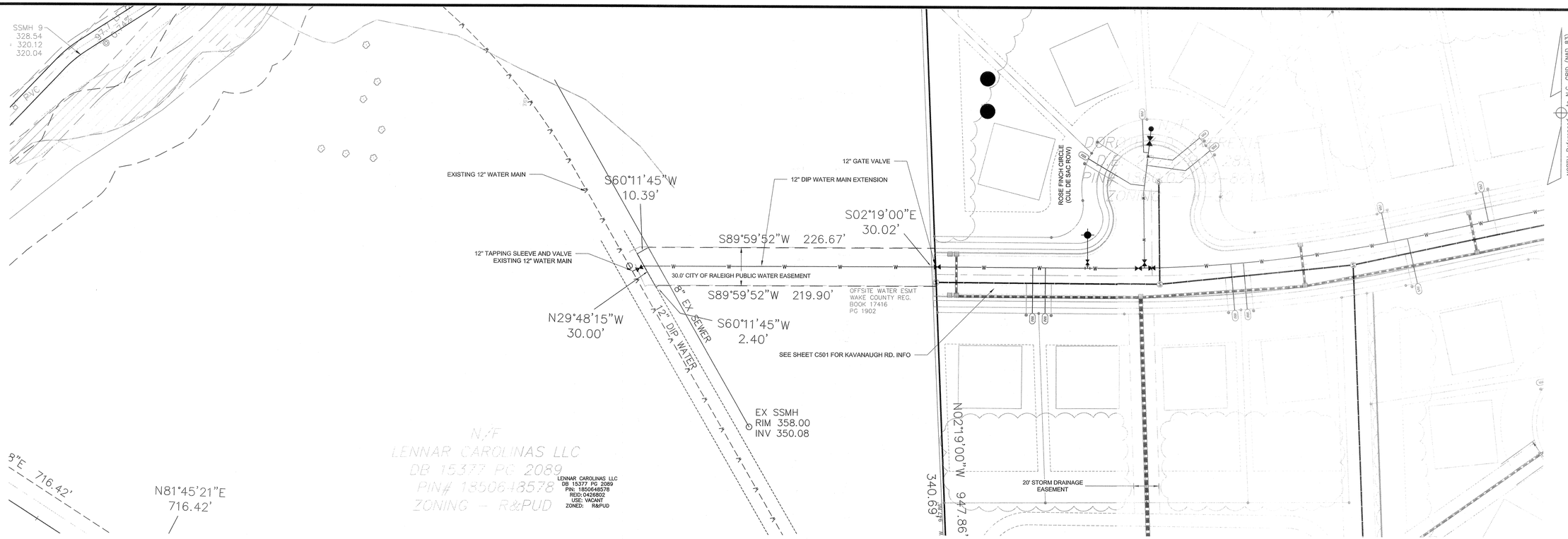
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

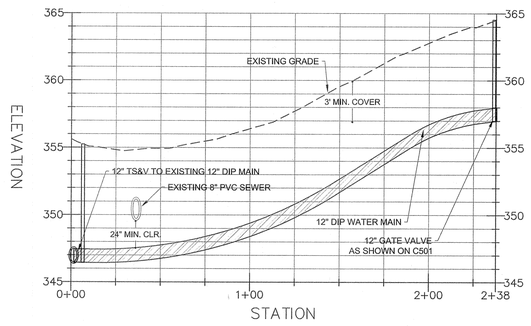
ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

SANITARY SEWER PROFILE

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C406





SEE SHEET C501

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 # W-3589
Authorization to Construct
Date 4/23/19

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 # S-4523
Authorization to Construct
Date 4/23/19

ATTENTION CONTRACTORS

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REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

1"=40' 40 40 80

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20234 THOMAS S SPECHT, JR 12/07/2018

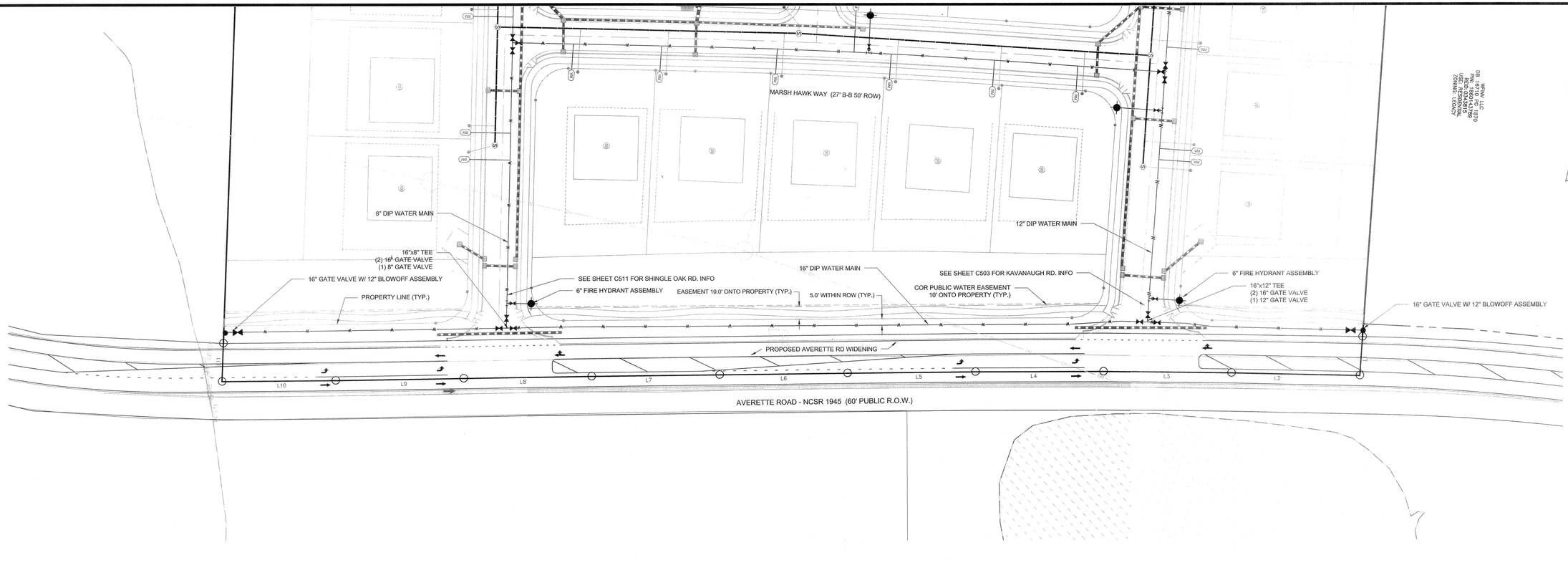
Bateman Civil Survey Company
Engineers • Surveyors • Planners
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

OFFSITE WATER EXTENSION

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=80'
Date:	10/30/2018
Project Number:	170348

SHEET
C407



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 # W-3599

Authorization to Construct Jim Bush

Date 4/23/19

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 # S-4523

Authorization to Construct Jim Bush

Date 4/23/19

ATTENTION CONTRACTORS

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REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

REVISIONS

1"=40' (40 40 80)

KNOW WHAT IS BELOW
CALL BEFORE YOU DIG

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20234 THOMAS S SPEIGHT, JR.

Bateman Civil Survey Company
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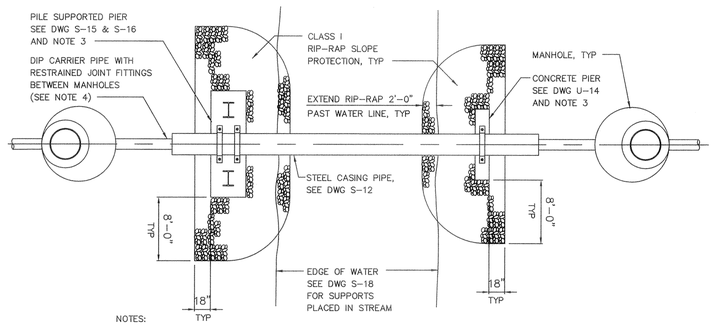
2524 Reliance Avenue, Apex, North Carolina 27539
Phone: 919.577.1080 Fax: 919.577.1081
NCBELS FIRM No. C-2378

ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

AVERETTE WATER EXTENSION

Project Engineer:	TSS
Designed By:	LEG
Drawn By:	LEG
Checked By:	TSS
Scale:	1"=60'
Date:	10/30/2018
Project Number:	170348

SHEET
C408



NOTES:

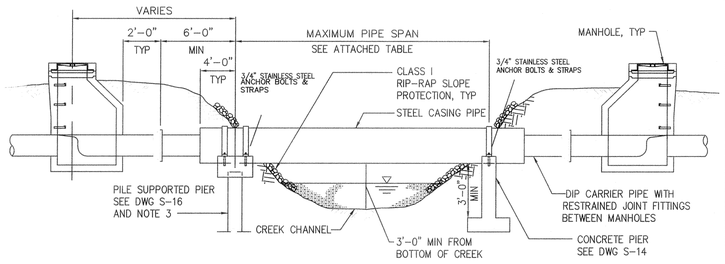
1. RIP RAP FOR SLOPE PROTECTION SHALL BE CLASS I RIP RAP IN ACCORDANCE WITH SECTION 868 OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES".

   RIP RAP SHALL BE PLACED IN ACCORDANCE WITH DRAWING 868.01 OF THE NORTH CAROLINA DEPARTMENT OF
2. TRANSPORTATION'S "ROADWAY STANDARD DRAWINGS".

   SUPPORT TYPE FOR PIERS SHALL BE DETERMINED BY ENGINEER BASED ON SUBGRADE CONDITIONS AT SITE. SEE DRAWING S-14 FOR SUBGRADE PARAMETERS FOR EACH
3. TYPE OF FOUNDATION.
4. WHERE DUCTILE IRON PIPE IS USED FOR CARRIER PIPE, DUCTILE IRON CARRIER PIPE SHALL BE INSTALLED UTILIZING 2 PIPE ALIGNMENT GUIDES PER JOINT ONE FOURTH OF THE PIPE JOINT LENGTH IN FROM BOTH THE BELL AND SPIGOT ENDS.

1 AERIAL PIPE CROSSING PLAN

Scale: N.T.S.



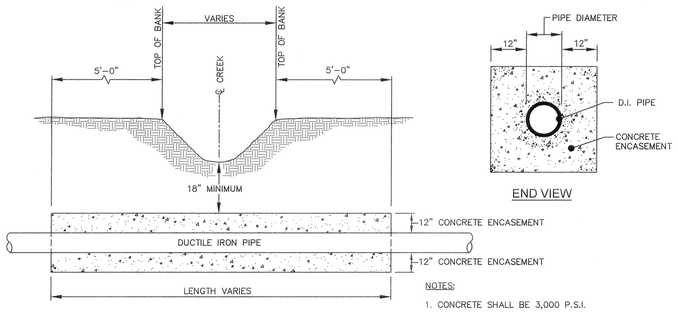
CARRIER PIPE, DIP DIAMETER (IN.)	CASING PIPE, STEEL DIAMETER (IN.)	MINIMUM CASING PIPE WALL THICKNESS (IN.)	ALLOWABLE SPAN (FT.)
8	16	0.3750	45

NOTES:

1. STEEL PIPE SHALL BE EITHER SPIRAL WELDED OR SMOOTH WALL SEAMLESS WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI. PAINTING AND LINING SHALL BE AS REQUIRED BY THE CITY OF RALEIGH PUBLIC UTILITIES HANDBOOK.
2. DUCTILE IRON PIPE SHALL BE SUPPORTED WITH TWO SPIDERS AT EVERY JOINT WITHIN THE CASING PIPE USING APPROVED PIPE ALIGNMENT GUIDE. SEE DRAWING S-39. ALL JOINTS SHALL BE RESTRAINED JOINT. SEE NOTE 2, DWG S-10.
3. PILE SUPPORTED PIERS TO BE USED IN CONSTRUCTION. SEE DETAIL 4 THIS SHEET
4. BOTTOM OF PIPE TO BE AT A MINIMUM OF 1' ABOVE THE 25 YEAR FLOOD ELEVATION.

2 AERIAL PIPE CROSSING ELEVATION

Scale: N.T.S.



NOTES:

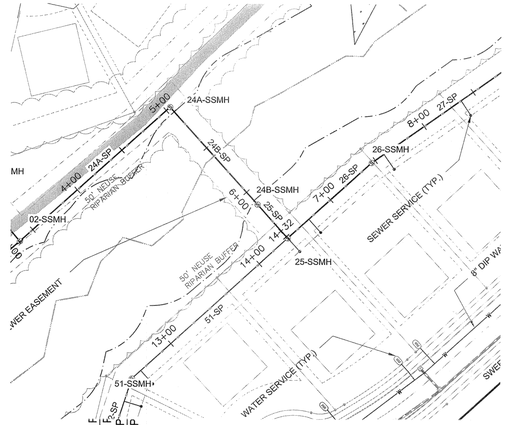
1. CONCRETE SHALL BE 3,000 P.S.I.
2. CONCRETE ENCASEMENT NOT REQUIRED WHEN PIPE IS AT LEAST 3 FEET UNDER CENTERLINE OF CREEK BOTTOM.

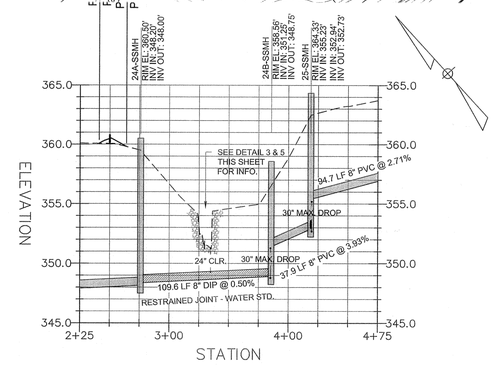
3 STREAM CROSSING

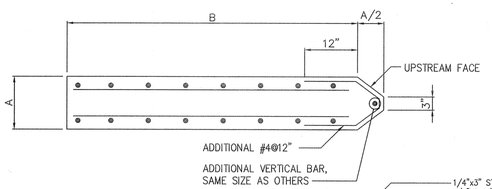
Scale: N.T.S.

REV.NO.	DESCRIPTIONS	
1	REVISED PER TOR COMMENTS	12/07/2018

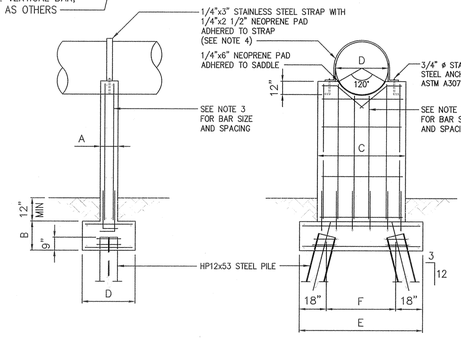
REVISIONS







PILE SPACING "F" (FT.)	5'-0"
FOOTING LENGTH "E" (FT.)	8'-0"
FOOTING WIDTH "D" (FT.)	3'-0"
PIER WIDTH "C" (FT.)	3'-0"
FOOTING THICKNESS "B" (IN.)	20
PIER THICKNESS "A" (IN.)	12
CASING PIPE DIA. "D" (IN.)	14-20



NOTES:

1. PILE SUPPORTED PIER FOUNDATION DESIGN SHOWN ON THIS DETAIL IS BASED ON THE FOLLOWING PARAMETERS:
   MINIMUM CAPACITY OF HP12x53 PILE = 30 TONS
   CONCRETE COMPRESSIVE STRENGTH = 4000 PSI
   GRADE 60 REINFORCING STEEL
   MAXIMUM STREAM VELOCITY = 10 FT/SEC
2. IF FIELD CONDITIONS REQUIRE ANY DEVIATION FROM THESE PARAMETERS, THE FOUNDATION DESIGN SHALL BE REVIEWED BY THE ENGINEER.
3. LENGTH OF PILES SHALL BE AS REQUIRED TO DEVELOP 30 TON CAPACITY BY EITHER END BEARING, FRICTION OR A COMBINATION OF END BEARING AND FRICTION. AS A MINIMUM, PILES SHALL BE DRIVEN AT LEAST 15 FEET INTO UNDISTURBED SOIL.
4. TWELVE-INCH AND FOURTEEN-INCH WIDE PIERS SHALL BE REINFORCED WITH #5 BARS AT 12 INCHES OC IN EACH DIRECTION ON EACH FACE. EIGHTEEN-INCH WIDE PIERS SHALL BE REINFORCED WITH #7 BARS AT 12 INCHES OC IN EACH DIRECTION ON EACH FACE. FOOTINGS SHALL BE REINFORCED TYPICALLY TO PIERS.
5. EIGHTEEN-INCH WIDE PIERS SHALL REQUIRE TWO STRAPS OVER THE PIPE INSTEAD OF ONE (AS SHOWN).
6. WHEN CONCRETE SUPPORTS ARE REQUIRED TO BE LOCATED WITHIN A STREAM AND ARE NOT COVERED WITH BACKFILL, SEE SECTION ABOVE FOR COLUMN MODIFICATION.

4 AERIAL STREAM CROSSING PILE SUPPORTED PIER

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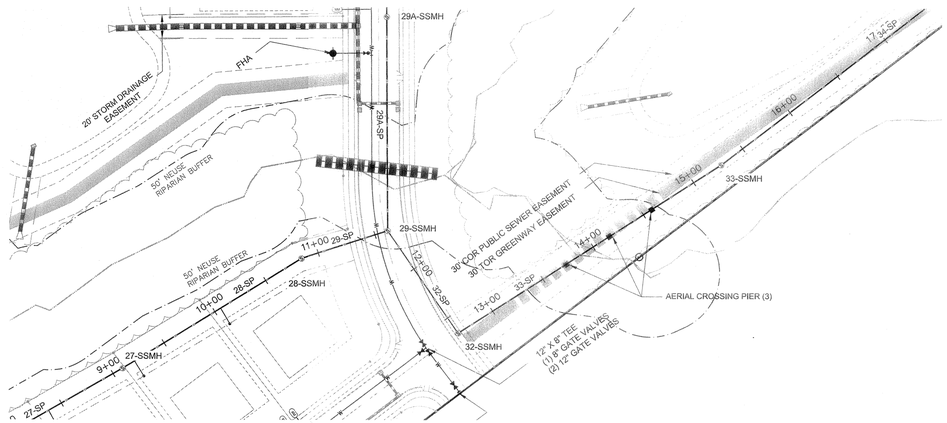
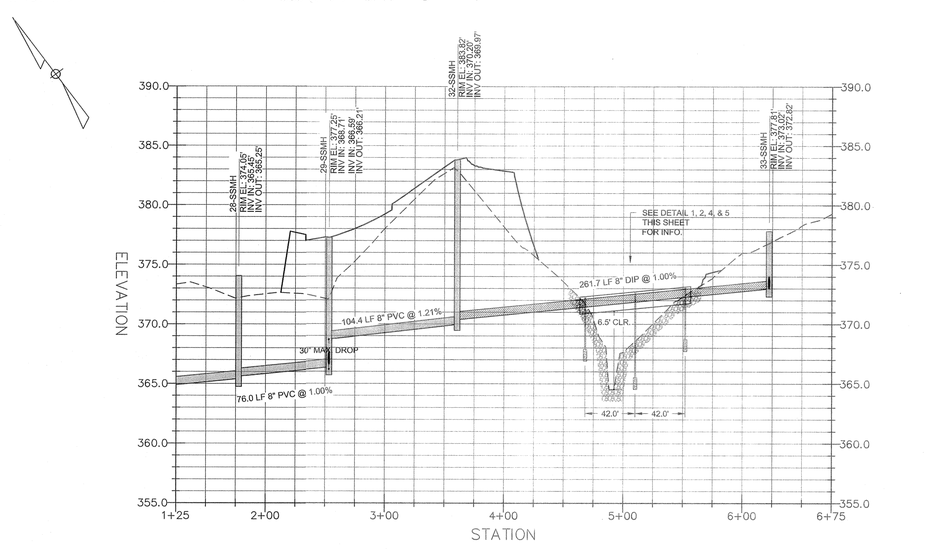
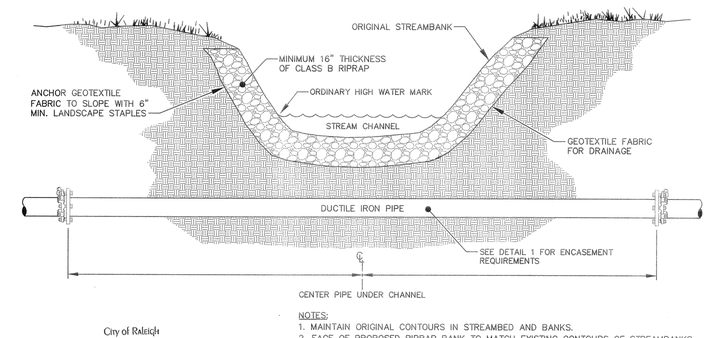




City of Raleigh
Public Utilities Department
DATE 4/22/19
BY



NOTES:

1. MAINTAIN ORIGINAL CONTOURS IN STREAMBED AND BANKS.
2. FACE OF PROPOSED RIPRAP BANK TO MATCH EXISTING CONTOURS OF STREAMBANKS.
3. RIPRAP MUST BE KEYED INTO THE GROUND AND THE ORIGINAL CONTOURS SHALL BE MAINTAINED AS PER U.S. ARMY CORPS OF ENGINEERS.

5 STREAM BANK RESTORATION

Scale: N.T.S.

1"=60' 60 60 120

811 KNOW WHAT IS BELOW CALL BEFORE YOU DIG

~~PRELIMINARY~~
~~NOT RELEASED~~
~~FOR CONSTRUCTION~~
~~12/07/2018~~

NORTH CAROLINA PROFESSIONAL SEAL 20234 ENGINEER THOMAS S SPEIGHT, JR

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ELIZABETH HEIGHTS
CONSTRUCTION DRAWINGS
1205 AVERETTE ROAD
WAKE FOREST, NC 27587
WAKE COUNTY, NC

SANITARY SEWER STREAM CROSSING

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