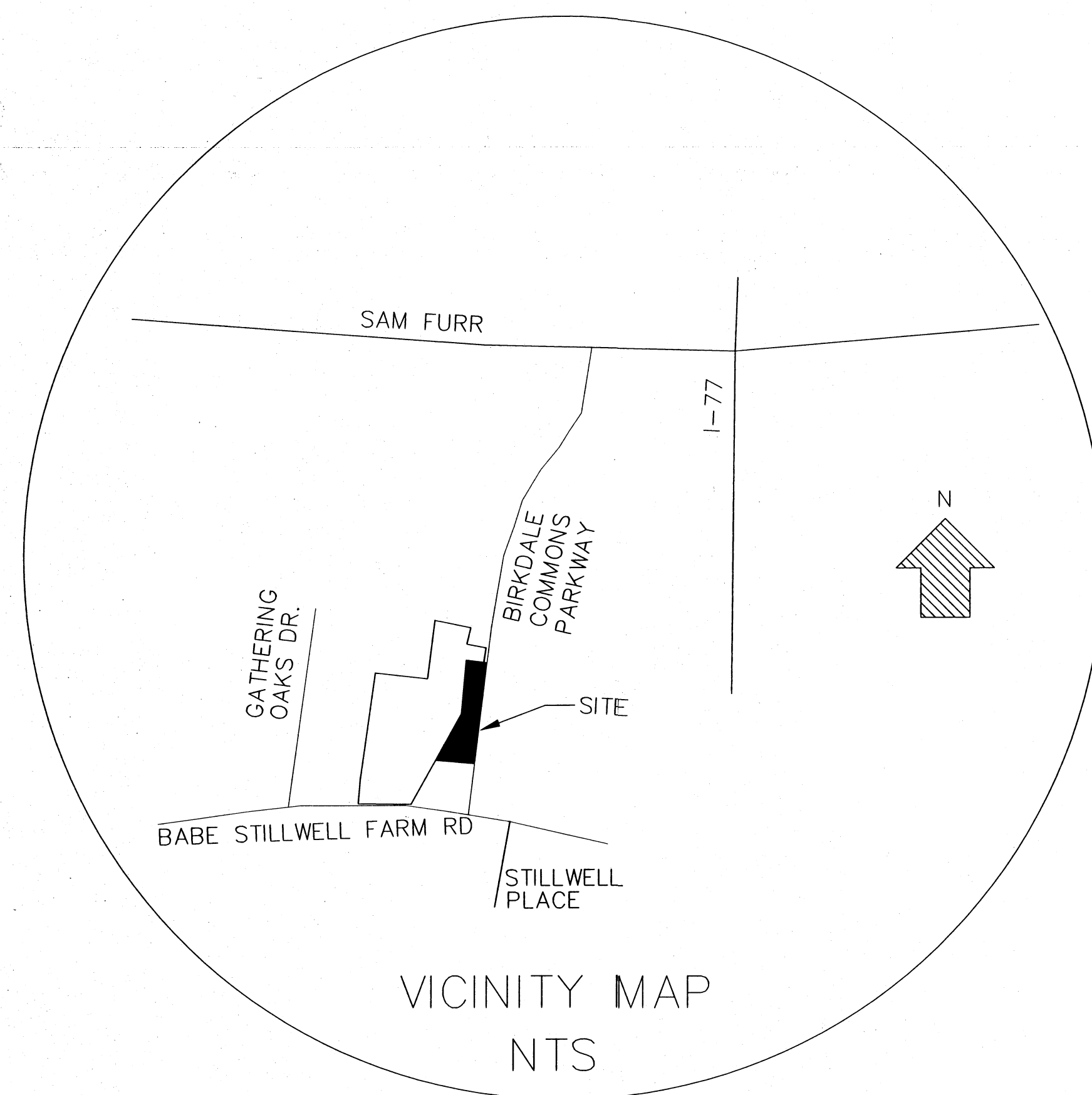


CONSTRUCTION DRAWINGS
FOR
THE GLENS AT BIRKDALE COMMONS PHASE 4

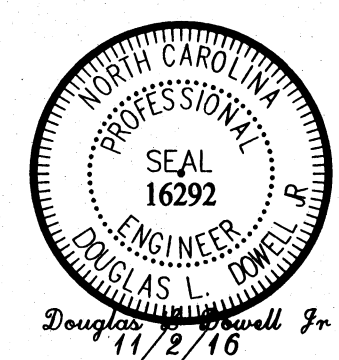
OWNED BY
THE GLENS AT BIRKDALE COMMONS, LLC
15669 BIRKDALE COMMONS PARKWAY
HUNTERSVILLE, NC 28078
PHONE: (704) 947-7635
EMAIL: YBUILDER@BELLSOUTH.NET

EPM # 370779



INDEX

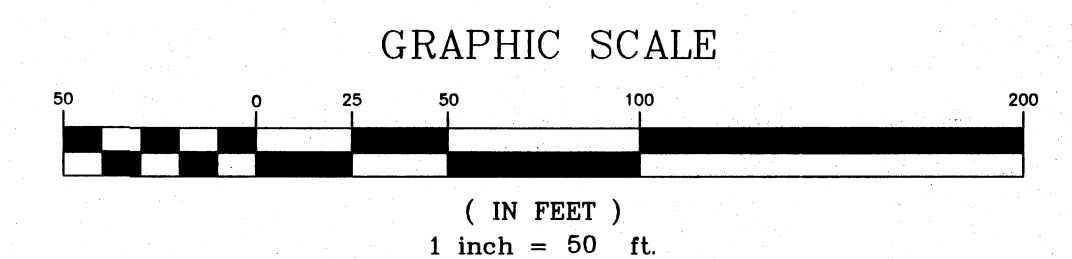
SHEET ONE	COVER SHEET
SHEET TWO	BOUNDARY AND TOPOGRAPHIC SURVEY
SHEET THREE	EXISTING CONDITIONS PLAN
SHEET FOUR	SITE PLAN
SHEET FIVE	LANDSCAPE PLAN
SHEET SIX	GRADING PLAN
SHEET SEVEN	DETAILS / NOTES
SHEET EIGHT	WATER QUALITY PLAN
SHEET NINE	WATER QUALITY MAINTENANCE PLAN
SHEET TEN	WATER QUALITY MAINTENANCE PLAN
SHEET ELEVEN	DRAINAGE AREA MAP
SHEET TWELVE	EROSION CONTROL PLAN PHASE 1
SHEET THIRTEEN	EROSION CONTROL PLAN PHASE 2
SHEET FOURTEEN	EROSION CONTROL DETAILS
SHEET FIFTEEN	UTILITY PLAN



REvised 11/22/16
REvised 12/28/16

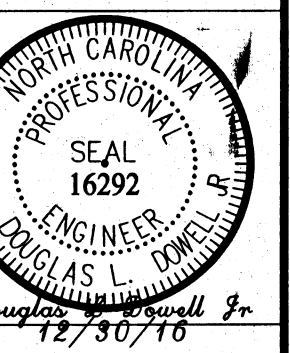
DOWELL & COMPANY

Engineering * Surveying * Planning
PO BOX 3504 * Mooresville, N.C. 28117 * (704) 660-9697
EMAIL: LELAND7896@AOL.COM C- 2177



SITE DEVELOPMENT DATA

EXISTING ZONING:	NEIGHBORHOOD RESIDENTIAL
TAX PARCEL NO.:	009-153-45 and 009-153-95
USE:	RETIREMENT COMMUNITY DUPLEXES (AGE RESTRICTED - 55 AND OLDER)
TOTAL SITE AREA:	1.941 AC + 0.125 AC = 85,759 SF + 5,464 SF = 91,223 SF = 2.094 AC
WATERSHED CALCULATIONS:	MOUNTAIN ISLAND (PA - 2) WATERSHED
NEW IMPERVIOUS AREA:	0.5007 ACRES = 21,809 SF
BUILDINGS	9,852 SF
DRIVEWAYS & SIDEWALKS	10,457 SF
FUTURE	1,500 SF
ACTUAL IMPERVIOUS AREA PERCENT:	(21,809 / 91,223) x 100 = 23.91%
OPEN SPACE:	0.42 AC OR 20%
MINIMUM REQUIRED:	1.6 AC OR 76.8% (AREA BEHIND ALL UNITS IS OPEN SPACE FOR THE COMMUNITY)
MINIMUM SETBACKS	15' (MIN) AND 20' (MAX)
BUILD TO LINE:	5'
MINIMUM SIDE YARD:	25' (MINIMUM FROM ADJOINING PROPERTIES)
MINIMUM REAR YARD:	35'
MAXIMUM BUILDING HEIGHT:	35'
BUILD TO LINE:	A LINE EXTENDING THROUGH A LOT WHICH IS GENERALLY PARALLEL TO THE FRONT PROPERTY LINE AND MARKS THE LOCATION FROM WHICH THE PRINCIPLE VERTICAL PLANE OF THE FRONT BUILDING ELEVATION, EXCLUSIVE OF PORCHES, BAY WINDOWS AND SIMILAR APPURTENANCES, MUST BE ERRECTED; INTENDED TO CREATE AN EVEN BUILDING FACADE LINE ON A STREET. THE BUILD TO LINE IS ESTABLISHED ON THE RECORD PLAT (FINAL PLAT).
PARKING:	
TOTAL NUMBER OF UNITS PROPOSED:	4 BUILDINGS - 8 UNITS
REQUIRED:	8 - 2 BEDROOM UNITS = 7 * 1.5 = 12 SPACES
TOTAL REQUIRED:	12 SPACES
TOTAL PARKING PROVIDED:	OFF STREET PARKING SPACES: 12
TOTAL PROVIDED:	12 PARKING SPACES
POSTED SPEED LIMIT FOR ROADS:	35 M.P.H.



REVISIONS	
NO. 1	11-23-15
NO. 2	TOWN MECK CO.
NO. 3	
NO. 4	
SHEET	3 OF 15

JOB NUMBER
15-1065

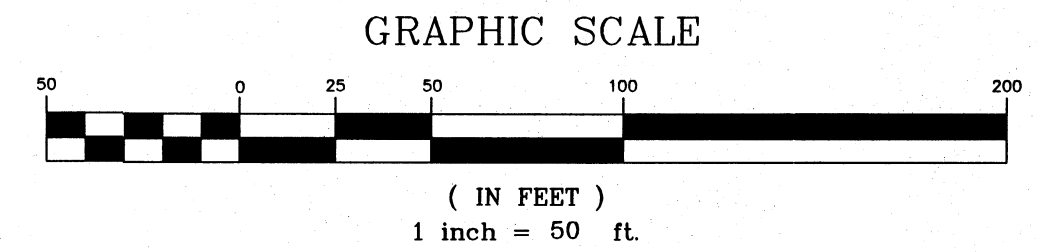
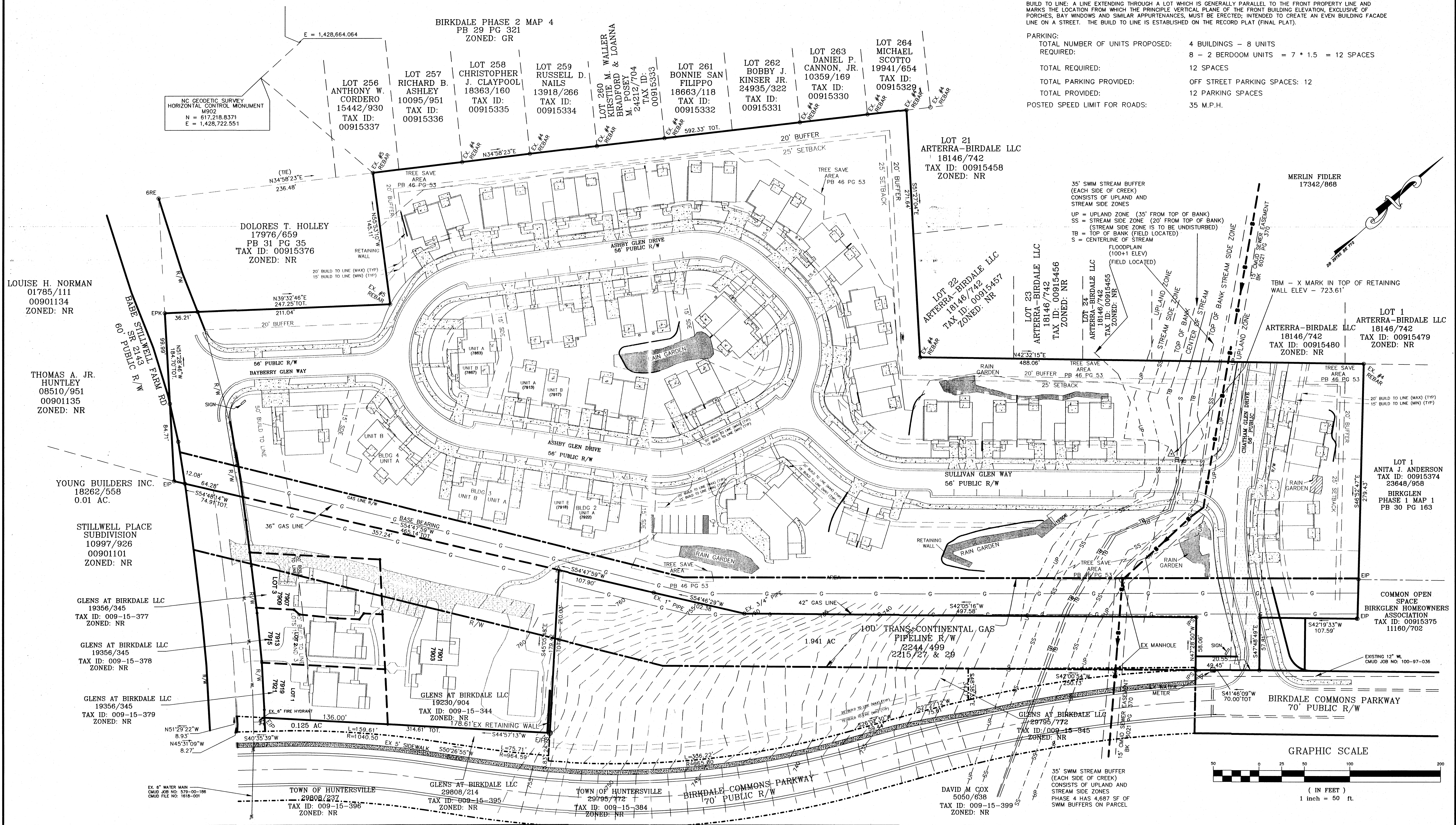
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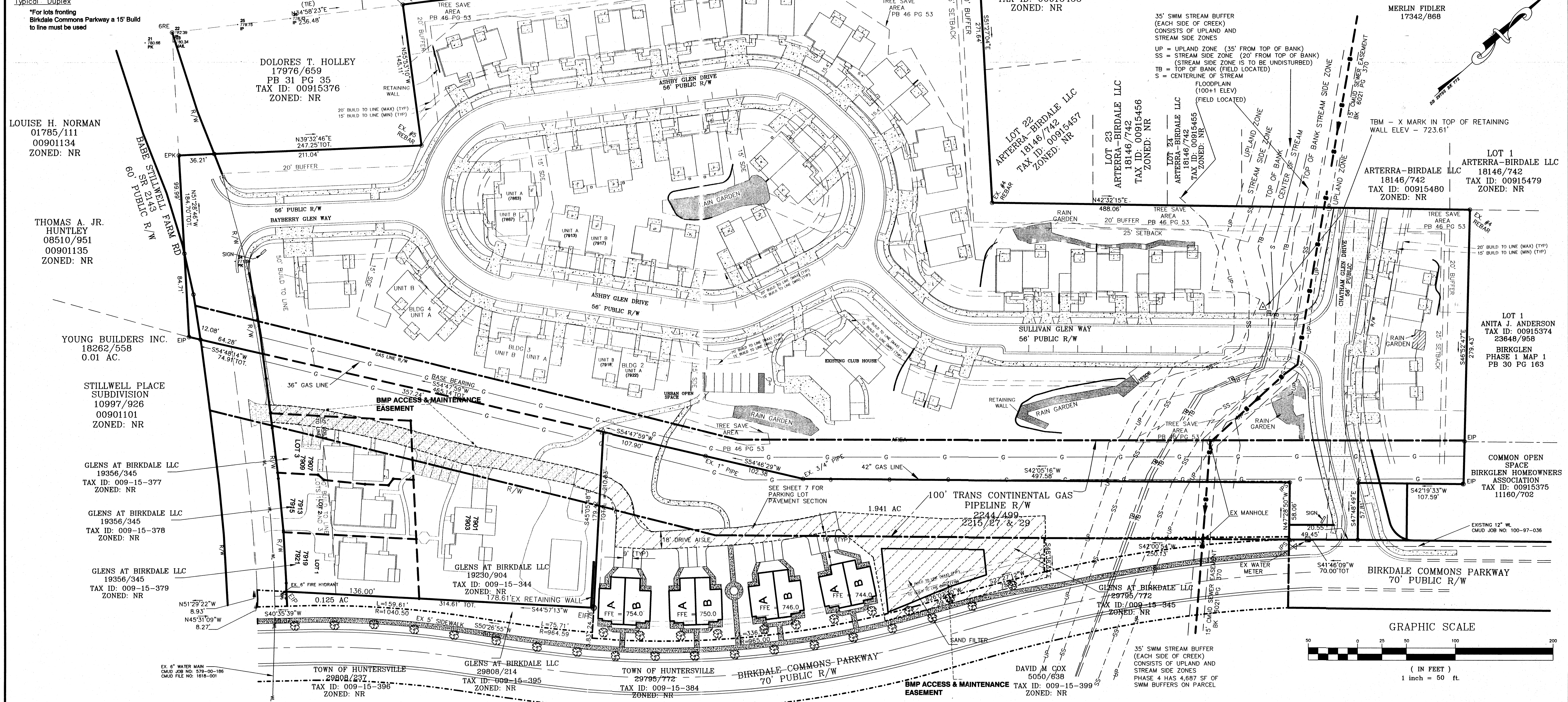
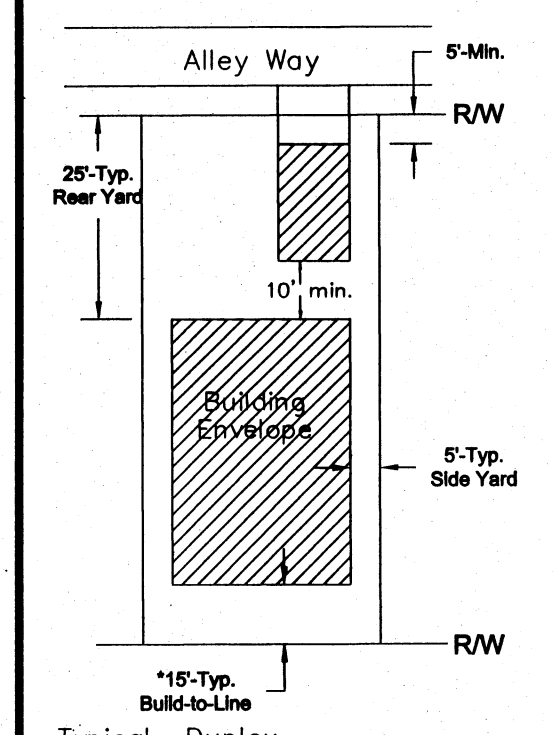
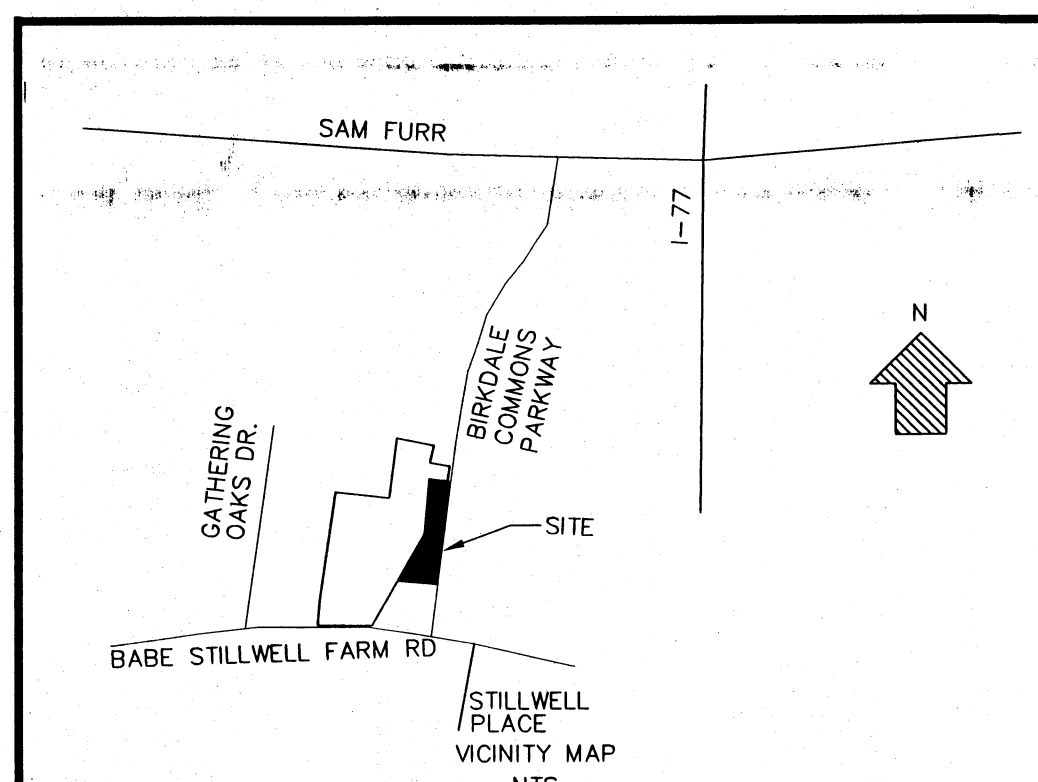
EXISTING CONDITIONS PLAN
THE GLENS AT BIRKDALE COMMONS PH. 4
TOWN OF HUNTERSVILLE
MECKLENBURG COUNTY, NORTH CAROLINA

THE GLENS AT BIRKDALE COMMONS, LLC.
15669 BIRKDALE COMMONS PARKWAY
HUNTERSVILLE, N.C. 28078

OWNER:
COMMON OPEN SPACE
BIRKDALE HOMEOWNERS ASSOCIATION
TAX ID: 00915375
11160/702

DOWELL & CO., P.C.
Engineering • Surveying • Planning
344 Ruffing Hill Road, Suite 103 • P.O. Box 3504 • Huntersville, N.C. 28177
(704) 860-9897 • (704) 864-5177 Fax
EMAIL: leland@dowellco.com





GENERAL & DEVELOPMENT NOTES:

1. ALL DEVELOPMENT AND CONSTRUCTION SHALL COMPLY WITH ALL ZONING AND SUBDIVISION STANDARDS OF THE TOWN OF HUNTERVILLE, MECKLENBURG COUNTY, AND NCDDT, AS APPLICABLE.
2. THIS PROPERTY MAY BE SUBJECT TO ANY EASEMENTS AND / OR RIGHT-OF-WAY OF RECORD.
3. ALL AREAS DESIGNATED AS COMMON AND/OR URBAN OPEN SPACE SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION AND DEDICATED FOR PERPETUITY.
4. ACCESS (INGRESS / EGRESS) LOCATION AND DESIGN SHOWN ON THIS SKETCH PLAN AREA SUBJECT TO ACHIEVING VERTICAL AND HORIZONTAL SIGHT DISTANCES. TURN LANE IMPROVEMENTS (INCLUDING) RIGHT-OF-WAY AND INTERSECTION WITH ADJACENT AND OPPOSING ACCESS POINTS. MODIFICATIONS TO PLAN MAY RESULT.
5. LARGE MATURING TREES WILL BE PLANTED 40' O/C WITHIN THE REQUIRED PLANTING STRIP (1 AND 3.5' FROM SIDEWALKS) ALONG ALL STREETS WITH THE EXCEPTION OF RURAL PARKWAYS WHERE EXISTING TREES CAN SATISFY THE STREET TREE REQUIREMENT. SMALL MATURING TREES ARE TO BE USED WHERE OVERHEAD POWER LINES EXIST.
6. GARBAGE PICK UP WILL BE BY ROLL OUTS AT THE EXISTING SHOP WITH THE OTHER UNITS ON THE PRIVATE DRIVE BY THE TOWN OF HUNTERVILLE.
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22. ALL DRIVE AISLES SHALL BE A MINIMUM OF 16' WIDE.
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SITE DEVELOPMENT DATA

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MINIMUM SETBACKS BUILD TO LINE:	15' (MIN) AND 20' (MAX)
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TOTAL REQUIRED:	12 SPACES
TOTAL PARKING PROVIDED:	OFF STREET PARKING SPACES: 12
TOTAL PROVIDED:	12 PARKING SPACES
POSTED SPEED LIMIT FOR ROADS:	35 M.P.H.

Computer File 15065-GLENS-BDALE-PH-4/SKETCH

SEAL
16292
ENGINEER
DOWELL & CO., P.C.
344 Rolling Hill Road, Suite 103 • P.O. Box 3904 • Huntersville, NC 28117
(704) 864-5177 Fax
(704) 864-9897
EMAIL: hland789@aol.com

REVISIONS

NO. 1	11-15-16	TOWN
NO. 2	12-30-16	TOWN NECK CO
NO. 3		
NO. 4		

SHEET

4

OF

15

JOB NUMBER

15-1065

SCALE

1"=50'

SITE PLAN

THE GLENS AT BIRKDALE COMMONS PH. 4

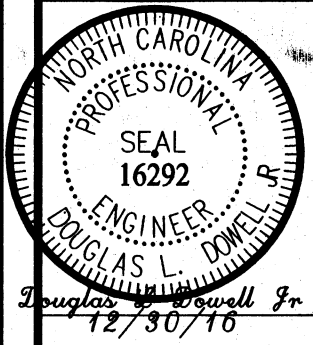
THE GLENS AT BIRKDALE COMMONS PARKWAY

15669 BIRKDALE COMMONS PARKWAY

HUNTERVILLE, N.C. 28078

OWNER:

DOWELL & CO., P.C.



REVISIONS
NO. 1: 11-30-16 TOWN MECK CO.
NO. 2:
NO. 3:
NO. 4:
SHEET 5 OF 15

JOB NUMBER
15-1065

SCALE
Horz: 1"=50'

LANDSCAPE PLAN
THE GLENS AT BIRKDALE COMMONS PH. 4
TOWN OF HUNTERSVILLE
MECKLENBURG COUNTY, NORTH CAROLINA

OWNER:
THE GLENS AT BIRKDALE COMMONS, LLC.
15669 BIRKDALE COMMONS PARKWAY
HUNTERSVILLE, N.C. 28078

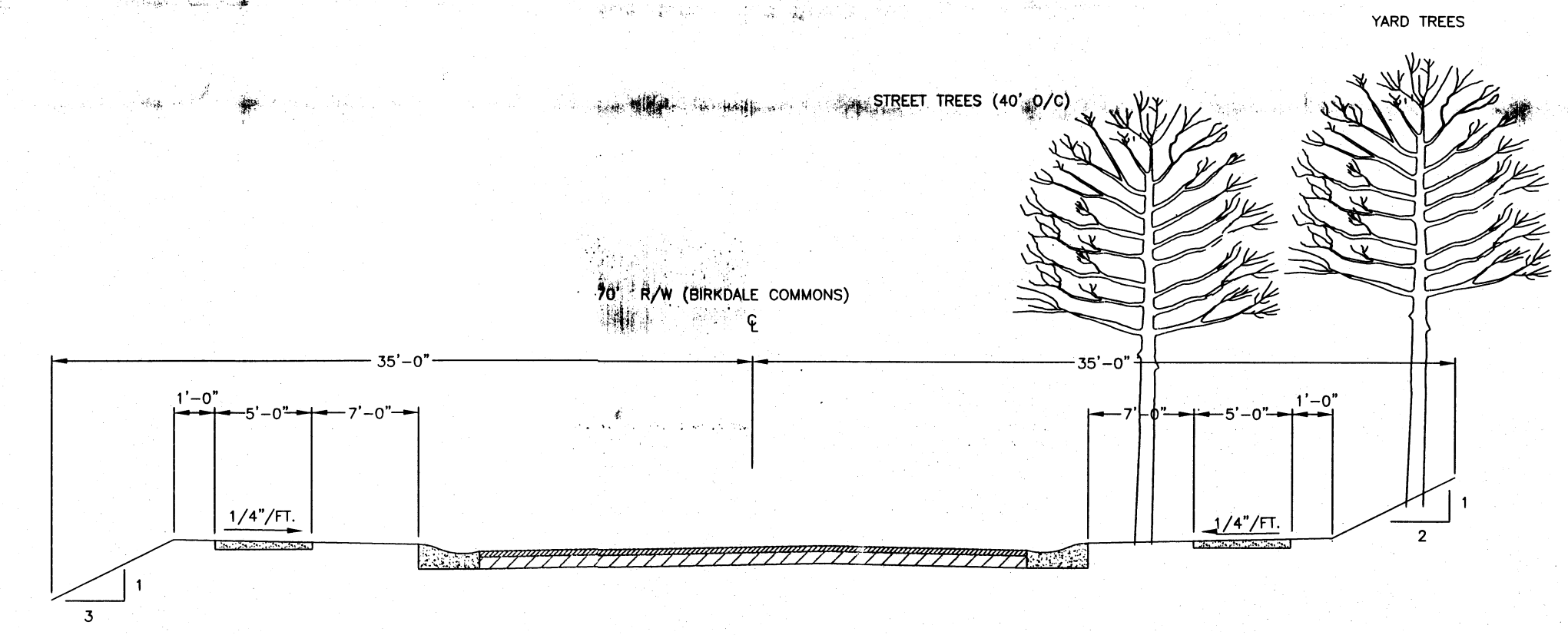
DOUGLAS L. HOWELL & CO., P.C.
Engineering & Planning
344 Rolling Hill Road, Suite 103 • P.O. Box 3504 • Mooresville, N.C. 28117
(704) 660-9697 • Fax (704) 664-5177
E-MAIL: dhowell@doellandco.com

LANDSCAPE NOTES:

1. ALL PLANTING BEDS SHALL BE MULCHED WITH A LAYER OF SHREDDED HARDWOOD BARK AT THE DEPTH SPECIFIED ON DETAIL #40.01. (SEE SHEET 8)
2. ALL PLANTS SHALL BE GUARANTEED TO LIVE AT LEAST ONE FULL CALENDAR YEAR FROM DATE OF ACCEPTANCE.
3. FERTILIZER SHALL BE OF 10-10-10 NORTH CAROLINA CERTIFIED ANALYSTS APPLIED AT 2 LBS. PER SQUARE YARD.

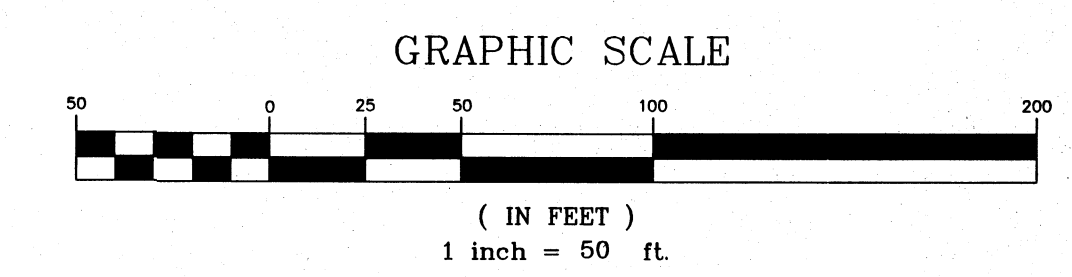
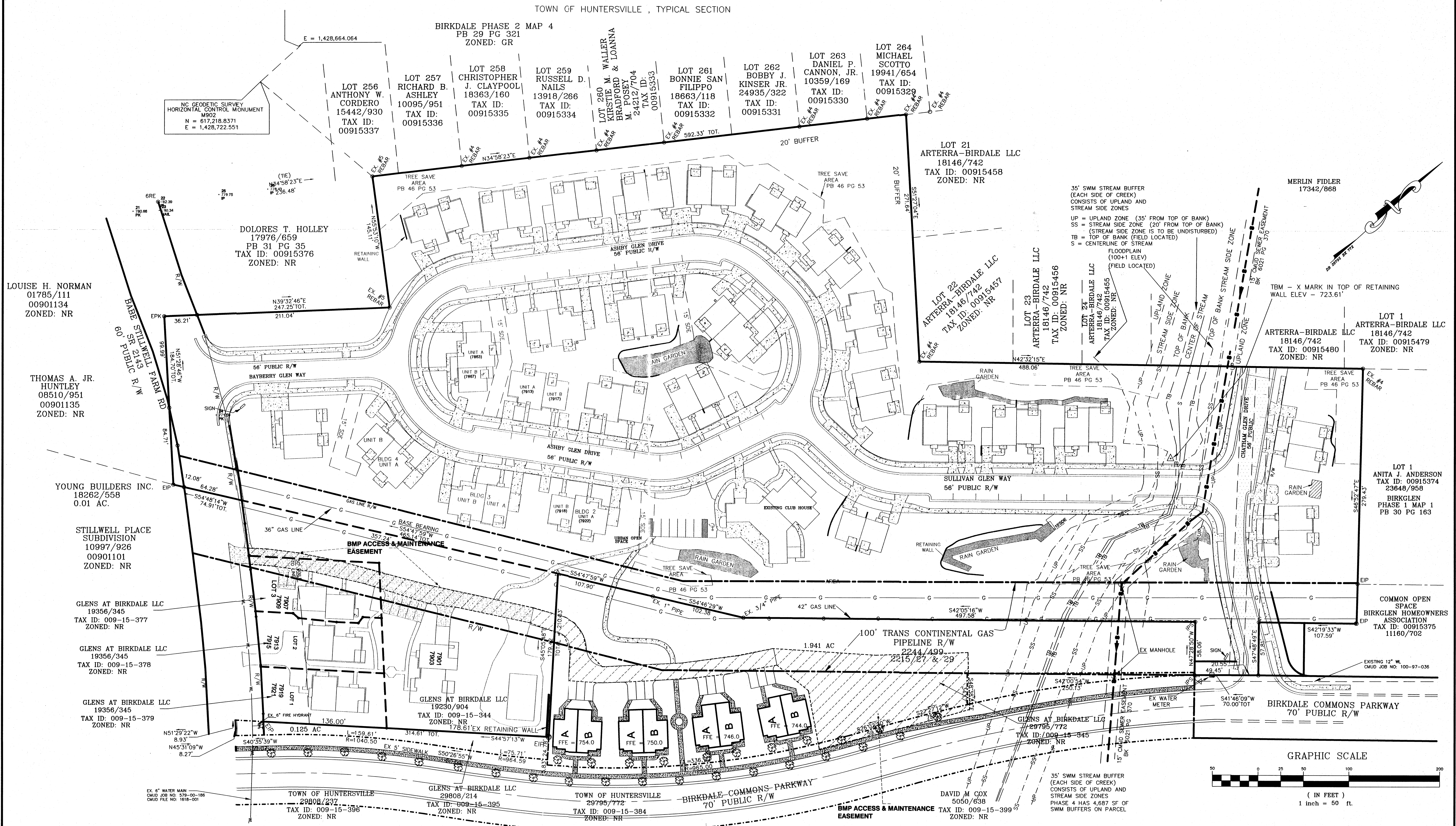
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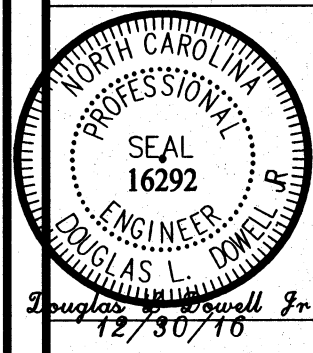
SYMBOL	QTY.	NAME OF TREE	CAL.	HEIGHT	SPREAD	COND.	NOTES
TREES: 	29	RED MAPLE OR WILLOW OAK	2 1/2"	10-12'	40' O/C	B&B	MATCH



TOWN OF HUNTERSVILLE, TYPICAL SECTION

BIRKDALE PHASE 2 MAP 4
PB 29 PG 321
ZONED: GR





REVISIONS
NO. 112-30-16
TOWN MECK CO
NO. 2
NO. 3
NO. 4
SHEET 6 OF 15

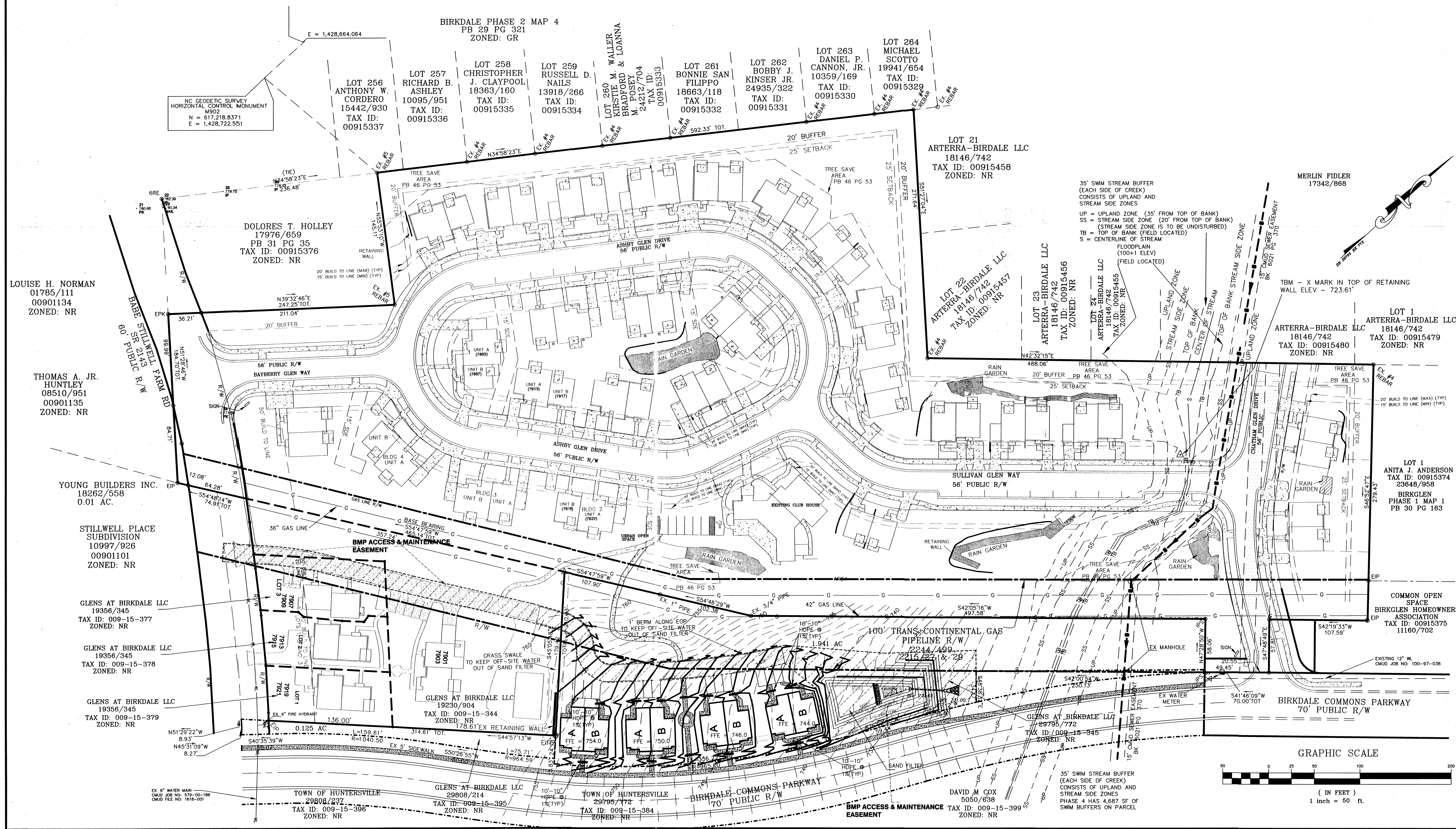
JOB NUMBER
15-1065

SCALE
1"=50'
Horz: 1"=50'

GRADING PLAN
THE GLENS AT BIRKDALE COMMONS PH. 4
TOWN OF HUNTERSVILLE
MECKLENBURG COUNTY, NORTH CAROLINA

OWNER:
THE GLENS AT BIRKDALE COMMONS, LLC.
15669 BIRKDALE COMMONS PARKWAY
HUNTERSVILLE, N.C. 28078

DOWELL & CO., P.C.
Engineering, Surveying, Planning
344 Rolling Hill Lane, Suite 200, Huntersville, NC 28078
(704) 860-9897
FAX: (704) 860-9897
EMAIL: lland789@aol.com



NC GEODETIC SURVEY
HORIZONTAL CONTROL MONUMENT
M802
N = 617,218.8371
E = 1,428,722.551

BIRKDALE PHASE 2 MAP 4
PB 29 PG 321
ZONED: GR

LOT 256
ANTHONY W. CORDERO
15442/930
TAX ID: 00915337

LOT 257
RICHARD B. ASHLEY
10095/951
TAX ID: 00915336

LOT 258
CHRISTOPHER J. CLAYPOOL
18363/160
TAX ID: 00915335

LOT 259
RUSSELL D. NAILS
13918/266
TAX ID: 00915334

LOT 260
KIRSTIE M. WALKER
KIRKSTIE M. WALKER & LOANNA
M. POSEY
24212/704
TAX ID: 00915333

LOT 261
BONNIE SAN FILIPPO
18663/118
TAX ID: 00915332

LOT 262
BOBBY J. KINSEY JR.
24935/322
TAX ID: 00915331

LOT 263
DANIEL P. CANNON, JR.
10359/169
TAX ID: 00915330

LOT 264
MICHAEL SCOTTO
19941/654
TAX ID: 00915329

LOT 21
ARTERRA-BIRDALE LLC
18146/742
ZONED: NR

LOT 22
ARTERRA-BIRDALE LLC
18146/742
TAX ID: 00915457
ZONED: NR

LOT 23
ARTERRA-BIRDALE LLC
18146/742
TAX ID: 00915456
ZONED: NR

LOT 24
ARTERRA-BIRDALE LLC
18146/742
TAX ID: 00915455
ZONED: NR

MERLIN FIDLER
17342/868

TBM - X MARK IN TOP OF RETAINING
WALL ELEV = 723.61'

LOT 1
ARTERRA-BIRDALE LLC
18146/742
TAX ID: 00915480
ZONED: NR

LOT 1
ARTERRA-BIRDALE LLC
18146/742
TAX ID: 00915479
ZONED: NR

LOT 1
ANITA J. ANDERSON
TAX ID: 00915374
23648/958
BIRKDALE
PHASE 1 MAP 1
PB 30 PG 163

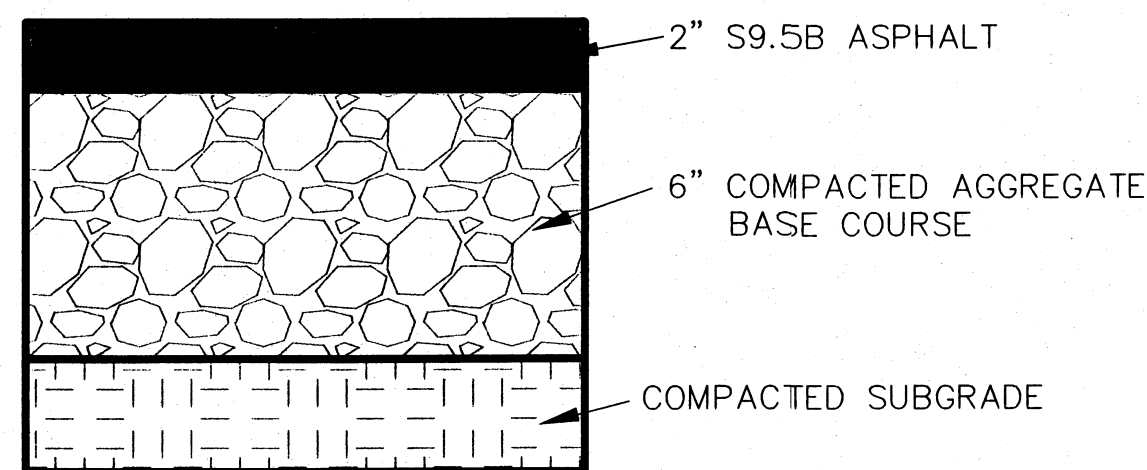
COMMON OPEN
SPACE
BIRKDALE HOMEOWNERS
ASSOCIATION
TAX ID: 00915375
11160/702

GRAPHIC SCALE

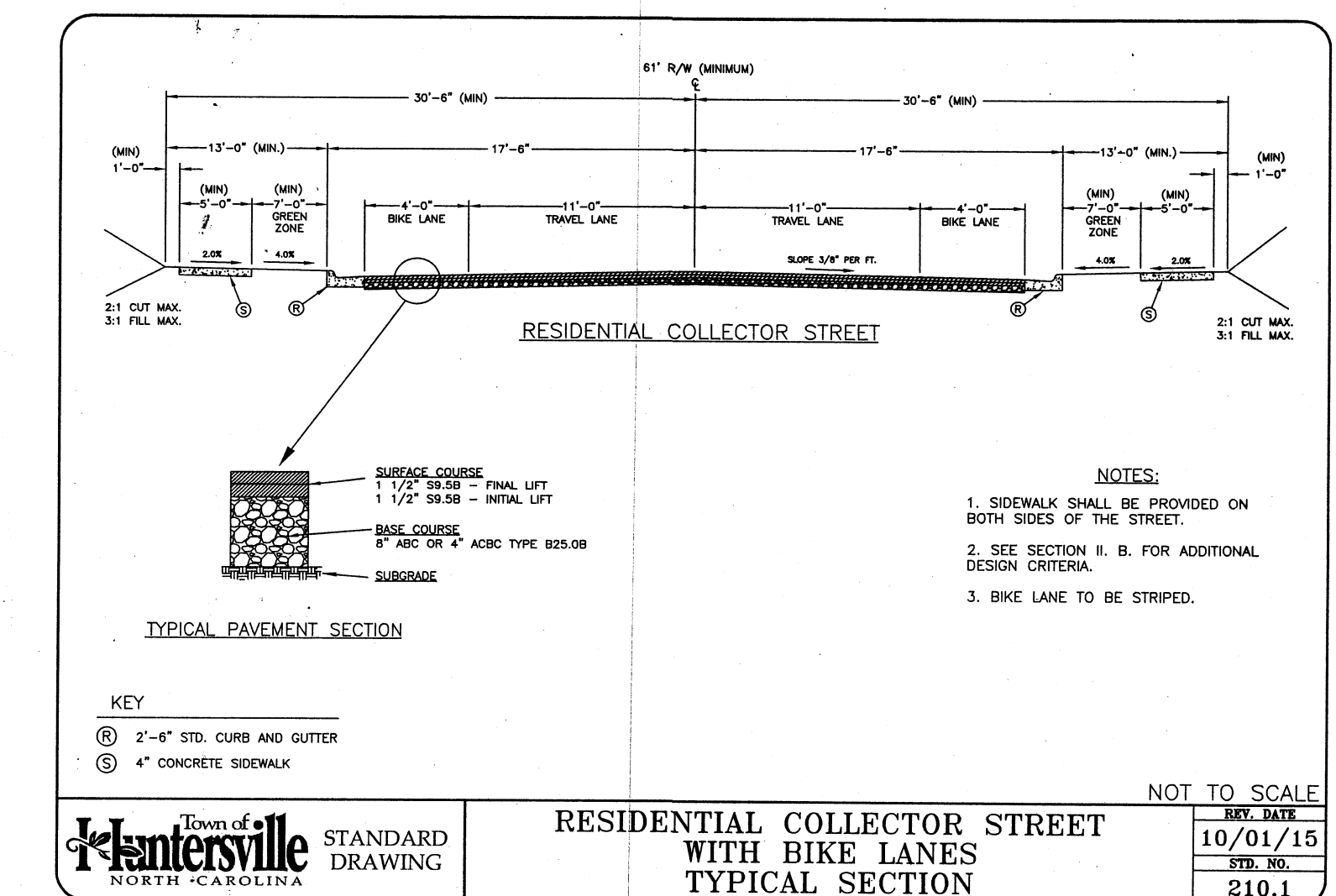
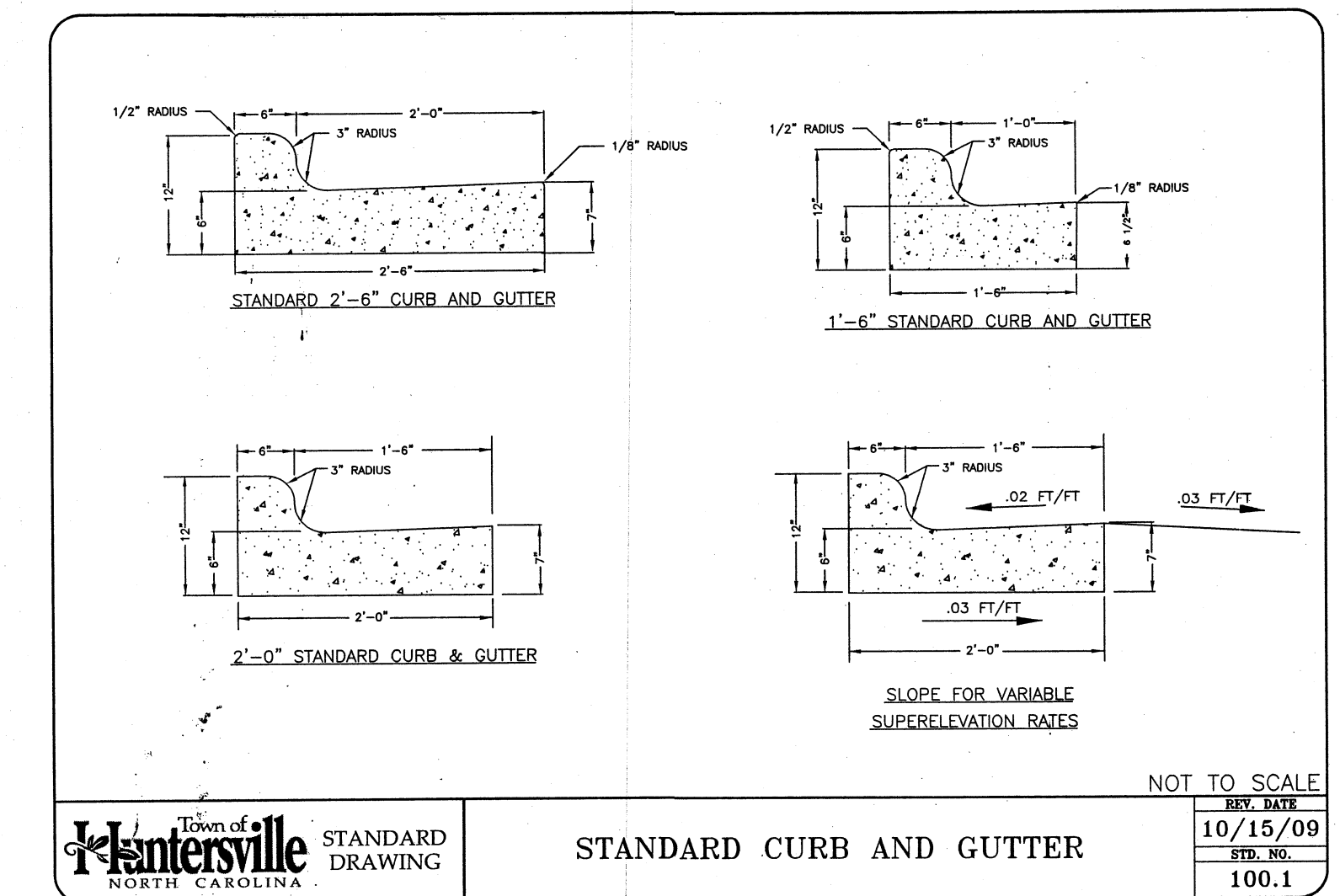
(IN FEET)
1 inch = 50 ft.

GENERAL & DEVELOPMENT NOTES:

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TYPICAL PARKING LOT
SECTION (N.T.S.)
OR EQUAL

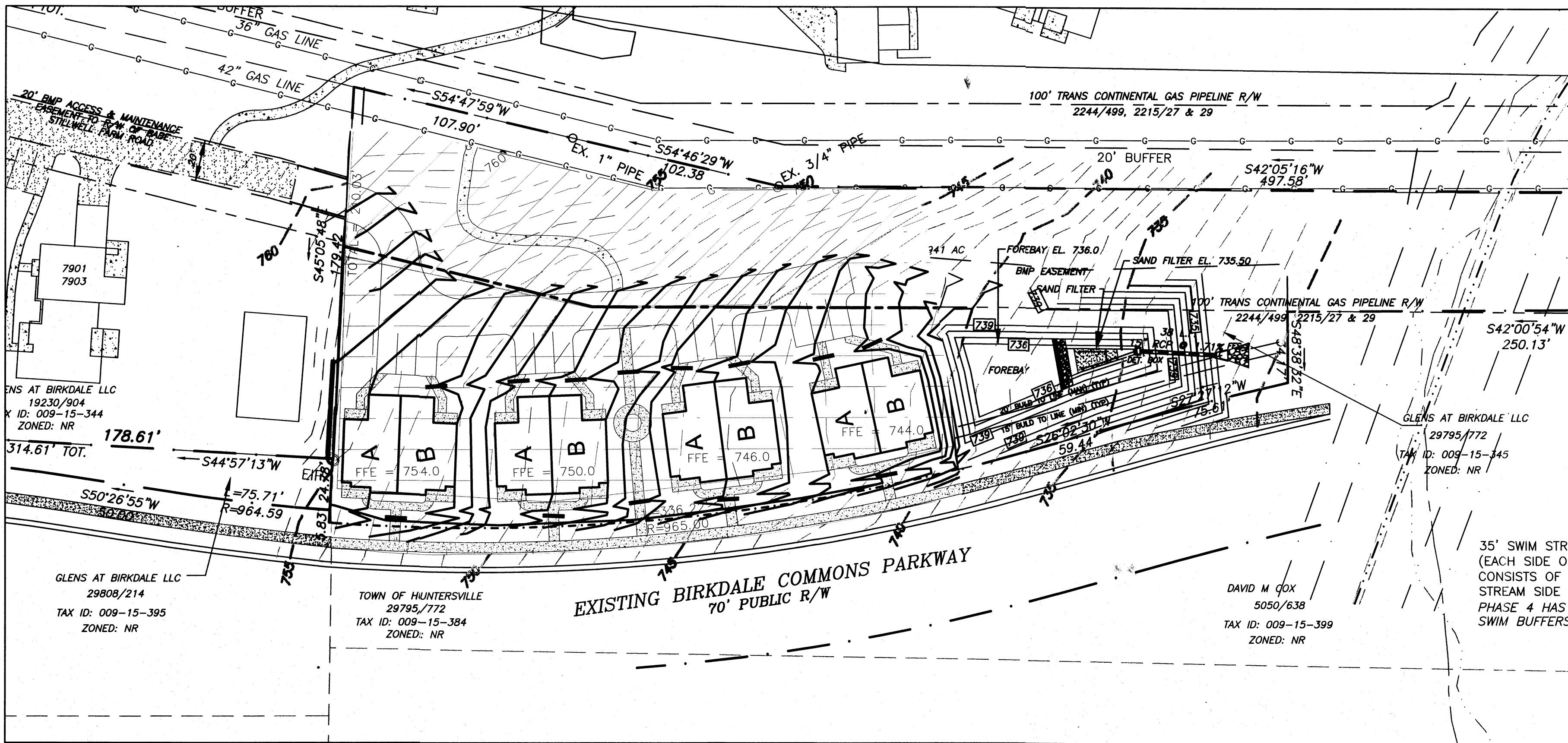


DETAILS / NOTES
OF

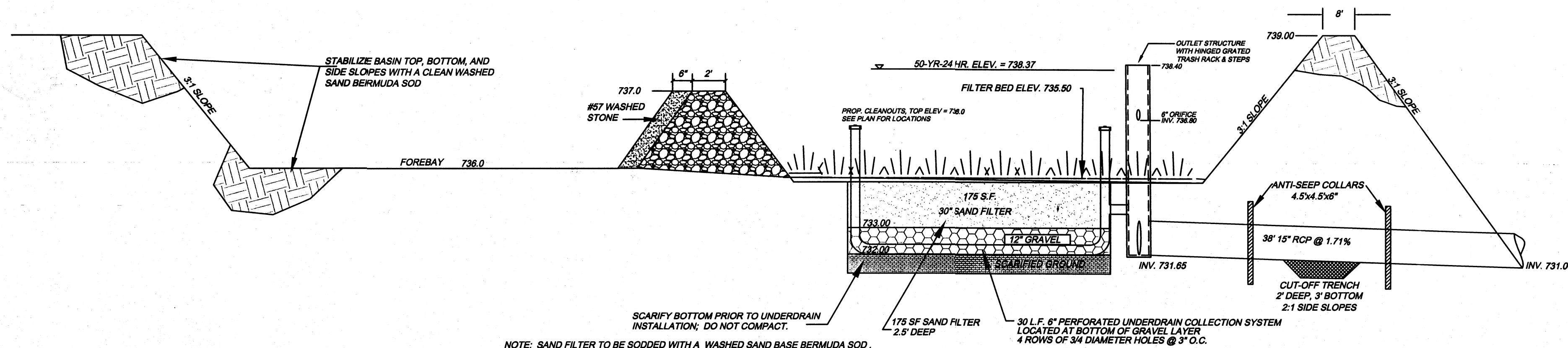
THE GLENS AT BIRKDALE COMMONS PH 4
TOWN OF HUNTERSVILLE, NC

OWNER:
THE GLENS AT BIRKDALE COMMONS, LLC
13669 BIRKDALE COMMONS PARKWAY
HUNTERSVILLE, NC 28078

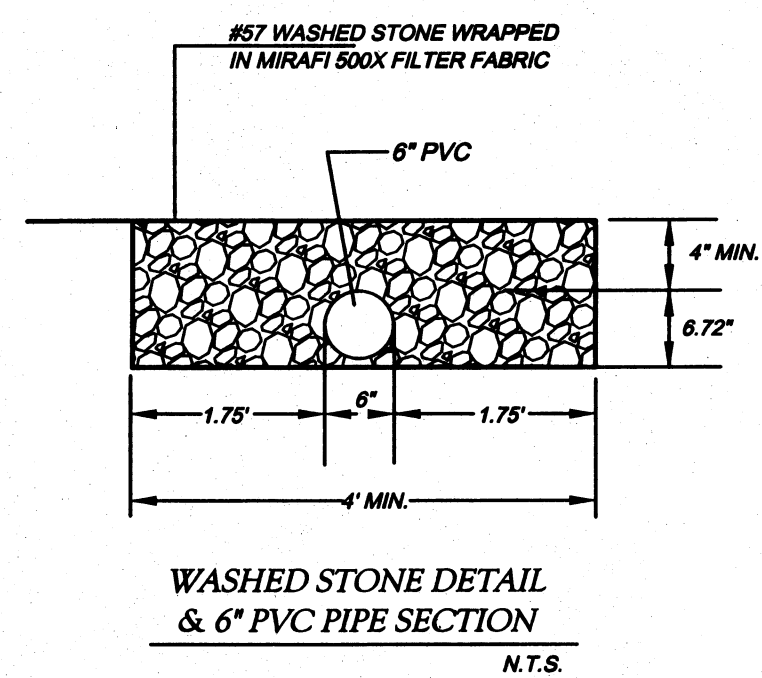
Computer File: 15065 GLENS BDAL PH 4 / DETAILS
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(704) 860-8697 (704) 864-5177 Fax
EMAIL: leland@dowellco.com



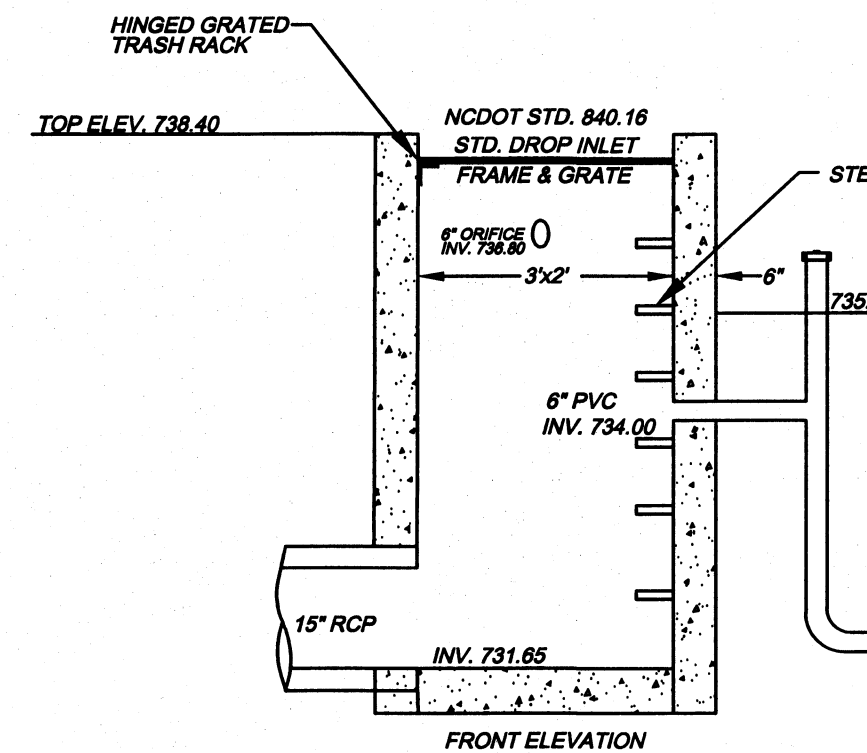
SAND FILTER PLAN VIEW
1"=40'



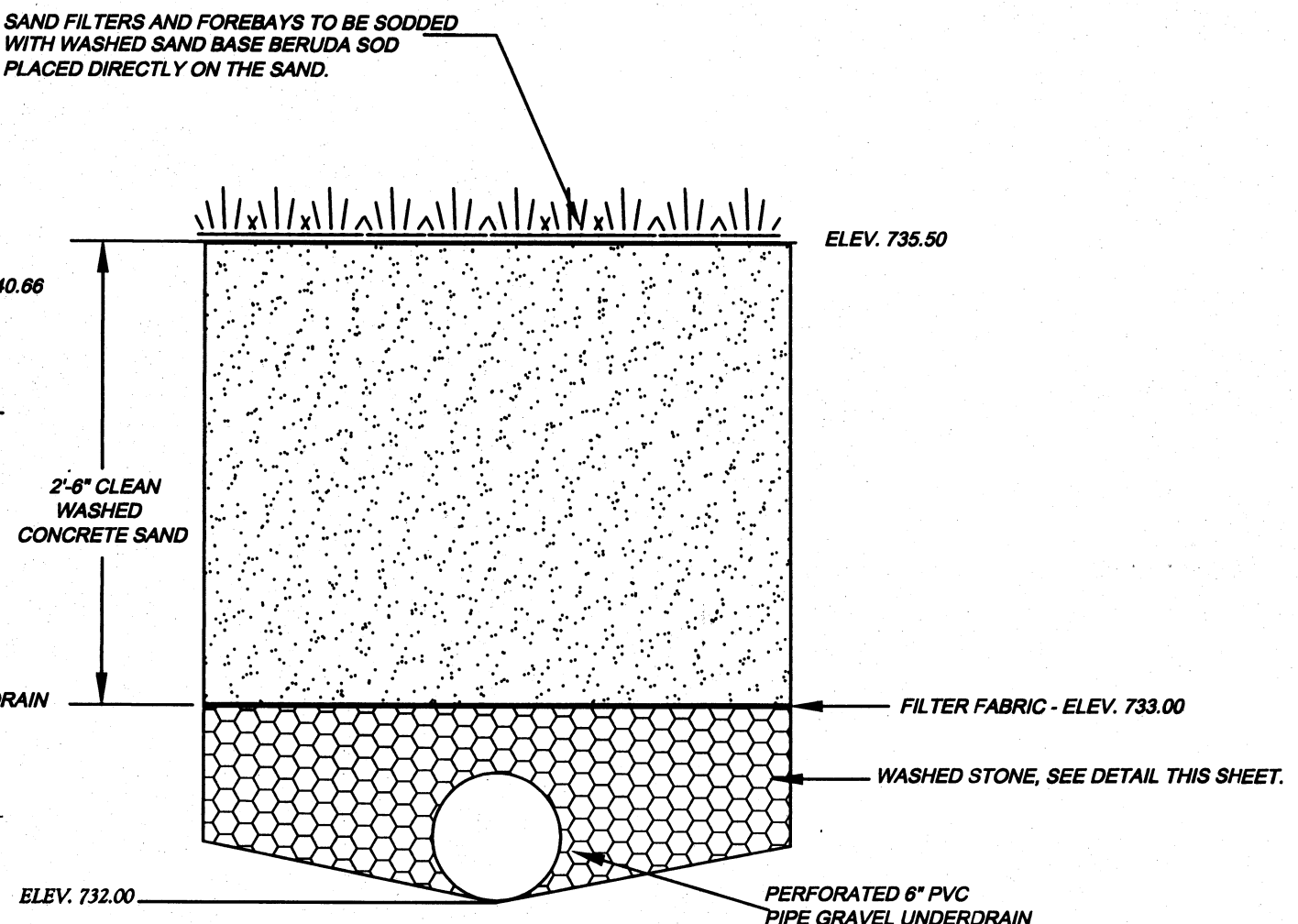
TYPICAL SAND FILTER SECTION
N.T.S.



- CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAGMEN, ETC., AS NECESSARY TO INSURE SAFETY TO THE PUBLIC.
- ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION.
- SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.



PROPOSED DROP INLET/DETENTION BOX
N.T.S.



TYPICAL SECTION
N.T.S.

- NOTES:**
- CALL THE WATER QUALITY INSPECTOR TO SET UP A BMP PRE-CONSTRUCTION MEETING PRIOR TO STARTING ANY WORK ON BMP. THIS MEETING SHOULD TAKE PLACE AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION ON ANY BMP AND SHALL INCLUDE THE DESIGN ENGINEER TO ENSURE ENGINEER INSPECTIONS ARE PERFORMED AT KEY BMP INSTALLATION PHASES.
 - THE DESIGN ENGINEER MUST VERIFY AND CERTIFY THE DRAINAGE AREA IS PROPERLY STABILIZED; MEASURES ARE IN PLACE TO PREVENT SEDIMENTATION INTO THE BMP. THE STORM DRAINS, INLETS AND PAVEMENT HAVE BEEN PROPERLY CLEANED PRIOR TO COMMENCEMENT OF BMP CONSTRUCTION.
 - ADDITIONAL MEASURES, TO ENSURE PROPER CONSTRUCTION AND OPERATION OF THE BMP, MAY BE REQUIRED BY THE WATER QUALITY INSPECTOR.
 - A DOUBLE-RINGED INFILTRATOR TEST (ASTM D 3385), OF THE BOTTOM OF THE SAND FILTER, MUST BE SUBMITTED TO THE WATER QUALITY INSPECTOR PRIOR TO THE INSTALLATION OF THE UNDERDRAIN SYSTEM.
 - THE RESULTS OF THE DOUBLE-RINGED INFILTRATOR TEST MUST SHOW INFILTRATION CAPABILITIES, CONFIRMED BY THE DESIGN ENGINEER, AND SUBMITTED FOR BMP AS-BUILT APPROVAL.

- CONSTRUCTION SEQUENCE FOR SAND FILTER:**
- CONSTRUCT BASIN AREA PER EROSION CONTROL PLAN FOR TEMPORARY USE AS SKIMMER BASIN.
 - ONCE SITE IS STABILIZED, REMOVE SKIMMER DEVICE AND SEDIMENT, THEN REGRADE SAND FILTER AND SEDIMENT FOREBAY TO PLAN DIMENSIONS. NOTE THAT TOP OF BERM IS TO BE 3' IN WIDTH.
 - INSTALL ALL UNDERDRAIN DEVICES AND RISER PIPES FROM FOREBAY TO SAND FILTER.
 - INSTALL SAND IN FILTER AREA.
 - TEST SAND INFILTRATION TO BE SURE IT MEETS REQUIREMENTS SPECIFIED.
 - INSTALL FILTER FABRIC, TOPSOIL, AND SOD.
 - HAVE BASIN AS-BUILT & SENT TO THE ENGINEER FOR CERTIFICATION.

WATER QUALITY INSPECTOR:
HEATHER DAVIS — HUNTERSVILLE
PH. 980-721-3571

- SITE NOTES:**
- PIN: 00915345
DB: 29795, PG. 772
SITE AREA: 1.94± AC. IN TOTAL PARCEL
 - SITE ADDRESS: 8558 CHATHAM GLEN DRIVE, HUNTERSVILLE, NC 28078
 - PROPERTY ZONING: NR
EXISTING USE: VACANT
PROPOSED USE: RESIDENTIAL
 - IMPERVIOUS CALCULATIONS:
PARKING & HAUNTERVING AREA: 7,833 S.F.
SIDEWALKS & AMENITIES: 1,047 S.F.
BUILDING: 8,581 S.F.
TOTAL IMPERVIOUS: 17,561 S.F. = 0.40 AC.
IMPERVIOUS %: 17,561 S.F. / 84,508 S.F. = 20.78%
 - WATERSHED: MOUNTAIN ISLAND LAKE, PA-2
 - FEMA FLOOD PANEL: #3710463100K, DATED: 08/02/2015
 - ***THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE***
 - SURVEY & TOPO INFORMATION PROVIDED BY: DOWELL AND COMPANY, P.C.

SAND FILTER BMP SUMMARY CHART				
PEAK CONTROL STORM EVENTS	PRE-DEVELOPMENT RUNOFF	POST-DEVELOPMENT RUNOFF	POST-ROUTING RUNOFF	ELEVATION
TOP OF DAM				739
50YR - 24HR	2.41 CFS	5.76 CFS	1.10 CFS	738.37
10YR - 24HR	1.14 CFS	3.69 CFS	0.70 CFS	737.57
2YR - 24HR	0.31 CFS	2.01 CFS	0.13 CFS	737.01
BMP	REQUIRED	PROVIDED	ELEVATION	
CPv	2614 CF	3136 CF	736.89	
WQv	1543 CF	1620 CF	736.5	
SAND FILTER	173 SF	175 SF	736.5	
SAND FILTER MAX ALLOWABLE BUA				18375 SF
TOTAL SITE MAX ALLOWABLE BUA				18375 SF

SITE ALLOWABLE BUA SUMMARY CHART	
SITE AREA	40946.4 SF
ROADS / PARKING	7933 SF
CURB & GUTTER	0 SF
SIDEWALK / CONCRETE PADS	1806 SF
BUILDINGS	8581 SF
ETC...	SF
TOTAL MAX SITE BUA	18320 SF 44.68%
NOTE THAT A BUA AS-BUILT SHALL BE PROVIDED PRIOR TO THE ISSUANCE OF BMP AS-BUILT APPROVAL	

PCCO SUMMARY	
Original Parcel ID Number(s):	915345
Development Type:	Single-Family
Subject to PCCO? Y/N	Y
# NO, why?	Click for Dropdown --
Watershed:	Huntersville PC
Disturbed Area (ac):	1.2
Site Area (ac):	1.94
	DA#1 DA#2
Total on-site Drainage Area (ac):	0.94
Existing Built-upon-area (SF):	0
Existing BUA to be removed (SF):	0
Existing BUA to remain (SF):	0
Proposed New BUA (SF):	17561
Proposed % BUA:	20.78
Density (High / Low):	High
Total Post-Project BUA for site:	20.78
Development or Redevelopment?	Development
Natural Area Required (ac):	0
Natural Area provided, total (ac):	0
Undisturbed Forest Natural Area Preserved (ac):	0
Total stream buffer protected on-site (ac):	NA
Transit Station Area? Y/N	N
Distressed Business District? Y/N	N
Mitigation Type (if applicable)	Click for Dropdown --
Natural Area mitigation? Y/N	N
Buffer Mitigation? Y/N	N
Total Phosphorus Mitigation? Y/N	N

BMP Inset Table Extended Dry Detention	
Project Name:	The Glens at Birkdale
Sequence ID:	1
Surface Area (sq. ft.):	1620
Drainage Area (acres):	0.94
Land Use/Development Type:	Multi-Family Residential - Light
Vegetation Type:	Grass
Percent Built-Up Area:	20.78
Maximum Depth (ft.):	1
Detention Basin Type:	Surface
Forebay Present (Y/N):	N
Flow Diverters Present (Y/N):	Y
Regulated By:	Post Construction and Watershed
Treatment Effectiveness:	Optimal
NC State Plane X (easting):	1435167
NC State Plane Y (northing):	617878

BMP Inset Table Sand Filter	
Project Name:	The Glens at Birkdale
Sequence ID:	1
Drainage Area (acres):	0.94
Land Use/Development Type:	Multi-Family Residential - Light
Vegetation Type:	Grass
Percent Built-Up Area:	20.78
Sediment Chamber Length (ft.):	44
Sediment Chamber Width (ft.):	37
Sediment Chamber Height (ft.):	1
Sand Filter Type:	Surface
Media Depth (ft.):	2.5
Media Surface Area (ft ²):	175
Flow Diverters Present (Y/N):	N
Regulated By:	Post Construction and Watershed
Treatment Effectiveness:	Optimal
NC State Plane X (easting):	1435167
NC State Plane Y (northing):	617878

Table 4.8.3 Results of Hydrologic Calculations from HydroCad					
Condition	Q 1-inch	Q 1-year	Q 2-year	Q 10-year	Q 25-year
Pre Dev.	0	0.09	0.31	1.14	1.84
Post Dev.	0.88	1.37	2.01	3.69	4.88
Routed	0.01	0.04	0.19	0.70	0.95
Peak Stage	736.42	736.89	737.01	737.57	738.03
Disch. Time 50 Hours		75 Hours			