Town of Forest City

Regular Council Meeting
Rutherford County Schools Administrative Offices - 382 West Main Street, Forest City
June 1, 2026 @ 6:00 PM

Agenda

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1. Invocation

A. Commissioner John Mark Bennett

2. Pledge of Allegiance

3. Public Hearings

A. FY27 Budget

4. Public Comments

5. Approval of Minutes

A. May 4, 2026 and May 18, 2026 — 3 - 12
Regular Council - 04 May 2026 - Budget Work Session - Minutes - Pdf
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6. Presentations

7. Unfinished Business

A. FY27 Budget Ordinance — 13 - 44
FY27 BUDGET ORDINANCE
FY27 Attachment A Rates and Fees

B. Purchasing Policy and Resolution Authorizing Electronic Payments — 45 - 68
Resolution Authorizing Electronic Payments
Purchasing Policy Town of Forest City 5-18-2026

8. New Business

A. SUB 2026-0001 Daniel Road Subdivision — 69 - 312
SUB 2026-0001 Staff Report

06-1-2026 Presentation
Application & Owner Authorization
Full Plan Set
Public Works Approval Letter
DEQ Letter of Approval
Traffic Study
Fee in Lieu of Estimate

B. Board of Planning and Adjustment Re-Appointments for three year terms:

1) Bob Mellnik-ETJ Representative-Expiration of June 2026
2) Ken Warren-City Limits Representative-Expiration of July 2026
3) Jeff Brookshire-City Limits Representative (Alternate)-Expiration of July 2026

C. Ellenboro Sewer Agreement 313 - 325

This agreement has been reviewed by Town Attorney Beth Miller and is recommended for approval at the July 6, 2026 meeting, pending its approval by the Ellenboro Town Council at their June 9, 2026 meeting.
Ellenboro-Forest City Sewer Operations Agreement clean
Ellenboro-Forest City Sewer Operations Agreement redlined

D. Budget Amendment 326
Budget Amendment 06-01-26

E. Recommendation to cancel the June 15th and July 20th Board of Commissioners meetings

9. Closed Session

A. Attorney-Client Privilege G.S. 143-318.11(a)(3)

10. Adjournment

MINUTES
Regular Meeting
Rutherford County Schools Administrative Offices
May 4, 2026 @ 6:00 PM

COMMISSIONERS PRESENT:	Mayor Steve Holland Dee Dee Bright John Mark Bennett Joey Brandle Chris Lee Shawn Moore
COMMISSIONERS ABSENT:	
STAFF PRESENT:	Janet Mason Attorney Beth Miller Roxanne Stiles Emily Sain

1 Closed Session

a) Attorney-Client Privilege G.S. 143-318.11(a)(3) and Personnel G.S. 143-318.11(a)(6)

Following a motion by Commissioner Joey Brandle, the Board entered into closed session under attorney-client privilege G.S. 143-318.11(a)(3) and Personnel G.S. 143-318.11(a)(6) at 6:00pm.

2 Reconvene Open Session

a) Following a motion by Commissioner Joey Brandle, the open session was unanimously reconvened at 6:17pm.

3 Budget Work Session

a) Fire Tax

Mason stated the fire service district fire tax is currently 11%.

The County projection results in a decrease of revenue for FY 27.

The recommendation is to increase the tax to 14%.

The Board agreed to the increase.

b) Mason gave an overview of the draft of the budget message.

Some highlights include:

The Town is receiving grant funding for water and sewer projects. This budget recommendation is less for the water and sewer fund due to the number of projects that need to be completed with grant funding.

Stiles stated the property tax revenue the Town receives from the County is projected to be 1% less than FY26. This is due to a decrease in personal property tax.

Mason asked the Board if they would like to go out for bid for the Republic Service garbage collections.

Moore motioned to request proposals for garbage collection.

The motion passed by unanimous vote.

c) Budget Recommendation Continued

Mason stated she was contacted last week by Magnolia Long at Foothills Regional Commission about a grant opportunity for police and fire radios.

Parks and Recreation

Mason mentioned the winter kill issue at McNair Field to the Board. Phil Dangel with the Forest City Owls has stated he cannot move any of his scheduled games. He would prefer the Town to paint the field instead of resodding at this time.

The small playground at Crowe Park will be removed.

Rates

Mason stated the recommended budget will include a 10% increase in water rates.

The Board agreed that an increase is needed.

Personnel

Includes a recommended 3% COLA.

Bennett thinks a 3% sounds good. Brandle, Moore, and Bright agreed.

Lee said he wanted to think about it.

Mason said the police department has applied for a grant for three additional traffic safety officers.

The fire department has applied for a SAFER grant multiple times but has not received it. Town staff will continue to explore grant opportunities, but this budget includes adding three firefighter positions.

Water operations includes a crew leader position. If approved, Ridge Beheler will move to a new position with no pay increase. Just an adjustment of duties.

d) Mayor Holland stated the Grahamtown Team requested additional lighting in Grahamtown.

Sonny Penson stated they have lights on every other pole just like every area in town.

Willie Smith added those lights were all changed to LED as well.

Bright asked if the enhanced landscaping fence at the Broadway exit can be removed.

Mason stated she will look into it.

Bright also requested for Forest City to be added to the rail trail bridge over Hwy 74.

Mason stated she will look into it as well.

Moore said the intersection at Burger King continues to backup. It needs to last longer. Two lanes need to go straight and one turn left.

Mason will check into it.

4 Adjournment

a) Following a motion by Commissioner Lee, the meeting was unanimously adjourned at 7:33pm.

_____
Mayor

_____
City Clerk

MINUTES
Regular Meeting
Rutherford County Schools Administrative Offices
May 18, 2026 @ 6:00 PM

COMMISSIONERS PRESENT:	Mayor Steve Holland Dee Dee Bright John Mark Bennett Joey Brandle Chris Lee Shawn Moore
COMMISSIONERS ABSENT:	
STAFF PRESENT:	Janet Mason Roxanne Stiles Emily Sain Attorney Merri Oxley

1 Invocation

a) Commissioner Chris Lee

2 Pledge of Allegiance

3 Public Comments

a) None were forthcoming.

4 Approval of Minutes

a) March 16, 2026
April 6, 2026
April 20, 2026

The minutes for the meetings on March 16, 2026, April 6, 2026, and April 20, 2026 were presented for approval.

Commissioner Lee motioned to approve the minutes as presented.

The motion passed unanimously.

5 Presentations

a) McNair Stadium Lease Agreement Reassignment - Curtis Snethen

Curtis Snethen stated as of April 29, 2026, his group has entered into an offer to purchase the Forest City Owls for the 2027 season. The purchase will close in September 2026. He is requesting the lease to be transferred to meet the Town of Forest City's needs with no changes.

Snethen introduced the buying group: Judge Lancaster, Keith Snethen, GM and Director of Baseball Operations, Aaron Conner Assistant GM and Director of Video and Promotions, and Hunter Haynes Assistant GM and Director of Entertainment.

Snethen feels confident that having local ownership will be the key to having success in the Coastal Plain League. He hopes that the Board will consider this buying group as the future owners of the Forest City Owls.

Mason added that a formal request will be brought to the Board in July.

Holland thanked the buying group for coming.

b) Presentation of the FY27 Manager's Recommended Budget

Several significant factors have shaped the development of the FY27 budget.
Inflation and the rising cost of operations. Inflation continues to affect the cost of goods and services across all departments. Fuel, equipment, materials, and contracted services have all increased in price, directly impacting both day-to-day operations and capital project costs. These pressures require the Town to do more with careful planning and disciplined spending.
Employee compensation and benefits. The Town's most valuable resource is its workforce. Employee-related costs have increased due to rising health insurance premiums and higher mandatory contributions to the North Carolina Local Government Employees' Retirement System. Employer retirement contributions for law enforcement increased from 16.10% to 17.10%, and contributions for general employees increased from 14.35% to 15.10%. The FY27 budget includes a 3% cost-of-living adjustment for all full-time employees. These investments are essential

not only to maintain service quality, but to retain experienced staff and ensure Forest City remains a competitive employer in an increasingly challenging labor market.

Budget Highlights
Consistent with sound financial management practices, the FY27 budget does not include a transfer from the Electric Fund to the General Fund or the Parks and Recreation Department for the third consecutive year, reinforcing the Town's commitment to maintaining the integrity of its enterprise funds. However, to achieve a balanced budget while preserving current service levels, an appropriation from the General Fund's fund balance is necessary. The Town will continue to monitor fund balance levels carefully to ensure long-term financial health and stability.
Unchanged from the prior year, the recommended budget is based on a property tax rate of $0.59 per $100 of assessed valuation. After applying a collection rate of 98.92% and accounting for applicable economic development incentives, the estimated net value of one cent on the tax rate is $85,519.
The proposed FY27 budget represents a 1.7% decrease from the prior year's amended budget, reflecting the Town's continued commitment to fiscal discipline without compromising service delivery even in the face of rising costs and increasing operational demands. The Town's financial plan is organized into four primary funds, as summarized in the following table.

TOWN OF FOREST CITY FY26 AMENDED & FY27 RECOMMENDED BUDGET		
	Amended FY26	Recommended FY27
General Fund	$ 21,459,140	$ 21,811,588
Parks & Rec Fund	$ 2,997,021	$ 2,962,836
Water & Sewer Fund	$ 10,712,242	$ 9,215,724
Electric Fund	$ 13,479,267	$ 13,872,193
TOTAL	$ 48,647,670	$ 47,862,341

Mason thanked Roxanne Stiles and the finance department, along with the department heads that have worked on this budget.

6 New Business

a) Call for Public Hearing on the FY27 Budget for June 1st, 2026

Commissioner Joey Brandle motioned to call for a public hearing on the

recommended FY27 budget on June 1, 2026.
The motion passed unanimously.

b) Surplus List for Approval

Commissioner Lee motioned to declare the items listed above as surplus.

The motion passed unanimously.

c) ARC Capital Project Ordinance - Electric Tie Line Expansion Project

Commissioner John Mark Bennett moved to approve the ARC Capital Project Ordinance as presented.

The motion passed by unanimous vote.

d) Purchasing Policy & Resolution To Approve Electronic Payments

Finance Director Roxanne Stiles stated that NC Fellow Eli Norman completed research for us and determined a policy was needed for electronic payments. He also completed a glossary.

Commissioner Bright asked the credit limit on credit cards for employees.

Stiles stated some have limits of $500 and others are $2000. The limit can be adjusted. IT has the highest credit limit.

Bright is concerned about the $1000 purchase order requirement with nobody checking receipts.

Stiles stated all receipts still come through her to be signed off. There are controls in place.

Bright asked if the auditors had any concerns about our controls.

Mason stated there have been no findings under the leadership of Stiles.

e) FY26 Audit Contract

Stiles stated the audit contract is presented for Council's approval. It is recommended that the Town continue to use the services of Gould Killian CPA Group, P.A. for the external audit required for Fiscal Year 2026.

$34,000 Audit Fee - $200 increase from prior year, less than 1%
$5,900 Financial Preparation Fee - $200 increase from prior year

Major Program Audits are only required if the Town receives Federal or State grant expenditures totaling $1,000,000.

$4,500 Fee for Major Program Audit, if required - $300 increase from prior year

Fees for major program audits and financial preparation are increasing because of more requirements by the Local Government Commission and additional time for data collection.

Commissioner John Mark Bennett moved to approve the FY26 Audit Contract.

The motion passed unanimously.

f) Monthly Financials - Finance Director Roxanne Stiles

Finance Director Roxanne Stiles gave an overview of the financials for April 2026.

7 Manager's Report

a) Town Manager Janet Mason gave a Manager's Report:

- Excellent crowd for the first Finally Fridays
- May 21 Scotty McCreery concert
- Splash Pads open Friday
- Memorial Ceremony Monday May 25th
- Forest City pool opens on Tuesday May 26th

8 Adjournment

a) Following a motion by Commissioner Chris Lee, the meeting was unanimously adjourned at 6:33pm.

Mayor

City Clerk

Town of Forest City Board of Commissioners

Town of Forest City, North Carolina

Ordinance #____

BUDGET ORDINANCE FOR THE TOWN OF FOREST CITY FISCAL YEAR 2027

BE IT ORDAINED by the Board of Commissioners of the Town of Forest City, does ordain as follows:

Section 1: It is estimated that the following revenues will be available in the General Fund for the Fiscal Year beginning July 1, 2026 and ending June 30, 2027:

GENERAL FUND REVENUES		
TAX INTEREST AND COST	$	30,000
AD VALOREM TAXES PRIOR YEARS	$	25,000
AD VALOREM TAXES FY 2026-2027	$	10,537,754
AUTO TAXES-COLLECTIONS FROM STATE	$	406,769
VEHICLE RENT TAXES FY 2026-2027	$	25,000
DOWNTOWN ACTIVITIES	$	20,000
POPS ACTIVITIES	$	100
VENDOR FEES	$	1,000
DOWNTOWN ACTIVITIES SPONSORS	$	5,000
LOCAL SALES TAX	$	3,907,000
UTILITY FRANCHISE TAX	$	972,000
ABC PROFIT REVENUE	$	300,000
ABC-LAW ENF CONTRIB & ALCOHOL ED CONTRIB	$	25,000
BUILDING PERMITS	$	100,000
CODE ENFORCEMENT REVENUE	$	20,000
SOLID WASTE DISPOSAL TAX DISTRIBUTION	$	6,000
COURT FEES AND CHARGES	$	2,000
FIRE PROTECTION CHARGES	$	5,000
STATE FIRE FUND REVENUE	$	5,000
FIRE DISTRICT TAX	$	37,022
TDA GRANTS	$	9,000
POWELL BILL STREET ALLOCATION	$	300,000
BOSTIC GENERAL WORK	$	5,000
SANITATION	$	1,785,000
INTEREST EARNED ON GENERAL FUND	$	276,000
INTEREST EARNED ON POWELL BILL	$	10,000
BEER/WINE EXCISE TAX	$	30,000
HOLD HARMLESS REVENUES FROM STATE-SALES TAX	$	1,048,000
CONTROLLED SUBSTANCE TAX DISTRIBUTION	$	5,000
RETURNED CHECK FEE	$	2,500
POPS EVENT SPONSORSHIPS	$	4,000
GOV HIGHWAY SAFETY PROGRAM - GRANT	$	130,974
PAYMENT IN LIEU OF TAX LOCAL	$	15,000
FCHA-SALARY SUPPORT	$	10,000
POLICE SECURITY SUPP-FCHA	$	25,000

POLICE SECURITY SUPP-FC CLUBHOUSE	$	2,500
RENTS-BANK BUILDING	$	45,600
STREET PAVING AND DEVELOPERS COST	$	5,000
SALE OF CEMETERY LOTS	$	14,000
FUND BALANCE APPROPRIATED	$	1,659,369
TOTAL	**$**	**21,811,588**

Section 2: The following amounts are hereby appropriated in the General Fund for the operation of the Town government and its activities for the Fiscal Year beginning July 1, 2026 and ending June 30, 2027:

GENERAL FUND EXPENDITURES

GOVERNING BODY	$	53,940
ADMINISTRATION	$	6,580,344
FINANCE	$	379,832
LEGAL	$	75,475
WAREHOUSE AND GARAGE	$	245,165
PUBLIC WORKS BUILDING	$	103,944
POLICE	$	5,045,176
FIRE	$	2,897,195
CODE ENFORCEMENT	$	851,367
COMMUNITY DEVELOPMENT & EVENTS	$	511,564
POWELL BILL	$	380,519
STREETS	$	2,414,645
CEMETERY	$	24,000
SANITATION	$	1,887,200
DEBT SERVICE	$	361,222
TRANSFERS TO OTHER FUNDS (PARKS & REC)	$	-
TOTAL	**$**	**21,811,588**

Section 3: It is estimated that the following revenues will be available in the Parks & Recreation Fund for the Fiscal Year beginning July 1, 2026 and ending June 30, 2027:

PARKS AND RECREATION FUND REVENUE

PENALTY - LATE BOOK RETURN	$	1,000
CONCESSIONS AT CALLISON CENTER	$	1,500
ORGANIZED PROGRAM RECEIPTS	$	16,000
McNAIR FIELD LEASE	$	21,000
McNAIR FIELD RENTAL	$	10,000
RENTS - CALLISON CENTER	$	5,000
RENTS - TOWN PARK	$	16,000
POOL ADMISSION	$	25,000
SEASON TICKETS	$	5,000
SWIMMING LESSONS	$	6,000
POOL PARTY LIFEGUARD SECURITY	$	4,000
GOLF COURSE GREEN FEES	$	100,000
GOLF COURSE MEMBERSHIP FEES	$	75,000
RENTS - GOLF CARTS	$	225,000

GOLF SHOP LEASE	$	1,500
CONCESSIONS - GOLF COURSE	$	3,000
CONCESSIONS - TOWN PARK	$	1,500
RENTS - FOREST CITY CLUB HOUSE	$	27,000
RENTS - POPS	$	5,000
MISCELLANEOUS	$	3,000
LEGACY PARK RC REIMBURSE	$	112,804
INTEREST EARNED - RECREATION FUND	$	5,000
FUND BALANCE APPROPRIATED	$	2,293,532
TOTAL	**$**	**2,962,836**

Section 4: The following amounts are hereby appropriated in the Parks & Recreation Fund for recreational operations and activities for the Fiscal Year beginning July 1, 2026 and ending June 30, 2027:

PARKS AND RECREATION EXPENDITURES		
LIBRARY	$	236,707
CALLISON RECREATION CENTER	$	365,946
LARRY K ROSS GYMNASIUM	$	82,543
PARKS AND PLAYGROUNDS	$	665,789
McNAIR MUNICIPAL PARK	$	224,909
LEGACY SOCCER COMPLEX	$	290,607
PAVILION ON PARK SQUARE	$	171,476
CLAY STREET POOL	$	133,204
ATHLETIC PROGRAMS	$	82,836
GOLF COURSE	$	652,730
FOREST CITY CLUB HOUSE	$	56,089
DEBT SERVICE	$	-
TOTAL	**$**	**2,962,836**

Section 5: It is estimated that the following revenues will be available in the Water & Sewer Fund for the Fiscal Year beginning July 1, 2026 and ending June 30, 2027:

WATER AND SEWER FUND REVENUES		
TAPS AND CONNECTION FEES	$	85,000
CHARGES FOR UTILITIES / WATER	$	4,275,000
CHARGES FOR UTILITIES / SEWER	$	1,900,000
ELLENBORO SEWER CHARGES	$	100,000
INTEREST EARNED WATER / SEWER FUND	$	125,000
CUSTOMER SERVICE / MISCELLANEOUS	$	8,000
SERVICE INCOME - BOSTIC, CONCORD, ELLENBORO	$	205,000
SEPTAGE USER FEES	$	100,000
WATER TANK-ANTENNA RENTS	$	30,000
FUND BALANCE APPROPRIATED	$	2,387,724
TOTAL	**$**	**9,215,724**

Section 6: The following amounts are hereby appropriated in the Water & Sewer Fund for the operation of the water and sewer utilities for the Fiscal Year beginning July 1, 2026 and ending June 30, 2027:

WATER AND SEWER EXPENDITURES

ADMINISTRATION AND BILLING	$	1,154,822
WATER OPERATION AND CONSTRUCTION	$	2,139,183
WATER PLANT	$	1,527,267
SEWER OPERATION AND CONSTRUCTION	$	951,173
WASTEWATER TREATMENT PLANT	$	1,249,206
WASTEWATER TREATMENT - RIVERSTONE	$	233,857
WATER / SEWER PUMP MAINTENANCE	$	1,200,396
WATER METER SERVICES	$	217,480
DEBT SERVICE	$	542,340
TOTAL	**$**	**9,215,724**

Section 7: It is estimated that the following revenues will be available in the Electric Fund for the Fiscal Year beginning July 1, 2026 and ending June 30, 2027:

ELECTRIC FUND REVENUES

ELECTRIC UTILITY CHARGES	$	11,500,000
SALES TAX COLLECTED	$	-
RENEWABLE ENERGY RIDER	$	64,000
TAPS AND CONNECTIONS FEES	$	8,000
PENALTY FOR LATE PAYMENT	$	130,000
TRANSFER FEES	$	2,000
DELINQUENT ADMIN FEES	$	110,000
INTEREST EARNED ELECTRIC FUND	$	100,000
POLE RENTAL	$	24,000
SERVICE INCOME - BOSTIC	$	50,000
FUND BALANCE APPROPRIATED	$	1,884,193
TOTAL	**$**	**13,872,193**

Section 8: The following amounts are hereby appropriated in the Electric Fund for the operation of the electric utilities for the Fiscal Year beginning July 1, 2026 and ending June 30, 2027:

ELECTRIC FUND EXPENDITURES

ADMINISTRATION AND BILLING	$	1,476,725
ELECTRIC OPERATIONS AND CONSTRUCTION	$	12,157,611
ELECTRIC METER SERVICES	$	226,080
DEBT SERVICE	$	11,777
TOTAL	**$**	**13,872,193**

TOTAL BUDGET	**$**	**47,862,341**

Section 9: There is hereby levied, for Fiscal Year 2026-2027, an Ad Valorem tax rate of $0.59 per $100 valuation of taxable property as listed for taxes as of January 2026 for the purpose of raising the revenue in order to finance the foregoing General Fund appropriations.

The tax rate is based on an estimated total vaulation of property for the purposes of taxation of $1,874,503,918 and an estimated collection rate of 98.92%.

Section 10: The corresponding FY 2026-2027 Schedule of Rates and Fees is approved with the adoption of this Annual Budget Ordinance. The FY 2027 Schedule of Rates and Fees is attached as Attachment A to this Ordinance.

Section 11: Copies of this ordinance shall be furnished to the Town Clerk to be kept on file and to the Finance Director for direction in the disbursement of Town funds.

INTRODUCED at the regular meeting of the Board of Commissioners of the Town of Forest City on May 18, 2026.

ADOPTED this 1st day of June 2026 by the Board of Commissioners of the Town of Forest City, North Carolina.

This ordinance shall take effect July 1, 2026.

ATTEST:

Emily Sain, Town Clerk

Mayor Steve Holland

TOWN OF FOREST CITY

RATES AND FEES

Effective July 1, 2026

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PARKS & RECREATION

CLAY STREET POOL

One-Time Visit Fees

	In Corporate City Limits	Out of Corporate City Limits
Children (under 5)	Free w/paid adult	same
Children (5-17)	$3	same
Adults (18+)	$5	same
Fitness Swim	$2	same

Season Membership Fees

	In Corporate City Limits	Out of Corporate City Limits
Individual	$75	$125
Family up to 5 members	$125	$200
$10 for each additional person	same	same

Swim Lessons

	In Corporate City Limits	Out of Corporate City Limits
Swim Lessons	$35	$50

Private Pool Rental Information:

- The pool is available for rent on Fridays after 7:00pm, and Saturdays and Sundays after 6:00pm. No parties booked Monday-Thursday.
- Parties have to end no later than 10:00pm.

	In Corporate City Limits	**Out of Corporate City Limits**
Private Pool Rental	$100	$200
Lifeguard Fee	$15 per hour per guard	$15 per hour per guard

Pool Party Rental Fees	**In Corporate City Limits**		**Out of Corporate City Limits**	
	2 Guards	3 Guards	2 Guards	3 Guards
Two Hours	$160	$190	$260	$290
Three Hours	$190	$235	$290	$335
Four Hours	$220	$280	$320	$380

*Less than 40 people inside the gate require 2 lifeguards, while 40 people and over require 3 lifeguards.

CALLISON RECREATION CENTER/COOL SPRINGS GYM

	In Corporate City Limits	Out of Corporate City Limits
Gym Rental	$15 per hour	same
Gym Lights	$15 per hour	same
Employee during rental	$45 per hour	same
Car Wash - Cool Springs Only	$30 per day	same
Weight Room Membership at Callison	$10 per month	same

* We only rent gyms for basketball tournaments.

HARDIN ROAD PARK

	In Corporate City Limits	Out of Corporate City Limits
Picnic Shelter Rental	$30 for two hours	$50 for two hours
	$60 all day	$110 all day
	$5 each additional hr.	$10 each additional hr.
Entire Park Rental	$500	$500

CROWE PARK/SUMMEY PARK

	In Corporate City Limits	Out of Corporate City Limits
Picnic Shelter Rental	$30 for two hours	$50 for two hours
	$60 all day	$110 all day
	$5 each additional hr.	$10 each additional hr.

	In Corporate City Limits	Out of Corporate City Limits
Ballfield Rental	$30 for two hours	$50 for two hours
	$60 all day	$110 all day
	$5 each additional hr.	$10 each additional hr.
Ballfield Lights	$25 per hour	same

	In Corporate City Limits	Out of Corporate City Limits
Crowe Park - Entire Facility - Full Day	$1500	$1500

Tournament Fees for Crowe Park and Summey Park

	In Corporate City Limits	Out of Corporate City Limits
Use of field	$100 per day, per field	$150 per day, per field
Deposit (Due when booking)	$50	same
Employee	$45 per hour	same

Ballfield Lights	$25 per hour	same

LEGACY SOCCER PARK

Tournament Fees for Legacy Soccer Park

	In Corporate City Limits	Out of Corporate City Limits
Use of grass field	$150 per day, per field	same
Use of turf field	$50 per hour	same
Mini Urban Pitch 50x90	$20 per hour	same
Mini Urban Pitch 70x110	$25 per hour	same
Deposit (Due when booking)	$50	same
Employee	$45 per hour	same
Field Lights	$25 per hour	same

Non-tournament Fees for Legacy Soccer Park

	In Corporate City Limits	Out of Corporate City Limits
Use of grass field, 2hrs	$30 per day, per field	same
Use of grass field, 3hrs	$35 per day, per field	same
Use of grass field, 4hrs	$40 per day, per field	same
Use of grass field, 5hrs	$45 per day, per field	same
Use of grass field, 6hrs	$50 per day, per field	same

Use of grass field, 7hrs	$55 per day, per field	same
Use of grass field, day	$60 per day, per field	same
Use of turf field	$50 per hour	same
Mini Urban Pitch Small	$20 per hour	same
Mini Urban Pitch Big	$25 per hour	same
Deposit (Due when booking)	$50	same
Field lights	$25 per hour	same

FOREST CITY CLUBHOUSE

	In Corporate City Limits	Out of Corporate City Limits
Public Rental Deposit	$100	same
Public Rental Fee (Mon.-Wed. *excluding holidays)	$100	$150
Public Rental Fee (Thurs.-Sun.)	$225	$300
Employee Rental Deposit	$100	same
Employee Rental Fee	$100	same
Security Officer	$50/hour	same
Sound System	$25/hour	same
Projector and Sound	$50/hour	same

FOREST CITY GOLF COURSE

Non-Member Daily Fees

	In Corporate City Limits	Out of Corporate City Limits
Green Fee	$15	same
9 Holes with Cart	$25	same
18 Holes with Cart	$35	same

Cart Fees

	In Corporate City Limits	Out of Corporate City Limits
9 Holes	$10	same
18 Holes	$20	same

*cart fees will go up $1 per 9 holes again in FY29 to cover new cart costs in FY26

Non-Member Senior Citizen Daily Fees (55+)

	In Corporate City Limits	Out of Corporate City Limits
Green Fee	$12	same
9 Holes with Cart	$22	same
18 Holes with Cart	$32	same

Cart Fees Senior Rate

	In Corporate City Limits	Out of Corporate City Limits
9 Holes - Weekday	$9	same

9 Holes - Weekend/Holiday	$10	same
18 Holes - Weekday	$18	same
18 Holes - Weekend/Holiday	$20	same

*cart fees will go up $1 per 9 holes again in FY29 to cover new cart costs in FY26

Yearly Memberships - Green Fees Only

	In Corporate City Limits	Out of Corporate City Limits
Individual	$400	$500
Couple or Parent/Child	$500	$600
Senior	$370	$470
Senior Couple	$450	$550
Student	$230	$330
Family	$600	$700

Fundraiser Tournament Rate ..... $25.00 (per person)

MCNAIR FIELD

Inside Corporate City Limits

Concourse Rental

<300 People $500.00

>300 People $750.00

Deposit $250.00

Parking Lot Rental (includes bathroom access)

<300 People $500.00
>300 People $750.00
Deposit $250.00

Outside Corporate City Limits

Concourse Rental

<300 People $750.00
>300 People $1,000.00
Deposit $250.00

Parking Lot Rental (includes bathroom access)

<300 People $750.00
>300 People $1,000.00
Deposit $250.00

Parking Lot Rental (does not include bathroom access) $250.00

* Renter would have to provide their own porta-johns.

Field Rental

Full Day $2,500.00
American Legion Team Post 423 ..... $500.00 (per game)
American Legion Team Post 423 ..... $750.00 (doubleheader)
Non-Owls Game Rental ..... $600.00 (+ $125.00 for each additional game)
Field Lights.....$25.00 per hour

Additional Fees

Employee ..... $45.00 (per employee & per hour)
Police/Security ..... $50.00 (per employee & per hour)
Setup Fee $50.00
Facility Use ..... $25.00 (per hour)

* Applicable when ticket holders are allowed inside the venue. This fee covers supplies, materials, and utilities used. For special events that

include large amounts of utilities such as stadium lights, the Town may charge a higher fee.

The number of employees and/or security officers will be determined by a representative from the Town.

MOONEYHAM PUBLIC LIBRARY

Fax (sending & receiving) ..... $1.00 (per page)
B&W Copies ..... $0.25 (per page)
Color Copies ..... $0.40 (per page)

PAVILION ON PARK SQUARE (POPS)

Rental ..... $2,500.00 (+ $1,500.00 for each additional day)
Non-Profit Rental ..... $1,500.00 (+ $750.00 for each additional day)

SPECIAL EVENTS & PROGRAMS

Adult Basketball (Men's Church League) ..... $500.00 (per team)
Adult Softball (Adult Open League) ..... $450.00 (per team)

Summer Programs
- Basketball Camp ..... $30.00 (per child & per session)
- Golf Camp ..... $30.00 (per child & per session)
- Tennis Camp ..... $30.00 (per child & per session)
- Volleyball Camp ..... $30.00 (per child & per session)

PLANNING & CODE ENFORCEMENT

PERMITS

$2.50 per $1,000.00 of construction cost - minimum fee of $50.00

Building ..... $50.00 (minimum)
Electrical ..... $50.00 (minimum)
Mechanical ..... $50.00 (minimum)
Plumbing ..... $50.00 (minimum)

* Re-inspection fees may apply in some situations,

MANUFACTURED HOMES

Single-Wide $100.00
Double-Wide/Triple-Wide $150.00

COMMERCIAL FEES

$2.50 per $1,000.00 of construction cost - minimum fee of $50.00 per trade

* Other miscellaneous fees may apply.

SIGNS

$2.50 per $1,000.00 of construction cost - minimum fee of $50.00

OTHER PERMITS & FEES

Outdoor Dining Permit ..... $50.00 (per year)
Administrative Fees ..... $60.00 (per hour)
Demolition Permit $0
Penalty for Working Without A Permit ..... $150.00 (+ permit fee)

RENTAL PROPERTY RE-INSPECTION FEES

A re-inspection fee may apply to scheduled inspections that are not ready or inaccessible.

ZONING

Temporary Zoning Application $100.00
Conditional Use Permit $100.00
Special Use Permit $250.00
Variance Request $250.00
Appeal Decision of Zoning Administrative Officer $0
Text Amendment to Zoning & Subdivision Regulations $100.00
Rezoning Request & Amendment to Zoning Map
- <3 acres $250.00
- >3 acres $500.00

CIVIL PENALTIES

Notice of Violation $0
First Citation/Offense $50.00
Second Citation/Offense $50.00
Third Citation/Offense $50.00

POLICE

Golf Cart Permit ..... $25.00 (paid bi-annually)

PUBLIC WORKS

ALEXANDER CEMETERY/COOL SPRINGS CEMETERY

$1,000 per plot if you live in the city limits
$1,800 per plot if you live outside the city limits

Cool Springs Columbarium space and price to be added at a later date

UTILITIES

ABC LICENSES

Each person who obtains a permit from the state Alcoholic Beverage Control Commission to sell alcoholic beverages – malt beverages, fortified and unfortified wine – must also purchase a local ABC license to engage in that business. To obtain the license, the permit holder must bring in their approved permit from the state and must pay a tax to the local governments in which the business is conducted.

City License Tax Schedule

On-Premises Malt Beverage	$15.00
Off-Premises Malt Beverage	$5.00
On-Premises Unfortified Wine, Fortified Wine or Both	$15.00
Off-Premises Unfortified Wine, Fortified Wine or Both	$10.00

Neither a city nor a county may require a license for the sale of mixed drinks. The license year for local government ABC licenses is May 1 to April 30. In addition, a city may levy a tax on a beer or wine wholesaler located in the city.

Maximum Taxes

Beer Wholesaler	$37.50
Wine Wholesaler	$37.50
Beer & Wine Wholesaler	$62.50

The wholesaler tax may not be charged to a business located outside the city.

BUSINESS REGISTRATION

The Town of Forest City requires a Business/Commercial Zoning Permit Application for any owner or operator maintaining a business location

within the city limits of the town. The purpose of this permit process is to make sure that certain life safety requirements have been met before the business opens. G.S. 160A-194 authorizes cities to “regulate and license occupations, businesses, trades, professions, and forms of amusement or entertainment and prohibit those that may be inimical to the public health, welfare, safety, order or convenience.”

The purpose of the permit process is to ensure that the business is operating in compliance with the State and/or Town building, fire, and zoning inspection regulations.

Process for Building, Fire and Zoning Inspection Regulations:

1. Business/Commercial Zoning Permit Application must be completed and approved
2. Completed and submitted application for utilities
3. Pre-Occupancy Inspection completed by the Town of Forest City Inspections Department
4. A Zoning inspection completed by the Town of Forest City Zoning Official/Town Planner
5. A Fire Inspection completed by the Town of Forest City Fire Marshal.

Prior to opening the business and beginning operation, a Certificate of Occupancy will be issued and is required to be posted inside the establishment.

Business Registration Fee……..……...$20

DEPOSITS & TRANSFER FEES

Water Deposit (Residential or Commercial) $50.00
Electric Deposit (Residential or Commercial) $100.00
Transfer Fee (Residential or Commercial) $30.00

ELECTRIC CONNECTION FEES

Temporary (For Construction) $25.00
Permanent Overhead……..……..... $30.00

Permanent Underground or Change From Overhead to Underground - see Public Works Director

Temporary (For Non-Permanent Structure)

<100 AMPS $125.00

>100 AMPS ..... determined by materials & labor

GARBAGE FEES

Residential ..... $27.37 (per container)

Small Business ..... $27.37 (per container)

Small Businesses Sharing Dumpster ..... $71.03 (per container)

Dumpsters ..... see rate schedule

REPLACEMENTS

Tapping Saddle $50.00

Street Paving (Half Street inside) $600

Street Paving (Full Street inside) $1,200

Street Paving outside rates based on DOT requirements

SEWER CONNECTIONS

Inside & Outside $750.00

THREE-PHASE CONNECTIONS

200-400 AMPS ..... $100.00 (per phase)

>400 AMPS ..... see Public Works Director

WATER TAP CONNECTIONS (inside)

¾” $1,100

1” $1,400

2” $3,100

WATER TAP CONNECTIONS (outside)

¾” $1,600

1” $2,000
2” $3,600

MINIMUM WATER & SEWER CHARGES (3,000 gallons)

Water (Inside) $17.27
Water (Outside) $31.36
Sewer (Inside) $18.14
Sewer (Outside) $32.23

OTHER FEES

Returned Check Fee $25.00
Late Charge ..... $6.00 or 1.5% (whichever is greater)
Delinquent Admin. Fee $45.00
Reconnect After Hours $75.00
If Electric Cut Off at Pole $250.00
(and balance paid to zero before reconnection)
Meter Test Fee $50.00
Hydrant Flow Test $200.00
Hydrant Meter Installation Fee $100.00
(Meter read and billed monthly based on rate schedule)
Replace broken meter box ..... charge for materials
Meter box relocation (within 10 feet) ..... ¾” $350.00
Meter box relocation (within 10 feet) ..... 1” $450.00
Meter box relocation (within 10 feet) ..... 2” requires new tap
Meter box relocation greater than 10 feet ..... requires new tap
Use of Downtown Electric Meter ..... $20.00 (per day)
Electric Charges for Outside Lighting ..... see Public Works Director
Special License ..... according to ordinance

SEPTAGE FEES

Per delivery, 1,500 gallons or less $75

Per delivery, 2,000 gallons $100
Per delivery, 2,500 gallons $125
Per delivery, 3,000 gallons $150
Per delivery, 4,000 gallons $200

** See plant superintendent for septage rates over 4,000 gallons and for all other materials per gallon.

WATER UTILITY BILLING RATES

INSIDE TOWN LIMITS (Residential, Commercial, Industrial)

3,000 gallons (minimum charge) $18.09
$4.49 per 1,000 for next 7,000 gallons $31.42
$4.03 per 1,000 for next 40,000 gallons $161.04
$3.49 per 1,000 for next 450,000 gallons $1,569.15
$2.35 per 1,000 for next 500,000 gallons $1,171.50
$1.29 per 1,000 for all over 1,000,000 gallons

OUTSIDE TOWN LIMITS (Residential, Commercial, Industrial)

3,000 gallons (minimum charge) $32.85
$8.43 per 1,000 for next 7,000 gallons $58.99
$7.56 per 1,000 for next 40,000 gallons $302.28
$6.56 per 1,000 for next 450,000 gallons $2,950.20
$2.45 per 1,000 for all over 500,000 gallons

SEWER UTILITY BILLING RATES

INSIDE TOWN LIMITS (RESIDENTIAL)

3,000 gallons (minimum charge) $19.00

$4.49 per 1,000 for next 7,000 gallons $31.42
$4.03 per 1,000 for next 40,000 gallons $161.04
$3.49 per 1,000 for next 450,000 gallons $1,569.15
$2.35 per 1,000 for next 500,000 gallons $1,171.50
$1.29 per 1,000 for all over 1,000,000 gallons

OUTSIDE TOWN LIMITS (RESIDENTIAL)

3,000 gallons (minimum charge) $33.76
$8.43 per 1,000 for next 7,000 gallons $58.99
$7.56 per 1,000 for next 40,000 gallons $302.28
$6.56 per 1,000 for next 450,000 gallons $2,950.20
$2.45 per 1,000 for all over 500,000 gallons

INSIDE TOWN LIMITS (COMMERCIAL & INDUSTRIAL)

3,000 gallons (minimum charge) $19.00
$4.48 per 1,000 for next 997,000 gallons $4,463.57
$2.25 per 1,000 for all over 1,000,000 gallons

OUTSIDE TOWN LIMITS (COMMERCIAL & INDUSTRIAL)

3,000 gallons (minimum charge) $33.76
$5.47 per 1,000 for next 997,000 gallons $5,450.60
$3.65 per 1,000 for all over 1,000,000 gallons

* Flow measurement based on 90% of water consumption

RESALE WATER RATE SCHEDULE

$3.90 per 1,000 gallons

* To qualify for Resale Water Rates, the monthly flow/usage must exceed 1,000,000 gallons per month for a minimum of six months each year.

BULK WATER SERVICE RATES

Hook-on fee for the use of Fire Hydrant $38.65

$8.43 per 1,000 gallons of water will be added to the Hook-on fee.

Only available at Town Hall hydrant. No after hours or weekend hydrant use permitted.

Billing information needed:
Name, mailing address, and how many gallons per hook-on.

WATER & SEWER RATES FOR DEDICATED SOURCE PUMP STATION LOCATIONS

Riverstone Industrial Park
East High School
Forrest Hunt School
Arvin Meritor Inc.
Chase High School
Chase Middle School
Ellenboro Elementary School

Water - Minimum $77.95 per month for 10,000 gallons or less

$7.79 per 1,000 over 10,000 gallons per month

Sewer - Minimum $77.95 per month for 10,000 gallons or less

$7.79 per 1,000 over 10,000 gallons per month

Sewer flow based on 100% of water consumption.

ELECTRIC RATE SCHEDULES

SCHEDULE RS (NC)

RESIDENTIAL SERVICE

RATE 55

Rate:		(R)
		Category 1
I.	Basic Facilities Charge per month	$9.89
II.	Energy Charges	
	For the billing months of **July-October**	
	For the first 350kwh used per month, per kwh*	11.2010
	For all over 350kwh used per month, per kwh	12.3294
	For the billing months of **November-June**	
	For the first 350kwh used per month, per kwh*	11.2010
	For all over 350kwh used per month, per kwh	12.2443

SCHEDULE G

GENERAL SERVICE – COMMERCIAL

RATE 52

Rate:		(G)
I.	Basic Facilities Charge	$13.66
II.	Demand Charge	
	For the first 30KW of Billing Demand per month	No charge
	For all over 30KW of Billing Demand per month	4.37 per KW
III.	Energy Charge	
	<u>For the first 125Kwh per KW Billing Demand per month:</u>	
	For the first 3,000 Kwh per month	14.7670
	For the next 87,000 Kwh per month	9.0230
	For all over 90,000 Kwh per month	7.3218
	<u>For the next 275Kwh per KW Billing Demand per month:</u>	
	For the first 6,000 Kwh per month	9.1866
	For the next 134,000 Kwh per month	9.0342
	For all over 140,000 Kwh per month	8.5442
	<u>For all over 400Kwh per KW Billing Demand per month:</u>	
	For all Kwh per month	8.2463

SCHEDULE I

INDUSTRIAL SERVICE

RATE 54

Rate:		(I)
I.	Basic Facilities Charge	20.53
II.	Demand Charge	
	For the first 30KW of Billing Demand per month	No charge
	For all over 30KW of Billing Demand per month	4.34 per KW
III.	Energy Charge	
	<u>For the first 125Kwh per KW Billing Demand per month:</u>	
	For the first 3,000 Kwh per month	14.5350
	For the next 87,000 Kwh per month	9.1156
	For all over 90,000 Kwh per month	7.1762
	<u>For the next 275Kwh per KW Billing Demand per month:</u>	
	For the first 140,000Kwh per month	8.6320
	For all over 140,000 Kwh per month	8.0298
	<u>For all over 400Kwh per KW Billing Demand per month:</u>	
	For all Kwh per month	7.7904

SCHEDULE I

INDUSTRIAL SERVICE

NEW 3-PHASE UPGRADE

RATE 58

Rate: (I)

I.	Basic Facilities Charge	$313.81
II.	Demand Charge	
	For the first 30KW of Billing Demand per month	No charge
	For all over 30KW of Billing Demand per month	4.34 per KW
III.	Energy Charge	
	For the first 125Kwh per KW Billing Demand per month:	
	For the first 3,000 Kwh per month	14.5350
	For the next 87,000 Kwh per month	9.1156
	For all over 90,000 Kwh per month	7.1762
	For the next 275Kwh per KW Billing Demand per month:	
	For the first 140,000Kwh per month	8.6320
	For all over 140,000 Kwh per month	8.0298
	For all over 400Kwh per KW Billing Demand per month:	
	For all Kwh per month	7.7904

Town of Forest City
Resolution # ___
Authorizing the Town of Forest City to Engage in Electronic Payments as Defined by G.S. 159-28 or G.S. 115C-441

WHEREAS, it is the desire of the Board of Commissioners that the Town of Forest City is authorized to engage in electronic payments as defined by G.S. 159-28 or G.S. 115C-441

WHEREAS, it is the responsibility of the Town Manager, who is appointed by and serves at the pleasure of the Board of Commissioners, to adopt a written policy outlining procedures for pre-auditing obligations that will be incurred by electronic payments as required by NC Administrative Code 20 NCAC 03 .0409;

WHEREAS, it is the responsibility of the Town Manager, who is appointed by and serves at the pleasure of the Board of Commissioners, to adopt a written policy outlining procedures for disbursing public funds by electronic transaction as required by NC Administrative Code 20 NCAC 03 .0410;

NOW, THEREFORE, BE IT RESOLVED, by the Board of Commissioners of the Town of Forest City

Section 1. Authorizes the Town of Forest City to engage in electronic payments as defined by G.S. 159-28 or G.S. 115C-441;

Section 2. Authorizes the Town Manager to adopt a written policy outlining procedures for pre-auditing obligations that will be incurred by electronic payments as required by NC Administrative Code 20 NCAC 03 .0409;

Section 3. Authorizes the Town Manager to adopt a written policy outlining procedures for disbursing public funds by electronic transaction as required by NC Administrative Code 20 NCAC 03 .0410; and

ADOPTED the 1st day of June, 2026.

_____

Mayor, Steve Holland

SEAL

ATTEST:

_____ Emily Sain, Town Clerk

TOWN OF FOREST CITY

PURCHASING POLICY

June 1, 2026

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I. GLOSSARY

Bid: A multi-step process required of the Town by North Carolina General Statutes. Quotes from three separate vendors are required during any bid process unless the goods or services to be supplied are produced by only one vendor.

Informal Bid: A bid on items above $30,000 but below $90,000 or on professional services under $500,000. Requests for quotes are not required to be advertised to the public.

Formal Bid: A bid on items of $90,000 and above or on professional services $500,000 and above. Public advertisement of the request for quote and bid process must be made, bids must be opened in a public forum, and Town Council must approve the winning bid.

Quote: A price provided by a vendor on a provided good or service.

Informal Quote: A quote received via verbal communication, email, website, catalog, or fax.

Formal Quote: A price quote received via U.S. Mail, email, fax, or hand delivery.

Requisition: Input into the financial system by a department to request the generation of a purchase order by the Finance Department prior to a purchase.

Purchase Order (PO): Authorization for the purchase of goods sent by the Finance Department to a vendor prior to the purchase.

Request for Written Quotation (RFQ): A request sent to a vendor for a written quote on a certain good or service.

Encumbering: To commit a given amount of money to the payment of an order.

Purchasing/Procurement: Interchangeable, how the Town obtains needed goods and services.

Department Head: The individual authorized to make purchasing decisions on behalf of their department.

Vendor: Provider of a good or service.

II. INTRODUCTION

A local government's power to make purchases and enter into contracts is derived from the Legislature and is subject to such limitations and restrictions as it may impose. The basic grant of power to purchase and contract for municipalities is found in North Carolina General Statute 160A-11. The provisions within this policy shall be in compliance with the North Carolina General Statutes regarding purchasing. This Purchasing Policy establishes rules and regulations to govern all purchases and contracts by the Town of Forest City.

This purchasing policy is intended for use as a guide to the Town of Forest City's purchasing methods and practice. When used properly, the policies and procedures established herein will enable the Town to obtain needed goods and services efficiently and economically. The goal of this policy is to give structure to the Town's procurement methods and to set guidelines for Town departments.

The understanding and cooperation of all employees is essential for the Town to maximize the value of each taxpayer dollar spent. While this manual does not answer all procurement related questions, it provides a sound foundation for Town procurement methods.

The goals of the Town's purchasing program are as follows:

1. To comply with legal and ethical requirements of public purchasing and procurement.
2. To assure vendors that impartial and equal treatment is afforded to all who conduct business with the Town.
3. To receive maximum value for money spent by awarding purchase orders to the lowest responsible, responsive bidder, taking into consideration quality, performance, delivery schedule, previous performance, business location, and other relevant factors.
4. To provide Town departments with the required goods and services in a timely manner in the proper quantity and quality while providing necessary information to the Town Finance Department.
5. To professionally administer the search for sources of supplies, the development of new sources, the selection of suppliers, negotiations, commitments, follow-ups, and adjustments.
6. To promote healthy business relationships through informed and fair purchasing practice and maintenance of ethical standards.
7. To maximize the standardization of products used by all departments to minimize stock levels and obtain better prices for necessary goods and services.

If the procedures and guidelines established in this manual are followed, each department will be capable of managing, controlling, and planning available resources to meet present and future needs. Purchasing statutes and rules may change from time to time and this policy shall update periodically to reflect these changes. Any questions or concerns about this manual or the established procedures should be directed to the Town Finance Department.

This policy is effective immediately following Town Council adoption and supersedes all previous purchasing or procurement instructions or directives.

III. GENERAL GUIDELINES AND AUTHORIZATION FOR EXPENDITURES

3.A LOCAL BUYING

It is the desire of the Town of Forest City to contract with vendors within Rutherford County whenever possible. This can be accomplished by ensuring that local vendors who have goods or services available, which are needed by the Town, are included in the competitive purchasing process. The Town has a responsibility to its citizens and local businesses; however, the Town must ensure taxpayer money is spent with prudence. The Town does not make purchasing decisions based exclusively on the location of the vendor; however, every effort will be made to encourage qualified local vendors and suppliers to compete for Town business.

3.B PLANNING

It is imperative that all Town departments take time to properly plan purchases. Purchasing plans should be made for goods and services to be purchased in both the near and distant future; thereby minimizing small orders and last-minute purchases. Planning is of highest importance to the Town because proper planning reduces unnecessary clerical and supervisory time costs associated with the procurement process. Purchases during the month of June, when preparing for fiscal year end may also be limited.

3.C PURCHASE AUTHORIZATION

Funds must be properly appropriated or budgeted to meet contractual obligations. Prior to the issuance of a contract, agreement, or purchase order, the Finance Director shall verify that sufficient funds remain available within the applicable budget appropriation to satisfy the financial obligation.

In accordance with G.S. 159-28(a), a pre-audit certification signed by the Finance Director, or duly authorized deputy finance officer, must appear on all contracts, agreements, and purchase orders before it becomes a binding obligation of the Town. The purpose of the purchase order process is to ensure that adequate funds are available and properly encumbered before a purchase commitment is made.

Pursuant to G.S. 159-28(e), any officer or employee who incurs an obligation or authorizes the expenditure of funds in violation of this statute may be held personally liable for the amount improperly committed or disbursed. Additionally, any finance officer or deputy finance officer who knowingly issues a false pre-audit certification may likewise be held personally liable for any funds unlawfully obligated or expended.

The purchase of supplies, materials, equipment, or services without proper authorization is strictly prohibited. Unauthorized purchases may not be recognized or paid by the Town, and

the individual responsible for the unauthorized obligation may be held personally responsible for all associated costs.

3.D TYLER ERP PRO 10 FOR PROCUREMENT

The Town uses Tyler for procurement activities. All purchases with the exception of those listed in Section 3.E should be entered by the requesting department via a Tyler requisition. Upon entry of a requisition, the appropriate approval flow is automatically populated. Once the requisition is approved, a purchase order will then be generated and forwarded to the department for placing the order. Orders are not to be placed by departments with the vendor until the approved Purchase Order number has been assigned. Please reach out to the Town Finance Department for any related questions.

3.E PURCHASES NOT REQUIRING A PURCHASE ORDER

- Legal advertisement
- Town dues and subscriptions
- Claim payments (citizens filing for damages/reimbursement)
- Insurance
- Postage
- Refunds
- Permits
- Utilities (electricity, water, sewer, cable, internet, natural/propane gas, trash, etc.)
- Lease purchase payments
- Debt service payments
- Approved travel arrangements and accommodations
- Professional services
- Projects with a Capital Project Ordinance
- Special Appropriations
- Credit Card/P-Card purchases below $1,000

3.F CASH PURCHASES

Cash purchases should be avoided, but in the event, it is not feasible to be billed for very small purchases, the employee may, with department head approval, buy the item and be reimbursed. The employee must submit a receipt for reimbursement accompanied by a completed Check Request Form approved by the Department Head. The request must be sent to the Finance Department with an explanation or purpose for the expenditure for reimbursement. Reimbursement will be made in the next regularly scheduled check run.

3.G CONFLICT OF INTEREST

The Conflict-of-Interest statute prohibits public officials (Mayor, Council Members, and Department Heads) or employees who are involved in the making or administering of a

contract from deriving a direct benefit from the contract. Town employees shall not have any financial interest or personal beneficial interest, either directly or indirectly, in the purchase of material, equipment, supplies, nor in any firm, corporation, partnership, or association furnishing material, equipment, or supplies. Violation could be considered a misdemeanor.

3.H GIFTS AND FAVORS

Town employees are prohibited from soliciting or accepting any rebate, money, entertainment, gift, or gratuity from any person, company, firm, or corporation to which any purchase order or contract is, or might be awarded. The Town will not tolerate circumstances that produce, or reasonably appear to produce, conflicts between the personal interests of an employee and the interest of the Town. Accordingly, the Town may terminate, at no charge to the Town, any purchase order or contract if it is found that substantial gifts or gratuities were offered to a Town employee. The Town may also take disciplinary action, including dismissal, against a Town employee who solicits or accepts gifts or gratuities of any value whatsoever.

Please refer to Article V. Section 7 of the Personnel Policy regarding Acceptance of Gifts and Favors.

3.I SALE OF TOWN PROPERTY

The following procedures should be followed for disposal of surplus property:

1. Departments should dispose of surplus property through the Town Clerk.
2. Surplus property will be offered to Town departments before being sold by auction, electronic auction, or delivery to the State surplus facility.
3. Property, either individually or a similar group of items, with an estimated current value of greater than $5,000, must be declared surplus by the Town Council. The Town Council has designated authority to the Town Manager to declare property as surplus with an estimated current value less than or equal to $5,000.
4. The Town Manager may dispose of surplus personal property by any means which is judged to be reasonably calculated to yield the highest attainable sales price.
5. The Town Clerk shall maintain records of all property sold or exchanged, which shall include a general description of the property sold, to whom it was sold, or with whom exchanged, and the amount of money or other consideration received for each sale or exchange.
6. The Town may discard any personal property that is:
    A. Determined to have no value.
    B. Remains unsold or unclaimed after the Town has exhausted efforts to sell the property using any applicable procedures under N.C. General Statutes.
    C. Poses a potential threat to public health or safety.

3.J ELECTRONIC PAYMENTS/CREDIT CARDS/P-CARDS

The Town Council has authorized the Town of Forest City to utilize electronic payments in accordance with G.S. 159-28. Pursuant to 20 NCAC 03 .0409 and 20 NCAC 03 .0410, this policy establishes procedures for the pre-audit of obligations incurred through electronic payments and for the disbursement of funds by electronic transactions.

Prior to Making a Transaction

Before initiating an electronic payment or credit card transaction, the employee making the purchase must ensure that:

1. An approved budget ordinance, project ordinance, or grant ordinance authorizes the expenditure; and
2. Sufficient funds remain available within the applicable appropriation to cover the anticipated expenditure for the current fiscal year, or the full project amount when accounted for within a project or grant ordinance.

After Completing a Transaction

Following each transaction, the employee shall:

1. Provide a detailed receipt or invoice for each transaction charged to the credit card or P-Card. Internet purchases must include a copy of the order confirmation or receipt page.
2. Submit all supporting documentation to the Department Head for review and approval. The approval documentation must include:
    - The purchase order number, when applicable;
    - The general ledger account number to be charged; and
    - The Department Head's signature or approval authorization.
3. Forward all approved documentation, including receipts, monthly credit card statements, and journal reports, to the Finance Department by the end of each month.

Undocumented Transactions

Transactions submitted without supporting documentation or receipts are prohibited and may be considered personal expenditures unless the employee provides written justification approved by the Department Head. The explanation must include:

- A description of the items purchased;
- Date of purchase;
- Vendor name;
- Reason documentation is unavailable; and
- Department Head approval.

The Finance Department reserves the right to request additional supporting information or deny reimbursement/payment of undocumented transactions. Any disallowed transaction shall become the personal financial responsibility of the employee.

3.K VENDORS WITH TOWN ACCOUNTS

The Town should have accounts with certain vendors where possible in order to expedite the purchasing process for frequently needed minor items. In the event the Town has an account with a certain vendor, Town employees should not use credit or purchase cards to obtain goods or services from the vendor. Proper purchasing procedures should be followed, and only authorized purchases should be charged to Town accounts.

3.L ORDER FOLLOW-UP AND PAYMENTS

The procurement function is not accomplished by simply placing an order with the supplier. Satisfactory delivery must also be made. To ensure delivery will be made when required, follow-up is necessary. Follow-up or expediting delivery of an order is part of the purchasing process and can be more efficiently handled by the purchasing party.

The Finance Department will, on a regular basis, send a list of the outstanding Purchase Orders to the appropriate Department Head for their review to follow up on orders that have not been filled in a timely manner.

Some vendors offer a discount if their invoices are paid promptly. To take advantage of this discount and to maintain good vendor relations, it is important that all invoices, packing slips, and receiving reports be forwarded to the Finance Department without delay. These documents should reach the Finance Department within 1 to 3 business days after their receipt. If late fees are assessed due to the delinquency of an invoice that was not submitted timely to Finance and the vendor will not waive the fee, the fee will be charged to the applicable departmental budget.

Some purchase orders may list several items. It is possible the vendor may complete timely delivery on some items, which are referred to as "partial deliveries”. Upon receipt of a partial delivery, photocopy the purchase order; attach the original signed delivery receipt and forward to the Finance Department indicating which lines of the PO are to be paid.

IV. PURCHASING PROCEDURES

The required purchasing procedures for a requisition vary based on the dollar amount of purchase. The purchasing process is designed to provide a proper system of internal control over purchasing, to ensure that the proper authorizations are obtained before items are purchased, and to ensure that statutory requirements for purchasing are followed. There are different Local and State requirements for purchasing, bidding, and contracting based on the type of purchase made. Therefore, this section is broken into the following sections:

- Purchases of Apparatus, Supplies, Materials or Equipment
- Construction and Repair Work
- Service Contracts
- Limitations of Procurement
- Exceptions to the Bid Process (G.S. 143-129)
- Special Procurement Procedures

4.A PURCHASES OF APPARATUS, SUPPLIES, MATERIALS, OR EQUIPMENT

1. Purchases Less Than $1,000

Purchases for less than $1,000 may be made with the approval of the Department Head without issuance of a purchase order. Employees must obtain and submit the original invoice or receipt, secure written approval from the Department Head, assign the appropriate general ledger account number, and forward all documentation to the Finance Department for payment processing.

Whenever possible, purchases should be made from reputable vendors willing to invoice the Town directly. The intentional division of purchases for the purpose of avoiding requisition or purchase order requirements is strictly prohibited.

2. Purchases Between $1,000 - $4,999.99

A requisition must be submitted and approved prior to the purchase of any item or related group of items exceeding $1,000. Once reviewed and approved by the Finance Department, the requisition will be converted into a purchase order.

Competitive quotes are not required for purchases below $5,000. Department Heads are responsible for determining the necessity of the purchase and ensuring that goods or services are obtained at the best value, considering quality, suitability, and cost.

3. Purchases Between $5,000 - $29,999.99

When available, North Carolina State Contract pricing shall first be reviewed to establish a pricing benchmark for the proposed purchase. Departments may utilize a State Contract, an approved Cooperative Purchasing Agreement, or proceed through the

written quotation process. If a State Contract or Cooperative Purchasing Agreement is used, supporting documentation identifying the contract name and contract number must be attached to the requisition.

If no applicable contract source is used or available, departments must solicit a minimum of three (3) written quotes by email, fax, mail, or hand delivery. Quotes must be submitted to the Finance Department along with the requisition. The requisition will not be approved until all required quotes, or written justification for the absence of three quotes, have been received.

Quotes should be based on comparable items, equal quantities, and delivered pricing. If fewer than three quotes are obtainable, or if the lowest quote is not selected, written justification must accompany the requisition.

In cases where goods or services are available from only one vendor, the requisition must clearly identify the purchase as a "sole source" procurement and include supporting justification.

If a department reorders the same item within twelve (12) months of a previous quote and the vendor agrees to honor the prior pricing, new quotes are not required. Documentation identifying the prior quote date and purchase order number must accompany the requisition.

Following Finance Department review and approval, the requisition shall be converted into a purchase order.

4. Purchases Between $30,000 - $89,999.99

(Informal Bid Range- Special Procedures)

Where available, North Carolina State Contract pricing shall first be reviewed to establish a pricing benchmark for the purchase. Departments may utilize a State Contract, an approved Cooperative Purchasing Agreement, or proceed through the informal bid process. Documentation identifying the applicable contract name and contract number must be attached to the requisition when using these purchasing methods.

If no applicable contract source is used or available, purchases within this range must be procured through the informal bidding procedures established under N.C.G.S. 143-131. Departments shall provide vendors with detailed specifications, including descriptions, brand or model numbers, quantities, units, and required delivery dates. The Finance Department may assist departments with the informal bidding process as needed.

Departments should attempt to solicit at least three (3) bids; however, contracts within the informal bidding range may be awarded when only one responsive bid is received

after reasonable efforts to obtain multiple bids have been made. Departments should allow sufficient time for the solicitation and receipt of quotes.

Informal bids may be received by email, fax, or other written means and are not required to be publicly opened. Bidder identities shall remain confidential until the contract award is made. Following the award, all quotes become public records and shall be maintained by the Finance Department.

After review by the Department Head and Finance Department, the contract shall be awarded to the lowest responsive and responsible bidder, taking into consideration quality, suitability, delivery schedule, and other relevant factors. If the lowest bid is not selected, written justification for the decision shall be documented and retained.

Upon approval, the Department Head or authorized employee shall submit a requisition, which will then be converted into a purchase order by the Finance Department.

5. Purchases $90,000 and Above

(Formal Bid Range- Special Procedures)

When available, North Carolina State Contract pricing shall first be reviewed to establish a pricing benchmark for the proposed purchase. Departments may utilize a State Contract, an approved Cooperative Purchasing Agreement, or proceed through the formal bidding process. If a State Contract or Cooperative Purchasing Agreement is used, supporting documentation identifying the contract name and contract number must be attached to the requisition.

If no applicable contract source is used or available, purchases within this range shall be procured through a formal bidding process in accordance with N.C.G.S. 143-129. The Finance Department, in coordination with the requesting Department Head, shall oversee the formal bidding process. These procurements typically require detailed specifications, special conditions, and formal solicitation procedures.

Bid specifications shall include, at a minimum:

- Description of the goods or equipment;
- Brand and model information, when applicable;
- Quantities and units;
- Required delivery dates; and
- Identification of known vendors, when available.

The Department Head shall distribute Invitations to Bid and Instructions to Bidders to prospective vendors. Formal sealed bids must be publicly advertised in a newspaper of general circulation at least seven (7) days prior to the bid opening date. Electronic-only advertising may be used only when authorized by the Town Council.

The public notice shall include:

- The date, time, and location of the bid opening;
- Instructions regarding where bid specifications may be obtained; and
- A statement reserving the Town Council's right to reject any or all bids for sound, documented reasons.

Departments should anticipate that the formal bidding process may require approximately thirty (30) to forty-five (45) days from advertisement to award.

All bids shall remain sealed in the Town Clerk's Office until the designated opening date and time. Vendors should generally be provided with a minimum of fourteen (14) working days to submit bids, depending upon the complexity and scope of the procurement. Upon receipt, all bids shall be date- and time-stamped by the Town Clerk. Bidder identities shall remain confidential until the public bid opening.

Following the bid opening, the Finance Department and Department Head shall review and evaluate all bids for compliance with specifications, quality, suitability, delivery schedule, and any additional bid requirements. The Town Manager shall make a recommendation for award based upon the determination of the lowest responsive and responsible bidder.

If the lowest bid is not recommended for award, the Department Head and/or Finance Department shall prepare written justification supporting the decision.

After opening, all bids become public records and shall be maintained by the Finance Department in accordance with applicable record retention requirements.

Upon approval of the award by the Town Council, the Department Head or authorized employee shall submit a requisition, which will then be converted into a purchase order by the Finance Department.

4.B CONSTRUCTION AND REPAIR WORK – BIDDING REQUIREMENTS

1. Informal Construction Contracts

(less than $500,000 – G.S. 143-131)

Construction and repair contracts with a total project cost of less than $500,000 shall be administered by the applicable Department Head, contracted engineer (when applicable), and any other Town officials deemed necessary. These individuals shall be responsible for developing project specifications and preparing the required bid documents for distribution to prospective bidders. All applicable North Carolina General Statutes governing public construction bidding shall be followed.

Upon completion of the bidding process, the Department Head shall recommend to the Town Manager the lowest responsive and responsible bidder determined to be in the best interest of the Town. Following approval by the Town Manager, the Department Head shall submit a requisition and forward all executed contract documents to the Finance Department for issuance of a purchase order.

If the contract is not awarded to the lowest bidder, a complete written explanation supporting the decision shall be maintained with the procurement records.

The following procedures apply to informal construction contracts:

1. Bids may be submitted in writing, by fax, or electronically by email.
2. Public bid openings are not required.
3. Bid bonds are not required unless otherwise mandated by law or project specifications.
4. Payment and performance bonds are not required for projects under $30,000, except where otherwise required by statute.

2. Formal Construction Contracts

($500,000 and above – G.S. 143-129)

Construction and repair contracts with a total project cost of $500,000 or greater shall be administered by the applicable Department Head, contracted engineer (when applicable), and other Town officials as necessary. These individuals shall develop project specifications and prepare all required bid documents in compliance with applicable North Carolina General Statutes.

Upon completion of the formal bidding process, the Department Head shall recommend to the Town Manager and Town Council the lowest responsive and responsible bidder determined to be in the best interest of the Town. Following Town Council approval, the Department Head shall submit a requisition and provide all executed contract documents to the Finance Department for issuance of a purchase order.

If the contract is not awarded to the lowest bidder, a complete written explanation supporting the decision shall be included with the procurement records.

The following requirements apply to formal construction contracts:

1. Public advertisement shall be made at least seven (7) days prior to the bid opening date.
2. Competitive bids shall be solicited whenever practical.
3. All bids must be sealed.
4. Public bid openings are required.
5. Bid bonds shall be provided in accordance with North Carolina General Statutes.
6. Payment and performance bonds shall be required as mandated by statute.

3. Contract Change Orders

A contract change order is a written amendment to an existing contract and shall be processed in the same manner as the original contract. Any modification that alters the scope, price, terms, or conditions of the original agreement shall require an approved change order or formal contract addendum.

4. Force Account Work (G.S. 143-135)

Competitive bidding requirements are waived when the Town chooses to use its workforce to accomplish construction or repair work.

- The Town is authorized by statute to perform its own construction and repair work, provided the work is performed by its own employees, **and**
- When either the total cost of the project, including all direct and indirect costs of labor, services, materials, supplies and equipment, does not exceed $500,000, or the total cost of labor on the project does not exceed $200,000.

5. Minority Owned Business Enterprise (MBE) Participation

The Town follows G.S. 143-128.2 regarding Minority Owned Business Enterprise Participation in the awarding of building construction contracts of $300,000 or more.

4.C SERVICE CONTRACTS

The purpose of this policy is to establish a consistent and uniform process for the administration of service contracts. Departments shall select service providers in accordance with the procedures set out in this policy and the approval of the Department Head.

A service contract is an agreement primarily for the provision of labor, expertise, or professional effort rather than the delivery of a tangible product. Under North Carolina General Statutes, service contracts are generally not subject to formal bidding requirements; however, competitive procurement practices should be used whenever practical and when sufficient competition exists within the marketplace.

Service contracts fall into two categories, which are considered professional services or other service contracts.

1. Professional Services

Professional service contracts include services requiring specialized education, training, technical knowledge, or professional expertise. Examples include, but are not limited to, architectural, engineering, legal, financial, auditing, consulting, appraisal, surveying, planning, environmental, design, and related professional services.

Professional service providers shall be selected based on criteria that may include qualifications, experience, technical expertise, innovation, creativity, project approach,

value-added services, and cost, as determined by the Department Head and reviewed by the Town Manager.

2. Other Service Contracts

Other service contracts include agreements for services such as equipment rentals, maintenance agreements, janitorial services, demolition, towing, security services, and similar operational activities. Departments may establish such contracts as necessary to support departmental operations, subject to approval by the Department Head.

3. Contract Authorization and Administration

The Town Manager and/or Finance Director are the only individuals authorized to execute contracts obligating Town funds for amounts up to fifty thousand dollars ($50,000). Contracts exceeding $50,000 require approval by the Town Council.

No contract that pledges the faith or credit of the Town shall be valid unless executed by the Town Manager and/or Finance Director.

The original executed contract shall be filed with the Town Clerk, and a copy shall be provided to the Finance Department. All leases and contracts involving the purchase, lease, or rental of real property shall be negotiated through the Town Manager's Office in coordination with the Town Council.

4. Contract Requirements

All service contracts shall:

1. Include a maximum dollar amount or spending limit.
2. Be limited to the applicable fiscal year whenever possible (July 1 through June 30).
3. Include a non-appropriation clause for any contract extending beyond one fiscal year.
4. Contain a pre-audit certification signed by the Finance Director in accordance with N.C.G.S. 159-28.
5. Identify the account number to be charged.
6. Be encumbered through the issuance of a purchase order upon execution. Following pre-audit approval, the contract shall be forwarded to the Finance Department for entry into the financial system and issuance of a purchase order.

5. Information Technology and Telecommunications Purchases

All purchases related to information technology equipment, software, or IT service contracts must be approved by the IT Director or the IT Director's designee.

All telephone and cellular phone purchases require approval by the IT Director without exception.

4.D LIMITATIONS OF PROCUREMENT

1. E-Verification Requirement

No contract shall be entered into unless the contractor is in compliance with the E-Verify requirements set forth in G.S. 143-133.3. These requirements apply only to contractors employing twenty-five (25) or more employees.

The following contracts and expenditures are exempt from the E-Verify requirements:

- Expenses related to employee or official travel, including transportation and lodging for employees, officers, agents, elected officials, or members of state or local boards, commissions, committees, or councils.
- Contracts solely for the purchase of goods, apparatus, supplies, materials, or equipment. Contracts involving a combination of purchase and construction, or purchase and services, are not exempt.
- Contracts awarded pursuant to G.S. 143-129(e)(1), (9), or (9a), including purchases made directly from another governmental unit or from vendors under contract with the State of North Carolina or a federal agency.
- Contracts awarded pursuant to G.S. 143-129(g), commonly referred to as the "piggyback" exception to competitive bidding requirements.

2. Divestment from Companies that Boycott Israel

Pursuant to Article 6G of Chapter 147 of the North Carolina General Statutes, the Town shall not invest state funds in, or enter into contracts with, any company that boycotts or is engaged in a boycott of the State of Israel. Verification of restricted companies may be obtained through the North Carolina State Treasurer's Office. This requirement does not apply to contracts with a total value of one thousand dollars ($1,000) or less.

3. Contracts Spanning More Than One Town Fiscal Year

Any contract or agreement requiring performance beyond a single Town fiscal year shall include the following non-appropriation clause:

Non-Appropriation Clause: The Town shall not be obliged for performance hereunder in any of the Town's future fiscal years unless and until the Town's Board of Commissioners appropriates funds for this Agreement in the Town's budget for each

fiscal year. In the event that funds are not appropriated for this Agreement, then this Agreement shall terminate as of June 30 of the last fiscal year for which funds were appropriated. The Town shall provide notice of non-appropriation to the other party at the earliest practical date. In the event of any conflict between this provision and any other provision of the Agreement, this provision shall take priority.

4.E EXCEPTIONS TO THE BID PROCESS (G.S. 143-129)

1. Purchases of gasoline, diesel fuel, alcohol fuel, motor oil or fuel oil. These may be purchased after receiving informal bids, regardless of the size of the expenditure.

2. In cases of special emergencies involving the health and safety of the people or their property. The emergency must be present, immediate, and existing. It may not be a condition that is merely anticipated and may never actually occur. Poor planning does not constitute an emergency.

3. Purchases from other units of government.

4. A construction or repair project undertaken using the permanent work force of the unit, if the total cost of the project does not exceed $500,000 or if the labor costs do not exceed $200,000. See Force Account Work details in Section 4.B.d.

5. Purchases of information technology through contracts established by the State Office of Information Technology services as provided in G.S. 147-33.82(b) and G.S. 147-33.92.

6. Change order work during the progress of a project that was initially bid.

7. Purchases from federal or State contracts, if the contractor is willing to extend the same or more favorable pricing, terms, and conditions as established in the federal or State contract.

8. "Sole Source" purchases. However, purchases made under this exception must be approved by the governing board. A written explanation or justification must be kept on record.

9. Purchases of used apparatus, supplies, materials, or equipment.

10. "Piggybacking" (purchases from suppliers to other public agencies). Local governments may purchase apparatus, supplies, materials or equipment from a supplier that has, within the past twelve (12) months, contracted to furnish an item to any government agency. The contractor must be willing to supply the item to the local government for the same or more favorable price. In addition, the prior contract must be one that was entered into following a public bid to process. A notice in a newspaper which has a general circulation must appear ten (10) days prior to the meeting of the governing board indicating the intent to consider a waiver of competitive bidding.

11. Under NC General Statute 143-129(e)(3), local governments can use an exception to the bidding statutes for "competitive bidding group purchasing programs." A competitive bidding group purchasing program must be a formally organized program that offers competitively obtained purchasing services at discount prices to two or more public agencies.

12. Guaranteed energy savings contracts, which are governed by Article 3B of Chapter 143 of the General Statutes.

13. Contracts by a public entity with a construction manager at risk executed pursuant to G.S. 143-128.1.

14. Build-to-suit capital leases with a private developer under G.S. 115C-532.

Although waivers of competitive bidding are sometimes permitted, the use of competitive bidding is required whenever practical. All reasons for a waiver of the competitive bidding process must be documented.

4.F SPECIAL PROCUREMENT PROCEDURES

1. Blanket Purchase Orders

The Finance Director will issue blanket purchase orders to selected vendors for the procurement of certain items when the amount of paperwork involved makes it impractical to use the regular purchase order procedure. These could be done on a quarterly, semi-annual, or annual basis. The Purchase Order is to include a maximum amount at the time of issuance. If, during the fiscal year, it appears that the Purchase Order amount will not be sufficient, an additional Purchase Order will need to be requested.

With each purchase under the Blanket Purchase Order process, Department Heads must approve the vendor's delivery ticket or receipt, and the purchase order number must be indicated. The account number to be charged for the expenditure must also be indicated. The department should then forward it to the Finance Department for payment. Specific employees should be designated to have the ability to make purchases under the blanket Purchase Order. The issued PO will instruct the vendor that unauthorized purchases will not be allowed. It is the responsibility of the individual authorized to purchase under a Blanket Purchase Order to ensure that adequate funds are available for purchases.

Blanket Purchase Orders should never be used for equipment purchases such as mowers, weed trimmers, blowers, appliances, etc. These items need more specific documentation than a blanket purchase order allows, including serial number, model number and date of purchase.

Blanket Purchase Orders are only valid for the current fiscal year for which they are entered.

2. Emergency Purchases ($1,000 or above)

Supplies or services which qualify for emergency purchase are those for which immediate procurement is essential to prevent delays in work that may affect the life, health, or safety of the Town employees or citizens. In cases of emergencies, the Department Head or his/her designee may purchase directly from any vendor.

The user department shall exercise good judgment and use established vendors when making emergency purchases. The best possible price should be obtained and only essential, emergency-related items purchased. A failure to anticipate needs does not constitute an emergency. Needs should be anticipated in advance and emergency purchases avoided whenever possible. Emergency orders may be costly as vendor supplies and/or resources may not be adequate on short notice, often necessitating higher prices for services or goods rendered.

The use of emergency purchase procedures should be carefully considered and limited whenever possible.

During working hours, if an emergency purchase is required, contact the Finance Director and give all pertinent information to obtain a purchase order. The information needed will include vendor name, items(s) to be purchased with quantities, expenditure account to which the item(s) will be charged and the reason for the emergency purchase. After verifying available funds, a purchase order will be issued immediately for the expenditure.

After working hours, the spirit and intent of all purchasing procedures should be followed until such time as normal processing and administration can occur. The invoice received should be coded with the account(s) to be charged and signed. A brief explanation of the nature of the emergency should be attached. The Finance Director must be notified of the purchase and the circumstances the morning of the next business day.

3. State of North Carolina Purchase Contract

Departments are encouraged to utilize contracts established through the North Carolina Department of Administration Purchase and Contract Division and approved Cooperative Purchasing Agreements whenever practical for the procurement of capital and non-capital goods and services. Use of these contracts helps streamline the purchasing process, provides competitively established pricing, and satisfies applicable North Carolina General Statutes procurement requirements.

Department Heads are responsible for becoming familiar with available State and cooperative purchasing contracts and for reviewing these resources prior to seeking alternative procurement methods. Whenever possible, departments should utilize these contracts when they provide pricing or terms advantageous to the Town.

For purchases below ninety thousand dollars ($90,000), departments shall review available State Contract options before initiating other procurement procedures. State and cooperative contracts often provide pricing comparable to or better than pricing obtained through formal or informal quotations and may reduce administrative processing time.

Current State of North Carolina purchasing contracts may be accessed at the following sources:

- Non-IT Statewide Term Contracts:
  NC Purchase and Contract Statewide Term Contracts
- Statewide Information Technology Contracts:
  NC Statewide IT Contracts
- Agency-Specific State Contracts:
  NC Agency-Specific Contracts

This policy is effective immediately following Town Council adoption and supersedes all previous purchasing or procurement instructions or directives.

Approved the 1st day of June 2026.

_____

Mayor, Steve Holland

STAFF REPORT

To the Board of Commissions
From Planning Board

DATE: June 1st, 2026

SUBJECT: SUB-2026-0001

Daniel Rd BT, LLC is requesting subdivide property owned by Rutherford County at 0 Piney Ridge Rd (1538492388). This preliminary plat includes a proposed 164 single-family lots, soil and erosion control plan, utility plans, proposed stormwater control measures, road layout, existing features plan, and more relevant/required material. This subdivision was originally approved in December 2024 for 152 single-family lots.

REQUEST INFORMATION:

Applicant: Daniel Rd BT, LLC
Location: Daniel Rd and Piney Ridge Rd
Development Name: The Preserve at Bracketts Creek
Zoning: R-6
New Roads Proposed: 4
Number of Lots: 164

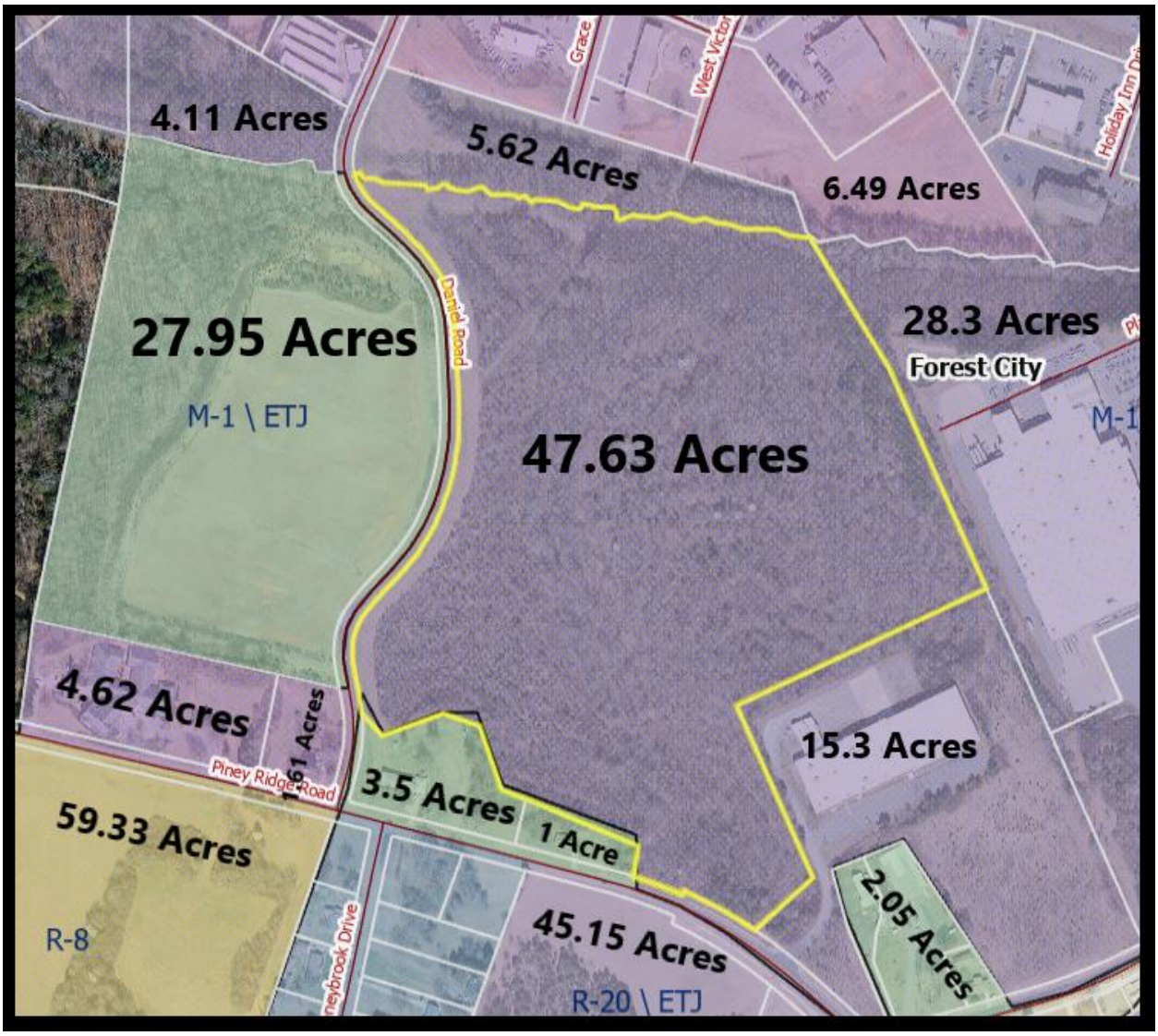
STAFF RECOMMENDATION:

Approve
Staff finds that the proposed preliminary plat meets the requirements of the Unified Development Ordinance. Staff recommends approval.

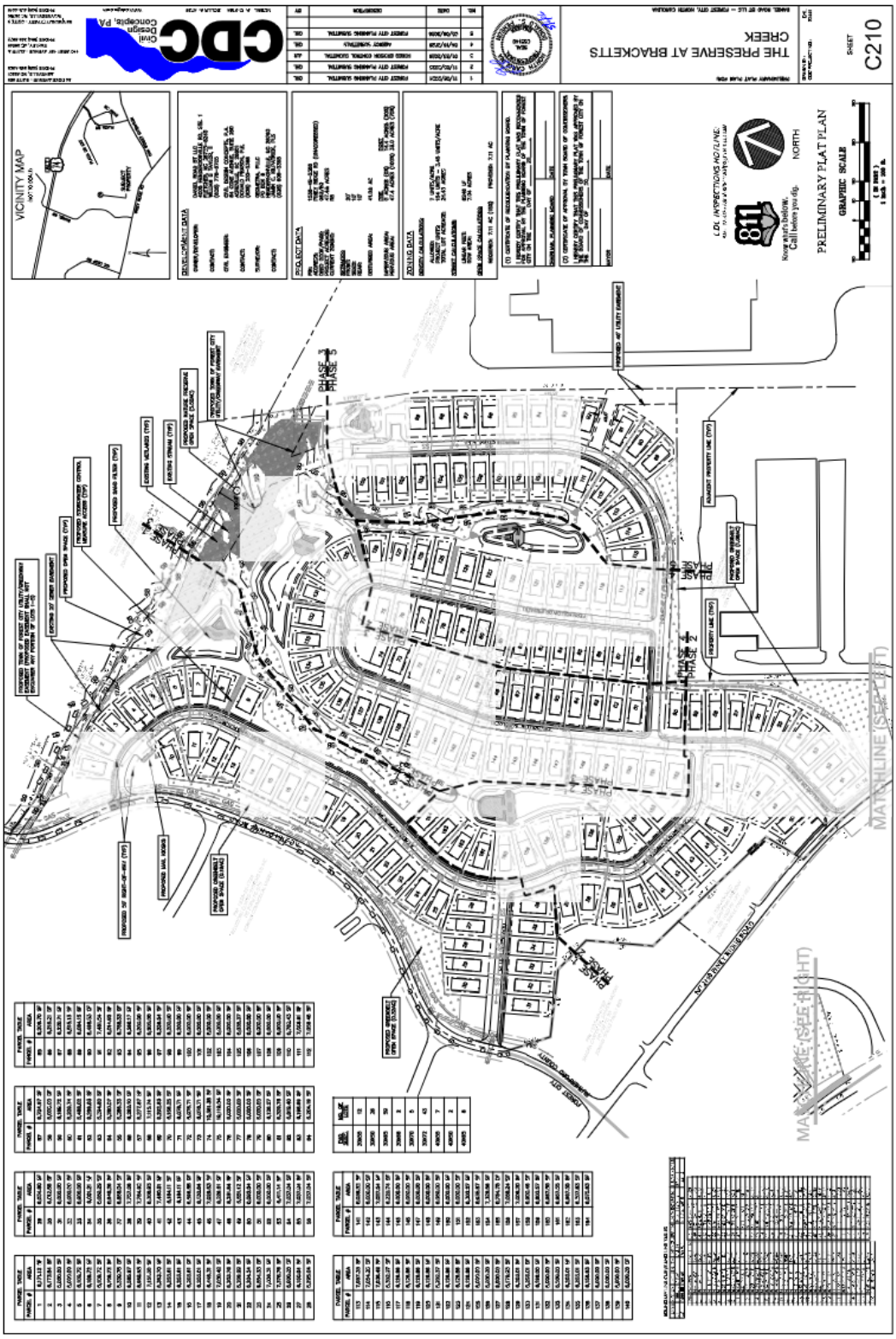
PLANNING BOARD RECOMMENDATION:

Approve
The Planning Board finds that the proposed preliminary plat meets the requirements of the Unified Development Ordinance. The Planning Board recommends approval.

GIS MAP:


4.11 Acres
5.62 Acres
6.49 Acres
Grace
West Victor
Holiday Inn
27.95 Acres
M-1 \ ETJ
Daniel Road
47.63 Acres
28.3 Acres
Forest City
M-1
4.62 Acres
1.61 Acres
Piney Ridge Road
3.5 Acres
1 Acre
15.3 Acres
59.33 Acres
R-8
45.15 Acres
R-20 \ ETJ
2.05 Acres

PRELIMINARY PLAT:



BASIC UDO REQUIREMENTS:

- **Minimum Lot Size**: 6,000 square feet – **HAVE BEEN MET**
- **Minimum Lot Width:** 50 feet – **HAVE BEEN MET**
- **Minimum Lot Depth:** 100 feet – **HAVE BEEN MET**
- **Units per Acre:** 7 Dwelling Units an Acre – **HAVE BEEN MET 3.46 Dwelling Units an Acre**
- **Open Space Requirements:** 15% Open Space – **HAVE BEEN MET**
- **Street Standards:** 20 feet of pavement width and 50 ft ROW (private streets only) – **HAVE BEEN MET**
- **Sidewalks:** Sidewalks shall be provided along the frontage street and at least on one (1) side of the new streets for all developments (Applicant is pursuing the fee-in-lieu of route for the sidewalk required on Daniel Rd). – **HAVE BEEN MET**

AGENCY COMMENTS:

- **NCDOT:** NCDOT required a traffic impact analysis, and the only recommendation was that they should align driveway access with those of Trelleborg if possible.
- **Town of Forest City Public Works:** Public Works has issued a letter approving the utility plan and verifying Forest City has the water and sewer capacity to support this development.
- **Fire:** No comment.
- **Police:** No comment.
- **Inspections:** Be sure all applicable permits are applied for in the construction of the retaining wall and houses.
- **NCDEQ:** Issued a letter of approval for their soil & erosion control plan.

LIST OF DOCUMENTS

- NCDOT TIA
- Stream & Wetland Delineation
- Survey
- Existing Conditions
- Demo Plan
- Master Site Plan
- Road Profiles
- Preliminary Plan
- Soil & Erosion Control Plan (with NCDEQ Approval Letter)
- Master Storm Plan
- Storm Tables

- Master Sewer Plan
- Master Water Plan
- Site Details
- Fee-in-Lieu of estimate (currently being reviewed by the Town's engineer)
- Subdivision Application
- Utility Plan approval letter

Board of Commissioners Action

The Board of Commissioners is requested to act on one of the following:

Approve: The Board of Commissioners approves of the Preliminary Plat as presented.

Deny: The Board of Commissioners denies of the Preliminary Plat for the below listed reasons:

Defer: The Board of Commissioners defers the vote of the preliminary plat for the below listed reasons.

If the Board of Commissioners/Board of Planning and Adjustment disapproves the Preliminary Plat, the reasons for disapproval shall be stated in the minutes of the meeting and reference shall be made to the specific section(s) of this Ordinance with which the plat does not comply.

TOWN OF FOREST CITY

BOARD OF COMMISSIONERS

June 1st, 2026



SUB-2026-0001: The Preserve at Bracketts Creek Subdivision

Daniel Rd BT, LLC is requesting to subdivide the property owned by Rutherford County at 0 Piney Ridge Rd (1538492388).

This preliminary plat includes a proposed 164 single-family lots, soil and erosion control plan, utility plans, proposed stormwater control measures, road layout, existing features plan, and more relevant/required material.

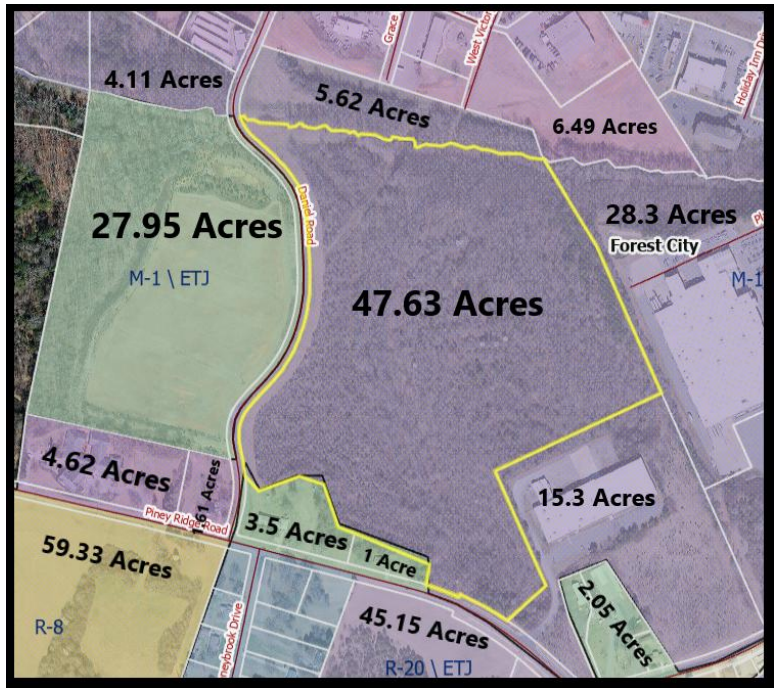
This subdivision was originally approved in December 2024 for 152 single-family lots.

Decisions

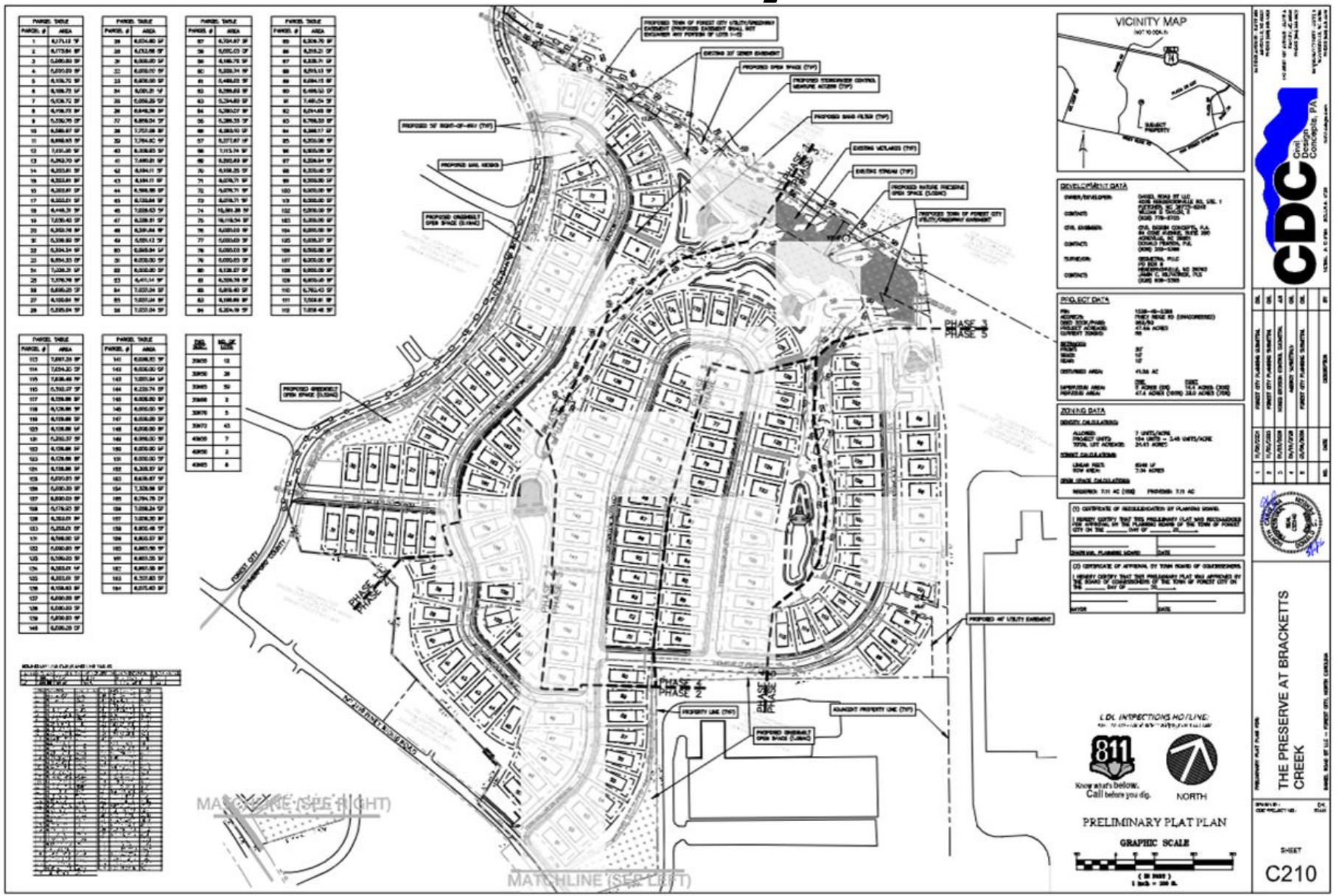
1. Quasi-Judicial: Quasi-judicial development decisions are the special requests when there is need for some adjustment to the rules (variances), resolutions of a dispute in interpretation (appeals of staff decisions), or specialized permit (special use permits and certificates of appropriateness).
2. Legislative: Legislative development decisions are the political decisions by the governing board to set or amend the development ordinances. Adopting a new unified development ordinance, rezoning a piece of property, adopting the comprehensive plan, amending the standards in the subdivision ordinance—each is a legislative decision.
3. Administrative: Administrative development decisions are the everyday decisions to enforce the development ordinances: zoning permits, notices of violation, interpretations of the ordinance, and similar ministerial decisions.

Property Information

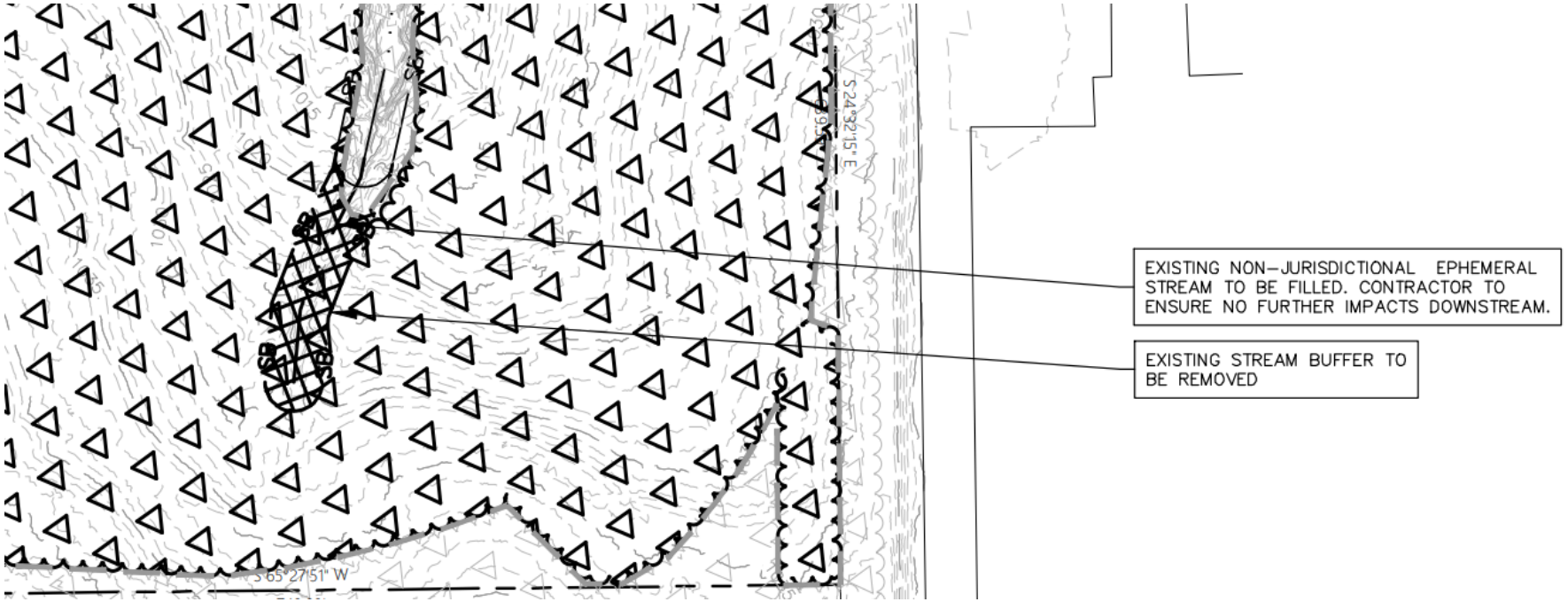
Applicant: Daniel Rd BT, LLC
Location: Daniel Rd and Piney Ridge Rd
Development Name: The Preserve at Bracketts Creek
Zoning: R-6
New Roads Proposed: 4
Number of Lots: 164



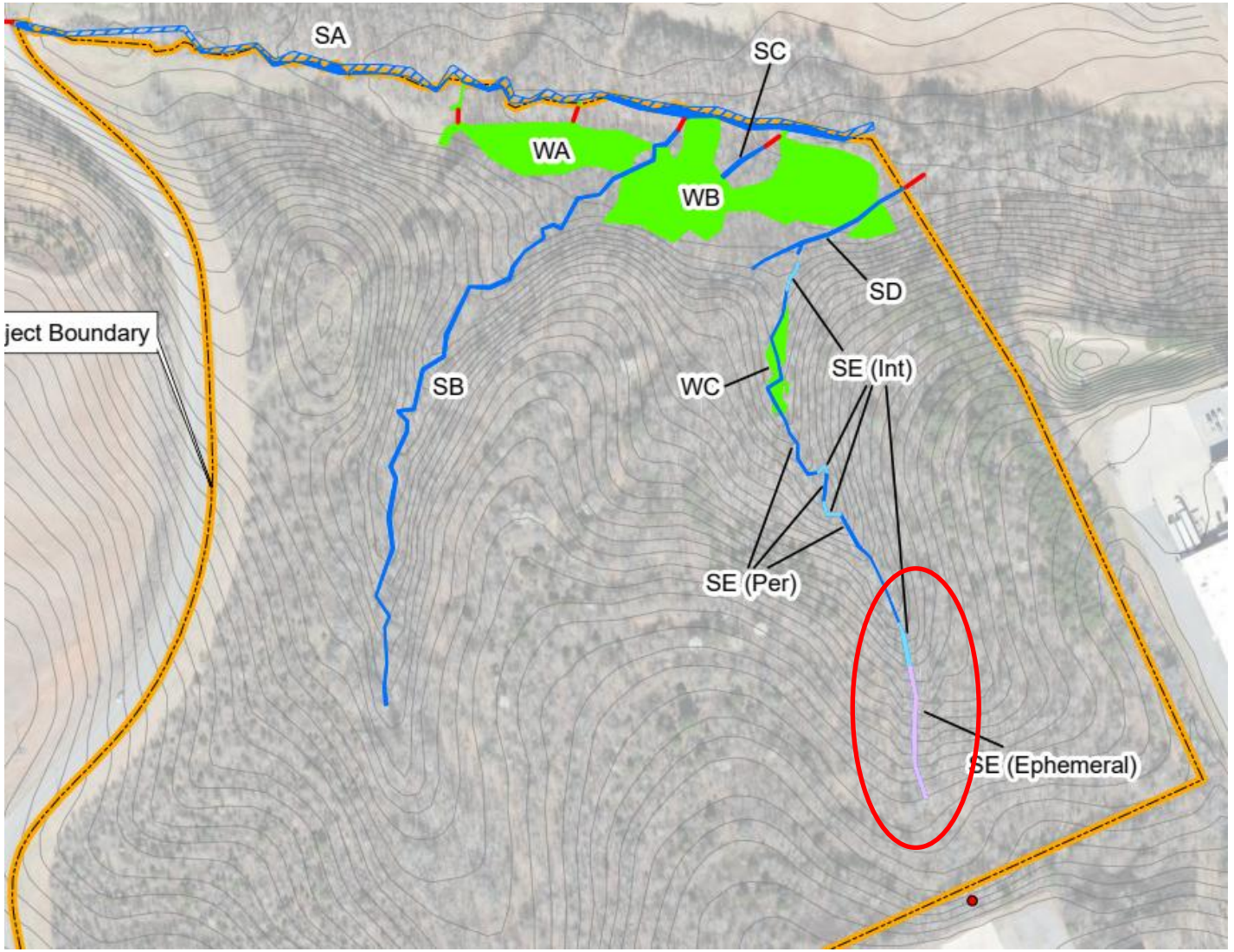
Preliminary Plat



Ephemeral Stream



Stream & Wetland Delineation



Ephemeral Stream

- **Definition:** An ephemeral stream is defined as "a stream that flows only during and for short periods following precipitation and flows in low areas that may or may not have a well-defined channel.
- **State of North Carolina:** It is strongly encouraged (not required) that skid trails, roads, site-prep and other soil-disturbing activities be minimized in the ephemeral streams to avoid erosion and sedimentation of runoff that can flow from the ephemeral into other streams or waterbodies. NCDEQ approved their soil and erosion control plan which shows the impact to the ephemeral stream.
- **Federal Government:** Ephemeral streams are no longer regulated by the Clean Water Act and are considered non-jurisdictional under the Navigable Waters Protection Rule.

Basic UDO Requirements

- **Minimum Lot Size**: 6,000 square feet – **HAVE BEEN MET**
- **Minimum Lot Width:** 50 feet – **HAVE BEEN MET**
- **Minimum Lot Depth:** 100 feet – **HAVE BEEN MET**
- **Units per Acre:** 7 Dwelling Units an Acre – **HAVE BEEN MET**
  3.46 Dwelling Units an Acre
- **Open Space Requirements:** 15% Open Space – **HAVE BEEN MET**
- **Street Standards:** 20 - 26 feet of pavement width and 50 ft ROW (private streets only) – **HAVE BEEN MET**
- **Sidewalks:** Sidewalks shall be provided along the frontage street and at least on one (1) side of the new streets for all developments (Applicant is pursuing the fee-in-lieu of route for the sidewalk required on Daniel Rd). – **HAVE BEEN MET**

Agency Requirements

- **NCDOT:** NCDOT required a traffic impact analysis and the only recommendation was that they should align driveway access with those of Trelleborg if possible.
- **Town of Forest City Public Works:** Public Works has issued a letter approving the utility plan and verifying Forest City has the water and sewer capacity to support this development.
- **Fire:** No comment.
- **Police:** No comment.
- **Inspections:** Be sure all applicable permits are applied for in the construction of the retaining wall and houses.
- **NCDEQ:** Issued a letter of approval for their soil & erosion control plan.

List of Documents

NCDOT TIA
Stream & Wetland Delineation
Survey
Existing Conditions
Demo Plan
Master Site Plan
Road Profiles
Preliminary Plan
Soil & Erosion Control Plan (with NCDEQ Approval Letter)
Master Storm Plan
Storm Tables
Master Sewer Plan
Master Water Plan
Site Details
Fee-in-Lieu of estimate (currently being reviewed by the Town's engineer)
Subdivision Application
Utility Plan approval letter

TOWN OF FOREST CITY NORTH CAROLINA
RECEIVED
AUG 26 2021
BY:

Staff Recommendation

Staff finds that the proposed preliminary plat meets the requirements of the Unified Development Ordinance. Staff recommends approval.

Planning Board Recommendation

The Planning Board finds that the proposed preliminary plat meets the requirements of the Unified Development Ordinance. The Planning Board recommends approval.

Board of Commissioners Decision

The Board of Commissioners requested to act on one of the following:

Approve: The Board of Commissioners approves the preliminary plat as presented.

Deny: The Board of Commissioners denies the preliminary plat for the below listed reasons.

Defer: The Board of Commissioners defers the preliminary plat for the below listed reasons.

If the Board of Commissioners/Board of Planning and Adjustment disapproves/defers the preliminary plat, the reasons for disapproval/deferment shall be stated in the minutes of the meeting and reference shall be made to the specific section(s) of this Ordinance with which the plat does not comply

Application No. _____

TOWN OF FOREST CITY
SUBDIVISION APPLICATION FORM
(Please fill out all applicable items)

SUBDIVISION INFORMATION

Subdivision Name: Daniel Road Subdivision

Subdivision Type (Circle One): (Major) Minor Non-Standard Special

Proposed Use of Property (Circle One): (Residential) Commercial Industrial

Conservation Subdivision: Yes (No) Gated entrance to property: Yes (No)

Existing Number of Lots: 0 Total Number of Proposed Lots: 164

Total Number Proposed Units: 164 Proposed Density (units per acre): 3.46

Road System: ( ) Public (●) Private ( ) Combination Public and Private

Water System: ( ) Individual ( ) Community (●) Municipal

Sewer System: ( ) Individual ( ) Community (●) Municipal

PARCEL INFORMATION

PIN: 1538-49-2388 Total Acreage: 47.4 Deed Book/Page: 963/50 Township Cool Springs

Location of property to be divided: Piney Ridge Rd, Forest City, NC 28043 (unassigned)

Zoning District: R-6 Fire District: Forest City

Water Supply Watershed: Broad School District: District 2

Any portion of property within or containing the following:

Floodplain or floodway: Yes (No) Perennial streams: (Yes) No

Protected mountain ridges: Yes (No) Cemetery: Yes (No)

Within ½ mile of a Farmland Preservation District: (Yes) No

Adjacent to a Farmland Preservation District: Yes (No)

CONTACT INFORMATION

Property Owner:

Name: Rutherford County Phone: 828-287-6300

Address: 289 N Main St City, State, Zip: Rutherfordton, NC 28139

Applicant:

Name: Daniel Road BT LLC Phone: 828-778-6705

Address: 4005 Hendersonville Rd, Ste. 1 City, State, Zip: Fletcher, NC 28723-8240

Agent: Agent Form (Circle One): Yes (No)

Name: _____ Phone: _____

Address: _____ City, State, Zip: _____

Plan Preparer:

Name: Civil Design Concepts, PA Phone: (828)252-5388

Address: 84 Coxe Ave - Suite 260 City, State, Zip: Asheville, NC 28801

I certify that the information shown above is true and accurate and is in conformance with the Subdivision regulations of the Town of Forest City.

William B Taylor, II _____ 11.5.2025

Print Applicant (Owner or Agent) Signature Applicant (Owner or Agent) Date

Town Use Only

Fee: $_____ Paid: _____ Method: _____ Final Plat Approved On: _____

November 6, 2024

Town of Forest City

RE: Subdivision Application Form
Daniel Road Subdivision
Applicant: Daniel Road BT, LLC
Parcel reflecting PIN 1541838, GPIN 1538-49-2388
Deed Book 963 Page 50, Rutherford County Registry
47.43 Acres, Plat Book 29 Page 112, Rutherford County Registry

Rutherford County approves the Subdivision Application Form for a major subdivision on the above-referenced tract of real property the County presently owns and which is subject to Conditional Agreement for Purchase and Sale of Real Property with Quiet Creek Properties, LLC.

Rutherford County

By: _____
Bryan A. King, Chairman
Rutherford County Board of Commissioners

State of North Carolina, County of Rutherford

Signed and sworn to (or affirmed) before me this day by
Bryan A. King, Chairman of the Board of Commissioners of Rutherford County

Date: 11/6/24

_____
Notary Public

My Commission Expires: 5.20.29

[seal/stamp]

February 9, 2026

Town of Forest City

By execution of this letter, Rutherford County confirms it has entered into a Conditional Agreement for Purchase and Sale of Real Property with Quiet Creek Properties, LLC, or its assigns (the "Contract") for that certain tract of real property identified as:

That certain tract of real property situate in Cool Springs Township, Rutherford County, North Carolina, on the east side of Daniel Road (SR 2184) and the north side of Piney Ridge Road (SR 2159) and being shown as containing 47.43 acres, more or less, on that certain plat of subdivision recorded in Plat Book 29 at Page 112, Rutherford County registry, reference to which is hereby made for a full and complete legal description. Being the same tract of real property conveyed to the County of Rutherford in a deed recorded in Deed Book 963 at Page 50, Rutherford County registry, and being shown by the Rutherford County Revenue Department as PIN 1538492388.

Rutherford County hereby further confirms Quiet Creek Properties, LLC, or its assigns under the Contract has the consent of the County as landowner to submit an erosion and sedimentation control plan to Town of Forest City and to conduct the anticipated land disturbing activity in accordance with the terms of said Contract.

RUTHERFORD COUNTY

By: _____

Bryan A. King

Interim County Manager

THE PRESERVE AT BRACKETTS CREEK

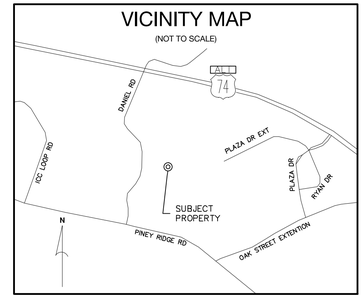
FOREST CITY, NORTH CAROLINA

PREPARED FOR:

DANIEL ROAD BT LLC
4005 HENDERSONVILLE RD, STE. 1
FLETCHER, NC 28723-8240
WILLIAM B TAYLOR, II
(828) 778-6705

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
C000	COVER
C001	SURVEY
C100	MASTER EXISTING CONDITIONS AND DEMO PLAN
C200	MASTER SITE PLAN
C201	SITE PLAN (WEST)
C202	SITE PLAN (SOUTH)
C203	SITE PLAN (EAST)
C204	ROAD PROFILE
C205	ROAD PROFILE
C206	ROAD PROFILE
C210	PRELIMINARY PLAT PLAN
C300	MASTER ROUGH GRADING AND EROSION CONTROL PLAN PH1
C301	ROUGH GRADING AND EROSION CONTROL PLAN PH1
C302	ROUGH GRADING AND EROSION CONTROL PLAN PH1
C303	ROUGH GRADING AND EROSION CONTROL PLAN PH1
C310	MASTER ROUGH GRADING AND EROSION CONTROL PLAN PH2
C311	ROUGH GRADING AND EROSION CONTROL PLAN PH2
C312	ROUGH GRADING AND EROSION CONTROL PLAN PH2
C313	ROUGH GRADING AND EROSION CONTROL PLAN PH2
C400	MASTER STORM PLAN
C401	STORM PLAN
C402	STORM PLAN
C403	STORM PLAN
C404	STORM TABLES
C405	STORM TABLES
C600	MASTER SEWER PLAN
C601	SEWER PLAN
C602	SEWER PLAN
C603	SEWER PLAN
C604	SEWER PLAN
C605	SEWER PLAN
C606	SEWER PLAN
C700	MASTER WATER PLAN
C701	WATER PLAN
C702	WATER PLAN
C703	WATER PLAN
C704	WATER PLAN
C705	WATER PLAN
C706	WATER PLAN
C707	WATER PLAN
C921	SITE DETAILS
C922	SITE DETAILS
C931	EROSION CONTROL DETAILS
C932	EROSION CONTROL DETAILS
C933	SKIMMER BASIN INSETS
C934	SKIMMER BASIN INSETS
C935	SKIMMER BASIN INSETS
C939	NCG01
C941	STORM DETAILS
C942	STORM DETAILS
C943	STORM DETAILS
C944	STORM DETAILS
C961	SEWER DETAILS
C962	SEWER DETAILS
C971	WATER DETAILS
C972	WATER DETAILS

VICINITY MAP
(NOT TO SCALE)



811
Know what's below.
Call before you dig.

DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28723-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-6072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 456-4410

CDC Civil Design Concepts, PA
www.cdcpa.com

NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON
5/6/26

COVER FOR:
THE PRESERVE AT BRACKETTS CREEK
DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C000

REFERENCES

DB 963 PG 50
PB 29 PG 112
DB 1164 PG 286
DB 222 PG 13
DB 691 PG 737
DB 302 PG 379
DB 657 PG 164
DB 666 PG 715
DB 304 PG 187
DB 365 PG 543

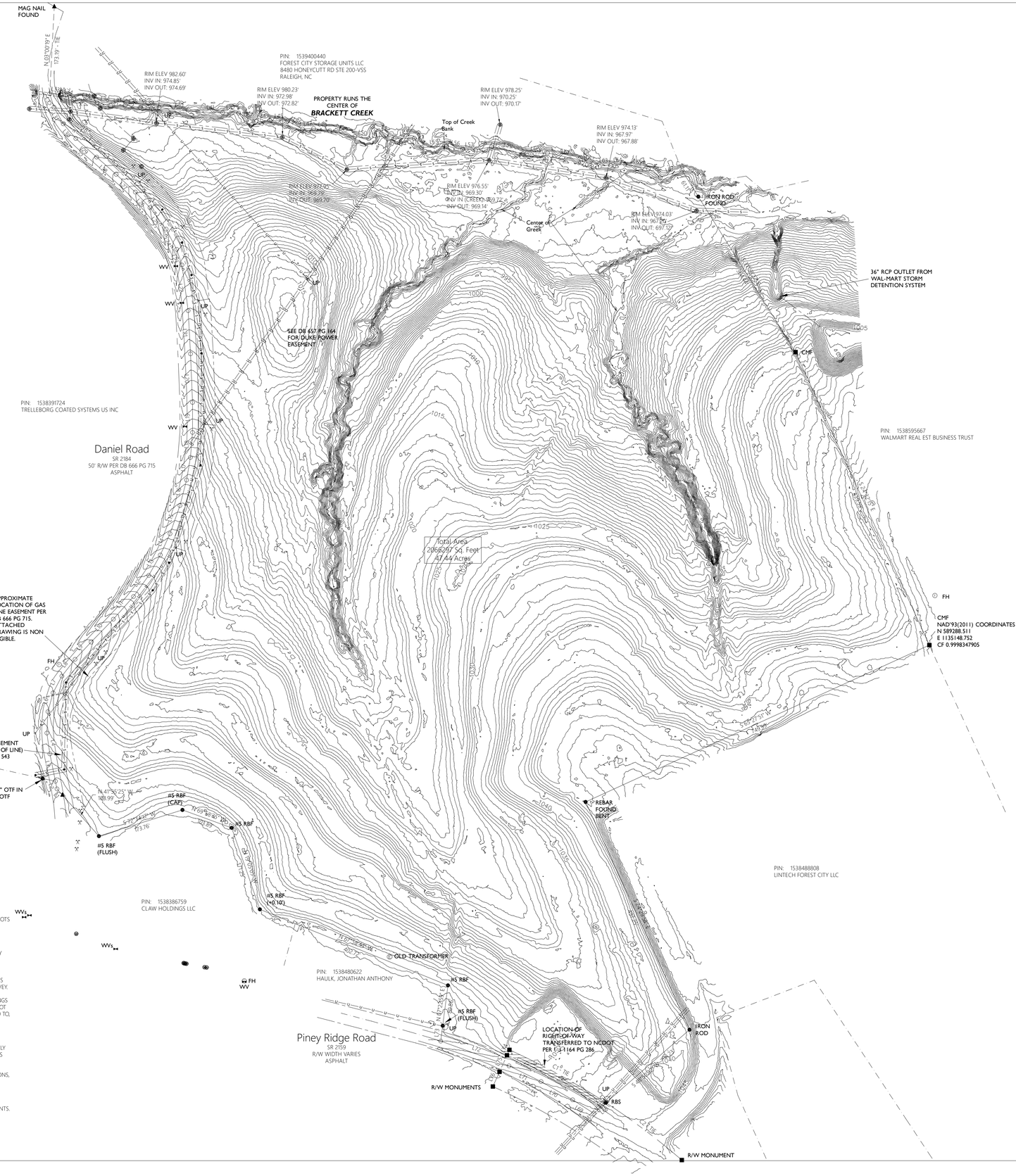
LEGEND

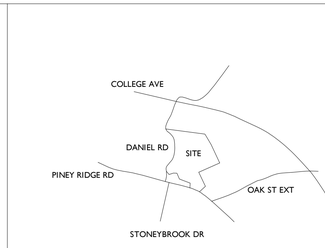
DB . . DEED BOOK
PB . . PLAT BOOK
PS . . PLAT SLIDE
PG . . PAGE
RBS . . REBAR SET
RBF . . REBAR FOUND
OTF . . OPEN TOP PIPE FOUND
RRSF . . RAILROAD SPIKE FOUND
CMF . . CONCRETE MONUMENT FOUND
UP . . UTILITY POLE
LP . . LIGHT POLE
W . . WATER METER
WV . . WATER VALVE
T . . TELEPHONE PEDESTAL
TR . . TRANSFORMER
CO . . CLEANOUT
FH . . FIRE HYDRANT
S . . SANITARY SEWER MANHOLE
CB . . CATCH BASIN
-S- . . SEWER LINE
-X- . . FENCE LINE
-U- . . OVERHEAD UTILITY LINE
. . GAS LINE FLAG
. . GAS EASEMENT MARKER
. . IRON FOUND OR SET AS NOTED
. . CALCULATED POINT - NOT SET
. . MAGNAIL FOUND OR SET AS NOTED

BOUNDARY LINE CURVE AND LINE TABLES

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	1400.00'	1218.65'	1218.43'	N 61°14'26" W	8°56'54"
C2	1400.00'	188.98'	188.83'	S 52°53'38" E	7°44'02"

LINE	BEARING	DISTANCE
L1	N 41°35'25" W	16.42'
L2	N 11°33'15" W	15.65'
L3	N 11°33'15" W	55.43'
L4	N 08°07'05" W	41.68'
L5	N 02°52'25" E	42.64'
L6	N 15°13'11" E	38.66'
L7	N 27°51'01" E	37.60'
L8	N 38°02'07" E	42.39'
L9	N 42°53'49" E	46.77'
L10	N 44°07'38" E	63.37'
L11	N 41°39'14" E	60.16'
L12	N 35°51'42" E	51.78'
L13	N 29°31'16" E	46.55'
L14	N 24°28'43" E	46.44'
L15	N 19°28'48" E	59.30'
L16	N 14°23'05" E	52.42'
L17	N 09°42'25" E	45.58'
L18	N 04°49'34" E	49.84'
L19	N 00°02'09" E	59.49'
L20	N 02°21'41" W	96.65'
L21	N 03°09'08" W	85.91'
L22	N 07°43'53" W	91.52'
L23	N 18°46'43" W	32.80'
L24	N 27°31'41" W	45.18'
L25	N 36°53'10" W	53.49'
L26	N 43°14'50" W	42.44'
L27	N 47°10'37" W	51.73'
L28	N 48°31'05" W	51.74'
L29	N 48°17'14" W	55.45'
L30	N 40°27'06" W	38.30'
L31	N 29°13'19" W	37.84'
L32	N 17°25'53" W	28.13'
L33	S 84°19'10" E	21.77'
L34	S 74°43'02" E	27.48'
L35	S 79°39'45" E	46.66'
L36	S 77°35'59" E	27.75'
L37	N 87°32'03" E	28.93'
L38	S 81°18'43" E	29.55'
L39	S 88°56'40" E	37.88'
L40	S 83°24'30" E	77.42'
L41	S 88°46'11" E	49.19'
L42	S 88°36'17" E	31.75'
L43	S 59°55'50" E	34.30'
L44	N 86°31'51" E	32.49'
L45	S 88°58'48" E	34.94'
L46	S 61°49'32" E	33.64'
L47	N 86°37'31" E	22.21'
L48	S 81°09'49" E	32.40'
L49	S 77°20'07" E	51.18'
L50	S 81°11'56" E	28.07'
L51	N 16°48'16" E	25.00'
L52	S 60°38'22" E	49.10'
L53	N 88°35'37" E	40.30'
L54	S 38°33'07" E	23.39'
L55	N 87°32'27" E	49.36'
L56	S 79°27'55" E	32.45'
L57	S 86°41'44" E	25.67'
L58	N 78°42'59" E	32.10'
L59	S 77°23'29" E	63.95'
L60	N 87°55'18" E	49.03'
L61	S 77°41'49" E	67.81'
L62	S 71°37'04" E	31.86'
L63	S 89°23'42" E	29.36'
L64	N 85°44'41" E	28.30'
L65	S 79°01'51" E	46.98'
L66	S 54°52'28" E	28.98'
L67	N 72°31'34" E	45.10'
L68	S 48°50'33" W	31.98'
L69	N 57°16'19" W	49.97'
L70	N 60°01'20" W	72.29'
L71	N 63°55'15" W	70.85'
L72	N 70°03'09" W	144.23'
L73	N 07°22'59" E	30.83'
L74	S 24°17'06" W	11.86'
L75	S 24°22'33" W	35.99'
L76	S 24°13'26" W	32.10'





VICINITY MAP
NOT TO SCALE

NORTH - GRID
NAD '83(2011)

NOTES

CONTOUR DATA SHOWN HEREON WAS GENERATED FROM NC LIDAR INFORMATION AND NOT FIELD SURVEYED. SPOTS WERE CHECKED FOR ACCURACY.

NO CONTROL MONUMENTS RECOVERED WITHIN 2000' OF SUBJECT PROPERTY.

THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA AS DETERMINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

SURVEYOR WAS NOT PROVIDED WITH A LEGAL TITLE SEARCH. THERE MAY EXIST EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP TITLE EVIDENCE, OR ANY OTHER FACTS PERTINENT TO THIS PROPERTY THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE THAT ARE NOT SHOWN ON THIS SURVEY.

THE LOCATIONS OF UNDERGROUND UTILITIES ARE BASED ON ABOVE GROUND STRUCTURES AND RECORD DRAWINGS PROVIDED THE SURVEYOR. LOCATIONS OF OTHER UNDERGROUND UTILITIES/STRUCTURES MAY BE PRESENT AND NOT SHOWN. PROPERTY SUBJECT TO ALL RIGHTS-OF-WAY AND EASEMENTS OF RECORD, INCLUDING, BUT NOT LIMITED TO, THOSE SHOWN HEREON.

NO UNDERGROUND UTILITIES WERE LOCATED. CALL 1-800-632-4949 BEFORE DIGGING.

ALL BUILDINGS, SURFACE AND SUBSURFACE IMPROVEMENTS ON AND ADJACENT TO THE SITE ARE NOT NECESSARILY SHOWN. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT SURVEYED OR CONSIDERED AS PART OF THIS SURVEY.

NO EVIDENCE OR STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONDITIONS, CONTAINERS, OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS PROPERTY.

AREA BY COORDINATE COMPUTATION.

PROPERTY LINES SHOWED AS DASHED WERE NOT FIELD SURVEYED. THEY WERE PLOTTED FROM RECORD DOCUMENTS.

SUBJECT PROPERTY CURRENTLY ZONED M-1 BY THE TOWN OF FOREST CITY.
SETBACKS: FRONT - 35' SIDE - 20' REAR - 20'

ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED.

I, Jamin C. Kilpatrick , Professional Land Surveyor certify to one or more of the following as indicated (G.S. 47-30(f)(11)):

C(1): that this survey is of an existing parcel or parcels of land and does not create a new street or change an existing street;

I, Jamin C. Kilpatrick , further certify that this plat was drawn under my supervision from Deed Book 963, Page 50; that the boundaries not surveyed are clearly indicated as drawn from information found in Deed(s) listed above; that the ratio of precision as calculated is 1:10,000+ that this plat was prepared in accordance with G.S. 47-30 as amended.
Witness my original signature, registration number and seal this 14th Day of March A.D. 2025.

L-4602
Jamin C. Kilpatrick, PLS

SCALE 1" = 100'
100' 50' 0 100' 200' 300'

PO BOX 8
Hendersonville, NC 28793
(828) 606-3365
geometraplic.com
P-2660

GEOMETRA
land surveying · design · construction

Current Owner(s):
Rutherford County
Parcel Identifier No.
Ruther Rendition, NC

Property Information:
Daniel Road & Piney Ridge Rd
ZONED M-1
TOTAL AREA 47.44 Acres
(2066297 Sq. Ft.)
DB 963 PG 50

BOUNDARY & TOPOGRAPHIC SURVEY FOR:

The Preserve at Bracketts Creek
Developer: Daniel Road BT LLC

Cool Springs Township
Rutherford County, North Carolina

PIN 1538492388

NORTH CAROLINA PROFESSIONAL SEAL L-4602 LAND SURVEYOR JAMIN C. KILPATRICK

Date	14 March 2025
Drawn By	JCK
Scale	1" = 100'
Revision	05-05-2026
Dwg No.	G-25-593

DEMO NOTES

1. ALL SITEWORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL REGULATORY STANDARDS AND ALL REQUIREMENTS IN THE PROJECT TECHNICAL SPECIFICATIONS.
2. CONTRACTOR TO VERIFY WITH ENGINEER THAT THE REQUIRED **GRADING/LAND DISTURBANCE AND DRIVEWAY** PERMITS HAVE BEEN OBTAINED PRIOR TO BEGINNING CONSTRUCTION.
3. ALL WORK MUST BE PERFORMED BY A **NORTH CAROLINA** LICENSED CONTRACTOR.
4. TO SCHEDULE THE REQUIRED INSPECTIONS ON ALL WORK, CALL THE CIVIL DESIGN CONCEPTS INSPECTIONS HOTLINE AT 828-771-4755, OR EMAIL AT INSPECTIONS@CDCGO.COM. FAILURE TO SCHEDULE INSPECTIONS MAY RESULT IN UNCOVERING OR REDOING WORK
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING THE EXACT LOCATION AND ELEVATION FOR ALL UTILITIES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL BURIED UTILITIES HAVE NOT BEEN SHOWN ON THE PLANS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION. CONTACT ENGINEER TO CONFIRM IF ADDITIONAL PERMITS ARE NEEDED.
6. CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES CALLED OUT TO REMAIN DURING CONSTRUCTION. ANY DAMAGE INCURRED DURING OR RESULTING FROM CONSTRUCTION ACTIVITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR IS TO NOTIFY ALL UTILITY COMPANIES AT LEAST 72 HOURS BEFORE CONSTRUCTION ACTIVITY IS TO BEGIN. THE CONTRACTOR SHALL NOTIFY ULOCO AT 1-800-632-4949 OR 811, 72 HOURS BEFORE CONSTRUCTION BEGINS.
8. EROSION CONTROL IS FIELD PERFORMANCE BASED AND CONTRACTOR SHALL INSTALL & MAINTAIN ANY EROSION CONTROL MEASURES NECESSARY TO ASSURE MAXIMUM PROTECTION OF THE SITE PRIOR TO DEMOLITION AND CLEARING.
9. CONTRACTOR TO COORDINATE TIMING OF DEMOLITION AND CONSTRUCTION WITH OWNER TO ENSURE EXISTING FACILITIES REMAIN ACCESSIBLE.
10. ALL DEBRIS, STRUCTURES AND UTILITIES TO BE DEMOLISHED AND REMOVED FROM THE PROJECT SITE ARE NOT SHOWN ON THIS PLAN. ANY DEBRIS, STRUCTURES AND UTILITIES ENCOUNTERED DURING CONSTRUCTION, WHICH IN THE OPINION OF THE ENGINEER SHOULD BE DEMOLISHED AND REMOVED, SHALL BE DISPOSED OF OFF-SITE AT THE CONTRACTORS EXPENSE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY REQUIRED PERMITS.

EXISTING CONDITIONS & DEMO LEGEND

- PROJECT PROPERTY LINE
- ADJACENT PROPERTY LINE
- SEWER LINES TO REMAIN (SS)
- OVERHEAD UTILITIES TO BE REMOVED (OH)
- STORM PIPES TO REMAIN
- UNDERGROUND UTILITES TO BE REMAIN (GAS, UE)
- APPROXIMATE EXISTING TREES TO REMAIN
- APPROXIMATE EXISTING TREES TO BE REMOVED

EXISTING ENBRIDGE GAS EASEMENT (TYP)

EXISTING PAVEMENT TO REMAIN (TYP)

EXISTING OVERHEAD UTILITY LINES TO **BE REROUTED** (TYP) (CONTRACTOR SHALL COORDINATE WITH APPROPRIATE UTILITY COMPANY)

EXISTING OVERHEAD UTILITIES TO **REMAIN** ALONG DANIEL ROAD (TYP)

EXISTING OVERHEAD UTILITY POLE TO **BE REMOVED**

EXISTING **50' NCDOT** RIGHT OF WAY

EXISTING UTILITY POLE TO **REMAIN** (TYP)

APPROXIMATE LOCATION OF NEIGHBORING DRIVEWAYS UNDER CONSTRUCTION

APPROXIMATE LOCATION OF EXISTING **WATER** LINE TO **REMAIN** (TYP)

EXISTING ENBRIDGE GAS LINE TO **REMAIN** (TYP)

EXISTING FIRE HYDRANT TO **REMAIN** (TYP)

TOWN OF FOREST CITY LIMITS

EXISTING **SEWER** TO REMAIN (TYP)

EXISTING 20' SEWER EASEMENT (TYP)

PROPOSED LIMITS OF DISTURBANCE (TYP)

EXISTING **STREAM** TO REMAIN (TYP)

EXISTING STREAM CULVERT TO REMAIN (TYP)

EXISTING 20' STREAM BUFFER (FROM STREAM BED) TO REMAIN (TYP)

EXISTING **BRACKETTS CREEK** CLASSIFICATION: **C** RIVER BASIN: **BROAD**

EXISTING WETLANDS TO REMAIN (TYP)

EXISTING NON-JURISDICTIONAL EPHEMERAL STREAM TO BE FILLED. CONTRACTOR TO ENSURE NO FURTHER IMPACTS DOWNSTREAM.

EXISTING STREAM BUFFER TO BE REMOVED

ADJACENT PROPERTY LINE (TYP)

EXISTING TREES TO **BE REMOVED** (TYP)

PROPERTY LINE (TYP)

EXISITNG BUILDING (TYP)

EXISTING SIDEWALK AND CURB AND GUTTER TO **BE REMOVED TO ACCOMMODATE DRIVEWAY CONNECTION (SEE SITE PLANS)**

EXISTING TREES TO **REMAIN** (TYP)

EXISTING SIDEWALK TO **REMAIN** (TYP)

DANIEL ROAD

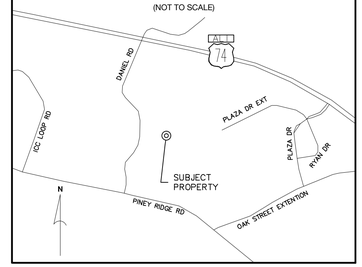
NC 2159 PINEY RIDGE ROAD

FOREST CITY

RUTHERFORD COUNTY

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
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PROJECT DATA

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REAR:	10'
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PROJECT UNITS:	164 UNITS ÷ 3.46 UNITS/ACRE
TOTAL LOT ACREAGE:	24.43 ACRES

STREET CALCULATIONS:

LINEAR FEET:	6246 LF
ROW AREA:	7.04 ACRES

OPEN SPACE CALCULATIONS:

REQUIRED: 7.11 AC (15%) PROVIDED: 7.11 AC

CDC INSPECTIONS HOTLINE:
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NORTH

MASTER EXISTING CONDITIONS AND DEMO PLAN

GRAPHIC SCALE

100 0 50 100 200 300

(IN FEET)
1 inch = 100 ft.

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ASHEVILLE, NC 28801
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CDC Civil Design Concepts, PA
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NCBELS #: C-2194 SCLLR #: 4736

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON

MASTER EXISTING CONDITIONS AND DEMO PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

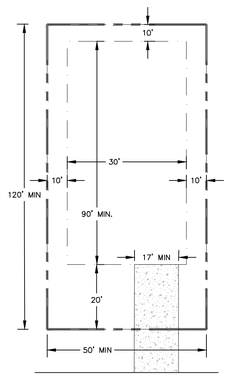
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CDC PROJECT NO.: 22445

SHEET

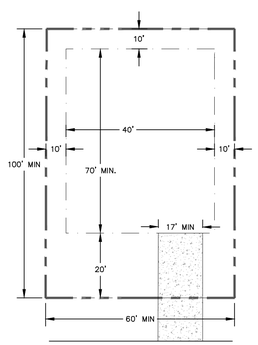
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SITE NOTES

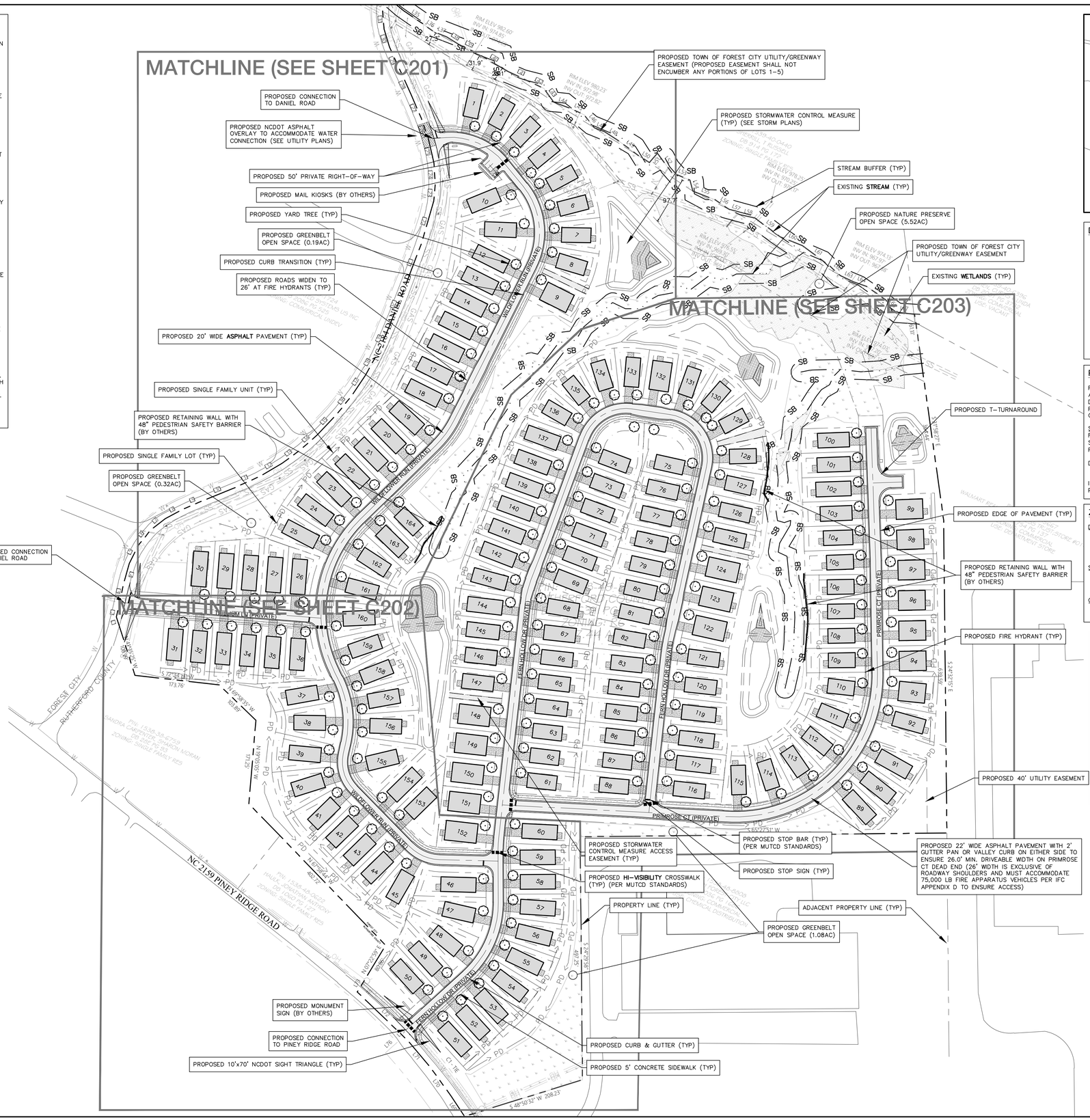
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TYPE 1 - SINGLE FAMILY
LOT W/INTERNAL SETBACKS
MIN. LOT SQUARE FOOTAGE: 6,000 SF
NOT TO SCALE

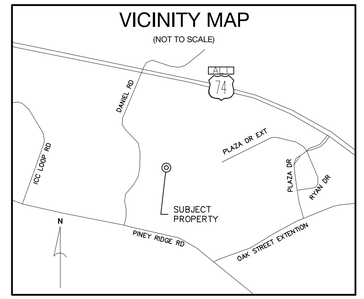


TYPE 2 - SINGLE FAMILY
LOT W/INTERNAL SETBACKS
MIN. LOT SQUARE FOOTAGE: 6,000 SF
NOT TO SCALE



VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

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ROW AREA:	7.04 ACRES

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REQUIRED: 7.11 AC (15%) PROVIDED: 7.11 AC

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- LOT LINE
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MASTER SITE PLAN

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(IN FEET)
1 inch = 100 ft.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON

5/6/26

MASTER SITE PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

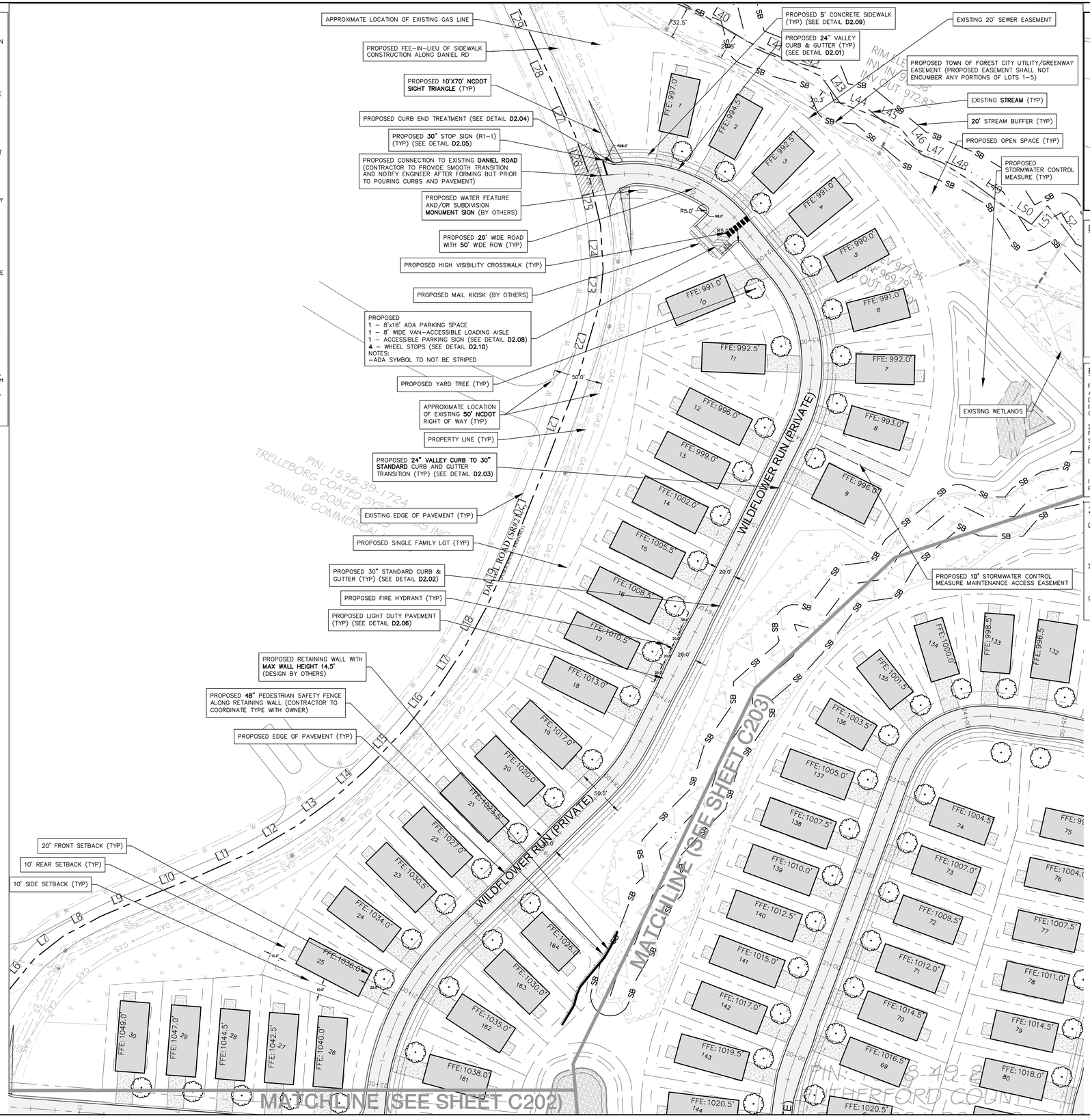
C200

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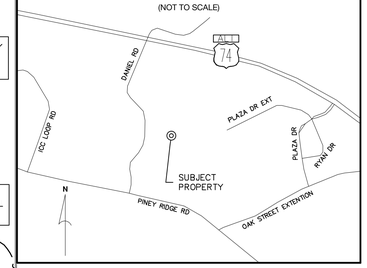
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NORTH

SITE PLAN (WEST)

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
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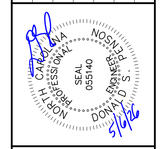
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THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

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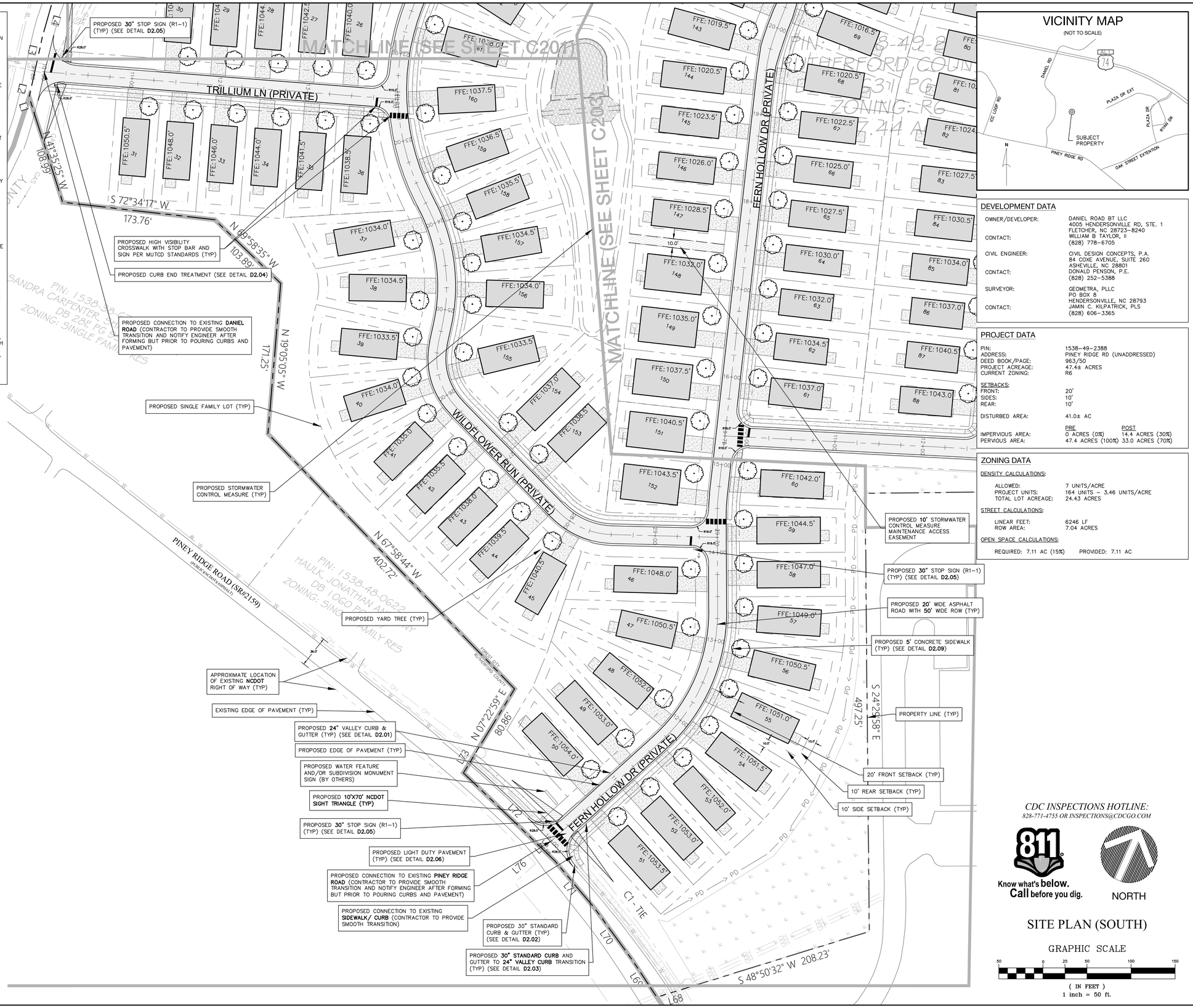
C201

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- PROPERTY LINE
- ADJ. PROPERTY LINE
- PROPOSED 10' X 70' SIGHT TRIANGLE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE SIDEWALK



VICINITY MAP

(NOT TO SCALE)

DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28723-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

ZONING DATA

DENSITY CALCULATIONS:

ALLOWED:	7 UNITS/ACRE
PROJECT UNITS:	164 UNITS – 3.46 UNITS/ACRE
TOTAL LOT ACREAGE:	24.43 ACRES

STREET CALCULATIONS:

LINEAR FEET:	6246 LF
ROW AREA:	7.04 ACRES

OPEN SPACE CALCULATIONS:

REQUIRED: 7.11 AC (15%) PROVIDED: 7.11 AC

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's below. Call before you dig.

NORTH

SITE PLAN (SOUTH)

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

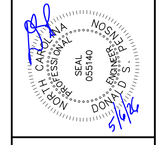
84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 456-4410

Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL



SITE PLAN (SOUTH) FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C202

SITE NOTES

1. ALL SITEWORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL REGULATORY STANDARDS AND ALL REQUIREMENTS IN THE PROJECT TECHNICAL SPECIFICATIONS.
2. SINGLE-PHASE CONSTRUCTION.
3. ALL WORK MUST BE PERFORMED BY A **NORTH CAROLINA** LICENSED CONTRACTOR.
4. TO SCHEDULE THE REQUIRED INSPECTIONS ON ALL WORK, CALL THE CIVIL DESIGN CONCEPTS INSPECTIONS HOTLINE AT 828-771-4755, OR EMAIL AT INSPECTIONS@CDCGO.COM. FAILURE TO SCHEDULE INSPECTIONS MAY RESULT IN UNCOVERING OR REDOING WORK
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING THE EXACT LOCATION AND ELEVATION FOR ALL UTILITIES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL BURIED UTILITIES HAVE NOT BEEN SHOWN ON THE PLANS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION. CONTACT ENGINEER TO CONFIRM IF ADDITIONAL PERMITS ARE NEEDED.
6. CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES (SHOWN TO REMAIN) AND NEWLY COMPLETED WORK DURING CONSTRUCTION. ANY DAMAGE INCURRED DURING OR RESULTING FROM CONSTRUCTION ACTIVITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR IS TO NOTIFY ALL UTILITY COMPANIES AT LEAST 72 HOURS BEFORE CONSTRUCTION ACTIVITY IS TO BEGIN. THE CONTRACTOR SHALL NOTIFY ULOCO AT 1-800-632-4949 OR 811, 72 HOURS BEFORE CONSTRUCTION BEGINS.
8. SIDEWALKS SHALL BE CONSTRUCTED IN ORDER TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES. SIDEWALKS TO MEET ALL ADA/PROWAG STANDARDS. CONTRACTOR TO NOTIFY ENGINEER AFTER FORMING BUT PRIOR TO POURING SIDEWALK. ANY SIDEWALK/CROSSWALK NOT INSTALLED TO REQUIRED STANDARDS SHALL BE REMOVED AND REPLACED AT CONTRACTORS EXPENSE.
9. ALL ROAD/PARKING LOT IMPROVEMENTS, STRIPING AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LOCAL JURISDICTION AND THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICE (MUTCD). CONTRACTOR MAY USE A PAINT SUITABLE FOR ASPHALT APPLICATION IN LIEU OF THERMOPLASTIC WITH PRIOR APPROVAL FROM THE ENGINEER.
10. CURB AND GUTTER ON THE HIGH SIDE OF PAVED AREAS AND ROADS SHALL BE CONSTRUCTED WITH SPILLOUT CURB AND GUTTER. CURB AND GUTTER ON THE LOW SIDE SHALL BE CONSTRUCTED WITH STANDARD CURB AND GUTTER; REFER TO SPILLOUT CURB AND GUTTER DETAILS. CURB END TREATMENT SHALL BE APPLIED AT ALL CURB ENDS; REFER TO CURB END TREATMENT DETAIL.
11. PROPOSED ROADS TO BE **PRIVATE. NCDOT AND TOWN OF FOREST CITY ARE NOT** RESPONSIBLE FOR ANY ROAD MAINTENANCE.

SITE LEGEND

- LOT LINE
- SETBACK LINE
- EASEMENT LINE
- SAWCUT LINE
- PROPERTY LINE
- ADJ. PROPERTY LINE
- PROPOSED 10' X 70' SIGHT TRIANGLE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE SIDEWALK

MATCHLINE (SEE SHEET C201)

MATCHLINE (SEE SHEET C202)

PROPOSED **10'** STORMWATER CONTROL MEASURE MAINTENANCE ACCESS EASEMENT

PROPOSED STORMWATER CONTROL MEASURE (TYP)

EXISTING STREAM TO **BRACKETT CREEK** (TYP)

20' STREAM BUFFER (TYP)

PROPOSED UTILITY AND GREENWAY EASEMENT (WIDTH VARIES)

EXISTING WETLANDS

PROPOSED TIMBARRIER STREETGUARD OR ENGINEER APPROVED ALTERNATIVE GUARDRAIL (TYP) (CONTRACTOR TO INSTALL PER MANUFACTURER STANDARDS)

PROPOSED RETAINING WALL **MAX WALL HEIGHT 8'** (DESIGN BY OTHERS)

PROPERTY LINE (TYP)

PROPOSED 5' CONCRETE SIDEWALK (TYP) (SEE DETAIL **D2.09**)

PROPOSED YARD TREE (TYP)

PROPOSED EDGE OF PAVEMENT (TYP)

PROPOSED LIGHT DUTY PAVEMENT (TYP) (SEE DETAIL **D2.06**)

PROPOSED **24"** VALLEY CURB (TYP) (SEE DETAIL **D2.01**)

PROPOSED RETAINING WALL **MAX WALL HEIGHT 8.8'** (DESIGN BY OTHERS)

PROPOSED **48"** PEDESTRIAN SAFETY FENCE ALONG RETAINING WALL (TYP) (CONTRACTOR TO COORDINATE TYPE WITH OWNER)

20' FRONT SETBACK (TYP)

10' REAR SETBACK (TYP)

10' SIDE SETBACK (TYP)

PROPOSED SINGLE FAMILY LOT (TYP)

PROPOSED 22' WIDE ASPHALT PAVEMENT WITH 2' GUTTER PAN OR VALLEY CURB ON EITHER SIDE TO ENSURE 26.0' MIN. DRIVEABLE WIDTH ON PRIMROSE CT DEAD END (26' WIDTH IS EXCLUSIVE OF ROADWAY SHOULDERS AND MUST ACCOMMODATE 75,000 LB FIRE APPARATUS VEHICLES PER IFC APPENDIX D TO ENSURE ACCESS)

PROPOSED 40' UTILITY EASEMENT

EXISTING **STREAM** (TYP)

20' STREAM BUFFER (TYP)

PROPOSED **30"** STOP SIGN (R1-1) (TYP) (SEE DETAIL **D2.05**)

PROPOSED HIGH VISIBILITY CROSSWALK WITH STOP BAR PER MUTCD STANDARDS

FERN HOLLOW DR (PRIVATE)

PRIMROSE CT (PRIVATE)

PRIMROSE CT (PRIVATE)

S 65°27'51" W
749.99'

S 31°58'27" E
364.41'

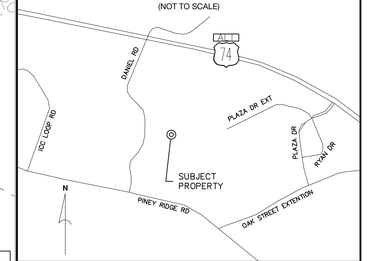
S 32°15'39" E
639.59'

RIM ELEV 974.03'
INV IN: 967.20'
INV OUT: 697.2

PIN: 1538-49-2388
ROUTHERFORD COUNTY
DB 963 | PG 31
ZONING: R6
47.44 AC

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
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SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

ZONING DATA

DENSITY CALCULATIONS:

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PROJECT UNITS:	164 UNITS – 3.46 UNITS/ACRE
TOTAL LOT ACREAGE:	24.43 ACRES

STREET CALCULATIONS:

LINEAR FEET:	6246 LF
ROW AREA:	7.04 ACRES

OPEN SPACE CALCULATIONS:

REQUIRED: 7.11 AC (15%) PROVIDED: 7.11 AC

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's below. Call before you dig.

NORTH

SITE PLAN (EAST)

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD PENSON

5/6/26

SITE PLAN (EAST) FOR:

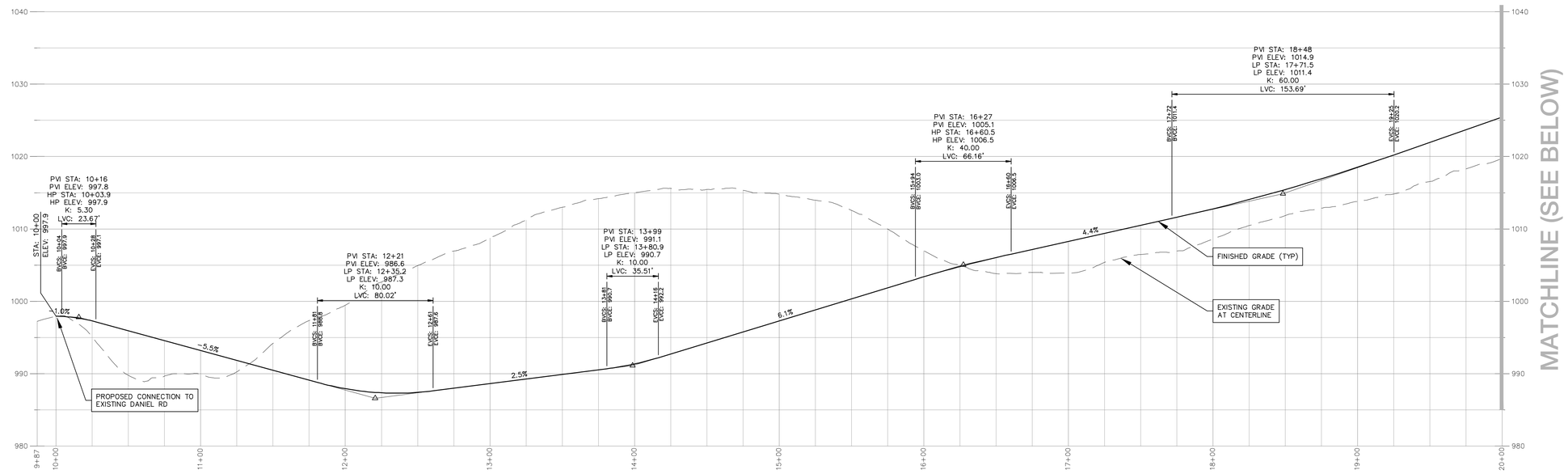
THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

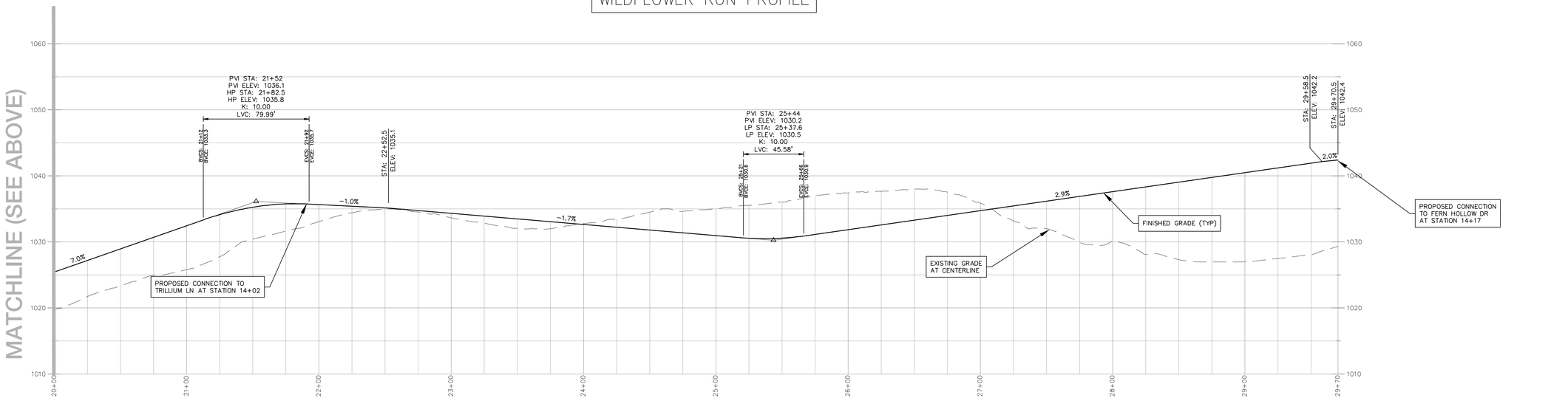
DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C203



WILDFLOWER RUN PROFILE



WILDFLOWER RUN PROFILE

ROAD PROFILE

PROFILE SCALE

0 20 40 80 — 1 inch = 40 ft. (H)

(IN FEET)

0 4 8 16 — 1 inch = 8 ft. (V)

84 COXE AVENUE - SUITE 200
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-1410

CDC Civil Design Concepts, PA
www.cdcgo.com

NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

ROAD PROFILE FOR:

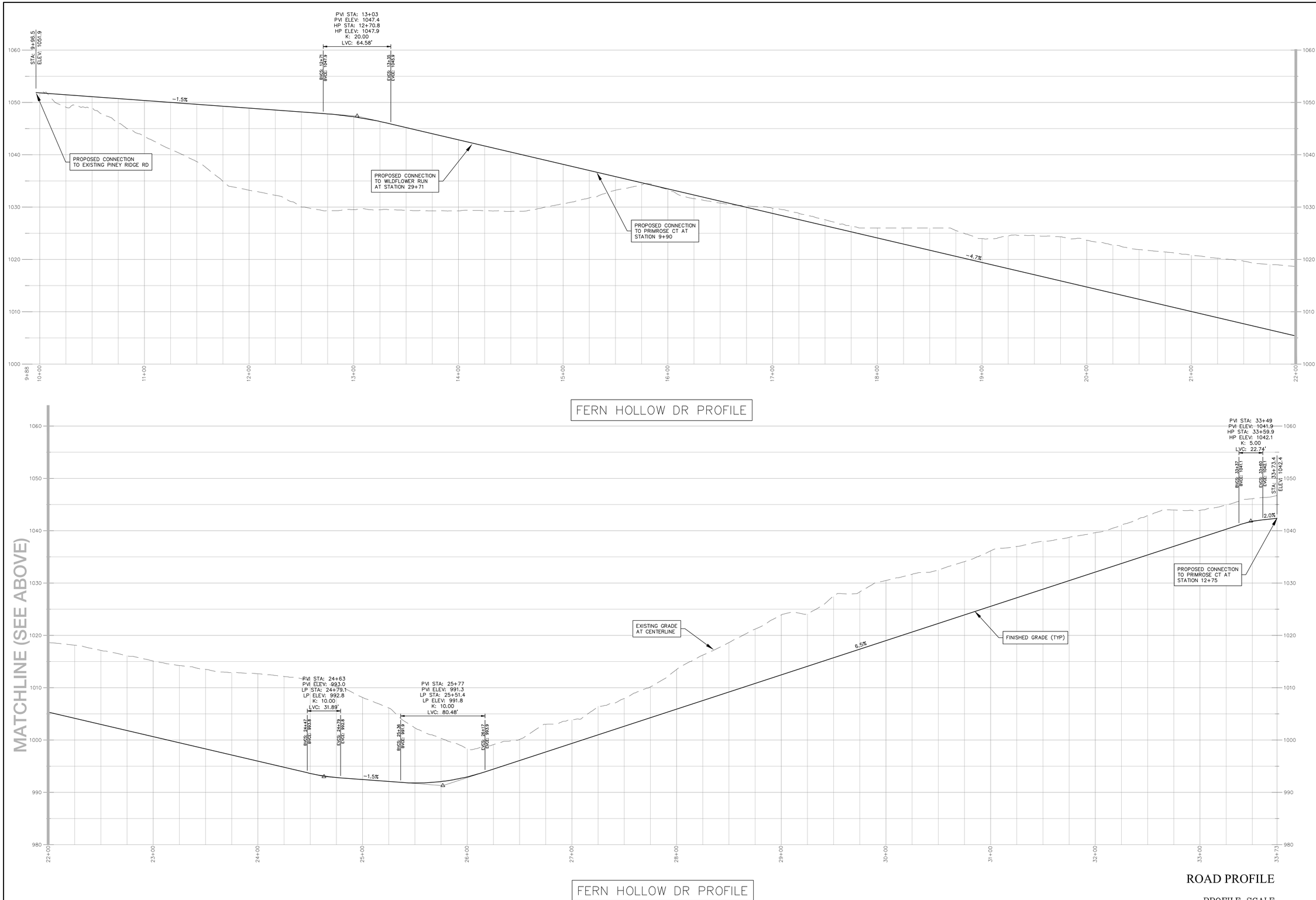
THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET

C204



FERN HOLLOW DR PROFILE

FERN HOLLOW DR PROFILE

ROAD PROFILE

PROFILE SCALE

1 inch = 40 ft. (H) (IN FEET) 1 inch = 8 ft. (V)

94 COXE AVENUE - SUITE 200
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-1410

CDC Civil Design Concepts, PA
www.cdcgo.com

NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL



ROAD PROFILE FOR:

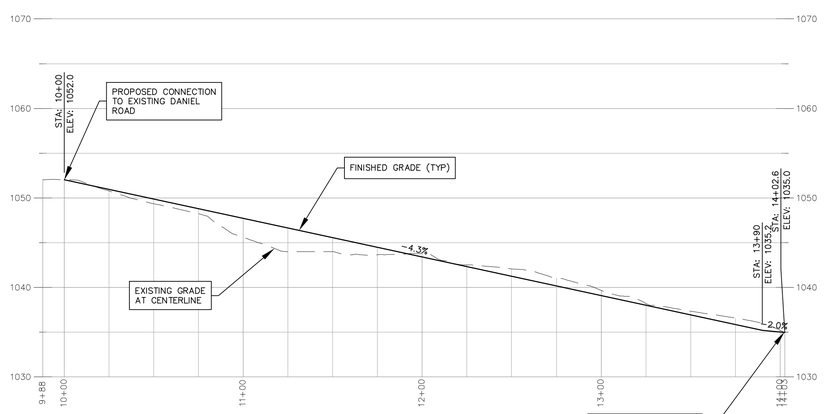
THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

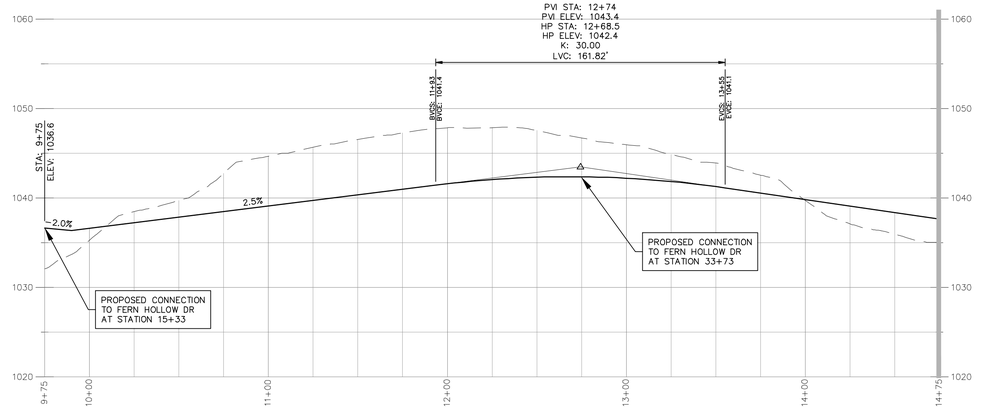
DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET

C205



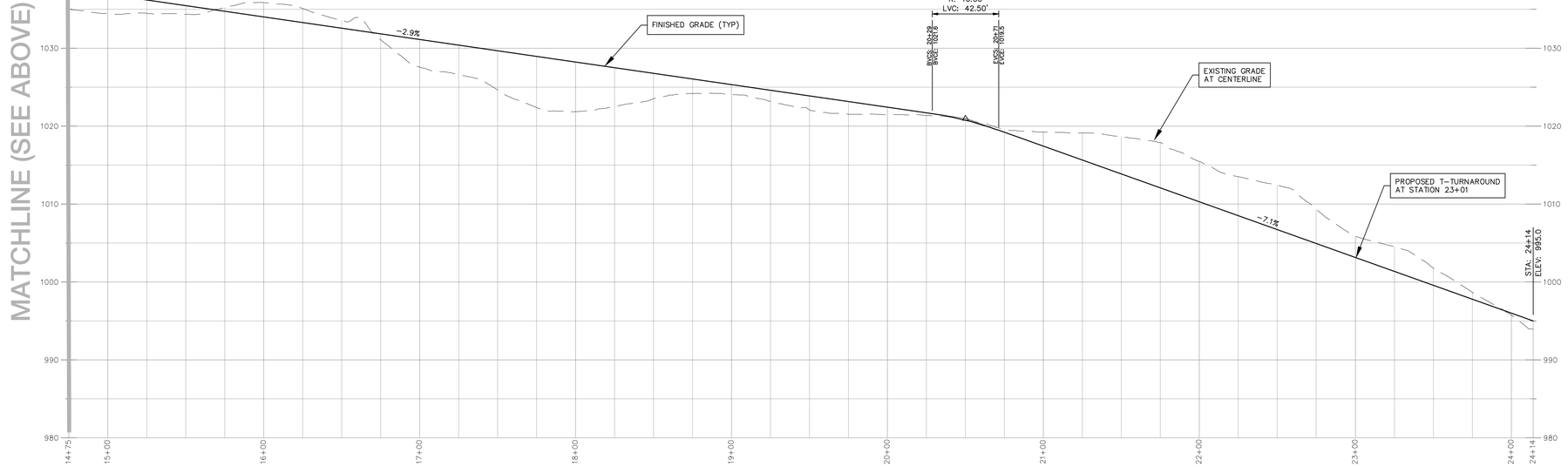
TRILLIUM LN PROFILE



PRIMROSE CT PROFILE

MATCHLINE (SEE BELOW)

MATCHLINE (SEE ABOVE)



PRIMROSE CT PROFILE

ROAD PROFILE

PROFILE SCALE

1 inch = 40 ft. (H) (IN FEET) 1 inch = 8 ft. (V)

94 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-1410

CDC Civil Design Concepts, PA
www.cdcgo.com

NCBELS #: C-2164 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD E. PENSON 5/6/26

ROAD PROFILE FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET

C206

PARCEL TABLE	
PARCEL #	AREA
1	6,171.12 SF
2	6,173.84 SF
3	6,000.00 SF
4	6,000.00 SF
5	6,109.72 SF
6	6,109.72 SF
7	6,109.72 SF
8	6,109.72 SF
9	6,330.75 SF
10	6,585.97 SF
11	8,965.93 SF
12	7,151.30 SF
13	6,363.70 SF
14	6,203.61 SF
15	6,203.61 SF
16	6,203.61 SF
17	6,203.61 SF
18	6,446.31 SF
19	7,020.42 SF
20	6,203.76 SF
21	6,209.99 SF
22	6,204.54 SF
23	6,554.33 SF
24	7,036.31 SF
25	7,375.76 SF
26	6,000.00 SF
27	6,150.04 SF
28	6,295.04 SF

PARCEL TABLE	
PARCEL #	AREA
29	6,034.80 SF
30	6,012.58 SF
31	6,000.00 SF
32	6,000.00 SF
33	6,000.00 SF
34	6,001.21 SF
35	6,000.29 SF
36	6,646.26 SF
37	6,868.04 SF
38	7,757.06 SF
39	7,764.92 SF
40	8,308.93 SF
41	7,480.51 SF
42	6,184.11 SF
43	6,184.11 SF
44	6,596.55 SF
45	8,130.84 SF
46	7,029.63 SF
47	8,226.61 SF
48	8,231.84 SF
49	6,551.12 SF
50	6,092.64 SF
51	6,000.00 SF
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53	6,411.14 SF
54	7,037.04 SF
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56	7,037.04 SF

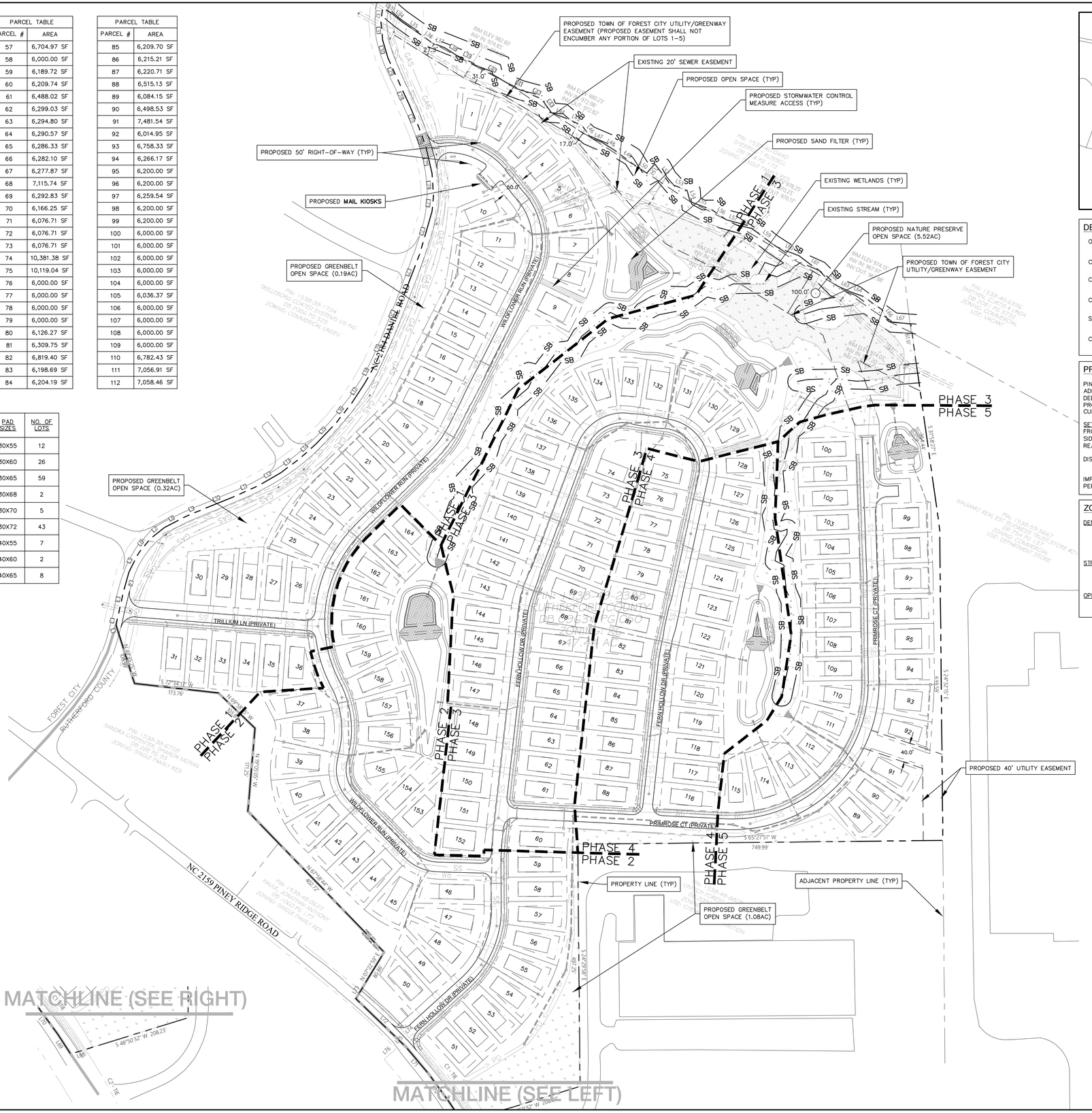
PARCEL TABLE	
PARCEL #	AREA
57	6,704.97 SF
58	6,000.00 SF
59	6,189.72 SF
60	6,209.74 SF
61	6,488.02 SF
62	6,299.03 SF
63	6,294.80 SF
64	6,290.57 SF
65	6,286.33 SF
66	6,282.10 SF
67	6,277.87 SF
68	7,115.74 SF
69	6,292.83 SF
70	6,166.25 SF
71	6,076.71 SF
72	6,076.71 SF
73	6,076.71 SF
74	10,381.38 SF
75	10,119.04 SF
76	6,000.00 SF
77	6,000.00 SF
78	6,000.00 SF
79	6,000.00 SF
80	6,126.27 SF
81	6,309.75 SF
82	6,819.40 SF
83	6,198.69 SF
84	6,204.19 SF

PARCEL TABLE	
PARCEL #	AREA
85	6,209.70 SF
86	6,215.21 SF
87	6,220.71 SF
88	6,515.13 SF
89	6,084.15 SF
90	6,498.53 SF
91	7,481.54 SF
92	6,014.95 SF
93	6,758.33 SF
94	6,266.17 SF
95	6,200.00 SF
96	6,200.00 SF
97	6,259.54 SF
98	6,200.00 SF
99	6,200.00 SF
100	6,000.00 SF
101	6,000.00 SF
102	6,000.00 SF
103	6,000.00 SF
104	6,000.00 SF
105	6,036.37 SF
106	6,000.00 SF
107	6,000.00 SF
108	6,000.00 SF
109	6,000.00 SF
110	6,782.43 SF
111	7,056.91 SF
112	7,058.46 SF

PARCEL TABLE	
PARCEL #	AREA
113	7,057.53 SF
114	7,054.20 SF
115	7,036.49 SF
116	6,302.07 SF
117	6,126.86 SF
118	6,126.86 SF
119	6,126.86 SF
120	6,126.86 SF
121	6,202.37 SF
122	6,126.86 SF
123	6,126.86 SF
124	6,126.86 SF
125	6,000.00 SF
126	6,000.00 SF
127	6,000.00 SF
128	6,179.93 SF
129	6,203.01 SF
130	6,203.01 SF
131	6,198.00 SF
132	6,000.00 SF
133	6,000.00 SF
134	6,203.01 SF
135	6,203.01 SF
136	6,156.63 SF
137	6,000.00 SF
138	6,000.00 SF
139	6,000.00 SF
140	6,000.00 SF

PARCEL TABLE	
PARCEL #	AREA
141	6,036.52 SF
142	6,000.00 SF
143	7,027.54 SF
144	6,220.74 SF
145	6,000.00 SF
146	6,000.00 SF
147	6,000.00 SF
148	6,000.00 SF
149	6,000.00 SF
150	6,000.00 SF
151	6,000.00 SF
152	6,302.27 SF
153	8,935.87 SF
154	7,328.66 SF
155	9,754.75 SF
156	7,008.24 SF
157	7,008.20 SF
158	6,900.46 SF
159	6,803.57 SF
160	6,967.55 SF
161	6,967.55 SF
162	6,967.55 SF
163	6,207.83 SF
164	6,075.63 SF

PAD SIZES	NO. OF LOTS
30X55	12
30X60	26
30X65	59
30X68	2
30X70	5
30X72	43
40X55	7
40X60	2
40X65	8



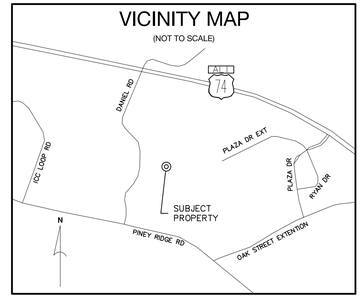
BOUNDARY LINE CURVE AND LINE TABLES

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	1400.00'	218.65'	218.43'	N 61°14'26" W	8°56'54"
C2	1400.00'	188.98'	188.83'	S 52°53'58" E	7°44'02"

LINE	BEARING	DISTANCE
L1	N 41°35'25" W	16.42'
L2	N 11°33'15" W	15.65'
L3	N 11°33'15" W	55.43'
L4	N 08°07'05" W	41.68'
L5	N 02°52'25" E	42.64'
L6	N 15°13'11" E	38.66'
L7	N 27°51'01" E	37.60'
L8	N 38°02'07" E	42.39'
L9	N 42°53'49" E	46.77'
L10	N 44°07'38" E	63.37'
L11	N 41°39'14" E	60.16'
L12	N 35°51'42" E	51.78'
L13	N 29°31'16" E	46.55'
L14	N 24°28'43" E	46.44'
L15	N 19°28'48" E	59.10'
L16	N 14°23'05" E	52.42'
L17	N 09°42'25" E	45.58'
L18	N 04°49'34" E	49.84'
L19	N 00°02'09" E	59.49'
L20	N 02°21'31" W	196.65'
L21	N 03°09'08" W	85.91'
L22	N 07°43'53" W	91.52'
L23	N 18°46'43" W	32.80'
L24	N 27°31'41" W	45.18'
L25	N 36°53'12" W	53.49'
L26	N 43°14'50" W	42.44'
L27	N 47°10'37" W	51.73'
L28	N 48°31'05" W	51.74'
L29	N 48°17'14" W	55.45'
L30	N 40°27'06" W	38.30'
L31	N 29°13'19" W	37.84'
L32	N 17°25'53" W	28.13'
L33	S 84°19'10" E	21.77'
L34	S 74°43'02" E	27.48'
L35	S 79°39'45" E	46.66'
L36	S 77°35'59" E	27.75'
L37	N 87°32'03" E	28.93'
L38	S 81°18'43" E	29.55'
L39	S 88°56'40" E	37.88'
L40	S 83°24'30" E	77.42'
L41	S 88°46'11" E	49.19'
L42	S 88°46'17" E	31.75'
L43	S 59°55'50" E	34.30'
L44	N 86°31'37" E	32.49'
L45	S 88°58'48" E	34.94'
L46	S 61°49'32" E	33.64'
L47	N 86°37'31" E	22.21'
L48	S 81°09'49" E	32.40'
L49	S 77°20'07" E	51.18'
L50	S 81°11'56" E	28.07'
L51	N 16°48'16" E	25.00'
L52	S 60°38'22" E	49.10'
L53	N 88°35'37" E	40.30'
L54	S 38°33'07" E	23.39'
L55	N 87°12'27" E	49.36'
L56	S 79°27'55" E	32.45'
L57	S 86°41'44" E	25.67'
L58	N 78°42'59" E	32.10'
L59	S 77°23'29" E	63.95'
L60	N 87°55'18" E	49.03'
L61	S 77°41'49" E	67.81'
L62	S 71°57'04" E	31.86'
L63	S 89°23'42" E	29.36'
L64	N 85°44'47" E	28.30'
L65	S 79°01'51" E	46.98'
L66	S 54°52'28" E	28.98'
L67	N 72°31'34" E	45.10'
L68	S 48°50'33" W	31.98'
L69	N 57°16'19" W	49.97'
L70	N 60°01'20" W	72.29'
L71	N 63°55'15" W	70.85'
L72	N 70°03'09" W	144.23'
L73	N 07°22'59" E	30.83'
L74	S 24°17'06" W	11.86'
L75	S 24°22'33" W	35.99'
L76	S 24°13'26" W	32.10'

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

ZONING DATA

DENSITY CALCULATIONS:

ALLOWED:	7 UNITS/ACRE
PROJECT UNITS:	164 UNITS - 3.46 UNITS/ACRE
TOTAL LOT ACREAGE:	24.43 ACRES

STREET CALCULATIONS:

LINEAR FEET:	6246 LF
ROW AREA:	7.04 ACRES

OPEN SPACE CALCULATIONS:

REQUIRED: 7.11 AC (15%) PROVIDED: 7.11 AC

(1) CERTIFICATE OF RECOMMENDATION BY PLANNING BOARD.

I HEREBY CERTIFY THAT THIS PRELIMINARY PLAT WAS RECOMMENDED FOR APPROVAL BY THE PLANNING BOARD OF THE TOWN OF FOREST CITY ON THE _____ DAY OF _____ 20_____.

CHAIRMAN, PLANNING BOARD	DATE

(2) CERTIFICATE OF APPROVAL BY TOWN BOARD OF COMMISSIONERS.

I HEREBY CERTIFY THAT THIS PRELIMINARY PLAT WAS APPROVED BY THE BOARD OF COMMISSIONERS OF THE TOWN OF FOREST CITY ON THE _____ DAY OF _____ 20_____.

MAYOR	DATE

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's below. Call before you dig.

NORTH

PRELIMINARY PLAT PLAN

GRAPHIC SCALE

100 0 50 100 200 300

(IN FEET)
1 inch = 100 ft.

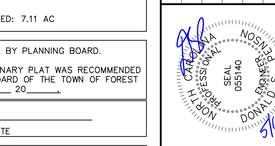
84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-0972

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

CDC Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL



PRELIMINARY PLAT PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT, LLC. - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C210

CONSTRUCTION SEQUENCE

GENERAL:

1. OBTAIN NCDEQ EROSION AND SEDIMENTATION CONTROL PLAN APPROVAL AND OTHER APPLICABLE PERMITS. NPDES NCG01 CERTIFICATE OF COVERAGE (COC) MUST BE OBTAINED BEFORE LAND DISTURBING ACTIVITIES OCCUR.
2. HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.
3. A COPY OF THE APPROVED EROSION CONTROL PERMIT, CERTIFICATE OF COVERAGE (COC), AND A HARD COPY OF THE MOST RECENT APPROVED PLAN SET SHALL BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE FOR INSPECTION.
4. INSTALL RAIN GAUGE ON-SITE. NPDES LOG TO BE KEPT CURRENT AND ACCESSIBLE AT PROJECT SITE AT ALL TIMES. MAINTENANCE INSPECTIONS SHALL BE PERFORMED WEEKLY AND AFTER EACH RAINFALL. ALL NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY AND IN STRICT ACCORDANCE WITH LOCAL STANDARDS AND NPDES PERMIT.
5. SET WORK LIMITS BY FLAGGING WETLANDS AND STREAM BUFFER AREAS FOR PROTECTION PRIOR TO START OF CLEARING AND/OR CONSTRUCTION ACTIVITIES.

SITE DEVELOPMENT PHASE 1 (UNITS 89-115)

1. INSTALL SOUTHERN CONSTRUCTION ENTRANCE. MINIMIZE VEGETATION DISTURBANCE TO THE MAXIMUM EXTENT POSSIBLE. TRIM VEGETATION ONLY WHERE REQUIRED FOR ACCESS AND DO NOT PERFORM ANY GROUND STRIPPING THAT WILL RESULT IN UNNECESSARY GROUND DISTURBANCE.
2. INSTALL PERIMETER EROSION CONTROL MEASURES INCLUDING BUT NOT LIMITED TO: SILT FENCE, FILTER SOCKS, ETC. INSTALL CONSTRUCTION FENCE/GATES AS NEEDED. ESTABLISH STAGING/MOBILIZATION AREA.
3. CALL ENGINEER AND LOCAL INSPECTOR TO APPROVE PERIMETER EROSION CONTROL DEVICES
4. INSTALL CLEAN WATER BYPASS DITCHES AND STORM NETWORK (LINE Y) ALONG THE SOUTHEAST PROPERTY LINES THAT DISCHARGE TO THE STREAM NEAR SKIMMER BASIN D.
5. INSTALL SKIMMER/SEDIMENT BASINS B, D & E AS THE FIRST GRADING ACTIVITY. STABILIZE BANKS AS EARLY AS POSSIBLE. DO NOT CONSTRUCT BASINS OR CONDUCT MAJOR GRADING ACTIVITIES DURING WET WEATHER OR PERIODS OF PREDICTED WET WEATHER.
6. PROCEED WITH CLEARING & GRUBBING. INSTALL REMAINING EROSION CONTROL MEASURES INCLUDING; DIVERSION DITCHES, WATTLES, PLUNGE POOLS, RIP RAP, ETC. AS CONSTRUCTION ALLOWS.
7. PROCEED WITH ROUGH GRADING. BRING ROAD B TO GRADE BETWEEN PINEY RIDGE RD AND ROAD D. BRING THE FULL EXTENTS OF ROAD D & UNITS 89-115 TO GRADE.
8. APPLY SEEDING PER GROUND STABILIZATION SCHEDULE.
9. INSTALL SEWER SYSTEM IN ROAD D. INSTALL ALL STORM DRAIN NETWORKS FOR BASINS D & E (EXCLUDING LINES L & K, AND P1Y THROUGH P0) WITH INLET & OUTLET PROTECTION.
10. CONSTRUCT PROPOSED WATER LINES FROM PINEY RIDGE RD TO THE END OF ROAD D.
11. CONTRACTOR TO COORDINATE INSTALLATION OF DRY UTILITIES.
12. INSTALL HARDSCAPES, COMPLETE FINE GRADING, AND STABILIZE FINAL GRADES WITH PERMANENT SEEDING. MULCH AND LANDSCAPE WHERE APPROPRIATE.
13. ONCE ADEQUATE STABILIZATION IS ACHIEVED, CONTACT ENGINEER TO VERIFY SKIMMER BASIN E CAN BE CONVERTED TO SAND FILTER E. CONSTRUCT REMAINDER OF STORM LINE P. INSPECT STORM SYSTEM UPSTREAM AND REMOVE ANY SEDIMENT. REMOVE ACCUMULATED SEDIMENTATION IN SKIMMER BASIN, COMPLETE FINAL GRADING, INSTALL SAND MEDIA WITH UNDERDRAINS, CONSTRUCT ROCK BERM, AND STABILIZE REMAINDER OF SCM WITH PERMANENT SEEDING.

SITE DEVELOPMENT PHASE 2 (UNITS 46-88 & 116-152)

1. MAINTAIN SOUTHERN CONSTRUCTION ENTRANCE AND/OR ESTABLISH CONSTRUCTION ENTRANCES INTERNALLY AS A CONTINUATION OF ROAD B AND LOOP BACK TO ROAD D.
2. INSTALL PERIMETER EROSION CONTROL MEASURES INCLUDING BUT NOT LIMITED TO: SILT FENCE, FILTER SOCKS, ETC. INSTALL CONSTRUCTION FENCE/GATES AS NEEDED. RELOCATE STAGING/MOBILIZATION AREAS AS NEEDED.
3. MAINTAIN SKIMMER/SEDIMENT BASINS B & D. INSTALL SKIMMER BASIN C AS THE FIRST GRADING ACTIVITY IN THIS PHASE. STABILIZE BANKS AS EARLY AS POSSIBLE.
4. PROCEED WITH CLEARING & GRUBBING. INSTALL REMAINING EROSION CONTROL MEASURES INCLUDING; DIVERSION DITCHES, WATTLES, PLUNGE POOLS, RIP RAP, ETC. AS CONSTRUCTION ALLOWS.
5. PROCEED WITH ROUGH GRADING. BRING THE REMAINDER OF ROAD B TO GRADE AS WELL AS ADJACENT UNITS.
6. INSTALL SEWER SYSTEM ALONG ROAD B AND CONNECT TO PRIOR PHASE. INSTALL REMAINING STORMWATER INFRASTRUCTURE UPSTREAM OF BASIN D (EXCLUDING K0). INSTALL STORM DRAIN NETWORK FOR BASIN C. INSTALL ALL STORM INFRASTRUCTURE UPSTREAM OF OUTLET F0 IN BASIN B. PROVIDE ALL INLET & OUTLET PROTECTION UPON INSTALLATION OF THESE LINES.
7. CONSTRUCT PROPOSED WATER ALONG THE REMAINDER OF ROAD B.
8. CONTRACTOR TO COORDINATE INSTALLATION OF DRY UTILITIES.
9. ONCE ADEQUATE STABILIZATION IS ACHIEVED CONTACT ENGINEER TO VERIFY SKIMMER SEDIMENT BASIN B CAN BE ELEVATED (TO MATCH FUTURE SAND FILTER BERM ELEVATION) AND REDUCED IN SIZE. THIS WILL ALLOW FINAL EXTERIOR BERM SLOPE TO BE ESTABLISHED AND STABILIZED. COMPLETE SURROUNDING LOT GRADING AND STABILIZE SURROUNDING SLOPES.
10. INSTALL HARDSCAPES, COMPLETE FINE GRADING, AND STABILIZE FINAL GRADES WITH PERMANENT SEEDING. MULCH AND LANDSCAPE WHERE APPROPRIATE.
11. ONCE ADEQUATE STABILIZATION IS ACHIEVED, CONTACT ENGINEER TO VERIFY SKIMMER BASINS C & D CAN BE CONVERTED TO FINAL SAND FILTERS. INSTALL STORM STRUCTURE K0 AND LINE K1-K0. INSPECT STORM SYSTEM UPSTREAM AND REMOVE ANY SEDIMENT. REMOVE ACCUMULATED SEDIMENTATION IN SKIMMER BASINS, COMPLETE FINAL GRADING, INSTALL SAND MEDIA WITH UNDERDRAINS, CONSTRUCT ROCK BERMS, AND STABILIZE REMAINDER OF SCMS WITH PERMANENT SEEDING.

SITE DEVELOPMENT PHASE 3 (UNITS 1-45 & 153-164)

1. INSTALL CONSTRUCTION ENTRANCES OFF DANIEL ROAD. MINIMIZE VEGETATION DISTURBANCE TO THE MAXIMUM EXTENT POSSIBLE. TRIM VEGETATION ONLY WHERE REQUIRED FOR ACCESS AND DO NOT PERFORM ANY GROUND STRIPPING THAT WILL RESULT IN UNNECESSARY GROUND DISTURBANCE. ESTABLISH CONSTRUCTION ENTRANCE OFF ROAD B FROM PRIOR PHASE.
2. INSTALL PERIMETER EROSION CONTROL MEASURES INCLUDING BUT NOT LIMITED TO: SILT FENCE, FILTER SOCKS, ETC. INSTALL CONSTRUCTION FENCE/GATES AS NEEDED. RELOCATE STAGING/MOBILIZATION AREAS AS NEEDED.
3. MAINTAIN SKIMMER SEDIMENT BASIN B. INSTALL SKIMMER BASIN A AS THE FIRST GRADING ACTIVITY IN THIS PHASE. STABILIZE BANKS AS EARLY AS POSSIBLE.
4. PROCEED WITH CLEARING & GRUBBING. INSTALL REMAINING EROSION CONTROL MEASURES INCLUDING; DIVERSION DITCHES, WATTLES, PLUNGE POOLS, RIP RAP, ETC. AS CONSTRUCTION ALLOWS.
5. PROCEED WITH ROUGH GRADING. BRING ROAD A & C TO GRADE AS WELL AS ALL ADJACENT UNITS.
6. CONNECT TO EXISTING SEWER SYSTEM ALONG THE NORTHERN PROPERTY BOUNDARY AND INSTALL NEW PUBLIC EXTENSION ALONG ROADS A & C. INSTALL ALL REMAINING STORM DRAIN SYSTEMS WITH INLET & OUTLET PROTECTION (EXCLUDING SAND FILTER A'S FINAL OUTFALL).
7. CONNECT TO EXISTING WATER MAIN ALONG DANIEL RD. EXTEND NEW PUBLIC WATER EXTENSION ALONG ROADS A & C COMPLETING A LOOPED SYSTEM.
8. CONTRACTOR TO COORDINATE INSTALLATION OF REMAINING DRY UTILITIES.
9. INSTALL HARDSCAPES, COMPLETE FINE GRADING, AND STABILIZE FINAL GRADES WITH PERMANENT SEEDING. MULCH AND LANDSCAPE WHERE APPROPRIATE.
10. ONCE ADEQUATE STABILIZATION IS ACHIEVED, CONTACT ENGINEER TO VERIFY SKIMMER BASINS A & B CAN BE CONVERTED TO FINAL SAND FILTERS. INSPECT STORM SYSTEM UPSTREAM AND REMOVE ANY SEDIMENT. REMOVE ACCUMULATED SEDIMENTATION IN SKIMMER/SEDIMENT BASINS, COMPLETE FINAL GRADING WITH PERMANENT OUTFALL, INSTALL SAND MEDIA WITH UNDERDRAINS, CONSTRUCT ROCK BERMS AND STABILIZE REMAINDER OF SCMS WITH PERMANENT SEEDING.
11. CALL NCDEQ ASHEVILLE REGIONAL OFFICE AT 828-296-4500 TO SCHEDULE FINAL INSPECTION PRIOR TO FILING NOTICE OF TERMINATION

GR-EC-SW NOTES

1. SEE GRADING, EROSION CONTROL, AND STORM DRAINAGE DETAIL SHEETS FOR ALL GENERAL NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL PLANS.
2. NO PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.
3. SOIL TYPE: **ChA, PaD2, PaC2, PbB3, CaB2**
   SOIL GROUP: **B, B/D, C**
4. STREAM INFORMATION:

INDEX	**9-37-2**
NAME	**BRACKETTS CREEK**
CLASSIFICATION:	**C**
RIVER BASIN:	**BROAD**

5. TO SCHEDULE THE REQUIRED INSPECTIONS ON ALL WORK, CALL THE CIVIL DESIGN CONCEPTS INSPECTIONS HOTLINE AT 828-771-4755, OR EMAIL AT INSPECTIONS@CDCGO.COM.

   FAILURE TO SCHEDULE INSPECTIONS MAY RESULT IN UNCOVERING OR REDOING WORK
6. RETAINING WALLS:

   ALL RETAINING WALL ELEVATIONS SHOWN ARE FROM TOP OF WALL TO FINISH GRADE ELEVATION. CONTRACTOR TO ACCOUNT FOR FOOTER/COVER OVER FOOTER. REFER TO WALL DESIGN FOR FOOTER DESIGN. WALL DESIGN TO ALSO ACCOMMODATE STORM PIPE PENETRATIONS PER PLANS.

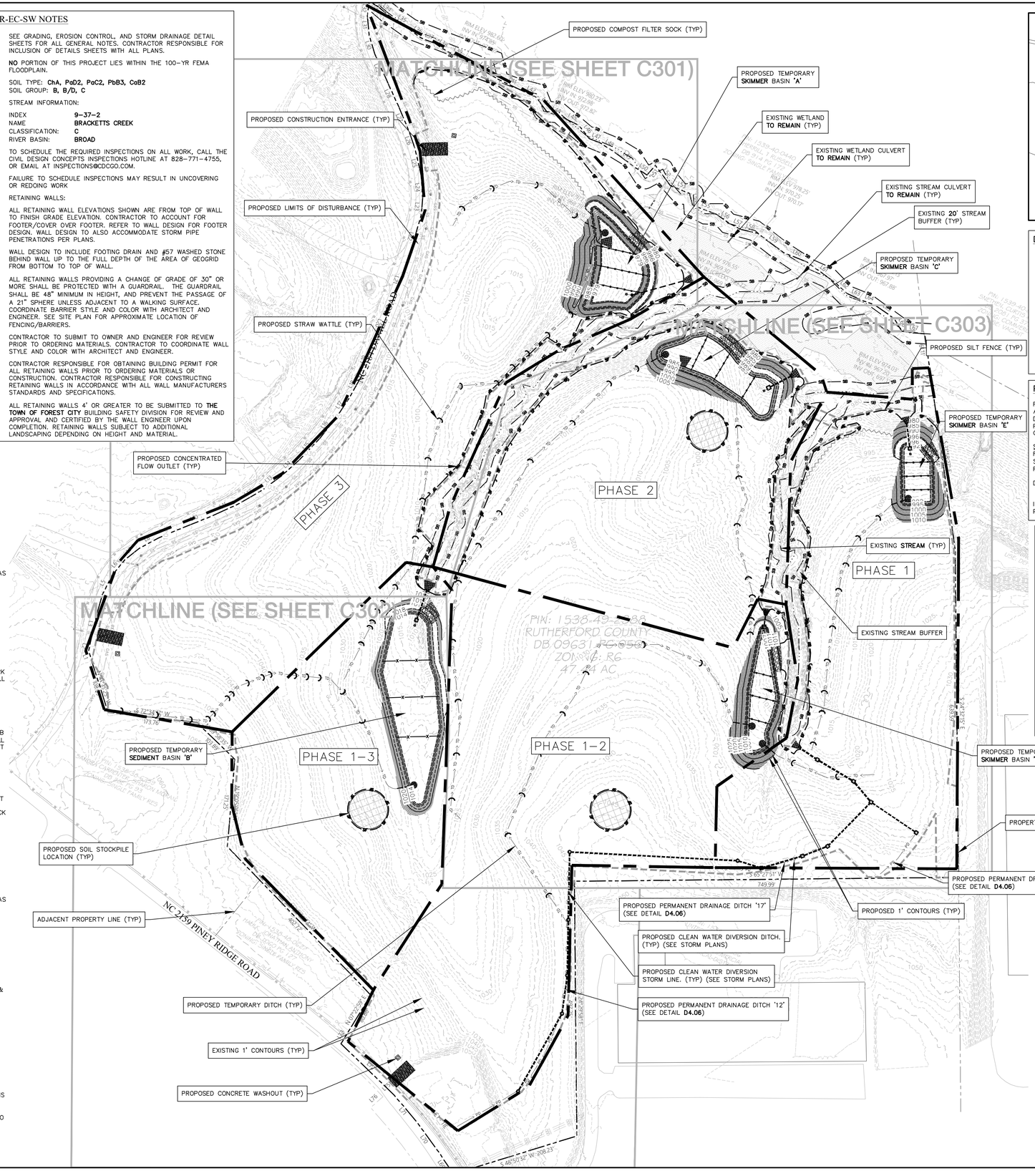
   WALL DESIGN TO INCLUDE FOOTING DRAIN AND #57 WASHED STONE BEHIND WALL UP TO THE FULL DEPTH OF THE AREA OF GEOGRID FROM BOTTOM TO TOP OF WALL.

   ALL RETAINING WALLS PROVIDING A CHANGE OF GRADE OF 30" OR MORE SHALL BE PROTECTED WITH A GUARDRAIL. THE GUARDRAIL SHALL BE 48" MINIMUM IN HEIGHT, AND PREVENT THE PASSAGE OF A 21" SPHERE UNLESS ADJACENT TO A WALKING SURFACE. COORDINATE BARRIER STYLE AND COLOR WITH ARCHITECT AND ENGINEER. SEE SITE PLAN FOR APPROXIMATE LOCATION OF FENCING/BARRIERS.

   CONTRACTOR TO SUBMIT TO OWNER AND ENGINEER FOR REVIEW PRIOR TO ORDERING MATERIALS. CONTRACTOR TO COORDINATE WALL STYLE AND COLOR WITH ARCHITECT AND ENGINEER.

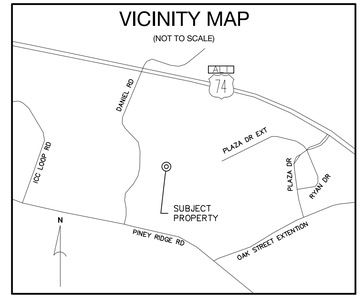
   CONTRACTOR RESPONSIBLE FOR OBTAINING BUILDING PERMIT FOR ALL RETAINING WALLS PRIOR TO ORDERING MATERIALS OR CONSTRUCTION. CONTRACTOR RESPONSIBLE FOR CONSTRUCTING RETAINING WALLS IN ACCORDANCE WITH ALL WALL MANUFACTURERS STANDARDS AND SPECIFICATIONS.

   ALL RETAINING WALLS 4' OR GREATER TO BE SUBMITTED TO **THE TOWN OF FOREST CITY** BUILDING SAFETY DIVISION FOR REVIEW AND APPROVAL AND CERTIFIED BY THE WALL ENGINEER UPON COMPLETION. RETAINING WALLS SUBJECT TO ADDITIONAL LANDSCAPING DEPENDING ON HEIGHT AND MATERIAL.



VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC
	PRE / POST
IMPERVIOUS AREA:	0 ACRES (0%) / 14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%) / 33.0 ACRES (70%)

ROUGH GRADING & EROSION CONTROL LEGEND

- LIMITS OF DISTURBANCE
- SILT FENCE
- SKIMMER & CONTROL STRUCTURE
- TEMPORARY PIPE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- TEMPORARY DIVERSION DITCH
- PERMANENT DIVERSION DITCH
- FILTER SOCK
- STRAW WATTLE
- STONE INLET PROTECTION

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's **below.** **Call** before you dig.

NORTH

MASTER ROUGH GRADING AND EROSION CONTROL PLAN PH1

GRAPHIC SCALE

100 0 50 100 200 300

(IN FEET)

1 inch = 100 ft.

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 214-0972

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

Civil Design Concepts, PA
www.cdcpc.com

NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON

5/6/26

THE PRESERVE AT BRACKETTS CREEK

MASTER ROUGH GRADING AND EROSION CONTROL PLAN PH1 FOR:
DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C300

GR-EC-SW NOTES

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2. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.
3. SOIL TYPE: **ChA, PoD2, PoC2, PbB3, CaB2**
   SOIL GROUP: **B, B/D, C**
4. STREAM INFORMATION:

INDEX	**9-37-2**
NAME	**BRACKETTS CREEK**
CLASSIFICATION:	**C**
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ROUGH GRADING & EROSION CONTROL LEGEND

- LIMITS OF DISTURBANCE
- SILT FENCE — SF
- SKIMMER & CONTROL STRUCTURE
- TEMPORARY PIPE
- EXISTING CONTOURS — 00
- PROPOSED CONTOURS — 00
- TEMPORARY DIVERSION DITCH — TD — TD
- PERMANENT DIVERSION DITCH — PD — PD
- FILTER SOCK
- STRAW WATTLE
- STONE INLET PROTECTION

PROPOSED **12"** COMPOST FILTER SOCK (SEE DETAIL **D3.14**)

PROPOSED CONCRETE WASHOUT (TYP) (SEE SHEET C939)

PROPOSED **50'x25'x12"** CONSTRUCTION ENTRANCE (TYP) (SEE NCDOT DETAIL **1607.01**) (CONSTRUCTION ENTRANCE TO BE MAINTAINED AND ADDITIONAL STONE ADDED ON REGULAR BASIS AS NEEDED)

LATITUDE: **35.3368**
LONGITUDE: **-81.9055**

PROPOSED TEMPORARY **15"** SLOPE DRAIN (SEE DETAIL **D3.12**)

PROPOSED TEMPORARY DIVERSION DITCH '**A1**'
BOTTOM WIDTH: **0'**
SIDE SLOPE: **2**:1
DEPTH: **2'** MIN.
SLOPE: 2% MIN.
CHANNEL LINER: **S75BN**
(SEE DETAIL **D3.07**)

EXISTING SEWER MAIN (TYP)

EXISTING WETLAND CULVERT TO REMAIN

EXISTING WETLANDS TO REMAIN (TYP)

PROPOSED TEMPORARY PLUNGE POOL (TYP) (SEE DETAIL **D3.06**)

PROPOSED TEMPORARY RIP RAP APRON '**A2**' (SEE DETAIL **D3.08**)

PROPOSED TEMPORARY **SKIMMER** BASIN '**A**' (SEE DETAIL **D3.10**)

PROPOSED **1'** CONTOURS (TYP)

ALL 2:1 SLOPES AND GREATER TO BE STABILIZED WITH ROLLED EROSION CONTROL PRODUCT (NORTH AMERICAN GREEN **S150BN** OR APPROVED EQUAL)

PROPOSED PERMANENT RIP-RAP APRON '**A0**' (SEE STORM PLANS)

EXISTING 1' CONTOURS (TYP)

PROPOSED STRAW WATTLE (TYP) (SEE DETAIL **D3.02**)

PROPERTY LINE (TYP)

PROPOSED CONCENTRATED FLOW OUTLET (TYP) (SEE DETAIL **D3.11**)

PROPOSED TEMPORARY DIVERSION DITCH '**A2**'
BOTTOM WIDTH: **2'**
SIDE SLOPE: **2**:1
DEPTH: **2'** MIN.
SLOPE: 2% MIN.
CHANNEL LINER: **S75BN**
(SEE DETAIL **D3.07**)

PROPOSED SILT FENCE (TYP) (SEE DETAIL **D3.03**)

EXISTING **STREAM** (TYP)

PROPOSED LIMITS OF DISTURBANCE (TYP)

EXISTING **20'** STREAM BUFFER (TYP)

PROPOSED SILT FENCE J-HOOK (TYP) (SEE DETAIL **D3.13**)

MATCHLINE (SEE SHEET C302)

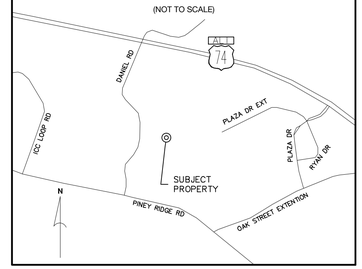
MATCHLINE (SEE SHEET C301)

DANIEL ROAD (SR#2027)
Width Varies

TRELLEBORG PIPE SEALS SYSTEMS US INC
DB 2086 PG 525
ZONING: COMMERCIAL

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

ZONING DATA

DENSITY CALCULATIONS:

ALLOWED:	7 UNITS/ACRE
PROJECT UNITS:	164 UNITS = 3.46 UNITS/ACRE
TOTAL LOT ACREAGE:	24.43 ACRES

STREET CALCULATIONS:

LINEAR FEET:	6246 LF
ROW AREA:	7.04 ACRES

OPEN SPACE CALCULATIONS:

REQUIRED: 7.11 AC (15%) PROVIDED: 7.11 AC

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's below. Call before you dig.

NORTH

ROUGH GRADING AND EROSION CONTROL PLAN PH1

GRAPHIC SCALE

50 0 25 50 100 150
(IN FEET)
1 inch = 50 ft.

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-6972

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD R. PENSON

ROUGH GRADING AND EROSION CONTROL PLAN PH1 FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C301

GR-EC-SW NOTES

1. SEE GRADING, EROSION CONTROL, AND STORM DRAINAGE DETAIL SHEETS FOR ALL GENERAL NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL PLANS.
2. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.
3. SOIL TYPE: **ChA, PoD2, PoC2, PbB3, CaB2**
   SOIL GROUP: **B, B/D, C**
4. STREAM INFORMATION:

INDEX	**9-37-2**
NAME	**BRACKETTS CREEK**
CLASSIFICATION:	**C**
RIVER BASIN:	**BROAD**

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- TEMPORARY PIPE
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- TEMPORARY DIVERSION DITCH — TD — TD —
- PERMANENT DIVERSION DITCH — PD — PD —
- FILTER SOCK
- STRAW WATTLE
- STONE INLET PROTECTION

MATCHLINE (SEE SHEET C301)

PROPOSED TEMPORARY DIVERSION DITCH **'A2'** (SEE SHEET C301)

PROPOSED **50'x25'x12"** CONSTRUCTION ENTRANCE (TYP) (SEE NCDOT DETAIL **1607.01**) (CONSTRUCTION ENTRANCE TO BE MAINTAINED AND ADDITIONAL STONE ADDED ON REGULAR BASIS AS NEEDED)
LATITUDE: **35.3336**
LONGITUDE: **-81.9059**

PROPOSED STRAW WATTLE (TYP) (SEE DETAIL **D3.02**)

PROPOSED CONCRETE WASHOUT (TYP) (SEE SHEET C939)

PROPOSED TEMPORARY DIVERSION DITCH **'B'**
BOTTOM WIDTH: 1'
SIDE SLOPE: 2:1
DEPTH: 2' MIN.
SLOPE: 2% MIN.
CHANNEL LINER: **S75BN**
(SEE DETAIL **D3.07**)

EXISTING 1' CONTOURS (TYP)

PROPOSED 1' CONTOURS (TYP)

PROPOSED TEMPORARY **SEDIMENT** BASIN **'B'** (SEE DETAIL **D3.17**)

PROPOSED SOIL STOCKPILE LOCATION (TYP)

PROPOSED TEMPORARY DIVERSION DITCH **'C1'** (SEE SHEET C303)

ALL SLOPES GREATER THAN 3:1 BE HYDROSEEDED WITHIN 7 DAYS OF ESTABLISHED FINISH GRADE FOR STABILIZATION. PERMANENT VEGETATION SEED TO CONFORM WITH SEEDING REQUIREMENTS SHOWN ON DETAIL SHEET.

PROPOSED TEMPORARY DIVERSION DITCH **'D1'** (SEE SHEET C303)

PROPOSED TEMPORARY PLUNGE POOL (TYP) (SEE DETAIL **D3.06**)

PROPOSED TEMPORARY **15"** SLOPE DRAIN (SEE DETAIL **D3.12**)

MATCHLINE (SEE SHEET C303)

PROPOSED CLEAN WATER DIVERSION STORM LINE. INSTALLATION TO BE COORDINATED WITH FINAL GRADING (TYP) (SEE STORM PLANS)

PROPOSED CLEAN WATER DIVERSION DITCH. (TYP) (SEE STORM PLANS)

PROPERTY LINE (TYP)

PROPOSED **50'x25'x12"** CONSTRUCTION ENTRANCE (TYP) (SEE NCDOT DETAIL **1607.01**) (CONSTRUCTION ENTRANCE TO BE MAINTAINED AND ADDITIONAL STONE ADDED ON REGULAR BASIS AS NEEDED)
LATITUDE: **35.3322**
LONGITUDE: **-81.9031**

EXISTING OVERHEAD UTILITIES TO REMAIN (TYP)

PINEY RIDGE ROAD (SR#2159)
(PUBLIC/NON-MAINTAINED)

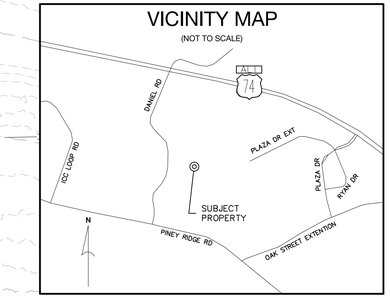
PIN: 1538-38-6759
SANDRA CARPENTER SHARON MORE
DB 28E PG 93
ZONING: SINGLE FAMILY RES

PIN: 1538-48-0622
HAULK, JONATHAN ANTHONY
DB. 1060 PG. 127
ZONING: SINGLE FAMILY RES

FOREST CITY
RUTHERFORD COUNTY

N 17°33'25" W 108.99'
S 72°34'17" W 173.76'
N 69°59'35" W 103.89'
N 18°05'06" W 172.25'
N 67°58'44" W 402.72'
N 07°22'59" E 60.88'
S 24°29'58" E 497.32'
S 48°50'32" W 208.23'

VICINITY MAP
(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28723-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
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PROJECT DATA

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PROJECT ACREAGE:	47.4± ACRES
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DISTURBED AREA:	41.0± AC

	PRE	POST
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ROUGH GRADING AND EROSION CONTROL PLAN PH1

GRAPHIC SCALE
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(IN FEET)
1 inch = 50 ft.

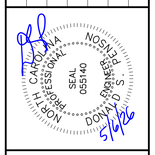
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NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
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ROUGH GRADING AND EROSION CONTROL PLAN PH1 FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C302

GR-EC-SW NOTES

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3. SOIL TYPE: **ChA, PoD2, PoC2, PbB3, CaB2**
   SOIL GROUP: **B, B/D, C**
4. STREAM INFORMATION:

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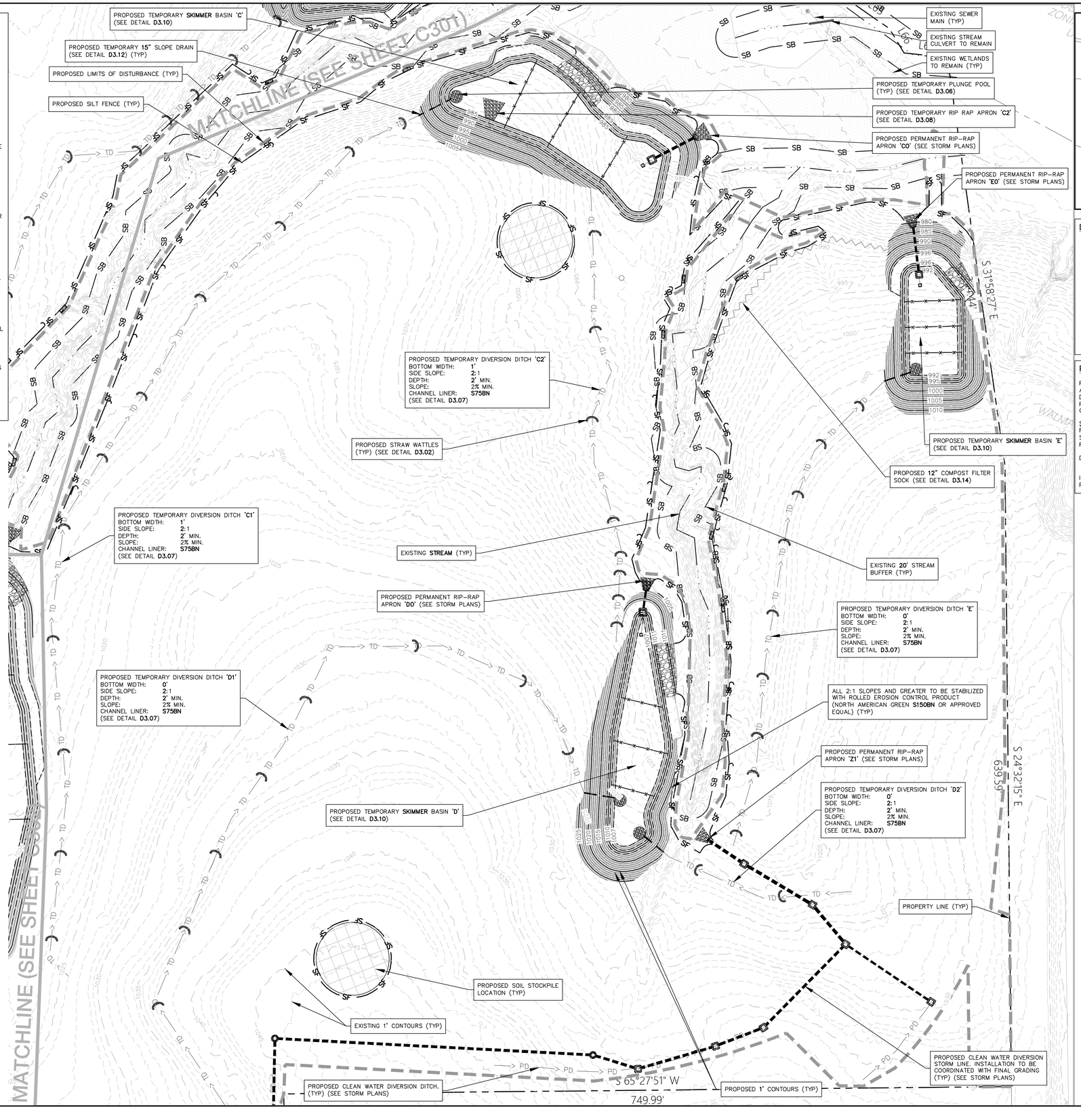
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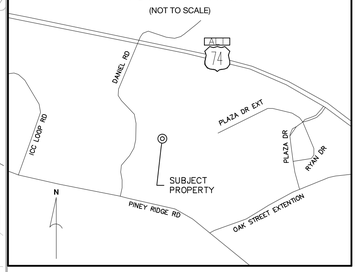
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VICINITY MAP

(NOT TO SCALE)



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NORTH

ROUGH GRADING AND EROSION CONTROL PLAN PH1

GRAPHIC SCALE

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(IN FEET)
1 inch = 50 ft.

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NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON
5/6/26

ROUGH GRADING AND EROSION CONTROL PLAN PH1 FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C303

CONSTRUCTION SEQUENCE

GENERAL:

1. OBTAIN NCDEQ EROSION AND SEDIMENTATION CONTROL PLAN APPROVAL AND OTHER APPLICABLE PERMITS. NPDES NCG01 CERTIFICATE OF COVERAGE (COC) MUST BE OBTAINED BEFORE LAND DISTURBING ACTIVITIES OCCUR.
2. HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.
3. A COPY OF THE APPROVED EROSION CONTROL PERMIT, CERTIFICATE OF COVERAGE (COC), AND A HARD COPY OF THE MOST RECENT APPROVED PLAN SET SHALL BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE FOR INSPECTION.
4. INSTALL RAIN GAUGE ON-SITE. NPDES LOG TO BE KEPT CURRENT AND ACCESSIBLE AT PROJECT SITE AT ALL TIMES. MAINTENANCE INSPECTIONS SHALL BE PERFORMED WEEKLY AND AFTER EACH RAINFALL. ALL NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY AND IN STRICT ACCORDANCE WITH LOCAL STANDARDS AND NPDES PERMIT.
5. SET WORK LIMITS BY FLAGGING WETLANDS AND STREAM BUFFER AREAS FOR PROTECTION PRIOR TO START OF CLEARING AND/OR CONSTRUCTION ACTIVITIES.

SITE DEVELOPMENT PHASE 1 (UNITS 89-115)

1. INSTALL SOUTHERN CONSTRUCTION ENTRANCE. MINIMIZE VEGETATION DISTURBANCE TO THE MAXIMUM EXTENT POSSIBLE. TRIM VEGETATION ONLY WHERE REQUIRED FOR ACCESS AND DO NOT PERFORM ANY GROUND STRIPPING THAT WILL RESULT IN UNNECESSARY GROUND DISTURBANCE.
2. INSTALL PERIMETER EROSION CONTROL MEASURES INCLUDING BUT NOT LIMITED TO: SILT FENCE, FILTER SOCKS, ETC. INSTALL CONSTRUCTION FENCE/GATES AS NEEDED. ESTABLISH STAGING/MOBILIZATION AREA.
3. CALL ENGINEER AND LOCAL INSPECTOR TO APPROVE PERIMETER EROSION CONTROL DEVICES
4. INSTALL CLEAN WATER BYPASS DITCHES AND STORM NETWORK (LINE Y) ALONG THE SOUTHEAST PROPERTY LINES THAT DISCHARGE TO THE STREAM NEAR SKIMMER BASIN D.
5. INSTALL SKIMMER/SEDIMENT BASINS B, D & E AS THE FIRST GRADING ACTIVITY. STABILIZE BANKS AS EARLY AS POSSIBLE. DO NOT CONSTRUCT BASINS OR CONDUCT MAJOR GRADING ACTIVITIES DURING WET WEATHER OR PERIODS OF PREDICTED WET WEATHER.
6. PROCEED WITH CLEARING & GRUBBING. INSTALL REMAINING EROSION CONTROL MEASURES INCLUDING; DIVERSION DITCHES, WATTLES, PLUNGE POOLS, RIP RAP, ETC. AS CONSTRUCTION ALLOWS.
7. PROCEED WITH ROUGH GRADING, BRING ROAD B TO GRADE BETWEEN PINEY RIDGE RD AND ROAD D. BRING THE FULL EXTENTS OF ROAD D & UNITS 89-115 TO GRADE.
8. APPLY SEEDING PER GROUND STABILIZATION SCHEDULE.
9. INSTALL SEWER SYSTEM IN ROAD D. INSTALL ALL STORM DRAIN NETWORKS FOR BASINS D & E (EXCLUDING LINES L & K, AND P1Y THROUGH P0) WITH INLET & OUTLET PROTECTION.
10. CONSTRUCT PROPOSED WATER LINES FROM PINEY RIDGE RD TO THE END OF ROAD D.
11. CONTRACTOR TO COORDINATE INSTALLATION OF DRY UTILITIES.
12. INSTALL HARDSCAPES, COMPLETE FINE GRADING, AND STABILIZE FINAL GRADES WITH PERMANENT SEEDING. MULCH AND LANDSCAPE WHERE APPROPRIATE.
13. ONCE ADEQUATE STABILIZATION IS ACHIEVED, CONTACT ENGINEER TO VERIFY SKIMMER BASIN E CAN BE CONVERTED TO SAND FILTER E. CONSTRUCT REMAINDER OF STORM LINE P. INSPECT STORM SYSTEM UPSTREAM AND REMOVE ANY SEDIMENT. REMOVE ACCUMULATED SEDIMENTATION IN SKIMMER BASIN, COMPLETE FINAL GRADING, INSTALL SAND MEDIA WITH UNDERDRAINS, CONSTRUCT ROCK BERM, AND STABILIZE REMAINDER OF SCM WITH PERMANENT SEEDING.

SITE DEVELOPMENT PHASE 2 (UNITS 46-88 & 116-152)

1. MAINTAIN SOUTHERN CONSTRUCTION ENTRANCE AND/OR ESTABLISH CONSTRUCTION ENTRANCES INTERNALLY AS A CONTINUATION OF ROAD B AND LOOP BACK TO ROAD D.
2. INSTALL PERIMETER EROSION CONTROL MEASURES INCLUDING BUT NOT LIMITED TO: SILT FENCE, FILTER SOCKS, ETC. INSTALL CONSTRUCTION FENCE/GATES AS NEEDED. RELOCATE STAGING/MOBILIZATION AREAS AS NEEDED.
3. MAINTAIN SKIMMER/SEDIMENT BASINS B & D. INSTALL SKIMMER BASIN C AS THE FIRST GRADING ACTIVITY IN THIS PHASE. STABILIZE BANKS AS EARLY AS POSSIBLE.
4. PROCEED WITH CLEARING & GRUBBING. INSTALL REMAINING EROSION CONTROL MEASURES INCLUDING; DIVERSION DITCHES, WATTLES, PLUNGE POOLS, RIP RAP, ETC. AS CONSTRUCTION ALLOWS.
5. PROCEED WITH ROUGH GRADING. BRING THE REMAINDER OF ROAD B TO GRADE AS WELL AS ADJACENT UNITS.
6. INSTALL SEWER SYSTEM ALONG ROAD B AND CONNECT TO PRIOR PHASE. INSTALL REMAINING STORMWATER INFRASTRUCTURE UPSTREAM OF BASIN D (EXCLUDING K0). INSTALL STORM DRAIN NETWORK FOR BASIN C. INSTALL ALL STORM INFRASTRUCTURE UPSTREAM OF OUTLET F0 IN BASIN B. PROVIDE ALL INLET & OUTLET PROTECTION UPON INSTALLATION OF THESE LINES.
7. CONSTRUCT PROPOSED WATER ALONG THE REMAINDER OF ROAD B.
8. CONTRACTOR TO COORDINATE INSTALLATION OF DRY UTILITIES.
9. ONCE ADEQUATE STABILIZATION IS ACHIEVED CONTACT ENGINEER TO VERIFY SKIMMER SEDIMENT BASIN B CAN BE ELEVATED (TO MATCH FUTURE SAND FILTER BERM ELEVATION) AND REDUCED IN SIZE. THIS WILL ALLOW FINAL EXTERIOR BERM SLOPE TO BE ESTABLISHED AND STABILIZED. COMPLETE SURROUNDING LOT GRADING AND STABILIZE SURROUNDING SLOPES.
10. INSTALL HARDSCAPES, COMPLETE FINE GRADING, AND STABILIZE FINAL GRADES WITH PERMANENT SEEDING. MULCH AND LANDSCAPE WHERE APPROPRIATE.
11. ONCE ADEQUATE STABILIZATION IS ACHIEVED, CONTACT ENGINEER TO VERIFY SKIMMER BASINS C & D CAN BE CONVERTED TO FINAL SAND FILTERS. INSTALL STORM STRUCTURE K0 AND LINE K1-K0. INSPECT STORM SYSTEM UPSTREAM AND REMOVE ANY SEDIMENT. REMOVE ACCUMULATED SEDIMENTATION IN SKIMMER BASINS, COMPLETE FINAL GRADING, INSTALL SAND MEDIA WITH UNDERDRAINS, CONSTRUCT ROCK BERMS, AND STABILIZE REMAINDER OF SCMS WITH PERMANENT SEEDING.

SITE DEVELOPMENT PHASE 3 (UNITS 1-45 & 153-164)

1. INSTALL CONSTRUCTION ENTRANCES OFF DANIEL ROAD. MINIMIZE VEGETATION DISTURBANCE TO THE MAXIMUM EXTENT POSSIBLE. TRIM VEGETATION ONLY WHERE REQUIRED FOR ACCESS AND DO NOT PERFORM ANY GROUND STRIPPING THAT WILL RESULT IN UNNECESSARY GROUND DISTURBANCE. ESTABLISH CONSTRUCTION ENTRANCE OFF ROAD B FROM PRIOR PHASE.
2. INSTALL PERIMETER EROSION CONTROL MEASURES INCLUDING BUT NOT LIMITED TO: SILT FENCE, FILTER SOCKS, ETC. INSTALL CONSTRUCTION FENCE/GATES AS NEEDED. RELOCATE STAGING/MOBILIZATION AREAS AS NEEDED.
3. MAINTAIN SKIMMER SEDIMENT BASIN B. INSTALL SKIMMER BASIN A AS THE FIRST GRADING ACTIVITY IN THIS PHASE. STABILIZE BANKS AS EARLY AS POSSIBLE.
4. PROCEED WITH CLEARING & GRUBBING. INSTALL REMAINING EROSION CONTROL MEASURES INCLUDING; DIVERSION DITCHES, WATTLES, PLUNGE POOLS, RIP RAP, ETC. AS CONSTRUCTION ALLOWS.
5. PROCEED WITH ROUGH GRADING. BRING ROAD A & C TO GRADE AS WELL AS ALL ADJACENT UNITS.
6. CONNECT TO EXISTING SEWER SYSTEM ALONG THE NORTHERN PROPERTY BOUNDARY AND INSTALL NEW PUBLIC EXTENSION ALONG ROADS A & C. INSTALL ALL REMAINING STORM DRAIN SYSTEMS WITH INLET & OUTLET PROTECTION (EXCLUDING SAND FILTER A'S FINAL OUTFALL).
7. CONNECT TO EXISTING WATER MAIN ALONG DANIEL RD. EXTEND NEW PUBLIC WATER EXTENSION ALONG ROADS A & C COMPLETING A LOOPED SYSTEM.
8. CONTRACTOR TO COORDINATE INSTALLATION OF REMAINING DRY UTILITIES.
9. INSTALL HARDSCAPES, COMPLETE FINE GRADING, AND STABILIZE FINAL GRADES WITH PERMANENT SEEDING. MULCH AND LANDSCAPE WHERE APPROPRIATE.
10. ONCE ADEQUATE STABILIZATION IS ACHIEVED, CONTACT ENGINEER TO VERIFY SKIMMER BASINS A & B CAN BE CONVERTED TO FINAL SAND FILTERS. INSPECT STORM SYSTEM UPSTREAM AND REMOVE ANY SEDIMENT. REMOVE ACCUMULATED SEDIMENTATION IN SKIMMER/SEDIMENT BASINS, COMPLETE FINAL GRADING WITH PERMANENT OUTFALL, INSTALL SAND MEDIA WITH UNDERDRAINS, CONSTRUCT ROCK BERMS AND STABILIZE REMAINDER OF SCMS WITH PERMANENT SEEDING.
11. CALL NCDEQ ASHEVILLE REGIONAL OFFICE AT 828-296-4500 TO SCHEDULE FINAL INSPECTION PRIOR TO FILING NOTICE OF TERMINATION

GR-EC-SW NOTES

1. SEE GRADING, EROSION CONTROL, AND STORM DRAINAGE DETAIL SHEETS FOR ALL GENERAL NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL PLANS.
2. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.
3. SOIL TYPE: **ChA, PaD2, PaC2, PbB3, CaB2**
   SOIL GROUP: **B, B/D, C**
4. STREAM INFORMATION:
   INDEX **9-37-2**
   NAME **BRACKETTS CREEK**
   CLASSIFICATION: **C**
   RIVER BASIN: **BROAD**
5. TO SCHEDULE THE REQUIRED INSPECTIONS ON ALL WORK, CALL THE CIVIL DESIGN CONCEPTS INSPECTIONS HOTLINE AT 828-771-4755, OR EMAIL AT INSPECTIONS@CDCGO.COM.

   FAILURE TO SCHEDULE INSPECTIONS MAY RESULT IN UNCOVERING OR REDOING WORK
6. RETAINING WALLS:

   ALL RETAINING WALL ELEVATIONS SHOWN ARE FROM TOP OF WALL TO FINISH GRADE ELEVATION. CONTRACTOR TO ACCOUNT FOR FOOTER/COVER OVER FOOTER. REFER TO WALL DESIGN FOR FOOTER DESIGN. WALL DESIGN TO ALSO ACCOMMODATE STORM PIPE PENETRATIONS PER PLANS.

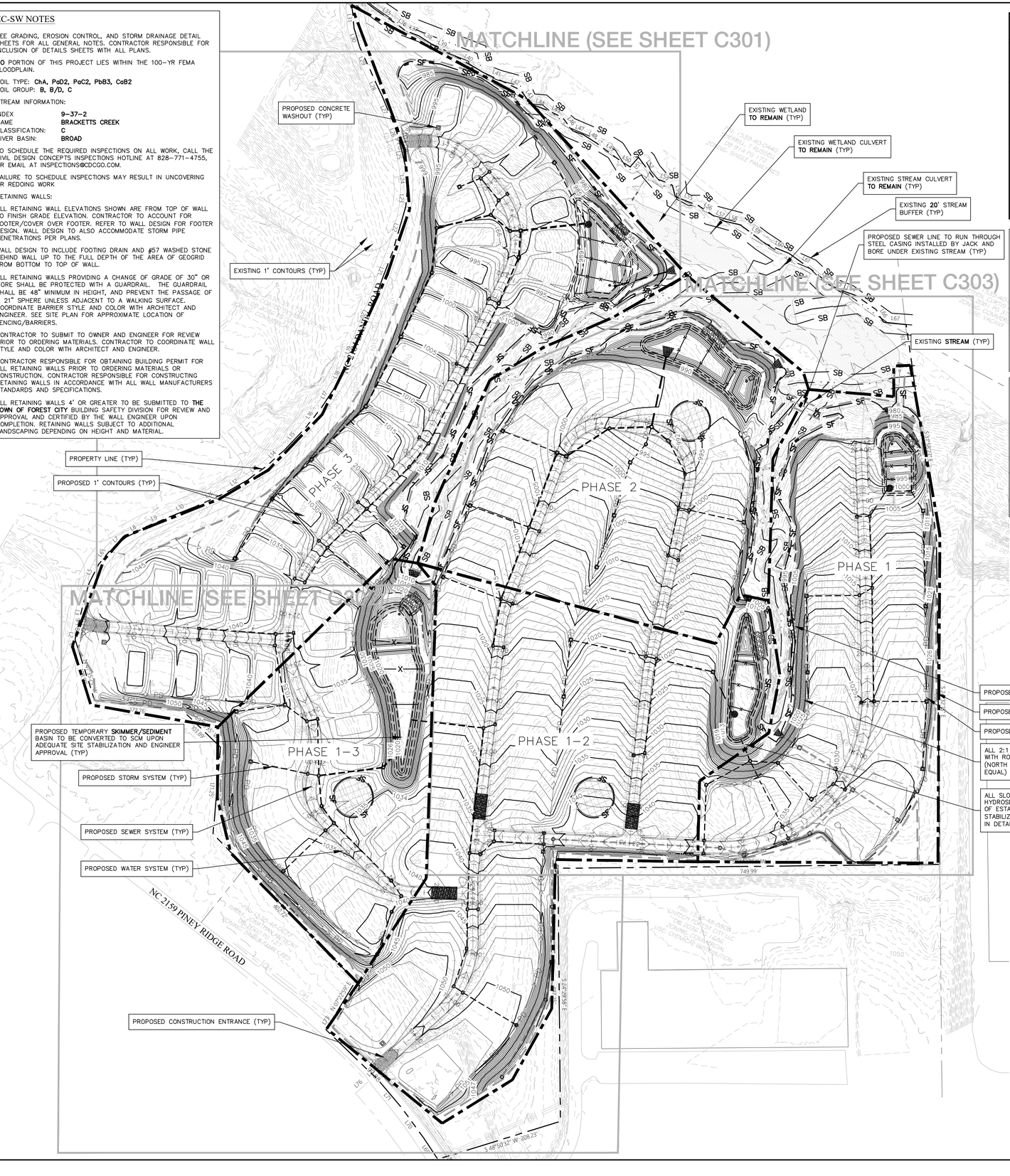
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   CONTRACTOR TO SUBMIT TO OWNER AND ENGINEER FOR REVIEW PRIOR TO ORDERING MATERIALS. CONTRACTOR TO COORDINATE WALL STYLE AND COLOR WITH ARCHITECT AND ENGINEER.

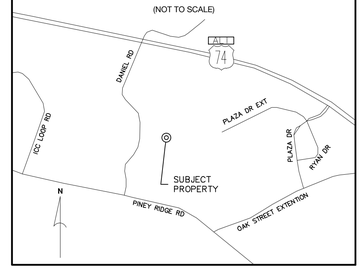
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VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

ROUGH GRADING & EROSION CONTROL LEGEND

- LIMITS OF DISTURBANCE
- SILT FENCE — SF
- SKIMMER & CONTROL STRUCTURE
- TEMPORARY PIPE
- EXISTING CONTOURS — 00
- PROPOSED CONTOURS — 00
- PERMANENT DIVERSION DITCH — PD
- STONE INLET PROTECTION

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

Know what's **below.** **Call** before you dig.

NORTH

MASTER ROUGH GRADING AND EROSION CONTROL PLAN PH2

GRAPHIC SCALE

100 0 50 100 200 300

(IN FEET)
1 inch = 100 ft.

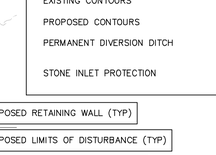
84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 214-5972

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 456-5410

Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL



MASTER ROUGH GRADING AND EROSION CONTROL PLAN PH2 FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C310

GR-EC-SW NOTES

1. SEE GRADING, EROSION CONTROL, AND STORM DRAINAGE DETAIL SHEETS FOR ALL GENERAL NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL PLANS.
2. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.
3. SOIL TYPE: **ChA, PoD2, PoC2, PbB3, CaB2**
   SOIL GROUP: **B, B/D, C**
4. STREAM INFORMATION:

INDEX	**9-37-2**
NAME	**BRACKETTS CREEK**
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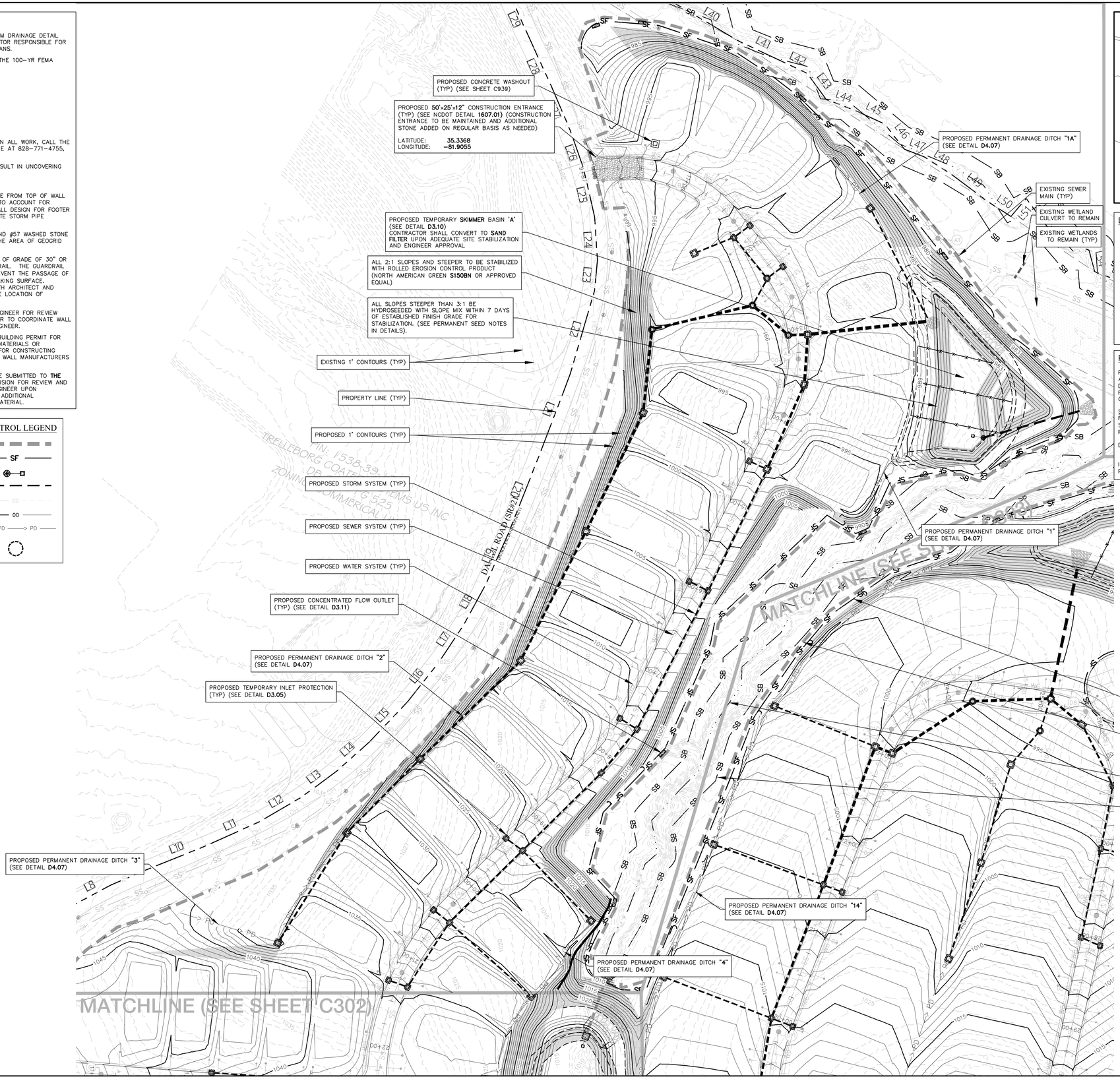
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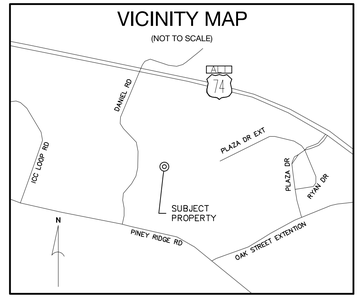
ROUGH GRADING & EROSION CONTROL LEGEND

- LIMITS OF DISTURBANCE
- SILT FENCE — SF —
- SKIMMER & CONTROL STRUCTURE
- TEMPORARY PIPE
- EXISTING CONTOURS — 00 —
- PROPOSED CONTOURS — 00 —
- PERMANENT DIVERSION DITCH —> PD —> PD —
- STONE INLET PROTECTION



VICINITY MAP

(NOT TO SCALE)



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CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

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NORTH

ROUGH GRADING AND EROSION CONTROL PLAN PH2

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5972

52 WALNUT STREET - SUITE 9
WAKE FOREST, NC 27587
PHONE (828) 606-3410

Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DESCRIPTION	DATE	BY
3	NCDEQ EROSION CONTROL SUBMITTAL	01/23/2026	JLR
4	AGENCY SUBMITTALS	04/16/2026	CHL
5	FOREST CITY PLANNING SUBMITTAL	05/06/2026	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON
5/7/26

ROUGH GRADING AND EROSION CONTROL PLAN PH2 FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT, LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C311

GR-EC-SW NOTES

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2. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.
3. SOIL TYPE: **ChA, PoD2, PoC2, PbB3, CaB2**
   SOIL GROUP: **B, B/D, C**
4. STREAM INFORMATION:

INDEX	**9-37-2**
NAME	**BRACKETTS CREEK**
CLASSIFICATION:	**C**
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ROUGH GRADING & EROSION CONTROL LEGEND

- LIMITS OF DISTURBANCE
- SILT FENCE — SF
- SKIMMER & CONTROL STRUCTURE
- TEMPORARY PIPE
- EXISTING CONTOURS — 00
- PROPOSED CONTOURS — 00
- PERMANENT DIVERSION DITCH —> PD —> PD
- STONE INLET PROTECTION

MATCHLINE (SEE SHEET C301)

MATCHLINE (SEE SHEET C303)

PROPOSED PERMANENT DRAINAGE DITCH "5" (SEE DETAIL **D4.07**)

PROPOSED PERMANENT DRAINAGE DITCH "14" (SEE DETAIL **D4.07**)

PROPOSED **50'x25'x12"** CONSTRUCTION ENTRANCE (TYP) (SEE NCDOT DETAIL **1607.01**) (CONSTRUCTION ENTRANCE TO BE MAINTAINED AND ADDITIONAL STONE ADDED ON REGULAR BASIS AS NEEDED)
LATITUDE: **35.3336**
LONGITUDE: **-81.9059**

PROPOSED PERMANENT DRAINAGE DITCH "6" (SEE DETAIL **D4.07**)

PROPOSED PERMANENT DRAINAGE DITCH "7" (SEE DETAIL **D4.07**)

PROPOSED 1' CONTOURS (TYP)

PROPOSED TEMPORARY **SEDIMENT** BASIN 'B' (SEE DETAIL **D3.17**) CONTRACTOR SHALL CONVERT TO **SAND FILTER** UPON ADEQUATE SITE STABILIZATION AND ENGINEER APPROVAL

PROPOSED PERMANENT DRAINAGE DITCH "8" (SEE DETAIL **D4.07**)

PROPERTY LINE (TYP)

PROPOSED SILT FENCE (TYP) (SEE DETAIL **D3.03**)

PROPOSED SOIL STOCKPILE LOCATION (TYP)

PROPOSED PERMANENT DRAINAGE DITCH "9" (SEE DETAIL **D4.07**)

EXISTING 1' CONTOURS (TYP)

ALL 2:1 SLOPES AND STEEPER TO BE STABILIZED WITH ROLLED EROSION CONTROL PRODUCT (NORTH AMERICAN GREEN **S150BN** OR APPROVED EQUAL)

PROPOSED TEMPORARY INLET PROTECTION (TYP) (SEE DETAIL **D3.05**)

PROPOSED PERMANENT DRAINAGE DITCH "10" (SEE DETAIL **D4.07**)

PROPOSED LIMITS OF DISTURBANCE (TYP)

PROPOSED CONCRETE WASHOUT (TYP) (SEE SHEET C939)

PROPOSED **50'x25'x12"** CONSTRUCTION ENTRANCE (TYP) (SEE NCDOT DETAIL **1607.01**) (CONSTRUCTION ENTRANCE TO BE MAINTAINED AND ADDITIONAL STONE ADDED ON REGULAR BASIS AS NEEDED)
LATITUDE: **35.3322**
LONGITUDE: **-81.9031**

EXISTING OVERHEAD UTILITIES TO REMAIN (TYP)

PROPOSED PERMANENT RIP RAP APRON 'F0' (SEE DETAIL **D3.08**)

PROPOSED PERMANENT RIP RAP APRON 'G0' (SEE DETAIL **D3.08**)

ALL SLOPES STEEPER THAN 3:1 BE HYDROSEEDED WITH SLOPE MIX WITHIN 7 DAYS OF ESTABLISHED FINISH GRADE FOR STABILIZATION. (SEE PERMANENT SEED NOTES IN DETAILS).

PROPOSED STORM SYSTEM (TYP)

PROPOSED SEWER SYSTEM (TYP)

PROPOSED WATER SYSTEM (TYP)

PROPOSED PERMANENT DRAINAGE DITCH "11" (SEE DETAIL **D4.07**)

PROPOSED PERMANENT DRAINAGE DITCH "12" (SEE DETAIL **D4.07**)

PINEY RIDGE ROAD (SR#2159) (PUBLIC/PAVED/ASPHALT)

PIN: 1538-38-6759
SANDRA CARPENTER SHARP
DB 28E PG 93
ZONING: SINGLE FAMILY RES

PIN: 1538-48-0629
HAULK, JONATHAN
DB 1060
ZONING: SINGLE FAMILY

S 17°34'17" W 76'

N 69°59'35" W 103.89'

N 17°59'05" W 171.25'

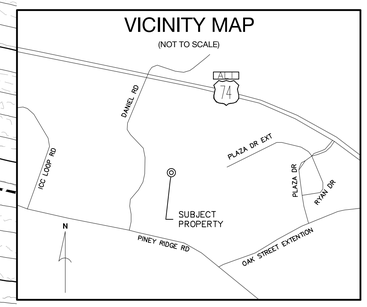
N 17°58'44" W 402.72'

N 07°22'59" E 60.86'

N 82°58'44" E 497.25'

S 48°50'32" W 208.23'

VICINITY MAP
(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's **below.** **Call** before you dig.

NORTH

ROUGH GRADING AND EROSION CONTROL PLAN PH2

GRAPHIC SCALE

50 0 25 50 100 150
(IN FEET)
1 inch = 50 ft.

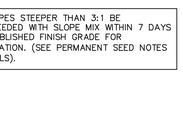
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PHONE (828) 452-4410

CDC Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JJR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL



ROUGH GRADING AND EROSION CONTROL PLAN PH2 FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C312

GR-EC-SW NOTES

1. SEE GRADING, EROSION CONTROL, AND STORM DRAINAGE DETAIL SHEETS FOR ALL GENERAL NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL PLANS.
2. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.
3. SOIL TYPE: **ChA, PoD2, PoC2, PbB3, CaB2**
   SOIL GROUP: **B, B/D, C**
4. STREAM INFORMATION:

INDEX	**9-37-2**
NAME	**BRACKETTS CREEK**
CLASSIFICATION:	**C**
RIVER BASIN:	**BROAD**

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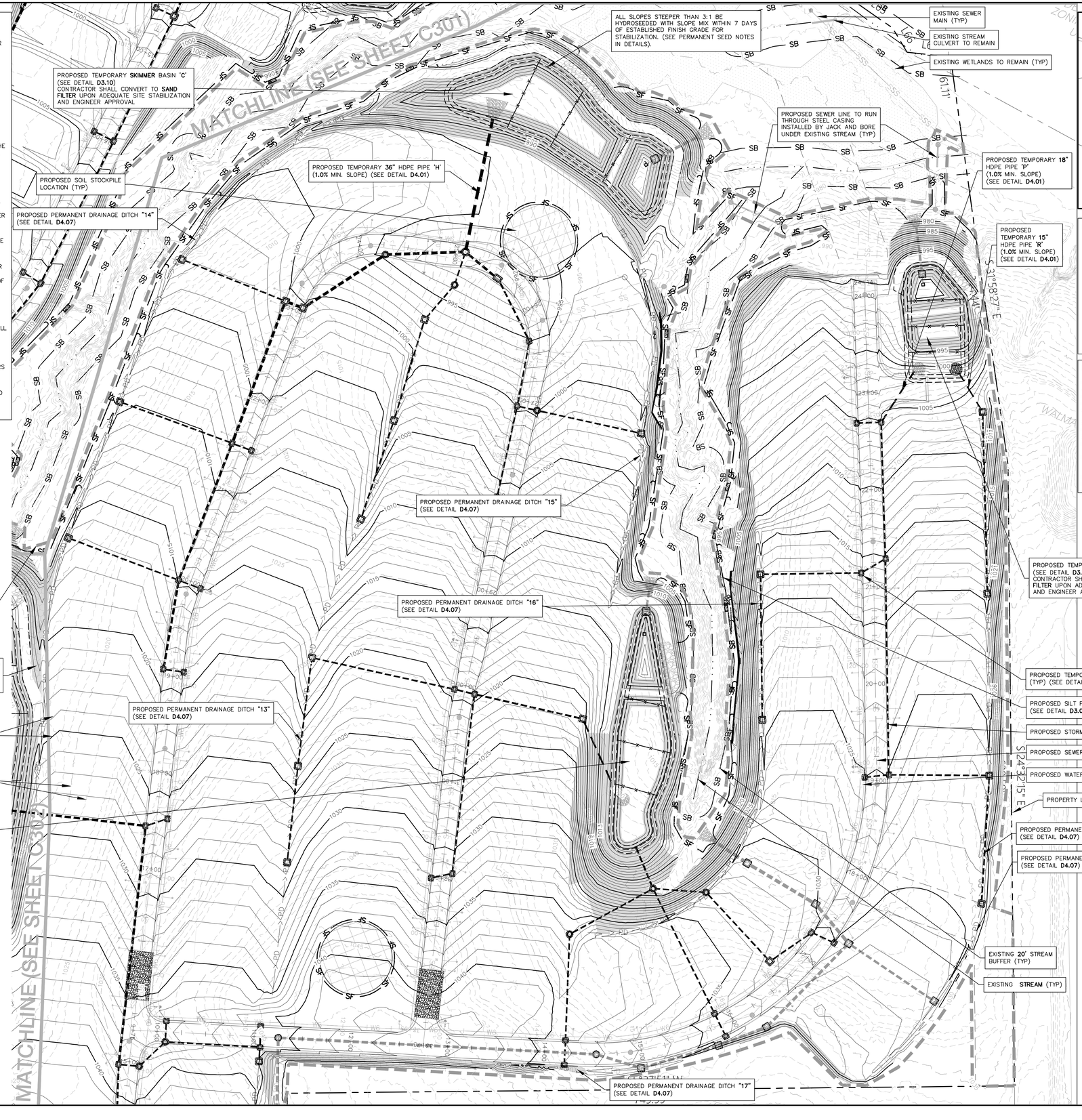
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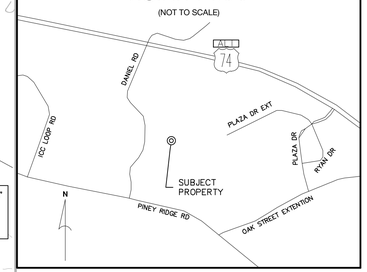
ROUGH GRADING & EROSION CONTROL LEGEND

- LIMITS OF DISTURBANCE
- SILT FENCE — SF
- SKIMMER & CONTROL STRUCTURE
- TEMPORARY PIPE
- EXISTING CONTOURS — 00
- PROPOSED CONTOURS — 00
- PERMANENT DIVERSION DITCH —> PD —> PD
- STONE INLET PROTECTION



VICINITY MAP

(NOT TO SCALE)



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NORTH

ROUGH GRADING AND EROSION CONTROL PLAN PH2

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(IN FEET)
1 inch = 50 ft.

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PHONE (828) 452-4410

Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
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4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 CHRISTOPHER H. LINSON
5/6/26

ROUGH GRADING AND EROSION CONTROL PLAN PH2 FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C313

GR-EC-SW NOTES

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RIVER BASIN:	**BROAD**

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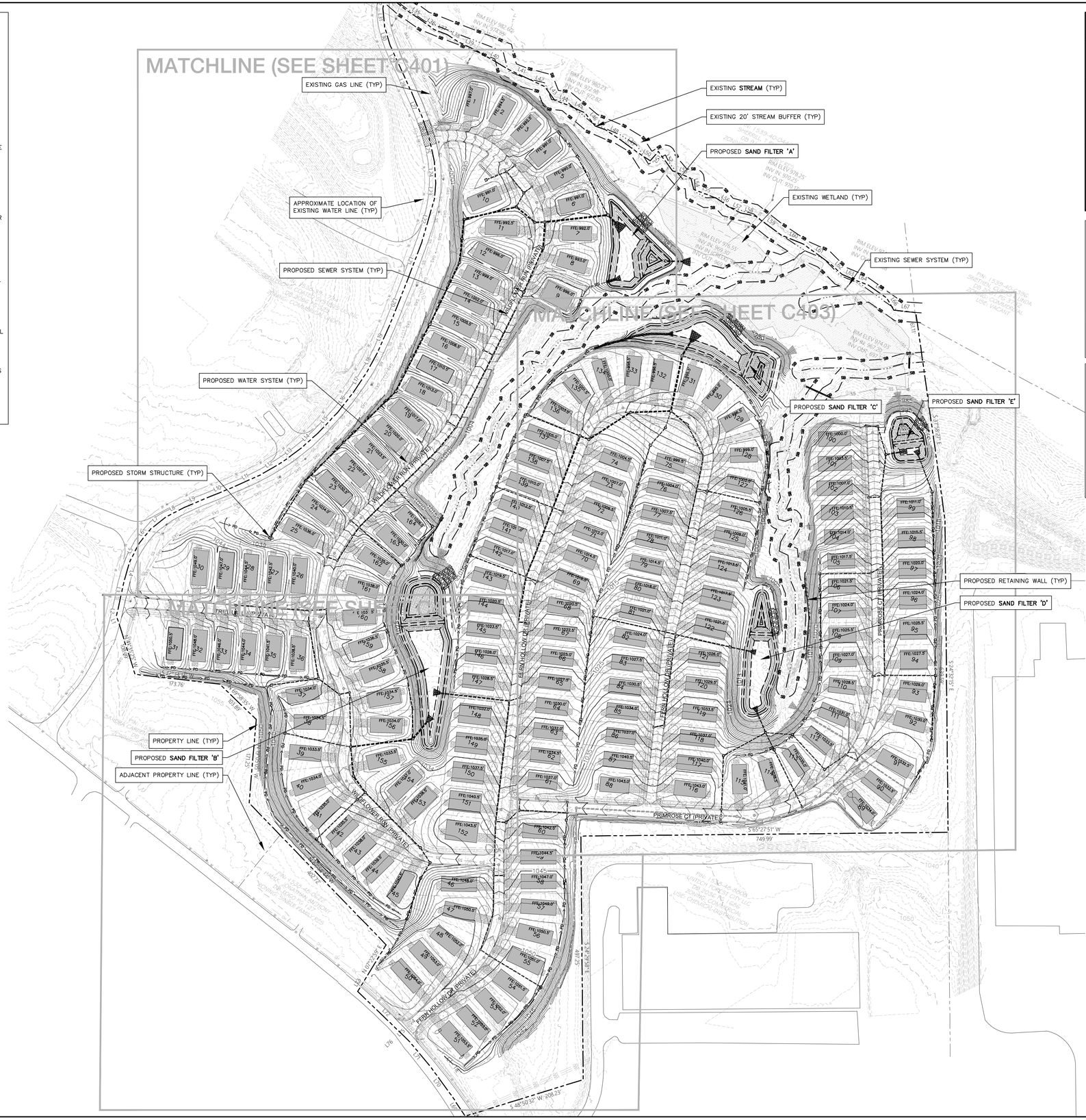
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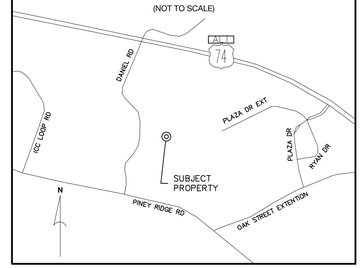
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VICINITY MAP

(NOT TO SCALE)



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STORM LEGEND

- PROPOSED STORM PIPE
- PROPOSED HEADWALL
- PROPOSED GRATE INLET STRUCTURE
- PROPOSED CURB INLET STRUCTURE
- PROPOSED JUNCTION BOX/ OPEN THROAT STRUCTURE
- PROPOSED DOUBLE GRATE/ CURB INLET STRUCTURE
- PROPOSED FLARED END SECTION
- PROPOSED RIP-RAP APRON

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NORTH

MASTER STORM PLAN

GRAPHIC SCALE

100 0 50 100 200 300

(IN FEET)
1 inch = 100 ft.

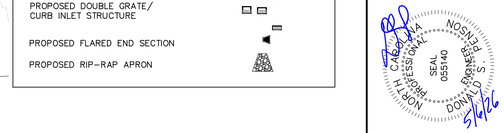
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PHONE (828) 452-4410

Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL



MASTER STORM PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C400

GR-EC-SW NOTES

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INDEX	**9-37-2**
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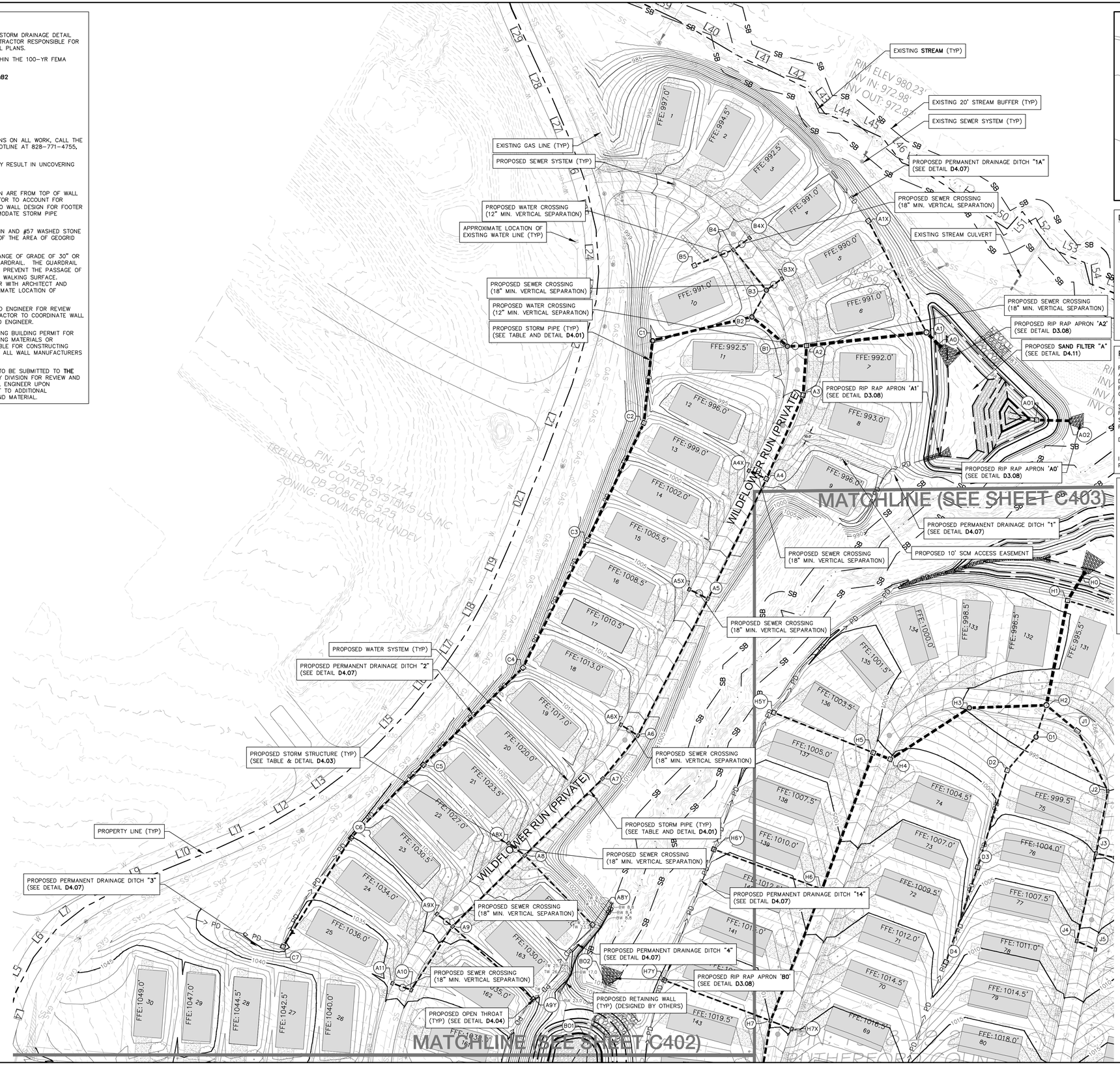
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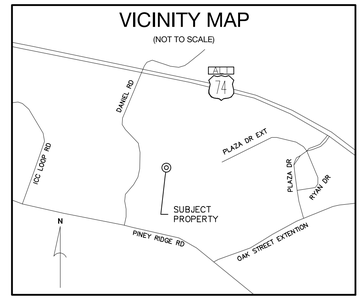
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STORM PLAN

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON
5/6/26

STORM PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT, LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C401

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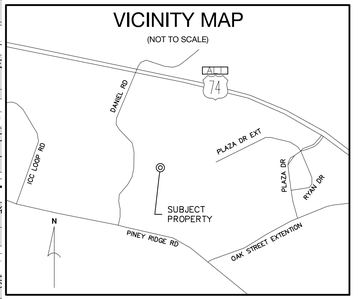
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   ALL RETAINING WALLS 4' OR GREATER TO BE SUBMITTED TO **THE TOWN OF FOREST CITY** BUILDING SAFETY DIVISION FOR REVIEW AND APPROVAL AND CERTIFIED BY THE WALL ENGINEER UPON COMPLETION. RETAINING WALLS SUBJECT TO ADDITIONAL LANDSCAPING DEPENDING ON HEIGHT AND MATERIAL.



VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

STORM LEGEND

- PROPOSED STORM PIPE
- PROPOSED HEADWALL
- PROPOSED GRATE INLET STRUCTURE
- PROPOSED CURB INLET STRUCTURE
- PROPOSED JUNCTION BOX/ OPEN THROAT STRUCTURE
- PROPOSED DOUBLE GRATE/ CURB INLET STRUCTURE
- PROPOSED FLARED END SECTION
- PROPOSED RIP-RAP APRON

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's **below.** **Call** before you dig.

NORTH

STORM PLAN

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

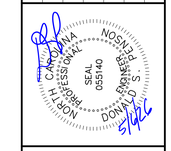
84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5872

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

CDC Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL



STORM PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C402

GR-EC-SW NOTES

1. SEE GRADING, EROSION CONTROL, AND STORM DRAINAGE DETAIL SHEETS FOR ALL GENERAL NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL PLANS.
2. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.
3. SOIL TYPE: **ChA, PoD2, PoC2, PbB3, CaB2**
   SOIL GROUP: **B, B/D, C**
4. STREAM INFORMATION:

INDEX	**9-37-2**
NAME	**BRACKETTS CREEK**
CLASSIFICATION:	**C**
RIVER BASIN:	**BROAD**

5. TO SCHEDULE THE REQUIRED INSPECTIONS ON ALL WORK, CALL THE CIVIL DESIGN CONCEPTS INSPECTIONS HOTLINE AT 828-771-4755, OR EMAIL AT INSPECTIONS@CDCGO.COM.

   FAILURE TO SCHEDULE INSPECTIONS MAY RESULT IN UNCOVERING OR REDOING WORK
6. RETAINING WALLS:

   ALL RETAINING WALL ELEVATIONS SHOWN ARE FROM TOP OF WALL TO FINISH GRADE ELEVATION. CONTRACTOR TO ACCOUNT FOR FOOTER/COVER OVER FOOTER. REFER TO WALL DESIGN FOR FOOTER DESIGN. WALL DESIGN TO ALSO ACCOMMODATE STORM PIPE PENETRATIONS PER PLANS.

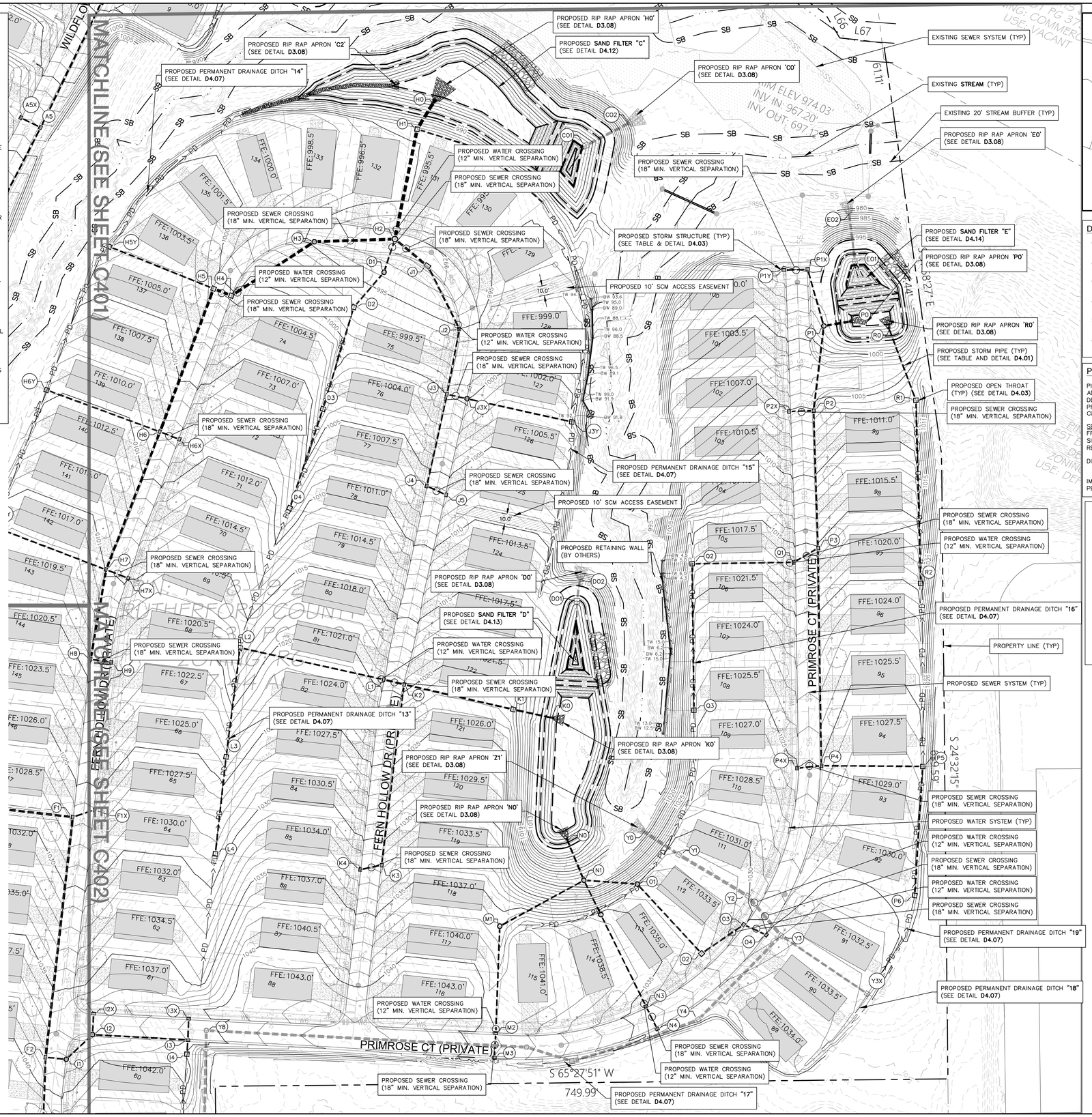
   WALL DESIGN TO INCLUDE FOOTING DRAIN AND #57 WASHED STONE BEHIND WALL UP TO THE FULL DEPTH OF THE AREA OF GEOGRID FROM BOTTOM TO TOP OF WALL.

   ALL RETAINING WALLS PROVIDING A CHANGE OF GRADE OF 30" OR MORE SHALL BE PROTECTED WITH A GUARDRAIL. THE GUARDRAIL SHALL BE 48" MINIMUM IN HEIGHT, AND PREVENT THE PASSAGE OF A 21" SPHERE UNLESS ADJACENT TO A WALKING SURFACE. COORDINATE BARRIER STYLE AND COLOR WITH ARCHITECT AND ENGINEER. SEE SITE PLAN FOR APPROXIMATE LOCATION OF FENCING/BARRIERS.

   CONTRACTOR TO SUBMIT TO OWNER AND ENGINEER FOR REVIEW PRIOR TO ORDERING MATERIALS. CONTRACTOR TO COORDINATE WALL STYLE AND COLOR WITH ARCHITECT AND ENGINEER.

   CONTRACTOR RESPONSIBLE FOR OBTAINING BUILDING PERMIT FOR ALL RETAINING WALLS PRIOR TO ORDERING MATERIALS OR CONSTRUCTION. CONTRACTOR RESPONSIBLE FOR CONSTRUCTING RETAINING WALLS IN ACCORDANCE WITH ALL WALL MANUFACTURERS STANDARDS AND SPECIFICATIONS.

   ALL RETAINING WALLS 4' OR GREATER TO BE SUBMITTED TO **THE TOWN OF FOREST CITY** BUILDING SAFETY DIVISION FOR REVIEW AND APPROVAL AND CERTIFIED BY THE WALL ENGINEER UPON COMPLETION. RETAINING WALLS SUBJECT TO ADDITIONAL LANDSCAPING DEPENDING ON HEIGHT AND MATERIAL.


MATCHLINE (SEE SHEET C401)
MATCHLINE (SEE SHEET C402)
WILDFLOWER DR (PRIVATE)
FERN HOLLOW DR (PRIVATE)
PRIMROSE CT (PRIVATE)
PROPOSED RIP RAP APRON 'H0' (SEE DETAIL D3.08)
PROPOSED SAND FILTER "C" (SEE DETAIL D4.12)
PROPOSED RIP RAP APRON 'C2' (SEE DETAIL D3.08)
PROPOSED PERMANENT DRAINAGE DITCH "14" (SEE DETAIL D4.07)
PROPOSED RIP RAP APRON 'C0' (SEE DETAIL D3.08)
EXISTING SEWER SYSTEM (TYP)
EXISTING STREAM (TYP)
EXISTING 20' STREAM BUFFER (TYP)
PROPOSED RIP RAP APRON 'E0' (SEE DETAIL D3.08)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED STORM STRUCTURE (TYP) (SEE TABLE & DETAIL D4.03)
PROPOSED SAND FILTER "E" (SEE DETAIL D4.14)
PROPOSED RIP RAP APRON 'P0' (SEE DETAIL D3.08)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED 10' SCM ACCESS EASEMENT
PROPOSED RIP RAP APRON 'R0' (SEE DETAIL D3.08)
PROPOSED STORM PIPE (TYP) (SEE TABLE AND DETAIL D4.01)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED OPEN THROAT (TYP) (SEE DETAIL D4.03)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED PERMANENT DRAINAGE DITCH "15" (SEE DETAIL D4.07)
PROPOSED 10' SCM ACCESS EASEMENT
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED RETAINING WALL (BY OTHERS)
PROPOSED RIP RAP APRON 'D0' (SEE DETAIL D3.08)
PROPOSED SAND FILTER "D" (SEE DETAIL D4.13)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED PERMANENT DRAINAGE DITCH "13" (SEE DETAIL D4.07)
PROPOSED RIP RAP APRON 'K0' (SEE DETAIL D3.08)
PROPOSED RIP RAP APRON 'Z1' (SEE DETAIL D3.08)
PROPOSED RIP RAP APRON 'N0' (SEE DETAIL D3.08)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED PERMANENT DRAINAGE DITCH "16" (SEE DETAIL D4.07)
PROPERTY LINE (TYP)
PROPOSED SEWER SYSTEM (TYP)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED WATER SYSTEM (TYP)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED PERMANENT DRAINAGE DITCH "19" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "18" (SEE DETAIL D4.07)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED PERMANENT DRAINAGE DITCH "17" (SEE DETAIL D4.07)
S 65°27'51" W
749.99
S 24°32'15" E
611'
SUBJECT PROPERTY
PROPOSED PERMANENT DRAINAGE DITCH "12" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "11" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "10" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "9" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "8" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "7" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "6" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "5" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "4" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "3" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "2" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "1" (SEE DETAIL D4.07)
PROPOSED PERMANENT DRAINAGE DITCH "0" (SEE DETAIL D4.07)
PROPOSED SEWER CROSSING (18" MIN. VERTICAL SEPARATION)
PROPOSED WATER CROSSING (12" MIN. VERTICAL SEPARATION)
PROPOSED SEWER CROSSING (18

PIPE TABLE
(SLOPES BASED ON 2D LENGTH TO INSIDE EDGES)

PIPE NAME	SIZE	LENGTH	SLOPE	MATERIAL
A1–A0	36"	15.6'	0.73%	HDPE
A1X–A1	15"	130.4'	2.23%	HDPE
A2–A1	36"	124.8'	0.59%	HDPE
A3–A2	30"	49.0'	1.05%	HDPE
A4–A3	24"	94.2'	5.42%	HDPE
A4X–A4	15"	17.6'	3.37%	HDPE
A5–A4	18"	139.8'	5.59%	HDPE
A5X–A5	15"	20.5'	4.26%	HDPE
A6–A5	18"	161.9'	5.20%	HDPE
A6X–A6	15"	19.3'	2.60%	HDPE
A7–A6	18"	56.7'	5.00%	HDPE
A8–A7	18"	114.3'	5.00%	HDPE
A8X–A8	15"	19.6'	5.68%	HDPE
A8Y–A8	15"	101.0'	3.01%	HDPE
A9–A8	18"	105.8'	6.48%	HDPE
A9X–A9	15"	19.1'	4.64%	HDPE
A9Y–A9	15"	113.7'	3.82%	HDPE
A10–A9	15"	78.5'	6.64%	HDPE
A11–A10	15"	19.1'	6.29%	HDPE
AO1–AO2	30"	33.0'	1.94%	HDPE
B1–A2	30"	16.6'	1.00%	HDPE
B2–B1	30"	45.5'	1.00%	HDPE
B3–B2	15"	28.6'	1.00%	HDPE
B3X–B3	15"	17.7'	1.00%	HP
B4–B3	15"	52.3'	2.48%	HP
B4X–B4	15"	19.0'	0.90%	HDPE
B5–B4	15"	42.3'	3.58%	HDPE
BO1–BO2	30"	59.5'	5.90%	HDPE
C1–B2	30"	105.7'	1.58%	HDPE
C2–C1	30"	84.5'	5.42%	HDPE
C3–C2	30"	136.1'	5.52%	HDPE
C4–C3	24"	149.1'	6.25%	HDPE
C5–C4	24"	145.3'	6.83%	HDPE
C6–C5	18"	106.2'	7.81%	HDPE
C7–C6	18"	133.7'	4.25%	HDPE
CO1–CO2	30"	46.7'	5.10%	HDPE
D1–H2	15"	31.5'	6.90%	HDPE
D2–D1	15"	43.1'	6.00%	HDPE
D3–D2	15"	104.9'	6.00%	HDPE
D4–D3	15"	103.2'	5.30%	HDPE
DO1–DO2	24"	20.2'	6.77%	HDPE
E1–G2	18"	107.6'	1.29%	HDPE
E2–E1	18"	19.1'	1.20%	HDPE
E3–E2	18"	48.9'	2.03%	HDPE
E3X–E3	15"	92.8'	4.79%	HDPE
E4–E3	18"	115.6'	1.20%	HDPE
E5–E4	18"	19.0'	1.16%	HDPE
E5X–E5	15"	31.8'	1.48%	HDPE
E6–E5	15"	147.2'	5.26%	HDPE
E7–E6	15"	19.3'	6.68%	HDPE

PIPE TABLE
(SLOPES BASED ON 2D LENGTH TO INSIDE EDGES)

PIPE NAME	SIZE	LENGTH	SLOPE	MATERIAL
EO1–EO2	24"	47.1'	6.86%	HDPE
F1–F0	24"	139.9'	3.35%	HDPE
F1X–F1	15"	20.8'	1.00%	HDPE
F2–F1	24"	244.6'	3.60%	HDPE
F3–F2	18"	107.4'	4.55%	HDPE
F3X–F3	15"	18.9'	6.00%	HDPE
F4–F3	15"	74.2'	4.00%	HDPE
F5–F4	15"	75.6'	2.78%	HDPE
F6–F5	15"	19.2'	1.50%	HDPE
F7–F6	15"	120.6'	2.80%	HDPE
G1–G0	36"	41.1'	4.36%	HDPE
G2–G1	30"	124.0'	3.16%	HDPE
G2X–G2	15"	18.7'	1.70%	HDPE
G2Y–G2X	15"	112.0'	3.11%	HDPE
G3–G2	24"	56.2'	2.18%	HDPE
G4–G3	24"	37.3'	2.00%	HDPE
G4X–G4	15"	18.6'	2.00%	HDPE
G4Y–G4X	15"	113.2'	2.58%	HDPE
G5–G4	15"	155.3'	3.05%	HDPE
G6–G5	15"	32.6'	2.00%	HDPE
G7–G6	15"	32.4'	3.78%	HDPE
G8–G7	15"	84.0'	2.58%	HDPE
H1–H0	36"	29.0'	2.79%	HDPE
H1X–H1	15"	69.8'	1.03%	HDPE
H1Y–H1X	15"	77.2'	1.35%	HDPE
H2–H1	36"	110.3'	2.63%	HDPE
H3–H2	30"	78.2'	3.64%	HDPE
H4–H3	30"	96.7'	3.58%	HDPE
H5–H4	30"	15.7'	4.00%	HDPE
H5Y–H5	15"	111.1'	3.80%	HDPE
H6–H5	30"	153.1'	6.19%	HDPE
H6X–H6	15"	19.0'	2.95%	HDPE
H6Y–H6	15"	120.7'	1.90%	HDPE
H7–H6	24"	148.8'	4.92%	HDPE
H7X–H7	15"	22.0'	1.09%	HDPE
H7Y–H7	15"	119.0'	1.82%	HDPE
H8–H7	24"	90.1'	4.70%	HDPE
H9–H8	15"	19.0'	2.26%	HDPE
I1–F2	15"	18.2'	1.20%	HDPE
I2–I1	15"	32.9'	1.53%	HDPE
I2X–I2	15"	18.4'	1.16%	HDPE
I3–I2	15"	94.4'	2.90%	HDPE
I3X–I3	15"	19.6'	0.72%	HDPE
I4–I3	15"	11.7'	3.23%	HDPE
J1–H2	24"	37.6'	1.66%	HDPE
J2–J1	18"	67.6'	1.18%	HDPE
J3–J2	15"	65.1'	7.92%	HDPE
J3X–J3	15"	18.0'	6.00%	HDPE
J3Y–J3X	15"	105.9'	2.98%	HDPE
J4–J3	15"	93.4'	8.50%	HDPE

PIPE TABLE
(SLOPES BASED ON 2D LENGTH TO INSIDE EDGES)

PIPE NAME	SIZE	LENGTH	SLOPE	MATERIAL
J5–J4	15"	19.5'	6.50%	HDPE
K1–K0	18"	38.6'	2.71%	HDPE
K2–K1	18"	111.5'	2.45%	HDPE
K3–K2	15"	183.5'	7.86%	HDPE
K4–K3	15"	20.0'	4.00%	HDPE
L1–K2	18"	19.0'	0.67%	HDPE
L2–L1	15"	147.9'	1.00%	HDPE
L3–L2	15"	108.5'	5.98%	HDPE
L4–L3	15"	96.1'	5.31%	HDPE
M1–N1	15"	93.9'	11.89%	HDPE
M2–M1	15"	106.8'	3.66%	HDPE
M3–M2	15"	22.7'	4.00%	HDPE
N1–N0	18"	42.5'	19.60%	HP
N2–N1	15"	35.5'	21.41%	HDPE
N3–N2	15"	101.9'	2.51%	HDPE
N4–N3	15"	23.6'	5.00%	HDPE
O1–N1	15"	51.0'	11.12%	HDPE
O2–O1	15"	92.9'	1.00%	HDPE
O3–O2	15"	48.8'	0.80%	HDPE
O4–O3	15"	23.1'	3.66%	HDPE
P1–P0	24"	23.9'	1.19%	HDPE
P1X–P1	15"	57.3'	1.05%	HDPE
P1Y–P1X	15"	21.5'	1.36%	HDPE
P2–P1	18"	84.0'	9.17%	HDPE
P2X–P2	15"	23.1'	5.23%	HDPE
P3–P2	15"	137.9'	7.56%	HDPE
P4–P3	15"	219.9'	4.21%	HDPE
P4X–P4	15"	22.8'	3.37%	HDPE
P5–P4	15"	100.8'	3.01%	HDPE
P6–P5	15"	128.3'	2.15%	HDPE
Q1–P3	15"	26.3'	1.00%	HDPE
Q2–Q1	15"	101.1'	3.11%	HDPE
Q3–Q2	15"	146.1'	4.68%	HDPE
R1–R0	15"	75.8'	14.42%	HDPE
R2–R1	15"	183.5'	6.57%	HDPE
S1–G1	15"	57.0'	3.71%	HDPE
S2–S1	15"	53.3'	3.91%	HDPE
Y1–Y0	36"	40.7'	2.00%	HDPE
Y2–Y1	36"	78.3'	1.28%	HDPE
Y3–Y2	36"	48.8'	1.02%	HDPE
Y3X–Y3	24"	102.5'	4.21%	HDPE
Y4–Y3	30"	116.6'	1.03%	HDPE
Y5–Y4	30"	49.0'	1.08%	HDPE
Y6–Y5	30"	79.2'	1.05%	HDPE
Y7–Y6	30"	44.4'	1.09%	HDPE
Y8–Y7	30"	324.4'	1.01%	HDPE
Y9–Y8	30"	128.6'	1.03%	HDPE
Y10–Y9	30"	104.7'	1.04%	HDPE
Y11–Y10	30"	71.2'	1.06%	HDPE
Y12–Y11	30"	170.3'	1.00%	HP

STORM TABLES

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5972

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

CDC Civil Design Concepts, PA
www.cdcpa.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JCR
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD T. NELSON

STORM TABLES FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD, BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C404

STRUCTURE TABLE
(INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)

STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
A1	10+43	RIM 986.1± INV. IN 980.6 (A2–A1) INV. IN 981.3 (A1X–A1) INV. OUT 980.6 (A1–A0)	5.5±	JUNCTION BOX
A1X	11+35	RIM 987.2± INV. OUT 984.2 (A1X–A1)	3.0±	OPEN THROAT
A2	11+73	RIM 988.5± INV. IN 981.9 (A3–A2) INV. IN 981.5 (B1–A2) INV. OUT 981.3 (A2–A1)	7.2±	CURB INLET
A3	12+26	RIM 989.9± INV. IN 983.1 (A4–A3) INV. OUT 982.4 (A3–A2)	7.4±	CURB INLET
A4	13+24	RIM 994.2± INV. IN 988.8 (A5–A4) INV. IN 989.1 (A4X–A4) INV. OUT 988.2 (A4–A3)	6.1±	CURB INLET
A4X	10+21	RIM 994.2± INV. OUT 989.7 (A4X–A4)	4.5±	CURB INLET
A5	14+67	RIM 1003.2± INV. IN 997.0 (A6–A5) INV. IN 997.2 (A5X–A5) INV. OUT 996.6 (A5–A4)	6.5±	CURB INLET
A5X	10+22	RIM 1002.9± INV. OUT 998.1 (A5X–A5)	4.8±	CURB INLET
A6	16+32	RIM 1010.7± INV. IN 1005.6 (A7–A6) INV. IN 1006.0 (A6X–A6) INV. OUT 1005.4 (A6–A5)	5.3±	CURB INLET
A6X	10+22	RIM 1010.6± INV. OUT 1006.5 (A6X–A6)	4.2±	CURB INLET
A7	16+92	RIM 1013.4± INV. IN 1008.7 (A8–A7) INV. OUT 1008.4 (A7–A6)	5.0±	CURB INLET
A8	18+09	RIM 1020.7± INV. IN 1014.5 (A9–A8) INV. IN 1014.8 (A8X–A8) INV. IN 1014.8 (A8Y–A8) INV. OUT 1014.3 (A8–A7)	6.3±	CURB INLET
A8X	10+22	RIM 1020.9± INV. OUT 1015.9 (A8X–A8)	5.0±	CURB INLET
A8Y	11+04	RIM 1022.8± INV. OUT 1017.8 (A8Y–A8)	5.0±	OPEN THROAT
A9	19+18	RIM 1028.3± INV. IN 1021.9 (A10–A9) INV. IN 1021.8 (A9X–A9) INV. IN 1021.9 (A9Y–A9) INV. OUT 1021.4 (A9–A8)	6.9±	CURB INLET
A9X	10+21	RIM 1028.4± INV. OUT 1022.7 (A9X–A9)	5.7±	CURB INLET
A9Y	11+17	RIM 1029.7± INV. OUT 1026.3 (A9Y–A9)	3.4±	OPEN THROAT
A10	19+99	RIM 1034.1± INV. IN 1027.3 (A11–A10) INV. OUT 1027.1 (A10–A9)	6.9±	CURB INLET
A11	20+20	RIM 1034.2± INV. OUT 1028.5 (A11–A10)	5.7±	CURB INLET
B1	10+21	RIM 988.6± INV. IN 981.8 (B2–B1) INV. OUT 981.7 (B1–A2)	6.9±	CURB INLET
B2	10+71	RIM 989.0± INV. IN 983.6 (B3–B2) INV. IN 982.7 (C1–B2) INV. OUT 982.2 (B2–B1)	6.8±	OPEN THROAT
B3	11+03	RIM 987.1± INV. IN 984.0 (B3X–B3) INV. IN 984.0 (B4–B3) INV. OUT 983.8 (B3–B2)	3.3±	CURB INLET
B3X	10+21	RIM 987.1± INV. OUT 984.2 (B3X–B3)	2.9±	CURB INLET
B4	11+59	RIM 988.6± INV. IN 985.3 (B5–B4) INV. IN 985.3 (B4X–B4) INV. OUT 985.2 (B4–B3)	3.3±	CURB INLET
B4X	10+21	RIM 988.5± INV. OUT 985.5 (B4X–B4)	3.1±	CURB INLET
B5	12+04	RIM 990.4± INV. OUT 986.8 (B5–B4)	3.6±	OPEN THROAT
C1	11+11	RIM 989.5± INV. IN 984.5 (C2–C1) INV. OUT 984.4 (C1–B2)	5.1±	OPEN THROAT
C2	11+99	RIM 996.8± INV. IN 989.1 (C3–C2) INV. OUT 989.0 (C2–C1)	7.7±	OPEN THROAT

STRUCTURE TABLE
(INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)

STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
C3	13+39	RIM 1004.7± INV. IN 997.1 (C4–C3) INV. OUT 996.6 (C3–C2)	8.1±	OPEN THROAT
C4	14+92	RIM 1011.7± INV. IN 1006.5 (C5–C4) INV. OUT 1006.4 (C4–C3)	5.3±	OPEN THROAT
C5	16+41	RIM 1023.5± INV. IN 1016.9 (C6–C5) INV. OUT 1016.4 (C5–C4)	7.1±	OPEN THROAT
C6	17+51	RIM 1029.8± INV. IN 1025.2 (C7–C6) INV. OUT 1025.1 (C6–C5)	4.6±	OPEN THROAT
C7	18+89	RIM 1034.2± INV. OUT 1030.9 (C7–C6)	3.3±	OPEN THROAT
D1	10+36	RIM 993.7± INV. IN 989.3 (D2–D1) INV. OUT 989.2 (D1–H2)	4.5±	OPEN THROAT
D2	10+83	RIM 997.2± INV. IN 992.0 (D3–D2) INV. OUT 991.9 (D2–D1)	5.3±	OPEN THROAT
D3	11+92	RIM 1002.1± INV. IN 998.4 (D4–D3) INV. OUT 998.3 (D3–D2)	3.8±	OPEN THROAT
D4	12+99	RIM 1007.5± INV. OUT 1003.9 (D4–D3)	3.7±	OPEN THROAT
E1	11+11	RIM 1032.1± INV. IN 1026.2 (E2–E1) INV. OUT 1026.1 (E1–G2)	6.1±	CURB INLET
E2	11+32	RIM 1032.2± INV. IN 1026.5 (E3–E2) INV. OUT 1026.4 (E2–E1)	5.8±	CURB INLET
E3	11+86	RIM 1036.3± INV. IN 1027.6 (E3X–E3) INV. IN 1027.6 (E4–E3) INV. OUT 1027.5 (E3–E2)	8.8±	OPEN THROAT
E3X	10+97	RIM 1038.8± INV. OUT 1032.2 (E3X–E3)	6.6±	OPEN THROAT
E4	13+05	RIM 1035.5± INV. IN 1029.1 (E5–E4) INV. OUT 1029.0 (E4–E3)	6.5±	CURB INLET
E5	13+27	RIM 1035.8± INV. IN 1029.6 (E6–E5) INV. IN 1029.6 (E5X–E5) INV. OUT 1029.3 (E5–E4)	6.4±	CURB INLET
E5X	10+35	RIM 1035.0± INV. OUT 1030.0 (E5X–E5)	5.0±	CURB INLET
E6	14+77	RIM 1042.0± INV. IN 1037.5 (E7–E6) INV. OUT 1037.3 (E6–E5)	4.7±	CURB INLET
E7	14+99	RIM 1042.0± INV. OUT 1038.8 (E7–E6)	3.2±	CURB INLET
F1	11+58	RIM 1026.5± INV. IN 1022.3 (F2–F1) INV. IN 1022.9 (F1X–F1) INV. OUT 1022.1 (F1–F0)	4.3±	CURB INLET
F1X	10+23	RIM 1026.0± INV. OUT 1023.1 (F1X–F1)	2.9±	CURB INLET
F2	14+06	RIM 1038.1± INV. IN 1031.7 (F3–F2) INV. IN 1031.9 (I1–F2) INV. OUT 1031.1 (F2–F1)	7.0±	CURB INLET
F3	15+16	RIM 1043.5± INV. IN 1036.8 (F4–F3) INV. IN 1036.8 (F3X–F3) INV. OUT 1036.6 (F3–F2)	6.9±	CURB INLET
F3X	10+21	RIM 1043.2± INV. OUT 1037.9 (F3X–F3)	5.3±	CURB INLET
F4	15+94	RIM 1046.7± INV. IN 1039.9 (F5–F4) INV. OUT 1039.8 (F4–F3)	7.0±	CURB INLET
F5	16+72	RIM 1048.3± INV. IN 1042.1 (F6–F5) INV. OUT 1042.0 (F5–F4)	6.3±	CURB INLET
F6	16+93	RIM 1048.3± INV. IN 1042.5 (F7–F6) INV. OUT 1042.4 (F6–F5)	5.9±	CURB INLET
F7	18+17	RIM 1048.8± INV. OUT 1045.9 (F7–F6)	2.9±	OPEN THROAT
G1	10+62	RIM 1029.7± INV. IN 1019.8 (G2–G1) INV. IN 1025.0 (S1–G1) INV. OUT 1019.3 (G1–G0)	10.4±	JUNCTION BOX

STRUCTURE TABLE
(INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)

STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
G2	11+90	RIM 1030.5± INV. IN 1024.9 (G2X–G2) INV. IN 1024.7 (E1–G2) INV. IN 1024.2 (G3–G2) INV. OUT 1023.7 (G2–G1)	6.8±	CURB INLET
G2X	10+22	RIM 1030.3± INV. IN 1025.3 (G2Y–G2X) INV. OUT 1025.2 (G2X–G2)	5.1±	CURB INLET
G2Y	11+37	RIM 1031.9± INV. OUT 1028.8 (G2Y–G2X)	3.2±	OPEN THROAT
G3	12+50	RIM 1031.8± INV. IN 1025.5 (G4–G3) INV. OUT 1025.4 (G3–G2)	6.4±	JUNCTION BOX
G4	12+92	RIM 1032.8± INV. IN 1026.9 (G5–G4) INV. IN 1026.9 (G4X–G4) INV. OUT 1026.2 (G4–G3)	6.6±	CURB INLET
G4X	10+22	RIM 1032.7± INV. IN 1027.4 (G4Y–G4X) INV. OUT 1027.3 (G4X–G4)	5.4±	CURB INLET
G4Y	11+38	RIM 1033.7± INV. OUT 1030.3 (G4Y–G4X)	3.4±	OPEN THROAT
G5	14+51	RIM 1037.4± INV. IN 1031.8 (G6–G5) INV. OUT 1031.7 (G5–G4)	5.7±	CURB INLET
G6	14+87	RIM 1038.3± INV. IN 1032.6 (G7–G6) INV. OUT 1032.5 (G6–G5)	5.8±	CURB INLET
G7	15+24	RIM 1039.9± INV. IN 1034.1 (G8–G7) INV. OUT 1033.8 (G7–G6)	6.0±	OPEN THROAT
G8	16+12	RIM 1040.3± INV. OUT 1036.2 (G8–G7)	4.1±	OPEN THROAT
H1	10+47	RIM 994.3± INV. IN 982.4 (H2–H1) INV. IN 989.0 (H1X–H1) INV. OUT 982.2 (H1–H0)	12.1±	JUNCTION BOX
H1X	10+73	RIM 992.9± INV. IN 989.7 (H1Y–H1X) INV. OUT 989.7 (H1X–H1)	3.2±	YARD INLET
H1Y	11+52	RIM 994.0± INV. OUT 990.8 (H1Y–H1X)	3.2±	YARD INLET
H2	11+62	RIM 992.4± INV. IN 985.8 (H3–H2) INV. IN 986.3 (J1–H2) INV. IN 987.0 (D1–H2) INV. OUT 985.3 (H2–H1)	7.1±	JUNCTION BOX
H3	12+45	RIM 994.4± INV. IN 988.7 (H4–H3) INV. OUT 988.6 (H3–H2)	5.8±	CURB INLET
H4	13+46	RIM 1000.2± INV. IN 992.3 (H5–H4) INV. OUT 992.2 (H4–H3)	8.1±	CURB INLET
H5	13+66	RIM 1000.5± INV. IN 993.0 (H6–H5) INV. IN 994.2 (H5Y–H5) INV. OUT 992.9 (H5–H4)	7.6±	CURB INLET
H5Y	11+15	RIM 1001.4± INV. OUT 998.4 (H5Y–H5)	3.0±	OPEN THROAT
H6	15+22	RIM 1007.5± INV. IN 1003.0 (H7–H6) INV. IN 1003.7 (H6X–H6) INV. IN 1003.7 (H6Y–H6) INV. OUT 1002.5 (H6–H5)	5.0±	CURB INLET
H6X	10+21	RIM 1007.5± INV. OUT 1004.3 (H6X–H6)	3.2±	CURB INLET
H6Y	11+24	RIM 1008.8± INV. OUT 1006.0 (H6Y–H6)	2.8±	OPEN THROAT
H7	16+74	RIM 1014.9± INV. IN 1010.4 (H8–H7) INV. IN 1011.1 (H7X–H7) INV. IN 1011.1 (H7Y–H7) INV. OUT 1010.3 (H7–H6)	4.6±	CURB INLET
H7X	10+24	RIM 1014.9± INV. OUT 1011.3 (H7X–H7)	3.6±	CURB INLET
H7Y	11+22	RIM 1016.0± INV. OUT 1013.2 (H7Y–H7)	2.8±	OPEN THROAT
H8	17+67	RIM 1018.8± INV. IN 1015.4 (H9–H8) INV. OUT 1014.6 (H8–H7)	4.2±	CURB INLET
H9	17+88	RIM 1018.9± INV. OUT 1015.8 (H9–H8)	3.1±	CURB INLET
I1	10+22	RIM 1038.1± INV. IN 1032.2 (I2–I1) INV. OUT 1032.1 (I1–F2)	6.0±	CURB INLET

STRUCTURE TABLE
(INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)

STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
I2	10+59	RIM 1036.6± INV. IN 1033.1 (I2X–I2) INV. IN 1032.8 (I3–I2) INV. OUT 1032.7 (I2–I1)	3.9±	CURB INLET
I2X	10+21	RIM 1036.6± INV. OUT 1033.3 (I2X–I2)	3.3±	CURB INLET
I3	11+57	RIM 1039.0± INV. IN 1035.6 (I3X–I3) INV. IN 1035.6 (I4–I3) INV. OUT 1035.5 (I3–I2)	3.5±	CURB INLET
I3X	10+22	RIM 1039.0± INV. OUT 1035.7 (I3X–I3)	3.3±	CURB INLET
I4	11+71	RIM 1039.9± INV. OUT 1036.0 (I4–I3)	4.0±	OPEN THROAT
J1	10+43	RIM 991.6± INV. IN 987.4 (J2–J1) INV. OUT 986.9 (J1–H2)	4.7±	DOUBLE CURB INLET
J2	11+16	RIM 994.9± INV. IN 988.4 (J3–J2) INV. OUT 988.2 (J2–J1)	6.7±	CURB INLET
J3	11+84	RIM 999.6± INV. IN 993.7 (J4–J3) INV. IN 993.7 (J3X–J3) INV. OUT 993.6 (J3–J2)	6.0±	CURB INLET
J3X	10+21	RIM 999.6± INV. IN 994.9 (J3Y–J3X) INV. OUT 994.8 (J3X–J3)	4.8±	CURB INLET
J3Y	11+31	RIM 1001.0± INV. OUT 998.1 (J3Y–J3X)	2.9±	OPEN THROAT
J4	12+80	RIM 1005.8± INV. IN 1001.7 (J5–J4) INV. OUT 1001.6 (J4–J3)	4.2±	CURB INLET
J5	13+01	RIM 1006.1± INV. OUT 1002.9 (J5–J4)	3.2±	CURB INLET
K1	10+53	RIM 1021.1± INV. IN 1008.7 (K2–K1) INV. OUT 1008.5 (K1–K0)	12.6±	JUNCTION BOX
K2	11+67	RIM 1019.2± INV. IN 1011.7 (K3–K2) INV. IN 1011.5 (L1–K2) INV. OUT 1011.4 (K2–K1)	7.8±	CURB INLET
K3	13+54	RIM 1031.5± INV. IN 1026.2 (K4–K3) INV. OUT 1026.1 (K3–K2)	5.3±	CURB INLET
K4	13+76	RIM 1031.9± INV. OUT 1027.0 (K4–K3)	4.9±	CURB INLET
L1	10+21	RIM 1019.1± INV. IN 1011.8 (L2–L1) INV. OUT 1011.6 (L1–K2)	7.6±	CURB INLET
L2	11+72	RIM 1016.1± INV. IN 1013.4 (L3–L2) INV. OUT 1013.3 (L2–L1)	2.8±	OPEN THROAT
L3	12+84	RIM 1023.2± INV. IN 1020.0 (L4–L3) INV. OUT 1019.9 (L3–L2)	3.4±	OPEN THROAT
L4	13+84	RIM 1028.5± INV. OUT 1025.1 (L4–L3)	3.4±	OPEN THROAT
M1	10+98	RIM 1036.2± INV. IN 1029.2 (M2–M1) INV. OUT 1029.1 (M1–N1)	7.1±	JUNCTION BOX
M2	12+08	RIM 1038.9± INV. IN 1033.2 (M3–M2) INV. OUT 1033.1 (M2–M1)	5.8±	CURB INLET
M3	12+33	RIM 1038.9± INV. OUT 1034.1 (M3–M2)	4.8±	CURB INLET
N1	10+69	RIM 1023.4± INV. IN 1017.9 (M1–N1) INV. IN 1017.9 (N2–N1) INV. IN 1017.9 (O1–N1) INV. OUT 1015.7 (N1–N0)	7.7±	JUNCTION BOX
N2	11+08	RIM 1035.5± INV. IN 1025.8 (N3–N2) INV. OUT 1025.5 (N2–N1)	10.0±	JUNCTION BOX
N3	12+13	RIM 1034.4± INV. IN 1028.5 (N4–N3) INV. OUT 1028.4 (N3–N2)	5.9±	CURB INLET
N4	12+38	RIM 1034.2± INV. OUT 1029.7 (N4–N3)	4.5±	CURB INLET
O1	10+55	RIM 1032.5± INV. IN 1023.7 (O2–O1) INV. OUT 1023.6 (O1–N1)	8.9±	OPEN THROAT

STRUCTURE TABLE
(INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)

STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
O2	11+52	RIM 1032.5± INV. IN 1024.7 (O3–O2) INV. OUT 1024.6 (O2–O1)	7.9±	JUNCTION BOX
O3	12+04	RIM 1030.4± INV. IN 1025.2 (O4–O3) INV. OUT 1025.1 (O3–O2)	5.3±	CURB INLET
O4	12+29	RIM 1030.1± INV. OUT 1026.0 (O4–O3)	4.1±	CURB INLET
P1	10+41	RIM 997.6± INV. IN 991.0 (P1X–P1) INV. IN 991.3 (P2–P1) INV. OUT 990.8 (P1–P0)	6.8±	JUNCTION BOX
P1X	10+41	RIM 994.8± INV. IN 991.6 (P1Y–P1X) INV. OUT 991.6 (P1X–P1)	3.3±	CURB INLET
P1Y	10+85	RIM 995.2± INV. OUT 991.8 (P1Y–P1X)	3.3±	CURB INLET
P2	11+28	RIM 1005.3± INV. IN 999.3 (P3–P2) INV. IN 999.3 (P2X–P2) INV. OUT 999.0 (P2–P1)	6.2±	CURB INLET
P2X	0+25	RIM 1005.3± INV. OUT 1000.5 (P2X–P2)	4.8±	CURB INLET
P3	12+69	RIM 1015.3± INV. IN 1009.8 (P4–P3) INV. IN 1009.8 (Q1–P3) INV. OUT 1009.7 (P3–P2)	5.6±	CURB INLET
P4	14+92	RIM 1025.1± INV. IN 1019.2 (P5–P4) INV. IN 1019.2 (P4X–P4) INV. OUT 1019.1 (P4–P3)	6.0±	CURB INLET
P4X	0+25	RIM 1025.1± INV. OUT 1020.0 (P4X–P4)	5.1±	CURB INLET
P5	15+96	RIM 1025.7± INV. IN 1022.2 (P6–P5) INV. OUT 1022.2 (P5–P4)	3.5±	OPEN THROAT
P6	17+28	RIM 1029.1± INV. OUT 1025.0 (P6–P5)	4.1±	OPEN THROAT
Q1	10+29	RIM 1016.4± INV. IN 1010.2 (Q2–Q1) INV. OUT 1010.1 (Q1–P3)	6.3±	CURB INLET
Q2	11+33	RIM 1016.8± INV. IN 1013.4 (Q3–Q2) INV. OUT 1013.3 (Q2–Q1)	3.5±	OPEN THROAT
Q3	12+83	RIM 1024.1± INV. OUT 1020.2 (Q3–Q2)	3.9±	OPEN THROAT
R1	10+94	RIM 1007.6± INV. IN 1001.5 (R2–R1) INV. OUT 1001.4 (R1–R0)	6.2±	OPEN THROAT
R2	12+81	RIM 1018.9± INV. OUT 1013.7 (R2–R1)	5.3±	OPEN THROAT
S1	10+60	RIM 1031.5± INV. IN 1027.2 (S2–S1) INV. OUT 1027.1 (S1–G1)	4.3±	YARD INLET
S2	11+15	RIM 1032.3± INV. OUT 1029.3 (S2–S1)	3.0±	YARD INLET
Y1	10+56	RIM 1031.2± INV. IN 1018.9 (Y2–Y1) INV. OUT 1018.8 (Y1–Y0)	12.4±	JUNCTION BOX
Y2	11+39	RIM 1030.1± INV. IN 1019.9 (Y3–Y2) INV. OUT 1019.9 (Y2–Y1)	10.2±	JUNCTION BOX
Y3	11+92	RIM 1031.0± INV. IN 1021.3 (Y3X–Y3) INV. IN 1021.1 (Y4–Y3) INV. OUT 1020.4 (Y3–Y2)	10.6±	JUNCTION BOX
Y3X	11+06	RIM 1031.3± INV. OUT 1025.6 (Y3X–Y3)	5.7±	OPEN THROAT
Y4	13+12	RIM 1033.0± INV. IN 1022.3 (Y5–Y4) INV. OUT 1022.3 (Y4–Y3)	10.7±	OPEN THROAT
Y5	13+65	RIM 1034.4± INV. IN 1022.8 (Y6–Y5) INV. OUT 1022.8 (Y5–Y4)	11.5±	JUNCTION BOX
Y6	14+49	RIM 1036.6± INV. IN 1023.7 (Y7–Y6) INV. OUT 1023.7 (Y6–Y5)	12.9±	JUNCTION BOX
Y7	14+97	RIM 1038.3± INV. IN 1024.2 (Y8–Y7) INV. OUT 1024.2 (Y7–Y6)	14.1±	JUNCTION BOX

STRUCTURE TABLE
(INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)

STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
Y8	18+25	RIM 1039.7± INV. IN 1027.4 (Y9–Y8) INV. OUT 1027.4 (Y8–Y7)	12.3±	JUNCTION BOX
Y9	19+58	RIM 1042.2± INV. IN 1028.8 (Y10–Y9) INV. OUT 1028.8 (Y9–Y8)	13.4±	OPEN THROAT
Y10	20+67	RIM 1040.0± INV. IN 1029.9 (Y11–Y10) INV. OUT 1029.9 (Y10–Y9)	10.1±	OPEN THROAT
Y11	21+42	RIM 1038.8± INV. IN 1030.6 (Y12–Y11) INV. OUT 1030.6 (Y11–Y10)	8.2±	OPEN THROAT
Y12	23+16	RIM 1036.4± INV. OUT 1032.3 (Y12–Y11)	4.1±	OPEN THROAT

INLET/OUTLET TABLE
(INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)

STRUCTURE	STATION	STRUCTURE DETAILS	DESCRIPTON
A0	10+26	INV. IN 980.5 (A1–A0)	FES
A02	10+24	INV. IN 978.4 (A01–A02)	HEADWALL
B02	10+16	INV. IN 1003.5 (B01–B02)	HEADWALL
C02	10+20	INV. IN 977.6 (C01–C02)	HEADWALL
D02	10+28	INV. IN 1005.5 (D01–D02)	HEADWALL
E02	10+25	INV. IN 978.8 (E01–E02)	HEADWALL
H0	10+17	INV. IN 981.4 (H1–H0)	FES
K0	10+13	INV. IN 1007.5 (K1–K0)	FES
N0	10+25	INV. IN 1007.5 (N1–N0)	FES
P0	10+16	INV. IN 990.6 (P1–P0)	FES
R0	10+16	INV. IN 990.5 (R1–R0)	FES
Y0	10+14	INV. IN 1018.0 (Y1–Y0)	FES

STORM TABLES

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 214-0072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 476-4410

CDC Civil Design Concepts, PA
www.cdcpa.com
NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD L. PRESNELL, JR. 5/6/26

STORM TABLES FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD, BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C405

EXISTING 10" DIP SEWER LINE

PROPOSED 20' PUBLIC SEWER EASEMENT (TYP)

PROPOSED CUT-IN SEWER MANHOLE INTO EXISTING DIP LINE (DOGHOUSE MANHOLE NOT ALLOWED)

EXISTING SEWER MANHOLE (TYP)

PROPERTY LINE (TYP)

PROPOSED CONNECTION INTO EXISTING MANHOLE
EX. TOP: **974.03'**
EX. INV. IN: **967.20'**
PROP. INV. IN. **967.29'**
EX. INV. OUT: **967.12'**
NOTE:
*CONTRACTOR TO VERIFY **LOCATION/INVERTS** PRIOR TO ORDERING MATERIALS.
*CONTRACTOR TO CORE DRILL THE NECESSARY OPENING, INSTALL A FLEXIBLE BOOT, AND REWORK CHANNEL INVERTS AS NEEDED (SEE DETAILS).
*MANHOLE CONDITION TO BE CONFIRMED WITH **TOWN OF FOREST CITY** AND REPLACED AS NEEDED.

PROPOSED WATER SYSTEM (TYP)

ADJACENT PROPERTY LINE (TYP)

PROPOSED STORM SYSTEM (TYP)

APPROXIMATE LOCATION OF EXISTING WATER LINE

PROPOSED JACK AND BORE OF SEWER MAIN UNDER STREAM CROSSINGS (SEE SHEET C604)

EXISTING ENBRIDGE GAS LINE (TYP)

EXISTING 8" DIP SEWER LINE

EXISTING STORM PIPE (TYP)

PROPOSED PUBLIC SEWER MANHOLE (TYP)

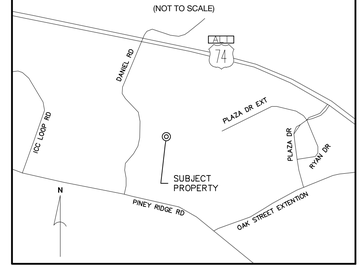
PROPOSED RETAINING WALL (TYP)

PROPOSED **8" SDR 35 PVC** PUBLIC GRAVITY SEWER MAIN (TYP)

NC 2159 PINEY RIDGE ROAD

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

SEWER NOTES

1. ALL PUBLIC SANITARY SEWER WORK ASSOCIATED WITH THIS PROJECT TO BE PERFORMED BY A NC LICENSED UTILITY CONTRACTOR.
2. SEE SEWER DETAIL SHEETS FOR ALL GENERAL SEWER NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL SEWER PLANS.
3. CROSSINGS TO MAINTAIN REQUIRED VERTICAL SEPARATION. CONTRACTOR TO CONTACT ENGINEER ON ANY CROSSING THAT DOES NOT MEET THIS SEPARATION, OR SEPARATION IS CLOSER THAN 1'. REFER TO GENERAL NOTES ON SEWER DETAIL SHEET FOR SEPARATION REQUIREMENTS BETWEEN UTILITIES.
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6. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.

SEWER LEGEND

PROPOSED SEWER LINE	SS
PROPOSED SEWER SERVICE	SS SS SS
PROPOSED FLOW ARROW	
PROPOSED SEWER MANHOLE	
PROPOSED SEWER CLEANOUT	
PROPOSED BORING ENCASEMENT	

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's **below.** **Call** before you dig.

NORTH

MASTER SEWER PLAN

GRAPHIC SCALE

100 0 50 100 200 300

(IN FEET)
1 inch = 100 ft.

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
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PHONE (828) 452-4410

Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON
5/06/26

MASTER SEWER PLAN FOR:

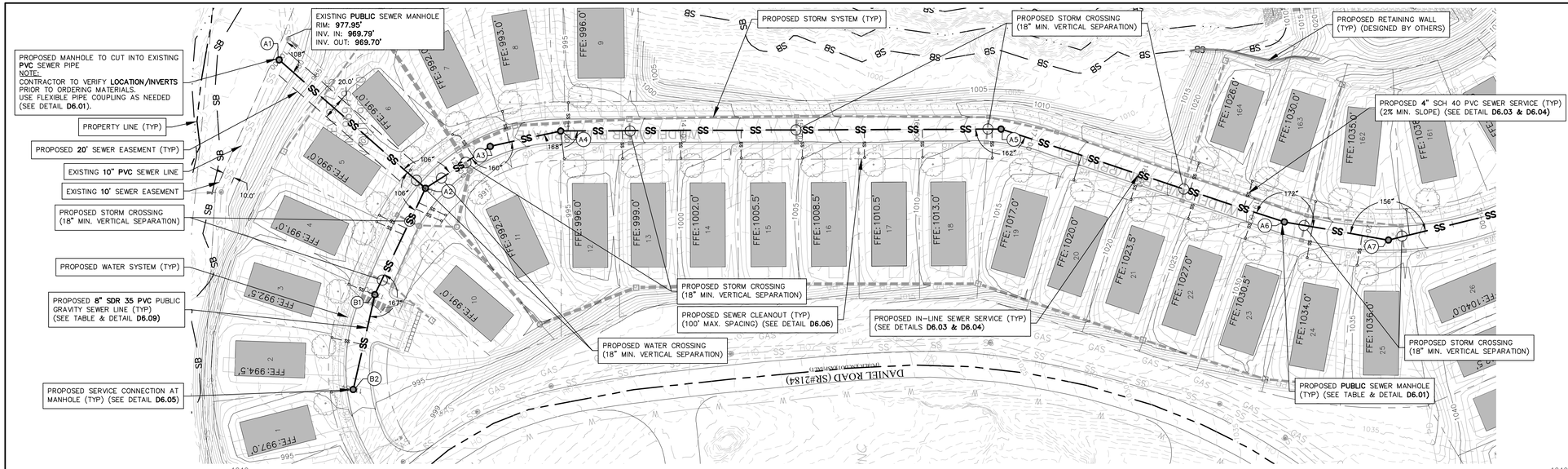
THE PRESERVE AT BRACKETTS CREEK

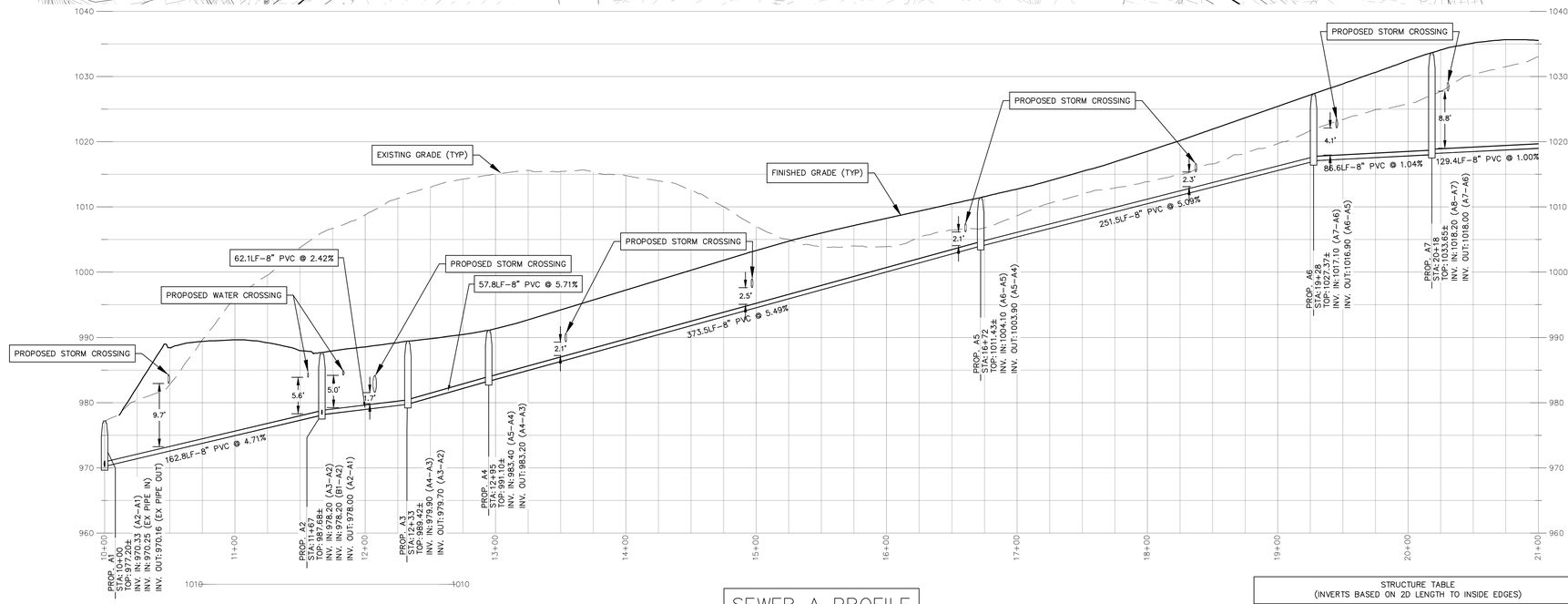
DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

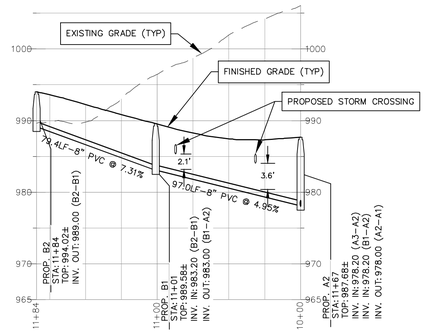
SHEET

C600





SEWER A PROFILE



SEWER B PROFILE

PROFILE SCALE

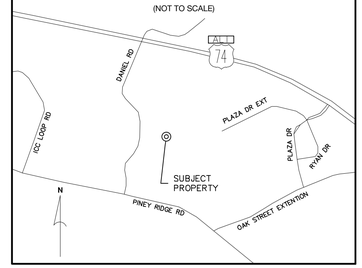
1 inch = 50 ft. (H) (IN FEET) 1 inch = 10 ft. (V)

PIPE TABLE (SLOPES BASED ON 2D LENGTH TO INSIDE EDGES)				
PIPE NAME	SIZE	LENGTH	SLOPE	MATERIAL
A2–A1	8"	162.8'	4.71%	PVC
A3–A2	8"	62.1'	2.42%	PVC
A4–A3	8"	57.8'	5.71%	PVC
A5–A4	8"	373.5'	5.49%	PVC
A6–A5	8"	251.5'	5.09%	PVC
A7–A6	8"	86.6'	1.04%	PVC
B1–A2	8"	97.0'	4.95%	PVC
B2–B1	8"	79.4'	7.31%	PVC

STRUCTURE TABLE (INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)				
STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
A1	10+00	RIM 977.2± INV. IN 970.3 (A2–A1) INV. IN 970.2 (EX PIPE IN) INV. OUT 970.2 (EX PIPE OUT)	7.0±	MANHOLE
A2	11+67	RIM 987.7± INV. IN 978.2 (A3–A2) INV. IN 978.2 (B1–A2) INV. OUT 978.0 (A2–A1)	9.7±	MANHOLE
A3	12+33	RIM 989.4± INV. IN 979.9 (A4–A3) INV. OUT 979.7 (A3–A2)	9.7±	MANHOLE
A4	12+95	RIM 991.1± INV. IN 983.4 (A5–A4) INV. OUT 983.2 (A4–A3)	7.9±	MANHOLE
A5	16+72	RIM 1011.4± INV. IN 1004.1 (A6–A5) INV. OUT 1003.9 (A5–A4)	7.5±	MANHOLE
A6	19+28	RIM 1027.4± INV. IN 1017.1 (A7–A6) INV. OUT 1016.9 (A6–A5)	10.5±	MANHOLE
A7	20+18	RIM 1033.6± INV. IN 1018.2 (A8–A7) INV. OUT 1018.0 (A7–A6)	15.6±	MANHOLE
B1	11+01	RIM 989.6± INV. IN 983.2 (B2–B1) INV. OUT 983.0 (B1–A2)	6.6±	MANHOLE
B2	11+84	RIM 994.0± INV. OUT 989.0 (B2–B1)	5.0±	MANHOLE

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

SEWER NOTES

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6. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.

SEWER LEGEND

PROPOSED SEWER LINE	SS
PROPOSED SEWER SERVICE	SS SS SS
PROPOSED FLOW ARROW	
PROPOSED SEWER MANHOLE	
PROPOSED SEWER CLEANOUT	
PROPOSED BORING ENCASEMENT	

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's below. Call before you dig.

NORTH

SEWER PLAN

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
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CDC Civil Design Concepts, PA
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NCBELS #: C-2194 SCLLR #: 4736

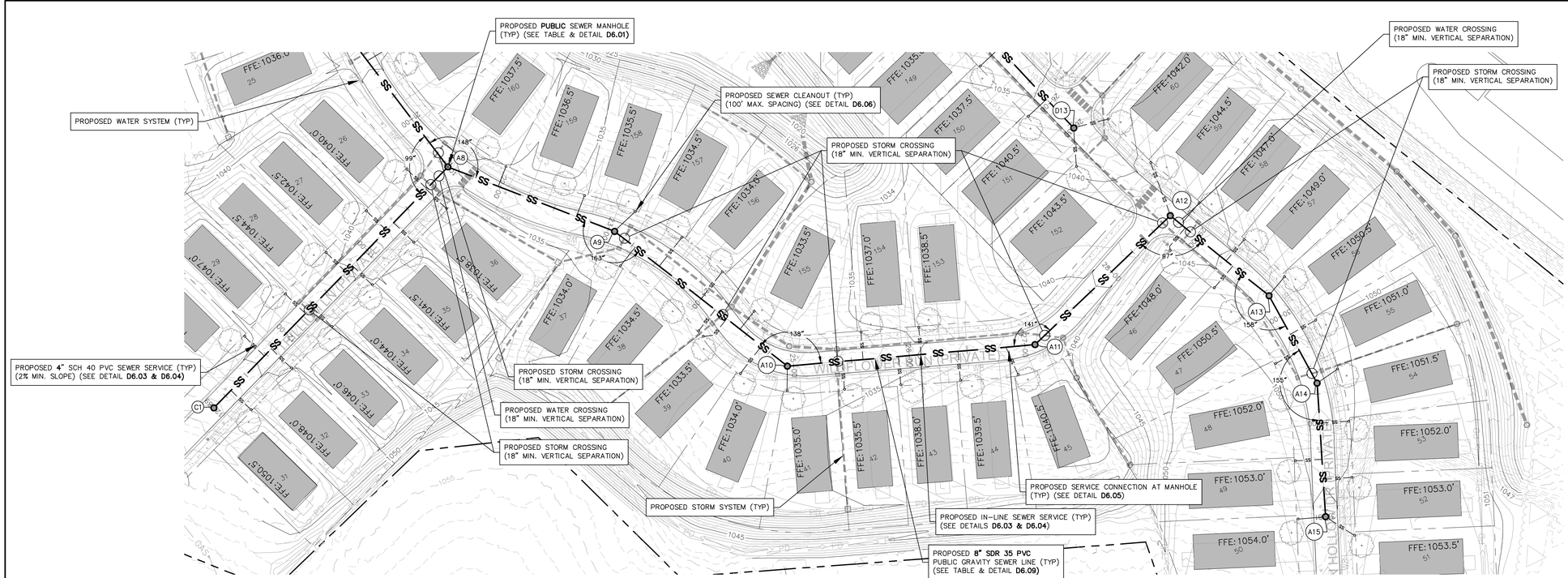
NO.	DATE	DESCRIPTION	BY
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

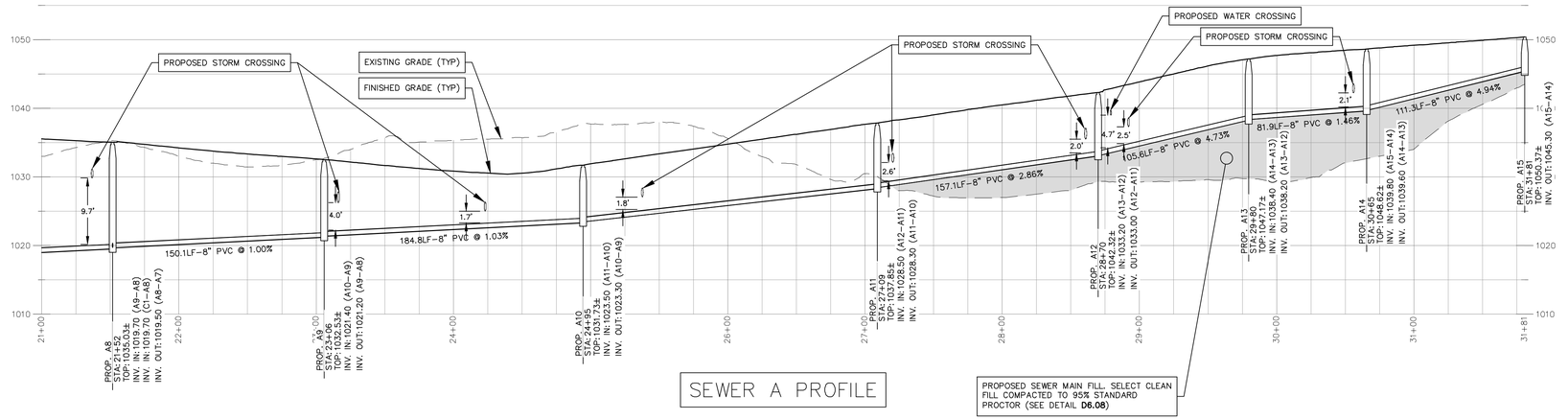
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD R. PENSON
5/6/26

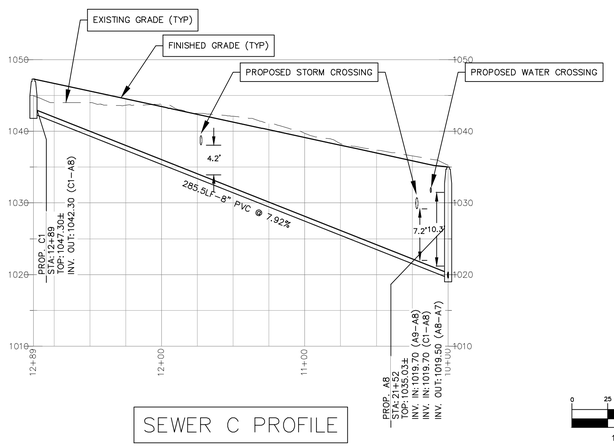
SEWER PLAN FOR:
THE PRESERVE AT BRACKETTS CREEK
DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C601







PROFILE SCALE

0 25 50 100 — 1 inch = 50 ft. (H)

(IN FEET)

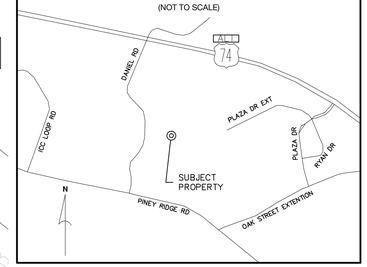
0 5 10 20 — 1 inch = 10 ft. (V)

PIPE TABLE (SLOPES BASED ON 2D LENGTH TO INSIDE EDGES)				
PIPE NAME	SIZE	LENGTH	SLOPE	MATERIAL
A8–A7	8"	129.4'	1.00%	PVC
A9–A8	8"	150.1'	1.00%	PVC
A10–A9	8"	184.8'	1.03%	PVC
A11–A10	8"	210.3'	2.26%	PVC
A12–A11	8"	157.1'	2.86%	PVC
A13–A12	8"	105.6'	4.74%	PVC
A14–A13	8"	81.9'	1.47%	PVC
A15–A14	8"	111.3'	4.94%	PVC
C1–A8	8"	285.5'	7.92%	PVC

STRUCTURE TABLE (INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)				
STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
A8	21+52	RIM 1035.0± INV. IN 1019.7 (A9–A8) INV. IN 1019.7 (C1–A8) INV. OUT 1019.5 (A8–A7)	15.5±	MANHOLE
A9	23+06	RIM 1032.5± INV. IN 1021.4 (A10–A9) INV. OUT 1021.2 (A9–A8)	11.3±	MANHOLE
A10	24+95	RIM 1031.7 INV. IN 1023.5 (A11–A10) INV. OUT 1023.3 (A10–A9)	8.4±	MANHOLE
A11	27+09	RIM 1037.8± INV. IN 1028.5 (A12–A11) INV. OUT 1028.3 (A11–A10)	9.5±	MANHOLE
A12	28+70	RIM 1042.3± INV. IN 1033.2 (A13–A12) INV. OUT 1033.0 (A12–A11)	9.3±	MANHOLE
A13	29+80	RIM 1047.2± INV. IN 1038.4 (A14–A13) INV. OUT 1038.2 (A13–A12)	9.0±	MANHOLE
A14	30+65	RIM 1048.6± INV. IN 1039.8 (A15–A14) INV. OUT 1039.6 (A14–A13)	9.0±	MANHOLE
A15	31+81	RIM 1050.4± INV. OUT 1045.3 (A15–A14)	5.1±	MANHOLE
C1	12+89	RIM 1047.3± INV. OUT 1042.3 (C1–A8)	5.0±	MANHOLE

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
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	PRE / POST
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SEWER LEGEND

- PROPOSED SEWER LINE — SS
- PROPOSED SEWER SERVICE — ss — ss — ss
- PROPOSED FLOW ARROW
- PROPOSED SEWER MANHOLE
- PROPOSED SEWER CLEANOUT
- PROPOSED BORING ENCASEMENT

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NORTH

SEWER PLAN

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
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PHONE (828) 452-4410

Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON 5/14/26

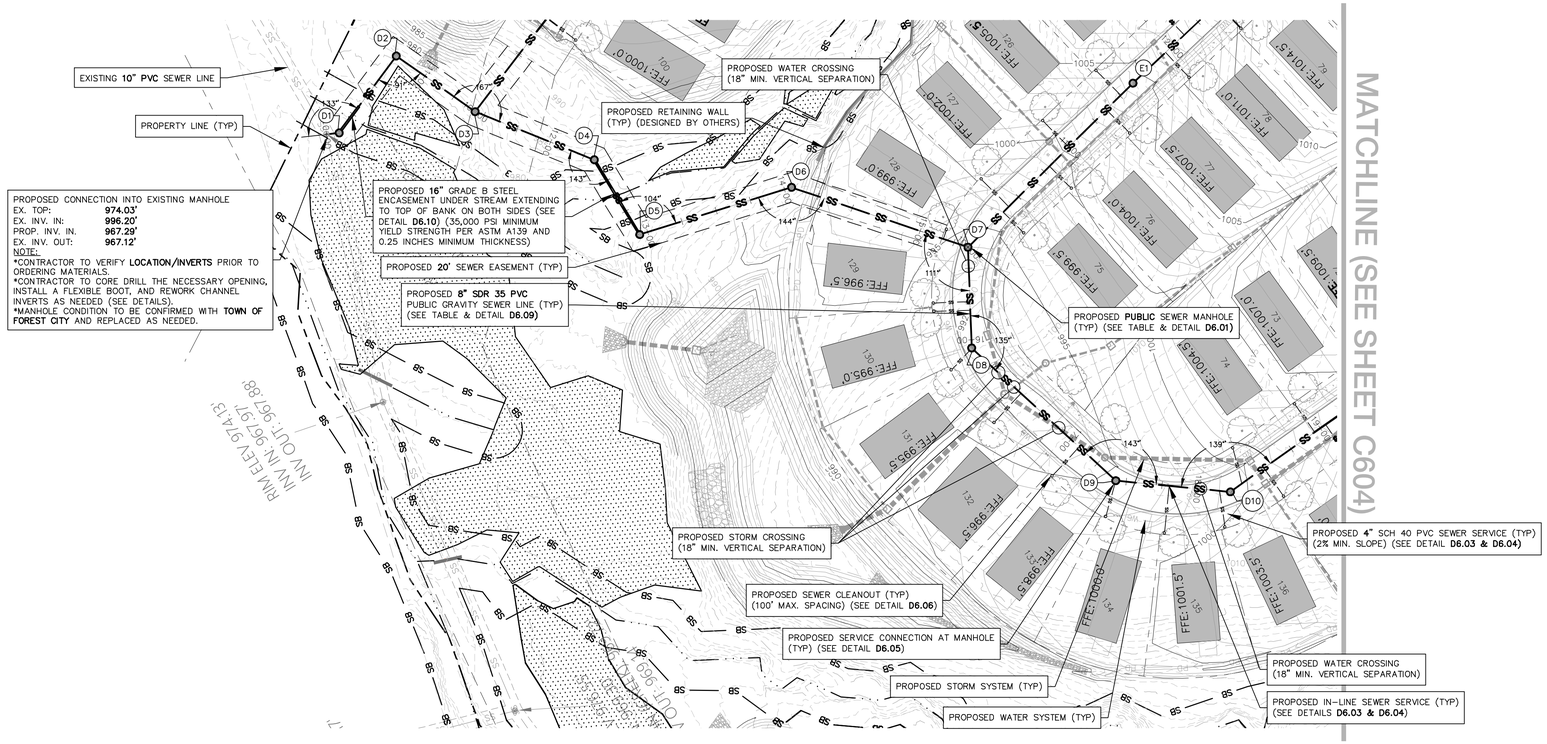
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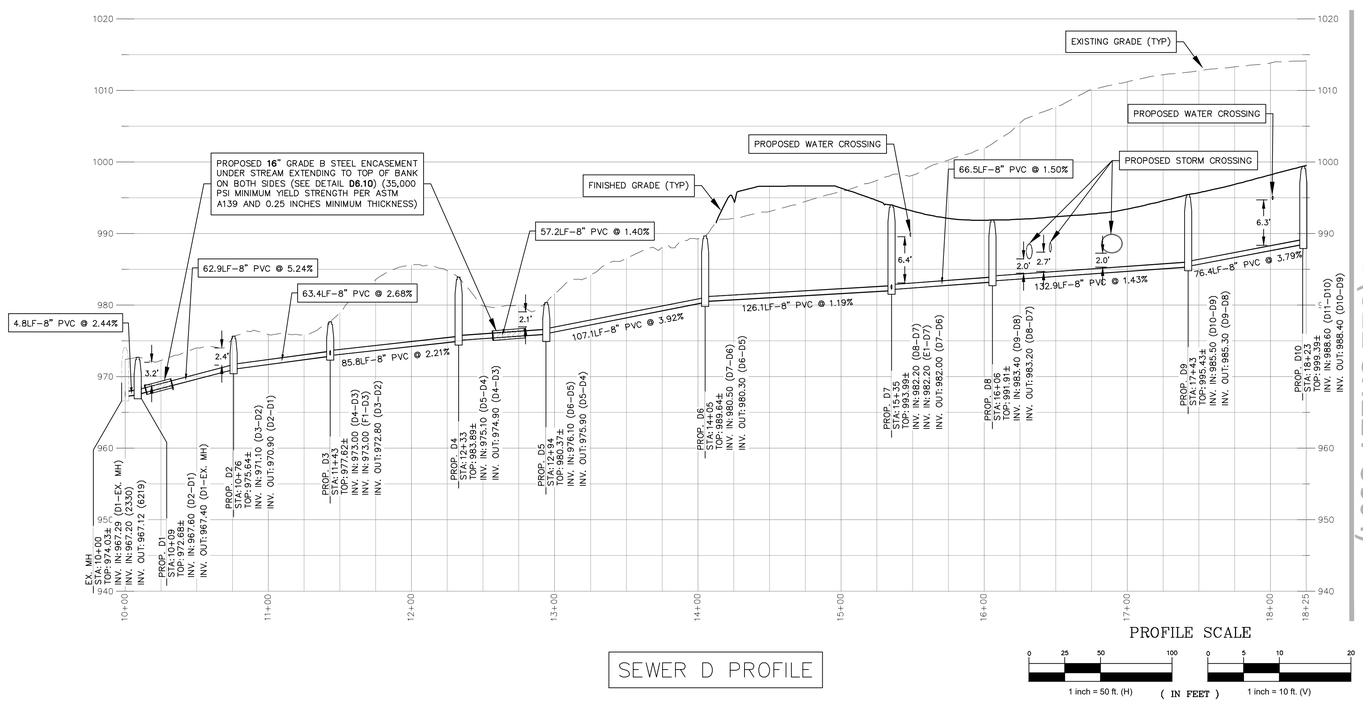
THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

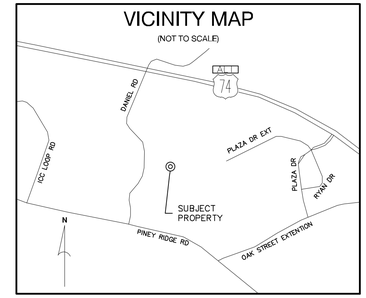
DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C602





SEWER D PROFILE



DEVELOPMENT DATA

OWNER/DEVELOPER:	XXXXX XXXXX XXXXX, XX XXXXX
CONTACT:	XXXXX (XXX) XXX-XXXX
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 168 PATTON AVENUE ASHEVILLE, NC 28801
CONTACT:	XXX, P.E. (828) 252-5388
SURVEYOR:	XXX XXX XXX, XX XXXX
CONTACT:	XXX (XXX) XXX-XXXX

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

SEWER NOTES

1. ALL PUBLIC SANITARY SEWER WORK ASSOCIATED WITH THIS PROJECT TO BE PERFORMED BY A NC LICENSED UTILITY CONTRACTOR.
2. SEE SEWER DETAIL SHEETS FOR ALL GENERAL SEWER NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL SEWER PLANS.
3. CROSSINGS TO MAINTAIN REQUIRED VERTICAL SEPARATION. CONTRACTOR TO CONTACT ENGINEER ON ANY CROSSING THAT DOES NOT MEET THIS SEPARATION, OR SEPARATION IS CLOSER THAN 1'. REFER TO GENERAL NOTES ON SEWER DETAIL SHEET FOR SEPARATION REQUIREMENTS BETWEEN UTILITIES.
4. TO SCHEDULE THE REQUIRED INSPECTIONS ON ALL WORK, CALL THE CIVIL DESIGN CONCEPTS INSPECTIONS HOTLINE AT 828-771-4755, OR EMAIL AT INSPECTIONS@CDCGO.COM. FAILURE TO SCHEDULE INSPECTIONS MAY RESULT IN UNCOVERING OR REDOING WORK
5. TYPICAL EASEMENTS FOR SEWER LINES LOCATED OUTSIDE ESTABLISHED UTILITY EASEMENTS OR ROAD RIGHT-OF-WAYS SHALL BE AS SHOWN. THE ENTIRE SEWER EASEMENT MUST BE CLEAR AND REMAIN CLEAR OF TREE PLANTINGS, EXISTING TREES, AND ANY PERMANENT STRUCTURES.
6. NO PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.

SEWER LEGEND

PROPOSED SEWER LINE — SS
PROPOSED SEWER SERVICE — SS — SS — SS —
PROPOSED FLOW ARROW
PROPOSED SEWER MANHOLE
PROPOSED SEWER CLEANOUT
PROPOSED BORING ENCASEMENT

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's below. Call before you dig.

NORTH

STRUCTURE TABLE
(INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)

STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
D1	10+09	RIM 972.7± INV. IN 967.6 (D2-D1) INV. OUT 967.4 (D1-EX. MH)	5.3±	MANHOLE
D2	10+76	RIM 975.6± INV. IN 971.1 (D3-D2) INV. OUT 970.9 (D2-D1)	4.7±	MANHOLE
D3	11+43	RIM 977.6± INV. IN 973.0 (D4-D3) INV. IN 973.0 (F1-D3) INV. OUT 972.8 (D3-D2)	4.8±	MANHOLE
D4	12+33	RIM 983.9± INV. IN 975.1 (D5-D4) INV. OUT 974.9 (D4-D3)	9.0±	MANHOLE
D5	12+94	RIM 980.4± INV. IN 976.1 (D6-D5) INV. OUT 975.9 (D5-D4)	5.0±	MANHOLE
D6	14+05	RIM 989.6± INV. IN 980.5 (D7-D6) INV. OUT 980.3 (D6-D5)	9.3±	MANHOLE
D7	15+35	RIM 994.0± INV. IN 982.2 (D8-D7) INV. IN 982.2 (E1-D7) INV. OUT 982.0 (D7-D6)	12.0±	MANHOLE
D8	16+06	RIM 991.9± INV. IN 983.4 (D9-D8) INV. OUT 983.2 (D8-D7)	8.7±	MANHOLE
D9	17+43	RIM 995.4± INV. IN 985.5 (D10-D9) INV. OUT 985.3 (D9-D8)	10.1±	MANHOLE
D10	18+23	RIM 999.4± INV. IN 988.6 (D11-D10) INV. OUT 988.4 (D10-D9)	11.0±	MANHOLE

PIPE TABLE
(SLOPES BASED ON 2D LENGTH TO INSIDE EDGES)

PIPE NAME	SIZE	LENGTH	SLOPE	MATERIAL
D1-EX. MH	8"	4.8'	2.45%	PVC
D2-D1	8"	62.9'	5.24%	PVC
D3-D2	8"	63.4'	2.68%	PVC
D4-D3	8"	85.8'	2.21%	PVC
D5-D4	8"	57.2'	1.40%	PVC
D6-D5	8"	107.1'	3.92%	PVC
D7-D6	8"	126.1'	1.17%	PVC
D8-D7	8"	66.5'	1.50%	PVC
D9-D8	8"	132.9'	1.43%	PVC
D10-D9	8"	76.4'	3.79%	PVC

SEWER PLAN

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

84 COXE AVENUE - SUITE 200
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-6072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-1410

CDC Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2184 SCLLR #: 4736

NO.	DESCRIPTION	DATE	BY
5	FOREST CITY PLANNING SUBMITTAL	05/06/2026	CHL

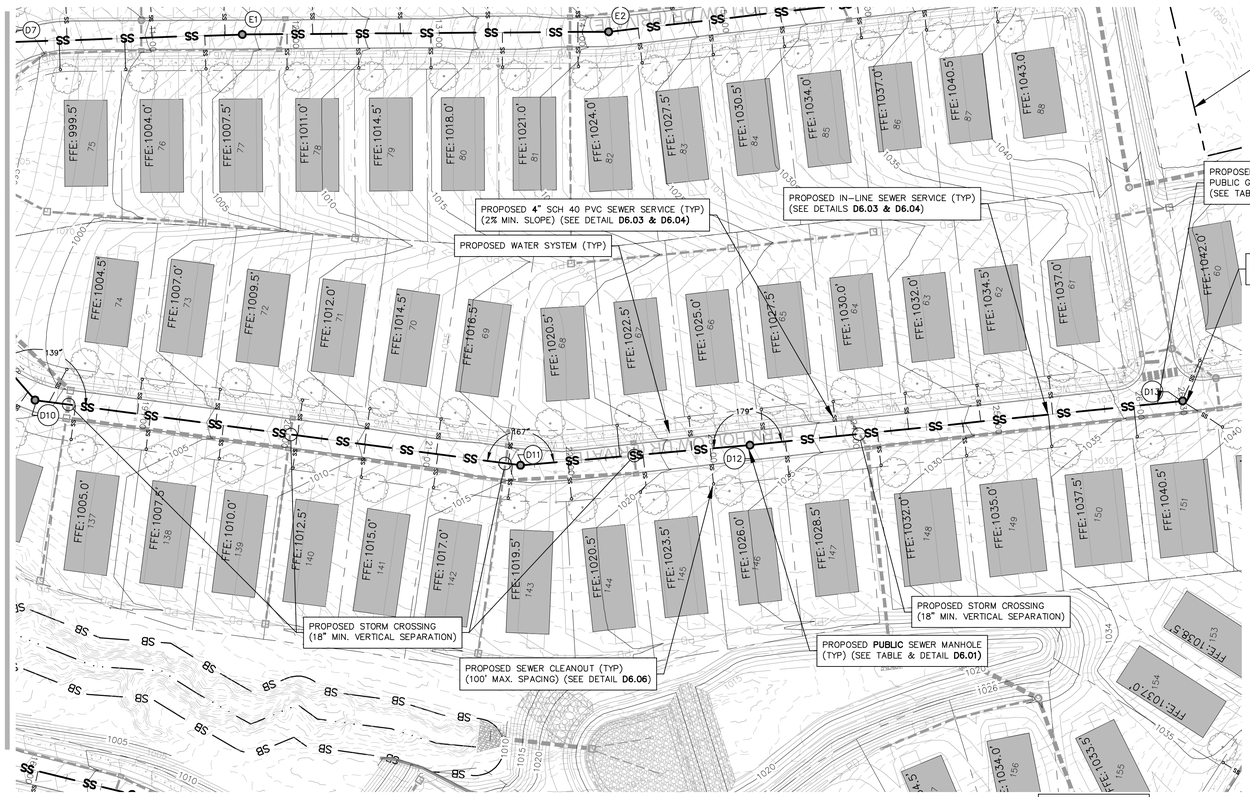
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. HOWARD 5/6/26

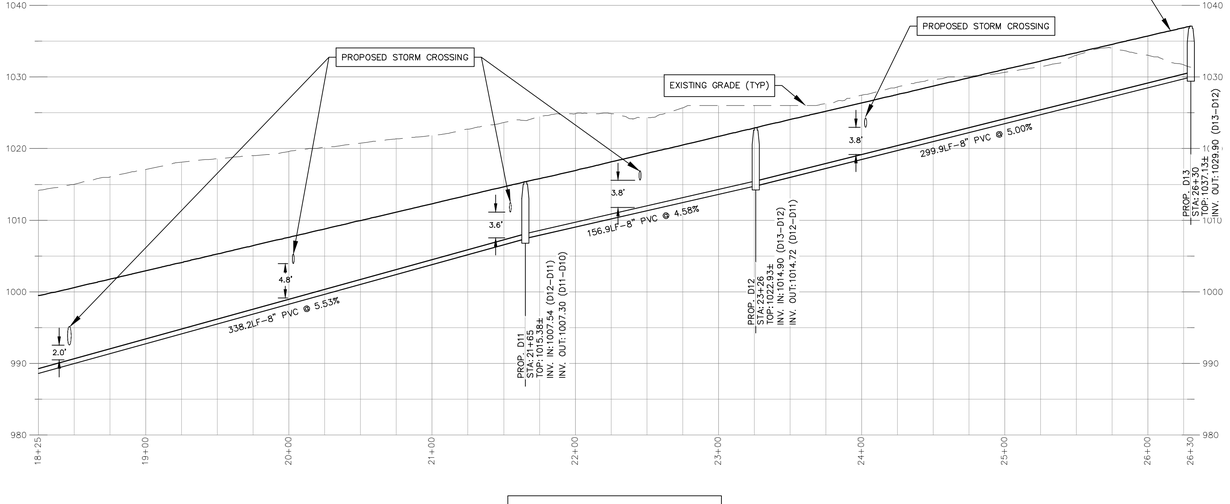
SEWER PLAN FOR:
THE PRESERVE AT BRACKETTS CREEK
DANIEL ROAD BY LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET
C603

MATCHLINE (SEE SHEET C603)





SEWER D PROFILE

PROFILE SCALE

0 25 50 100 — 1 inch = 50 ft. (H)

0 5 10 20 — 1 inch = 10 ft. (V)

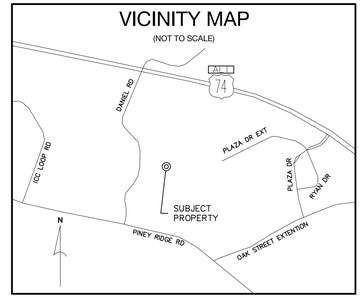
(IN FEET)

STRUCTURE TABLE (INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)				
STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
D11	21+65	RIM 1015.4± INV. IN 1007.5 (D12-D11) INV. OUT 1007.3 (D11-D10)	8.1±	MANHOLE
D12	23+26	RIM 1022.9± INV. IN 1014.9 (D13-D12) INV. OUT 1014.7 (D12-D11)	8.2±	MANHOLE
D13	26+30	RIM 1037.1± INV. OUT 1029.9 (D13-D12)	7.2±	MANHOLE

PIPE TABLE (SLOPES BASED ON 2D LENGTH TO INSIDE EDGES)				
PIPE NAME	SIZE	LENGTH	SLOPE	MATERIAL
D11-D10	8"	338.2'	5.53%	PVC
D12-D11	8"	156.9'	4.58%	PVC
D13-D12	8"	299.9'	5.00%	PVC

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793
CONTACT:	JAMIN C. KILPATRICK, PLS (828) 606-3365

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

SEWER NOTES

1. ALL PUBLIC SANITARY SEWER WORK ASSOCIATED WITH THIS PROJECT TO BE PERFORMED BY A NC LICENSED UTILITY CONTRACTOR.
2. SEE SEWER DETAIL SHEETS FOR ALL GENERAL SEWER NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL SEWER PLANS.
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5. TYPICAL EASEMENTS FOR SEWER LINES LOCATED OUTSIDE ESTABLISHED UTILITY EASEMENTS OR ROAD RIGHT-OF-WAYS SHALL BE AS SHOWN. THE ENTIRE SEWER EASEMENT MUST BE CLEAR AND REMAIN CLEAR OF TREE PLANTINGS, EXISTING TREES, AND ANY PERMANENT STRUCTURES.
6. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.

SEWER LEGEND

PROPOSED SEWER LINE	SS
PROPOSED SEWER SERVICE	SS SS SS
PROPOSED FLOW ARROW	
PROPOSED SEWER MANHOLE	
PROPOSED SEWER CLEANOUT	
PROPOSED BORING ENCASEMENT	

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's below. Call before you dig.

NORTH

SEWER PLAN

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

CDC Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2184 SCLLR #: 4736

NO.	DESCRIPTION	DATE	BY
5	FOREST CITY PLANNING SUBMITTAL	05/06/2026	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035140 DONALD E. PENSON

5/6/26

SEWER PLAN FOR:

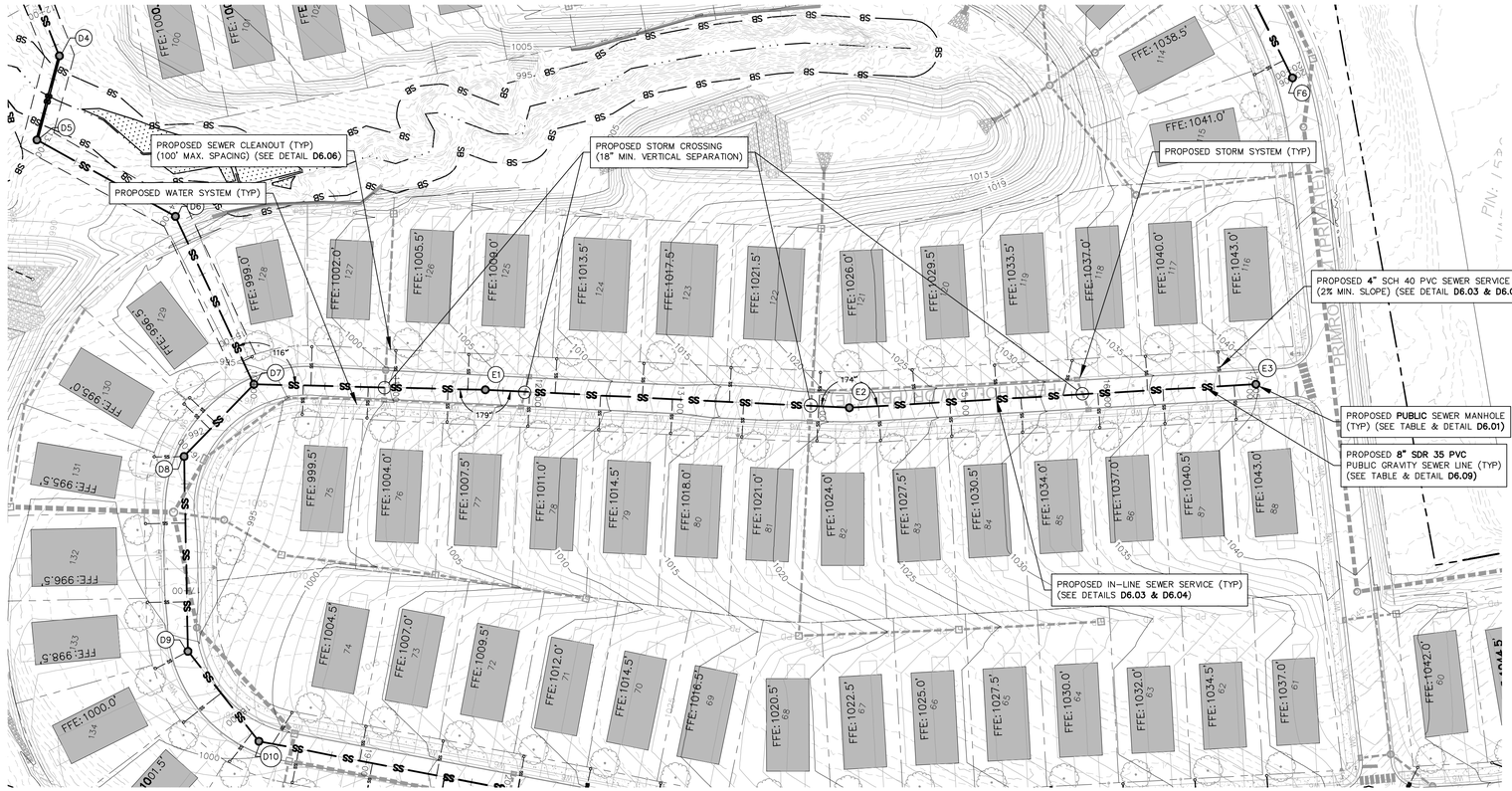
THE PRESERVE AT BRACKETTS CREEK

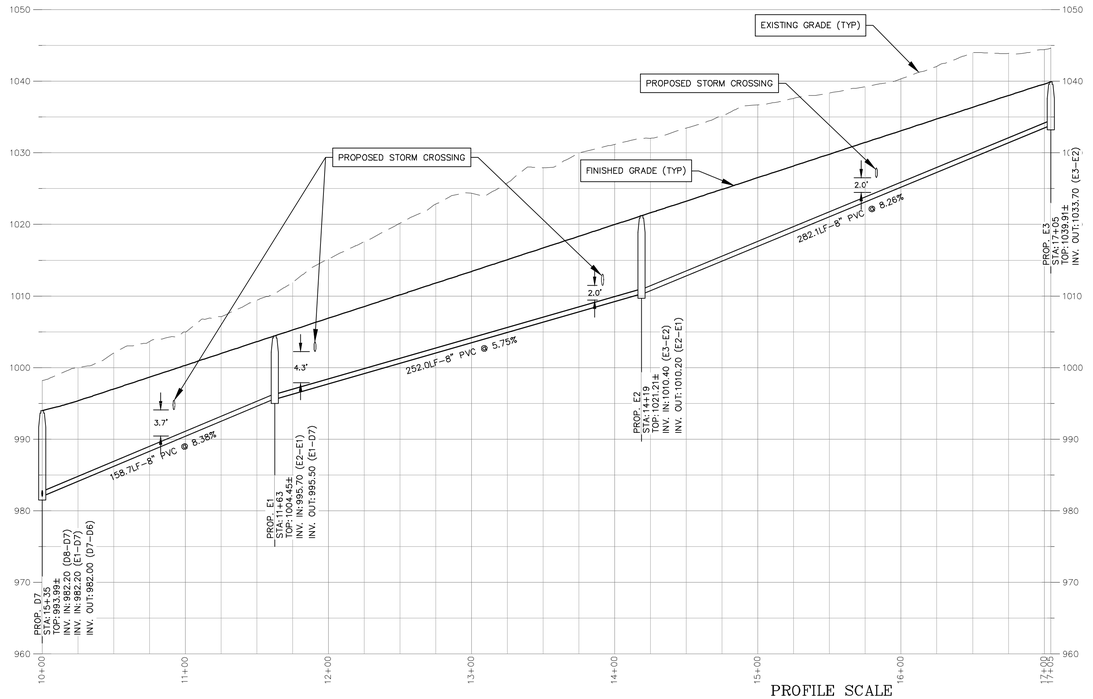
DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C604





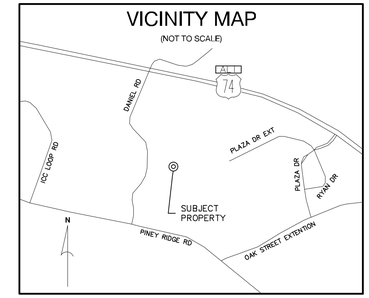
SEWER E PROFILE

STRUCTURE TABLE (INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)				
STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
E1	11+63	RIM 1004.4 INV. IN 995.7 (E2-E1) INV. OUT 995.5 (E1-D7)	8.9±	MANHOLE
E2	14+19	RIM 1021.2 INV. IN 1010.4 (E3-E2) INV. OUT 1010.2 (E2-E1)	11.0±	MANHOLE
E3	17+05	RIM 1039.9 INV. OUT 1033.7 (E3-E2)	6.2±	MANHOLE

PIPE TABLE (SLOPES BASED ON 2D LENGTH TO INSIDE EDGES)				
PIPE NAME	SIZE	LENGTH	SLOPE	MATERIAL
E1-D7	8"	158.7'	8.39%	PVC
E2-E1	8"	252.0'	5.75%	PVC
E3-E2	8"	282.1'	8.26%	PVC

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	XXXXX XXXXX XXXXX, XX XXXXX
CONTACT:	XXXXX (XXX) XXX-XXXX
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 168 PATTON AVENUE ASHEVILLE, NC 28801
CONTACT:	XXX, P.E. (828) 252-5388
SURVEYOR:	XXX XXX XXX, XX XXXX
CONTACT:	XXX (XXX) XXX-XXXX

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

SEWER NOTES

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2. SEE SEWER DETAIL SHEETS FOR ALL GENERAL SEWER NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL SEWER PLANS.
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6. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.

SEWER LEGEND

PROPOSED SEWER LINE	SS
PROPOSED SEWER SERVICE	SS SS SS
PROPOSED FLOW ARROW	
PROPOSED SEWER MANHOLE	
PROPOSED SEWER CLEANOUT	
PROPOSED BORING ENCASEMENT	

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's **below.** **Call** before you dig.

NORTH

SEWER PLAN

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

94 COXE AVENUE - SUITE 200
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-6072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-1410

CDC Civil Design Concepts, PA
www.cdcgo.com
NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035140 DONALD E. BRACKETTS JR. 5/7/26

SEWER PLAN FOR:

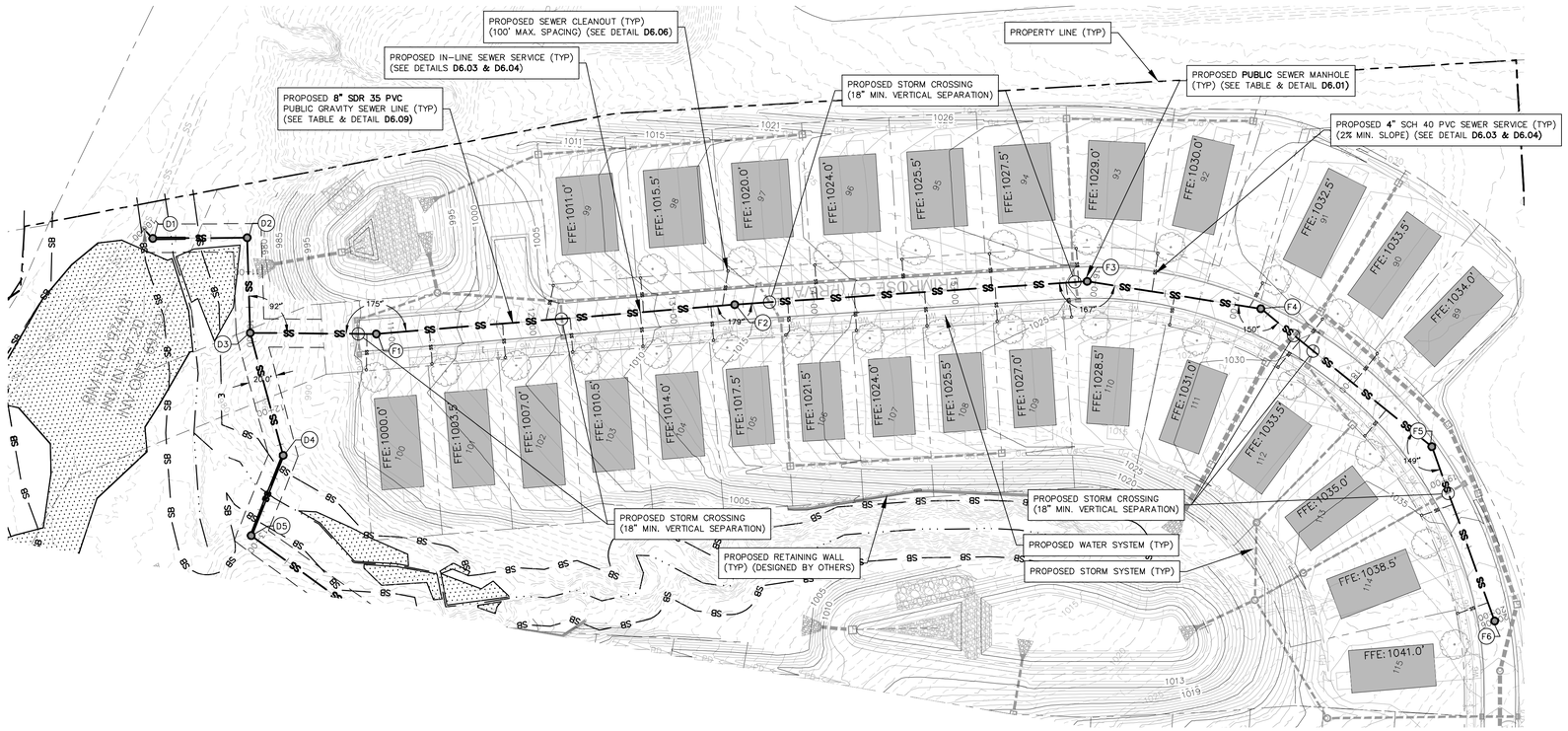
THE PRESERVE AT BRACKETTS CREEK

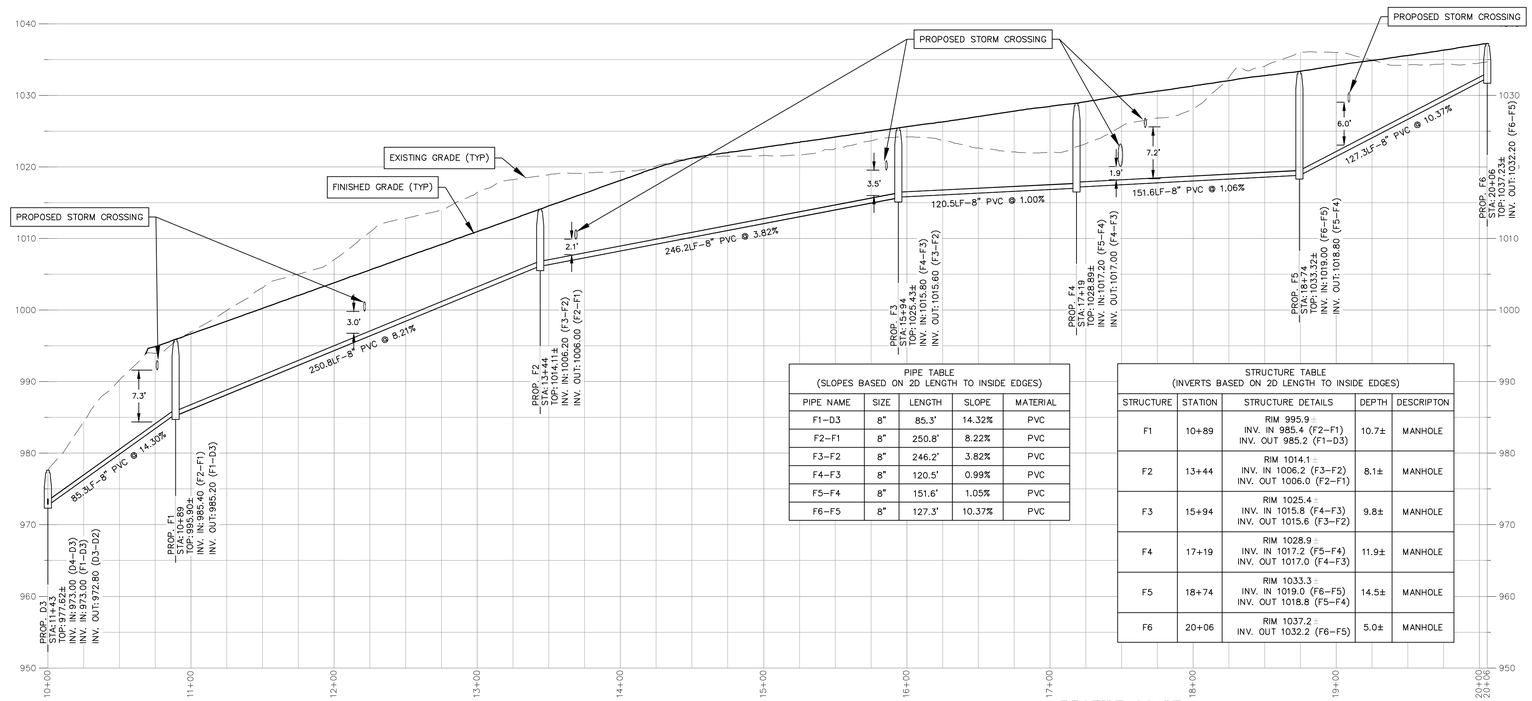
DANIEL ROAD BY LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET

C605





SEWER F PROFILE

PROFILE SCALE

1 inch = 50 ft. (H) (IN FEET) 1 inch = 10 ft. (V)

PIPE TABLE
(SLOPES BASED ON 2D LENGTH TO INSIDE EDGES)

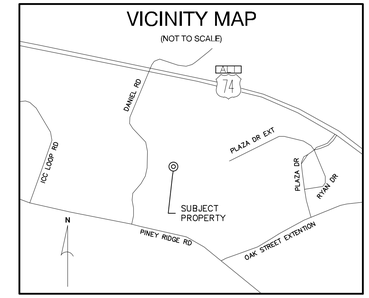
PIPE NAME	SIZE	LENGTH	SLOPE	MATERIAL
F1–D3	8"	85.3'	14.32%	PVC
F2–F1	8"	250.8'	8.22%	PVC
F3–F2	8"	246.2'	3.82%	PVC
F4–F3	8"	120.5'	0.99%	PVC
F5–F4	8"	151.6'	1.05%	PVC
F6–F5	8"	127.3'	10.37%	PVC

STRUCTURE TABLE
(INVERTS BASED ON 2D LENGTH TO INSIDE EDGES)

STRUCTURE	STATION	STRUCTURE DETAILS	DEPTH	DESCRIPTON
F1	10+89	RIM 995.9± INV. IN 985.4 (F2–F1) INV. OUT 985.2 (F1–D3)	10.7±	MANHOLE
F2	13+44	RIM 1014.1± INV. IN 1006.2 (F3–F2) INV. OUT 1006.0 (F2–F1)	8.1±	MANHOLE
F3	15+94	RIM 1025.4± INV. IN 1015.8 (F4–F3) INV. OUT 1015.6 (F3–F2)	9.8±	MANHOLE
F4	17+19	RIM 1028.9 INV. IN 1017.2 (F5–F4) INV. OUT 1017.0 (F4–F3)	11.9±	MANHOLE
F5	18+74	RIM 1033.3± INV. IN 1019.0 (F6–F5) INV. OUT 1018.8 (F5–F4)	14.5±	MANHOLE
F6	20+06	RIM 1037.2± INV. OUT 1032.2 (F6–F5)	5.0±	MANHOLE

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	XXXXX XXXXX XXXXX, XX XXXXX
CONTACT:	XXXXX (XXX) XXX-XXXX
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 168 PATTON AVENUE ASHEVILLE, NC 28801
CONTACT:	XXX, P.E. (828) 252-5388
SURVEYOR:	XXX XXX XXX, XX XXXX
CONTACT:	XXX (XXX) XXX-XXXX

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

SEWER NOTES

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6. **NO** PORTION OF THIS PROJECT LIES WITHIN THE 100-YR FEMA FLOODPLAIN.

SEWER LEGEND

PROPOSED SEWER LINE	SS
PROPOSED SEWER SERVICE	
PROPOSED FLOW ARROW	
PROPOSED SEWER MANHOLE	
PROPOSED SEWER CLEANOUT	
PROPOSED BORING ENCASEMENT	

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NORTH

SEWER PLAN

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

94 COXE AVENUE - SUITE 200
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-6072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-1410

CDC Civil Design Concepts, PA
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NCBELS #: C-2184 SCLLR #: 4736

NO.	DESCRIPTION	DATE	BY
5	FOREST CITY PLANNING SUBMITTAL	05/06/2026	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035140 DONALD S. MOSHIER

SEWER PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

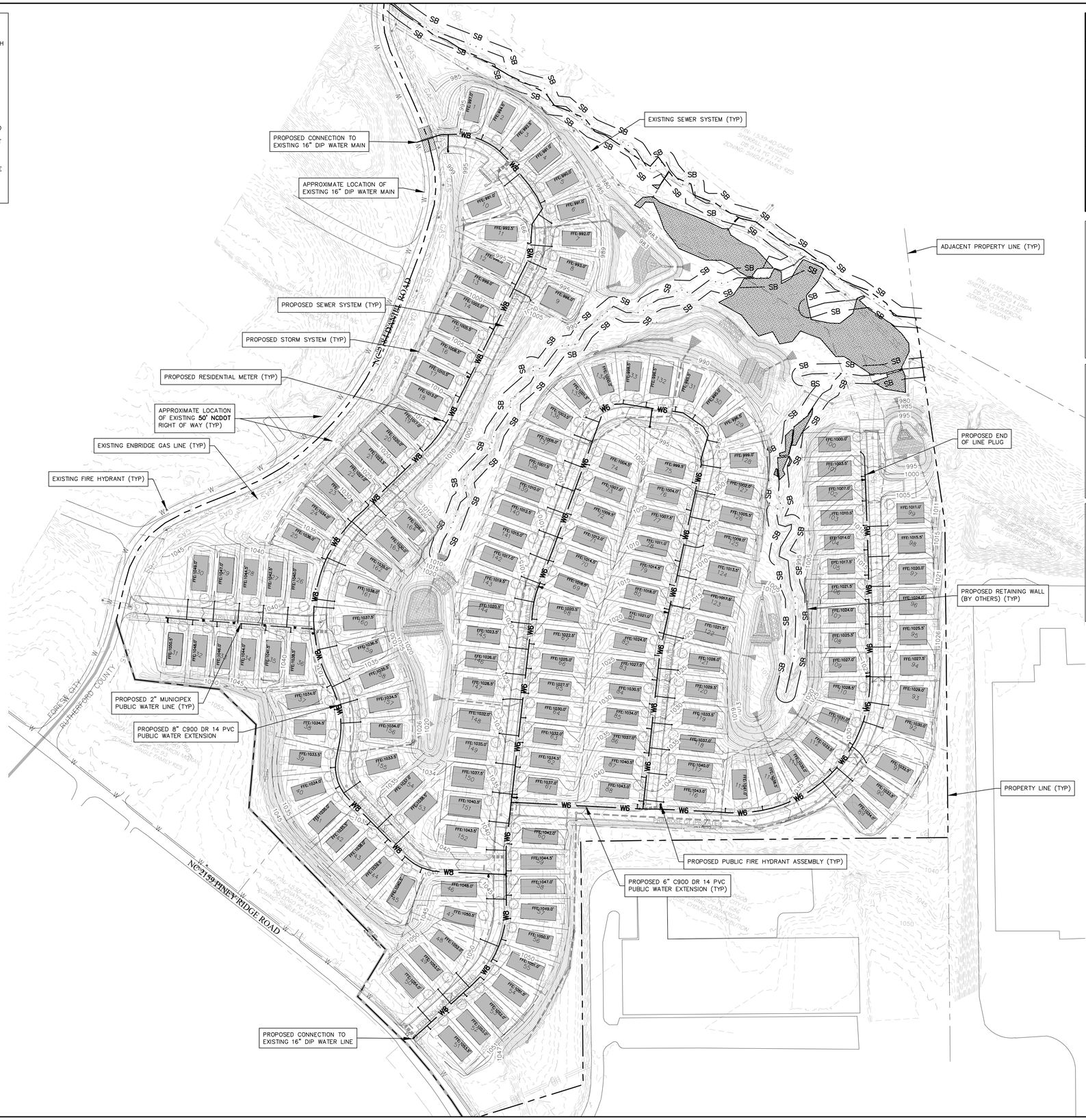
DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET

C606

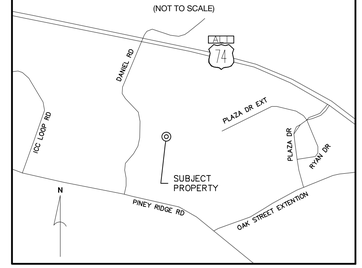
WATER NOTES

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4. TO SCHEDULE THE REQUIRED INSPECTIONS ON ALL WORK, CALL THE CIVIL DESIGN CONCEPTS INSPECTIONS HOTLINE AT 828-771-4755, OR EMAIL AT INSPECTIONS@CDCGO.COM. FAILURE TO SCHEDULE INSPECTIONS MAY RESULT IN UNCOVERING OR REDOING WORK.



VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240 WILLIAM B TAYLOR, II (828) 778-6705
CONTACT:	
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE, SUITE 260 ASHEVILLE, NC 28801 DONALD PENSON, P.E. (828) 252-5388
CONTACT:	
SURVEYOR:	GEOMETRA, PLLC PO BOX 8 HENDERSONVILLE, NC 28793 JAMIN C. KILPATRICK, PLS (828) 606-3365
CONTACT:	

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

ZONING DATA

DENSITY CALCULATIONS:

ALLOWED:	7 UNITS/ACRE
PROJECT UNITS:	164 UNITS = 3.46 UNITS/ACRE
TOTAL LOT ACREAGE:	24.43 ACRES

STREET CALCULATIONS:

LINEAR FEET:	6246 LF
ROW AREA:	7.04 ACRES

OPEN SPACE CALCULATIONS:

REQUIRED: 7.11 AC (15%) PROVIDED: 7.11 AC

WATER LEGEND

PROPOSED WATER LINE	W
PROPOSED WATER SERVICE	w
PROPOSED FIRE HYDRANT	
PROPOSED GATE VALVE	
PROPOSED AIR RELEASE VALVE	
PROPOSED WATER METER	
PROPOSED END OF LINE PLUG	[

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's below. Call before you dig.

NORTH

MASTER WATER PLAN

GRAPHIC SCALE

100 0 50 100 200 300

(IN FEET)
1 inch = 100 ft.

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5972

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

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NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	11/05/2025	FOREST CITY PLANNING SUBMITTAL	CHL
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON 5/6/26

MASTER WATER PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

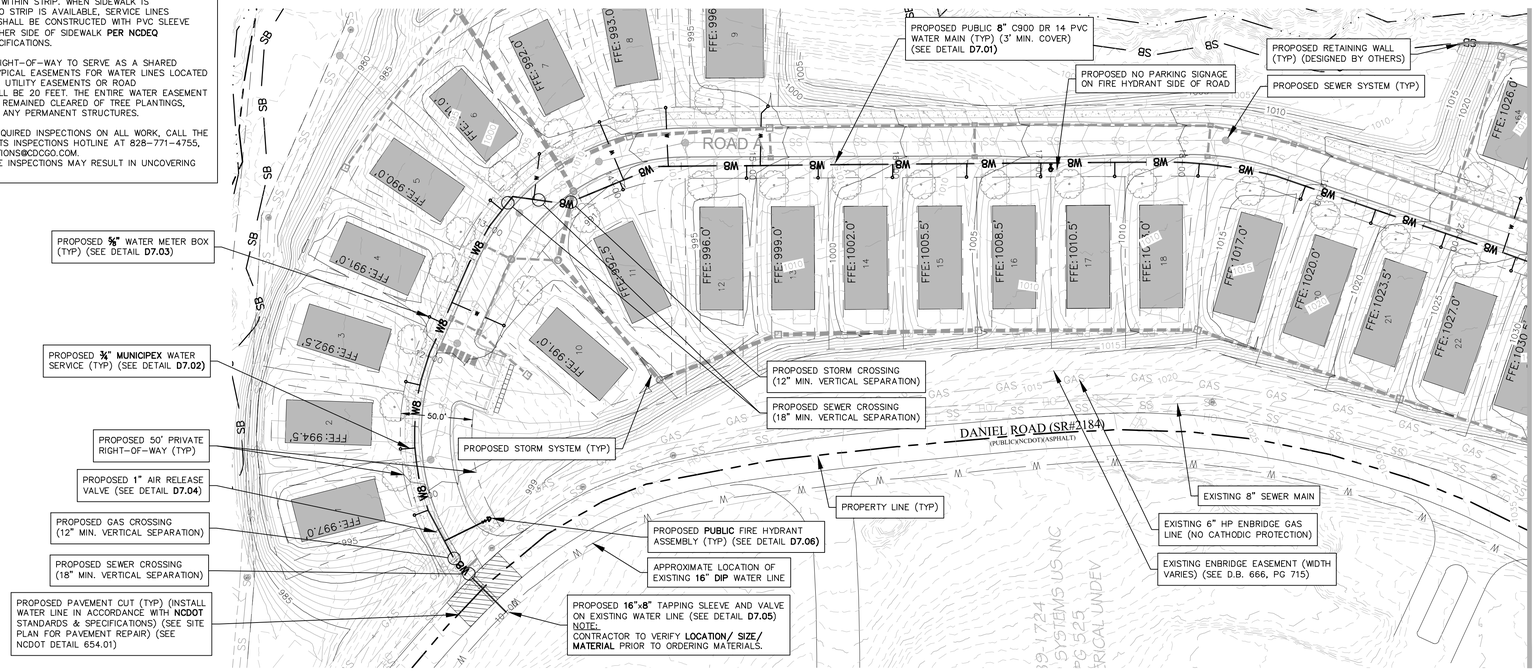
DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

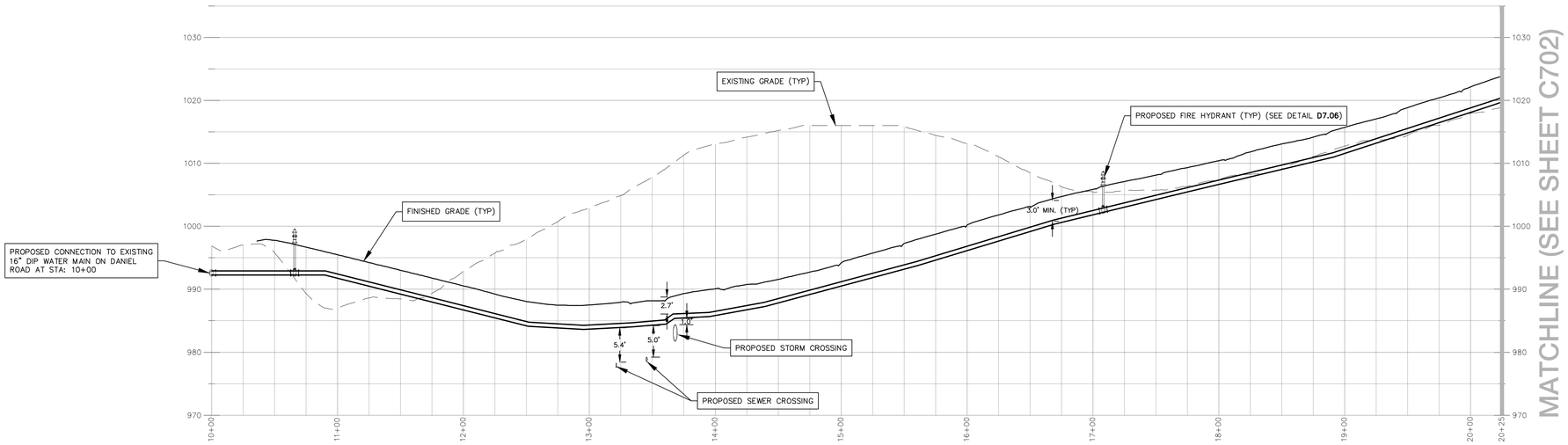
DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C700

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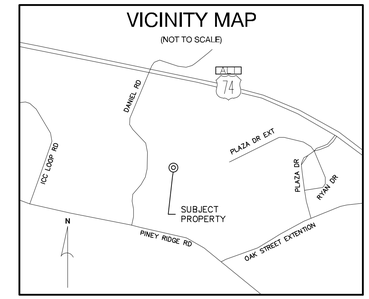




WILDFLOWER RUN WATER PROFILE

PROFILE SCALE

1 inch = 50 ft. (H) (IN FEET) 1 inch = 10 ft. (V)



DEVELOPMENT DATA

OWNER/DEVELOPER:	XXXXX XXXXX XXXXX, XX XXXXX
CONTACT:	XXXXX (XXX) XXX-XXXX
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 168 PATTON AVENUE ASHEVILLE, NC 28801
CONTACT:	XXX, P.E. (828) 252-5388
SURVEYOR:	XXX XXX XXX, XX XXXX
CONTACT:	XXX (XXX) XXX-XXXX

PROJECT DATA

PIN:	1538-49-2388
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	PRE	POST
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WATER LEGEND

- PROPOSED WATER LINE — W
- PROPOSED WATER SERVICE — w
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE
- PROPOSED AIR RELEASE VALVE
- PROPOSED WATER METER
- PROPOSED END OF LINE PLUG

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

Know what's below. Call before you dig.

NORTH

WATER PLAN

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

94 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-6072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-1410

CDC Civil Design Concepts, PA
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NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD E. EDISON
5/6/26

WATER PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

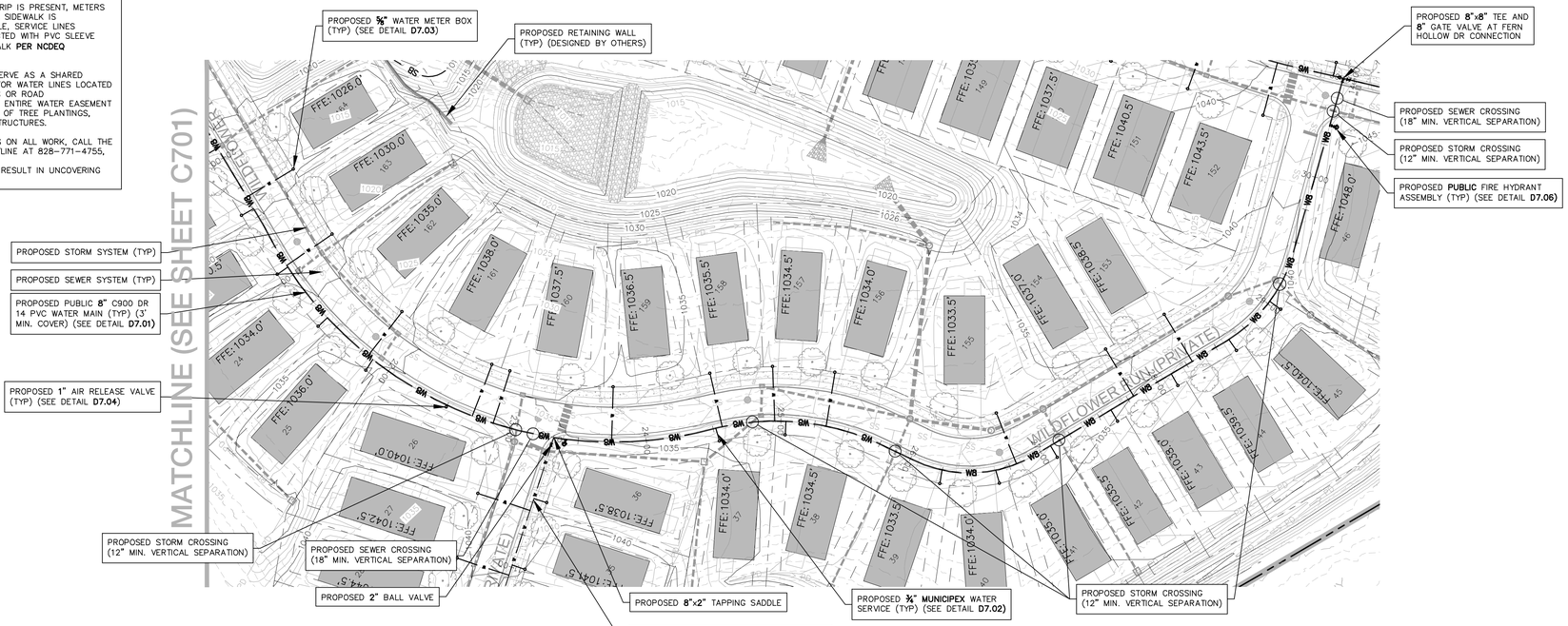
DANIEL ROAD BY LLC – FOREST CITY, NORTH CAROLINA

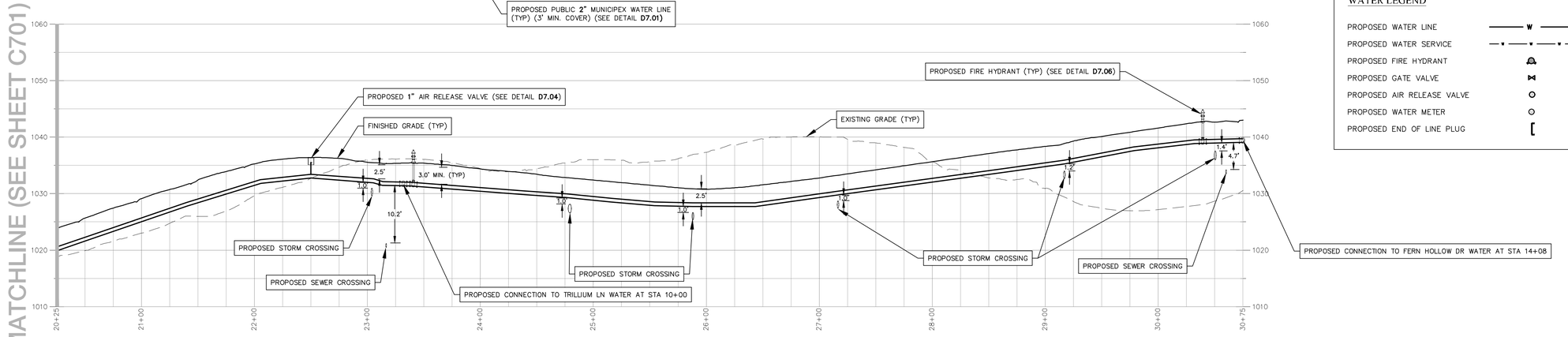
DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET
C701

WATER NOTES

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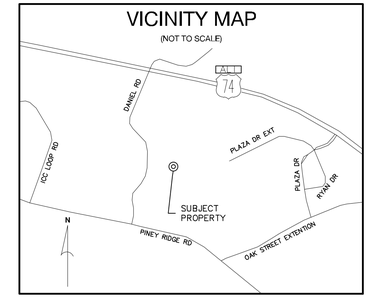
WILDFLOWER RUN WATER PROFILE

PROFILE SCALE

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VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	XXXXX XXXXX XXXXX, XX XXXXX
CONTACT:	XXXXX (XXX) XXX-XXXX
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 168 PATTON AVENUE ASHEVILLE, NC 28801
CONTACT:	XXX, P.E. (828) 252-5388
SURVEYOR:	XXX XXX XXX, XX XXXX
CONTACT:	XXX (XXX) XXX-XXXX

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WATER LEGEND

- PROPOSED WATER LINE — W —
- PROPOSED WATER SERVICE — W — W —
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE
- PROPOSED AIR RELEASE VALVE
- PROPOSED WATER METER
- PROPOSED END OF LINE PLUG [

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

Know what's **below.** **Call** before you dig.

NORTH

WATER PLAN

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

94 COXE AVENUE - SUITE 200
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-6072

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WAYNESVILLE, NC 28786
PHONE (828) 452-1410

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NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

WATER PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

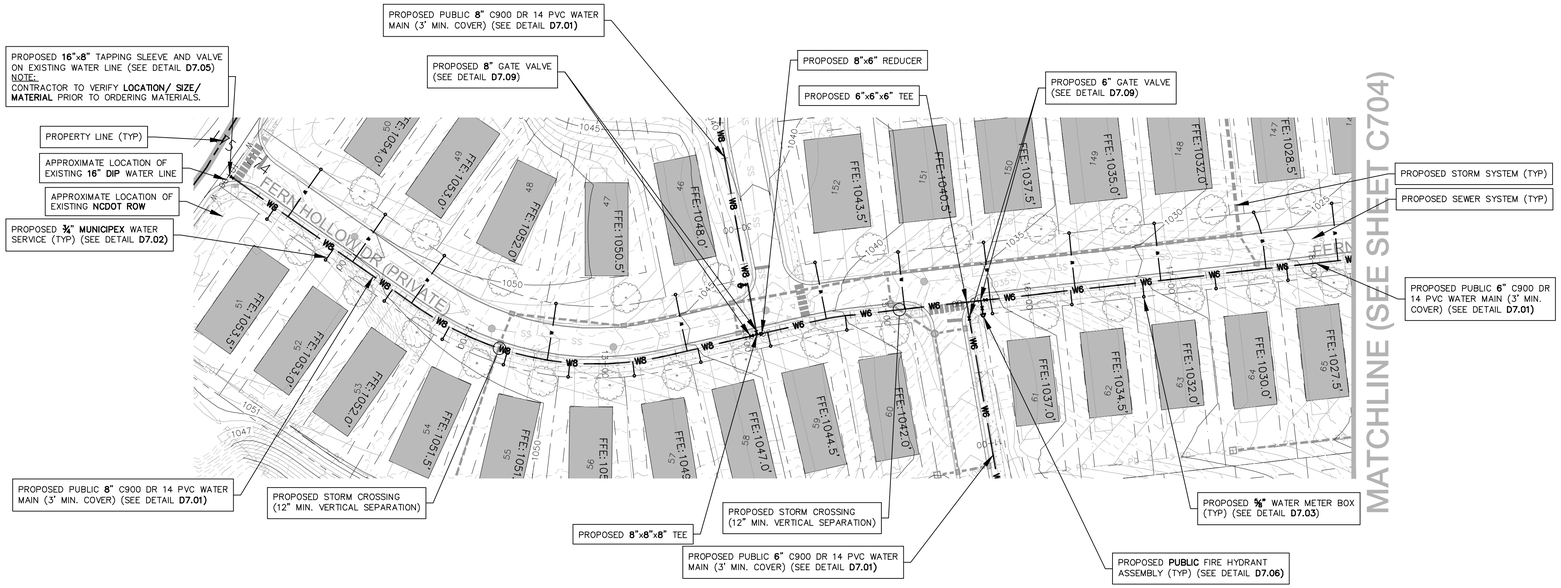
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CDC PROJECT NO.: 22145

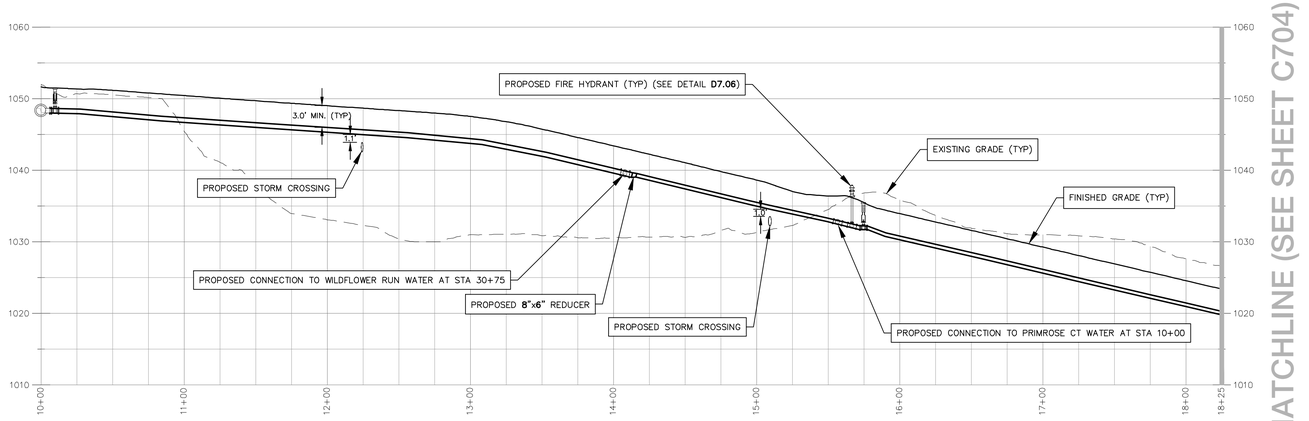
SHEET

C702

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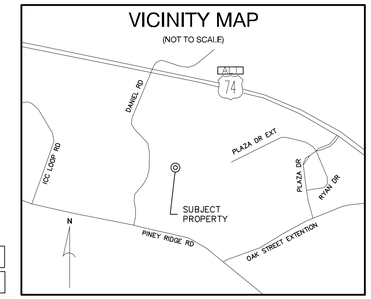
FERN HOLLOW DR WATER PROFILE

PROFILE SCALE

1 inch = 50 ft. (H) (IN FEET) 1 inch = 10 ft. (V)

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	XXXXX XXXXX XXXXX, XX XXXXX
CONTACT:	XXXXX (XXX) XXX-XXXX
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 168 PATTON AVENUE ASHEVILLE, NC 28801
CONTACT:	XXX, P.E. (828) 252-5388
SURVEYOR:	XXX XXX XXX, XX XXXX
CONTACT:	XXX (XXX) XXX-XXXX

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
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WATER LEGEND

- PROPOSED WATER LINE — W —
- PROPOSED WATER SERVICE — ▾ — ▾ — ▾ —
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE
- PROPOSED AIR RELEASE VALVE
- PROPOSED WATER METER
- PROPOSED END OF LINE PLUG [

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811 Know what's below. Call before you dig.

NORTH

WATER PLAN

GRAPHIC SCALE

(IN FEET)
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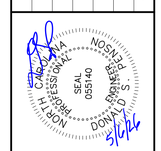
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NCBELS #: C-2184 SCLLR #: 4736

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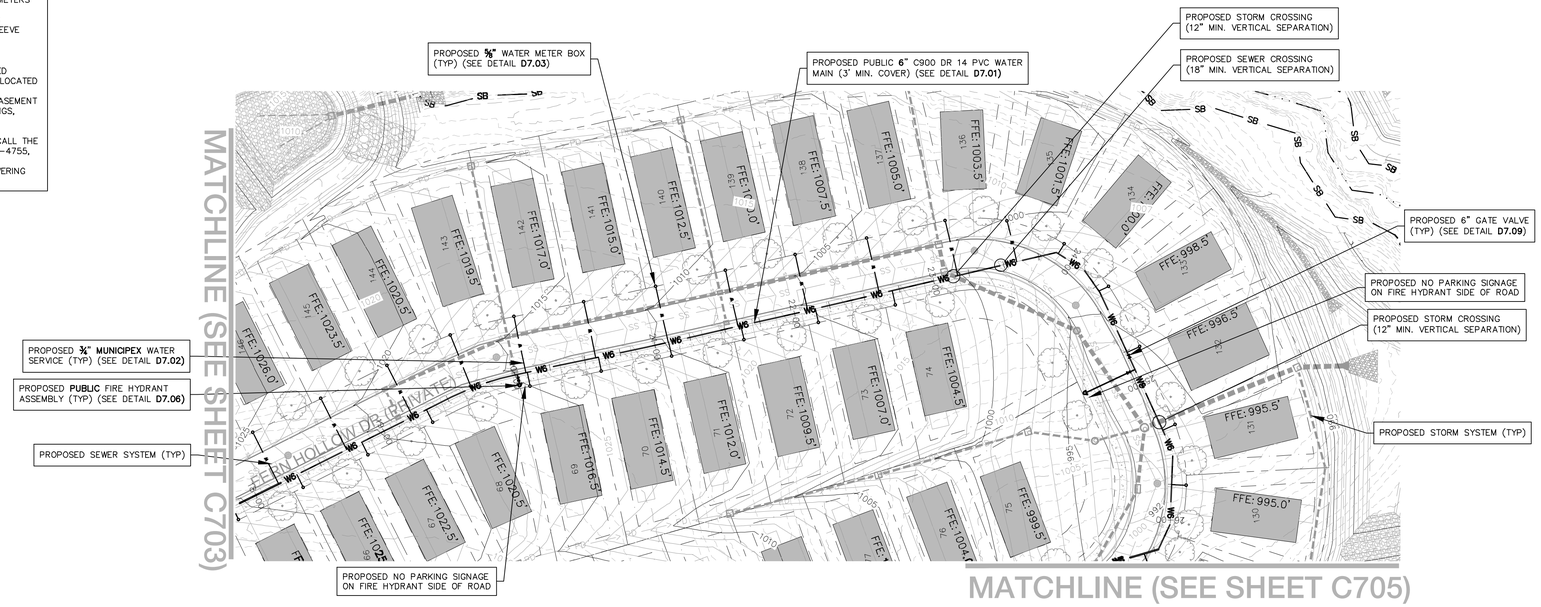
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THE PRESERVE AT BRACKETTS CREEK
DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

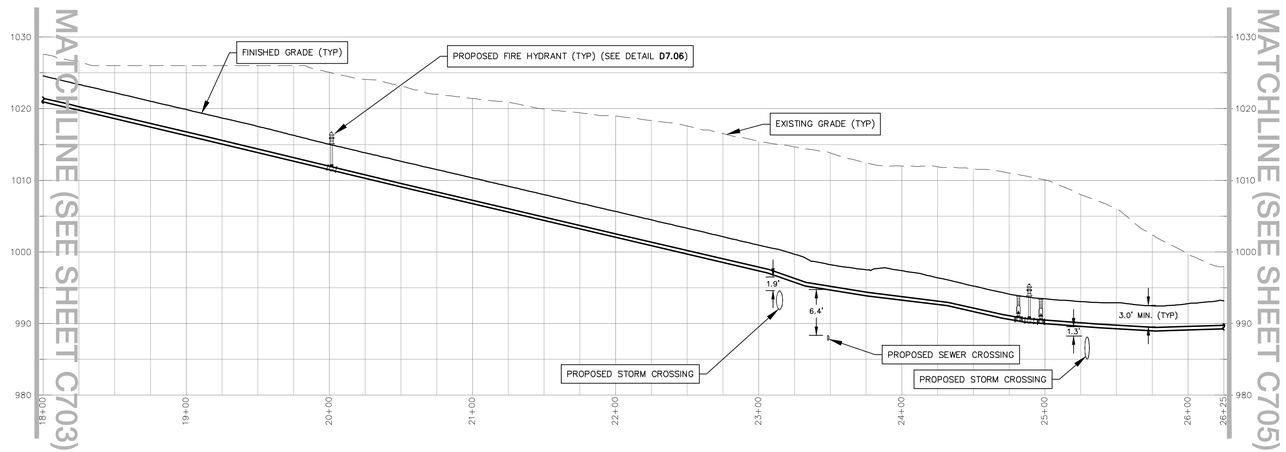
DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET
C703

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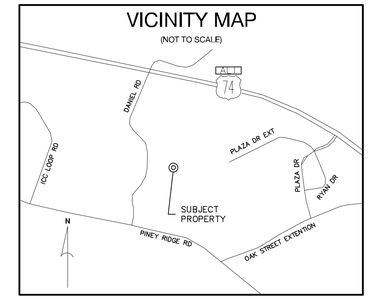
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(NOT TO SCALE)



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- PROPOSED WATER LINE — W —
- PROPOSED WATER SERVICE — ▪ — ▪ — ▪ —
- PROPOSED FIRE HYDRANT
- PROPOSED GATE VALVE
- PROPOSED AIR RELEASE VALVE
- PROPOSED WATER METER
- PROPOSED END OF LINE PLUG [

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NORTH

WATER PLAN

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

94 COXE AVENUE - SUITE 200
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-6072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-1410

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NCBELS #: C-2184 SCLLR #: 4736

NO.	DESCRIPTION	DATE	BY
5	FOREST CITY PLANNING SUBMITTAL	05/06/2026	CHL

NORTH CAROLINA PROFESSIONAL SEAL 055140 ENGINEER DONALD E. ERICSON 3/6/26

WATER PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

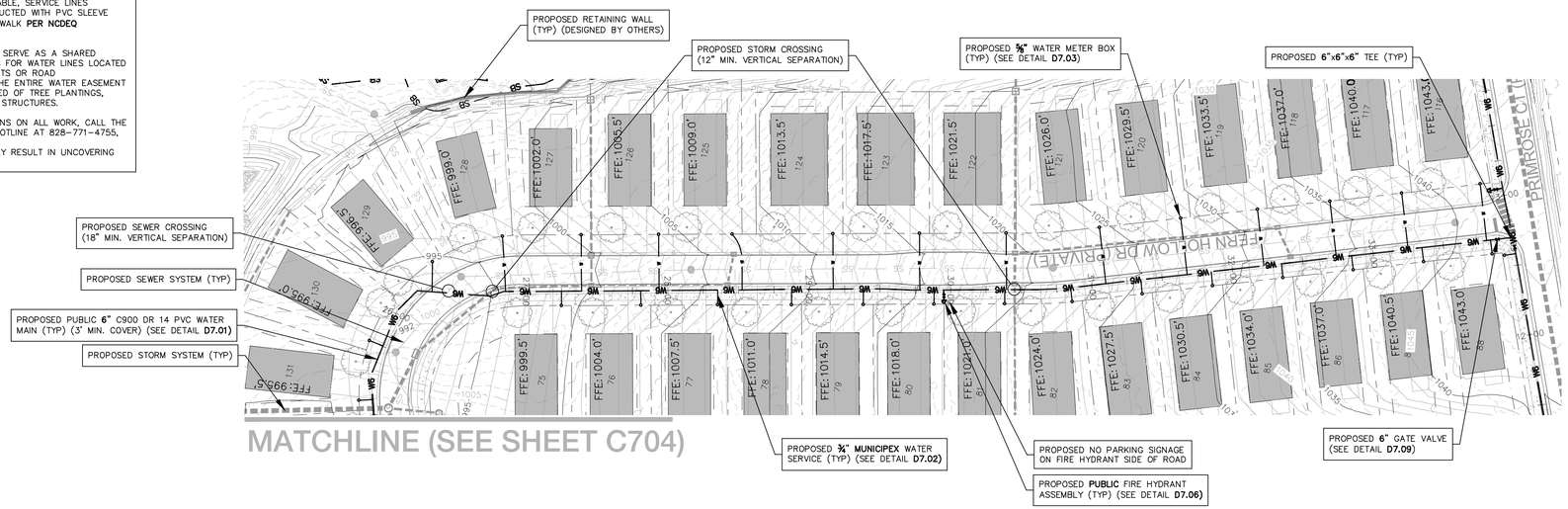
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CDC PROJECT NO.: 22145

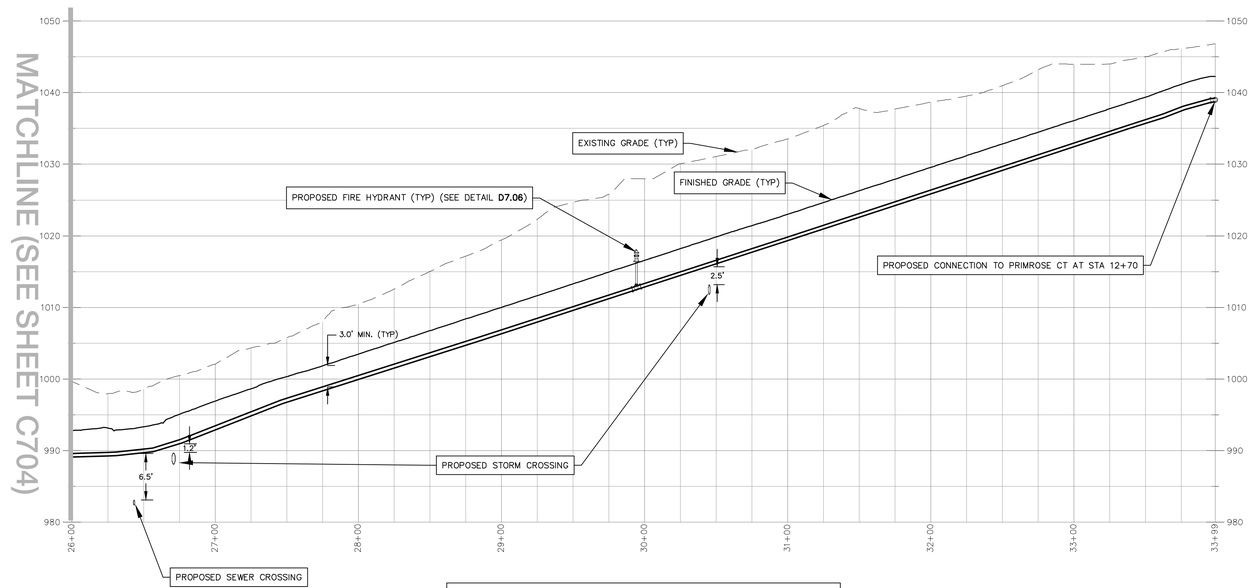
SHEET

C704

WATER NOTES

1. SEE WATER DETAIL SHEETS FOR ALL GENERAL WATER NOTES. CONTRACTOR RESPONSIBLE FOR INCLUSION OF DETAILS SHEETS WITH ALL WATER PLANS.
2. WATER METERS ARE TO BE PLACED MAXIMUM OF 5' OFF EDGE OF PAVEMENT/SIDEWALK. WHEN A UTILITY STRIP IS PRESENT, METERS SHALL BE INSTALLED WITHIN STRIP. WHEN SIDEWALK IS CONSTRUCTED AND NO STRIP IS AVAILABLE, SERVICE LINES CROSSING SIDEWALK SHALL BE CONSTRUCTED WITH PVC SLEEVE EXTENDING 6" ON EITHER SIDE OF SIDEWALK **PER NCDEQ** STANDARDS AND SPECIFICATIONS.
3. PROPOSED PRIVATE RIGHT-OF-WAY TO SERVE AS A SHARED UTILITY EASEMENT. TYPICAL EASEMENTS FOR WATER LINES LOCATED OUTSIDE ESTABLISHED UTILITY EASEMENTS OR ROAD RIGHT-OF-WAYS SHALL BE 20 FEET. THE ENTIRE WATER EASEMENT MUST BE CLEAR AND REMAINED CLEARED OF TREE PLANTINGS, EXISTING TREES, AND ANY PERMANENT STRUCTURES.
4. TO SCHEDULE THE REQUIRED INSPECTIONS ON ALL WORK, CALL THE CIVIL DESIGN CONCEPTS INSPECTIONS HOTLINE AT 828-771-4755, OR EMAIL AT INSPECTIONS@CDCGO.COM. FAILURE TO SCHEDULE INSPECTIONS MAY RESULT IN UNCOVERING OR REDOING WORK.





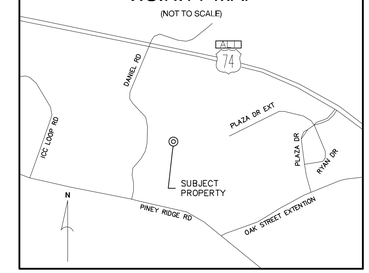
FERN HOLLOW DR WATER PROFILE

PROFILE SCALE

1 inch = 50 ft. (H) (IN FEET) 1 inch = 10 ft. (V)

VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	ALTITUDE AT BIRCH HILL LLC 333 N GREENE STREET, SUITE 200 GREENSBORO, NC 27401
CONTACT:	BRIAN WISE (336) 698-6750
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 84 COXE AVENUE - SUITE 260 ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388
SURVEYOR:	XXX XXX XXX, XX XXXX
CONTACT:	XXX (XXX) XXX-XXXX

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	PINEY RIDGE RD (UNADDRESSED)
DEED BOOK/PAGE:	963/50
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.0± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	14.4 ACRES (30%)
PERVIOUS AREA:	47.4 ACRES (100%)	33.0 ACRES (70%)

WATER LEGEND

PROPOSED WATER LINE	W
PROPOSED WATER SERVICE	
PROPOSED FIRE HYDRANT	
PROPOSED GATE VALVE	
PROPOSED AIR RELEASE VALVE	
PROPOSED WATER METER	
PROPOSED END OF LINE PLUG	

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

Know what's **below.** **Call** before you dig.

NORTH

WATER PLAN

GRAPHIC SCALE

(IN FEET)
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NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD G. PENSON
5/6/26

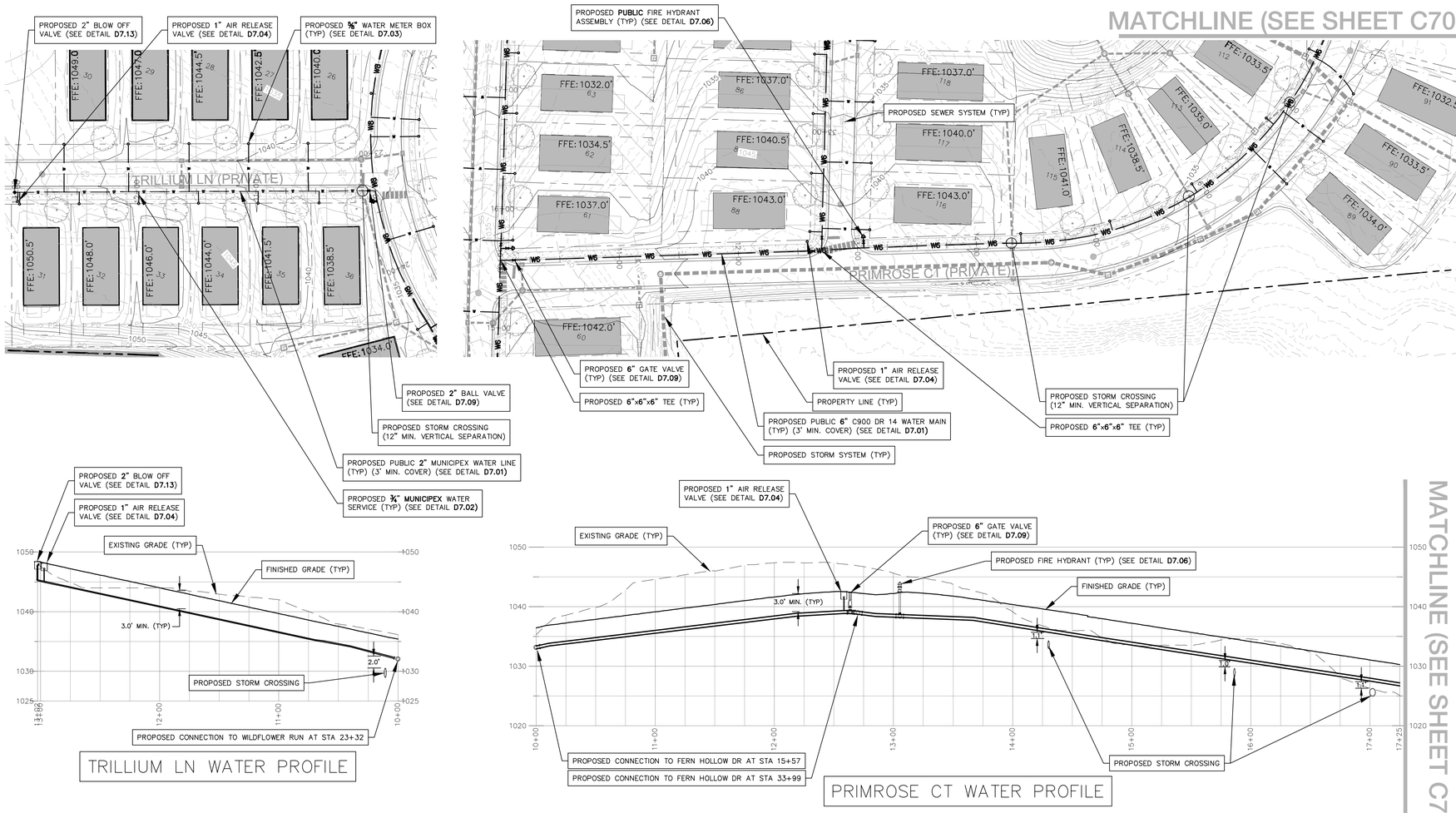
WATER PLAN FOR:
THE PRESERVE AT BRACKETTS CREEK
DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET
C705

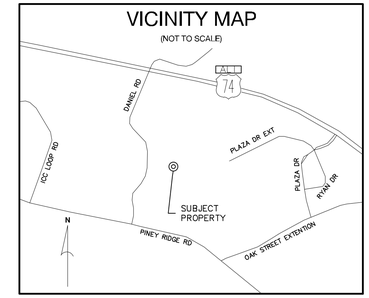
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(NOT TO SCALE)



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- PROPOSED GATE VALVE
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- PROPOSED WATER METER
- PROPOSED END OF LINE PLUG

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NORTH

WATER PLAN

GRAPHIC SCALE

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(IN FEET)

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD RAY PENSON 5/6/26

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THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

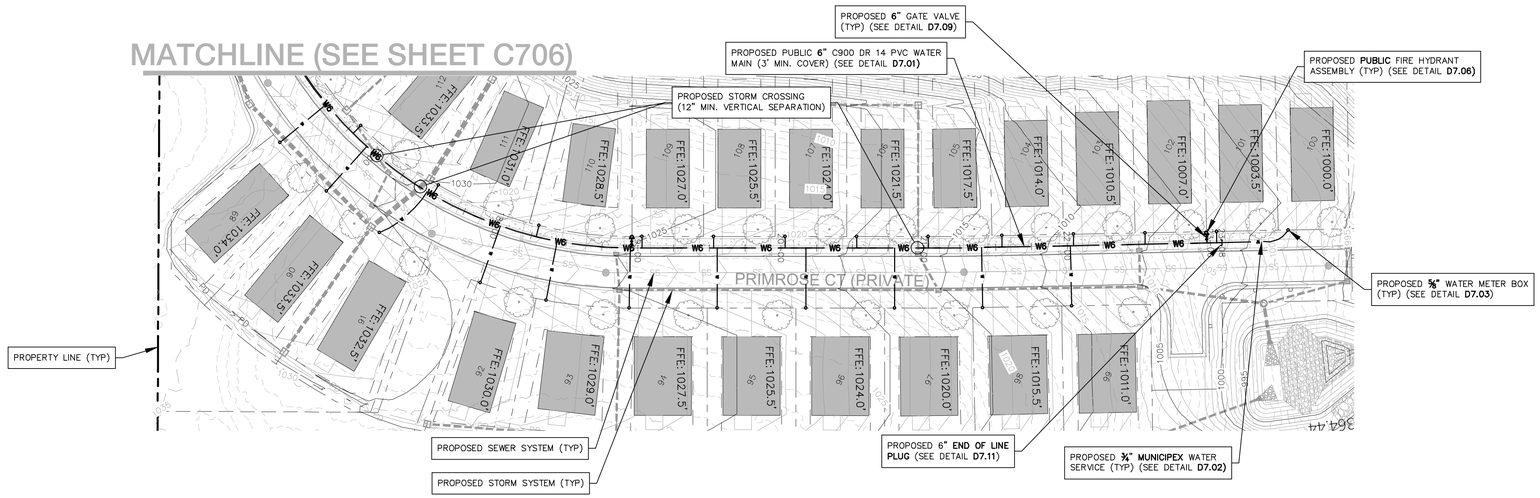
DRAWN BY: CHL
CDC PROJECT NO.: 22145

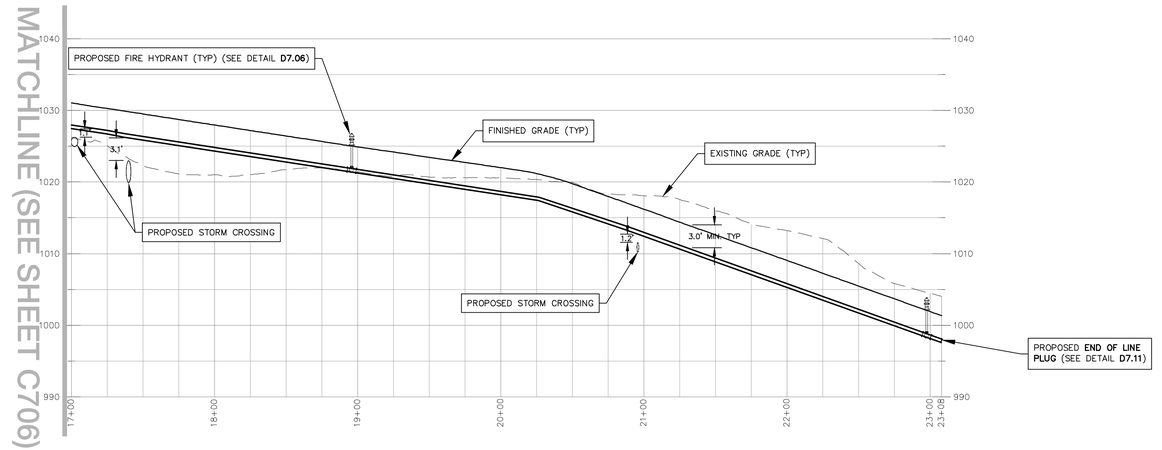
SHEET

C706

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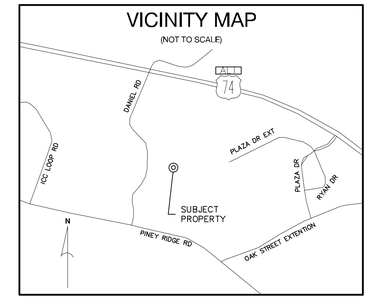




PRIMROSE CT WATER PROFILE

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- PROPOSED AIR RELEASE VALVE
- PROPOSED WATER METER
- PROPOSED END OF LINE PLUG [

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811 Know what's **below.** **Call** before you dig.

NORTH

WATER PLAN

GRAPHIC SCALE

(IN FEET)
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD PENSON

5/6/26

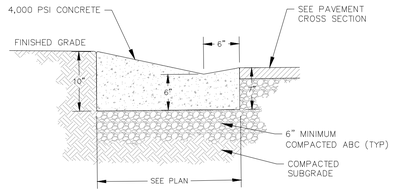
WATER PLAN FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD, BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET
C707

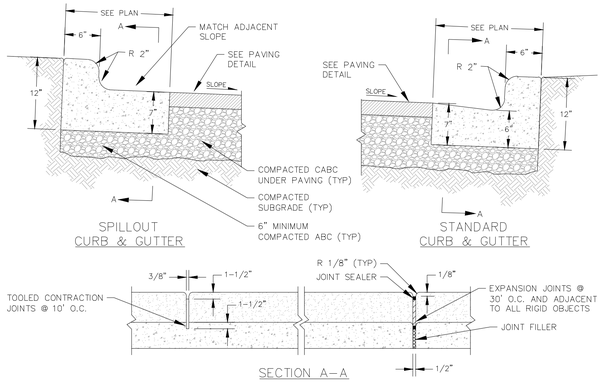


NOTES:

1. CURB SHALL BE CONSTRUCTED WITH 4000 PSI CONCRETE
2. SURFACE SHALL BE GIVEN A LIGHT BROOM FINISH WITH THE BRUSH MARKS PARALLEL TO THE CURB
3. SUB-GRADE SHALL BE COMPACTED TO 98% OF MODIFIED PROCTOR TEST
4. CABC SHALL BE COMPACTED TO 100% OF MODIFIED PROCTOR TEST

D2.01 VALLEY CURB DETAIL

NOT TO SCALE

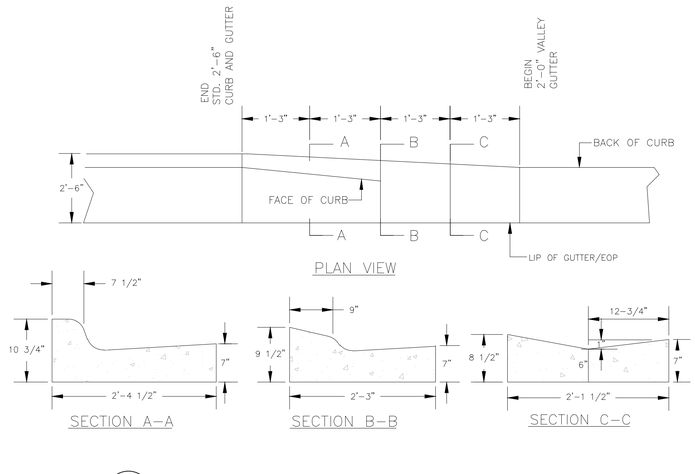


CONSTRUCTION NOTES:

1. CURB SHALL BE CONSTRUCTED WITH 4000 PSI CONCRETE
2. SURFACE SHALL BE GIVEN A LIGHT BROOM FINISH WITH THE BRUSH MARKS PARALLEL TO THE CURB.
3. SUB-GRADE SHALL BE COMPACTED TO 98% OF MODIFIED PROCTOR TEST
4. CABC SHALL BE COMPACTED TO 100% OF MODIFIED PROCTOR TEST
5. WHEN ADJACEBT SURFACE CONVEYS DRAINAGE AWAY FROM THE CURB, CONTRACTOR IS TO USE SPILLOUT CURB & GUTTER.

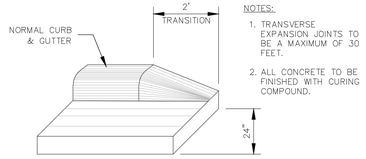
D2.02 CURB & GUTTER DETAIL

NOT TO SCALE



D2.03 CURB TRANSITION 30" STANDARD CURB AND GUTTER TO 24" VALLEY GUTTER

NOT TO SCALE



NOTES:

1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 30 FEET.
2. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.

CURB & GUTTER END TREATMENT

NOT TO SCALE

D2.04

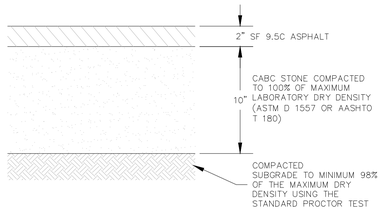


NOTES:

1. SIGN SHALL HAVE WHITE LETTERS ON A RED REFLECTIVE BACKGROUND.
2. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.

D2.05 STOP SIGN DETAIL

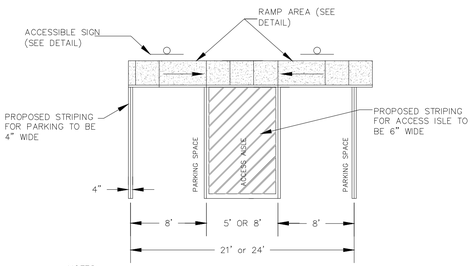
NOT TO SCALE



TYPICAL LIGHT DUTY PAVEMENT CROSS SECTION

NOT TO SCALE

D2.06

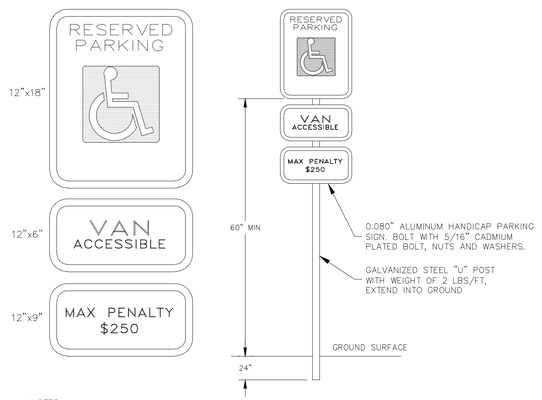


NOTES:

1. ACCESS AISLE FOR CARS SHALL BE 5' AND FOR VANS 8'
2. ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.

D2.07 STRIPING AND ACCESSIBLE PARKING DETAIL

NOT TO SCALE

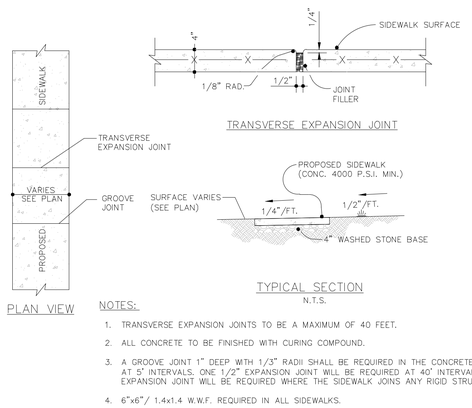


NOTES:

1. RESERVED PARKING SIGN SHALL INCLUDE A WHITE WHEELCHAIR SYMBOL ON A BLUE SQUARE.
2. SIGNS SHALL HAVE A GREEN LEGEND AND BORDER ON A WHITE BACKGROUND.
2. SIGNS IDENTIFYING VAN PARKING SPACES SHALL CONTAIN THE DESIGNATION "VAN ACCESSIBLE".
3. ALL SIGNS AND STRIPING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.

D2.08 ACCESSIBLE PARKING SPACE SIGN

NOT TO SCALE

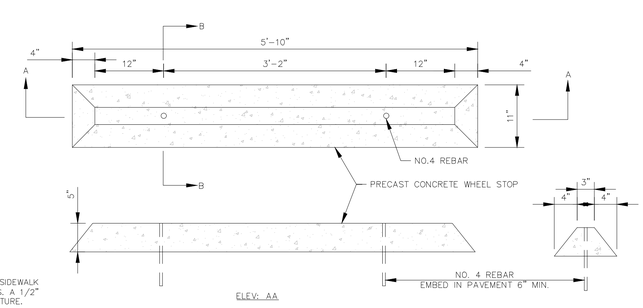


NOTES:

1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 40 FEET.
2. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.
3. A GROOVE JOINT 1" DEEP WITH 1/3" RADII SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 40' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
4. 6"x6"/ 1.4x1.4 W.W.F. REQUIRED IN ALL SIDEWALKS.

D2.09 SIDEWALK DETAIL

NOT TO SCALE



D2.10 WHEEL STOP DETAIL

NOT TO SCALE

SITE DETAILS

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5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 CHARLES H. LEDFORD JR. 5/6/26

SITE DETAILS FOR:

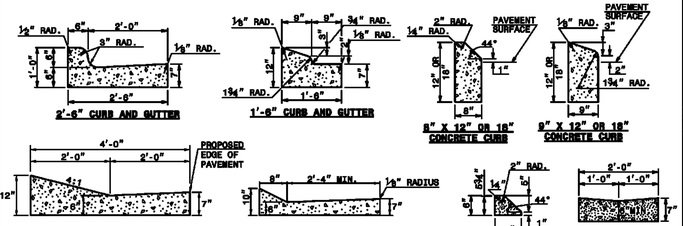
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DRAWN BY: CHL
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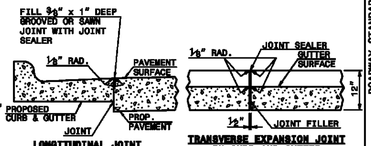
SHEET

C921



SECTION VIEW OF CURBS OR CURBS AND GUTTERS

GENERAL NOTES:
-PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
-JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
-CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
-FILL ALL CONSTRUCTION JOINTS, EXCEPT IN 8"x6" MEDIAN CURB, WITH JOINT FILLER AND SEALER.
-SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



SECTION VIEW OF JOINTS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER

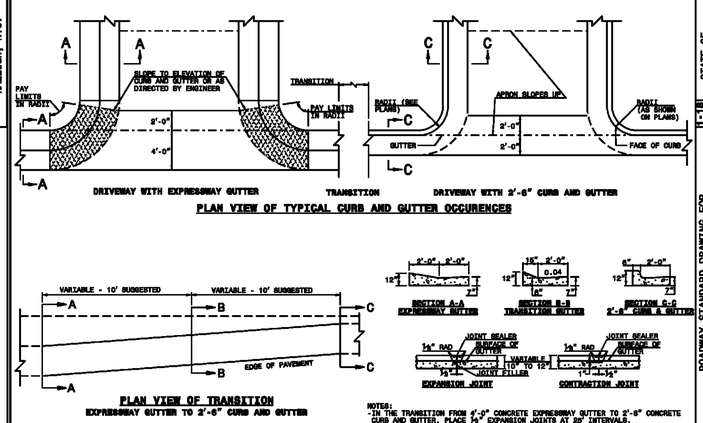
SHEET 1 OF 9
846.01



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER

SHEET 2 OF 9
846.01



NOTES:
-IN THE TRANSITION FROM 4'-0" CONCRETE EXPRESSWAY GUTTER TO 2'-6" CONCRETE CURB AND GUTTER, PLACE ½" EXPANSION JOINTS AT 10' INTERVALS.
-PLACE GROOVE JOINTS 1" DEEP AT 10'-0" INTERVALS BETWEEN EXPANSION JOINTS.
-FILL AND SEAL THE TOP 1½" OF THE EXPANSION JOINTS AND 1" OF CONTRACTION JOINTS WITH APPROVED JOINT SEALING COMPOUND.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER

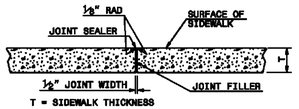
SHEET 3 OF 9
846.01

NOTES:

CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

PLACE A GROOVE JOINT 1" DEEP WITH ½" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE ½" EXPANSION JOINT WILL BE REQUIRED AT 60' INTERVALS. A ½" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.

SEE STD. DWG. 848.05 FOR CURB RAMP LOCATION REQUIREMENTS AND CONSTRUCTION GUIDELINES.



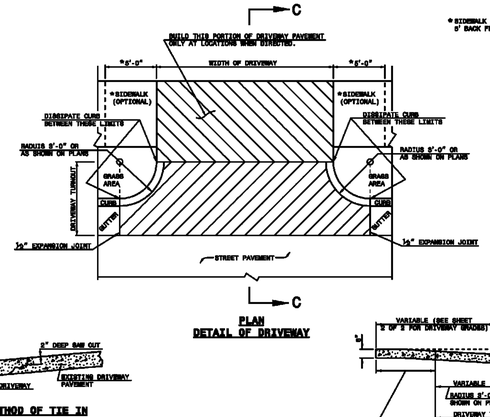
TRANSVERSE EXPANSION JOINT IN SIDEWALK

DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK

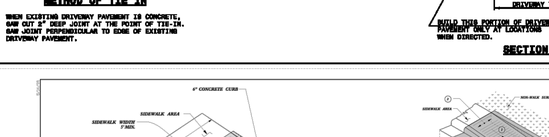
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR CONCRETE SIDEWALK

SHEET 1 OF 1
848.01



* SIDEWALK TAPERS DOWN 9" BACK FROM DRIVEWAY.

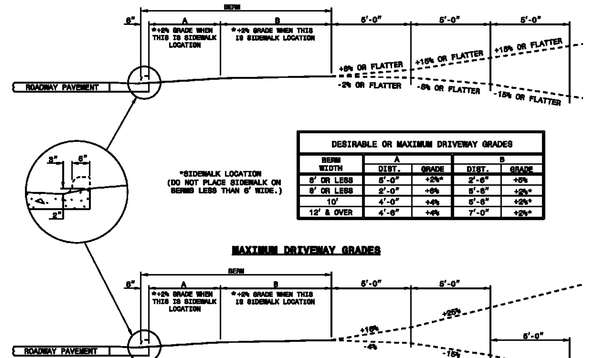


WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE, SAW CUT 6" DEEP JOINT AT THE POINT OF TIE-IN. SAW JOINT PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR DRIVEWAY TURNOUT RADIUS TYPE

SHEET 1 OF 2
848.02



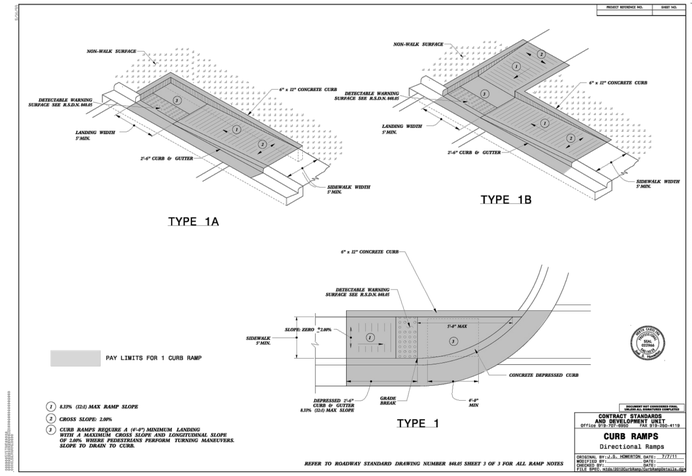
DESIRABLE OR MAXIMUM DRIVEWAY GRADES

BERM WIDTH	A DIST.	A GRADE	B DIST.	B GRADE
8' OR LESS	5'-0"	+25%	2'-6"	+5%
8' OR LESS	2'-0"	+6%	5'-6"	+25%
10'	4'-0"	+4%	5'-6"	+25%
12' & OVER	4'-6"	+4%	7'-0"	+25%

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR DRIVEWAY TURNOUT DRIVEWAY GRADES

SHEET 2 OF 2
848.02



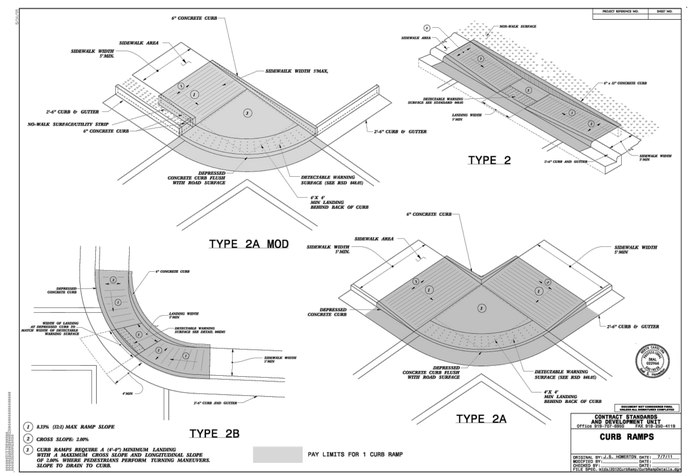
1. 8.3% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00%. WHERE PEDESTRIANS PERFORM TURNING MANEUVERS, SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.01 SHEET 3 OF 3 FOR ALL RAMP NOTES

CONTRACT STANDARDS AND DEVELOPMENT
(919) 715-5511 FAX (919) 250-4119

CURB RAMPS
Directional Ramps

ORIGINAL BY: J.S. HOMERTON DATE: 7/7/11
MODIFIED BY: DATE:
FILE NAME: K:\DOT\CONTRACT\Roadway\Curb Ramps\848.01(12)a.dgn

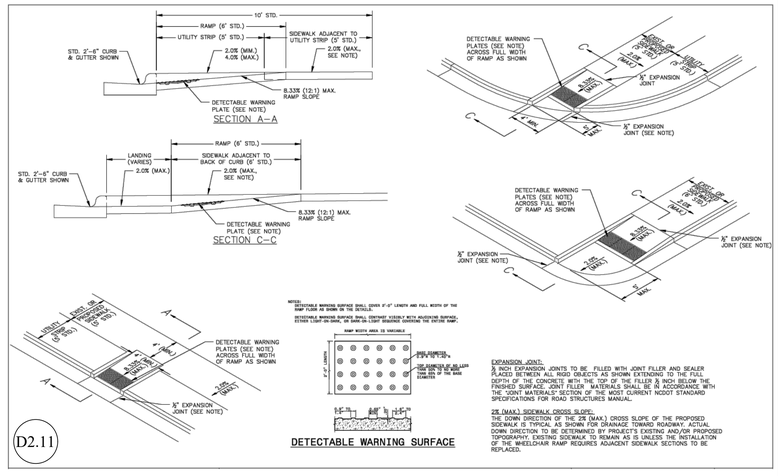


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CONTRACT STANDARDS AND DEVELOPMENT
(919) 715-5511 FAX (919) 250-4119

CURB RAMPS

ORIGINAL BY: J.S. HOMERTON DATE: 7/7/11
MODIFIED BY: DATE:
FILE NAME: K:\DOT\CONTRACT\Roadway\Curb Ramps\848.01(12)b.dgn



NOTES:
DETECTABLE WARNING SURFACE SHALL COVER 5'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN IN THE DETAIL.
DETECTABLE WARNING SURFACE SHALL BE PRECAST DETAILED WITH RECESSED SURFACE-APPLIED TRUNCATED DOMES AS SHOWN IN DETAIL. LIGHT-REFLECTANCE VALUE (LRV) SHALL BE 70 OR GREATER.

EXPANSION JOINT:
¾ INCH EXPANSION JOINTS TO BE FILLED WITH JOINT FILLER AND SEALER PLACED BETWEEN ALL RIGID OBJECTS AS SHOWN EXTENDING TO THE FULL DEPTH OF THE CONCRETE AND ½" BELOW THE FINISHED SURFACE. JOINT FILLER & SEALER SHALL BE INSTALLED IN ACCORDANCE WITH THE "JOINT MATERIALS" SECTION OF THE MOST CURRENT NCDOT STANDARD SPECIFICATIONS FOR ROAD STRUCTURES MANUAL.

2% (MAX.) SIDEWALK CROSS SLOPE:
THE DOWN DIRECTION OF THE 2% (MAX.) CROSS SLOPE OF THE PROPOSED SIDEWALK IS TYPICAL AS SHOWN FOR DRAINAGE TOWARD ROADWAY. ACTUAL DOWN DIRECTION TO BE DETERMINED BY PROJECT'S EXISTING AND/OR PROPOSED TOPOGRAPHY. EXISTING SIDEWALK TO REMAIN AS IS UNLESS THE INSTALLATION OF THE WHEELCHAIR RAMP REQUIRES ADJACENT SIDEWALK SECTIONS TO BE REPLACED.

DETECTABLE WARNING SURFACE

94 COVE AVENUE - SUITE 260
ASHEVILLE, NC 28803
PHONE (828) 252-3388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-1410

CDC Civil Design Concepts, PA
www.cdcpa.com
NCBELS #: C-2164 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 JOSEPH DONALD LEE 5/6/2026

SITE DETAILS FOR:

THE PRESERVE AT BRACKETTS CREEK

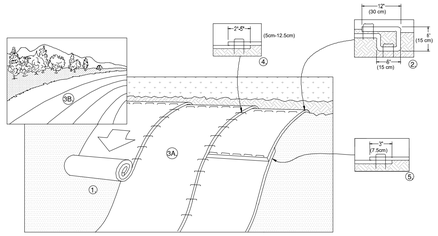
DANIEL ROAD BY LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22145

SHEET

C922

SITE DETAILS



SLOPE INSTALLATION

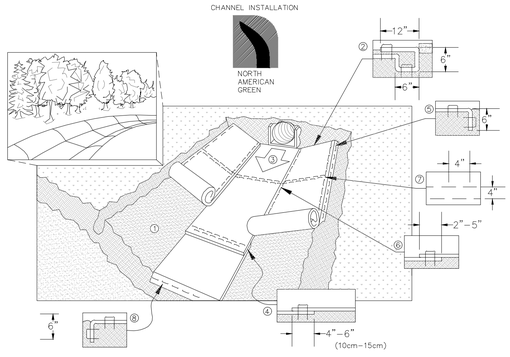
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM™ STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH™ ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

MAINTENANCE NOTES:

1. INSPECT ROLLED EROSION CONTROL PRODUCTS (RECP) AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY.
2. GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, AND EROSION MUST NOT OCCUR BENEATH THE RECP.
3. ANY AREAS OF THE RECP THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
4. IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED.
5. MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.

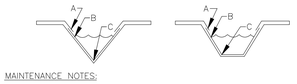
NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

D3.01 **EROSION CONTROL SLOPE MATTING INSTALLATION**
NOT TO SCALE



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5cm-12.5cm) (DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9m-12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES



NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

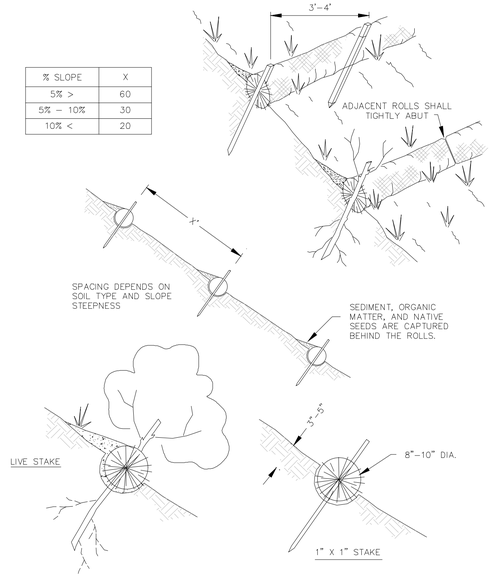
16449 HIGHWAY 31 NORTH, EVANSVILLE, INDIANA 47725
USA 1-800-772-2040
CANADA 1-800-448-2040
www.rogrsen.com

MAINTENANCE NOTES:

1. INSPECT ROLLED EROSION CONTROL PRODUCTS (RECP) AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY.
2. GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, AND EROSION MUST NOT OCCUR BENEATH THE RECP.
3. ANY AREAS OF THE RECP THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
4. IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED.
5. MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.

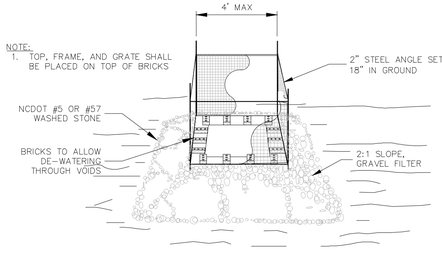
D3.04 **CHANNEL LINER INSTALLATION**
NOT TO SCALE

% SLOPE	X
5% >	60
5% – 10%	30
10% <	20

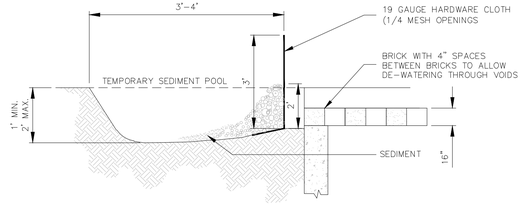


NOTES:
1. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"-5" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.
2. STRAW ROLLS MUST BE PLACED ALONG SLOPE CONTOURS.

D3.02 **STRAW WATTLES**
NOT TO SCALE



NOTE:
1. TOP, FRAME, AND GRATE SHALL BE PLACED ON TOP OF BRICKS



CONSTRUCTION NOTES:

1. LAY BRICK ALONG TOP OF CATCH BASIN WITH 4" SPACES BETWEEN BRICKS. SET FRAME AND GRATE ON BRICKS.
2. CAREFULLY FIT HARDWARE WIRE OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS AROUND CATCH BASIN TO HOLD GRAVEL IN PLACE.
3. USE CLEAN GRAVEL, 3/4- TO 1/2-INCH IN DIAMETER, PLACED 2 INCHES BELOW THE TOP OF THE GRATE ON A 2:1 SLOPE OR FLATTER AND SMOOTH IT TO AN EVEN GRADE. DOT #57 WASHED STONE IS RECOMMENDED.
4. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP.
5. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
6. THE STRUCTURE SHALL BE INSPECTED BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT AFTER EACH STORM EVENT AND REPAIRS MADE AS NECESSARY.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.
8. THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE BASIN HAS BEEN PROPERLY STABILIZED.
9. ON LARGER DRAINAGE AREAS RIP RAP MAY BE REQUIRED UNDER THE WASHED STONE

D3.05 **STONE INLET PROTECTION**
NOT TO SCALE

PERMANENT SEEDING MEASURES

ALL PERMANENT MEASURES ARE TO BE PERFORMED IN STRICT ACCORDANCE WITH REQUIREMENTS OF NCDEQ. THE FOLLOWING APPLY TO AREAS WITHIN NCDEQ PERMANENT SEEDING MIXTURE AREA #1M:

SEEDING MIXTURE (FLATTER THAN 3:1):

SPECIES	RATE (LB/ACRE)
TALL FESCUE	100
PANICUM VIRGATUM	10
REDTOP	5
KENTUCKY BLUEGRASS	5

NO MOW MIXTURE (3:1 AND STEEPER)
34% BOREAL CREEPING RED FESCUE
33% RESOLUTE HARD FESCUE
33% AZURE SHEEP'S FESCUE

NURSE PLANTS:
BETWEEN MAY 1 AND AUG. 15, ADD 10 LB/ACRE GERMAN MILLET OR 15 LB/ACRE SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 LB/ACRE RYE (GRAIN). IT MAY BE BENEFICIAL TO PLANT THE GRASSES IN LATE SUMMER AND OVERSEED THE SWITCHGRASS IN MARCH.

SEEDING DATES:

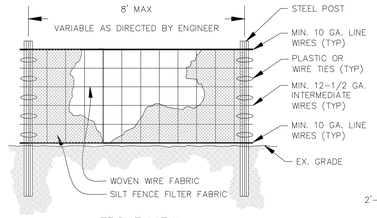
	BEST	POSSIBLE
BELOW 2500 FT:	AUG. 15 – SEPT. 1 MAR. 1 – APR. 1	JULY 25 – SEPT 15 MAR. 1 – MAY 10
ABOVE 2500 FT:	JULY 25 – AUG. 15 MAR. 20 – APR. 20	JULY 15 – AUG. 30 MAR. 5 – MAY 15

COMPLETE SEEDING EARLIER IN FALL, AND START LATER IN SPRING ON NORTH- AND EAST-FACING SLOPES.

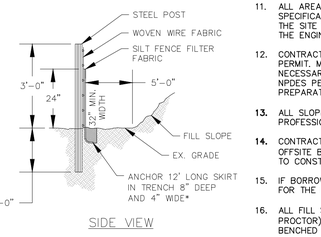
SOIL AMENDMENTS:
APPLY LIME AND FERTILIZER ACCORDING TO THE RESULTS OF A NC DEPARTMENT OF AGRICULTURE SOIL TEST

MULCH:
APPLY 4,000–5,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCHING MATERIAL. ANCHOR MULCH BY TACKING WITH ASPHALT, ROVING, OR NETTING. NETTING IS THE PREFERRED ANCHORING METHOD ON STEEP SLOPES.

MAINTENANCE:
MOW NO MORE THAN ONCE A YEAR. REFERTILIZE IN THE SECOND YEAR UNLESS GROWTH IS FULLY ADEQUATE. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.



FRONT VIEW



SIDE VIEW

MATERIALS NOTES:

1. USE A SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFINS OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS IN ASTM D 6461, WHICH IS SHOWN IN PART IN TABLE 6.62b OF THE NCDENR EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.
2. SYNTHETIC FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USUABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 TO 120°F.
3. ENSURE THAT POSTS FOR SEDIMENT FENCES ARE 1.33 LB/LINEAR FT STEEL WITH A MINIMUM LENGTH OF 5 FEET. MAKE SURE THAT STEEL POSTS HAVE PROJECTIONS TO FACILITATE FASTENING THE FABRIC.
4. FOR REINFORCEMENT OF STANDARD STRENGTH FILTER FABRIC, USE WIRE FENCE WITH A MINIMUM 14 GAUGE AND A MAXIMUM MESH SPACING OF 6 INCHES.

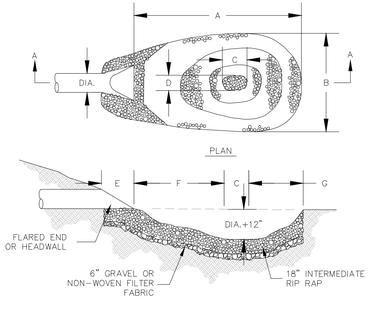
CONSTRUCTION NOTES:

1. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 4" MIN. OVERLAP TO THE NEXT POST.
2. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE RENFORCEMENT, THEN THE FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC TIES SHOULD HAVE A MIN. 50 lb TENSILE STRENGTH.
3. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.
4. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

MAINTENANCE NOTES:

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

D3.03 **SILT FENCE**
NOT TO SCALE



PIPE SIZE	A	B	C	D	E	F	G	WT. RIP RAP (TONS)
15"	10'	7'	1'-1/2'	1'	1'	4'-1/2'	3'	6
18"	12'	8'	2'	1'	1'	5'	4'	8
21"	15'	9'	2'-1/2'	1'-1/2'	1'	7'	4'-1/2'	12
24"	17'	10'	2'-1/2'	1'-1/2'	1'	8'	5'-1/2'	15
30"	20'	13'	3'	2'	2'	9'	6'	22
36"	24'	16'	3'-1/2'	2'	2'	9'-1/2'	7'	33

D3.06 **PLUNGE POOL**
NOT TO SCALE

GENERAL NOTES FOR EROSION CONTROL

1. ALL GRADING AND SOIL EROSION CONTROL MEASURES ON THIS SITE MUST BE AUTHORIZED BY PERMITS ISSUED BY **NCDEQ**. ALL SITEWORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL REGULATORY STANDARDS AND ALL REQUIREMENTS IN THE PROJECT TECHNICAL SPECIFICATIONS.
2. CONTRACTOR TO VERIFY WITH ENGINEER THAT THE REQUIRED GRADING, EROSION CONTROL, LAND DISTURBANCE, AND ASSOCIATED NON-GRADING PERMITS HAVE BEEN OBTAINED PRIOR TO BEGINNING CONSTRUCTION.
3. ALL CONSTRUCTION SHALL BE UNDER THE INSPECTION OF THE ENGINEER, THE OWNER, **AND NCDEQ**. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 72 HOURS PRIOR TO BEGINNING WORK. ANY WORK COVERED PRIOR TO ENGINEER'S INSPECTION IS SUBJECT TO UNCOVERING AND BACKFILLING AT THE CONTRACTOR'S EXPENSE.
4. ALL WORK MUST BE PERFORMED BY A **NORTH CAROLINA** LICENSED CONTRACTOR.
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING THE EXACT LOCATION AND ELEVATION FOR ALL UTILITIES PRIOR TO CONSTRUCTION; AND TO NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL BURIED UTILITIES HAVE NOT BEEN SHOWN ON THE PLANS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION.
6. PROTECT EXISTING SITE FEATURES (SHOWN TO REMAIN) AND NEWLY COMPLETED WORK DURING CONSTRUCTION. ANY DAMAGE INCURRED DURING OR RESULTING FROM CONSTRUCTION ACTIVITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES, AS WELL AS THE PROJECT PLANS AND SPECIFICATIONS, AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR IS TO NOTIFY ALL UTILITY COMPANIES AT LEAST 72 HOURS BEFORE CONSTRUCTION ACTIVITY IS TO BEGIN. THE CONTRACTOR SHALL NOTIFY NC ONE CALL AT **811**, 48 HOURS BEFORE CONSTRUCTION BEGINS. NOTIFY THE ENGINEER AT LEAST 72 HOURS BEFORE STARTING CONSTRUCTION ACTIVITIES.
8. EROSION CONTROL IS A FIELD PERFORMANCE BASED ACTIVITY; AND CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL SILT FENCES, TEMPORARY SEDIMENT BASINS, AND OTHER MEASURES IF THE APPROVED CONTROL MEASURES PROVE INSUFFICIENT. MEASURES SHOWN CAN AND SHOULD BE ADJUSTED TO ASSURE MAXIMUM PROTECTION ON SITE. CONTRACTOR SHALL ADD ADDITIONAL MEASURES AS NEEDED IN ENVIRONMENTALLY SENSITIVE AREAS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO KEEP ALL DIRT OUT OF STREAMS AND OFF PAVED ROADS.
9. CONTRACTOR IS RESPONSIBLE FOR INSTALLING, MAINTAINING, AND REMOVING ALL NECESSARY EROSION AND SEDIMENTATION CONTROL MEASURES.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ADJUSTMENT OF ALL UTILITY SURFACE ACCESSES WHETHER THE CONTRACTOR PERFORMS THE WORK OR A UTILITY COMPANY PERFORMS THE WORK.
11. ALL AREAS WHERE THERE IS EXPOSED DIRT SHALL BE SEEDED, FERTILIZED AND MULCHED ACCORDING TO THE SPECIFICATIONS NOTES IN THE PLANS. SITE STABILIZATION IS A PERFORMANCE BASED REQUIREMENT, AND THE SITE WILL NOT BE ACCEPTED UNTIL PERMANENT VEGETATION IS ESTABLISHED TO THE SATISFACTION OF THE ENGINEER.
12. CONTRACTOR RESPONSIBLE FOR KEEPING ACCURATE LOG OF SITE CONDITIONS IN ACCORDANCE WITH NPDES PERMIT. MAINTENANCE INSPECTIONS SHALL BE PERFORMED WEEKLY AND AFTER EACH RAINFALL. ALL REPAIRS NECESSARY SHOULD BE MADE IMMEDIATELY AND IN STRICT ACCORDANCE WITH **NCDEQ STANDARDS** AND NPDES PERMIT. CONTRACTOR SHALL SUPPLY THE ENGINEER WITH RECORD OF DEVIATIONS FROM PLANS FOR PREPARATION OF FINAL RECORD DRAWINGS.
13. ALL SLOPES GREATER THAN 2:1 SLOPE AND OVER 5' IN HEIGHT SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL AS REQUIRED BY **NCDEQ**.
14. CONTRACTOR IS REQUIRED TO OBTAIN AND PROVIDE A COPY OF THE EROSION CONTROL PERMIT FOR ANY OFFSITE BORROW/ SPOIL AREA. CONTRACTOR MUST PROVIDE COPY OF PERMIT TO **NCDEQ** INSPECTOR PRIOR TO CONSTRUCTION.
15. IF BORROWED OR WASTE FILL MATERIAL IS GENERATED, AN APPROVED GRADING PERMIT MUST BE SECURED FOR THE BORROW OR WASTE MATERIAL SITE PRIOR TO INITIATION OF ANY LAND DISTURBING ACTIVITY
16. ALL FILL SLOPES SHALL BE COMPACTED FULL DEPTH TO NOT LESS THAN 95% MAXIMUM DENSITY (STANDARD PROCTOR), SHALL BE PLACED ON A SURFACE CLEARED OF GROWTH AND DEBRIS, AND BE PROPERLY BENCHED AND DRAINED.
17. ALL FILL MATERIAL, UNLESS A PERMIT FROM NCDEQ DIVISION OF WASTE MANAGEMENT TO OPERATE A LANDFILL IS ON FILE FOR THE OFFICIAL SITE, SHALL BE FREE OF ORGANIC OR OTHER DEGRADABLE MATERIALS, MASONRY, CONCRETE AND BRICK SIZES EXCEEDING 12 INCHES, AND ANY MATERIALS WHICH COULD CAUSE THE SITE TO BE REGULATED AS A LANDFILL BY THE STATE OF NORTH CAROLINA.

TEMPORARY SEEDING MEASURES

ALL TEMPORARY MEASURES ARE TO BE PERFORMED IN STRICT ACCORDANCE WITH REQUIREMENTS OF NCDEQ.

SEED AND MULCH DENUDED AREA WITHIN EITHER 7 CALENDAR DAYS (SLOPES GREATER THAN 3:1) OR 14 CALENDAR DAYS (3:1 OR FLATTER). AFTER FINISHED GRADE ARE ESTABLISHED, TEMPORARY SEEDING AND SOIL AMENDMENTS SHALL BE PLACED ON A PREPARED SEEDBED AT THE FOLLOWING RATES PER ACRE.

LIME	2,000 LBS
FERTILIZER (10–10–10)	1,000 LBS
STRAW MULCH	4,000 LBS

FOR LATE WINTER/EARLY SPRING SEEDING ADD TO THE ABOVE:

RYE GRAIN	120 LBS
SWITCHGRASS	50 LBS (OMIT IF COVER IS NOT TO EXTEND BEYOND JUNE)

FOR SUMMER SEEDING ADD:

GERMAN MILLET	40 LBS

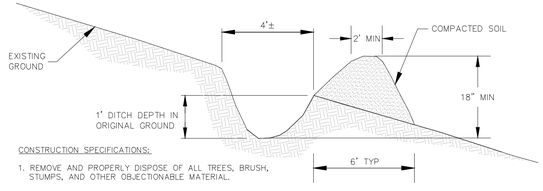
FOR FALL ADD:

RYE GRAIN	120 LBS

IF HYDROSEEDING IS USED, WOOD CELLULOSE MAY BE SUBSTITUTED FOR STRAW MULCH AT THE RATE OF 1,000 LBS PER ACRE.

MAINTAIN SOIL EROSION CONTROL MEASURES UNTIL PERMANENT GROUND COVER IS ESTABLISHED.

REMOVE SOIL EROSION CONTROL MEASURES AND STABILIZE THE REMAINING AREA



CONSTRUCTION SPECIFICATIONS:

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.
3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS THE SPECIFIED SETTLEMENT.
4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE RE-GRADING AND CLEAN OUT.
5. CONSTRUCT ALL TEMPORARY DIVERSION DITCHES WITH A MINIMUM 2% SLOPE.
5. VEGETATE THE RIDGE IMMEDIATELY AFTER CONSTRUCTION, UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS.

D3.07 **TEMPORARY DIVERSION DITCH**
NOT TO SCALE

EROSION CONTROL DETAILS

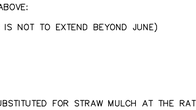
84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 214-0972

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 456-4410

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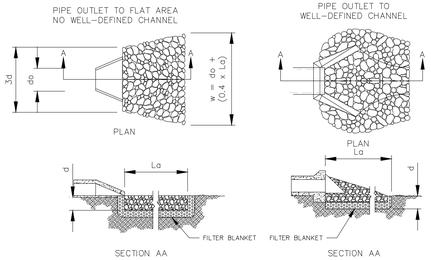
NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL



EROSION CONTROL DETAILS FOR:
THE PRESERVE AT BRACKETTS CREEK
DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C931



NOTES:

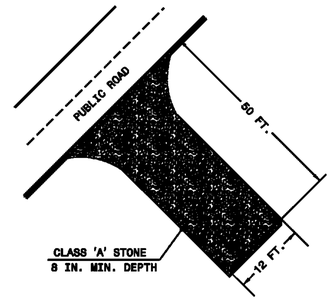
1. La IS THE LENGTH OF THE RIP RAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (MINIMUM IS 24" DEEP IF STONE IS CLASS II)
3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIP RAP AND SOIL FOUNDATION.
5. COMPACT ANY REQUIRED FILL TO DENSITY OF SURROUNDING UNDISTURBED MATERIAL.
6. RIP RAP MAY BE FIELDSTONE OR ROUGH QUARRY STONE AND SHALL BE HARD, ANGULAR AND WELL-GRADED.
7. CONSTRUCT APRON AT ZERO GRADE. TOP OF RIP RAP SHALL BE LEVEL WITH THE RECEIVING CHANNEL OR SLIGHTLY LOWER.
8. ALIGN APRON WITH RECEIVING CHANNEL OR STREAM. ASSURE APRON IS STRAIGHT THROUGHOUT ITS LENGTH.
9. END WIDTH OF APRON TO BE EQUAL TO WIDTH OF RECEIVING CHANNEL.

D3.08 RIP-RAP APRON

NOT TO SCALE

PERMANENT RIP RAP APRONS					
RIP-RAP ID	La (FT)	W (FT)	d50 (FT)	T (FT)	STONE CLASS
A0	15	17.5	0.70	1.50	B
A1	10	11.0	0.50	1.50	B
A2	20	23.0	0.75	1.50	B
B0	20	23.0	2.00	3.00	2
C0	16	18.0	0.70	1.50	B
C1	10	11.0	0.50	1.50	B
C2	10	11.0	0.50	1.50	B
D0	13	15.0	0.50	1.50	B
E0	13	15.0	1.40	2.10	2
F0	15	17.0	0.95	1.50	1
G0	20	23.0	1.20	1.80	2
H0	20	23.0	1.20	1.80	2
K0	13	14.5	0.60	1.50	B
N0	10	11.5	1.10	1.65	2
P0	14	15.25	0.75	1.50	B
R0	10	11.25	0.75	1.50	B
Z1	20	23.0	1.20	1.80	2

TEMPORARY RIP RAP APRONS					
RIP-RAP ID	La (FT)	W (FT)	d50 (FT)	T (FT)	STONE CLASS
A2	20	23.0	0.60	1.50	B
C2	20	23.0	0.70	1.50	B



NOTES

1. PROVIDE TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS.
2. LOCATE ENTRANCES TO PROVIDE FOR UTILIZATION BY ALL CONSTRUCTION VEHICLES.
3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY.
4. ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY.
5. LOCATE GRAVEL CONSTRUCTION ENTRANCE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. PROVIDE FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE.
6. NUMBER AND LOCATION OF CONSTRUCTION ENTRANCES TO BE DETERMINED BY THE ENGINEER.
7. USE CLASS 'A' STONE OR OTHER COARSE AGGREGATE APPROVED BY THE ENGINEER.
8. INSTALL CONSTRUCTION ENTRANCES IN A WAY TO PREVENT VEHICLES FROM BYPASSING CONSTRUCTION ENTRANCE LEAVING PROJECT SITE.

NOTE: PLACE GEOTEXTILE FOR DRAINAGE BENEATH STONE

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

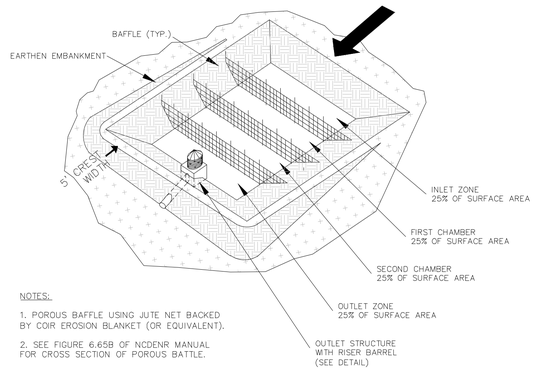
1-1B

ROADWAY STANDARD DRAWING FOR
GRAVEL CONSTRUCTION ENTRANCE

SHEET 1 OF 1
1607.01

MAINTENANCE NOTES:

INSPECT TEMPORARY SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN IT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH. PLACE REMOVED SEDIMENT IN AN AREA WITH SEDIMENT CONTROLS. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREA.

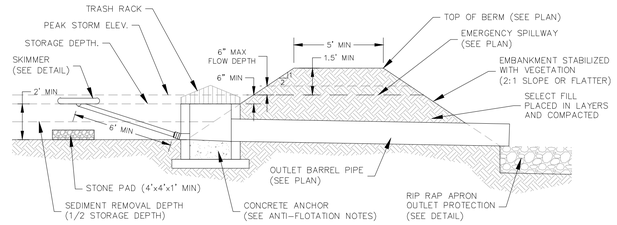


NOTES:

1. POROUS BAFFLE USING JUTE NET BACKED BY COIR EROSION BLANKET (OR EQUIVALENT).
2. SEE FIGURE 6.65B OF NCDENR MANUAL FOR CROSS SECTION OF POROUS BAFFLE.

D3.09 SEDIMENT TRAP / BASIN BAFFLE DETAIL

NOT TO SCALE

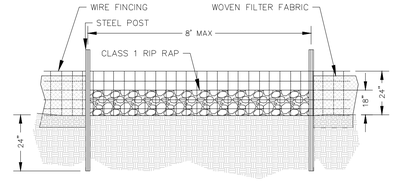


MAINTENANCE:

1. INSTALL EROSION CONTROL MEASURES ON ENTIRE BASIN (EXCEPT LOWER HALF OF SEDIMENT POOL) IMMEDIATELY AFTER COMPLETING THE BASIN.
2. INSPECT SKIMMER BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (≥ 1/2") AND MAKE ALL NECESSARY REPAIRS IMMEDIATELY.
3. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FIRST BAFFLE. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN.
4. REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM.
5. MAKE SURE THE SKIMMER IS NOT CLOGGED WITH DEBRIS. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER BASIN.
6. CHECK THE SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS. FABRIC MUST SPANS THE FULL WIDTH.
7. CHECK THE EMBANKMENT, SPILLWAYS, & OUTLET FOR EROSION DAMAGE. INSPECT EMBANKMENT FOR PIPING AND SETTLEMENT.
8. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.
9. FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.

D3.10 SKIMMER BASIN WITH STRUCTURE SECTION

NOT TO SCALE

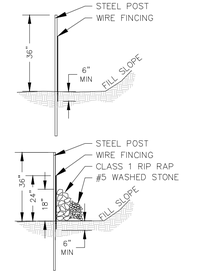


CONSTRUCTION NOTES:

1. SEE SILT FENCE AND RIP-RAP INSTALLATION REQUIREMENTS

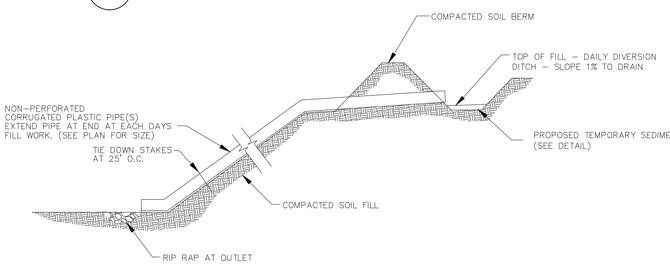
MAINTENANCE NOTES:

1. INSPECT OUTLET WEEKLY AND AFTER SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN. INSPECT RIP-RAP FOR SCOUR OR DISLODGED STONES.
3. CONTROL WEED AND BRUSH GROWTH AS NEEDED.
4. REMOVE ALL MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE AFTER CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



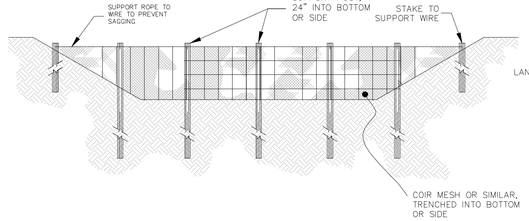
D3.11 CONCENTRATED FLOW OUTLET - SILT FENCE

NOT TO SCALE



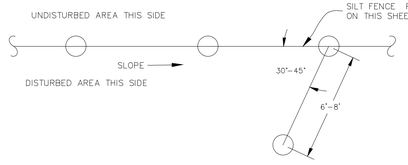
D3.12 TEMPORARY SLOPE DRAIN

NOT TO SCALE



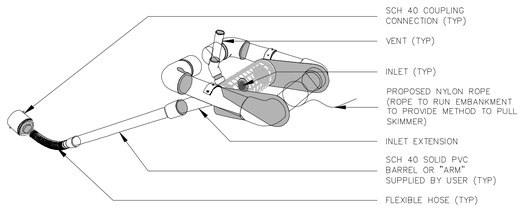
D3.15 BAFFLE DETAIL

NOT TO SCALE



D3.13 SILT FENCE J-HOOK

NOT TO SCALE



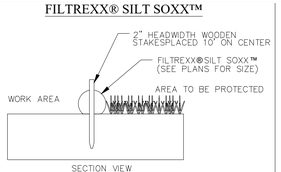
NOTES:

1. SKIMMER SHOWN IN FLOATING POSITION
2. FAIRCLOTH SKIMMER OR APPROVED EQUIVALENT
3. SKIMMER TO BE REMOVED UPON REMOVAL OF SEDIMENT TRAP
4. COUPLING CONNECTION INTO PROPOSED OUTLET STRUCTURES MUST BE SEALED UPON REMOVAL OF SKIMMER

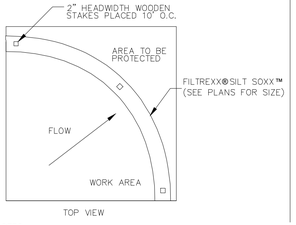
D3.16 POND SKIMMER DETAIL

NOT TO SCALE

FILTREXX® SILT SOXX™

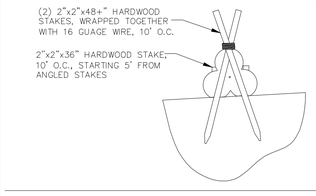


SECTION VIEW

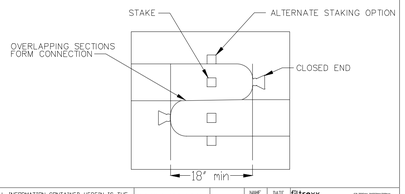


TOP VIEW

FILTREXX® PYRAMID STAKING DETAIL



COMPOST SOCK CONNECTION/ATTACHMENT DETAIL



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

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CCO		

filtrexx INTERNATIONAL
SEDIMENT AND EROSION CONTROL SOLUTIONS
DO NOT SCALE DRAWING
SHEET 1 OF 1

D3.14 FILTREXX SILT SOXX

NOT TO SCALE

EROSION CONTROL DETAILS

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5872

52 WALNUT STREET - SUITE 9
WAKEFIELD, MA 01880
PHONE (508) 405-4410

CDC Civil Design Concepts, PA
www.cdcpa.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JCR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

PROFESSIONAL ENGINEER
NORTH CAROLINA
SEAL 055140
DONALD S. PUSKAS

EROSION CONTROL DETAILS FOR:

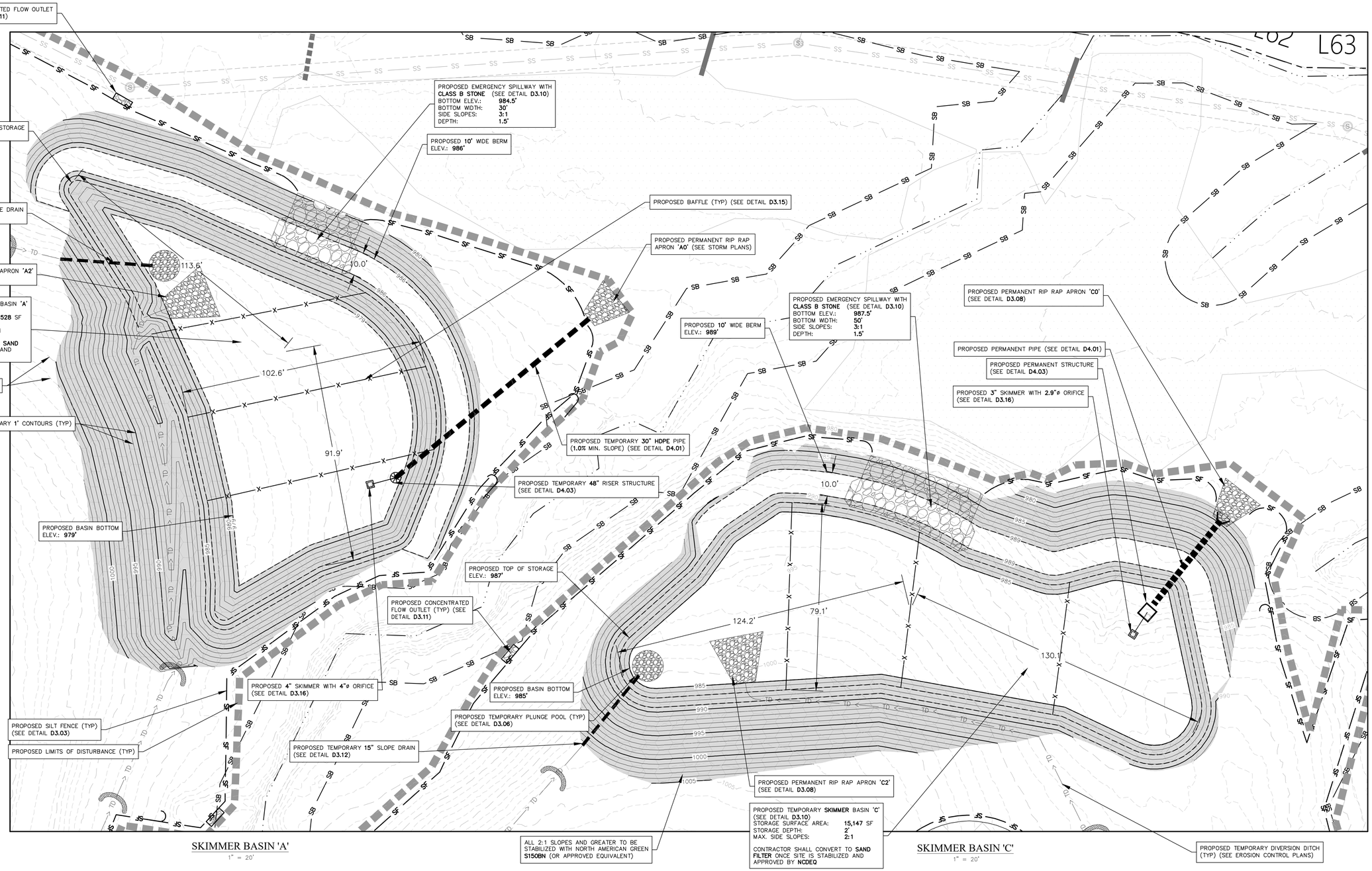
THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C932



SKIMMER BASIN 'A'
1" = 20'

SKIMMER BASIN 'C'
1" = 20'

SKIMMER BASIN INSETS

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
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110 WEST 1ST AVENUE - SUITE A
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52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 456-4410

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NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. NOSNIK
5/6/26

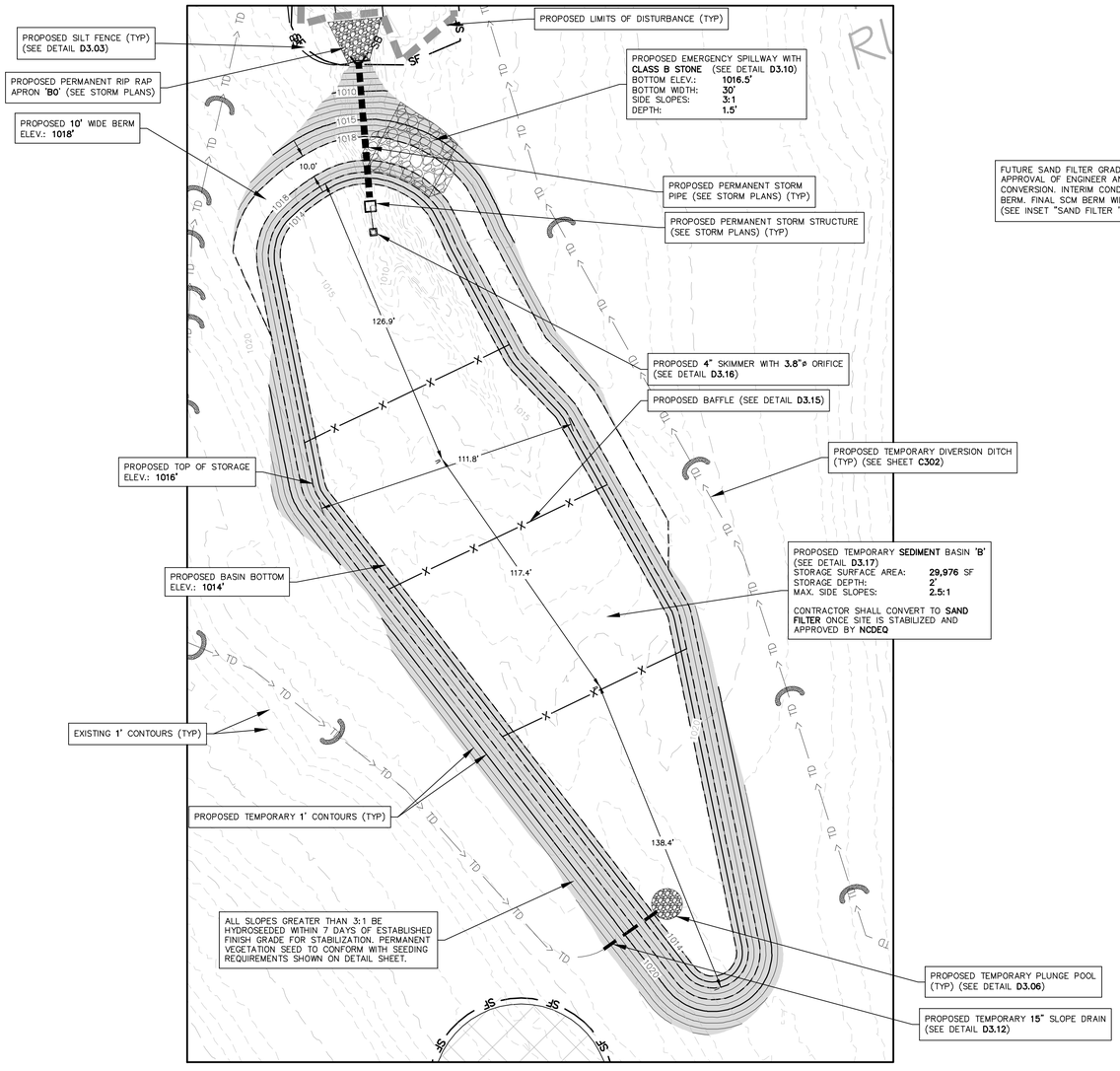
SKIMMER BASIN INSETS FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

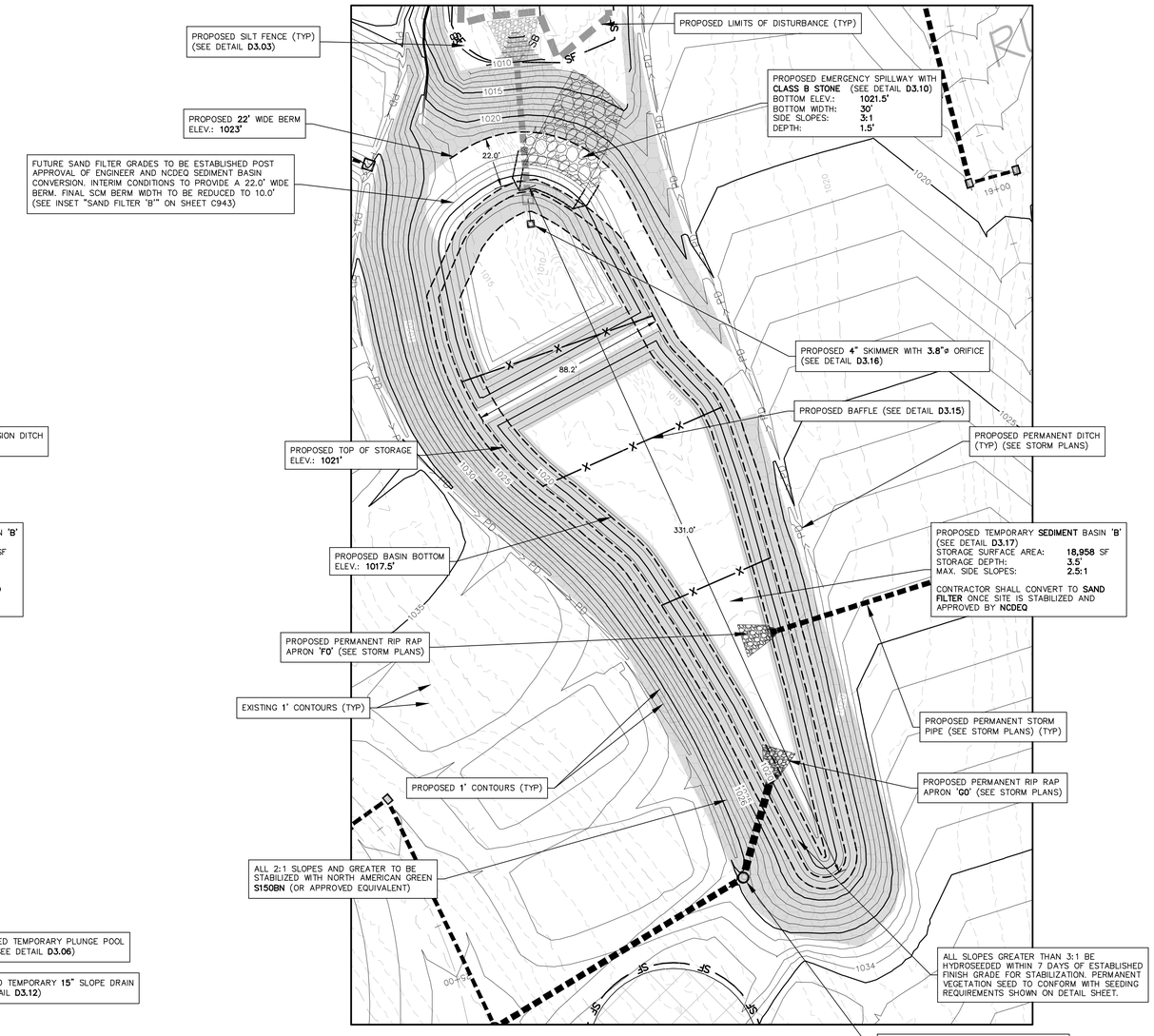
DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C933



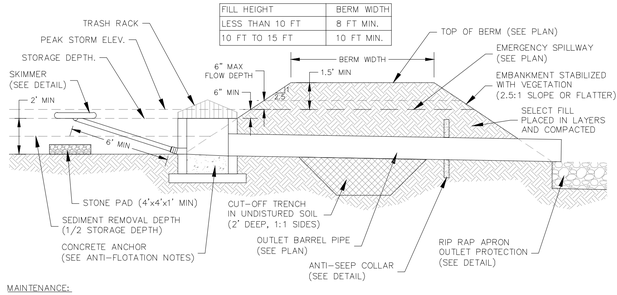
SEDIMENT BASIN 'B' - PHASE 1

1" = 30'



SEDIMENT BASIN 'B' - PHASE 2

1" = 30'



MAINTENANCE:

1. INSTALL EROSION CONTROL MEASURES ON ENTIRE BASIN (EXCEPT LOWER HALF OF SEDIMENT POOL) IMMEDIATELY AFTER COMPLETING THE BASIN.
2. INSPECT SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (≥ 1/2") AND MAKE ALL NECESSARY REPAIRS IMMEDIATELY.
3. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FIRST BAFFLE. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN.
4. REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM.
5. MAKE SURE THE SKIMMER IS NOT CLOGGED WITH DEBRIS. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER BASIN.
6. CHECK THE SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS. FABRIC MUST SPANS THE FULL WIDTH.
7. CHECK THE EMBANKMENT, SPILLWAYS, & OUTLET FOR EROSION DAMAGE. INSPECT EMBANKMENT FOR PIPING AND SETTLEMENT.
8. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.
9. FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.

D3.17 SEDIMENT BASIN SECTION

NOT TO SCALE

SKIMMER BASIN INSETS

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ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
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NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 CHARLES H. LANSON DONALD

SKIMMER BASIN INSETS FOR:

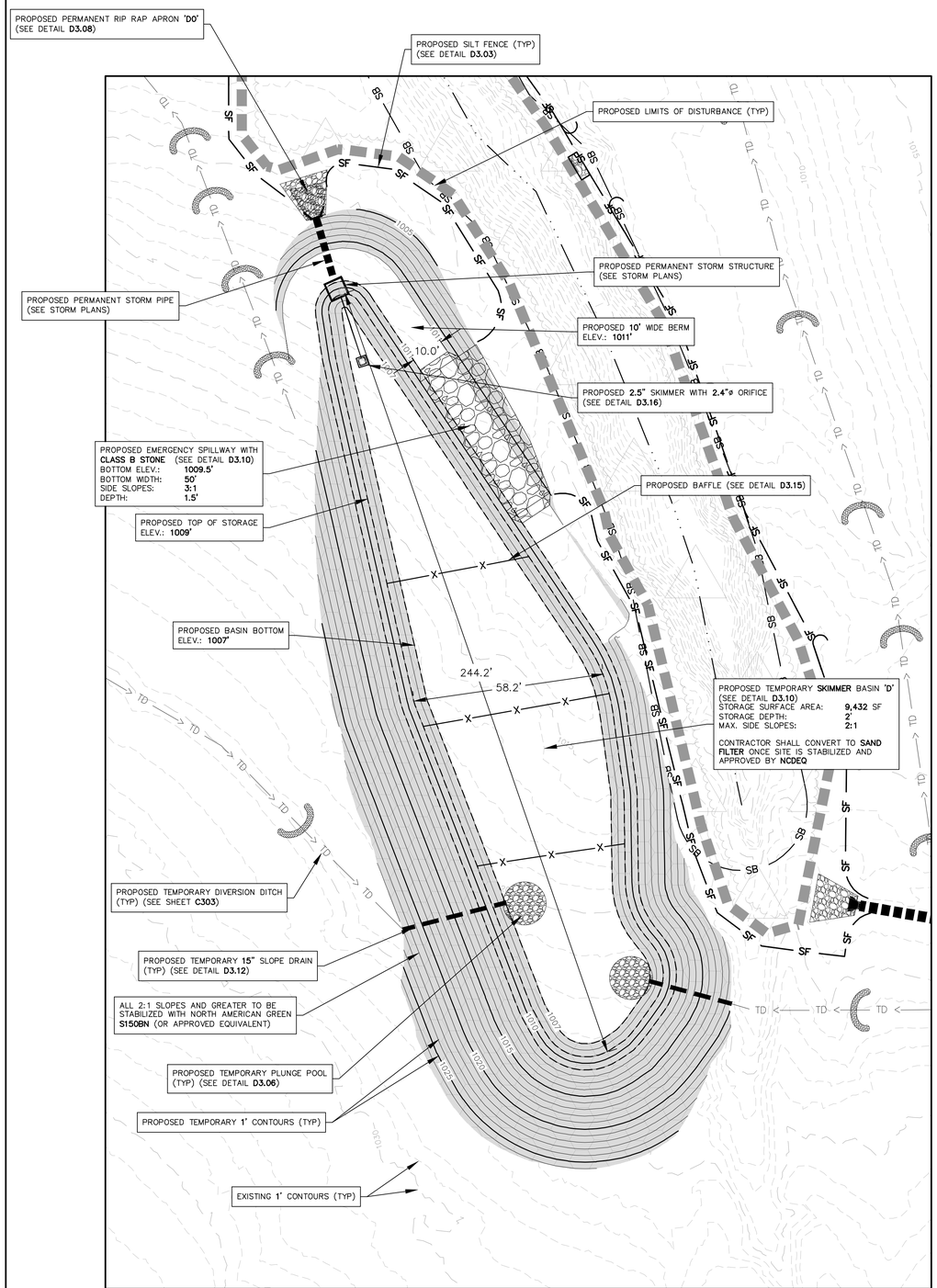
THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT, LLC – FOREST CITY, NORTH CAROLINA

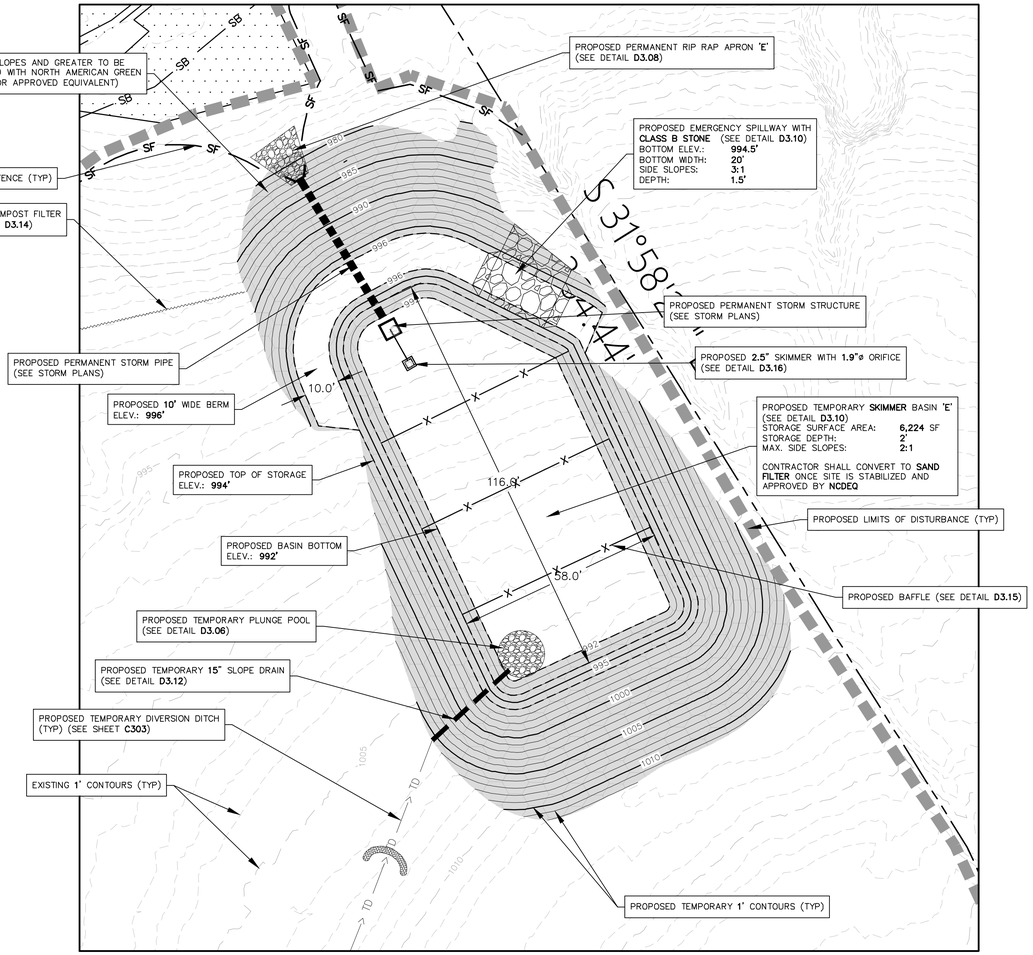
DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C934



SKIMMER BASIN 'D'
1" = 20'



SKIMMER BASIN 'E'
1" = 20'

SKIMMER BASIN INSETS

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
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110 WEST 1ST AVENUE - SUITE A
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52 WALNUT STREET - SUITE 9
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NCBELS #: C-2184 SCLLR #: 4736

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5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PARNELL
5/7/26

SKIMMER BASIN INSETS FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C935

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	**Stabilize within this many calendar days after ceasing land disturbance**	**Timeframe variations**
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

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

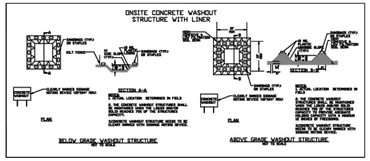
PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

NORTH CAROLINA Environmental Quality



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

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

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDCs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the streams or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

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

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours,*** an oral or electronic notification. • ***Within 7 calendar days,*** a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours,*** an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible.*** The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours,*** an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours,*** an oral or electronic notification. • ***Within 7 calendar days,*** a report that contains a description of the noncompliance, and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

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

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

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

NORTH CAROLINA Environmental Quality

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

NCG01

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-6072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 456-4410

CDC Civil Design Concepts, PA
www.cdcpc.com
NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	BY	DESCRIPTION
3	01/23/2026	JCR	NCDEQ EROSION CONTROL SUBMITTAL
4	04/16/2026	CHL	AGENCY SUBMITTALS
5	05/06/2026	CHL	FOREST CITY PLANNING SUBMITTAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PENSON
5/7/26

NCDEQ FOR:

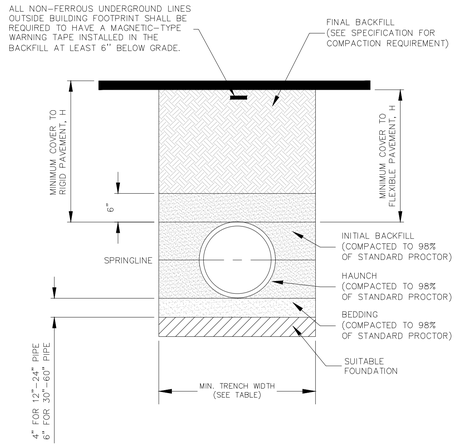
THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BY LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C939



MINIMUM TRENCH WIDTHS

PIPE DIAMETER	MIN. TRENCH WIDTH
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

MAXIMUM COVER

PIPE DIAMETER	CLASS I	CLASS II	CLASS III
12"	43'	28'	20'
15"	43'	28'	20'
18"	43'	28'	20'
24"	34'	23'	17'
30"	34'	23'	17'
36"	34'	23'	16'
42"	34'	23'	16'
48"	31'	21'	15'
54"	31'	21'	15'
60"	31'	21'	15'

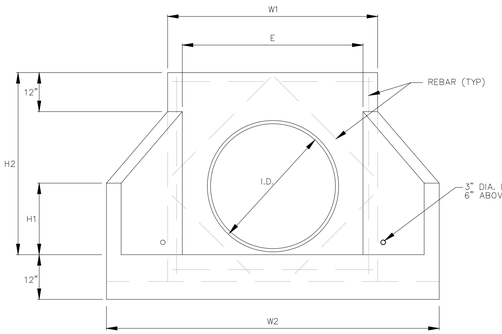
*ASSUMED PIPE BACKFILL IS PLACED AND COMPACTED TO THE REQUIRED 98% OF THE STANDARD PROCTOR

NOTES:

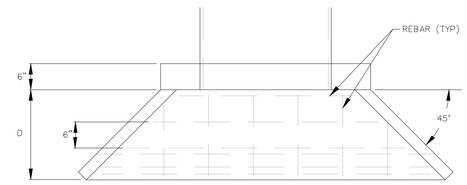
1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH LATEST EDITION OF ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", AND THE PROJECT SPECIFICATIONS.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II, OR, III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4"(100 mm) FOR 12"-24" (100 mm – 600 mm); 6"(150 mm) FOR 30"-60" (750 mm – 900 mm).
5. HAUNCHING/INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II, OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE, AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. HEAVY CONSTRUCTION LOADS MAY REQUIRE ADDITIONAL COVER TO PROTECT THE PIPE. CONTRACTOR TO VERIFY THAT CONSTRUCTION LOADS WILL NOT DAMAGE INSTALLED PIPES AND PROTECT INSTALLED PIPES IF REQUIRED.
7. MAXIMUM COVER: MAXIMUM COVER SHALL BE MEASURED FROM THE FINISHED SURFACE OF THE GROUND TO THE TOP OF THE PIPE, AND SHALL BE LESS THAN THE MAXIMUM VALUES SHOWN IN THE CHART WITHIN THIS DETAIL.

D4.01 HDPE TRENCH INSTALLATION DETAIL

NOT TO SCALE



FRONT ELEVATION



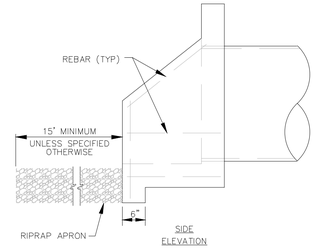
PLAN

NOTE:

1. CONCRETE HEADWALL REINFORCEMENT PER N.C.D.O.T. STANDARD NO. 838.39 REVISION A.
2. WORK MUST BE ACCOMPLISHED SO THAT WET CONCRETE DOES NOT CONTACT STREAM WATER.

D4.02 REINFORCED CONCRETE HEADWALL

NOT TO SCALE



SIDE ELEVATION

HEADWALL DIMENSIONS (METAL PIPE)

NOTE: USE NEXT LARGEST SIZE FOR CONCRETE PIPE.

INSIDE DIAMETER OF PIPE	W1	W2	H1	H2	D	E	WEIGHT	SQ. FT. BASE AREA
12"-15"-18"	3'-2"	4'-10"	1'-3"	3'-2"	1'-3"	1'-9"	1,550	7.34
21"-24"	3'-8"	6'-1"	1'-9"	3'-8"	1'-6"	2'-3"	2,100	9.90
30"	4'-2"	7'-2"	2'-0"	4'-2"	1'-10"	2'-9"	2,850	13.50
36"	4'-8"	8'-4"	2'-4"	4'-8"	2'-2"	3'-3"	3,700	17.65
42"-48"	5'-8"	10'-10"	3'-3"	5'-8"	2'-11"	4'-3"	5,600	28.60
54"-60"	6'-10"	11'-9"	3'-6"	6'-8"	3'-4"	5'-2"	7,500	36.27
66"-72"	8'-1"	12'-0"	3'-8"	7'-7"	3'-4"	6'-2"	8,500	40.00
84"-96"	9'-4"	12'-8"	4'-0"	9'-6"	3'-4"	7'-6"	10,000	44.00

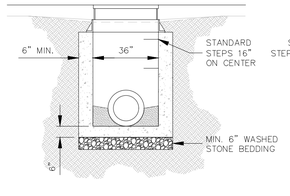
NOTE:

1. 4000 PSI CONCRETE STANDARD

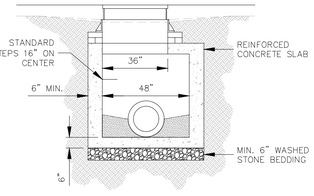
GENERAL NOTES FOR STORM

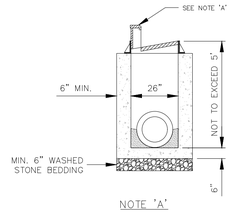
1. ALL STORM INSTALLATION ON THIS SITE MUST BE AUTHORIZED BY PERMITS ISSUED BY **NCDEQ AND THE TOWN OF FOREST CITY.** ALL SITEWORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL REGULATORY STANDARDS AND ALL REQUIREMENTS IN THE PROJECT TECHNICAL SPECIFICATIONS.
2. CONTRACTOR TO VERIFY WITH ENGINEER THAT THE REQUIRED STORMWATER, AND ASSOCIATED NON-GRADING PERMITS HAVE BEEN OBTAINED PRIOR TO BEGINNING CONSTRUCTION.
3. ALL CONSTRUCTION SHALL BE UNDER THE INSPECTION OF THE ENGINEER, THE OWNER, **NCDEQ, AND THE TOWN OF FOREST CITY.** THE CONTRACTOR SHALL NOTIFY THE ENGINEER 72 HOURS PRIOR TO BEGINNING WORK. ANY WORK COVERED PRIOR TO ENGINEER'S INSPECTION IS SUBJECT TO UNCOVERING AND BACKFILLING AT THE CONTRACTOR'S EXPENSE.
4. ALL WORK MUST BE PERFORMED BY A **NORTH CAROLINA** LICENSED CONTRACTOR.
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING THE EXACT LOCATION AND ELEVATION FOR ALL UTILITIES PRIOR TO CONSTRUCTION; AND TO NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL BURIED UTILITIES HAVE NOT BEEN SHOWN ON THE PLANS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION.
6. PROTECT EXISTING SITE FEATURES (SHOWN TO REMAIN) AND NEWLY COMPLETED WORK DURING CONSTRUCTION. ANY DAMAGE INCURRED DURING OR RESULTING FROM CONSTRUCTION ACTIVITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES, AS WELL AS THE PROJECT PLANS AND SPECIFICATIONS, AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR IS TO NOTIFY ALL UTILITY COMPANIES AT LEAST 72 HOURS BEFORE CONSTRUCTION ACTIVITY IS TO BEGIN. THE CONTRACTOR SHALL NOTIFY NC ONE CALL AT **811,** 48 HOURS BEFORE CONSTRUCTION BEGINS. NOTIFY THE ENGINEER AT LEAST 72 HOURS BEFORE STARTING CONSTRUCTION ACTIVITIES.
8. EROSION CONTROL IS FIELD PERFORMANCE BASED AND CONTRACTOR SHALL INSTALL AND MAINTAIN ANY EROSION CONTROL MEASURES NECESSARY TO ASSURE MAXIMUM PROTECTION OF THE SITE. CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL MEASURES REQUIRED TO CONTROL SEDIMENT DURING INSTALLATION ALL STORM PIPES AND APPURTENANCES..
9. CONTRACTOR IS RESPONSIBLE FOR INSTALLING, MAINTAINING, AND REMOVING ALL NECESSARY EROSION AND SEDIMENTATION CONTROL MEASURES.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ADJUSTMENT OF ALL UTILITY SURFACE ACCESSES WHETHER THE CONTRACTOR PERFORMS THE WORK OR A UTILITY COMPANY PERFORMS THE WORK.
11. ALL HIGH DENSITY POLYETHYLENE (HDPE) CORRUGATED STORM SEWER DETENTION PIPE SHALL BE TYPE "S" HANCOR SURELOK ADSN12 OR APPROVED EQUIVALENT WITH WATER TIGHT JOINTS MEETING AASHTO M252, M294 OR MP7. ALL HDPE PIPE IS TO BE INSTALLED ACCORDINGLY TO MANUFACTURERS SPECIFICATIONS AND IN ACCORDANCE WITH ASTM D2321 WITH THE EXCEPTION THAT MINIMUM COVER IN TRAFFIC LOAD AREA SHALL BE 24" FOR 4"-48" AND 18" FOR 60". PIPE MATERIAL SHALL MEET THE PRODUCT SPECIFICATIONS OF ASTM F667 AND SHALL HAVE A SMOOTH WALL INTERIOR. FOR ALL STORM SYSTEMS, WORK MUST BEGIN AT THE LOW POINT OF THE SYSTEMS. NOTIFY THE ENGINEER IMMEDIATELY OF ANY VARIANCES FROM EXPECTED CONDITIONS.
12. CURB INLET FRAME, GRATE AND HOOD SHALL CONFORM TO NCDOT 840.03E. DROP INLET FRAME AND GRATE SHALL CONFORM TO NCDOT 840.16. FIELD INLET COVER SHALL CONFORM TO NCDOT STANDARD DETAIL 840.03, OPENING FACING UPSTREAM. MANHOLE RING AND LID TO CONFORM TO NCDOT 840.54. OPEN THROAT INLETS TO CONFORM TO NCDOT 840.04 WITH A MANHOLE RING AND LID INSTALLED IN THE TOP FOR ACCESS TO THE STRUCTURE. SET ACCESS POINT ADJACENT TO A STRUCTURE WALL AS TO ALLOW ACCESS TO STEPS.
13. CONCRETE AND MASONRY SHALL MEET THE REQUIREMENTS OF APPROPRIATE SECTION OF NCDOT STANDARD SPECIFICATIONS FOR ROAD AND STRUCTURES (LATEST EDITION). CONCRETE SHALL BE CLASS A OR B, 4000 PSI MINIMUM, MEETING THE REQUIREMENTS OF SECTION 900, CONSTRUCTED IN ACCORDANCE WITH SECTION 825. MASONRY SHALL MEET THE REQUIREMENTS OF SECTION 940, CONSTRUCTED IN ACCORDANCE WITH SECTION 830 AND/OR 834.
14. TRENCH BACKFILL AND COMPACTION TESTING SHALL BE PERFORMED BY A CERTIFIED SOILS LABORATORY UNDER ALL PAVED AREAS.
15. COMPACTION REPORTS MUST BE PROVIDED TO **NCDEQ AND THE TOWN OF FOREST CITY** STORMWATER SERVICES DIVISION INDICATING THAT FILL HAS BEEN COMPACTED TO NOT LESS THAN 95% MAXIMUM DENSITY (STANDARD PROCTOR).

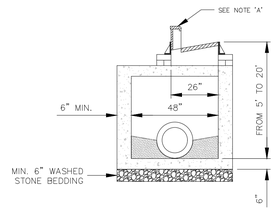
SHALLOW TYPE
(5 FEET OR LESS IN DEPTH)



INTERMEDIATE TYPE (4'X4' INTERIOR)
(5 FEET TO 20 FEET IN DEPTH)





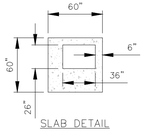


NOTE 'A'

FOR CURB INLET: FRAME, GRATE & HOOD PER D.O.T. STD. 840.03E
FOR GRATE INLET: FRAME, GRATE & HOOD PER D.O.T. STD. 840.16
FOR JUNCTION BOX: FRAME & COVER PER D.O.T. STD. 840.54
FOR CONVEX INLET: FRAME, GRATE & HOOD PER NEENAH CONVEX INLET GRATE R-2577

NOTES:

1. CONCRETE SHALL BE 4000 PSI MIN. FOR ALL PRECAST CONCRETE CATCH BASINS.
2. PRECAST CONCRETE STRUCTURES MAY ONLY BE INSTALLED TO DEPTHS CERTIFIED AS ACCEPTABLE BY THE MANUFACTURER.
3. "WAFFLE" BOXES ARE ACCEPTABLE FOR SHALLOW TYPE CATCH BASINS UP TO 10' DEEP PER D.O.T.
4. PRECAST CONCRETE CATCH BASINS SHALL CONFORM TO NCDOT STD. 840.02.

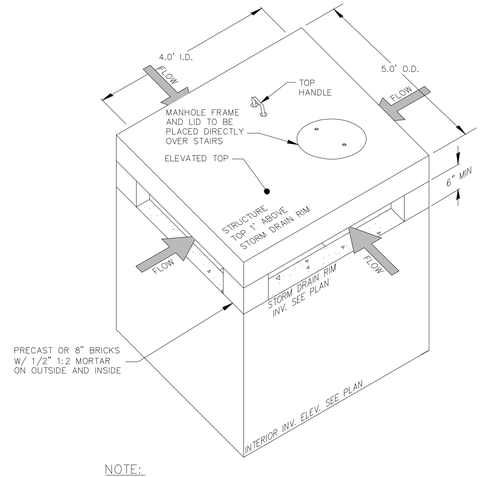


SLAB DETAIL

SLAB THICKNESS AND REINFORCEMENT FOR SOIL AND TRAFFIC LOADING BY AN ENGINEER

D4.03 PRECAST CONCRETE CATCH BASIN DETAILS FOR GRATE INLETS, CURB INLETS, AND JUNCTION BOXES

NOT TO SCALE

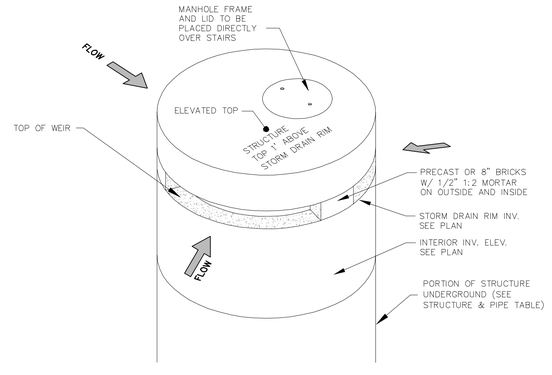


NOTE:

CORE OPENINGS TO ACCOMMODATE PROPOSED PIPES. (REFER TO PLAN SHEET FOR SIZE AND LOCATION OF PIPE)

D4.04 TYPICAL OPEN THROAT DETAIL

NOT TO SCALE



NOTE:

CORE OPENINGS TO ACCOMMODATE PROPOSED PIPES. (REFER TO PLAN SHEET FOR SIZE AND LOCATION OF PIPE)

D4.05 ROUND OPEN THROAT DETAIL

NOT TO SCALE

STORM DETAILS

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5972

52 WALNUT STREET - SUITE 9
WATAUGA, NC 28726
PHONE (828) 406-4410

CDC Civil Design Concepts, PA
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NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. CARLSON
5/6/26

STORM DETAILS FOR:

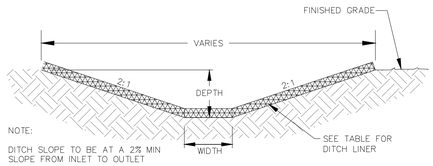
THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

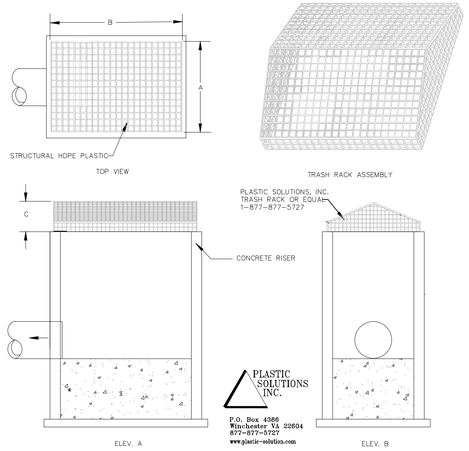
C941



D4.06 PERMANENT DRAINAGE SWALE

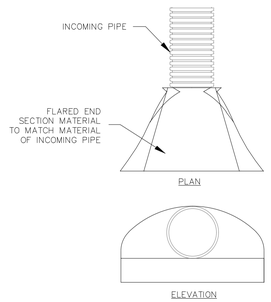
NOT TO SCALE

SWALE ANALYSIS				
SWALE ID	SIDE SLOPES (X:1)	DEPTH (FT)	BOTTOM WIDTH (FT)	CHANNEL LINER*
1	2	1	0	S75BN
1A	2	1	0	S75BN
2	2	1	0	S150BN
3	2	1	1	C125BN
4	2	1	0	S75BN
5	2	1	0	S75BN
6	2	1	0	S150BN
7	2	1	1	SC150BN
8	2	1	0	S75BN
9	2	1	1	S75BN
10	2	1	0	C125BN
11	2	1	0	S75BN
12	2	1	1	C125BN
13	2	1	0	S150BN
14	2	1	0	S150BN
15	2	1	0	S75BN
16	2	1	0	S75BN
17	2	1	0	C125BN
18	2	1	0	S75BN
19	2	1	0	S75BN



D4.07 PEAK ROOF TRASH RACK

NOT TO SCALE

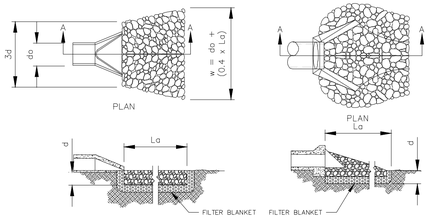


NOTES:

1. THE DIMENSION OF THE THE FLARED END SECTION SHALL BE PER MANUFACTURER'S SPECIFICATIONS.
2. THE SKIRT SECTION OF THE FLARED END SECTION SHOULD BE JOINED TO THE INCOMING PIPE PER MANUFACTURER'S SPECIFICATIONS.

D4.08 FLARED END SECTION WITH RIP-RAP APRON

NOT TO SCALE

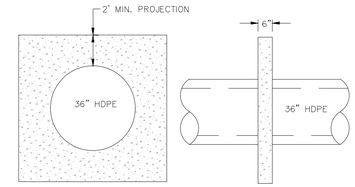


NOTES:

1. La IS THE LENGTH OF THE RIP RAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (MINIMUM IS 24" DEEP IF STONE IS CLASS II)
3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIP RAP AND SOIL FOUNDATION.
5. COMPACT ANY REQUIRED FILL TO DENSITY OF SURROUNDING UNDISTURBED MATERIAL.
6. RIP RAP MAY BE FIELDSTONE OR ROUGH QUARRY STONE AND SHALL BE HARD, ANGULAR AND WELL-GRADED.
7. CONSTRUCT APRON AT ZERO GRADE. TOP OF RIP RAP SHALL BE LEVEL WITH THE RECEIVING CHANNEL OR SLIGHTLY LOWER.
8. ALIGN APRON WITH RECEIVING CHANNEL OR STREAM. ASSURE APRON IS STRAIGHT THROUGHOUT ITS LENGTH.
9. END WIDTH OF APRON TO BE EQUAL TO WIDTH OF RECEIVING CHANNEL.

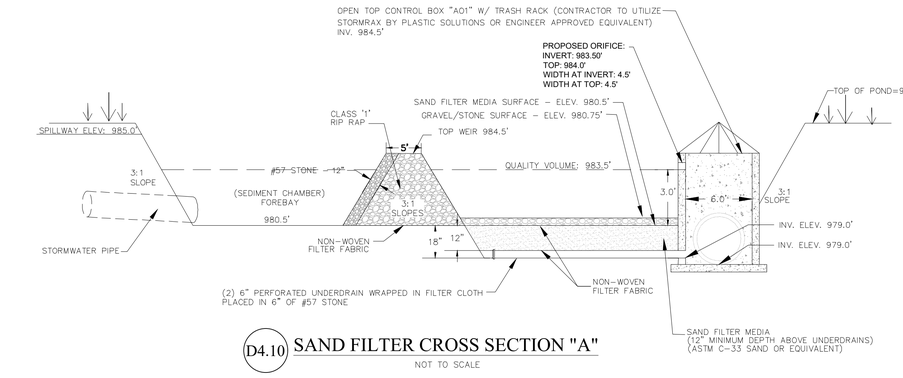
NOTES:

CONCRETE FOR COLLARS SHALL BE 3000 PSI (MIN.) 28 DAY STRENGTH. COLLARS SHALL BE CONNECTED TO 36" HDPE WITH A WATER TIGHT JOINT. COLLARS SHALL BE SPACED ALONG BARREL AT 17'-8" O.C. ANTI-SEEP COLLARS SHALL BE PLACED A MINIMUM OF 2' FROM PIPE JOINTS.



D4.09 CONCRETE ANTI-SEEP COLLAR

NOT TO SCALE



D4.10 SAND FILTER CROSS SECTION "A"

NOT TO SCALE

NOTE:
UNDERDRAINS TO BE CONSTRUCTED OF PERFORATED PVC MEETING AASHTO M 252 AND CONSISTING OF 3/8" HOLES, SPACED AT 6" CENTERS ALONG 4 LONGITUDINAL ROWS.

NOTES:

1. EXCAVATE THE SAND FILTER TO THE DESIGN DIMENSIONS, AFTER SEDIMENT BASIN IS NO LONGER REQUIRED.
2. UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED WITH SCHEDULE 40 PVC PIPE (PERFORATED AND NON-PERFORATED). OTHER PIPE MATERIALS MAY BE SUBSTITUTED ONLY WITH APPROVAL FROM THE DESIGN ENGINEER AND INSPECTOR.
3. SAND COVER OVER THE UNDERDRAIN SHALL BE AT LEAST 12" IN DEPTH.
4. GRAVEL BED MATERIALS (STONE) SIZE SHALL NOT BE GREATER THAN 1/2 TO 1-1/2 INCHES IN DIAMETER (BLUE STONE, DOUBLE WASHED, #57). DEPTH OF GRAVEL SHALL NOT EXCEED 12 INCHES.
5. FILTER FABRIC MUST MEET A MINIMUM PERMEABILITY RATE OF 75 GALLONS/MINUTE/SQUARE FOOT AND SHALL NOT IMPEDE THE INFILTRATION RATE OF THE SOIL MEDIUM. NON-WOVEN FABRIC IS PREFERRED OVER WOVEN AND INSTALLATION REQUIRES AT LEAST 1 FOOT OVERLAP AT THE ENDS AND STAKING IN PLACE DURING CONSTRUCTION AT THE TURNED SURFACES.
6. STONE IS TO BE PLACED ON THE SURFACE PONDING AREA OF THE SAND FILTER. THE LAYER OF STONE SHOULD NOT EXCEED 3 INCHES IN DEPTH.
7. AN OBSERVATION/CLEANOUT STANDPIPE MUST BE INSTALLED IN EVERY SAND FILTER FACILITY THAT HAS A DEPTH GREATER THAN 2 FEET AND/OR AN UNDERDRAIN SYSTEM. THE STAND PIPE MUST CONSIST OF A RIGID NON-PERFORATED PVC PIPE, 6 INCHES IN DIAMETER. IT SHOULD BE CAPPED 6" ABOVE THE GROUND ELEVATION OF THE FACILITY. THE TOP OF THE WELL SHALL HAVE A SCREW TYPE CAP.
8. DRAINAGE AREA TO SAND FILTER TO BE STABILIZED BEFORE FILTRATION CONTROLS AND FILTER MEDIA ARE INSTALLED.
9. SET UP AN ON-SITE PRE-CONSTRUCTION CONFERENCE WITH THE INSPECTOR AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION ON ANY BMPS.
10. SOIL COMPACTION TESTS ARE REQUIRED ON ANY BERMS >/= 5FT IN HEIGHT FROM THE NATURAL GRADE. SOIL COMPACTION MUST BE AT LEAST 95% PROCTOR AND CERTIFIED BY A LICENSED SOIL ENGINEER.

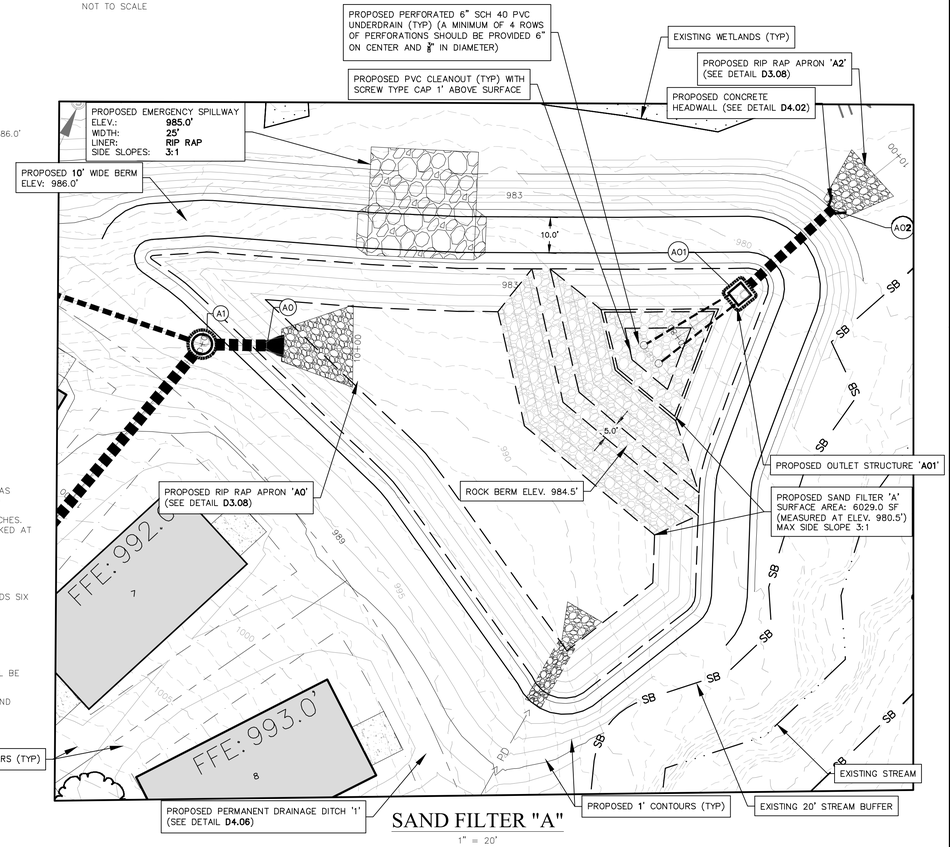
MAINTENANCE:

SAND FILTERS SHALL BE INSPECTED AT LEAST ONCE A QUARTER AND SHALL BE MAINTAINED AS NEEDED TO REMOVE SURFACE SEDIMENT ACCUMULATION, TRASH, DEBRIS, AND LEAF LITTER TO PREVENT THE FILTER FROM CLOGGING. SEDIMENT SHOULD BE CLEANED OUT OF THE FOREBAY/SEDIMENTATION CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF MORE THAN 6 INCHES. DURING INSPECTION, STRUCTURES SUCH AS OUTLETS AND FLOW DIVERSIONS SHOULD BE CHECKED AT LEAST ANNUALLY FOR DAMAGE OR DEGRADATION.

IMPORTANT MAINTENANCE PROCEDURES FOR A SAND FILTER INCLUDE:

1. MANAGE THE DRAINAGE AREA TO REDUCE THE SEDIMENT LOAD TO THE SAND FILTER.
2. CLEAN OUT THE SEDIMENTATION CHAMBER OR FOREBAY WHENEVER SEDIMENT DEPTH EXCEEDS SIX INCHES.
3. AT LEAST ONCE A YEAR, SKIM THE SAND MEDIA.
4. REPLACE THE SAND FILTER MEDIA WHENEVER IT FAILS TO FUNCTION PROPERLY AFTER MAINTENANCE.
5. INSPECT THE SAND FILTER AT LEAST QUARTERLY. ANY PROBLEMS THAT ARE FOUND SHALL BE REPAIRED IMMEDIATELY.

MAINTAIN OPERATION AND MAINTENANCE RECORDS IN A KNOWN SET LOCATION. OPERATION AND MAINTENANCE RECORDS WILL BE AVAILABLE UPON REQUEST.



SAND FILTER "A"

1" = 20'

STORM DETAILS

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

CDC Civil Design Concepts, PA
www.cdcpa.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. CANNON

5/6/26

STORM DETAILS FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C942

NOTE:
UNDERDRAINS TO BE CONSTRUCTED OF PERFORATED PVC MEETING AASHTO M 252 AND CONSISTING OF 3/8" HOLES, SPACED AT 6" CENTERS ALONG 4 LONGITUDINAL ROWS.

NOTES:
1. EXCAVATE THE SAND FILTER TO THE DESIGN DIMENSIONS, AFTER SEDIMENT BASIN IS NO LONGER REQUIRED.

2. UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED WITH SCHEDULE 40 PVC PIPE (PERFORATED AND NON-PERFORATED). OTHER PIPE MATERIALS MAY BE SUBSTITUTED ONLY WITH APPROVAL FROM THE DESIGN ENGINEER AND INSPECTOR.

3. SAND COVER OVER THE UNDERDRAIN SHALL BE AT LEAST 12" IN DEPTH.

4. GRAVEL BED MATERIALS (STONE) SIZE SHALL NOT BE GREATER THAN 1/2 TO 1-1/2 INCHES IN DIAMETER (BLUE STONE, DOUBLE WASHED, #57). DEPTH OF GRAVEL SHALL NOT EXCEED 12 INCHES.

5. FILTER FABRIC MUST MEET A MINIMUM PERMEABILITY RATE OF 75 GALLONS/MINUTE/SQUARE FOOT AND SHALL NOT IMPEDE THE INFILTRATION RATE OF THE SOIL MEDIUM. NON-WOVEN FABRIC IS PREFERRED OVER WOVEN AND INSTALLATION REQUIRES AT LEAST 1 FOOT OVERLAP AT THE ENDS AND STAKING IN PLACE DURING CONSTRUCTION AT THE TURNED SURFACES.

6. STONE IS TO BE PLACED ON THE SURFACE PONDING AREA OF THE SAND FILTER. THE LAYER OF STONE SHOULD NOT EXCEED 3 INCHES IN DEPTH.

7. AN OBSERVATION/CLEANOUT STANDPIPE MUST BE INSTALLED IN EVERY SAND FILTER FACILITY THAT HAS A DEPTH GREATER THAN 2 FEET AND/OR AN UNDERDRAIN SYSTEM. THE STAND PIPE MUST CONSIST OF A RIGID NON-PERFORATED PVC PIPE, 6 INCHES IN DIAMETER. IT SHOULD BE CAPPED 6" ABOVE THE GROUND ELEVATION OF THE FACILITY. THE TOP OF THE WELL SHALL HAVE A SCREW TYPE CAP.

8. DRAINAGE AREA TO SAND FILTER TO BE STABILIZED BEFORE FILTRATION CONTROLS AND FILTER MEDIA ARE INSTALLED.

9. SET UP AN ON-SITE PRE-CONSTRUCTION CONFERENCE WITH THE INSPECTOR AT LEAST 48 HOURS PRIOR TO STARTING CONSTRUCTION ON ANY BMPS.

10. SOIL COMPACTION TESTS ARE REQUIRED ON ANY BERMS >/= 5FT IN HEIGHT FROM THE NATURAL GRADE. SOIL COMPACTION MUST BE AT LEAST 95% PROCTOR AND CERTIFIED BY A LICENSED SOIL ENGINEER.

MAINTENANCE:

SAND FILTERS SHALL BE INSPECTED AT LEAST ONCE A QUARTER AND SHALL BE MAINTAINED AS NEEDED TO REMOVE SURFACE SEDIMENT ACCUMULATION, TRASH, DEBRIS, AND LEAF LITTER TO PREVENT THE FILTER FROM CLOGGING. SEDIMENT SHOULD BE CLEANED OUT OF THE FOREBAY/SEDIMENTATION CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF MORE THAN 6 INCHES. DURING INSPECTION, STRUCTURES SUCH AS OUTLETS AND FLOW DIVERSIONS SHOULD BE CHECKED AT LEAST ANNUALLY FOR DAMAGE OR DEGRADATION.

IMPORTANT MAINTENANCE PROCEDURES FOR A SAND FILTER INCLUDE:

1. MANAGE THE DRAINAGE AREA TO REDUCE THE SEDIMENT LOAD TO THE SAND FILTER.

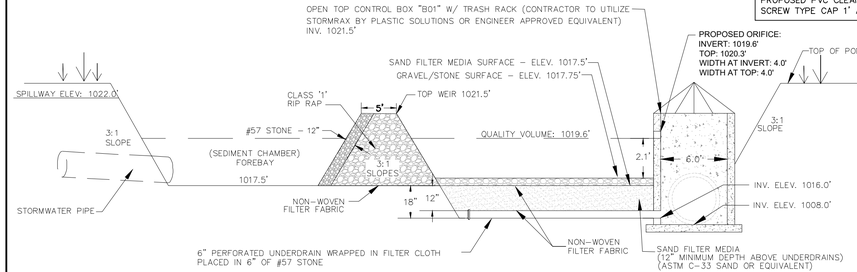
2. CLEAN OUT THE SEDIMENTATION CHAMBER OR FOREBAY WHENEVER SEDIMENT DEPTH EXCEEDS SIX INCHES.

3. AT LEAST ONCE A YEAR, SKIM THE SAND MEDIA.

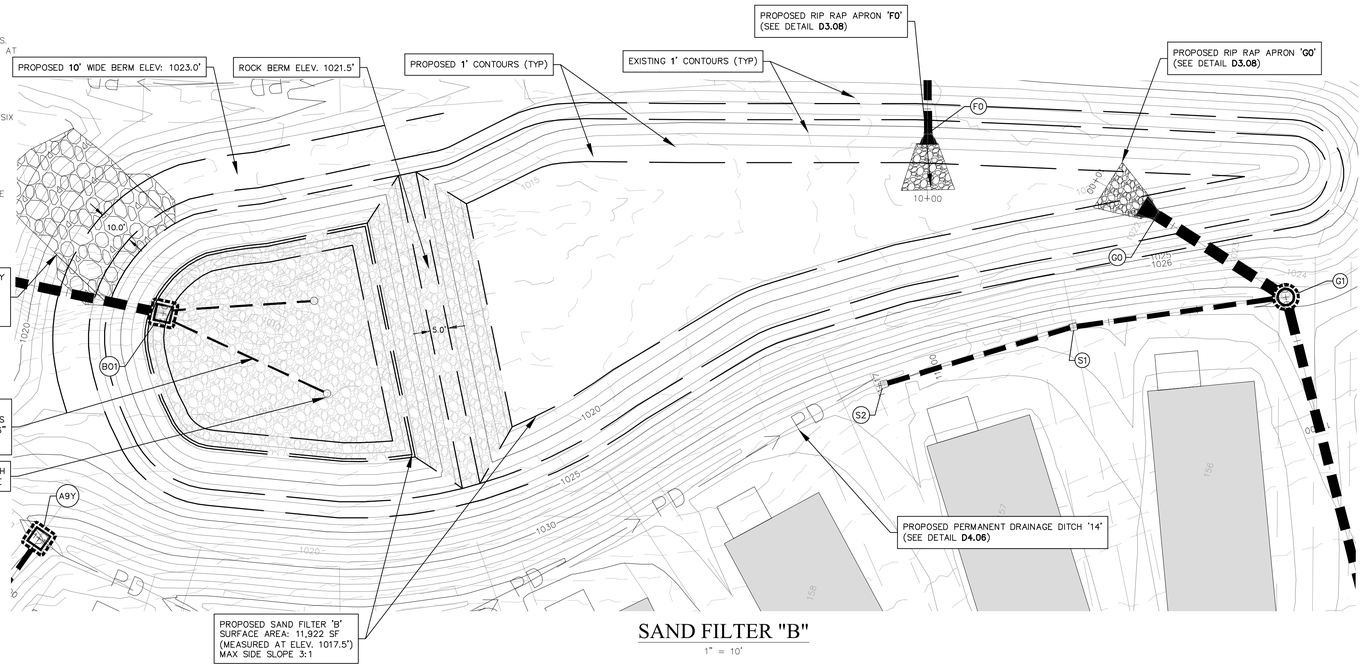
4. REPLACE THE SAND FILTER MEDIA WHENEVER IT FAILS TO FUNCTION PROPERLY AFTER MAINTENANCE.

5. INSPECT THE SAND FILTER AT LEAST QUARTERLY. ANY PROBLEMS THAT ARE FOUND SHALL BE REPAIRED IMMEDIATELY.

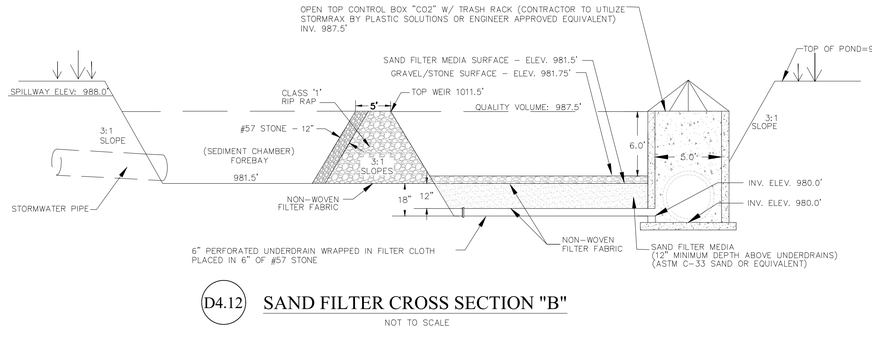
MAINTAIN OPERATION AND MAINTENANCE RECORDS IN A KNOWN SET LOCATION. OPERATION AND MAINTENANCE RECORDS WILL BE AVAILABLE UPON REQUEST.



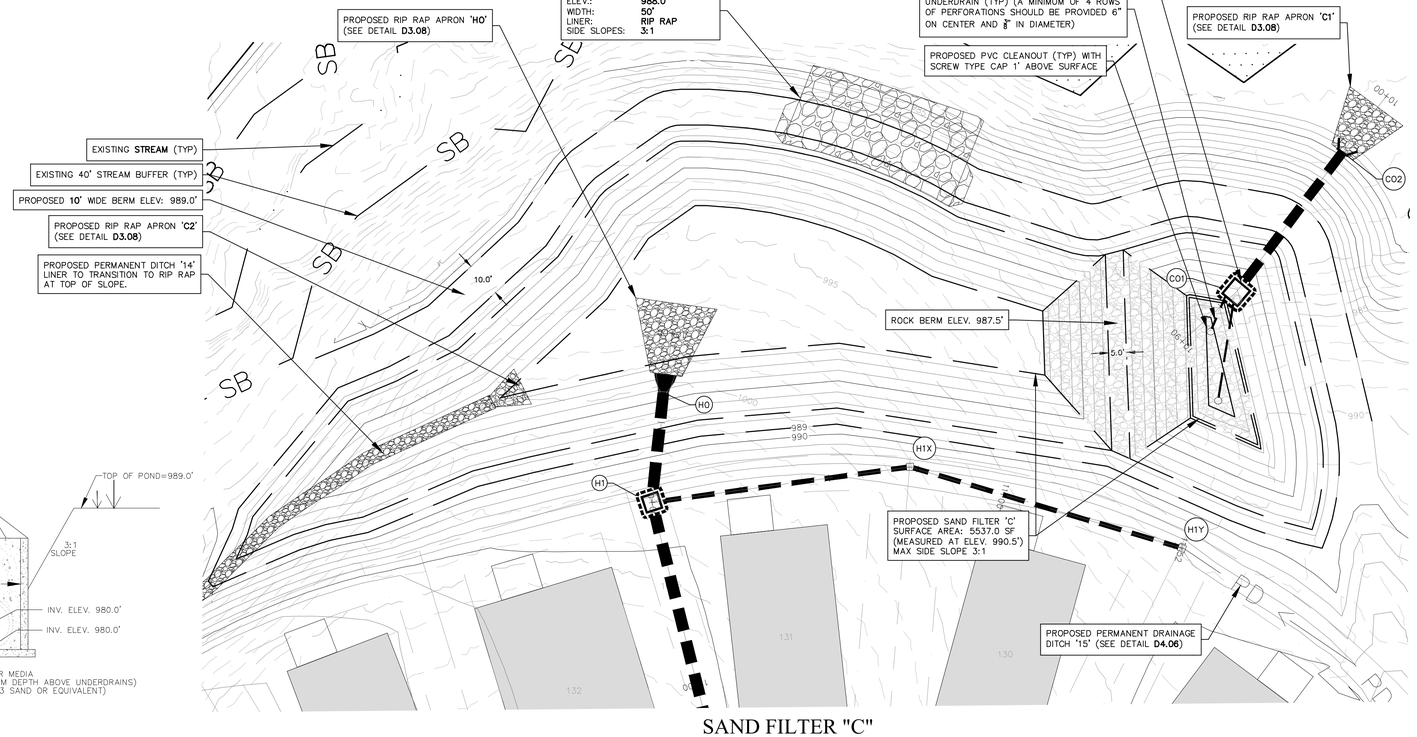
D4.12 SAND FILTER CROSS SECTION "B"
NOT TO SCALE



SAND FILTER "B"
1" = 10'



D4.12 SAND FILTER CROSS SECTION "B"
NOT TO SCALE



SAND FILTER "C"
1" = 20'

STORM DETAILS

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 456-4410

CDC Civil Design Concepts, PA
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NCBELS #: C-2194 SCLLR #: 4736

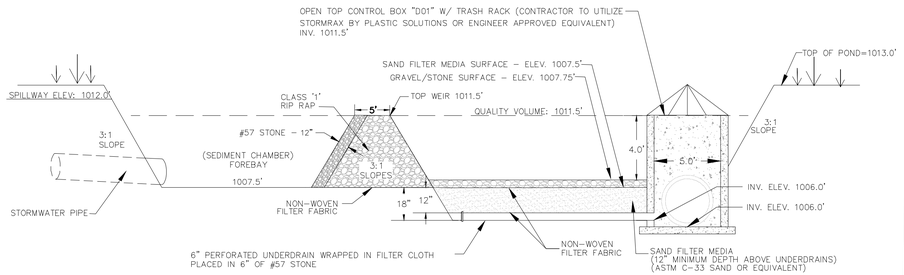
NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035140 DONALD S. HOLLOWELL
5/6/26

STORM DETAILS FOR:
THE PRESERVE AT BRACKETTS CREEK
DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

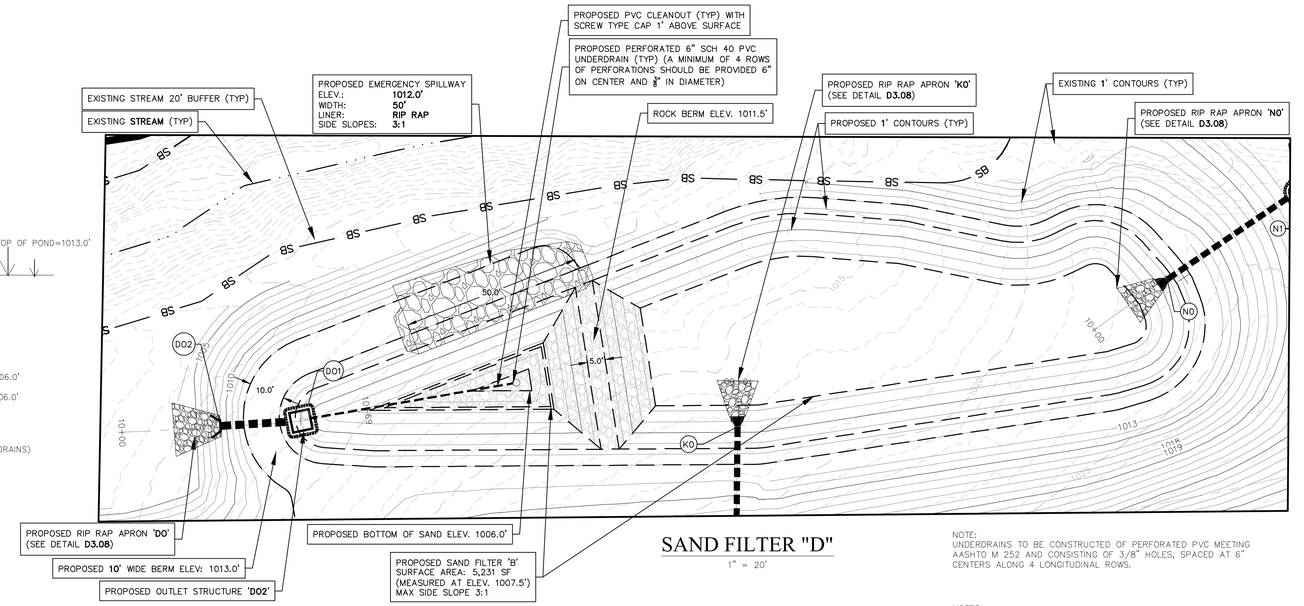
DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C943



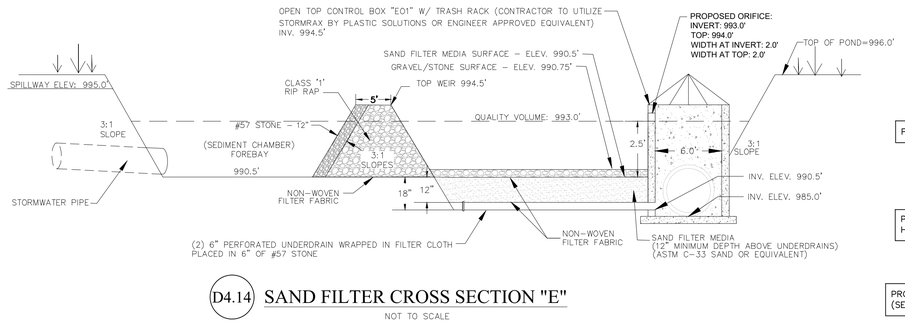
D4.13 SAND FILTER CROSS SECTION "D"

NOT TO SCALE



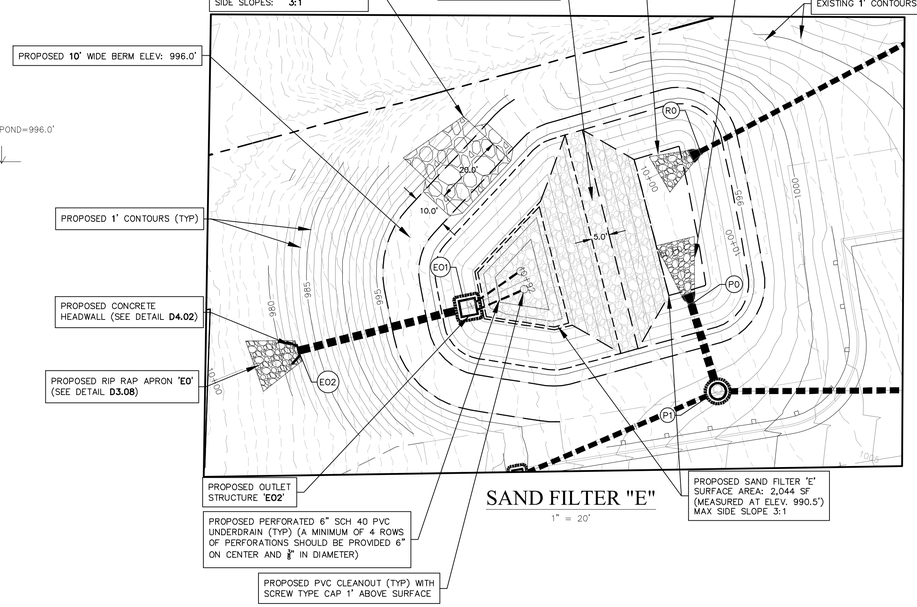
SAND FILTER "D"

1" = 20'



D4.14 SAND FILTER CROSS SECTION "E"

NOT TO SCALE



SAND FILTER "E"

1" = 20'

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STORM DETAILS

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WAKE FOREST, NC 27587
PHONE (828) 455-4410

CDC Civil Design Concepts, PA
www.cdcpa.com
NCBELS #: C-2184 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
3	01/23/2026	NCDEQ EROSION CONTROL SUBMITTAL	JLR
4	04/16/2026	AGENCY SUBMITTALS	CHL
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 CHRISTOPHER H. LEWIS 5/6/26

STORM DETAILS FOR:

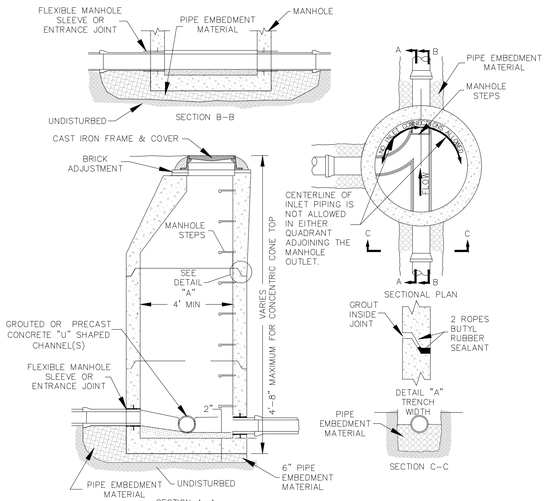
THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC. – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

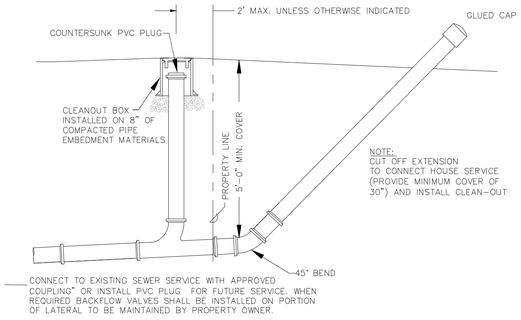
SHEET

C944



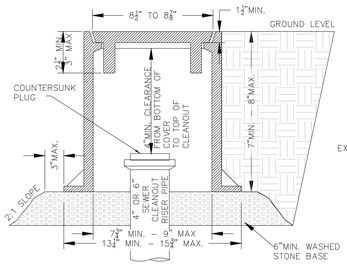
NOTE:
MANHOLE STEPS TO BE VERTICALLY IN LINE WITH "INVERT OUT" FOR PIPE 18" AND LESS. OVER 18" TO BE LOCATED IN LINE WITH BENCH.

D6.01 STANDARD MANHOLE
NOT TO SCALE



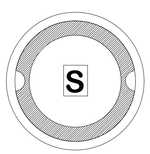
NOTES:
1. WYE CONNECTIONS ARE STANDARD FOR NEW SEWER MAIN CONSTRUCTION.
2. FOR EXISTING MAINS (12" OR SMALLER) WHERE WYES ARE NOT AVAILABLE A SEWER TAP SHALL BE INSTALLED BY MSD PERSONNEL.
3. FORCE MAINS CARRYING DOMESTIC WASTEWATER FROM SANITARY CONVENIENCES WITHIN A SINGLE BUILDING, MAY BE CONNECTED TO A 4" MSD GRAVITY SERVICE LINE PROVIDED THAT GRAVITY FLOW WILL BE MAINTAINED DURING PROPOSED MAXIMUM DISCHARGE RATE FOR THE GRINDER OR EFFLUENT PUMP(S).
4. 6" SERVICES REQUIRED FOR MULTI-UNIT BUILDINGS. 4" SERVICES ARE ALLOWED FOR SINGLE FAMILY RESIDENCES ONLY.
5. SCHEDULE 40 REQUIRED FOR ALL 4" SERVICES.

D6.04 SANITARY SEWER SERVICE MORE THAN 5' DEEP
NOT TO SCALE

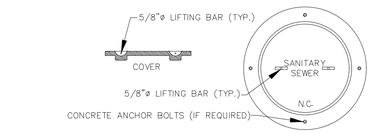


MINIMUM WEIGHT CHART	
	MIN. WEIGHT-LBS.
COVER	25
BASE	40
TOTAL UNIT	65

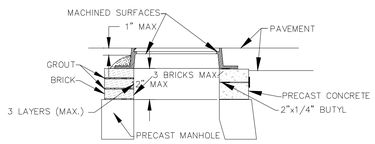
NOTE:
1. ALL SANITARY SEWER CLEAN OUT BOXES AND COVERS SHALL BE MANUFACTURED FROM GRAY IRON (CAST IRON) MEETING THE REQUIREMENTS OF AWWA C110 AND ASTM A536.
2. ALL SANITARY SEWER CLEAN OUT BOXES AND COVERS SHALL CONFORM TO PARAGRAPH 2.01(d) OF ITEM II, SECTION VI OF MSD'S TECHNICAL SPECIFICATIONS (MADE IN THE U.S.A.).
3. SANITARY SEWER CLEAN OUT BOXES AND COVERS MANUFACTURED BY U.S FOUNDRY (HAND HOLE RING & FC COVER, MODEL #7610), EAST JORDAN IRON WORKS (HEAVY DUTY MONUMENT BOX, MODEL #1574) OR APPROVED EQUAL. U.S FOUNDRY (HAND HOLE RING & FC COVER, MODEL #7630) MAY BE USED WHERE CLEAN OUT IS WITHIN AN ASPHALT OR CONCRETE PAVED AREA.



D6.07 CLEANOUT BOX
NOT TO SCALE



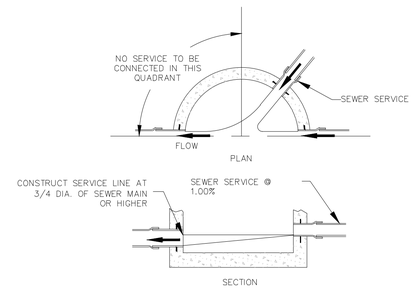
FRAME SET IN NON-ROADWAY LOCATION



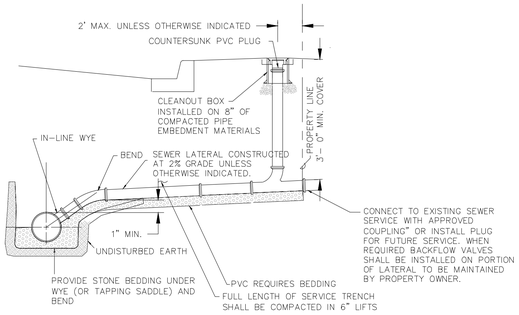
FRAME SET IN ROADWAY LOCATION

NOTES:
1. ALL CASTINGS SHALL BE MANUFACTURED IN THE USA.
2. WHERE MANHOLE IS IN ROAD SHOULDER AND ROAD DOES NOT HAVE CURB AND GUTTER, DO NOT USE ANCHOR BOLTS IN FRAME

D6.02 STANDARD MANHOLE FRAME AND COVER
(FOR PUBLIC "MSD" MAINTAINED SEWER MANHOLES)
NOT TO SCALE

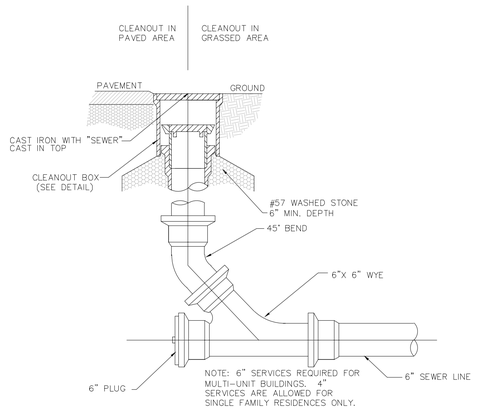


D6.05 SERVICE CONNECTIONS AT MANHOLES
NOT TO SCALE

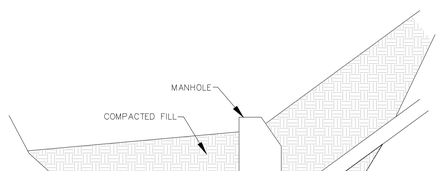


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4. 6" SERVICES REQUIRED FOR MULTI-UNIT BUILDINGS. 4" SERVICES ARE ALLOWED FOR SINGLE FAMILY RESIDENCES ONLY.
5. SCHEDULE 40 REQUIRED FOR ALL 4" SERVICES.

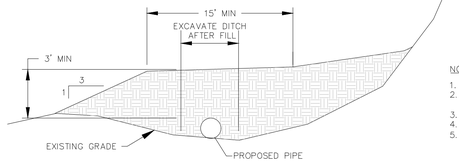
D6.03 SANITARY SEWER SERVICE
NOT TO SCALE



D6.06 CLEANOUT DETAIL
NOT TO SCALE

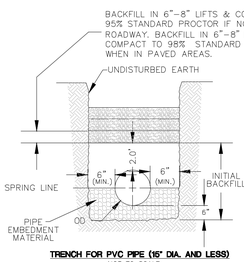


ELEVATION



SECTION

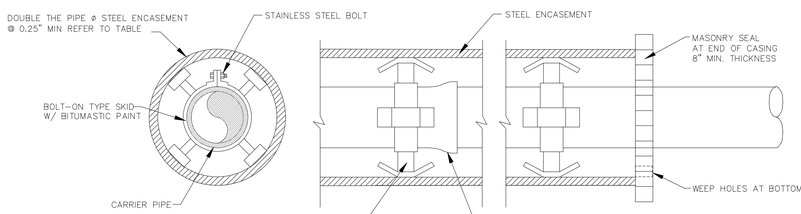
D6.08 SEWER MAIN IN FILL
NOT TO SCALE



TRENCH FOR PVC PIPE (15" DIA. AND LESS)
NOT TO SCALE

NOTES:
1. PVC PIPES REQUIRE CLASS I PIPE EMBEDMENT MATERIALS.
2. WHEN TRENCH IS SUBJECT TO INUNDATION, EMBEDMENT MATERIALS MUST EXTEND TO TOP OF PIPE.
3. NO BOULDERS OR STONES IN EXCESS OF 4" WILL BE USED IN INITIAL BACKFILL.
4. THIS DETAIL IS VALID FOR PVC SEWER PIPE INSTALLED AT DEPTHS OF UP TO 20 FEET.
5. PVC PIPE NOT ALLOWED WITH LESS THAN 3'-0" COVER.

D6.09 TRENCH FOR PVC PIPE
NOT TO SCALE



CASING ø	MINIMUM THICKNESS
8"-12"	0.250"
12"-16"	0.282"
16"-18"	0.312"
18"-20"	0.343"
20"-22"	0.375"
22"-24"	0.403"
24"-26"	0.438"
26"-30"	0.469"
30"-32"	0.5"
32"-36"	0.532"
36"-42"	0.563"

D6.10 BORE & JACK ENCASEMENT DETAIL
NOT TO SCALE

SEWER DETAILS

GENERAL NOTES FOR SEWER

1. SEWER CONSTRUCTION ON THIS SITE MUST BE AUTHORIZED BY PERMITS ISSUED BY THE **TOWN OF FOREST CITY.** ALL SITEWORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL REGULATORY STANDARDS; AND ALL REQUIREMENTS IN THE PROJECT TECHNICAL SPECIFICATIONS. REQUIREMENTS AND SPECIFICATIONS OF THE **TOWN OF FOREST CITY** STANDARDS SUPERSEDE ALL OTHERS IN THE INSTALLATION OF THE PROPOSED SEWER EXTENSION.
2. CONTRACTOR TO VERIFY WITH ENGINEER THAT THE REQUIRED SEWER PERMITS AND ASSOCIATED NON-SEWER PERMITS HAVE BEEN OBTAINED PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR TO PROVIDE COPY OF STREET CUT PERMIT TO **THE TOWN OF FOREST CITY** PRIOR TO CONSTRUCTION.
3. ALL CONSTRUCTION SHALL BE UNDER THE OBSERVATION OF THE ENGINEER, THE OWNER, AND **THE TOWN OF FOREST CITY.** THE ENGINEER SHALL PERIODICALLY OBSERVE THE PROGRESS OF INSTALLATION AND SHALL COMPLETE A FINAL WATER AND SEWER INSPECTION. THE CONTRACTOR SHALL FURNISH, SECURE, AND PROVIDE ALL NECESSARY TESTING MATERIALS, EQUIPMENT, PROCEDURES, AND CERTIFIED LABORATORY TEST RESULTS FOR USE WITH ENGINEERS FINAL CERTIFICATION OF COMPLETION. ANY WORK COVERED PRIOR TO ENGINEER'S INSPECTION IS SUBJECT TO UNCOVERING AND BACKFILLING AT THE CONTRACTOR'S EXPENSE.
4. ALL WORK MUST BE PERFORMED BY A **NORTH CAROLINA** LICENSED UTILITY CONTRACTOR.
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING THE EXACT LOCATION AND ELEVATION FOR ALL UTILITIES PRIOR TO CONSTRUCTION; AND TO NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL BURIED UTILITIES HAVE NOT BEEN SHOWN ON THE PLANS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION.
6. CONTRACTOR SHALL PROTECT EXISTING AND NEWLY BUILT UTILITIES DURING CONSTRUCTION. ANY DAMAGE TO UTILITIES INCURRED DURING OR RESULTING FROM CONSTRUCTION ACTIVITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR IS TO NOTIFY ALL UTILITY COMPANIES AT LEAST 72 HOURS BEFORE CONSTRUCTION ACTIVITY IS TO BEGIN. THE CONTRACTOR SHALL NOTIFY ULOCO AT **1-800-632-4949** OR **811**, 72 HOURS BEFORE CONSTRUCTION BEGINS. NOTIFY THE ENGINEER AT LEAST 72 HOURS BEFORE STARTING CONSTRUCTION ACTIVITIES.
8. CONTRACTOR SHALL PROVIDE **TOWN OF FOREST CITY** FIELD DENSITY REPORTS VERIFYING SEWER BUILT IN FILL AREAS ARE COMPACTED TO 95% STANDARD PROCTOR.
9. EROSION CONTROL IS FIELD PERFORMANCE BASED AND CONTRACTOR SHALL INSTALL AND MAINTAIN ANY EROSION CONTROL MEASURES NECESSARY TO ASSURE MAXIMUM PROTECTION OF THE SITE. CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL MEASURES REQUIRED TO CONTROL SEDIMENT DURING INSTALLATION ALL SEWER PIPES AND APPURTENANCES.
10. SAFETY AND TRAFFIC ROUTING TO BE COORDINATED WITH **NCDOT** AND IN STRICT ACCORDANCE WITH NCDOT GUIDELINES FOR CONSTRUCTION, MAINTENANCE, AND UTILITY OPERATIONS.
11. ALL SEWER SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH NC PLUMBING CODES AND ANY REQUIREMENTS PER LOCAL AUTHORITIES. COORDINATE EXACT LOCATIONS OF SERVICE LINES WITH THE ARCHITECTURAL, PLUMBING, AND LANDSCAPING PLANS. SEWER CLEANOUT ASSEMBLY LOCATIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO FINAL VERIFICATION.
12. ALL NON-FERROUS UNDERGROUND SERVICE LINES OUTSIDE BUILDING FOOTPRINT SHALL BE REQUIRED TO HAVE A MAGNETIC- TYPE WARNING TAPE INSTALLED IN THE BACKFILL AT LEAST 6" BELOW GRADE.
13. CONTRACTOR TO INSTALL D.I.P. WHERE THE MINIMUM OF 3' COVER OR AT UTILITY CROSSINGS WHERE MINIMUM VERTICAL SEPARATION REQUIREMENTS CANNOT BE MET. PIPE MATERIAL MUST TRANSITION TO D.I.P. 10' PRIOR TO CROSSING VIA A SOLID SLEEVE COUPLING AND EXTEND TO THE NEXT MANHOLE.
14. INSTALL FERROUS PIPING FOR BOTH WATER AND SEWER WITHIN 10' OF A CROSSING IF:
    A. SEWER LINE CROSSES OVER WATER, OR
    B. VERTICAL CLEARANCE BETWEEN WATER AND SEWER IS LESS THAN 18".
    MAINTAIN 10' HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAINS UNLESS LAID IN SEPARATE TRENCHES WITH THE BOTTOM OF THE WATER LINE AT LEAST 18" ABOVE THE TOP OF SEWER OR USE FERROUS MATERIAL FOR BOTH WATER AND SANITARY SEWER.
14. MAINTAIN 18" VERTICAL SEPARATION BETWEEN STORM DRAIN AND SANITARY SEWER, OR INSTALL FERROUS MATERIAL ON THE SANITARY SEWER WITHIN 10' EACH SIDE OF THE CROSSING.
15. CONTRACTOR RESPONSIBLE FOR ADJUSTING EXISTING WATER APPURTENANCES AS NECESSARY DUE TO ANY SITE CONSTRUCTION OR INSTALLATION.
16. TRENCH BACKFILL AND COMPACTION TESTING SHALL BE PERFORMED BY A CERTIFIED SOILS LABORATORY UNDER ALL PAVED AREAS.
17. THE ENTIRE SEWER EASEMENT MUST BE CLEAR AND REMAIN CLEAR OF TREE PLANTINGS, EXISTING TREES, AND ANY PERMANENT STRUCTURES.
18. CONTRACTOR SHALL SUPPLY THE ENGINEER WITH RECORD OF DEVIATIONS FROM PLANS FOR PREPARATION OF FINAL RECORD DRAWINGS.
19. THE PERMITS REQUIRE CERTIFICATION OF COMPLETION BY THE ENGINEER OF THE SEWER SYSTEMS PRIOR TO ISSUANCE OF FINAL OPERATION APPROVAL BY **THE TOWN OF FOREST CITY.** SECURE FINAL OPERATIONAL APPROVAL FROM **THE TOWN OF FOREST CITY** PRIOR TO ACTIVATION OF THE SYSTEM.

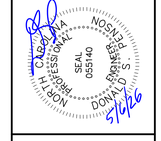
84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-6972

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 456-5410

CDC Civil Design Concepts, PA
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NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL



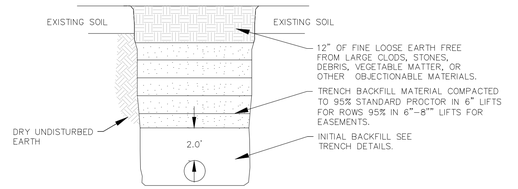
SEWER DETAILS FOR:

THE PRESERVE AT BRACKETTS CREEK

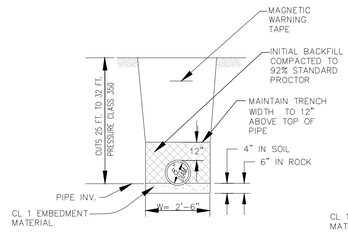
DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

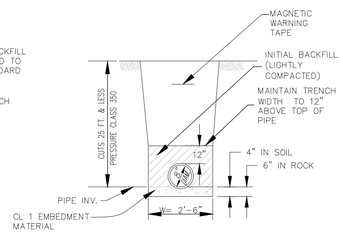
SHEET
C961



D6.11 TRENCH BACKFILL
NOT TO SCALE



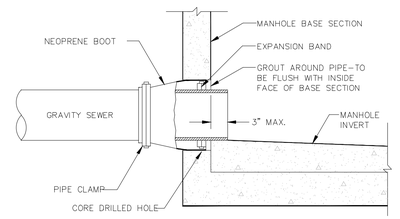
TYPICAL SEWER TRENCH
8" D.I. PIPE
CUTS 25 FT. TO 32 FT.



TYPICAL SEWER TRENCH
8" D.I. PIPE
CUTS 25 FT. & LESS

NOTE:
1) DEPTHS OF CUT OR PIPE SIZES GREATER THAN THOSE SHOWN ON THE TRENCH DETAILS REQUIRE SPECIAL DESIGN AND SUBMITTAL OF DESIGN DATA BY THE ENGINEER.
2) ABOVE TRENCH DETAILS ARE FOR TRENCH INSTALLATIONS ONLY. SEWERS INSTALLED IN POSITIVE OR NEGATIVE PROJECTING LAYING CONDITIONS REQUIRE SPECIAL DESIGN AND SUBMITTAL OF DESIGN DATA BY THE ENGINEER.

D6.12 TRENCH FOR DIP PIPE
NOT TO SCALE



NOTES:
1. MATERIAL SPECIFICATIONS: NEOPRENE BOOT – ASTM C-923; PIPE CLAMP & EXPANSION CLAMP – STAINLESS STEEL, ASTM C-923.
2. TWO PIPE CLAMPS REQUIRED FOR PIPE O.D.'S 15" AND LARGER.

D6.13 STANDARD MANHOLE BOOT
NOT TO SCALE

SEWER DETAILS

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

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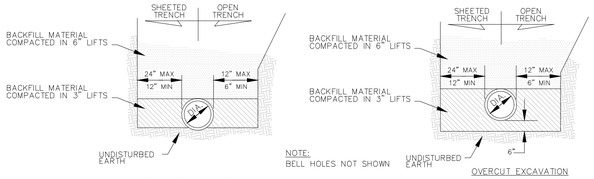
NO.	DATE	DESCRIPTION	BY
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

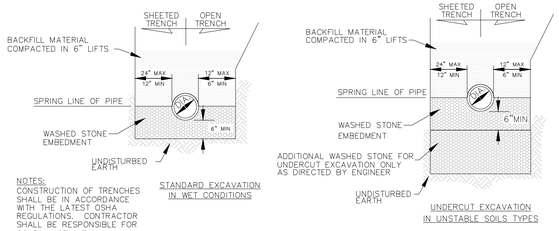


SEWER DETAILS FOR:
THE PRESERVE AT BRACKETTS CREEK
DANIEL ROAD, BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C962



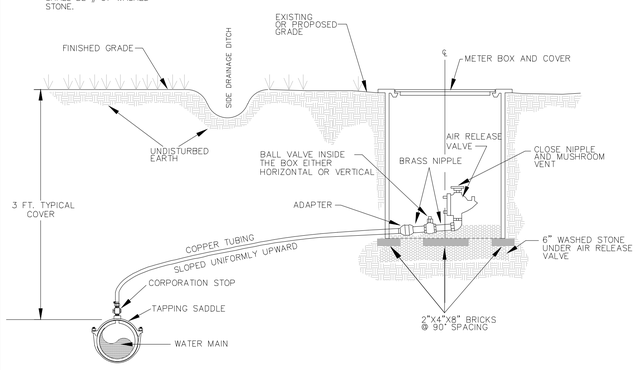


NOTES:
CONSTRUCTION OF TRENCHES SHALL BE IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE REGULATIONS.

NO BOULDERS OR STONES IN EXCESS OF 4" IN SIZE SHALL BE USED AS PART OF THE INITIAL BACKFILL.

PIPE BEDDING MATERIAL SHALL BE # 57 WASHED STONE.

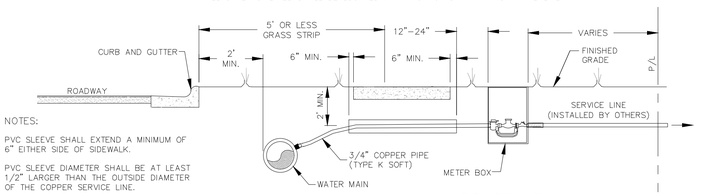
D7.01 TYPICAL TRENCH DETAIL
NOT TO SCALE



NOTES:
1. PIPE AND FITTINGS SIZE SHALL MATCH THE SIZE OF THE PROPOSED AIR RELEASE VALVE TO BE INSTALLED.
2. REFER TO STANDARD DETAIL 6.01 FOR METER BOX SPECIFICATIONS.

D7.04 TYPICAL AIR RELEASE VALVE INSTALLATION
NOT TO SCALE

ALL OTHER UTILITIES SHALL BE LOCATED A MINIMUM OF 3' AWAY FROM WATERLINE



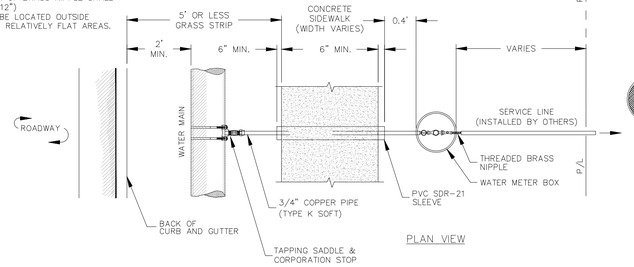
NOTES:

PVC SLEEVE SHALL EXTEND A MINIMUM OF 6" EITHER SIDE OF SIDEWALK.

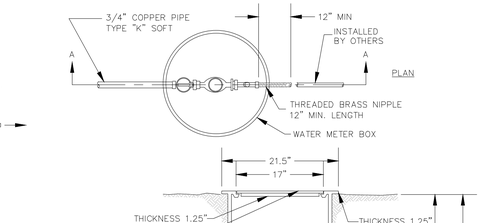
PVC SLEEVE DIAMETER SHALL BE AT LEAST 1/2" LARGER THAN THE OUTSIDE DIAMETER OF THE COPPER SERVICE LINE.

SLEEVE REQUIREMENT APPLICABLE TO ALL SERVICE LINES INSTALLED UNDERNEATH SIDEWALKS, REGARDLESS OF SIZE.

MINIMUM LENGTH OF BRASS NIPPLE SHALL BE 12 INCHES (12") METERS SHALL BE LOCATED OUTSIDE DITCHES AND IN RELATIVELY FLAT AREAS.



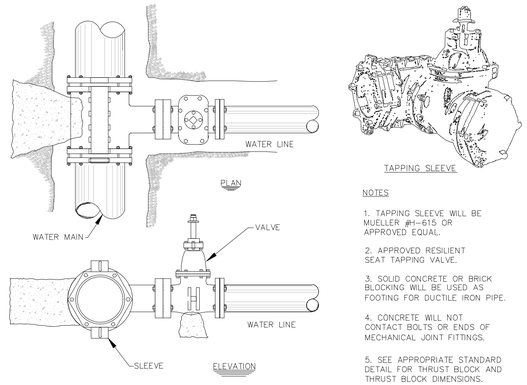
D7.02 TYPICAL WATER METER INSTALLATION
NOT TO SCALE



NOTE:

THIS DETAIL WILL APPLY TO ALL DOMESTIC WATER SERVICE TRANSFERS AS DESCRIBED IN THE TECHNICAL SPECIFICATIONS AND SHOWN ON THE ENGINEERING DRAWINGS.

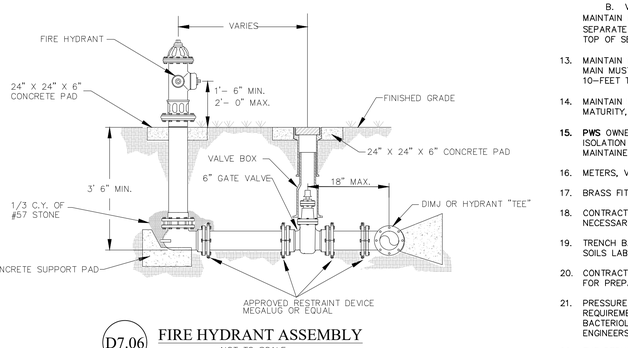
D7.03 5/8" WATER METER BOX
NOT TO SCALE



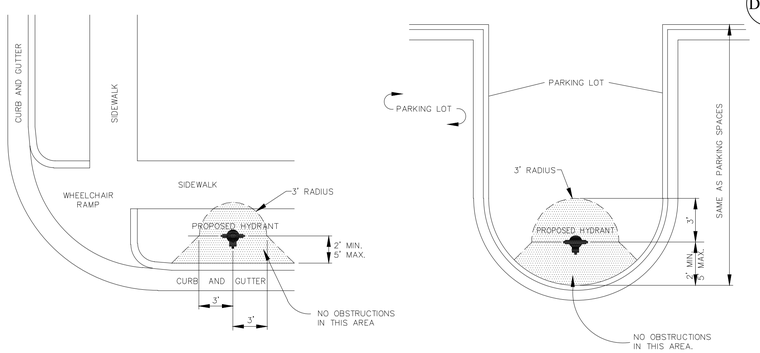
NOTES

1. TAPPING SLEEVE WILL BE MUELLER #H-615 OR APPROVED EQUAL.
2. APPROVED RESILIENT SEAT TAPPING VALVE.
3. SOLID CONCRETE OR BRICK BLOCKING WILL BE USED AS FOOTING FOR DUCTILE IRON PIPE.
4. CONCRETE WILL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
5. SEE APPROPRIATE STANDARD DETAIL FOR THRUST BLOCK AND THRUST BLOCK DIMENSIONS.
6. ALL FITTINGS AND APPURTENANCES SHALL BE RESTRAINED AS PER SECTION 6.05.

D7.05 TAPPING SLEEVE AND VALVE ASSEMBLY
NOT TO SCALE



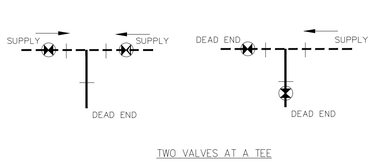
D7.06 FIRE HYDRANT ASSEMBLY
NOT TO SCALE



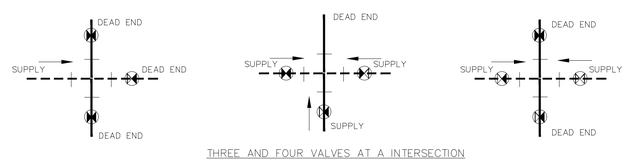
GENERAL NOTES:

1. SEE STANDARD THRUST BLOCK DIMENSIONS.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
3. VALVE BOX WILL NOT CONTACT WATER MAIN OR VALVE
4. VALVE PAD REQUIREMENTS SHALL NOT BE APPLICABLE FOR IMPROVED PAVED SURFACES.
5. LOCATION SHOULD BE COORDINATED WITH NCDOT ALONG STATE MAINTAINED ROADWAYS.
6. OBSTRUCTION FREE AREA SHALL APPLY TO ALL LOCATIONS FOR FIRE HYDRANT INSTALLATION.
7. HYDRANT LOCATION SHALL NOT INTERFERE WITH THE REQUIREMENTS OF THE NORTH CAROLINA BUILDING CODE.

D7.07 STANDARD HYDRANT LOCATION
NOT TO SCALE



TWO VALVES AT A TEE



THREE AND FOUR VALVES AT A INTERSECTION

NOTES:
1. WHEN THERE IS ONLY ONE SUPPLY LEG FEEDING TWO DEAD END LEGS,PLACE VALVES ON DEAD END LEGS.
2. WHEN THERE ARE TWO SUPPLY LEGS FEEDING ONE DEAD END LEG,PLACE VALVES ON SUPPLY LEGS.
3. WHEN ALL THREE LEGS ARE SUPPLY,ENGINEER'S CHOICE.
4. CITY MAY DESIGNATE A CURRENT DEAD END LEG AND A FUTURE SUPPLY LEG ACCORDING TO WATER PLANNING AND REQUIRE VALVE PLACEMENT ACCORDINGLY.
5. ON HYDRANT TEE, ONE VALVE IS ALWAYS ON HYDRANT LEG.

NOTES:
1. WHEN THERE IS ONLY ONE SUPPLY AND THREE DEAD END LEGS, PLACE VALVES ON DEAD END LEGS.
2. WHEN THERE ARE THREE SUPPLY LEGS AND ONE DEAD END LEG, PLACE VALVES ON SUPPLY LEGS.
3. WHEN THERE ARE TWO SUPPLY LEGS AND TWO DEAD END LEGS, PLACE VALVES ON ALL FOUR LEGS.
4. CITY MAY REQUIRE VALVE PLACEMENT BASED ON CURRENT OR FUTURE NEEDS.
5. WHEN ONE LEG AT A INTERSECTION IS A HYDRANT LEG,VALVE MUST BE PLACED ON A HYDRANT LEG. VALVING ON REMAINING LEGS TO BE PLACED AS THOUGH THEY MADE UP A TEE.
6. A "SUPPLY LEG" IS ANY LEG CONNECTED TO THE TREATED WATER SOURCE BY PIPING EQUAL AND OR GREATER THAN ITS SIZE AND SEPARATE FROM THE TEE OR CROSS BEING CONSIDERED.

D7.08 TYPICAL VALVING CONFIGURATION
NOT TO SCALE

GENERAL NOTES FOR WATER

1. WATER CONSTRUCTION ON THIS SITE MUST BE AUTHORIZED BY PERMITS ISSUED BY THE **NCDEQ PUBLIC WATER SYSTEM (PWS).** ALL SITEWORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL REGULATORY STANDARDS; AND ALL REQUIREMENTS IN THE PROJECT TECHNICAL SPECIFICATIONS.
2. CONTRACTOR TO VERIFY WITH ENGINEER THAT THE REQUIRED WATER PERMITS AND ASSOCIATED NON-WATER PERMITS HAVE BEEN OBTAINED PRIOR TO BEGINNING CONSTRUCTION.
3. ALL CONSTRUCTION SHALL BE UNDER THE OBSERVATION OF THE ENGINEER, THE OWNER, AND **PWS**. THE ENGINEER SHALL PERIODICALLY OBSERVE THE PROGRESS OF INSTALLATION AND SHALL COMPLETE A FINAL WATER AND SEWER INSPECTION. THE CONTRACTOR SHALL FURNISH, SECURE, AND PROVIDE ALL NECESSARY TESTING MATERIALS, EQUIPMENT, PROCEDURES, AND CERTIFIED LABORATORY TEST RESULTS FOR USE WITH ENGINEERS FINAL CERTIFICATION OF COMPLETION. ANY WORK COVERED PRIOR TO ENGINEER'S INSPECTION IS SUBJECT TO UNCOVERING AND BACKFILLING AT THE CONTRACTOR'S EXPENSE.
4. ALL WORK MUST BE PERFORMED BY A **NORTH CAROLINA** LICENSED UTILITY CONTRACTOR.
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING THE EXACT LOCATION AND ELEVATION FOR ALL UTILITIES PRIOR TO CONSTRUCTION; AND TO NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL BURIED UTILITIES HAVE NOT BEEN SHOWN ON THE PLANS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION.
6. CONTRACTOR SHALL PROTECT EXISTING AND NEWLY BUILT UTILITIES DURING CONSTRUCTION. ANY DAMAGE TO UTILITIES INCURRED DURING OR RESULTING FROM CONSTRUCTION ACTIVITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR IS TO NOTIFY ALL UTILITY COMPANIES AT LEAST 72 HOURS BEFORE CONSTRUCTION ACTIVITY IS TO BEGIN. THE CONTRACTOR SHALL NOTIFY ULOCO AT **1-800-632-4949** OR **811,** 72 HOURS BEFORE CONSTRUCTION BEGINS. NOTIFY THE ENGINEER AT LEAST 72 HOURS BEFORE STARTING CONSTRUCTION ACTIVITIES.
8. EROSION CONTROL IS FIELD PERFORMANCE BASED AND CONTRACTOR SHALL INSTALL AND MAINTAIN ANY EROSION CONTROL MEASURES NECESSARY TO ASSURE MAXIMUM PROTECTION OF THE SITE. CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL MEASURES REQUIRED TO CONTROL SEDIMENT DURING INSTALLATION ALL WATER PIPES AND APPURTENANCES.
9. ALL WATER LINES AND SERVICES SHALL BE CONSTRUCTED IN ACCORDANCE WITH NC PLUMBING CODES AND THE **PWS DESIGN & CONSTRUCTION MANUAL.** COORDINATE EXACT LOCATIONS OF SERVICE LINES AND APPURTENANCES WITH THE ARCHITECTURAL, PLUMBING, AND LANDSCAPING PLANS.
10. CONTRACTOR TO PROVIDE 5' MIN. LATERAL SEPARATION BETWEEN WATER LINE AND OTHER UNDERGROUND UTILITIES. SEE DETAILS FOR GENERAL NOTES CONCERNING WATER MAIN INSTALLATION REQUIREMENTS.
11. A 3' COVER DEPTH SHALL BE MAINTAINED FOR ALL PROPOSED WATER LINES, ANY NECESSARY FIELD ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER AND THE CITY INSPECTOR.
12. INSTALL FERROUS PIPING FOR BOTH WATER AND SEWER WITHIN 10' OF A CROSSING IF:
    A. SEWER LINE CROSSES OVER WATER, OR
    B. VERTICAL CLEARANCE BETWEEN WATER AND SEWER IS LESS THAN 18".
    MAINTAIN 10' HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAINS UNLESS LAID IN SEPARATE TRENCHES WITH THE BOTTOM OF THE WATER LINE AT LEAST 18" ABOVE THE TOP OF SEWER OR USE FERROUS MATERIAL FOR BOTH WATER AND SANITARY SEWER.
13. MAINTAIN 18" VERTICAL SEPARATION BETWEEN STORM DRAIN AND WATER OR THE WATER MAIN MUST BE CONSTRUCTED OF FERROUS MATERIALS FOR A DISTANCE OF AT LEAST 10-FEET TO EITHER SIDE OF THE CROSSING.
14. MAINTAIN 5' HORIZONTAL DISTANCE BETWEEN WATER LINES AND THE DRIP LINE, AT MATURITY, OF TREES AND OTHER SHRUBS.
15. **PWS** OWNERSHIP AND MAINTENANCE ENDS AT WATER METER AND/OR THE FIRE LINE ISOLATION VALVE. WATER SYSTEM BEYOND IS TO BE PRIVATELY OWNED AND MAINTAINED.
16. METERS, VAULTS, AND FIRE HYDRANTS ARE TO BE PLACED IN RELATIVELY FLAT AREAS.
17. BRASS FITTINGS MUST BE LEAD FREE PER **PWS** REQUIREMENTS.
18. CONTRACTOR RESPONSIBLE FOR ADJUSTING EXISTING WATER APPURTENANCES AS NECESSARY DUE TO ANY SITE CONSTRUCTION OR INSTALLATION.
19. TRENCH BACKFILL AND COMPACTION TESTING SHALL BE PERFORMED BY A CERTIFIED SOILS LABORATORY UNDER ALL PAVED AREAS.
20. CONTRACTOR SHALL SUPPLY THE ENGINEER WITH RECORD OF DEVIATIONS FROM PLANS FOR PREPARATION OF FINAL RECORD DRAWINGS.
21. PRESSURE TEST WATER MAINS TO 200 PSI MIN. AND 250 PSI MAX. AS PER **PWS** REQUIREMENTS. DISINFECT WATER LINES AND PROVIDE ACCEPTABLE BACTERIOLOGICAL TEST FROM A CERTIFIED TESTING LABORATORY FOR USE WITH THE ENGINEERS CERTIFICATION OF COMPLETION.
22. THE PERMITS REQUIRE CERTIFICATION OF COMPLETION BY THE ENGINEER OF THE WATER SYSTEM PRIOR TO ISSUANCE OF FINAL OPERATION APPROVAL BY **PWS**. SERVICE WILL BE PROVIDED ONCE FINAL CLOSEOUT SUBMITTALS HAVE BEEN APPROVED BY **NCDEQ'S** ENGINEERING DEPARTMENT.
23. RESTRAINED JOINTS BY AN APPROVED PIPE MANUFACTURER ARE TO BE USED FOR ALL PUBLIC LINES WHERE THRUST RESTRAINING IS REQUIRED; HOWEVER, THRUST BLOCKS ARE PERMITTED WHERE CONNECTIONS ARE MADE TO EXISTING WATER LINES OR WHERE THE USE OF MECHANICAL RESTRAINT IS NOT FEASIBLE.

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-5388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-0072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 456-4410

CDC Civil Design Concepts, PA
www.cdcpc.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. CHILDRESS 5/6/26

WATER DETAILS FOR:

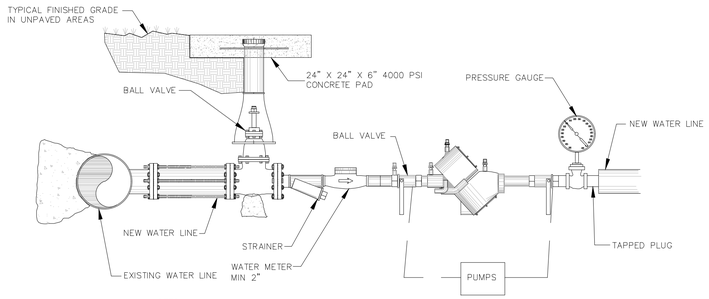
THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD BT LLC - FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

WATER DETAILS

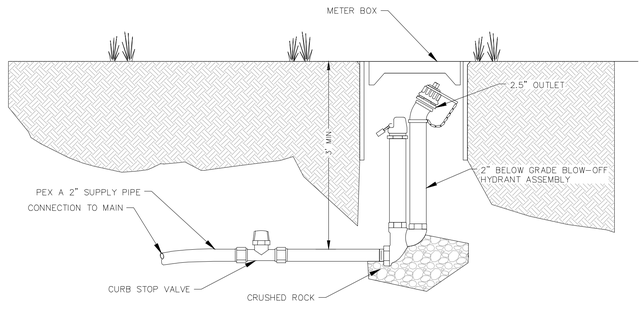
SHEET
C971



NOTES:
1. PRIOR TO CONNECTING TO THE EXISTING WATERLINE, THE NEW WATER LINE WILL BE PRESSURE TESTED, DISINFECTED AND A CLEAR WATER SAMPLE OBTAINED.
2. ALL WATER FOR FILLING AND FLUSHING OF NEW WATER LINE WILL BE DRAWN THROUGH THE DOUBLE CHECK VALVE ASSEMBLY.
3. THE COSTS FOR PROVIDING DOUBLE CHECK VALVE ASSEMBLY AND SLEEVE NECESSARY FOR FINAL CONNECTION WILL BE INCIDENTAL TO THE WATER LINE INSTALLATION.
4. CONTRACTOR WILL BE REQUIRED TO HAVE WATER METER TESTED TO MEET ACCURACY STANDARDS OF AWWA C700, BY THE CITY OF ASHEVILLE WATER MAINTENANCE DIVISION ANNUALLY. METER MUST BEAR A CERTIFICATION TAG AT ALL TIMES.

D7.12 NEW WATER LINE PRESSURE TEST BACKFLOW PREVENTION ASSEMBLY

NOT TO SCALE



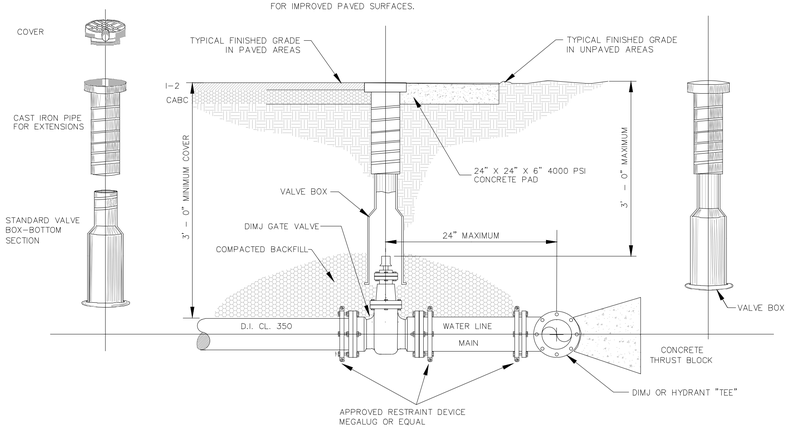
NOTES:
1. USE OF THIS DETAIL FOR PRIVATE DEVELOPMENT REQUIRES APPROVAL BY THE CITY.
2. BLOWOFF HYDRANTS SHALL BE NON-FREEZING,SELF DRAINING TYPE, WITH A DEPTH OF BURY 3' MIN.
3. THESE HYDRANTS WILL BE FURNISHED WITH A 2" FIP INLET, A NON-TURNING OPERATING ROD, AND SHALL OPEN TO THE LEFT.
4. ALL OF THE WORKING PARTS SHALL BE OF BRONZE-TO-BRONZE DESIGN WITH AN ALUMINUM PLUNGER AND SERVICEABLE FROM ABOVE GRADE WITH NO DIGGING.
5. THE OUTLET SHALL BE BRONZE AND BE 2.5" NST OR SMALLER. HYDRANTS SHALL BE LOCKABLE TO PREVENT UNAUTHORIZED USE.
6. SPECIFY DEPTH OF BURY AND OVERALL LENGTH WILL BE 6" SHORTER. MINIMUM OPENING IN WATER TO METER BOX SHOULD BE 10".

D7.13 STANDARD BELOW GRADE BLOWOFF HYDRANT

NOT TO SCALE

NOTES:
CONSTRUCTION OF TRENCHES SHALL BE IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE REGULATIONS. NO BOULDERS OR STONES IN EXCESS OF 4" IN SIZE SHALL BE USED AS PART OF THE INITIAL BACKFILL. PIPE BEDDING MATERIAL SHALL BE # 57 WASHED STONE.

GENERAL NOTES:
1. SEE STANDARD THRUST BLOCK DIMENSIONS.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
3. VALVE BOX WILL NOT CONTACT WATER MAIN OR VALVE
4. VALVE PAD REQUIREMENTS SHALL NOT BE APPLICABLE FOR IMPROVED PAVED SURFACES.



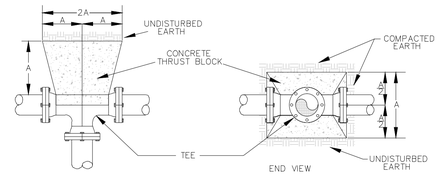
D7.09 GATE VALVE ASSEMBLY DETAIL

NOT TO SCALE

TABLE OF "A" DIMENSIONS (IN FEET)

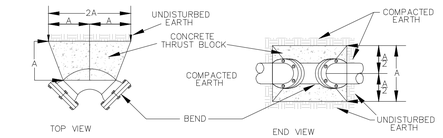
PIPE SIZE (NOMINAL DIAMETER IN INCHES)	BEND	90	45	22 1/2	11 1/4	TEE
	6	1.4	1.1	1.0	1.0	1.2
	8	1.9	1.5	1.5	1.5	1.6
	10	2.4	1.8	1.8	1.8	2.0
	12	2.8	2.1	2.0	2.0	2.4
	16	3.8	2.8	2.5	2.5	2.8
	24	5.6	4.2	3.0	3.0	4.5

NOTES:
1. ALL FITTINGS MUST BE RESTRAINED AS SPECIFIED IN SECTION 6.05 OF THE STANDARD SPECIFICATIONS AND DETAILS MANUAL.
2. DIMENSION TABLE GIVEN IS A GUIDE ONLY. ENGINEER SHALL BE RESPONSIBLE TO CALCULATE THRUST BLOCK DIMENSIONS BASED ON ACTUAL SOIL AND OPERATING PRESSURE CONDITIONS.
3. FITTING JOINTS SHALL BE KEPT FREE OF CONCRETE. A LAYER OF POLYETHYLENE PLASTIC SHALL BE PLACED BETWEEN THE FITTING AND THE CONCRETE.
4. PRE-CAST THRUST BLOCKS ARE NOT ACCEPTABLE.
5. CONCRETE SHALL HAVE 4000 P.S.I. COMPRESSIVE STRENGTH.



TYPICAL THRUST BLOCKS FOR TEES

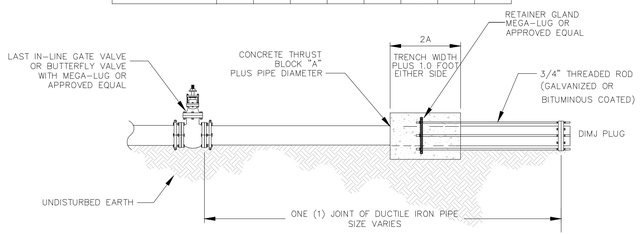
NOT TO SCALE



D7.10 THRUST BLOCKS FOR BENDS & FITTINGS

NOT TO SCALE

	PIPE SIZE (NOMINAL DIAMETER IN INCHES)						
	6	8	10	12	16	24	
"A" DIMEN. IN FEET	1.2	1.6	2.0	2.4	2.8	4.5	



1. ALL FITTINGS MUST BE RESTRAINED AS SPECIFIED IN SECTION 6.05 OF THE STANDARD SPECIFICATIONS AND
2. DIMENSION TABLE GIVEN IS A GUIDE ONLY. ENGINEER SHALL BE RESPONSIBLE TO CALCULATE THRUST BLOCK DIMENSIONS BASED ON ACTUAL SOIL AND OPERATING
3. FITTING JOINTS SHALL BE KEPT FREE OF CONCRETE. A LAYER OF POLYETHYLENE PLASTIC SHALL BE PLACED BETWEEN THE FITTING AND THE CONCRETE.

D7.11 TYPICAL END OF LINE PLUG

NOT TO SCALE

WATER DETAILS

84 COXE AVENUE - SUITE 260
ASHEVILLE, NC 28801
PHONE (828) 252-3388

110 WEST 1ST AVENUE - SUITE A
EASLEY, SC 29640
PHONE (864) 242-5072

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE (828) 452-4410

CDC Civil Design Concepts, PA
www.cdcpa.com
NCBELS #: C-2194 SCLLR #: 4736

NO.	DATE	DESCRIPTION	BY
5	05/06/2026	FOREST CITY PLANNING SUBMITTAL	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 055140 DONALD S. PUNSON

WATER DETAILS FOR:

THE PRESERVE AT BRACKETTS CREEK

DANIEL ROAD, BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET

C972

Town of Forest City
PO Box 728
Forest City, NC 28043

February 5, 2026

To: Donald Penson, PE
Civil Design Concepts
84 Coxe Ave, Suite 260
Asheville NC 28801

From: Sonny Penson
Public Works Director
Town of Forest City

Subject: Water, **Sewer, Power for Daniel Rd Subdivision**

Donald,

The Town of Forest City Public Works Department has looked over your email dated Feb 4, 2026. Based on the utility demands you have provided, our water, sewer, and electric departments can accommodate the 164 units you've specified. I had John Hardin, Distribution and Collections System Superintendent, perform a hydrant flow test on Piney Ridge Road this morning. His number showed 840 gpm @ 25 psi. Static pressure was 35 psi at next hydrant.

Relating to sewer Daniel Rd currently has an 8" sewer line that tie into a 12" sewer at the bottom of the hill flowing across the subdivision property near the creek. If all taps are on the 12" line, we see no issues with tie in.

Electric is available along Daniel Road currently. As discussed, our capital improvement plan calls for an easement to allow us to tie our Mall circuit along Oak Street to the circuit on Daniel Road.

If you require anything else from my office, please let me know.

Respectfully submitted,

Sonny Penson
Public Works Director
Town of Forest City NC

JOSH STEIN
Governor
D. REID WILSON
Secretary
WILLIAM E. TOBY VINSON, JR
Director

NORTH CAROLINA
Environmental Quality

04-17-2026

LETTER OF APPROVAL

Daniel Road BT LLC
ATTN: Mr. William B. Taylor II
4005 Hendersonville Rd
Fletcher, NC 28732

RE: Project Name: Daniel Road Subdivision
Permit Number: RUTHE-2026-0147
Acres Approved: 41
County: Rutherford
City: Forest City
Address: 615 Piney Ridge Rd
River Basin: Broad
Stream Classification: C: Aquatic Life, Secondary Contact Recreation, Fresh water
Plan Type: Revised Plan

Dear Mr. Taylor,

This office has received and reviewed the subject erosion and sedimentation control plan. We find the plan to be acceptable and hereby issue this Letter of Approval. The enclosed Certificate of Approval must be posted at the job site. This plan shall expire three (3) years following the date of approval, if no land disturbing activity has been undertaken, as is required by Title 15A NCAC 4B .0129.

As of April 1, 2019, all new construction activities are required to complete and submit an electronic Notice of Intent (eNOI) form requesting a COC under the NCG010000 Construction Stormwater General Permit. You must apply for coverage by submitting a "Construction Stormwater – NCG01 (Subject to the SPCA) in the AccessDEQ Portal. Once your application is complete, you will receive an invoice for the $127 annual permit fee and can submit payment through the AccessDEQ Portal. Once the fee is processed and the application approved, you will receive the COC via email. As the Financially Responsible Party shown on the FRO form submitted for this project, you MUST obtain the COC prior to commencement of any land disturbing activity. Please direct questions about the eNOI form to the Stormwater Program staff in the Raleigh central office. If the owner/operator of this project changes in the future, the new responsible party must obtain a new COC.

Title 15A NCAC 4B .0118(a) and the NCG01 permit require that the following documentation be kept on file at the job site:

1. The approved E&SC plan as well as any approved deviation.
2. The NCG01 permit and the COC, once it is received.
3. Records of inspections made during the previous 12 months.

Also, this letter gives the notice required by G.S. 113A-61.1(a) of our right of periodic inspection to ensure compliance with the approved plan.

North Carolina's Sedimentation Pollution Control Act is performance-oriented, requiring protection of existing natural resources and adjoining properties. If, following the commencement of this project, the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statute 113A-51 through 66), this office may require revisions to the plan and implementation of the revisions to ensure compliance with the Act.

Acceptance and approval of this plan is conditioned upon your compliance with Federal and State water quality laws, regulations, and rules. In addition, local city or county ordinances or rules may also apply to this land-disturbing activity. This approval does not supersede any other permit or approval.

Please note that this approval is based in part on the accuracy of the information provided in the Financial Responsibility Form and on the plan, which you provided. You are requested to file an amended form if there is any change in the information included on the form.

Your cooperation is appreciated.

Sincerely,



Michael Smith
Assistant Regional Engineer
Division of Energy, Mineral and Land Resources
North Carolina Department of Environmental Quality

828 296-4500 main
828 296-4621 office
michael.smith@deq.nc.gov

2090 US70 Highway
Swannanoa, NC 28778-8211

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

DANIEL H. JOHNSON
SECRETARY

March 13, 2026

Jayson (Jay) B. Clapp, Jr., P.E., PTOE – RFK Engineers

Prepared for:
Civil Design Concepts, P.A.
84 Coxe Avenue, Suite 260
Asheville, NC 28801

SUBJECT: ****TIA Approval** Daniel Road Subdivision -** Located in the northeast quadrant of SR 2184 (Daniel Rd.) and SR 2159 (Piney Ridge Rd.) in Forest City, Rutherford County Division 13, District 1. The parcel identified on Rutherford GIS website as Pin# 1538492388(47.43 Acres).

The Department has performed a TIA and Site Plan review of the subject development located in the northeast quadrant of SR 2184 (Daniel Rd.) and SR 2159 (Piney Ridge Rd.) in Forest City, Rutherford County. The proposed development is anticipated to be completed in 2030 and is to consist of residential land use generating 1,591 unadjusted daily trips. At full build out, the development is assumed to consist of the following uses:

- 164 Single Family Detached Units (Land Use: 210)

The Department has determined the following listed improvement(s) (please see attached document) are required to be done in accordance with the Policy on Street and Driveway Access to North Carolina Highways. All improvements and documentation shall be shown on the plans and provided as part of the package submitted to the NCDOT District Office for review and approval of a Driveway Access Permit.

All work is to be done in strict compliance with the North Carolina Department of Transportation Standards and Specifications. At your convenience, please submit a driveway access permit in accordance and provide all necessary documentation. Feel free to give us a call at the District Office (828) 803-6100 if you would like to discuss further.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION THIRTEEN, DISTRICT ONE
3931 NC 226 SOUTH
MARION, NORTH CAROLINA 28752

Telephone: (828) -803-6100
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
3931 NC 226 SOUTH
MARION, NC 28752

Cordially,

DocuSigned by:
Chad Young
755B82AD1C8D434...

Chad Young
District Engineer - Division 13, District 1

JCY/brb

Attachments
File

Daniel Road Subdivision TIA

SC-2025-209 **Rutherford County**

Per your request, the Congestion Management Section (CMS) of the Transportation Mobility and Safety Division has completed a review of the subject site. The comments and recommendations contained in this review are based on data for background conditions presented in the sealed Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities.

Key Dates	
Initially Received by CMS	02/16/2026
Date of Latest Information Received by CMS	02/16/2026
Date of Preliminary Review Accepting TIA for Review	03/11/2026
Sealed TIA Prepared by RFK Engineers	02/13/2026

Proposed Development

According to the TIA, the proposed Daniel Road Subdivision is to be located on SR 2184 (Daniel Rd) in Rutherford County. The TIA states the development is to be constructed by 2030 and is to consist of the following:

Land Use	Land Use Code	Size
Single-Family Detached Housing	210	164 DU

Trip Generation - Unadjusted Volumes During a Typical Weekday
Based on appropriate methodology outlined in the *ITE Trip Generation Manual, 11th Ed.*

	IN	OUT	TOTAL
AM Peak Hour	29	88	117
PM Peak Hour	100	58	158
Daily Trips			1,591

Requested Access Points		
Driveway	Public Roadway	Access Type
1	SR 2184 (Daniel Rd)	All-Movement
2	SR 2159 (Piney Ridge Rd)	All-Movement
3	SR 2184 (Daniel Rd)	All-Movement

Rutherford County Comprehensive Transportation Plan	
Route	Facility Vision
SR 2184 (Daniel Rd)	Minor Thoroughfare - Existing
SR 2159 (Piney Ridge Rd)	Minor Thoroughfare - Existing
US 74 Alt (College Ave)	Boulevard - Existing

TIP Projects in Study Area
None in Area

TIA Comments

The following items vary from our recommended practices (cumulative of all TIA submittals):
• Total lost time must be equal to 5 seconds per the NCDOT Capacity Analysis Guidelines. • One or more cycle lengths were coded incorrectly per the NCDOT Capacity Analysis Guidelines.

General Reference

For reference to various documents applicable to this review please reference the following links: https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx and https://connect.ncdot.gov/resources/safety/Teppl/Pages/Teppl-Topic.aspx?Topic_List=C37.

It should be noted that poor LOS and excessive queuing may persist throughout network after recommended developer and outside mitigation.

Analysis of all lanes with finite storage should include an appropriate default taper of 100 feet or more in the analysis. Our storage distances in our reports are minimums that do not include deceleration or taper distances.

CMS defers to the District Engineer, the Division Traffic Engineer, and the Regional Traffic Engineer for final decisions regarding signalization or signal modification.

Any signing and pavement marking revisions/modifications or improvements necessitated by the development should be the responsibility of the developer unless otherwise noted.

It should be noted that the comments and recommendations contained in this review are subject to the approval of the local District Engineer's Office.

Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact the Congestion Management Section at (919) 814-5000.

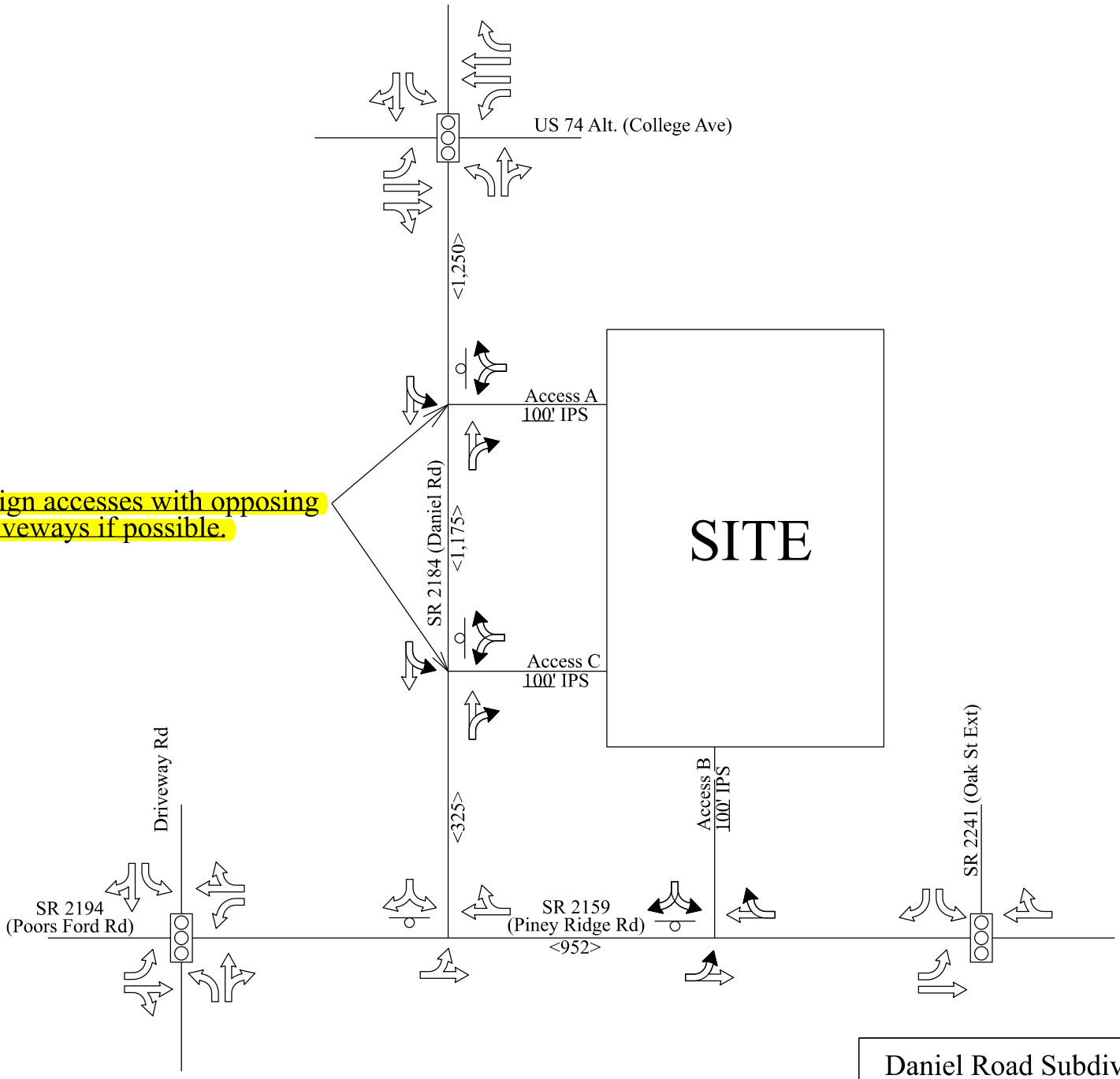
Requirements

Refer to attached diagram(s).

Network Analysis

Based on opening year 2030.

□



Daniel Road Subdivision
SC-2025-209

- Existing Laneage
- Recommended Laneage
- Laneage Built By Others
- NCDOT Recommendation
- Existing Signal
- Signal Proposed By Others
- Proposed Signal
- XXX Storage
- <XXX> Distance Between Intersections
- XXX NCDOT Recommendation
- IPS Internal Protected Stem
- All Distances in Feet
- Drawing Not to Scale

CPK 03/11/2026

TRAFFIC IMPACT ANALYSIS
DANIEL ROAD SUBDIVISION

FOREST CITY, NORTH CAROLINA

FEBRUARY 2026

TRAFFIC IMPACT ANALYSIS

FOR THE

DANIEL ROAD SUBDIVISION

LOCATED IN

FOREST CITY, NORTH CAROLINA

Prepared for:
Civil Design Concepts, P.A.
84 Coxe Avenue, Suite 260
Asheville, NC 28801

Prepared by:
RFK Engineers PLLC
5808 Faringdon Place, Box 9
Raleigh, NC 27609
License # P-2254



2-13-26

February 2026

Project No. 24-034

EXECUTIVE SUMMARY

This report summarizes the findings of the Traffic Impact Analysis (TIA) that was prepared for the Daniel Road Subdivision development in Forest City, North Carolina. The residential development, which is anticipated to be fully built out by the year 2030, is proposed to consist of up to 164 single-family dwelling units and is located on the east side of Daniel Road between College Avenue and Piney Ridge Road.

The purpose of this study is to determine the potential impacts to the transportation system caused by the additional traffic generated by the proposed development, as well as identify improvements to mitigate any impacts, if necessary.

The study analyzed the following existing intersections in addition to the two (2) site access connections on Daniel Road and the access connection on Piney Ridge Road during the weekday AM and PM peak hours under existing (2024), future (2030) no build, and future (2030) build traffic conditions.

- College Avenue and Daniel Road
- Piney Ridge Road and Daniel Road
- Piney Ridge Road and Oak Street Extension
- Oakland Road and Poors Ford Road/Piney Ridge Road

Utilizing the 11th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, the proposed residential development is expected to generate 1,591 total daily trips (entering and exiting), with 117 trips (29 entering and 88 exiting) occurring during the AM peak hour and 158 trips (100 entering and 58 exiting) during the PM peak hour upon full build out.

Based on the findings of this study, the proposed development is not expected to have a significant impact on the adjacent transportation network. When compared to the future no build conditions, similar levels of operations are expected and the increase in delays are anticipated to be less than 5.0 seconds per vehicle with the addition of site trips. In addition, comparable queues are expected. Therefore, it was concluded that no mitigation is needed to accommodate the additional site trips.

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TRAFFIC IMPACT ANALYSIS
DANIEL ROAD SUBDIVISION
FOREST CITY, NORTH CAROLINA

1. INTRODUCTION

This report summarizes the findings of the Traffic Impact Analysis (TIA) that was prepared for the Daniel Road Subdivision development in Forest City, North Carolina. The purpose of this study is to determine the potential impacts to the transportation system caused by the additional traffic generated by the proposed development, as well as identify improvements to mitigate any impacts, if necessary.

The residential development, which is anticipated to be fully built out by the year 2030, is proposed to consist of up to 164 single-family dwelling units.

The study analyzed traffic during the weekday AM and PM peak hours for the following conditions:

- Existing (2024) Traffic Conditions
- Future (2030) No Build Traffic Conditions
- Future (2030) Build Traffic Conditions

1.1. Site Location and Study Area

The site is located on the east side of Daniel Road between College Avenue and Piney Ridge Road in Forest City, North Carolina. Refer to Figure 1 for the site location map and Figure 2 for the site plan.

The study area for the TIA was determined through coordination with the North Carolina Department of Transportation (NCDOT) and consists of the following existing intersections in addition to the two (2) site access connections on Daniel Road and the access connection on Piney Ridge Road.

- College Avenue and Daniel Road
- Piney Ridge Road and Daniel Road
- Piney Ridge Road and Oak Street Extension
- Oakland Road and Poors Ford Road/Piney Ridge Road

Refer to Appendix A for a copy of the approved NCDOT TIA Scoping Checklist.



LEGEND

Proposed Site Location

Existing Study Intersection

N

RFK Engineers

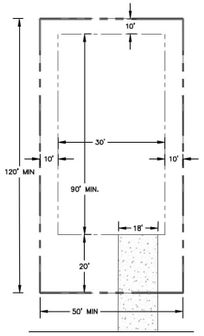
Daniel Road Subdivision
Forest City, NC

Site Location Map

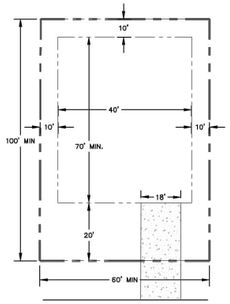
Not to Scale | Figure 1

SITE NOTES

1. ALL SITEWORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL REGULATORY STANDARDS AND ALL REQUIREMENTS IN THE PROJECT TECHNICAL SPECIFICATIONS.
2. SINGLE-PHASE CONSTRUCTION.
3. ALL WORK MUST BE PERFORMED BY A NORTH CAROLINA LICENSED CONTRACTOR.
4. TO SCHEDULE THE REQUIRED INSPECTIONS ON ALL WORK, CALL THE CIVIL DESIGN CONCEPTS INSPECTIONS HOTLINE AT 828-771-4755, OR EMAIL AT INSPECTIONS@CDCGO.COM. FAILURE TO SCHEDULE INSPECTIONS MAY RESULT IN UNCOVERING OR REDOING WORK
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING THE EXACT LOCATION AND ELEVATION FOR ALL UTILITIES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL BURIED UTILITIES HAVE NOT BEEN SHOWN ON THE PLANS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION. CONTACT ENGINEER TO CONFIRM IF ADDITIONAL PERMITS ARE NEEDED.
6. CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES (SHOWN TO REMAIN) AND NEWLY COMPLETED WORK DURING CONSTRUCTION. ANY DAMAGE INCURRED DURING OR RESULTING FROM CONSTRUCTION ACTIVITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR IS TO NOTIFY ALL UTILITY COMPANIES AT LEAST 72 HOURS BEFORE CONSTRUCTION ACTIVITY IS TO BEGIN. THE CONTRACTOR SHALL NOTIFY ULOCO AT 1-800-632-4949 OR 811, 72 HOURS BEFORE CONSTRUCTION BEGINS.
8. SIDEWALKS SHALL BE CONSTRUCTED IN ORDER TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES. SIDEWALKS TO MEET ALL ADA/PROWAG STANDARDS. CONTRACTOR TO NOTIFY ENGINEER AFTER FORMING BUT PRIOR TO POURING SIDEWALK. ANY SIDEWALK/CROSSWALK NOT INSTALLED TO REQUIRED STANDARDS SHALL BE REMOVED AND REPLACED AT CONTRACTORS EXPENSE.
9. ALL ROAD/PARKING LOT IMPROVEMENTS, STRIPING AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LOCAL JURISDICTION AND THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICE (MUTCD). CONTRACTOR MAY USE A PAINT SUITABLE FOR ASPHALT APPLICATION IN LIEU OF THERMOPLASTIC WITH PRIOR APPROVAL FROM THE ENGINEER.
10. CURB AND GUTTER ON THE HIGH SIDE OF PAVED AREAS AND ROADS SHALL BE CONSTRUCTED WITH SPILLOUT CURB AND GUTTER. CURB AND GUTTER ON THE LOW SIDE SHALL BE CONSTRUCTED WITH STANDARD CURB AND GUTTER; REFER TO SPILLOUT CURB AND GUTTER DETAILS. CURB END TREATMENT SHALL BE APPLIED AT ALL CURB ENDS; REFER TO CURB END TREATMENT DETAIL.
11. PROPOSED ROADS TO BE PRIVATE. NCDOT IS NOT RESPONSIBLE FOR ANY ROAD MAINTENANCE.

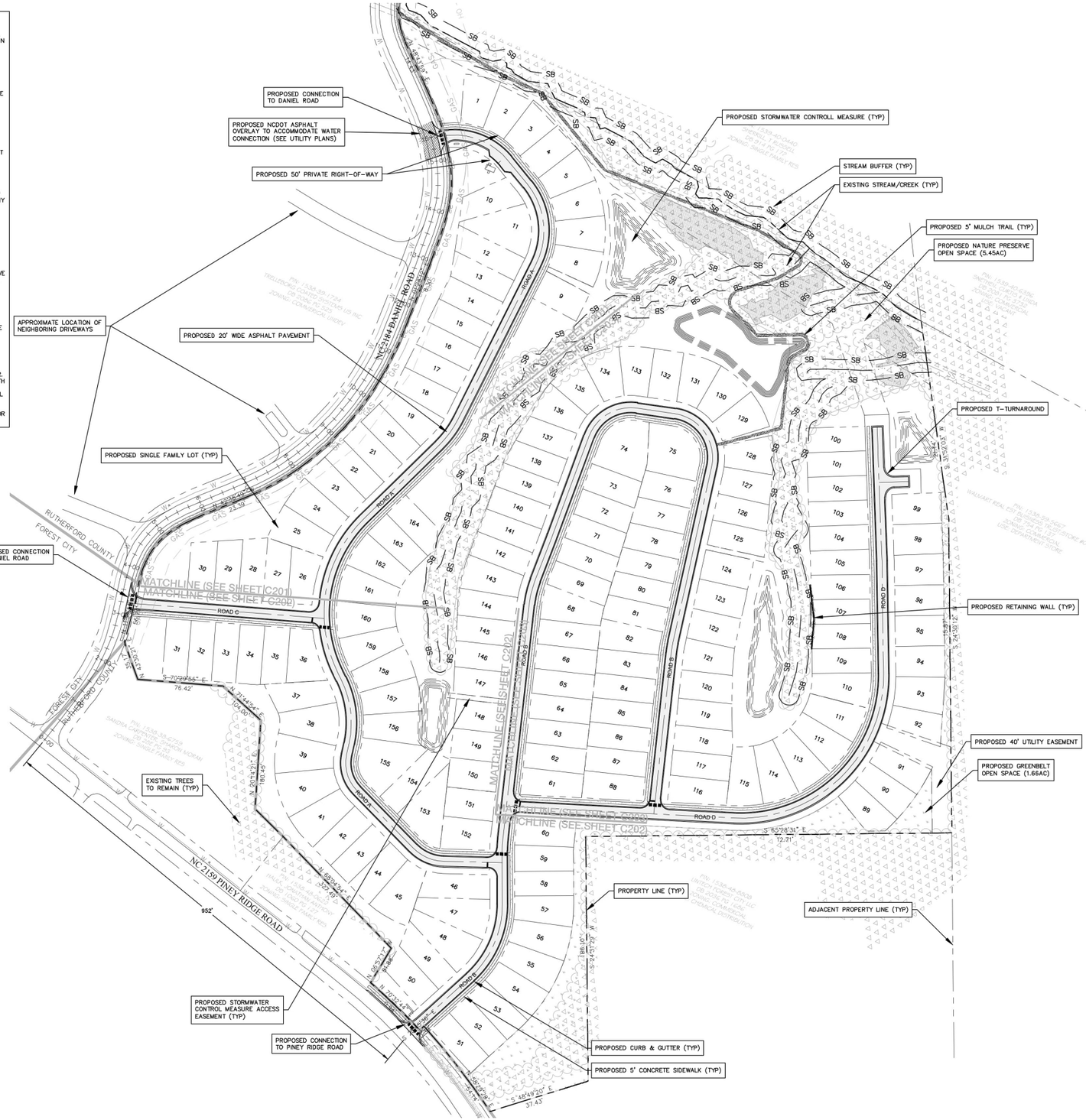


TYPE 1 - SINGLE FAMILY
LOT W/INTERNAL SETBACKS
MIN. LOT SQUARE FOOTAGE: 6,000 SF
NOT TO SCALE



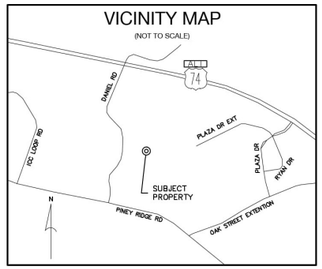
TYPE 2 - SINGLE FAMILY
LOT W/INTERNAL SETBACKS
MIN. LOT SQUARE FOOTAGE: 6,000 SF
NOT TO SCALE

*NOTE: 60' BUILDING PAD DEPTH ACCOMMODATED (DOES NOT INCLUDE REAR PATIOS/DECKS)



VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28723-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 168 PATTON AVENUE ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	0 PINEY RIDGE RD
DEED BOOK/PAGE:	0963/050
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.1± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	13.4 ACRES (28%)
PERVIOUS AREA:	47.4 ACRES (100%)	34.0 ACRES (72%)

ZONING DATA

DENSITY CALCULATIONS:

ALLOWED:	7 UNITS/ACRE
PROJECT UNITS:	152 UNITS ÷ 3.21 UNITS/ACRE
TOTAL LOT ACREAGE:	23.80 ACRES

STREET CALCULATIONS:

LINEAR FEET:	6225 LF
ROW AREA:	7.06 ACRES

OPEN SPACE CALCULATIONS:

REQUIRED: 7.11 AC (15%) PROVIDED: 7.11 AC

SITE LEGEND

- LOT LINE
- SETBACK LINE
- EASEMENT LINE
- SAWCUT LINE
- PROPERTY LINE
- ADJ. PROPERTY LINE
- PROPOSED 10' X 70' SIGHT TRIANGLE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE SIDEWALK

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's below. Call before you dig.

NORTH

MASTER SITE PLAN

GRAPHIC SCALE

100 0 50 100 200 300

(IN FEET)
1 inch = 100 ft.

RFK Engineers

Daniel Road Subdivision
Forest City, NC

Site Plan

Not to Scale | Figure 2

1.2. Proposed Land Use and Site Access

The Daniel Road Subdivision is proposed to consist of 164 single-family dwelling units. Site access is to be provided via two (2) full movement connections on Daniel Road and one (1) full movement connection on Piney Ridge Road.

1.3. Adjacent Land Uses

The proposed development is in an area consisting primarily of commercial and industrial development in the immediate vicinity of the proposed site south of College Avenue and residential development and a soccer park south of Piney Ridge Road.

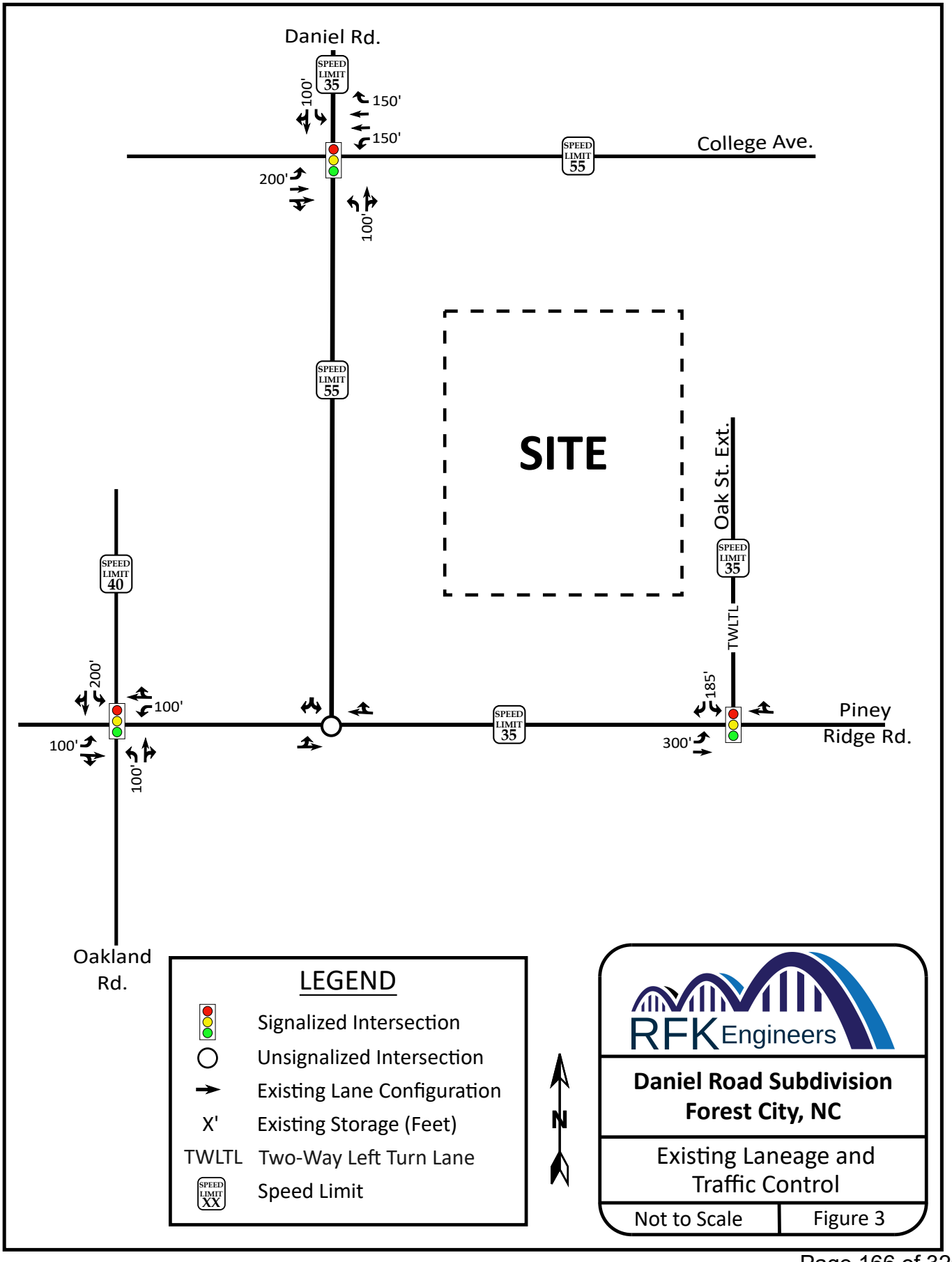
1.4. Existing Roadways

Existing lane configurations (number of traffic lanes on each intersection approach), storage capacities, traffic control, and other roadway information within the study area are illustrated in Figure 3. Table 1 also provides a summary of information about the existing roadways.

Table 1: Existing Roadways

Road Name	Route Number	Typical Cross Section	Speed Limit	2023 AADT (vpd)
College Avenue	US 74 ALT	4-lane divided	55 mph	18,500 west of Daniel Road 21,500 east of Daniel Road
Daniel Road	SR 2184	2-lane undivided	55 mph	1,020 south of College Avenue[1] 840 north of Piney Ridge Road[1]
Piney Ridge Road	SR 2159	2-lane undivided	35 mph	5,600
Oakland Road	SR 2169	2-lane undivided	40 mph	3,800[2]
Oak Street Ext.	SR 2241	3-lane undivided	35 mph	8,100

1. Annual Average Daily Traffic (AADT) assumed to be 10% of PM peak hour volume
2. NCDOT 2022 AADT



RFK Engineers

Daniel Road Subdivision
Forest City, NC

Existing Laneage and Traffic Control

Not to Scale | Figure 3

2. EXISTING TRAFFIC CONDITIONS

Existing peak hour traffic volumes were determined based on traffic counts conducted in December of 2024 at the study intersections listed below, during the typical weekday AM (7:00 to 9:00 AM) and PM (4:00 to 6:00 PM) peak periods while schools were in session.

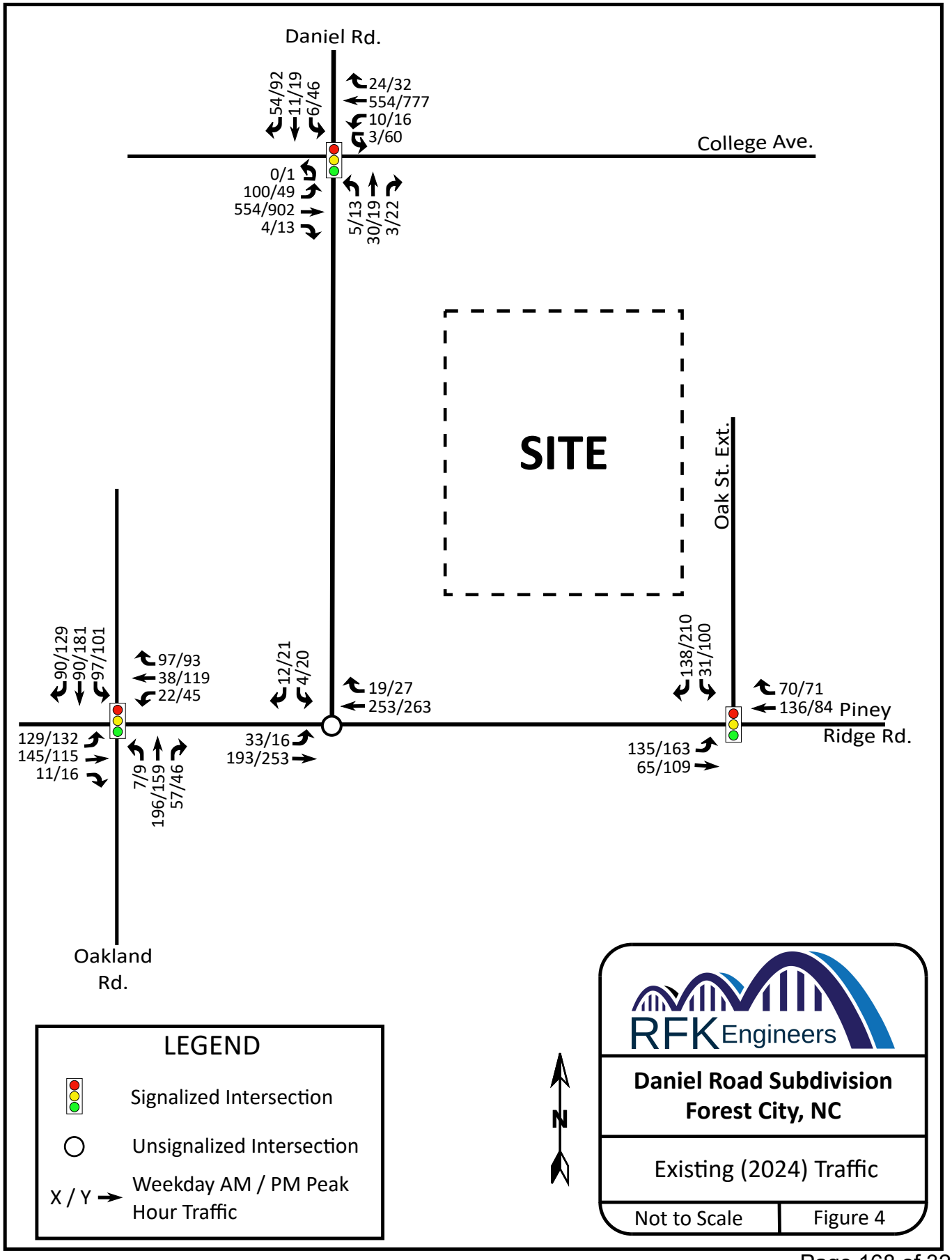
- College Avenue and Daniel Road
- Piney Ridge Road and Daniel Road
- Piney Ridge Road and Oak Street Extension
- Oakland Road and Poors Ford Road/Piney Ridge Road

2.1. Existing Peak Hour Traffic

Refer to Figure 4 for an illustration of the existing (2024) peak hour traffic volumes. A copy of the raw count data can be found in Appendix A of this report.

2.2. Analysis of Existing Peak Hour Traffic

The existing weekday AM and PM peak hour traffic volumes were analyzed to determine the current levels of service at the study intersections with existing lane configurations and traffic control. The results of the analysis are presented in Section 7 of this report.


Daniel Rd.
College Ave.
Oak St. Ext.
Piney Ridge Rd.
Oakland Rd.
SITE
54/92
11/19
6/46
24/32
554/777
10/16
3/60
0/1
100/49
554/902
4/13
5/13
30/19
3/22
90/129
90/181
97/101
97/93
38/119
22/45
12/21
4/20
19/27
253/263
138/210
31/100
70/71
136/84
129/132
145/115
11/16
7/9
196/159
57/46
33/16
193/253
135/163
65/109
LEGEND
Signalized Intersection
Unsignalized Intersection
X / Y
Weekday AM / PM Peak Hour Traffic
N
RFK Engineers
Daniel Road Subdivision
Forest City, NC
Existing (2024) Traffic
Not to Scale
Figure 4

3. FUTURE NO BUILD TRAFFIC CONDITIONS

To account for the growth of traffic and subsequent traffic conditions in a future year, background traffic projections are needed. Background traffic is the component of traffic due to the growth of the community and surrounding area that is anticipated to occur regardless of whether the proposed site is developed. Background traffic is comprised of existing traffic growth within the study area in addition to traffic generated by approved development.

3.1. Ambient Traffic Growth

Through coordination with NCDOT, it was determined that no annual growth rate should be used to project future (2030) weekday AM and PM peak hour traffic volumes due to negligible growth within the area.

3.2. Approved Development Traffic

As indicated in the approved scope, it was determined that one (1) approved development should be included in this analysis, Legacy Soccer Park. The soccer park is located on the south side of Piney Ridge Road west of Daniel Road.

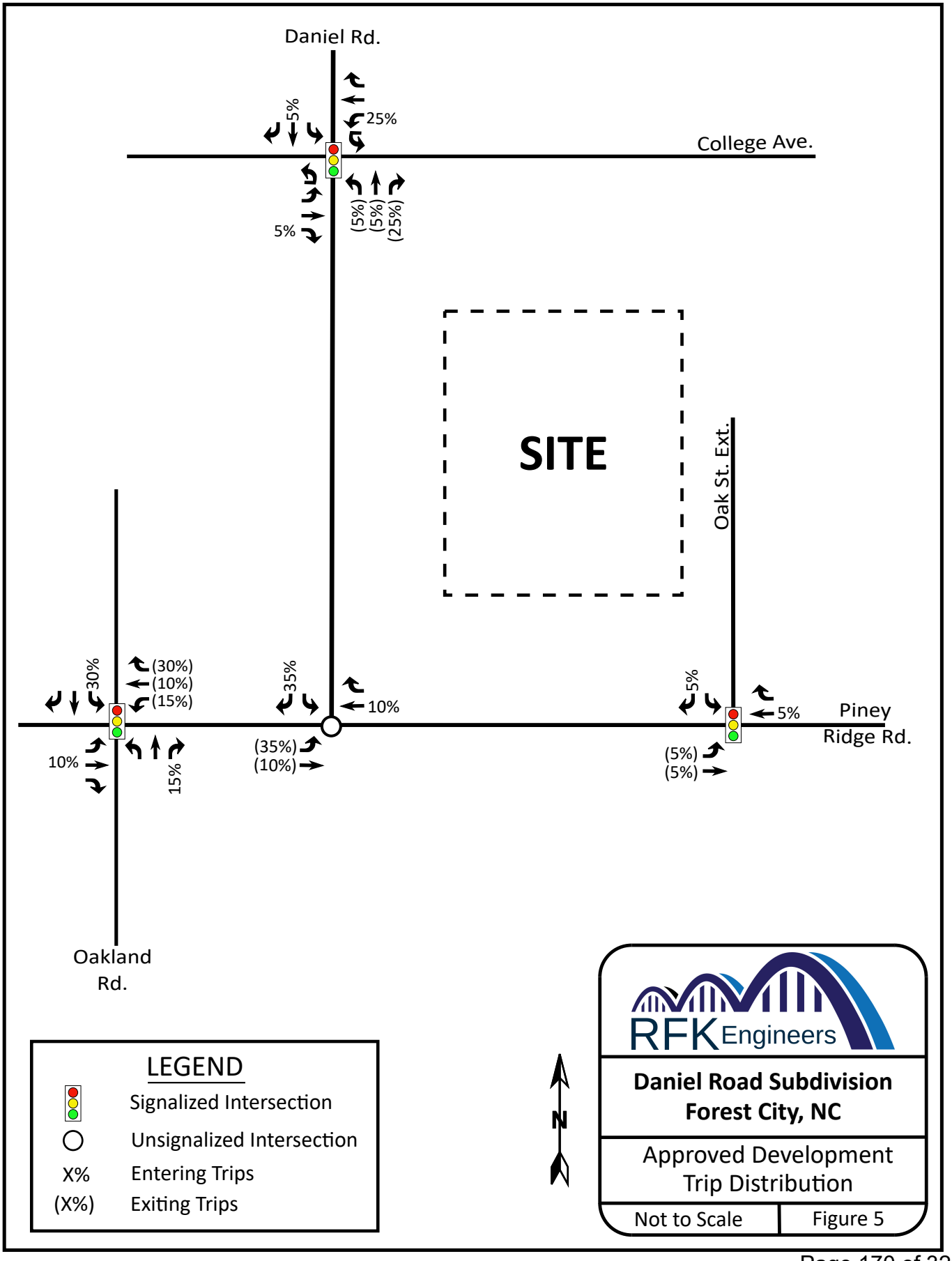
Refer to Figure 5 for an illustration of the approved development trip distribution and Figure 6 for an illustration of the approved development's AM and PM peak hour trips. More detailed information for the approved development can be found in Appendix B.

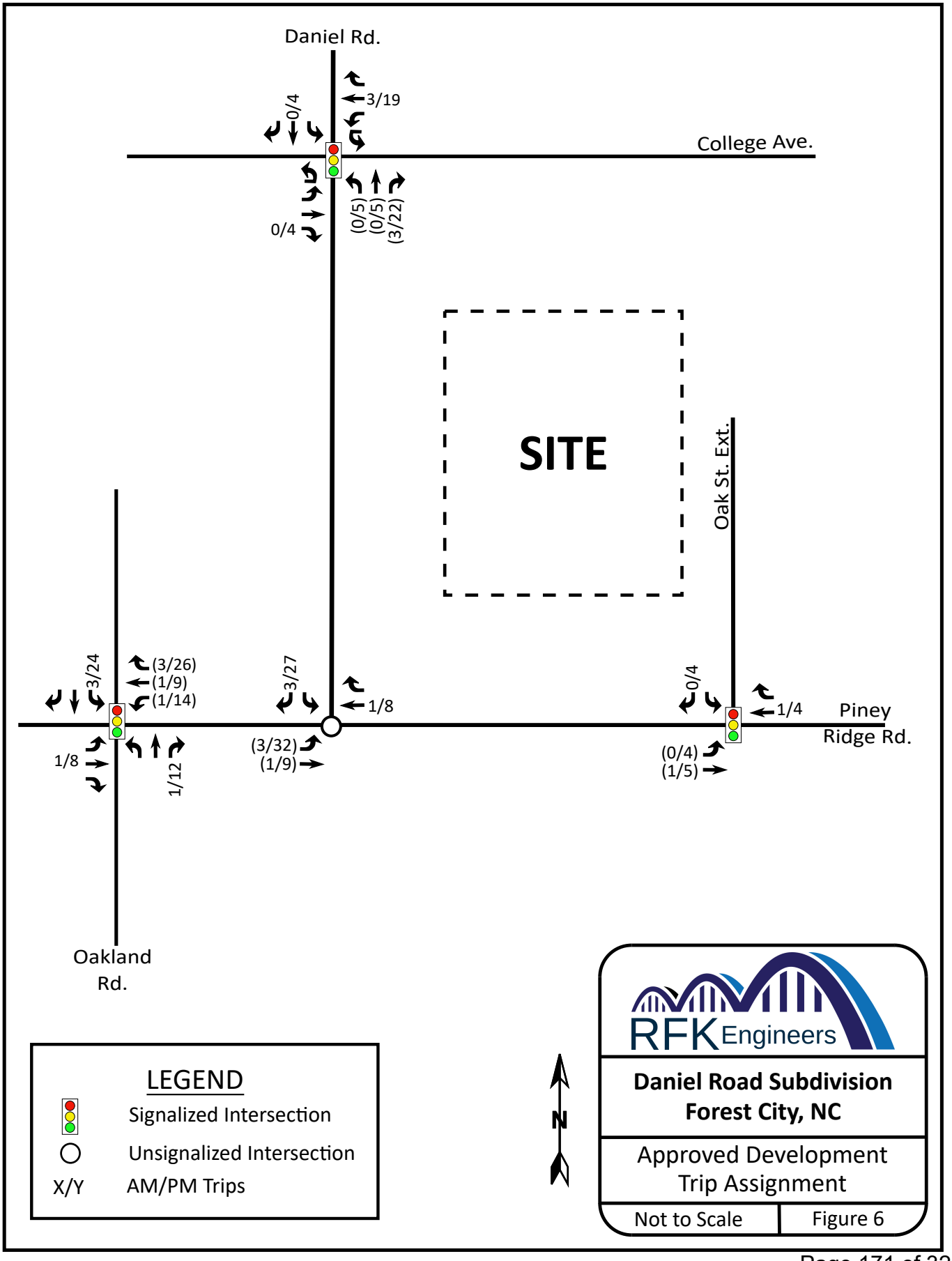
3.3. Future No Build Peak Hour Traffic

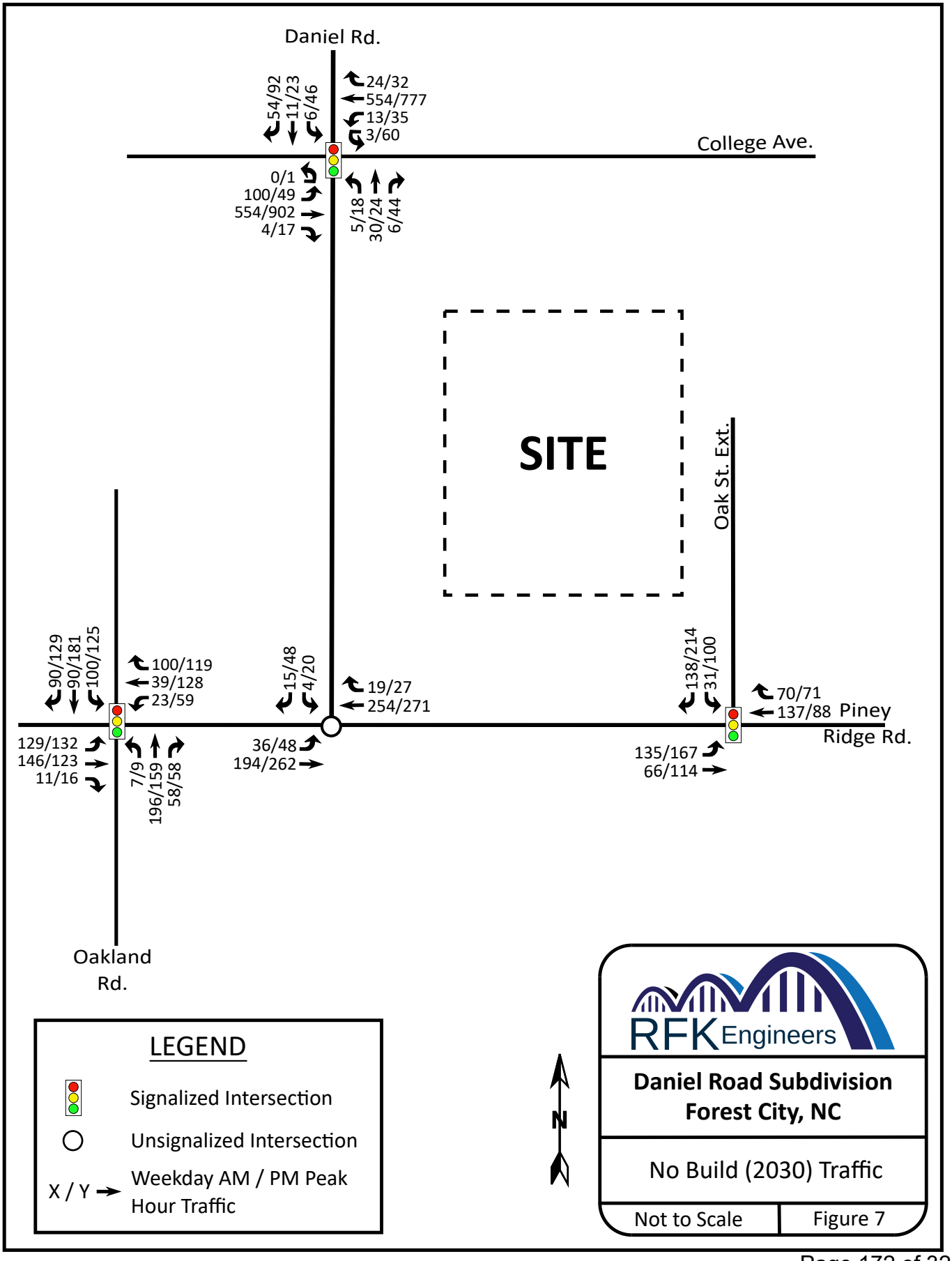
The approved development trips were added to the existing traffic volumes to determine the future no build traffic volumes. Refer to Figure 7 for an illustration of the future (2030) no build peak hour traffic volumes.

3.4. Analysis of Future No Build Peak Hour Traffic

The future no build AM and PM peak hour traffic volumes at the study intersections were analyzed with existing lane configurations and traffic control. The analysis results are presented in Section 7 of this report.


Daniel Rd.
College Ave.
5%
25%
5%
(5%)
(5%)
(25%)
SITE
Oak St. Ext.
Piney
Ridge Rd.
Oakland
Rd.
30%
(30%)
(10%)
(15%)
10%
15%
35%
10%
(35%)
(10%)
5%
5%
(5%)
(5%)
LEGEND
Signalized Intersection
Unsignalized Intersection
X%
Entering Trips
(X%)
Exiting Trips
N
RFK Engineers
Daniel Road Subdivision
Forest City, NC
Approved Development
Trip Distribution
Not to Scale
Figure 5


Daniel Rd.
College Ave.
Oak St. Ext.
Piney Ridge Rd.
Oakland Rd.
SITE
0/4
3/19
0/4
(0/5)
(0/5)
(3/22)
3/24
(3/26)
(1/9)
(1/14)
1/8
1/12
3/27
1/8
(3/32)
(1/9)
0/4
1/4
(0/4)
(1/5)
LEGEND
Signalized Intersection
Unsignalized Intersection
X/Y AM/PM Trips
N
RFK Engineers
Daniel Road Subdivision
Forest City, NC
Approved Development Trip Assignment
Not to Scale
Figure 6


Daniel Rd.
College Ave.
Oak St. Ext.
Piney Ridge Rd.
Oakland Rd.
SITE
54/92
11/23
6/46
24/32
554/777
13/35
3/60
0/1
100/49
554/902
4/17
5/18
30/24
6/44
90/129
90/181
100/125
100/119
39/128
23/59
129/132
146/123
11/16
7/9
196/159
58/58
15/48
4/20
19/27
254/271
36/48
194/262
138/214
31/100
70/71
137/88
135/167
66/114
LEGEND
Signalized Intersection
Unsignalized Intersection
X / Y
Weekday AM / PM Peak Hour Traffic
N
RFK Engineers
Daniel Road Subdivision
Forest City, NC
No Build (2030) Traffic
Not to Scale
Figure 7

4. SITE TRIP GENERATION AND DISTRIBUTION

To determine the future traffic conditions upon build-out of the Daniel Road Subdivision, an estimate of traffic generated by the proposed development is required.

4.1. Trip Generation

The average weekday daily trips as well as the AM and PM peak hour site trips were calculated utilizing the 11th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*. Refer to Table 2 for a detailed breakdown of the site trip generation.

Table 2: Site Trip Generation

ITE Land Use (Code)	Independent Variable	Average Daily Traffic (vpd)	AM Peak Hour (vph)		PM Peak Hour (vph)	
			Enter	Exit	Enter	Exit
Single-Family Detached Housing (210)	164 dwelling units	1,591	29	88	100	58

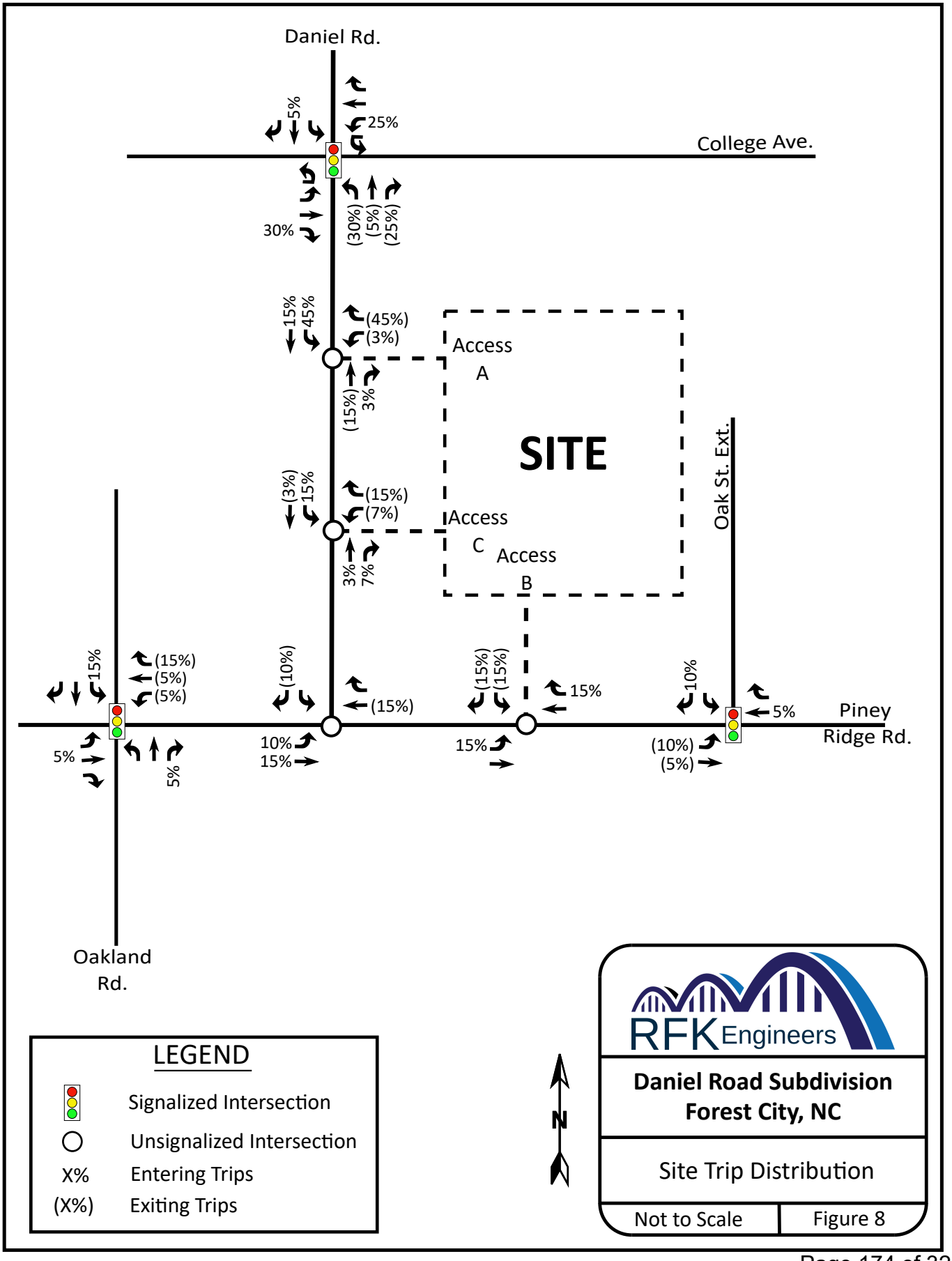
The development is expected to generate 1,591 total daily trips (entering and exiting), with 117 trips (29 entering and 88 exiting) occurring during the AM peak hour and 158 trips (100 entering and 58 exiting) during the PM peak hour.

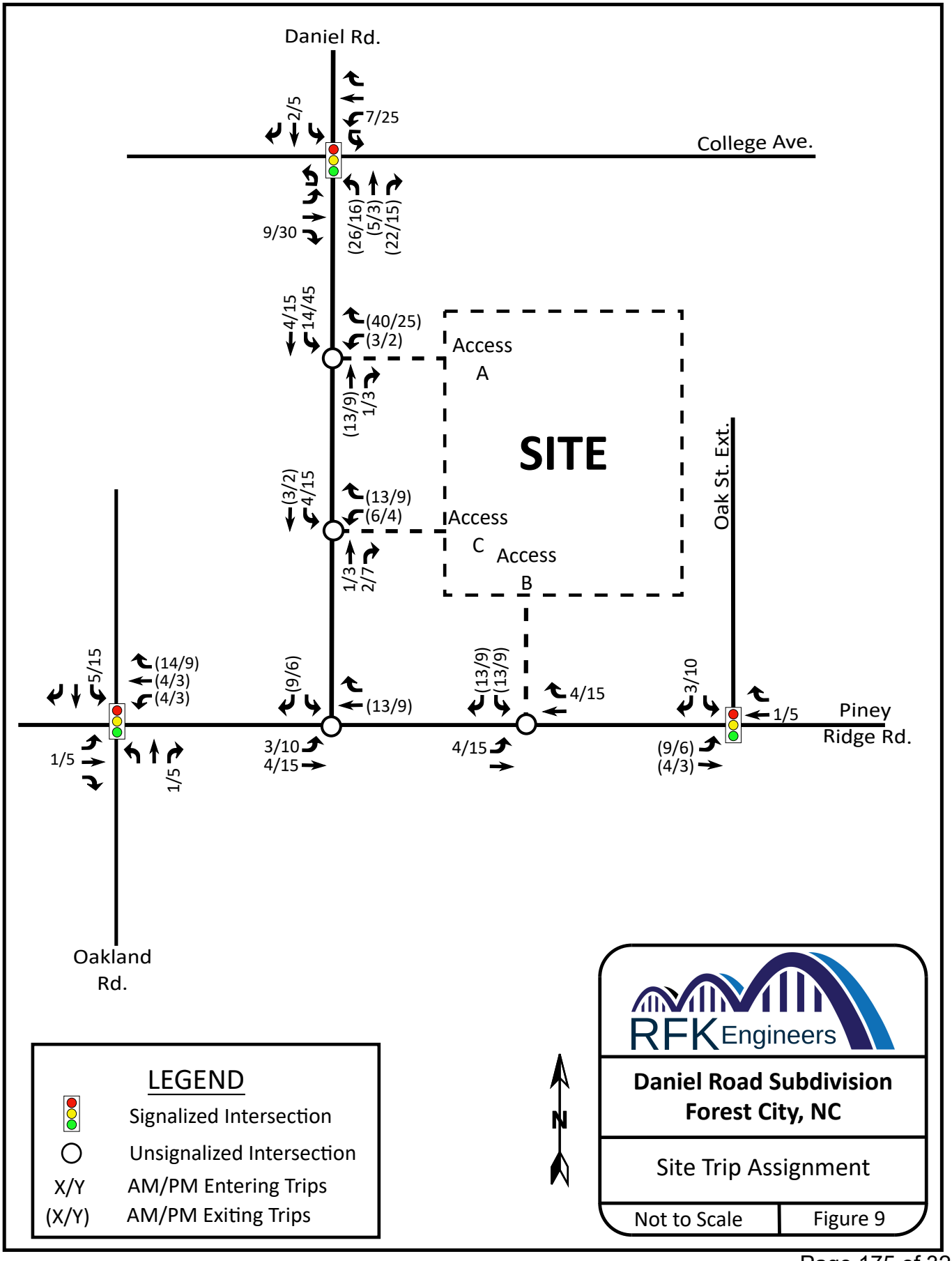
4.2. Trip Distribution and Assignment

For this study, the following site trip distribution percentages were developed based on existing traffic patterns and engineering judgment.

- 25% to/from the east via College Avenue
- 30% to/from the west via College Avenue
- 5% to/from the north via Daniel Road
- 5% to/from the west via Poors Ford Road
- 15% to/from the north via Oakland Road
- 5% to/from the south via Oakland Road
- 5% to/from the east via Piney Ridge Road
- 10% to/from the north via Oak Street Extension

The site trips for the proposed development were assigned to the study intersections and site access connections utilizing the above distribution percentages. Refer to Figures 8 and 9 for illustrations of the site trip distributions and assignments, respectively.


Daniel Rd.
College Ave.
Oak St. Ext.
Piney Ridge Rd.
Oakland Rd.
SITE
Access A
Access B
Access C
5%
25%
30%
(30%)
(5%)
(25%)
15%
45%
(45%)
(3%)
(15%)
3%
(3%)
15%
(15%)
(7%)
3%
7%
15%
(15%)
(5%)
(5%)
5%
5%
(10%)
(15%)
10%
15%
(15%)
(15%)
15%
15%
10%
5%
(10%)
(5%)
LEGEND
Signalized Intersection
Unsignalized Intersection
X% Entering Trips
(X%) Exiting Trips
N
RFK Engineers
Daniel Road Subdivision
Forest City, NC
Site Trip Distribution
Not to Scale
Figure 8



LEGEND

- Signalized Intersection
- Unsignalized Intersection
- X/Y AM/PM Entering Trips
- (X/Y) AM/PM Exiting Trips

N

RFK Engineers

Daniel Road Subdivision
Forest City, NC

Site Trip Assignment

Not to Scale | Figure 9

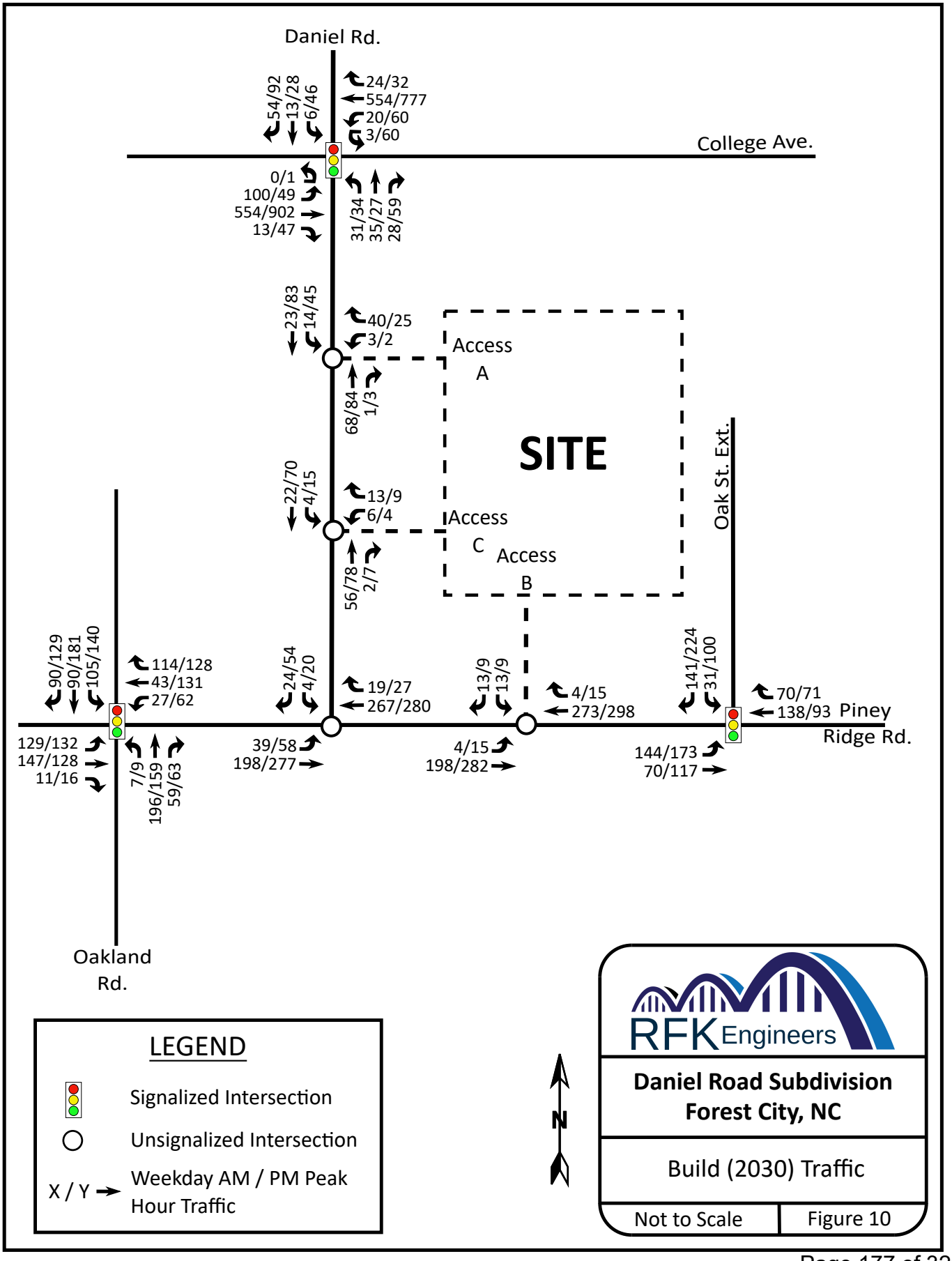
5. FUTURE BUILD TRAFFIC CONDITIONS

5.1. Future Build Peak Hour Traffic

To estimate traffic conditions with the proposed development, the site-generated trips were added to the future no build traffic volumes to determine the future build traffic volumes. Refer to Figure 10 for an illustration of the future (2030) build peak hour traffic volumes.

5.2 Analysis of Future Build Peak Hour Traffic

The future build AM and PM peak hour traffic volumes were analyzed using the same methodology previously discussed for existing and future no build traffic conditions. The analysis results are presented in Section 7 of this report.


Daniel Rd.
College Ave.
Oak St. Ext.
Oakland Rd.
Piney Ridge Rd.
SITE
Access A
Access B
Access C
54/92
13/28
6/46
24/32
554/777
20/60
3/60
0/1
100/49
554/902
13/47
31/34
35/27
28/59
23/83
14/45
40/25
3/2
68/84
1/3
22/70
4/15
13/9
6/4
56/78
2/7
90/129
90/181
105/140
114/128
43/131
27/62
24/54
4/20
19/27
267/280
13/9
13/9
4/15
273/298
141/224
31/100
70/71
138/93
129/132
147/128
11/16
7/9
196/159
59/63
39/58
198/277
4/15
198/282
144/173
70/117
LEGEND
Signalized Intersection
Unsignalized Intersection
X / Y
Weekday AM / PM Peak Hour Traffic
N
RFK Engineers
Daniel Road Subdivision
Forest City, NC
Build (2030) Traffic
Not to Scale
Figure 10

6. TRAFFIC ANALYSIS PROCEDURE

All study intersections were analyzed using methodology outlined in the Highway Capacity Manual (HCM) published by the Transportation Research Board. The computer software package, Synchro (Version 11.1), was used to complete all analysis. Synchro allows the user to input data into the software and calculate delays and levels of operation. Analysis results for signalized intersections provide level of service calculations for all lane groups, approaches, and an overall resulting level of service. The capacity analysis for an unsignalized intersection does not provide an overall level of service for the intersection, but rather a level of service for movements and/or lane groups that have conflicting movements.

The HCM defines capacity as "the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions". Level of service (LOS) is a term used to represent different driving conditions and is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers". Level of service varies from Level "A" representing free flow, to Level "F" where greater vehicle delays are experienced. Refer to Table 3 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes "initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay". As shown in Table 3, an average control delay of 40 seconds at a signalized intersection results in level of service D.

Table 3: Highway Capacity Manual Levels of Service and Delay

SIGNALIZED INTERSECTION		UNSIGNALIZED INTERSECTION	
Level Of Service	Average Control Delay Per Vehicle (Seconds)	Level Of Service	Average Control Delay Per Vehicle (Seconds)
A	0-10	A	0-10
B	10-20	B	10-15
C	20-35	C	15-25
D	35-55	D	25-35
E	55-80	E	35-50
F	>80	F	>50

Capacity analysis at all study intersections was completed in accordance with the NCDOT Capacity Analysis Guidelines.

7. CAPACITY ANALYSIS

Under all traffic conditions, the study intersections were analyzed using existing or proposed lane geometrics and traffic control. A peak hour factor (PHF) of 0.90 and 2% heavy vehicles was utilized for all movements at the study intersections. In addition, a peak hour volume of four (4) vehicles was used in the analysis for any movement that is less than 4 vehicles.

7.1. College Avenue and Daniel Road

The signalized intersection was analyzed under existing and all future traffic conditions with existing lane configurations utilizing the signal plan and coordinated signal timings (included in Appendix C). Please note that all analyses were performed using the coordinated traffic signal's existing cycle lengths, phasing splits, and offsets during the AM and PM peak hours. Refer to Table 4 for a summary of the capacity analysis results, and Appendix C for copies of the Synchro reports.

Table 4: Analysis Summary of College Avenue and Daniel Road

Scenario	Approach	Lane Configurations	AM Peak Hour Level Of Service (Delay)		PM Peak Hour Level Of Service (Delay)	
			Approach	Overall	Approach	Overall
Existing (2024)	EB	1 LT, 1 TH, 1 TH-RT	B (12.5)	B (12.2)	B (11.8)	B (15.0)
	WB	1 LT, 2 TH, 1 RT	A (8.1)		B (12.7)	
	NB	1 LT, 1 TH-RT	D (47.0)		D (44.6)	
	SB	1 LT, 1 TH-RT	C (23.9)		D (38.9)	
No Build (2030)	EB	1 LT, 1 TH, 1 TH-RT	B (13.8)	B (14.8)	B (14.9)	C (21.5)
	WB	1 LT, 2 TH, 1 RT	A (9.1)		B (16.3)	
	NB	1 LT, 1 TH-RT	D (47.0)		E (60.5)	
	SB	1 LT, 1 TH-RT	D (53.2)		E (69.9)	
Build (2030)	EB	1 LT, 1 TH, 1 TH-RT	B (14.5)	B (16.9)	B (16.2)	C (23.7)
	WB	1 LT, 2 TH, 1 RT	A (9.7)		B (18.2)	
	NB	1 LT, 1 TH-RT	D (51.6)		E (64.4)	
	SB	1 LT, 1 TH-RT	D (53.3)		E (70.3)	

Under existing traffic conditions, capacity analysis indicates that the intersection operates at an overall B during the AM and PM peak hours. In addition, all intersection approaches operate at LOS D or better.

Assuming no right turns on red; analysis indicates that the intersection is expected to operate an overall LOS B during the AM peak hour and LOS C during the PM peak hour under future no build and build traffic conditions. In addition, all intersection approaches are expected to operate at LOS D or better except for the northbound and southbound approaches of Daniel Road during the PM peak hour (LOS E). The greater delays and poorer levels of service are not uncommon for minor street approaches located at a coordinated traffic signal where precedence is typically given to the mainline traffic.

When comparing no build and build traffic conditions, no LOS degradation is expected and increases in delay are anticipated to be less than 5.0 seconds. Due to comparable operations, and minimal impact from the proposed development, no mitigation is recommended.

7.2. Piney Ridge Road and Daniel Road

The existing unsignalized intersection was analyzed under existing and all future traffic conditions with existing lane configurations. Refer to Table 5 for a summary of the capacity analysis results, and Appendix D for copies of the Synchro reports.

Table 5: Analysis Summary of Piney Ridge Road and Daniel Road

Scenario	Approach	Lane Configurations	AM Peak Hour Level Of Service (Delay)		PM Peak Hour Level Of Service (Delay)	
			Approach	Overall	Approach	Overall
Existing (2024)	EB[1] WB SB[2]	1 LT-TH 1 TH-RT 1 LT-RT	A (7.9) - B (10.7)	N/A	A (8.0) - B (12.1)	N/A
No Build (2030)	EB[1] WB SB[2]	1 LT-TH 1 TH-RT 1 LT-RT	A (8.0) - B (10.7)	N/A	A (8.1) - B (12.3)	N/A
Build (2030)	EB[1] WB SB[2]	1 LT-TH 1 TH-RT 1 LT-RT	A (8.0) - B (10.7)	N/A	A (8.1) - B (12.6)	N/A

1. Major street left turn movement for unsignalized intersection
2. Stop-controlled approach for unsignalized intersection

Under existing traffic conditions, capacity analysis indicates that the eastbound left turn movement on Piney Ridge Road experiences minor delays and operates at LOS A during the AM and PM peak hours while the southbound stop-controlled approach of Daniel Road experiences minor overall delays and operates at LOS B.

Analysis indicates that the eastbound left turn movement on Piney Ridge Road is expected to continue experiencing minor delays and operating at LOS A during the AM and PM peak hours under future no build and build traffic conditions. In addition, the southbound stop-controlled approach of Daniel Road is expected to continue experiencing minor overall delays and operating at LOS B.

When comparing no build and build traffic conditions, no LOS degradation is expected and increases in delay are anticipated to be less than half a second. Due to comparable operations, and minimal impact from the proposed development, no mitigation is recommended.

7.3. Piney Ridge Road and Oak Street Extension

The signalized intersection was analyzed under existing and all future traffic conditions with existing lane configurations utilizing the signal plan (included in Appendix E). Assuming a minimum cycle length of 90 seconds, Synchro's intersection optimization was utilized to determine cycle lengths and phase splits for the actuated traffic signal operating under isolated conditions. Please note that timings may differ between traffic conditions and peak hours due to the signal's actuated operation. Refer to Table 6 for a summary of the capacity analysis results, and Appendix E for copies of the Synchro reports.

Table 6: Analysis Summary of Piney Ridge Road and Oak Street Extension

Scenario	Approach	Lane Configurations	AM Peak Hour Level Of Service (Delay)		PM Peak Hour Level Of Service (Delay)	
			Approach	Overall	Approach	Overall
Existing (2024)	EB WB SB	1 LT, 1 TH 1 TH-RT 1 LT, 1 RT	A (2.0) A (8.5) A (5.1)	A (5.2)	A (4.6) B (11.0) A (8.0)	A (7.4)
No Build (2030)	EB WB SB	1 LT, 1 TH 1 TH-RT 1 LT, 1 RT	A (9.3) B (11.5) B (12.4)	B (11.0)	B (12.9) B (17.6) B (13.3)	B (14.1)
Build (2030)	EB WB SB	1 LT, 1 TH 1 TH-RT 1 LT, 1 RT	A (9.4) B (11.7) B (11.0)	B (10.7)	B (13.0) B (17.8) B (12.5)	B (13.8)

Under existing traffic conditions, capacity analysis indicates that the intersection operates at an overall A during the AM and PM peak hours. In addition, all intersection approaches operate at LOS B or better.

Assuming no right turns on red and protected-only phasing for the eastbound left turn movement on Piney Ridge Road; analysis indicates that the intersection is expected to operate an overall LOS B during the AM and PM peak hours under future no build and build traffic conditions. In addition, all intersection approaches are expected to operate at LOS B or better.

When comparing no build and build traffic conditions, no LOS degradation is expected and increases in delay are anticipated to be less than half a second. Due to comparable operations, and minimal impact from the proposed development, no mitigation is recommended.

7.4. Oakland Road and Poors Ford Road/Piney Ridge Road

The signalized intersection was analyzed under existing and all future traffic conditions with existing lane configurations utilizing the signal plan (included in Appendix F). Assuming a minimum cycle length of 90 seconds, Synchro's intersection optimization was utilized to determine cycle lengths and phase splits for the actuated traffic signal operating under isolated conditions. Please note that timings may differ between traffic conditions and peak hours due to the signal's actuated operation. Refer to Table 7 for a summary of the capacity analysis results, and Appendix F for copies of the Synchro reports.

Table 7: Analysis Summary of Oakland Road and Poors Ford Road/Piney Ridge Road

Scenario	Approach	Lane Configurations	AM Peak Hour Level Of Service (Delay)		PM Peak Hour Level Of Service (Delay)	
			Approach	Overall	Approach	Overall
Existing (2024)	EB	1 LT, 1 TH-RT	B (18.9)	B (13.1)	B (17.9)	B (13.5)
	WB	1 LT, 1 TH-RT	A (8.7)		B (14.6)	
	NB	1 LT, 1 TH-RT	B (17.6)		B (17.6)	
	SB	1 LT, 1 TH-RT	A (5.3)		A (7.8)	
No Build (2030)	EB	1 LT, 1 TH-RT	C (21.5)	B (18.6)	C (21.7)	B (19.2)
	WB	1 LT, 1 TH-RT	B (19.6)		C (20.8)	
	NB	1 LT, 1 TH-RT	C (21.2)		C (23.4)	
	SB	1 LT, 1 TH-RT	B (12.7)		B (14.3)	
Build (2030)	EB	1 LT, 1 TH-RT	C (21.5)	B (19.0)	C (22.7)	C (20.3)
	WB	1 LT, 1 TH-RT	C (20.2)		C (21.7)	
	NB	1 LT, 1 TH-RT	C (21.7)		C (24.9)	
	SB	1 LT, 1 TH-RT	B (13.2)		B (15.3)	

Under existing traffic conditions, capacity analysis indicates that the intersection operates at an overall B during the AM and PM peak hours. In addition, all intersection approaches operate at LOS B or better.

Assuming no right turns on red and protected-only phasing for the southbound left turn movement on Oakland Road; analysis indicates that the intersection is expected to operate an overall LOS B during the AM and PM peak hours under future no build and build traffic

conditions except for the PM peak hour under build conditions (LOS C). In addition, all intersection approaches are expected to operate at LOS C or better.

While a degradation in LOS [between no build and build conditions] is expected on the westbound approach of Piney Ridge Road during the AM peak hour and the overall intersection during the PM peak hour, no mitigation is recommended since the approach and intersection are expected to operate at an acceptable level of service and the increase in delays are expected to be less than 1.5 seconds.

7.5. Daniel Road and Access A

The future unsignalized intersection was analyzed with proposed lane configurations under build conditions only. Refer to Table 8 for a summary of the capacity analysis results, and Appendix G for copies of the Synchro reports.

Table 8: Analysis Summary of Daniel Road and Access A

Scenario	Approach	Lane Configurations	AM Peak Hour Level Of Service (Delay)		PM Peak Hour Level Of Service (Delay)	
			Approach	Overall	Approach	Overall
Build (2030)	WB[1] NB SB[2]	1 LT-RT 1 TH-RT 1 LT-TH	A (8.9) - A (7.4)	N/A	A (9.1) - A (7.5)	N/A

1. Stop-controlled approach for unsignalized intersection
2. Major street left turn movement for unsignalized intersection

Based on a review of the auxiliary turn lane warrants contained within NCDOT's "Policy on Street and Driveway Access to North Carolina Highways" and Roadway Design Manual and due to the low traffic volumes, auxiliary turn lanes are not warranted on Daniel Road at Access A. Refer to Appendix J for copies of the turn lane warrant exhibits.

Capacity analysis indicates that the southbound left turn movement on Daniel Road is expected to experience minor delays and operate at LOS A during the AM and PM peak hours while the westbound stop-controlled approach of Access A is expected to experience minor overall delays and operate at LOS A.

7.6. Piney Ridge Road and Access B

The future unsignalized intersection was analyzed with proposed lane configurations under build conditions only. Refer to Table 9 for a summary of the capacity analysis results, and Appendix H for copies of the Synchro reports.

Table 9: Analysis Summary of Piney Ridge Road and Access B

Scenario	Approach	Lane Configurations	AM Peak Hour Level Of Service (Delay)		PM Peak Hour Level Of Service (Delay)	
			Approach	Overall	Approach	Overall
Build (2030)	EB[1] WB SB[2]	1 LT-TH 1 TH-RT 1 LT-RT	A (7.9) - B (11.3)	N/A	A (8.0) - B (12.3)	N/A

1. Major street left turn movement for unsignalized intersection
2. Stop-controlled approach for unsignalized intersection

Based on a review of the auxiliary turn lane warrants contained within NCDOT's "Policy on Street and Driveway Access to North Carolina Highways" and Roadway Design Manual, auxiliary turn lanes are not warranted on Piney Ridge Road at Access B. Refer to Appendix J for copies of the turn lane warrant exhibits.

Capacity analysis indicates that the eastbound left turn movement on Piney Ridge Road is expected to experience minor delays and operate at LOS A during the AM and PM peak hours while the southbound stop-controlled approach of Access B is expected to experience minor overall delays and operate at LOS B.

7.7. Daniel Road and Access C

The future unsignalized intersection was analyzed with proposed lane configurations under build conditions only. Refer to Table 10 for a summary of the capacity analysis results, and Appendix I for copies of the Synchro reports.

Table 10: Analysis Summary of Daniel Road and Access C

Scenario	Approach	Lane Configurations	AM Peak Hour Level Of Service (Delay)		PM Peak Hour Level Of Service (Delay)	
			Approach	Overall	Approach	Overall
Build (2030)	WB[1] NB SB[2]	1 LT-RT 1 TH-RT 1 LT-TH	A (8.8) - A (7.4)	N/A	A (9.1) - A (7.4)	N/A

1. Stop-controlled approach for unsignalized intersection
2. Major street left turn movement for unsignalized intersection

Based on a review of the auxiliary turn lane warrants contained within NCDOT's "Policy on Street and Driveway Access to North Carolina Highways" and Roadway Design Manual and due to the low traffic volumes, auxiliary turn lanes are not warranted on Daniel Road at Access C. Refer to Appendix J for copies of the turn lane warrant exhibits.

Capacity analysis indicates that the southbound left turn movement on Daniel Road is expected to experience minor delays and operate at LOS A during the AM and PM peak hours while the westbound stop-controlled approach of Access A is expected to experience minor overall delays and operate at LOS A.

8. QUEUING ANALYSIS

In addition to the capacity analysis, a queuing analysis was performed utilizing SimTraffic to develop traffic simulation models for the AM and PM peak hours under future no build and build traffic conditions. The 95th percentile queues are calculated by Synchro while the SimTraffic maximum queuing results are based on an average of ten (10) traffic simulation runs. Refer to Appendix K for copies of the SimTraffic reports and a summary of the maximum and 95th percentile queue lengths.

With no right turns on red assumed [at all signalized intersections] and protected-only phasing assumed [for existing protected/permissive phasing], the queues under future build conditions are not expected to exceed those under future no build conditions by more than 70 feet [or approximately three (3) vehicles] during the peak hours based on a review of the 95th percentile and maximum queues. Reduced queues are expected under the existing traffic signal operations that permit right turns on red and allow protected/permissive left turn phasing. As for site access locations, queues are not expected to exceed 55 feet [or approximately 2 vehicles] during the peak hours.

9. FINDINGS AND CONCLUSIONS

Based on the findings of this study, the proposed development is not expected to have a significant impact on the adjacent transportation network. When compared to the future no build conditions, similar levels of operations are expected and the increase in delays are anticipated to be less than 5.0 seconds per vehicle with the addition of site trips. In addition, comparable queues are expected. Therefore, it was concluded that no mitigation is needed to accommodate the additional site trips.

The future lane configurations are proposed for the following unsignalized site access connections on Daniel Road and Piney Ridge Road (refer to Figure 11):

Intersection of Daniel Road and Access A

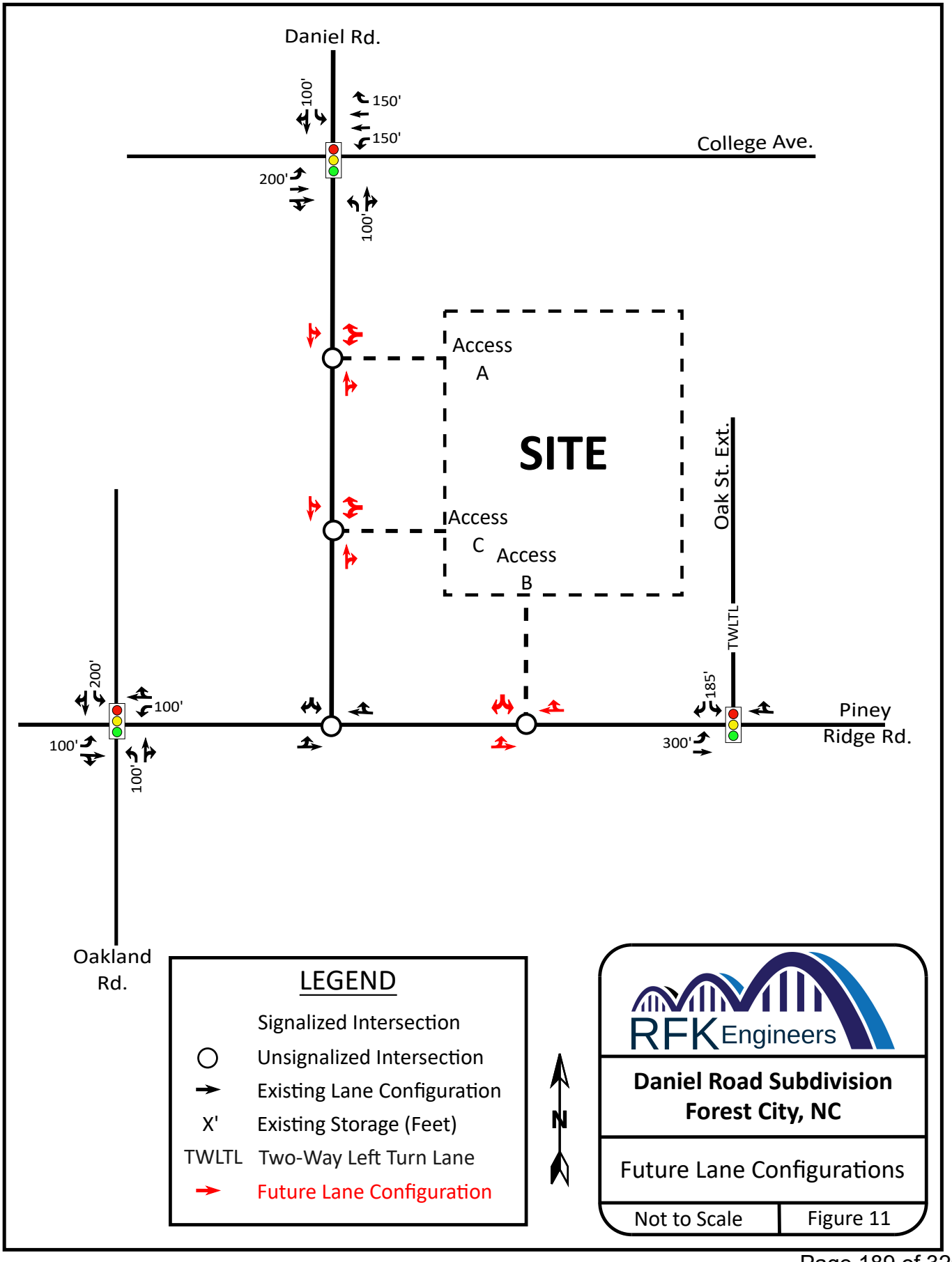
- A shared through-right lane on the northbound approach of Daniel Road.
- A shared left-through lane on the southbound approach of Daniel Road.
- Provide a two-lane cross section [with a maximum of 50 feet of protected driveway stem] for Access A with one ingress lane and one egress lane.

Intersection of Piney Ridge Road and Access B

- A shared left-through lane on the eastbound approach of Piney Ridge Road.
- A shared through-right lane on the westbound approach of Piney Ridge Road.
- Provide a two-lane cross section [with a maximum of 40 feet of protected driveway stem] for Access B with one ingress lane and one egress lane.

Intersection of Daniel Road and Access C

- A shared through-right lane on the northbound approach of Daniel Road.
- A shared left-through lane on the southbound approach of Daniel Road.
- Provide a two-lane cross section [with a maximum of 25 feet of protected driveway stem] for Access C with one ingress lane and one egress lane.


Daniel Rd.
College Ave.
Oak St. Ext.
Piney Ridge Rd.
Oakland Rd.
SITE
Access A
Access B
Access C
TWLTL
100'
150'
150'
200'
100'
100'
200'
100'
100'
100'
185'
300'
LEGEND
Signalized Intersection
Unsignalized Intersection
Existing Lane Configuration
X' Existing Storage (Feet)
TWLTL Two-Way Left Turn Lane
Future Lane Configuration
N
RFK Engineers
Daniel Road Subdivision
Forest City, NC
Future Lane Configurations
Not to Scale
Figure 11

TECHNICAL APPENDIX

APPENDIX A

NCDOT TIA SCOPING CHECKLIST

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NCDOT TIA Scoping Checklist

TIA Need Screening → TIA Scoping → TIA Submittal

Project Name: Daniel Road Subdivision **TIA Scoping Date:** 10/16/2025

☐ **TIA Need Screening Forms are Attached.** Project Reference #: _____ Decision Date: _____

☒ **Site Plan and Access**

☒ Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.
Refer to NCDOT's *Policy on Street and Driveway Access to North Carolina Highways* pages 14 and 15 for site plan requirements.

☒ Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Daniel Road	Conventional Full-Mvmt	2-Way Stop	1500	North	Piney Ridge Rd
Access B	Piney Ridge Road	Conventional Full-Mvmt	2-Way Stop	952	East	Daniel Road
Access C	Daniel Road	Conventional Full-Mvmt	2-Way Stop	325	North	Piney Ridge Rd
Access D						
Access E						
Access F						
Access G						
Access H						

Existing Access	Existing Intersection of		Access Modification	Proposed Interconnectivity (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1			Please Select	Connector 1		
Access 2				Connector 2		
Access 3				Connector 3		
Access 4				Connector 4		

☐ Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).

☐

Proposed K-12 School Site

☐ NCDOT MSTA School Traffic Calculator for Select School Type shall be used.

☐ Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).

☐ Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.

☐ Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).

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☒ Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current *NCDOT Congestion Management Capacity Analysis Guidelines*, and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
210	Single-Family	164	Dwellings	1591	Adj. Street	29	88	117	100	58	158	ITE Equation
Unadjusted Site Trips				1591		29	88	117	100	58	158	
Internal Capture Trips (Attach Calculation Sheets)												Please Select
Internal Capture % of Unadjusted Site Trips				%		%			%			
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								
		Please Select		%		%			%			Please Select
				%		%			%			
				%		%			%			
				%		%			%			
				%		%			%			
Pass-By Trips (Attach Calculation Sheets)												
Adjacent Street Volumes												Please Select
Non-Pass-By Primary Trips												
Diverted Trips, if Applicable and Justifiable												Please Select

**Explain local or other data sources, if used:

☐ Existing Site Trip Information for Redevelopment Projects (Attach separate sheets as needed)

ITE LUC	Existing Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
					Please Select							Please Select
Total Existing Site Trips												

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☒ **Trip Distribution**

☒ Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).

☐ Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

If required by the District Engineer, the following additional diagrams shall also be submitted:

☐ Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)

☐ Inter-Development Trips (if 'internal" trips cross public streets)

☐ Pass-By Trips

☐ Diverted Trips

☐ Each Analysis Period

☐ **Mode Split**

☐ Provide Data Source and Justification

Mode / Period	Auto		
AM Peak	%	%	%
PM Peak	%	%	%
Daily	%	%	%
	%	%	%

☐ Identify proper infrastructure and accommodation for other modes of travel.

☒ **Analysis Peak Periods:**

☒ Weekday AM Peak 7:00 to 9:00

☒ Weekday PM Peak 3:00 to 6:00

☐ Weekday Midday Peak _____

☐ Weekday PM School Peak _____

☐ Weekend _____ Peak _____

☐ Other _____

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☒ Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under "Site Plan and Access" on page 1, as well as the following external and, if applicable, internal intersections.

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	College Avenue	Daniel Road	Signal	Use Existing Counts	12/10/24		
#2	Daniel Road	Piney Ridge Road	2-Way Stop	Use Existing Counts	12/10/24		
#3	Piney Ridge Road	Oak Street Ext.	Signal	Use Existing Counts	12/10/24		
#4	Oakland Road	Piney Ridge Road	Signal	Use Existing Counts	12/10/24		
#5							
#6							
#7							
#8							
#9							
#10							
#11							
#12							

Internal Intersection	Intersection of		Access Type		Intersection Spacing		
	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101			Please Select	Please Select		Please Select	
#102							
#103							
#104							
#105							

The following data will be collected:

☐ New traffic turning movement counts in ☐ 15-min intervals ☐ 5-min intervals (near schools)
Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.

☐ To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:

intersections numbered: _____

and access points numbered: _____

☐ Traffic Forecast Data for TIP: _____

☒ Roadway/Intersection Configuration & Traffic Control

☒ Traffic Signal Phasing & Timing Data

☐ Crash Data: _____ Period: _____

☐ Other:

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☒ **Future Year Conditions**

☒ Project Build-Out Year: 2030

☒ Future Analysis Year(s): 2030

☐ Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

Funded STIP / Local CIP Project	Project Description	Year Complete

Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements
Legacy Soccer Park	520 Piney Ridge Road	10 fields (per traffic study)	

☒ Annual Growth Factor: 1 %

Justification/Data Source: Per traffic study previoulsy prepared for the approved Legacy Soccer Park

☐ **Local Comprehensive Transportation Plan Compliance**

☐ Identify Applicable Local Transportation Planning Documents

☐ Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #

Docusign Envelope ID: 618FE99D-DE8A-4E9C-8FF6-CB2753624A78

☒ Study Method

The traffic analysis shall follow the current *NCDOT Congestion Management Capacity Analysis Guidelines*, *Policy on Street and Driveway Access to North Carolina Highways*, and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:

☐ 5. TIP Design Year Analysis _____

☐ 6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

☐ Signal Warrant Analysis for accesses/intersections _____

☐ Multi-Modal Level of Service Analysis

☐ School Loading Zone Traffic Simulation

☐ Phasing Analysis (scope separately as needed)

☐ Safety/Crash Analysis

☐ Control-of-Access Modification Justification

☐ Median Break / Modification Justification

☐ Other _____

☒ Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS). To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

☐ Div. Traffic Engr ☐ Regional Traffic Engr ☐ Congestion Management ☐ Other _____

Submittals	NCDOT		Local Government	
	Electronic	Hardcopy	Electronic	Hardcopy
Trip Generation & Distribution	Required		Please Select	
Draft TIA Report	Required			
Final Sealed TIA Report	Required			

☐ **Additional Comments** (municipal TIA requirements, approved variations from NCDOT guidelines)

Docusign Envelope ID: 618FE99D-DE8A-4E9C-8FF6-CB2753624A78

Agreement by All Parties

The undersigned agree to the contents and methodology described above for completing the required traffic impact analysis for the proposed development identified herein. Any changes to the above methodology contemplated by the Applicant or the TIA Consultant must be submitted to the District Engineer in writing. If approved by NCDOT, then such changes may be accepted for the TIA report. Subsequent revisions to the development plan (e.g. land use, density, site access, or schedule) may require additional scoping and analysis, and may modify the TIA requirements.

This agreement shall become effective on the date approved by NCDOT, and shall expire ____ months after the effective date or upon significant changes to the roadway network and/or development assumptions, whichever occurs first. Once expired, renewal or re-scoping will be required for subsequent TIA submittals.

APPLICANT

Signature	Print Name	Date
Signed by: Jesse Gardner 1B7978B349374B9...	Jesse Gardner	10/16/2025

TIA CONSULTANT

Signature	Print Name	Date
Signed by: 7E3E4047A5F1447...	Jayson B. Clapp Jr.	10/16/2025

LOCAL GOVERNMENT REPRESENTATIVE (If Applicable)

Signature	Print Name	Date

Email concurrence may be used in lieu of the signature.

NCDOT DISTRICT REPRESENTATIVE

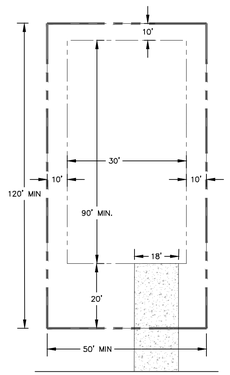
Reviewed and approved by the NCDOT Division ____ District ____ on _____.

Signature	Print Name

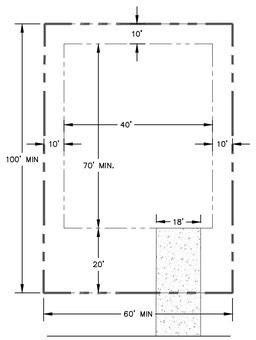
Email concurrence may be used in lieu of the signature.

SITE NOTES

1. ALL SITEWORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL REGULATORY STANDARDS AND ALL REQUIREMENTS IN THE PROJECT TECHNICAL SPECIFICATIONS.
2. SINGLE-PHASE CONSTRUCTION.
3. ALL WORK MUST BE PERFORMED BY A **NORTH CAROLINA** LICENSED CONTRACTOR.
4. TO SCHEDULE THE REQUIRED INSPECTIONS ON ALL WORK, CALL THE CIVIL DESIGN CONCEPTS INSPECTIONS HOTLINE AT 828-771-4755, OR EMAIL AT INSPECTIONS@CDCGO.COM. FAILURE TO SCHEDULE INSPECTIONS MAY RESULT IN UNCOVERING OR REDOING WORK
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING THE EXACT LOCATION AND ELEVATION FOR ALL UTILITIES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY CONFLICTS OR DISCREPANCIES. THE LOCATION OF SOME UTILITIES SHOWN ON THE PLANS HAVE BEEN APPROXIMATED. ALL BURIED UTILITIES HAVE NOT BEEN SHOWN ON THE PLANS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR LOCATION PRIOR TO CONSTRUCTION. CONTACT ENGINEER TO CONFIRM IF ADDITIONAL PERMITS ARE NEEDED.
6. CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES (SHOWN TO REMAIN) AND NEWLY COMPLETED WORK DURING CONSTRUCTION. ANY DAMAGE INCURRED DURING OR RESULTING FROM CONSTRUCTION ACTIVITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR IS TO NOTIFY ALL UTILITY COMPANIES AT LEAST 72 HOURS BEFORE CONSTRUCTION ACTIVITY IS TO BEGIN. THE CONTRACTOR SHALL NOTIFY ULOCO AT 1-800-632-4949 OR 811, 72 HOURS BEFORE CONSTRUCTION BEGINS.
8. SIDEWALKS SHALL BE CONSTRUCTED IN ORDER TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES. SIDEWALKS TO MEET ALL ADA/PROWAG STANDARDS. CONTRACTOR TO NOTIFY ENGINEER AFTER FORMING BUT PRIOR TO POURING SIDEWALK. ANY SIDEWALK/CROSSWALK NOT INSTALLED TO REQUIRED STANDARDS SHALL BE REMOVED AND REPLACED AT CONTRACTORS EXPENSE.
9. ALL ROAD/PARKING LOT IMPROVEMENTS, STRIPING AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LOCAL JURISDICTION AND THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICE (MUTCD). CONTRACTOR MAY USE A PAINT SUITABLE FOR ASPHALT APPLICATION IN LIEU OF THERMOPLASTIC WITH PRIOR APPROVAL FROM THE ENGINEER.
10. CURB AND GUTTER ON THE HIGH SIDE OF PAVED AREAS AND ROADS SHALL BE CONSTRUCTED WITH SPILLOUT CURB AND GUTTER. CURB AND GUTTER ON THE LOW SIDE SHALL BE CONSTRUCTED WITH STANDARD CURB AND GUTTER; REFER TO SPILLOUT CURB AND GUTTER DETAILS. CURB END TREATMENT SHALL BE APPLIED AT ALL CURB ENDS; REFER TO CURB END TREATMENT DETAIL.
11. PROPOSED ROADS TO BE **PRIVATE. NCDOT IS NOT** RESPONSIBLE FOR ANY ROAD MAINTENANCE.

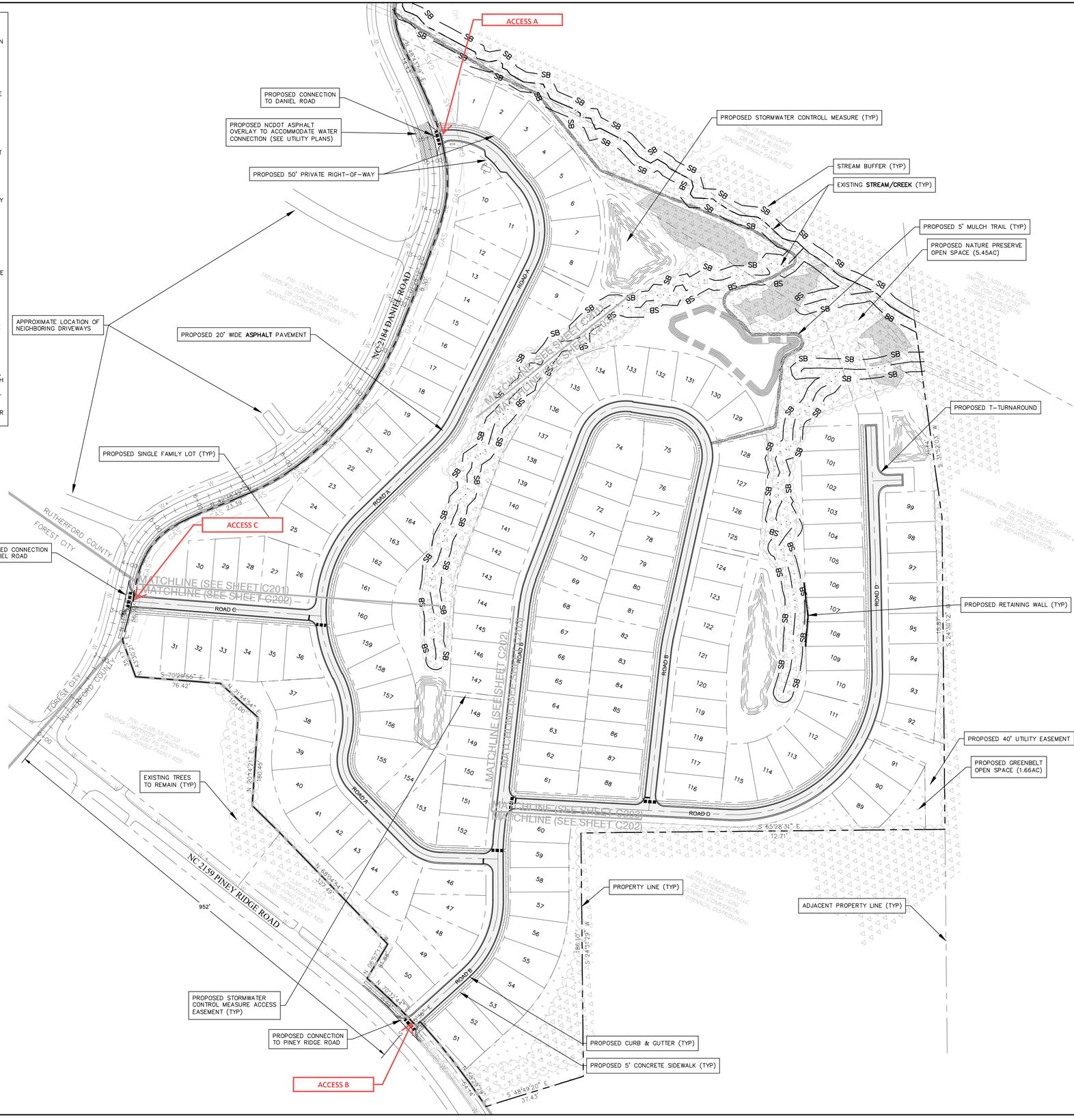


TYPE 1 - SINGLE FAMILY
LOT W/INTERNAL SETBACKS
MIN. LOT SQUARE FOOTAGE: 6,000 SF
NOT TO SCALE



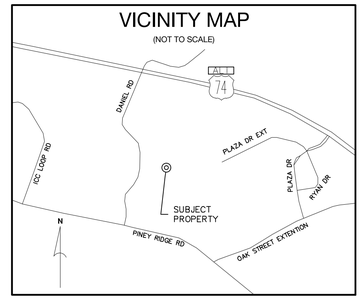
TYPE 2 - SINGLE FAMILY
LOT W/INTERNAL SETBACKS
MIN. LOT SQUARE FOOTAGE: 6,000 SF
NOT TO SCALE

*NOTE: 60' BUILDING PAD DEPTH ACCOMMODATED
(DOES NOT INCLUDE REAR PATIOS/DECKS)



VICINITY MAP

(NOT TO SCALE)



DEVELOPMENT DATA

OWNER/DEVELOPER:	DANIEL ROAD BT LLC 4005 HENDERSONVILLE RD, STE. 1 FLETCHER, NC 28732-8240
CONTACT:	WILLIAM B TAYLOR, II (828) 778-6705
CIVIL ENGINEER:	CIVIL DESIGN CONCEPTS, P.A. 168 PATTON AVENUE ASHEVILLE, NC 28801
CONTACT:	DONALD PENSON, P.E. (828) 252-5388

PROJECT DATA

PIN:	1538-49-2388
ADDRESS:	0 PINEY RIDGE RD
DEED BOOK/PAGE:	0963/050
PROJECT ACREAGE:	47.4± ACRES
CURRENT ZONING:	R6
SETBACKS:	
FRONT:	20'
SIDES:	10'
REAR:	10'
DISTURBED AREA:	41.1± AC

	PRE	POST
IMPERVIOUS AREA:	0 ACRES (0%)	13.4 ACRES (28%)
PERVIOUS AREA:	47.4 ACRES (100%)	34.0 ACRES (72%)

ZONING DATA

DENSITY CALCULATIONS:

ALLOWED:	7 UNITS/ACRE
PROJECT UNITS:	152 UNITS – 3.21 UNITS/ACRE
TOTAL LOT ACREAGE:	23.80 ACRES

STREET CALCULATIONS:

LINEAR FEET:	6225 LF
ROW AREA:	7.06 ACRES

OPEN SPACE CALCULATIONS:

REQUIRED: 7.11 AC (15%) PROVIDED: 7.11 AC

SITE LEGEND

- LOT LINE
- SETBACK LINE
- EASEMENT LINE
- SAWCUT LINE
- PROPERTY LINE
- ADJ. PROPERTY LINE
- PROPOSED 10' X 70' SIGHT TRIANGLE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE SIDEWALK

CDC INSPECTIONS HOTLINE:
828-771-4755 OR INSPECTIONS@CDCGO.COM

811 Know what's below. Call before you dig.

NORTH

MASTER SITE PLAN

GRAPHIC SCALE

100 0 50 100 200 300

(IN FEET)
1 inch = 100 ft.

168 PATTON AVENUE
ASHEVILLE, NC 28801
PHONE: (828) 252-5388
FAX (828) 252-5365

52 WALNUT STREET - SUITE 9
WAYNESVILLE, NC 28786
PHONE: (828) 454-4445
FAX (828) 456-5405

Civil Design Concepts, PA
www.civildesignconcepts.com
NCBELS LICENSE #: C-2184

NO.	DATE	DESCRIPTION	BY
1	11/06/2024	FOREST CITY PLANNING SUBMITTAL	CHL
2	10/01/2025	TRAFFIC ANALYSIS	CHL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049127 DONALD W. PENSON

PROGRESS DRAWING. DO NOT USE FOR CONSTRUCTION

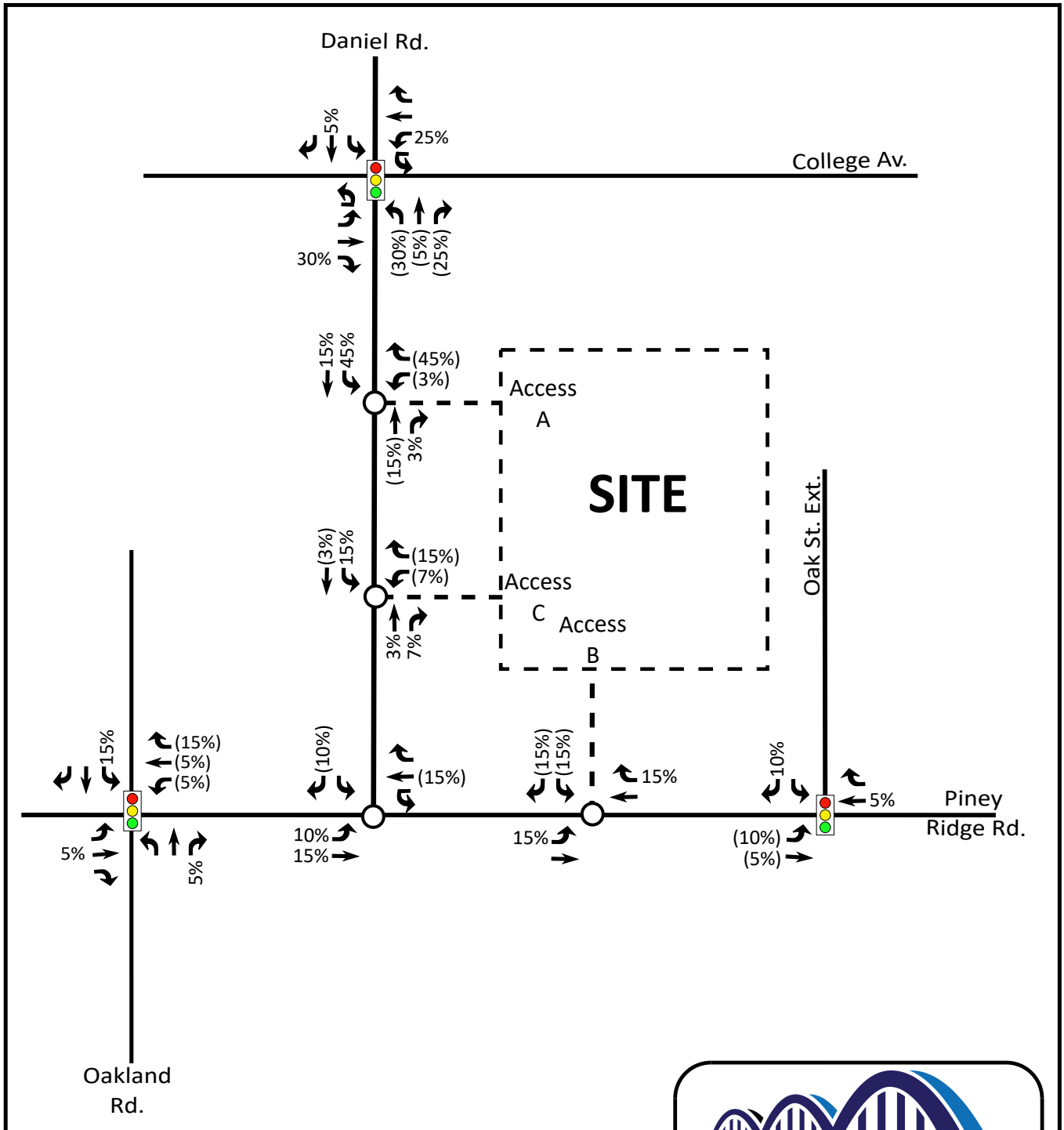
MASTER SITE PLAN FOR:

DANIEL ROAD SUBDIVISION

DANIEL ROAD BT LLC – FOREST CITY, NORTH CAROLINA

DRAWN BY: CHL
CDC PROJECT NO.: 22445

SHEET
C200



LEGEND

X%	Entering Trips
(X%)	Exiting Trips

N

RFK Engineers

Daniel Road Subdivision
Forest City, NC

Site Trip Distribution

Not to Scale | Figure



File Name : ForestCity(College Ave and Daniel Rd)
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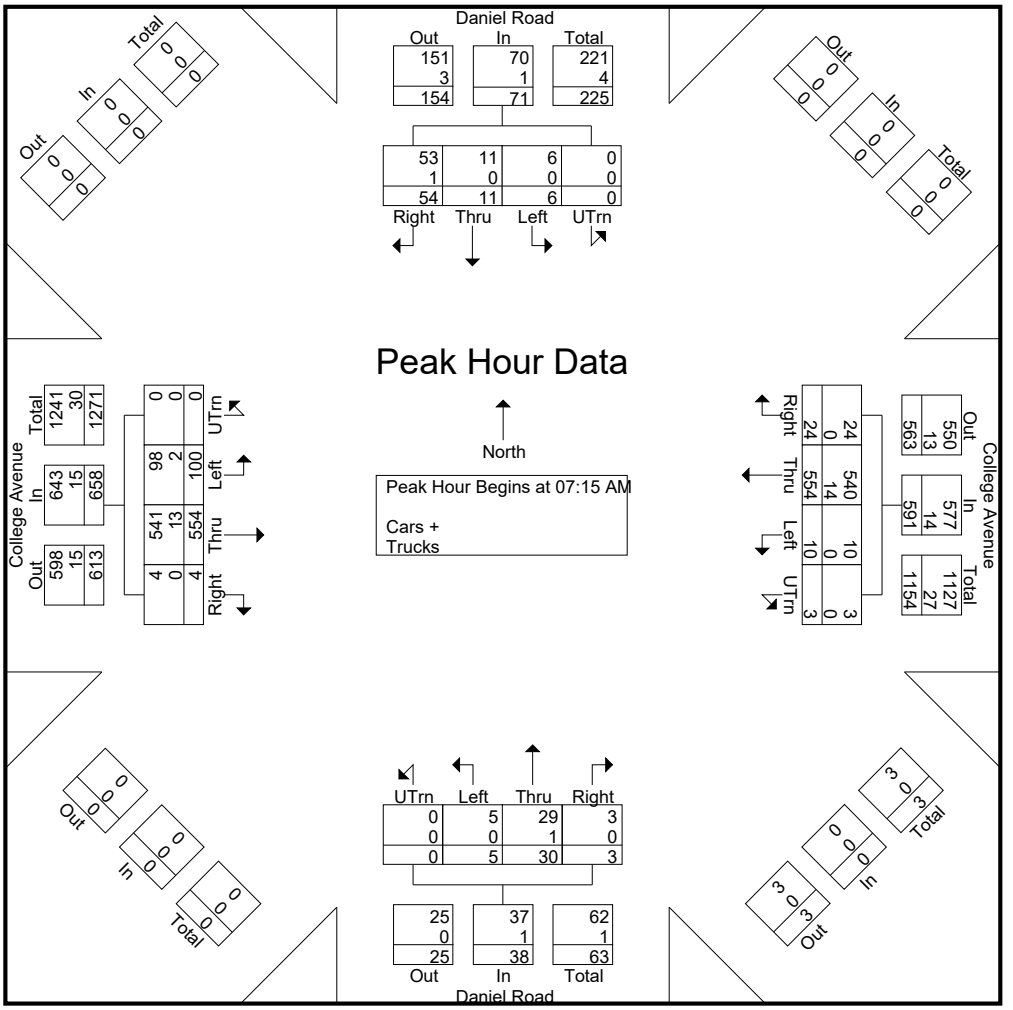
Groups Printed- Cars + - Trucks

	Daniel Road Southbound					College Avenue Westbound					Daniel Road Northbound					College Avenue Eastbound					
Start Time	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	2	5	10	17	1	1	100	4	106	0	0	0	0	0	0	10	117	2	129	252
07:15 AM	0	1	1	11	13	1	1	127	6	135	0	1	3	1	5	0	14	142	0	156	309
07:30 AM	0	1	3	14	18	1	1	117	2	121	0	3	7	1	11	0	23	138	1	162	312
07:45 AM	0	0	5	14	19	1	4	166	7	178	0	0	7	1	8	0	35	155	2	192	397
Total	0	4	14	49	67	4	7	510	19	540	0	4	17	3	24	0	82	552	5	639	1270
08:00 AM	0	4	2	15	21	0	4	144	9	157	0	1	13	0	14	0	28	119	1	148	340
08:15 AM	0	3	6	22	31	3	3	136	9	151	0	0	11	3	14	0	14	88	0	102	298
08:30 AM	0	5	7	20	32	0	5	133	6	144	0	2	8	2	12	0	20	98	3	121	309
08:45 AM	0	8	6	13	27	1	4	142	7	154	0	1	11	0	12	0	19	121	5	145	338
Total	0	20	21	70	111	4	16	555	31	606	0	4	43	5	52	0	81	426	9	516	1285
Grand Total	0	24	35	119	178	8	23	1065	50	1146	0	8	60	8	76	0	163	978	14	1155	2555
Apprch %	0	13.5	19.7	66.9		0.7	2	92.9	4.4		0	10.5	78.9	10.5		0	14.1	84.7	1.2		
Total %	0	0.9	1.4	4.7	7	0.3	0.9	41.7	2	44.9	0	0.3	2.3	0.3	3	0	6.4	38.3	0.5	45.2	
Cars +	0	21	35	113	169	8	22	1040	48	1118	0	8	59	8	75	0	159	942	14	1115	2477
% Cars +	0	87.5	100	95	94.9	100	95.7	97.7	96	97.6	0	100	98.3	100	98.7	0	97.5	96.3	100	96.5	96.9
Trucks	0	3	0	6	9	0	1	25	2	28	0	0	1	0	1	0	4	36	0	40	78
% Trucks	0	12.5	0	5	5.1	0	4.3	2.3	4	2.4	0	0	1.7	0	1.3	0	2.5	3.7	0	3.5	3.1

TRAFFIC DATA COLLECTION

File Name : ForestCity(College Ave and Daniel Rd)
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	Daniel Road Southbound					College Avenue Westbound					Daniel Road Northbound					College Avenue Eastbound					
Start Time	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	1	1	11	13	**1**	1	127	6	135	0	1	3	**1**	5	0	14	142	0	156	309
07:30 AM	0	1	3	14	18	1	1	117	2	121	0	**3**	7	1	11	0	23	138	1	162	312
07:45 AM	0	0	**5**	14	19	1	**4**	**166**	7	**178**	0	0	7	1	8	0	**35**	**155**	**2**	**192**	**397**
08:00 AM	0	**4**	2	**15**	**21**	0	4	144	**9**	157	0	1	**13**	0	**14**	0	28	119	1	148	340
Total Volume	0	6	11	54	71	3	10	554	24	591	0	5	30	3	38	0	100	554	4	658	1358
% App. Total	0	8.5	15.5	76.1		0.5	1.7	93.7	4.1		0	13.2	78.9	7.9		0	15.2	84.2	0.6		
PHF	.000	.375	.550	.900	.845	.750	.625	.834	.667	.830	.000	.417	.577	.750	.679	.000	.714	.894	.500	.857	.855
Cars +	0	6	11	53	70	3	10	540	24	577	0	5	29	3	37	0	98	541	4	643	1327
% Cars +	0	100	100	98.1	98.6	100	100	97.5	100	97.6	0	100	96.7	100	97.4	0	98.0	97.7	100	97.7	97.7
Trucks	0	0	0	1	1	0	0	14	0	14	0	0	1	0	1	0	2	13	0	15	31
% Trucks	0	0	0	1.9	1.4	0	0	2.5	0	2.4	0	0	3.3	0	2.6	0	2.0	2.3	0	2.3	2.3





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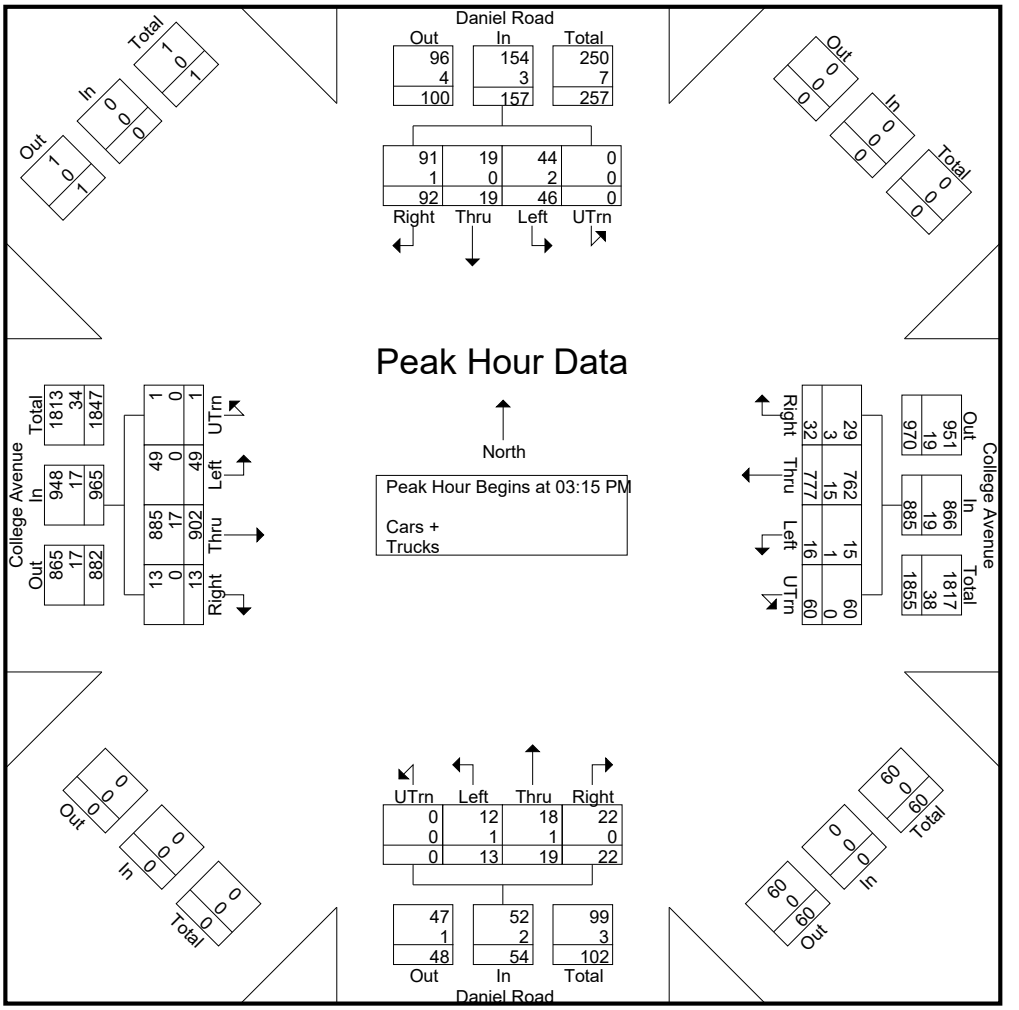
Groups Printed- Cars + - Trucks

	Daniel Road Southbound					College Avenue Westbound					Daniel Road Northbound					College Avenue Eastbound					
Start Time	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	Int. Total
03:00 PM	0	21	13	21	55	12	4	198	7	221	0	2	5	1	8	1	11	193	2	207	491
03:15 PM	0	16	7	17	40	11	4	212	12	239	0	6	6	10	22	1	11	222	2	236	537
03:30 PM	0	3	2	18	23	19	1	175	9	204	0	0	2	4	6	0	15	238	6	259	492
03:45 PM	0	16	9	34	59	22	5	182	6	215	0	3	8	6	17	0	16	220	1	237	528
Total	0	56	31	90	177	64	14	767	34	879	0	11	21	21	53	2	53	873	11	939	2048
04:00 PM	0	11	1	23	35	8	6	208	5	227	0	4	3	2	9	0	7	222	4	233	504
04:15 PM	0	11	8	12	31	14	1	176	4	195	0	3	3	6	12	1	9	170	3	183	421
04:30 PM	0	10	8	20	38	3	0	169	4	176	0	5	7	4	16	0	8	209	2	219	449
04:45 PM	0	7	7	17	31	22	1	177	4	204	0	2	2	4	8	0	5	208	4	217	460
Total	0	39	24	72	135	47	8	730	17	802	0	14	15	16	45	1	29	809	13	852	1834
05:00 PM	0	19	3	35	57	24	1	170	6	201	0	3	7	8	18	0	12	197	2	211	487
05:15 PM	0	5	3	18	26	5	1	181	2	189	0	2	1	2	5	0	7	189	2	198	418
05:30 PM	0	11	1	14	26	12	0	164	1	177	0	3	3	4	10	0	3	147	3	153	366
05:45 PM	0	6	5	3	14	15	2	135	2	154	0	2	4	5	11	0	7	145	2	154	333
Total	0	41	12	70	123	56	4	650	11	721	0	10	15	19	44	0	29	678	9	716	1604
Grand Total	0	136	67	232	435	167	26	2147	62	2402	0	35	51	56	142	3	111	2360	33	2507	5486
Apprch %	0	31.3	15.4	53.3		7	1.1	89.4	2.6		0	24.6	35.9	39.4		0.1	4.4	94.1	1.3		
Total %	0	2.5	1.2	4.2	7.9	3	0.5	39.1	1.1	43.8	0	0.6	0.9	1	2.6	0.1	2	43	0.6	45.7	
Cars +	0	132	66	230	428	167	24	2112	56	2359	0	34	49	56	139	3	110	2310	33	2456	5382
% Cars +	0	97.1	98.5	99.1	98.4	100	92.3	98.4	90.3	98.2	0	97.1	96.1	100	97.9	100	99.1	97.9	100	98	98.1
Trucks	0	4	1	2	7	0	2	35	6	43	0	1	2	0	3	0	1	50	0	51	104
% Trucks	0	2.9	1.5	0.9	1.6	0	7.7	1.6	9.7	1.8	0	2.9	3.9	0	2.1	0	0.9	2.1	0	2	1.9

TRAFFIC DATA COLLECTION

File Name : ForestCity(College Ave and Daniel Rd)
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	Daniel Road Southbound					College Avenue Westbound					Daniel Road Northbound					College Avenue Eastbound					
Start Time	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	UTrn	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:15 PM																					
03:15 PM	0	**16**	7	17	40	11	4	**212**	**12**	**239**	0	**6**	6	**10**	**22**	**1**	11	222	2	236	**537**
03:30 PM	0	3	2	18	23	19	1	175	9	204	0	0	2	4	6	0	15	**238**	**6**	**259**	492
03:45 PM	0	16	**9**	**34**	**59**	**22**	5	182	6	215	0	3	**8**	6	17	0	**16**	220	1	237	528
04:00 PM	0	11	1	23	35	8	**6**	208	5	227	0	4	3	2	9	0	7	222	4	233	504
Total Volume	0	46	19	92	157	60	16	777	32	885	0	13	19	22	54	1	49	902	13	965	2061
% App. Total	0	29.3	12.1	58.6		6.8	1.8	87.8	3.6		0	24.1	35.2	40.7		0.1	5.1	93.5	1.3		
PHF	.000	.719	.528	.676	.665	.682	.667	.916	.667	.926	.000	.542	.594	.550	.614	.250	.766	.947	.542	.931	.959
Cars +	0	44	19	91	154	60	15	762	29	866	0	12	18	22	52	1	49	885	13	948	2020
% Cars +	0	95.7	100	98.9	98.1	100	93.8	98.1	90.6	97.9	0	92.3	94.7	100	96.3	100	100	98.1	100	98.2	98.0
Trucks	0	2	0	1	3	0	1	15	3	19	0	1	1	0	2	0	0	17	0	17	41
% Trucks	0	4.3	0	1.1	1.9	0	6.3	1.9	9.4	2.1	0	7.7	5.3	0	3.7	0	0	1.9	0	1.8	2.0



TRAFFIC DATA COLLECTION

File Name : ForestCity(Daniel Rd and Piney Ridge Rd)
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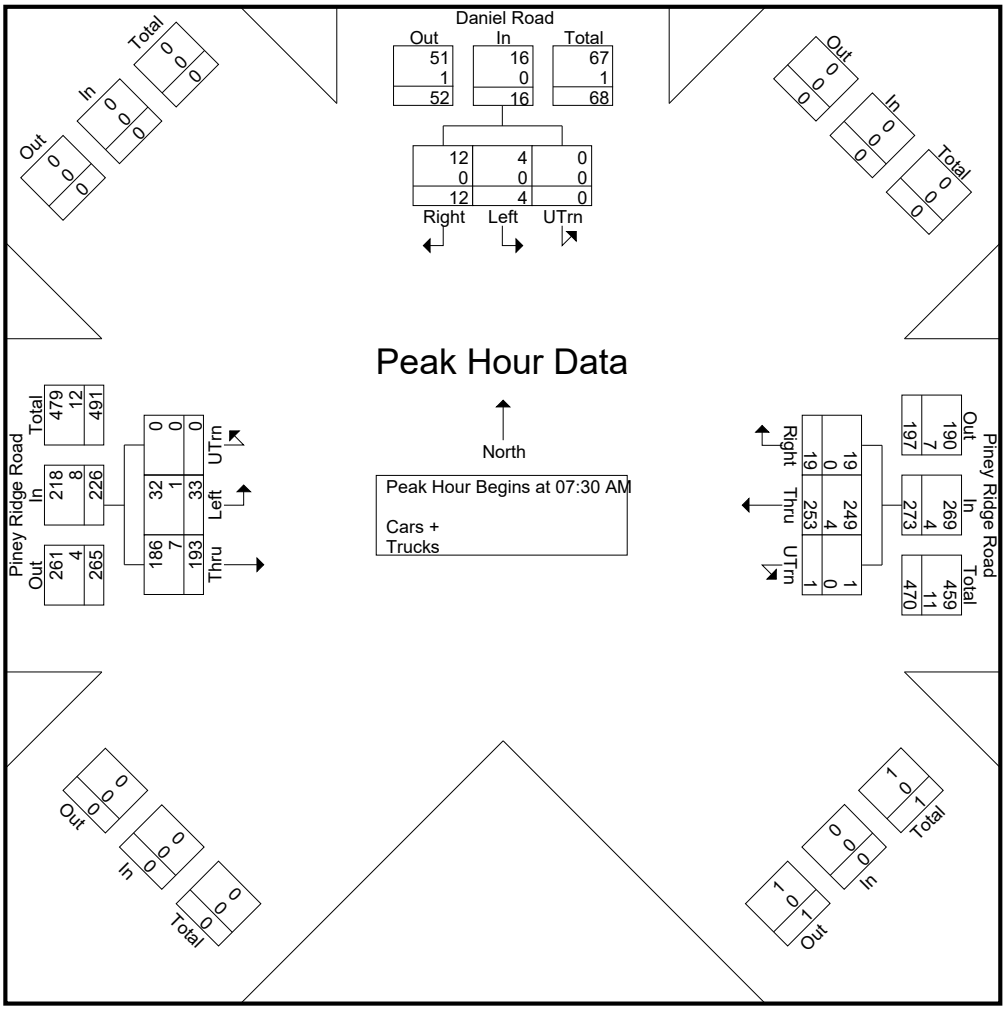
Groups Printed- Cars + - Trucks

	Daniel Road Southbound				Piney Ridge Road Westbound				Piney Ridge Road Eastbound				
Start Time	UTrn	Left	Right	App. Total	UTrn	Thru	Right	App. Total	UTrn	Left	Thru	App. Total	Int. Total
07:00 AM	0	3	2	5	0	26	0	26	0	0	40	40	71
07:15 AM	0	0	1	1	0	54	3	57	0	2	38	40	98
07:30 AM	0	0	2	2	0	83	5	88	0	6	54	60	150
07:45 AM	0	2	4	6	1	73	4	78	0	5	58	63	147
Total	0	5	9	14	1	236	12	249	0	13	190	203	466
08:00 AM	0	0	2	2	0	40	5	45	0	11	48	59	106
08:15 AM	0	2	4	6	0	57	5	62	0	11	33	44	112
08:30 AM	0	2	4	6	0	33	1	34	0	7	39	46	86
08:45 AM	0	1	4	5	0	49	4	53	0	4	43	47	105
Total	0	5	14	19	0	179	15	194	0	33	163	196	409
Grand Total	0	10	23	33	1	415	27	443	0	46	353	399	875
Apprch %	0	30.3	69.7		0.2	93.7	6.1		0	11.5	88.5		
Total %	0	1.1	2.6	3.8	0.1	47.4	3.1	50.6	0	5.3	40.3	45.6	
Cars +	0	10	23	33	1	409	27	437	0	45	343	388	858
% Cars +	0	100	100	100	100	98.6	100	98.6	0	97.8	97.2	97.2	98.1
Trucks	0	0	0	0	0	6	0	6	0	1	10	11	17
% Trucks	0	0	0	0	0	1.4	0	1.4	0	2.2	2.8	2.8	1.9

TRAFFIC DATA COLLECTION

File Name : ForestCity(Daniel Rd and Piney Ridge Rd)
Site Code :
Start Date : 12/10/2024
Page No : 2

	Daniel Road Southbound				Piney Ridge Road Westbound				Piney Ridge Road Eastbound				
Start Time	UTrn	Left	Right	App. Total	UTrn	Thru	Right	App. Total	UTrn	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	0	0	2	2	0	**83**	**5**	**88**	0	6	54	60	**150**
07:45 AM	0	**2**	**4**	**6**	**1**	73	4	78	0	5	**58**	**63**	147
08:00 AM	0	0	2	2	0	40	5	45	0	**11**	48	59	106
08:15 AM	0	2	4	6	0	57	5	62	0	11	33	44	112
Total Volume	0	4	12	16	1	253	19	273	0	33	193	226	515
% App. Total	0	25	75		0.4	92.7	7		0	14.6	85.4		
PHF	.000	.500	.750	.667	.250	.762	.950	.776	.000	.750	.832	.897	.858
Cars +	0	4	12	16	1	249	19	269	0	32	186	218	503
% Cars +	0	100	100	100	100	98.4	100	98.5	0	97.0	96.4	96.5	97.7
Trucks	0	0	0	0	0	4	0	4	0	1	7	8	12
% Trucks	0	0	0	0	0	1.6	0	1.5	0	3.0	3.6	3.5	2.3



TRAFFIC DATA COLLECTION

File Name : ForestCity(Daniel Rd and Piney Ridge Rd)
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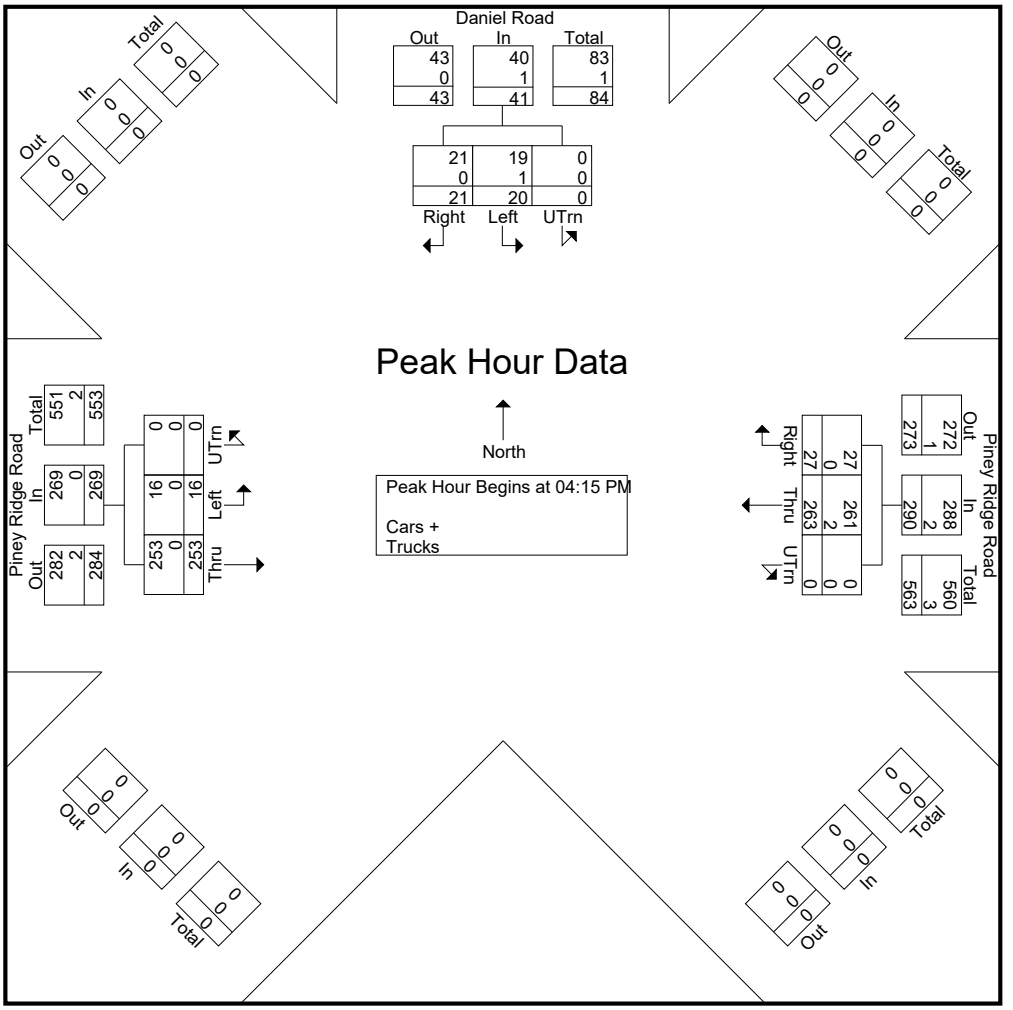
Groups Printed- Cars + - Trucks

	Daniel Road Southbound				Piney Ridge Road Westbound				Piney Ridge Road Eastbound				
Start Time	UTrn	Left	Right	App. Total	UTrn	Thru	Right	App. Total	UTrn	Left	Thru	App. Total	Int. Total
03:00 PM	0	9	12	21	0	63	11	74	0	7	54	61	156
03:15 PM	0	6	3	9	0	58	8	66	0	4	56	60	135
03:30 PM	0	5	5	10	0	62	3	65	0	1	72	73	148
03:45 PM	0	2	10	12	0	53	5	58	0	8	63	71	141
Total	0	22	30	52	0	236	27	263	0	20	245	265	580
04:00 PM	0	2	6	8	0	54	4	58	0	2	64	66	132
04:15 PM	0	5	5	10	0	73	5	78	0	4	62	66	154
04:30 PM	0	4	6	10	0	69	6	75	0	7	61	68	153
04:45 PM	0	6	8	14	0	62	8	70	0	3	61	64	148
Total	0	17	25	42	0	258	23	281	0	16	248	264	587
05:00 PM	0	5	2	7	0	59	8	67	0	2	69	71	145
05:15 PM	0	4	3	7	0	60	1	61	0	3	74	77	145
05:30 PM	0	3	3	6	0	45	3	48	0	8	49	57	111
05:45 PM	0	3	4	7	0	49	1	50	0	5	33	38	95
Total	0	15	12	27	0	213	13	226	0	18	225	243	496
Grand Total	0	54	67	121	0	707	63	770	0	54	718	772	1663
Apprch %	0	44.6	55.4		0	91.8	8.2		0	7	93		
Total %	0	3.2	4	7.3	0	42.5	3.8	46.3	0	3.2	43.2	46.4	
Cars +	0	53	67	120	0	698	63	761	0	53	712	765	1646
% Cars +	0	98.1	100	99.2	0	98.7	100	98.8	0	98.1	99.2	99.1	99
Trucks	0	1	0	1	0	9	0	9	0	1	6	7	17
% Trucks	0	1.9	0	0.8	0	1.3	0	1.2	0	1.9	0.8	0.9	1

TRAFFIC DATA COLLECTION

File Name : ForestCity(Daniel Rd and Piney Ridge Rd)
Site Code :
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	Daniel Road Southbound				Piney Ridge Road Westbound				Piney Ridge Road Eastbound				
Start Time	UTrn	Left	Right	App. Total	UTrn	Thru	Right	App. Total	UTrn	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:15 PM													
04:15 PM	0	5	5	10	0	**73**	5	**78**	0	4	62	66	**154**
04:30 PM	0	4	6	10	0	69	6	75	0	**7**	61	68	153
04:45 PM	0	**6**	**8**	**14**	0	62	**8**	70	0	3	61	64	148
05:00 PM	0	5	2	7	0	59	8	67	0	2	**69**	**71**	145
Total Volume	0	20	21	41	0	263	27	290	0	16	253	269	600
% App. Total	0	48.8	51.2		0	90.7	9.3		0	5.9	94.1		
PHF	.000	.833	.656	.732	.000	.901	.844	.929	.000	.571	.917	.947	.974
Cars +	0	19	21	40	0	261	27	288	0	16	253	269	597
% Cars +	0	95.0	100	97.6	0	99.2	100	99.3	0	100	100	100	99.5
Trucks	0	1	0	1	0	2	0	2	0	0	0	0	3
% Trucks	0	5.0	0	2.4	0	0.8	0	0.7	0	0	0	0	0.5





File Name : ForestCity(Oak St Ext and Piney Ridge Rd
Site Code :
Start Date : 12/10/2024
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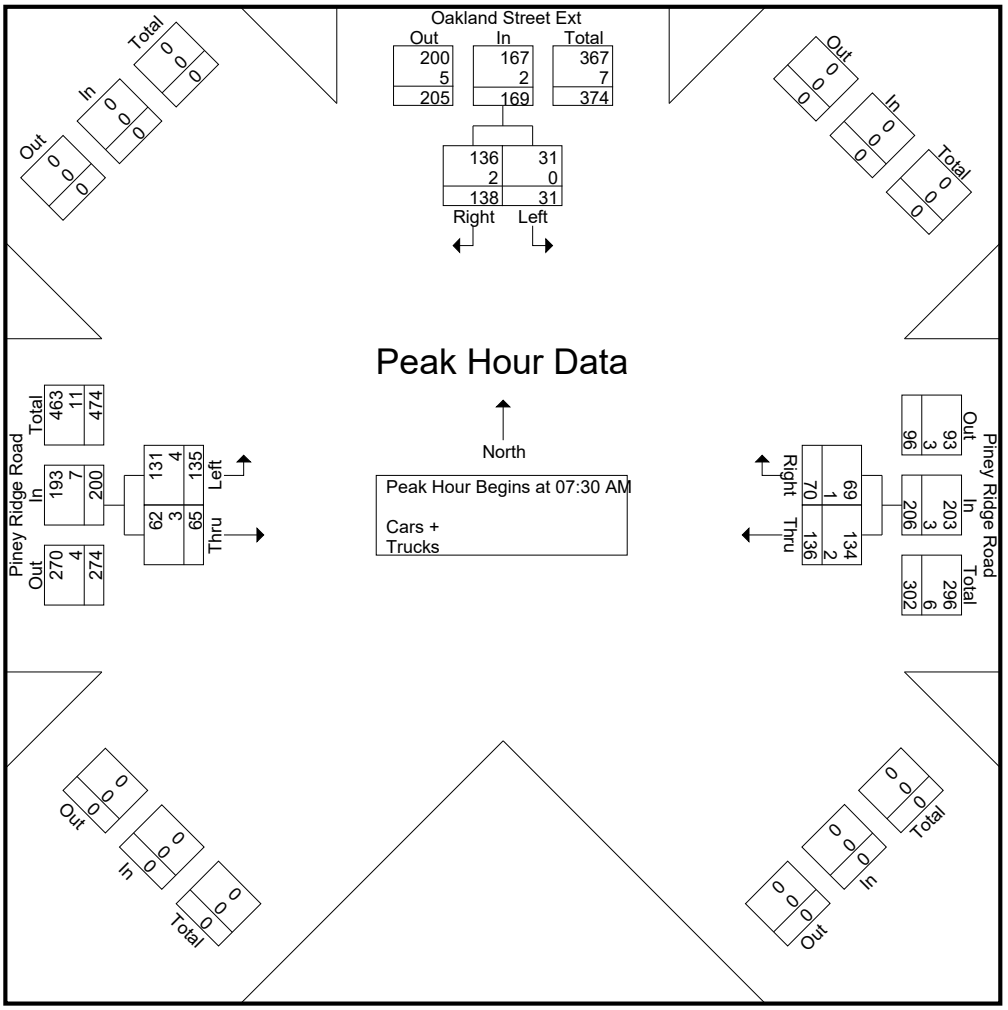
Groups Printed- Cars + - Trucks

	Oakland Street Ext Southbound			Piney Ridge Road Westbound			Piney Ridge Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	5	12	17	13	11	24	30	17	47	88
07:15 AM	7	20	27	28	9	37	24	15	39	103
07:30 AM	4	43	47	43	15	58	44	11	55	160
07:45 AM	3	40	43	38	20	58	37	24	61	162
Total	19	115	134	122	55	177	135	67	202	513
08:00 AM	9	27	36	20	19	39	34	16	50	125
08:15 AM	15	28	43	35	16	51	20	14	34	128
08:30 AM	10	19	29	13	18	31	26	15	41	101
08:45 AM	14	24	38	31	11	42	30	13	43	123
Total	48	98	146	99	64	163	110	58	168	477
Grand Total	67	213	280	221	119	340	245	125	370	990
Apprch %	23.9	76.1		65	35		66.2	33.8		
Total %	6.8	21.5	28.3	22.3	12	34.3	24.7	12.6	37.4	
Cars +	67	211	278	217	118	335	240	120	360	973
% Cars +	100	99.1	99.3	98.2	99.2	98.5	98	96	97.3	98.3
Trucks	0	2	2	4	1	5	5	5	10	17
% Trucks	0	0.9	0.7	1.8	0.8	1.5	2	4	2.7	1.7

TRAFFIC DATA COLLECTION

File Name : ForestCity(Oak St Ext and Piney Ridge Rd
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	Oakland Street Ext Southbound			Piney Ridge Road Westbound			Piney Ridge Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	4	**43**	**47**	**43**	15	**58**	**44**	11	55	160
07:45 AM	3	40	43	38	**20**	58	37	**24**	**61**	**162**
08:00 AM	9	27	36	20	19	39	34	16	50	125
08:15 AM	**15**	28	43	35	16	51	20	14	34	128
Total Volume	31	138	169	136	70	206	135	65	200	575
% App. Total	18.3	81.7		66	34		67.5	32.5		
PHF	.517	.802	.899	.791	.875	.888	.767	.677	.820	.887
Cars +	31	136	167	134	69	203	131	62	193	563
% Cars +	100	98.6	98.8	98.5	98.6	98.5	97.0	95.4	96.5	97.9
Trucks	0	2	2	2	1	3	4	3	7	12
% Trucks	0	1.4	1.2	1.5	1.4	1.5	3.0	4.6	3.5	2.1





File Name : ForestCity(Oak St Ext and Piney Ridge Rd
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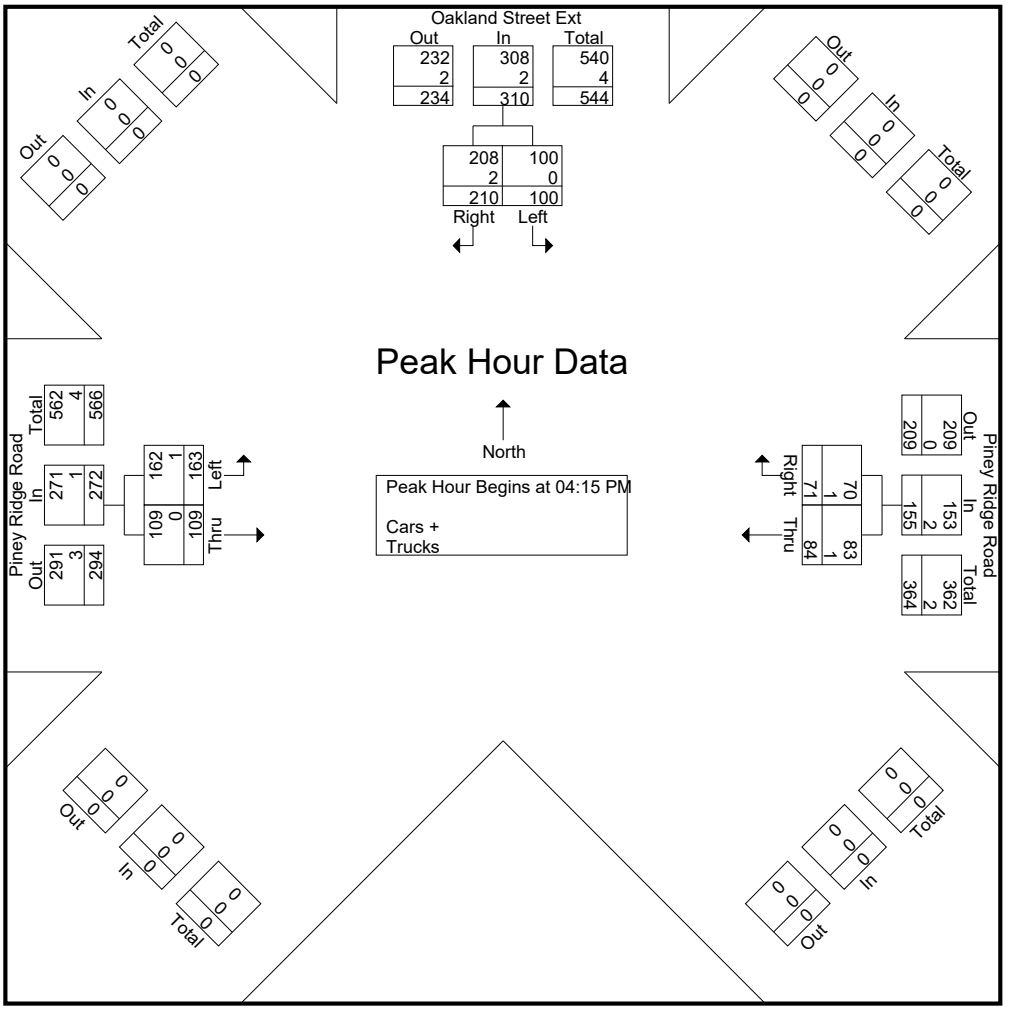
Groups Printed- Cars + - Trucks

	Oakland Street Ext Southbound			Piney Ridge Road Westbound			Piney Ridge Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
03:00 PM	21	49	70	19	13	32	39	24	63	165
03:15 PM	16	46	62	24	15	39	36	24	60	161
03:30 PM	16	39	55	18	17	35	52	16	68	158
03:45 PM	25	42	67	24	18	42	41	28	69	178
Total	78	176	254	85	63	148	168	92	260	662
04:00 PM	30	36	66	17	21	38	38	25	63	167
04:15 PM	24	63	87	16	22	38	40	24	64	189
04:30 PM	26	56	82	26	16	42	40	29	69	193
04:45 PM	25	42	67	23	19	42	32	33	65	174
Total	105	197	302	82	78	160	150	111	261	723
05:00 PM	25	49	74	19	14	33	51	23	74	181
05:15 PM	21	41	62	19	25	44	59	20	79	185
05:30 PM	15	43	58	13	20	33	34	17	51	142
05:45 PM	25	36	61	11	16	27	24	14	38	126
Total	86	169	255	62	75	137	168	74	242	634
Grand Total	269	542	811	229	216	445	486	277	763	2019
Apprch %	33.2	66.8		51.5	48.5		63.7	36.3		
Total %	13.3	26.8	40.2	11.3	10.7	22	24.1	13.7	37.8	
Cars +	269	538	807	224	213	437	480	276	756	2000
% Cars +	100	99.3	99.5	97.8	98.6	98.2	98.8	99.6	99.1	99.1
Trucks	0	4	4	5	3	8	6	1	7	19
% Trucks	0	0.7	0.5	2.2	1.4	1.8	1.2	0.4	0.9	0.9

TRAFFIC DATA COLLECTION

File Name : ForestCity(Oak St Ext and Piney Ridge Rd
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	Oakland Street Ext Southbound			Piney Ridge Road Westbound			Piney Ridge Road Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	24	**63**	**87**	16	**22**	38	40	24	64	189
04:30 PM	**26**	56	82	**26**	16	**42**	40	29	69	**193**
04:45 PM	25	42	67	23	19	42	32	**33**	65	174
05:00 PM	25	49	74	19	14	33	**51**	23	**74**	181
Total Volume	100	210	310	84	71	155	163	109	272	737
% App. Total	32.3	67.7		54.2	45.8		59.9	40.1		
PHF	.962	.833	.891	.808	.807	.923	.799	.826	.919	.955
Cars +	100	208	308	83	70	153	162	109	271	732
% Cars +	100	99.0	99.4	98.8	98.6	98.7	99.4	100	99.6	99.3
Trucks	0	2	2	1	1	2	1	0	1	5
% Trucks	0	1.0	0.6	1.2	1.4	1.3	0.6	0	0.4	0.7





File Name : ForestCity(Oakland Rd and Piney Ridge Rd)
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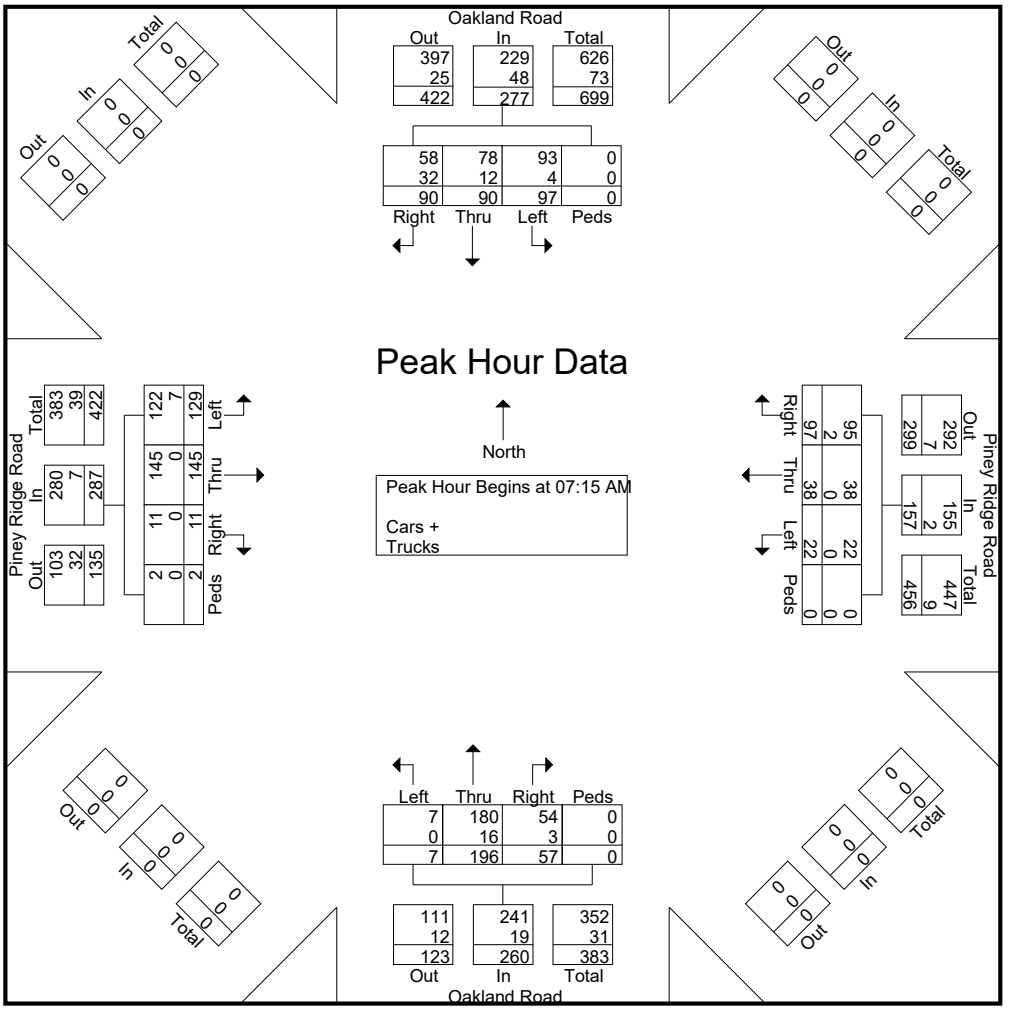
Groups Printed- Cars + - Trucks

	Oakland Road Southbound					Piney Ridge Road Westbound					Oakland Road Northbound					Piney Ridge Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	15	22	34	0	71	2	10	10	0	22	5	35	11	0	51	35	13	3	0	51	195
07:15 AM	21	27	21	0	69	7	12	19	0	38	3	48	12	0	63	36	33	3	0	72	242
07:30 AM	27	20	20	0	67	5	13	28	0	46	2	44	11	0	57	22	41	3	0	66	236
07:45 AM	28	26	25	0	79	8	7	30	0	45	0	55	18	0	73	40	32	4	2	78	275
Total	91	95	100	0	286	22	42	87	0	151	10	182	52	0	244	133	119	13	2	267	948
08:00 AM	21	17	24	0	62	2	6	20	0	28	2	49	16	0	67	31	39	1	0	71	228
08:15 AM	26	25	21	0	72	6	7	24	0	37	5	43	12	0	60	29	23	1	0	53	222
08:30 AM	13	19	21	0	53	5	13	16	0	34	1	36	8	0	45	25	22	0	0	47	179
08:45 AM	12	14	25	0	51	3	19	16	0	38	2	42	9	0	53	31	22	1	0	54	196
Total	72	75	91	0	238	16	45	76	0	137	10	170	45	0	225	116	106	3	0	225	825
Grand Total	163	170	191	0	524	38	87	163	0	288	20	352	97	0	469	249	225	16	2	492	1773
Apprch %	31.1	32.4	36.5	0		13.2	30.2	56.6	0		4.3	75.1	20.7	0		50.6	45.7	3.3	0.4		
Total %	9.2	9.6	10.8	0	29.6	2.1	4.9	9.2	0	16.2	1.1	19.9	5.5	0	26.5	14	12.7	0.9	0.1	27.7	
Cars +	159	149	140	0	448	38	87	159	0	284	20	330	93	0	443	234	225	16	2	477	1652
% Cars +	97.5	87.6	73.3	0	85.5	100	100	97.5	0	98.6	100	93.8	95.9	0	94.5	94	100	100	100	97	93.2
Trucks	4	21	51	0	76	0	0	4	0	4	0	22	4	0	26	15	0	0	0	15	121
% Trucks	2.5	12.4	26.7	0	14.5	0	0	2.5	0	1.4	0	6.2	4.1	0	5.5	6	0	0	0	3	6.8

TRAFFIC DATA COLLECTION

File Name : ForestCity(Oakland Rd and Piney Ridge Rd)
Site Code :
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	Oakland Road Southbound					Piney Ridge Road Westbound					Oakland Road Northbound					Piney Ridge Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	21	**27**	21	0	69	7	12	19	0	38	**3**	48	12	0	63	36	33	3	0	72	242
07:30 AM	27	20	20	0	67	5	**13**	28	0	**46**	2	44	11	0	57	22	**41**	3	0	66	236
07:45 AM	**28**	26	**25**	0	**79**	**8**	7	**30**	0	45	0	**55**	**18**	0	**73**	**40**	32	**4**	**2**	**78**	**275**
08:00 AM	21	17	24	0	62	2	6	20	0	28	2	49	16	0	67	31	39	1	0	71	228
Total Volume	97	90	90	0	277	22	38	97	0	157	7	196	57	0	260	129	145	11	2	287	981
% App. Total	35	32.5	32.5	0		14	24.2	61.8	0		2.7	75.4	21.9	0		44.9	50.5	3.8	0.7		
PHF	.866	.833	.900	.000	.877	.688	.731	.808	.000	.853	.583	.891	.792	.000	.890	.806	.884	.688	.250	.920	.892
Cars +	93	78	58	0	229	22	38	95	0	155	7	180	54	0	241	122	145	11	2	280	905
% Cars +	95.9	86.7	64.4	0	82.7	100	100	97.9	0	98.7	100	91.8	94.7	0	92.7	94.6	100	100	100	97.6	92.3
Trucks	4	12	32	0	48	0	0	2	0	2	0	16	3	0	19	7	0	0	0	7	76
% Trucks	4.1	13.3	35.6	0	17.3	0	0	2.1	0	1.3	0	8.2	5.3	0	7.3	5.4	0	0	0	2.4	7.7





File Name : ForestCity(Oakland Rd and Piney Ridge Rd)
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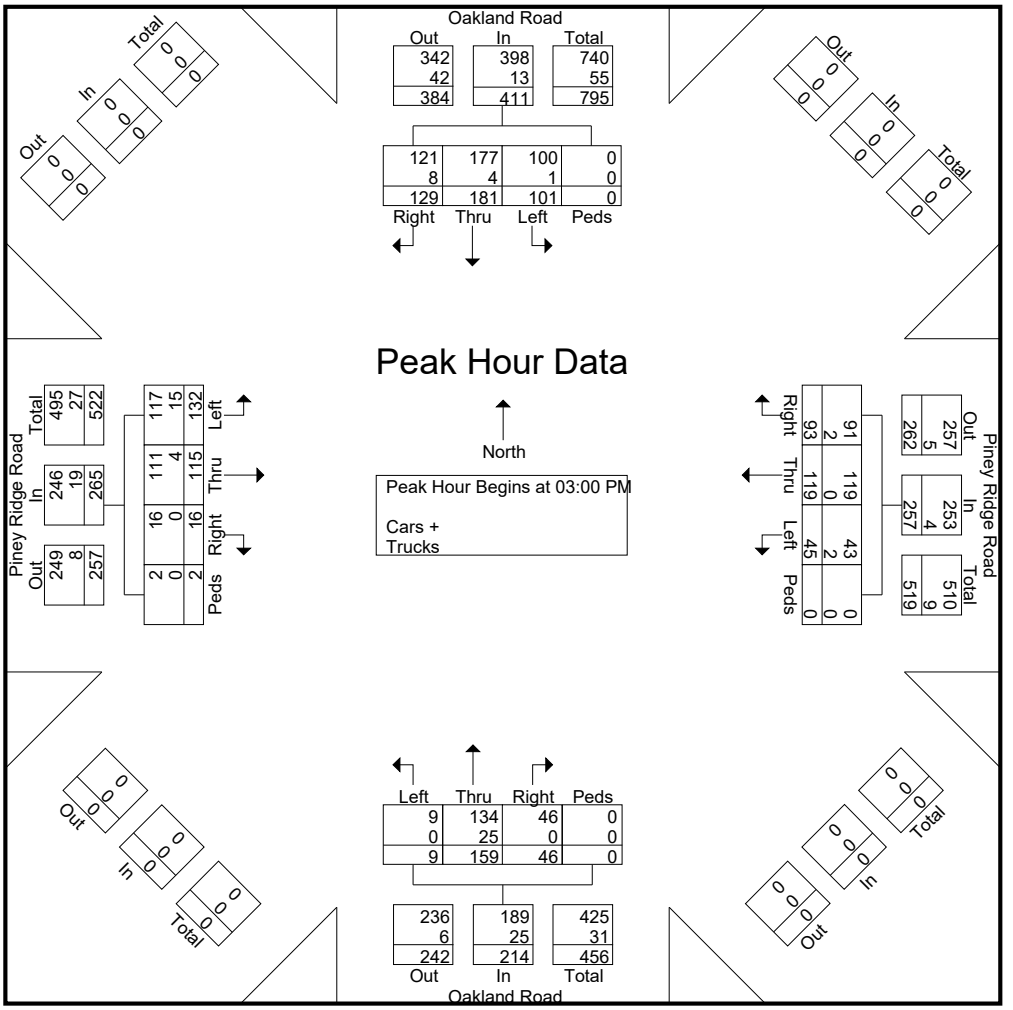
Groups Printed- Cars + - Trucks

	Oakland Road Southbound					Piney Ridge Road Westbound					Oakland Road Northbound					Piney Ridge Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	30	36	43	0	109	11	35	28	0	74	2	32	8	0	42	36	31	5	0	72	297
03:15 PM	20	41	26	0	87	9	30	24	0	63	2	39	12	0	53	27	32	3	2	64	267
03:30 PM	26	57	26	0	109	12	23	21	0	56	3	46	12	0	61	29	20	3	0	52	278
03:45 PM	25	47	34	0	106	13	31	20	0	64	2	42	14	0	58	40	32	5	0	77	305
Total	101	181	129	0	411	45	119	93	0	257	9	159	46	0	214	132	115	16	2	265	1147
04:00 PM	26	35	45	0	106	7	31	22	0	60	4	28	14	0	46	32	25	3	0	60	272
04:15 PM	16	32	33	0	81	20	40	16	0	76	4	40	11	0	55	31	25	3	0	59	271
04:30 PM	21	41	34	0	96	13	45	24	0	82	2	32	11	0	45	27	19	3	0	49	272
04:45 PM	18	37	29	0	84	14	39	20	0	73	2	26	13	0	41	28	28	3	0	59	257
Total	81	145	141	0	367	54	155	82	0	291	12	126	49	0	187	118	97	12	0	227	1072
05:00 PM	24	52	66	0	142	10	37	27	0	74	1	30	11	0	42	30	32	0	0	62	320
05:15 PM	28	29	41	0	98	14	41	15	0	70	5	34	18	0	57	24	33	1	0	58	283
05:30 PM	22	27	38	0	87	12	28	13	0	53	4	25	13	0	42	33	27	2	0	62	244
05:45 PM	14	26	26	0	66	9	26	4	0	39	0	29	4	0	33	21	15	1	0	37	175
Total	88	134	171	0	393	45	132	59	0	236	10	118	46	0	174	108	107	4	0	219	1022
Grand Total	270	460	441	0	1171	144	406	234	0	784	31	403	141	0	575	358	319	32	2	711	3241
Apprch %	23.1	39.3	37.7	0		18.4	51.8	29.8	0		5.4	70.1	24.5	0		50.4	44.9	4.5	0.3		
Total %	8.3	14.2	13.6	0	36.1	4.4	12.5	7.2	0	24.2	1	12.4	4.4	0	17.7	11	9.8	1	0.1	21.9	
Cars +	269	444	428	0	1141	141	406	228	0	775	31	366	141	0	538	328	315	32	2	677	3131
% Cars +	99.6	96.5	97.1	0	97.4	97.9	100	97.4	0	98.9	100	90.8	100	0	93.6	91.6	98.7	100	100	95.2	96.6
Trucks	1	16	13	0	30	3	0	6	0	9	0	37	0	0	37	30	4	0	0	34	110
% Trucks	0.4	3.5	2.9	0	2.6	2.1	0	2.6	0	1.1	0	9.2	0	0	6.4	8.4	1.3	0	0	4.8	3.4

TRAFFIC DATA COLLECTION

File Name : ForestCity(Oakland Rd and Piney Ridge Rd)
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	Oakland Road Southbound					Piney Ridge Road Westbound					Oakland Road Northbound					Piney Ridge Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	**30**	36	**43**	0	**109**	11	**35**	**28**	0	**74**	2	32	8	0	42	36	31	**5**	0	72	297
03:15 PM	20	41	26	0	87	9	30	24	0	63	2	39	12	0	53	27	**32**	3	**2**	64	267
03:30 PM	26	**57**	26	0	109	12	23	21	0	56	**3**	**46**	12	0	**61**	29	20	3	0	52	278
03:45 PM	25	47	34	0	106	**13**	31	20	0	64	2	42	**14**	0	58	**40**	32	5	0	**77**	**305**
Total Volume	101	181	129	0	411	45	119	93	0	257	9	159	46	0	214	132	115	16	2	265	1147
% App. Total	24.6	44	31.4	0		17.5	46.3	36.2	0		4.2	74.3	21.5	0		49.8	43.4	6	0.8		
PHF	.842	.794	.750	.000	.943	.865	.850	.830	.000	.868	.750	.864	.821	.000	.877	.825	.898	.800	.250	.860	.940
Cars +	100	177	121	0	398	43	119	91	0	253	9	134	46	0	189	117	111	16	2	246	1086
% Cars +	99.0	97.8	93.8	0	96.8	95.6	100	97.8	0	98.4	100	84.3	100	0	88.3	88.6	96.5	100	100	92.8	94.7
Trucks	1	4	8	0	13	2	0	2	0	4	0	25	0	0	25	15	4	0	0	19	61
% Trucks	1.0	2.2	6.2	0	3.2	4.4	0	2.2	0	1.6	0	15.7	0	0	11.7	11.4	3.5	0	0	7.2	5.3



Jay Clapp

From: Blake, Bradley R <brblake@ncdot.gov>
Sent: Thursday, October 30, 2025 9:48 AM
To: Jay Clapp
Cc: Young, Jonathan C; Butler, Jason
Subject: RE: [External] Daniel Road Subdivision
Attachments: 2025-10-29_Scoping Review_SC-2025-209 Daniel Road Subdivision.pdf

Good morning Jay,

Please find attached scoping review comments we received from CMS for the Daniel Road Subdivision. We'll be on the lookout for the full TIA submittal.

If you have any questions, feel free to reach out.

Thanks,
Brad Blake
Engineering Specialist
Division 13
North Carolina Department of Transportation

828-803-6100
brblake@ncdot.gov

3931 NC 226 South
Marion, NC 28752

Daniel Road Subdivision

TIA SCOPING REVIEW

BULLET LIST OF CONGESTION MGMT. COMMENTS AND CONCERNS (SC-2025-209)

October 29, 2025

The Congestion Management Section (CMS) has performed a review of the scoping document for the proposed Daniel Road Subdivision development prepared by BGE Incorporated (received October 17, 2025). According to the document, the proposed development is to be located in the northeast quadrant of SR 2184 (Daniel Rd) and SR 2159 (Piney Ridge Rd) in Forest City, Rutherford County. The scoping document states that the full build-out of the development is to be constructed by 2030 and is to consist of residential land use generating 1,591 unadjusted daily trips. Based on our review, we have the following comments at this time:

Trip Generation

- The trip generation appears reasonable.

Trip Distribution and Growth Rate

- Trip distribution appears reasonable.
- There appears to be negligible growth in the area. Therefore, a growth rate of 0 percent is suggested.

Study Intersections

- Study intersections appear reasonable.

Site Plan and Proposed Driveways

- Site plan appears reasonable and appears to match with the trip generation.
- Please ensure that the proposed driveway(s) are in accordance with the NCDOT Driveway Manual and Internal Protected Stem lengths are provided with the TIA.

NOTE: This list should not be considered all-inclusive. Further review may identify additional areas of concern.

APPENDIX B

APPROVED DEVELOPMENT

Legacy Soccer Park	ITE Land Use (Code)	Independent Variable	Enter	Exit	Enter	Exit
	Soccer Complex (488)	10 fields	9	9	79	90

Intersections	Movement	Distribution		AM Peak Hour		PM Peak Hour	
		Entering	Exiting	Entering	Exiting	Entering	Exiting
1 - College Avenue & Daniel Road	SB Right			0	0	0	0
	SB Through	5%		0	0	4	0
	SB Left			0	0	0	0
	SBU			0	0	0	0
	WB Right			0	0	0	0
	WB Through			0	0	0	0
	WB Left	25%		3	0	19	0
	WBU			0	0	0	0
	NB Right		25%	0	3	0	22
	NB Through		5%	0	0	0	5
	NB Left		5%	0	0	0	5
	NBU			0	0	0	0
	EB Right	5%		0	0	4	0
	EB Through			0	0	0	0
	EB Left			0	0	0	0
	EBU			0	0	0	0
2 - Daniel Road & Piney Ridge Road	SB Right	35%		3	0	27	0
	SB Through			0	0	0	0
	SB Left			0	0	0	0
	SBU			0	0	0	0
	WB Right			0	0	0	0
	WB Through	10%		1	0	8	0
	WB Left			0	0	0	0
	WBU			0	0	0	0
	NB Right			0	0	0	0
	NB Through			0	0	0	0
	NB Left			0	0	0	0
	NBU			0	0	0	0
	EB Right			0	0	0	0
	EB Through		10%	0	1	0	9
	EB Left		35%	0	3	0	32
	EBU			0	0	0	0
3 - Oak Street Ext. & Piney Ridge Road	SB Right	5%		0	0	4	0
	SB Through			0	0	0	0
	SB Left			0	0	0	0
	SBU			0	0	0	0
	WB Right			0	0	0	0
	WB Through	5%		1	0	4	0
	WB Left			0	0	0	0
	WBU			0	0	0	0
	NB Right			0	0	0	0
	NB Through			0	0	0	0
	NB Left			0	0	0	0
	NBU			0	0	0	0
	EB Right			0	0	0	0
	EB Through		5%	0	1	0	5
	EB Left		5%	0	0	0	4
	EBU			0	0	0	0
4 - Oakland Road & Piney Ridge Road	SB Right			0	0	0	0
	SB Through			0	0	0	0
	SB Left	30%		3	0	24	0
	SBU			0	0	0	0
	WB Right		30%	0	3	0	26
	WB Through		10%	0	1	0	9
	WB Left		15%	0	1	0	14
	WBU			0	0	0	0
	NB Right	15%		1	0	12	0
	NB Through			0	0	0	0
	NB Left			0	0	0	0
	NBU			0	0	0	0
	EB Right			0	0	0	0
	EB Through	10%		1	0	8	0
	EB Left			0	0	0	0
	EBU			0	0	0	0

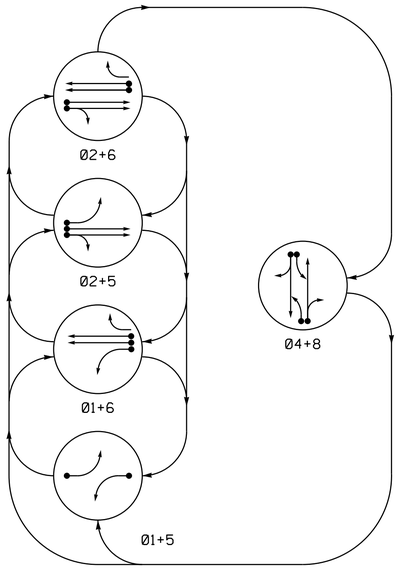
APPENDIX C

SYNCHRO ANALYSIS REPORTS (INCLUDING SIGNAL PLAN & TIMINGS)

COLLEGE AVENUE AND DANIEL ROAD

PROJECT REFERENCE NO.	SHEET NO.
POR	Sig. 1.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

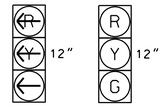
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 01+5	01+6	02+5	02+6	04+8	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~
61,62	R	G	R	G	R	Y
81,82	R	R	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



11
51

21, 22
41, 42
61, 62
81, 82

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

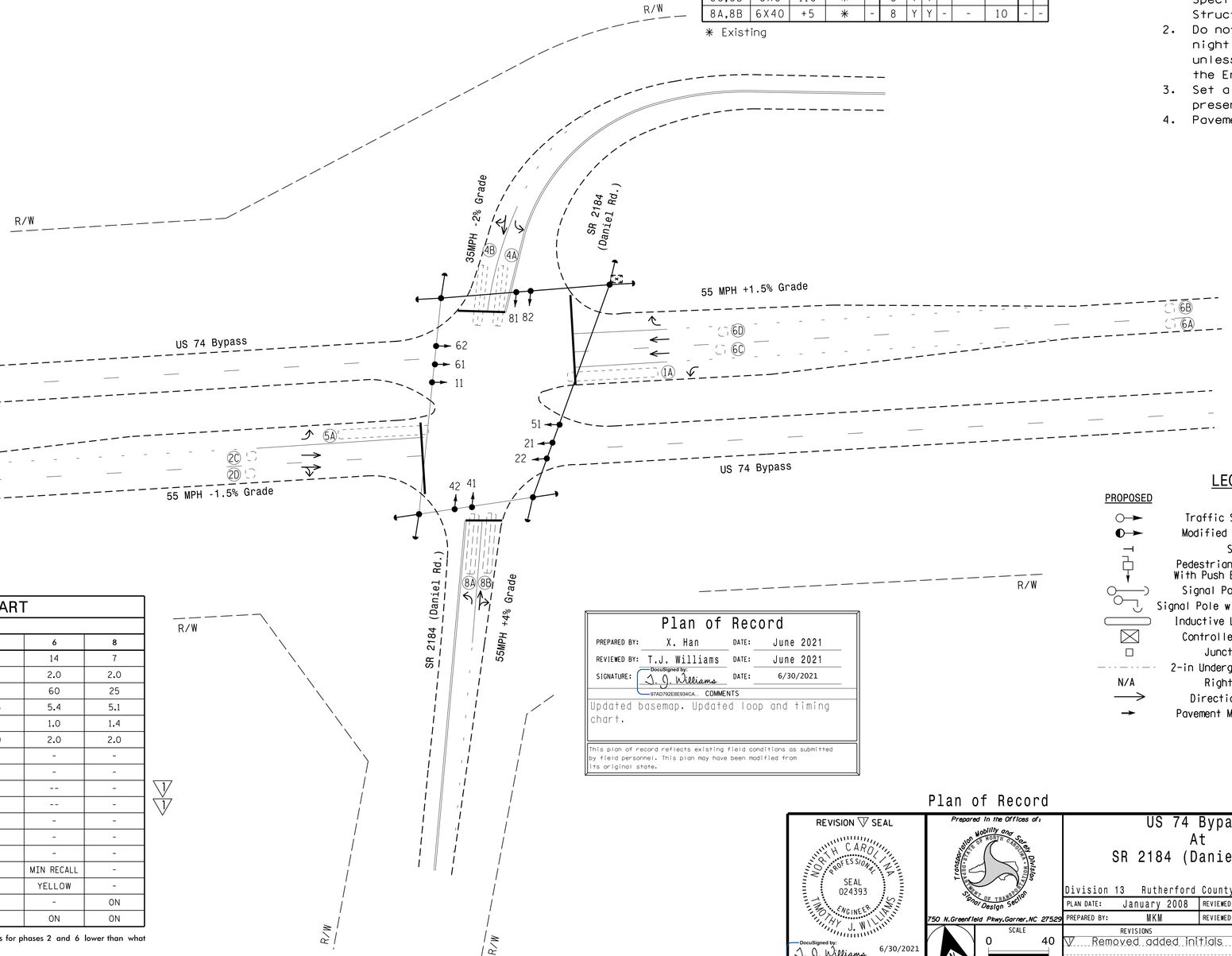
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X60	+5	✳	-	1	Y	Y	-	-	-	-	-
2A,2B	6X6	405	✳	-	2	Y	Y	-	2	-	-	-
2C,2D	6X6	110	✳	-	2	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	-
5A	6X60	+5	✳	-	5	Y	Y	-	-	-	-	-
6A,6B	6X6	405	✳	-	6	Y	Y	-	2	-	-	-
6C,6D	6X6	110	✳	-	6	Y	Y	-	-	-	-	-
8A,8B	6X40	+5	✳	-	8	Y	Y	-	-	10	-	-

✳ Existing

5 Phase
Fully Actuated
D13-15_Forest City

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018/.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Pavement markings are existing.



OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	14	7	7	14	7
Extension 1 *	1.0	2.0	2.0	1.0	2.0	2.0
Max Green 1 *	15	60	25	20	60	25
Yellow Clearance	4.0	5.4	5.1	4.5	5.4	5.1
Red Clearance	1.9	1.0	1.4	1.9	1.0	1.4
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	--	-	-	--	-
Max Variable Initial *	-	--	-	-	--	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
⊣■	Pedestrian Signal Head With Push Button & Sign	⊣■
○→	Signal Pole with Guy	●→
○↷	Signal Pole with Sidewalk Guy	●↷
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
-·-·-	2-in Underground Conduit	-·-·-
N/A	Right of Way	— — —
→	Directional Arrow	→
→	Pavement Marking Arrow	→

Plan of Record

PREPARED BY:	X. Han	DATE:	June 2021
REVIEWED BY:	T.J. Williams	DATE:	June 2021
SIGNATURE:	DocuSigned by: J. J. Williams 97AD792EBE934CA...	DATE:	6/30/2021

COMMENTS

Updated basemap. Updated loop and timing chart.

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

Plan of Record

REVISION ▽ SEAL

NORTH CAROLINA PROFESSIONAL SEAL 024393 ENGINEER TIMOTHY J. WILLIAMS

DocuSigned by: J. J. Williams 97AD792EBE934CA... 6/30/2021 DATE

Prepared In the Offices of:
Transportation Mobility and Safety Division
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

N

SCALE 0 40 1"=40'

US 74 Bypass
At
SR 2184 (Daniel Road)

Division 13 Rutherford County Forest City

PLAN DATE:	January 2008	REVIEWED BY:	
PREPARED BY:	MKM	REVIEWED BY:	

REVISIONS	UNIT.	DATE
▽ Removed added initials	JDW	6/30/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Not a certified document. This document originally issued and sealed by John F.Permar,6975 on 6/12/1984 This document shall not be considered a certified document.

SIG. INVENTORY NO. 13-0452

30-JUN-2021 10:15
S:*TIS\ACTIVE\Signals\Signal Design Section\Western Region\Div-13\13-0452\2021-06\130452_sig_por_20210mds.dgn
xgnan

AM Peak **Coordination Plan # 11**

Cycle length (0-999 sec)	110
Min Transition Cycle (0-999 sec)	90
Max Transition Cycle (0-999 sec)	130

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	77	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	17	73	0	20	17	73	0	20
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase		2				6										
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:	**(Y/N)**	
Split/Timing in percent?	N	
*Permissive Mode (0-3)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window

Active Pages:

Phase Sequence Page (1-12)	3
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	2
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

PM Peak **Coordination Plan # 13**

Cycle length (0-999 sec)	140
Min Transition Cycle (0-999 sec)	120
Max Transition Cycle (0-999 sec)	160

Offset # or Ring:	1	2	3	4
Offsets (0-999 sec)	63	0	0	0
Act Coord Phase Min Green (0-255)	0	0	0	0

Splits (0-255 sec)

Phase	1	2	3	4	5	6	7	8
Split	28	82	0	30	28	82	0	30
Phase	9	10	11	12	13	14	15	16
Split	0	0	0	0	0	0	0	0

Verify Plan Data

Phase/Function Settings:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phase		2				6										
Float Force Offs																
Hold to Force Off																
Hi Priority Ped																
Dynamic/Backup																

Options:	**(Y/N)**	
Split/Timing in percent?	N	
*Permissive Mode (0-3)	0	*0 = Auto
Enable Transition Permissive Mode?	N	1 = Open
Adjust Non-Coordinated Splits?	Y	2 = Manual
Cycle Once per Cycle Length?	Y	3 = Window

Active Pages:

Phase Sequence Page (1-12)	1
Phase Timing Page (1-4)	2
Phase Control Page (1-4)	2
OverLap Control Page (1-4)	1
Input Page (1-4)	1
Output Page (1-4)	1

Global Manual Permissive windows:

*Applies when "Window" permissive is selected

Manual Perm 1 End Point (0-255 sec)	0
Manual Perm 2 Start Point (0-255 sec)	0
Manual Perm 2 End Point (0-255 sec)	0

Manual Permissives by Phase:

*Applies when "Manual" permissive is selected

	Vehicle		Pedestrian	
(0-255 sec)	Start	Stop	Start	Stop
Phase 1	0	0	0	0
Phase 2	0	0	0	0
Phase 3	0	0	0	0
Phase 4	0	0	0	0
Phase 5	0	0	0	0
Phase 6	0	0	0	0
Phase 7	0	0	0	0
Phase 8	0	0	0	0
Phase 9	0	0	0	0
Phase 10	0	0	0	0
Phase 11	0	0	0	0
Phase 12	0	0	0	0
Phase 13	0	0	0	0
Phase 14	0	0	0	0
Phase 15	0	0	0	0
Phase 16	0	0	0	0

1300452 - US 74 Bypass @ SR 2184 Daniel Rd
B - Scheduling Events 1-100
12/29/2025 3:50 PM

Event #	Event Type	Event Details	Pri LMH	Start Date MM	Start Date DD	Stop Date MM	Stop Date DD	Start Time HH	Start Time MM	Stop Time HH	Stop Time MM	DOW Enabled 1 2 3 4 5 6 7	Del When Done	Cont	Event Groups Assigned 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
1	Coordination Plan (1-66)	11-1 AM Peak	L	1	1	12	31	7	0	10	0	2 3 4 5 6	N	N	
2	Coordination Plan (1-66)	12-1	L	1	1	12	31	10	0	14	0	2 3 4 5 6	N	N	
3	Coordination Plan (1-66)	13-1 PM Peak	L	1	1	12	31	14	0	18	0	2 3 4 5 6	N	N	
4	Coordination Plan (1-66)	14-1	L	1	1	12	31	10	0	18	0	7	N	N	
5	Coordination Plan (1-66)	14-1	L	1	1	12	31	11	0	17	0	1	N	N	
6	Coordination Plan (1-66)	Free	M	11	22	11	28	0	0	24	0	5	N	N	
7	Coordination Plan (1-66)	Free	M	12	25	12	25	0	0	24	0	1 2 3 4 5 6 7	N	N	
8	Coordination Plan (1-66)	Free	M	1	1	1	1	0	0	24	0	1 2 3 4 5 6 7	N	N	
9	None			0	0	0	0	0	0	0	0		N	N	
10	None			0	0	0	0	0	0	0	0		N	N	
11	None			0	0	0	0	0	0	0	0		N	N	
12	None			0	0	0	0	0	0	0	0		N	N	
13	None			0	0	0	0	0	0	0	0		N	N	
14	None			0	0	0	0	0	0	0	0		N	N	
15	None			0	0	0	0	0	0	0	0		N	N	
16	None			0	0	0	0	0	0	0	0		N	N	
17	None			0	0	0	0	0	0	0	0		N	N	
18	None			0	0	0	0	0	0	0	0		N	N	
19	None			0	0	0	0	0	0	0	0		N	N	
20	None			0	0	0	0	0	0	0	0		N	N	
21	None			0	0	0	0	0	0	0	0		N	N	
22	None			0	0	0	0	0	0	0	0		N	N	
23	None			0	0	0	0	0	0	0	0		N	N	
24	None			0	0	0	0	0	0	0	0		N	N	
25	None			0	0	0	0	0	0	0	0		N	N	
26	None			0	0	0	0	0	0	0	0		N	N	
27	None			0	0	0	0	0	0	0	0		N	N	
28	None			0	0	0	0	0	0	0	0		N	N	
29	None			0	0	0	0	0	0	0	0		N	N	
30	None			0	0	0	0	0	0	0	0		N	N	
31	None			0	0	0	0	0	0	0	0		N	N	
32	None			0	0	0	0	0	0	0	0		N	N	
33	None			0	0	0	0	0	0	0	0		N	N	
34	None			0	0	0	0	0	0	0	0		N	N	
35	None			0	0	0	0	0	0	0	0		N	N	
36	None			0	0	0	0	0	0	0	0		N	N	
37	None			0	0	0	0	0	0	0	0		N	N	
38	None			0	0	0	0	0	0	0	0		N	N	
39	None			0	0	0	0	0	0	0	0		N	N	
40	None			0	0	0	0	0	0	0	0		N	N	
41	None			0	0	0	0	0	0	0	0		N	N	
42	None			0	0	0	0	0	0	0	0		N	N	
43	None			0	0	0	0	0	0	0	0		N	N	
44	None			0	0	0	0	0	0	0	0		N	N	
45	None			0	0	0	0	0	0	0	0		N	N	
46	None			0	0	0	0	0	0	0	0		N	N	
47	None			0	0	0	0	0	0	0	0		N	N	
48	None			0	0	0	0	0	0	0	0		N	N	
49	None			0	0	0	0	0	0	0	0		N	N	
50	None			0	0	0	0	0	0	0	0		N	N	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	4	100	554	4	4	10	554	24	5	30	4	6
Future Volume (vph)	4	100	554	4	4	10	554	24	5	30	4	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			-2%				2%			4%		
Storage Length (ft)		200		0		150		150	0		100	0
Storage Lanes		1		0		1		1	1		1	1
Taper Length (ft)		150				150			100			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.999					0.850		0.984		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1787	3571	0	0	1752	3504	1567	1734	1796	0	1787
Flt Permitted		0.950				0.950			0.710			0.733
Satd. Flow (perm)	0	1787	3571	0	0	1752	3504	1567	1296	1796	0	1379
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1					98		4		
Link Speed (mph)			55				55			55		
Link Distance (ft)			2531				2661			953		
Travel Time (s)			31.4				33.0			11.8		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	111	616	4	4	11	616	27	6	33	4	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	620	0	0	15	616	27	6	37	0	7
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.01	1.03	1.03	1.03	0.99
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0		7.0	7.0	14.0	14.0	7.0	7.0		7.0
Minimum Split (s)	13.4	13.4	20.4		12.9	12.9	20.4	20.4	13.5	13.5		13.5
Total Split (s)	17.0	17.0	73.0		17.0	17.0	73.0	73.0	20.0	20.0		20.0
Total Split (%)	15.5%	15.5%	66.4%		15.5%	15.5%	66.4%	66.4%	18.2%	18.2%		18.2%
Yellow Time (s)	4.5	4.5	5.4		4.0	4.0	5.4	5.4	5.1	5.1		5.1
All-Red Time (s)	1.9	1.9	1.0		1.9	1.9	1.0	1.0	1.4	1.4		1.4
Lost Time Adjust (s)		-1.4	-1.4			-0.9	-1.4	-1.4	-1.5	-1.5		-1.5
Total Lost Time (s)		5.0	5.0			5.0	5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?												
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Act Effct Green (s)		12.0	89.4			7.9	76.6	76.6	9.1	9.1		9.1
Actuated g/C Ratio		0.11	0.81			0.07	0.70	0.70	0.08	0.08		0.08

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	11	54
Future Volume (vph)	11	54
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Storage Length (ft)		100
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt	0.875	
Flt Protected		
Satd. Flow (prot)	1646	0
Flt Permitted		
Satd. Flow (perm)	1646	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	60	
Link Speed (mph)	35	
Link Distance (ft)	1140	
Travel Time (s)	22.2	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	12	60
Shared Lane Traffic (%)		
Lane Group Flow (vph)	72	0
Enter Blocked Intersection	Yes	Yes
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.99	0.99
Turning Speed (mph)		9
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	7.0	
Minimum Split (s)	13.5	
Total Split (s)	20.0	
Total Split (%)	18.2%	
Yellow Time (s)	5.1	
All-Red Time (s)	1.4	
Lost Time Adjust (s)	-1.5	
Total Lost Time (s)	5.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	
Act Effct Green (s)	9.1	
Actuated g/C Ratio	0.08	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.59	0.21			0.12	0.25	0.02	0.06	0.24		0.06
Control Delay		58.7	3.9			50.1	7.4	0.0	47.0	47.0		47.2
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		58.7	3.9			50.1	7.4	0.0	47.0	47.0		47.2
LOS		E	A			D	A	A	D	D		D
Approach Delay			12.5				8.1			47.0		
Approach LOS			B				A			D		
Queue Length 50th (ft)		79	34			10	80	0	4	22		5
Queue Length 95th (ft)		133	100			32	128	0	17	55		19
Internal Link Dist (ft)			2451				2581			873		
Turn Bay Length (ft)		200				150		150				
Base Capacity (vph)		213	2903			191	2439	1120	176	248		188
Starvation Cap Reductn		0	0			0	0	0	0	0		0
Spillback Cap Reductn		0	0			0	0	0	0	0		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.54	0.21			0.08	0.25	0.02	0.03	0.15		0.04

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 77 (70%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 12.2 Intersection LOS: B
Intersection Capacity Utilization 39.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Daniel Road & College Avenue



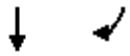


Lane Group	SBT	SBR
v/c Ratio	0.38	
Control Delay	21.6	
Queue Delay	0.0	
Total Delay	21.6	
LOS	C	
Approach Delay	23.9	
Approach LOS	C	
Queue Length 50th (ft)	8	
Queue Length 95th (ft)	52	
Internal Link Dist (ft)	1060	
Turn Bay Length (ft)		
Base Capacity (vph)	276	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.26	

Intersection Summary



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	4	49	902	13	60	16	777	32	13	19	22	46
Future Volume (vph)	4	49	902	13	60	16	777	32	13	19	22	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			-2%				2%			4%		
Storage Length (ft)		200		0		150		150	0		100	0
Storage Lanes		1		0		1		1	1		1	1
Taper Length (ft)		150				150			100			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.998					0.850		0.920		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1787	3567	0	0	1752	3504	1567	1734	1679	0	1787
Flt Permitted		0.950				0.950			0.417			0.728
Satd. Flow (perm)	0	1787	3567	0	0	1752	3504	1567	761	1679	0	1370
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			2					77		24		
Link Speed (mph)			55				55			55		
Link Distance (ft)			2531				2661			953		
Travel Time (s)			31.4				33.0			11.8		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	54	1002	14	67	18	863	36	14	21	24	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	1016	0	0	85	863	36	14	45	0	51
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.01	1.03	1.03	1.03	0.99
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0		7.0	7.0	14.0	14.0	7.0	7.0		7.0
Minimum Split (s)	13.4	13.4	20.4		12.9	12.9	20.4	20.4	13.5	13.5		13.5
Total Split (s)	28.0	28.0	82.0		28.0	28.0	82.0	82.0	30.0	30.0		30.0
Total Split (%)	20.0%	20.0%	58.6%		20.0%	20.0%	58.6%	58.6%	21.4%	21.4%		21.4%
Yellow Time (s)	4.5	4.5	5.4		4.0	4.0	5.4	5.4	5.1	5.1		5.1
All-Red Time (s)	1.9	1.9	1.0		1.9	1.9	1.0	1.0	1.4	1.4		1.4
Lost Time Adjust (s)		-1.4	-1.4			-0.9	-1.4	-1.4	-1.5	-1.5		-1.5
Total Lost Time (s)		5.0	5.0			5.0	5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?												
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Act Effct Green (s)		10.1	102.1			11.4	106.1	106.1	11.5	11.5		11.5
Actuated g/C Ratio		0.07	0.73			0.08	0.76	0.76	0.08	0.08		0.08



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	19	92
Future Volume (vph)	19	92
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Storage Length (ft)		100
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt	0.876	
Flt Protected		
Satd. Flow (prot)	1648	0
Flt Permitted		
Satd. Flow (perm)	1648	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	102	
Link Speed (mph)	35	
Link Distance (ft)	1140	
Travel Time (s)	22.2	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	21	102
Shared Lane Traffic (%)		
Lane Group Flow (vph)	123	0
Enter Blocked Intersection	Yes	Yes
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.99	0.99
Turning Speed (mph)		9
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	7.0	
Minimum Split (s)	13.5	
Total Split (s)	30.0	
Total Split (%)	21.4%	
Yellow Time (s)	5.1	
All-Red Time (s)	1.4	
Lost Time Adjust (s)	-1.5	
Total Lost Time (s)	5.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	
Act Effct Green (s)	11.5	
Actuated g/C Ratio	0.08	

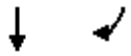
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.45	0.39			0.60	0.33	0.03	0.23	0.28		0.46
Control Delay		73.1	8.3			78.7	6.7	0.0	67.2	37.6		73.2
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		73.1	8.3			78.7	6.7	0.0	67.2	37.6		73.2
LOS		E	A			E	A	A	E	D		E
Approach Delay			11.8				12.7			44.6		
Approach LOS			B				B			D		
Queue Length 50th (ft)		52	161			76	123	0	12	18		45
Queue Length 95th (ft)		98	253			131	194	0	36	57		89
Internal Link Dist (ft)			2451				2581			873		
Turn Bay Length (ft)		200				150		150				
Base Capacity (vph)		293	2600			287	2655	1206	135	319		244
Starvation Cap Reductn		0	0			0	0	0	0	0		0
Spillback Cap Reductn		0	0			0	0	0	0	0		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.20	0.39			0.30	0.33	0.03	0.10	0.14		0.21

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 63 (45%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 52.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Daniel Road & College Avenue

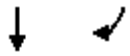




Lane Group	SBT	SBR
v/c Ratio	0.54	
Control Delay	24.6	
Queue Delay	0.0	
Total Delay	24.6	
LOS	C	
Approach Delay	38.9	
Approach LOS	D	
Queue Length 50th (ft)	18	
Queue Length 95th (ft)	81	
Internal Link Dist (ft)	1060	
Turn Bay Length (ft)		
Base Capacity (vph)	378	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.33	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	4	100	554	4	4	13	554	24	5	30	6	6
Future Volume (vph)	4	100	554	4	4	13	554	24	5	30	6	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			-2%				2%			4%		
Storage Length (ft)		200		0		150		150	0		100	0
Storage Lanes		1		0		1		1	1		1	1
Taper Length (ft)		150				150			100			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.999					0.850		0.974		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1787	3571	0	0	1752	3504	1567	1734	1778	0	1787
Flt Permitted		0.950				0.950			0.710			0.731
Satd. Flow (perm)	0	1787	3571	0	0	1752	3504	1567	1296	1778	0	1375
Right Turn on Red				No				No			No	
Satd. Flow (RTOR)												
Link Speed (mph)			55				55			55		
Link Distance (ft)			2531				2661			953		
Travel Time (s)			31.4				33.0			11.8		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	111	616	4	4	14	616	27	6	33	7	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	620	0	0	18	616	27	6	40	0	7
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.01	1.03	1.03	1.03	0.99
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0		7.0	7.0	14.0	14.0	7.0	7.0		7.0
Minimum Split (s)	13.4	13.4	20.4		12.9	12.9	20.4	20.4	13.5	13.5		13.5
Total Split (s)	17.0	17.0	73.0		17.0	17.0	73.0	73.0	20.0	20.0		20.0
Total Split (%)	15.5%	15.5%	66.4%		15.5%	15.5%	66.4%	66.4%	18.2%	18.2%		18.2%
Yellow Time (s)	4.5	4.5	5.4		4.0	4.0	5.4	5.4	5.1	5.1		5.1
All-Red Time (s)	1.9	1.9	1.0		1.9	1.9	1.0	1.0	1.4	1.4		1.4
Lost Time Adjust (s)		-1.4	-1.4			-0.9	-1.4	-1.4	-1.5	-1.5		-1.5
Total Lost Time (s)		5.0	5.0			5.0	5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?												
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Act Effct Green (s)		11.2	87.5			7.9	75.4	75.4	11.1	11.1		11.1
Actuated g/C Ratio		0.10	0.80			0.07	0.69	0.69	0.10	0.10		0.10



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	11	54
Future Volume (vph)	11	54
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Storage Length (ft)		100
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt	0.875	
Flt Protected		
Satd. Flow (prot)	1646	0
Flt Permitted		
Satd. Flow (perm)	1646	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	35	
Link Distance (ft)	1140	
Travel Time (s)	22.2	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	12	60
Shared Lane Traffic (%)		
Lane Group Flow (vph)	72	0
Enter Blocked Intersection	Yes	Yes
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.99	0.99
Turning Speed (mph)		9
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	7.0	
Minimum Split (s)	13.5	
Total Split (s)	20.0	
Total Split (%)	18.2%	
Yellow Time (s)	5.1	
All-Red Time (s)	1.4	
Lost Time Adjust (s)	-1.5	
Total Lost Time (s)	5.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	
Act Effct Green (s)	11.1	
Actuated g/C Ratio	0.10	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.63	0.22			0.14	0.26	0.03	0.05	0.22		0.05
Control Delay		62.9	4.7			50.8	8.0	7.7	43.6	47.5		43.7
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		62.9	4.7			50.8	8.0	7.7	43.6	47.5		43.7
LOS		E	A			D	A	A	D	D		D
Approach Delay			13.8				9.1			47.0		
Approach LOS			B				A			D		
Queue Length 50th (ft)		79	40			12	86	6	4	27		5
Queue Length 95th (ft)		139	113			36	128	18	16	59		18
Internal Link Dist (ft)			2451				2581			873		
Turn Bay Length (ft)		200				150		150				
Base Capacity (vph)		201	2840			191	2401	1074	176	242		187
Starvation Cap Reductn		0	0			0	0	0	0	0		0
Spillback Cap Reductn		0	0			0	0	0	0	0		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.57	0.22			0.09	0.26	0.03	0.03	0.17		0.04

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 77 (70%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 14.8 Intersection LOS: B
Intersection Capacity Utilization 39.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Daniel Road & College Avenue

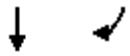




Lane Group	SBT	SBR
v/c Ratio	0.44	
Control Delay	54.2	
Queue Delay	0.0	
Total Delay	54.2	
LOS	D	
Approach Delay	53.2	
Approach LOS	D	
Queue Length 50th (ft)	49	
Queue Length 95th (ft)	93	
Internal Link Dist (ft)	1060	
Turn Bay Length (ft)		
Base Capacity (vph)	224	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.32	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	4	49	902	17	60	35	777	32	18	24	44	46
Future Volume (vph)	4	49	902	17	60	35	777	32	18	24	44	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			-2%				2%			4%		
Storage Length (ft)		200		0		150		150	0		100	0
Storage Lanes		1		0		1		1	1		1	1
Taper Length (ft)		150				150			100			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.997					0.850		0.903		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1787	3564	0	0	1752	3504	1567	1734	1648	0	1787
Flt Permitted		0.950				0.950			0.496			0.689
Satd. Flow (perm)	0	1787	3564	0	0	1752	3504	1567	905	1648	0	1296
Right Turn on Red				No				No			No	
Satd. Flow (RTOR)												
Link Speed (mph)			55				55			55		
Link Distance (ft)			2531				2661			953		
Travel Time (s)			31.4				33.0			11.8		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	54	1002	19	67	39	863	36	20	27	49	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	1021	0	0	106	863	36	20	76	0	51
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.01	1.03	1.03	1.03	0.99
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0		7.0	7.0	14.0	14.0	7.0	7.0		7.0
Minimum Split (s)	13.4	13.4	20.4		12.9	12.9	20.4	20.4	13.5	13.5		13.5
Total Split (s)	28.0	28.0	82.0		28.0	28.0	82.0	82.0	30.0	30.0		30.0
Total Split (%)	20.0%	20.0%	58.6%		20.0%	20.0%	58.6%	58.6%	21.4%	21.4%		21.4%
Yellow Time (s)	4.5	4.5	5.4		4.0	4.0	5.4	5.4	5.1	5.1		5.1
All-Red Time (s)	1.9	1.9	1.0		1.9	1.9	1.0	1.0	1.4	1.4		1.4
Lost Time Adjust (s)		-1.4	-1.4			-0.9	-1.4	-1.4	-1.5	-1.5		-1.5
Total Lost Time (s)		5.0	5.0			5.0	5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?												
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Act Effct Green (s)		10.1	95.4			12.9	100.9	100.9	16.7	16.7		16.7
Actuated g/C Ratio		0.07	0.68			0.09	0.72	0.72	0.12	0.12		0.12



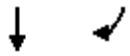
Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	23	92
Future Volume (vph)	23	92
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Storage Length (ft)		100
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt	0.880	
Flt Protected		
Satd. Flow (prot)	1656	0
Flt Permitted		
Satd. Flow (perm)	1656	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	35	
Link Distance (ft)	1140	
Travel Time (s)	22.2	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	26	102
Shared Lane Traffic (%)		
Lane Group Flow (vph)	128	0
Enter Blocked Intersection	Yes	Yes
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.99	0.99
Turning Speed (mph)		9
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	7.0	
Minimum Split (s)	13.5	
Total Split (s)	30.0	
Total Split (%)	21.4%	
Yellow Time (s)	5.1	
All-Red Time (s)	1.4	
Lost Time Adjust (s)	-1.5	
Total Lost Time (s)	5.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	
Act Effct Green (s)	16.7	
Actuated g/C Ratio	0.12	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.45	0.42			0.66	0.34	0.03	0.19	0.39		0.33
Control Delay		73.1	11.6			80.0	8.9	8.0	57.3	61.4		60.7
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		73.1	11.6			80.0	8.9	8.0	57.3	61.4		60.7
LOS		E	B			E	A	A	E	E		E
Approach Delay			14.9				16.3			60.5		
Approach LOS			B				B			E		
Queue Length 50th (ft)		52	201			95	147	9	17	65		43
Queue Length 95th (ft)		98	313			154	230	25	42	113		84
Internal Link Dist (ft)			2451				2581			873		
Turn Bay Length (ft)		200				150		150				
Base Capacity (vph)		293	2429			287	2525	1129	161	294		231
Starvation Cap Reductn		0	0			0	0	0	0	0		0
Spillback Cap Reductn		0	0			0	0	0	0	0		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.20	0.42			0.37	0.34	0.03	0.12	0.26		0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 63 (45%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 21.5		Intersection LOS: C	
Intersection Capacity Utilization 53.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Daniel Road & College Avenue

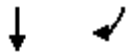




Lane Group	SBT	SBR
v/c Ratio	0.65	
Control Delay	73.5	
Queue Delay	0.0	
Total Delay	73.5	
LOS	E	
Approach Delay	69.9	
Approach LOS	E	
Queue Length 50th (ft)	113	
Queue Length 95th (ft)	176	
Internal Link Dist (ft)	1060	
Turn Bay Length (ft)		
Base Capacity (vph)	295	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.43	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	4	100	554	13	4	20	554	24	31	35	28	6
Future Volume (vph)	4	100	554	13	4	20	554	24	31	35	28	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			-2%				2%			4%		
Storage Length (ft)		200		0		150		150	0		100	0
Storage Lanes		1		0		1		1	1		1	1
Taper Length (ft)		150				150			100			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.997					0.850		0.934		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1787	3564	0	0	1752	3504	1567	1734	1705	0	1787
Flt Permitted		0.950				0.950			0.709			0.711
Satd. Flow (perm)	0	1787	3564	0	0	1752	3504	1567	1294	1705	0	1338
Right Turn on Red				No				No			No	
Satd. Flow (RTOR)												
Link Speed (mph)			55				55			55		
Link Distance (ft)			2531				2661			953		
Travel Time (s)			31.4				33.0			11.8		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	111	616	14	4	22	616	27	34	39	31	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	630	0	0	26	616	27	34	70	0	7
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.01	1.03	1.03	1.03	0.99
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0		7.0	7.0	14.0	14.0	7.0	7.0		7.0
Minimum Split (s)	13.4	13.4	20.4		12.9	12.9	20.4	20.4	13.5	13.5		13.5
Total Split (s)	17.0	17.0	73.0		17.0	17.0	73.0	73.0	20.0	20.0		20.0
Total Split (%)	15.5%	15.5%	66.4%		15.5%	15.5%	66.4%	66.4%	18.2%	18.2%		18.2%
Yellow Time (s)	4.5	4.5	5.4		4.0	4.0	5.4	5.4	5.1	5.1		5.1
All-Red Time (s)	1.9	1.9	1.0		1.9	1.9	1.0	1.0	1.4	1.4		1.4
Lost Time Adjust (s)		-1.4	-1.4			-0.9	-1.4	-1.4	-1.5	-1.5		-1.5
Total Lost Time (s)		5.0	5.0			5.0	5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?												
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Act Effct Green (s)		11.2	84.7			8.0	75.3	75.3	11.2	11.2		11.2
Actuated g/C Ratio		0.10	0.77			0.07	0.68	0.68	0.10	0.10		0.10



Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	13	54
Future Volume (vph)	13	54
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Storage Length (ft)		100
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt	0.878	
Flt Protected		
Satd. Flow (prot)	1652	0
Flt Permitted		
Satd. Flow (perm)	1652	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	35	
Link Distance (ft)	1140	
Travel Time (s)	22.2	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	14	60
Shared Lane Traffic (%)		
Lane Group Flow (vph)	74	0
Enter Blocked Intersection	Yes	Yes
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.99	0.99
Turning Speed (mph)		9
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	7.0	
Minimum Split (s)	13.5	
Total Split (s)	20.0	
Total Split (%)	18.2%	
Yellow Time (s)	5.1	
All-Red Time (s)	1.4	
Lost Time Adjust (s)	-1.5	
Total Lost Time (s)	5.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	
Act Effct Green (s)	11.2	
Actuated g/C Ratio	0.10	

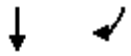
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.63	0.23			0.21	0.26	0.03	0.26	0.41		0.05
Control Delay		63.0	5.6			52.1	8.0	7.7	49.5	52.7		43.7
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		63.0	5.6			52.1	8.0	7.7	49.5	52.7		43.7
LOS		E	A			D	A	A	D	D		D
Approach Delay			14.5				9.7			51.6		
Approach LOS			B				A			D		
Queue Length 50th (ft)		79	77			18	86	6	23	47		5
Queue Length 95th (ft)		139	117			46	128	18	53	90		18
Internal Link Dist (ft)			2451				2581			873		
Turn Bay Length (ft)		200				150		150				
Base Capacity (vph)		200	2745			191	2399	1072	176	232		182
Starvation Cap Reductn		0	0			0	0	0	0	0		0
Spillback Cap Reductn		0	0			0	0	0	0	0		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.57	0.23			0.14	0.26	0.03	0.19	0.30		0.04

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 77 (70%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 16.9 Intersection LOS: B
Intersection Capacity Utilization 42.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Daniel Road & College Avenue





Lane Group	SBT	SBR
v/c Ratio	0.44	
Control Delay	54.3	
Queue Delay	0.0	
Total Delay	54.3	
LOS	D	
Approach Delay	53.3	
Approach LOS	D	
Queue Length 50th (ft)	50	
Queue Length 95th (ft)	95	
Internal Link Dist (ft)	1060	
Turn Bay Length (ft)		
Base Capacity (vph)	225	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.33	

Intersection Summary

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	4	49	902	47	60	60	777	32	34	27	59	46
Future Volume (vph)	4	49	902	47	60	60	777	32	34	27	59	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)			-2%				2%			4%		
Storage Length (ft)		200		0		150		150	0		100	0
Storage Lanes		1		0		1		1	1		1	1
Taper Length (ft)		150				150			100			100
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Frt			0.993					0.850		0.897		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1787	3550	0	0	1752	3504	1567	1734	1637	0	1787
Flt Permitted		0.950				0.950			0.482			0.616
Satd. Flow (perm)	0	1787	3550	0	0	1752	3504	1567	880	1637	0	1159
Right Turn on Red				No				No			No	
Satd. Flow (RTOR)												
Link Speed (mph)			55				55			55		
Link Distance (ft)			2531				2661			953		
Travel Time (s)			31.4				33.0			11.8		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	54	1002	52	67	67	863	36	38	30	66	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	1054	0	0	134	863	36	38	96	0	51
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(ft)			12				12			12		
Link Offset(ft)			0				0			0		
Crosswalk Width(ft)			16				16			16		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	1.01	1.01	1.01	1.01	1.03	1.03	1.03	0.99
Turning Speed (mph)	9	15		9	9	15		9	15		9	15
Turn Type	Prot	Prot	NA		Prot	Prot	NA	Perm	Perm	NA		Perm
Protected Phases	5	5	2		1	1	6			8		
Permitted Phases								6	8			4
Detector Phase	5	5	2		1	1	6	6	8	8		4
Switch Phase												
Minimum Initial (s)	7.0	7.0	14.0		7.0	7.0	14.0	14.0	7.0	7.0		7.0
Minimum Split (s)	13.4	13.4	20.4		12.9	12.9	20.4	20.4	13.5	13.5		13.5
Total Split (s)	28.0	28.0	82.0		28.0	28.0	82.0	82.0	30.0	30.0		30.0
Total Split (%)	20.0%	20.0%	58.6%		20.0%	20.0%	58.6%	58.6%	21.4%	21.4%		21.4%
Yellow Time (s)	4.5	4.5	5.4		4.0	4.0	5.4	5.4	5.1	5.1		5.1
All-Red Time (s)	1.9	1.9	1.0		1.9	1.9	1.0	1.0	1.4	1.4		1.4
Lost Time Adjust (s)		-1.4	-1.4			-0.9	-1.4	-1.4	-1.5	-1.5		-1.5
Total Lost Time (s)		5.0	5.0			5.0	5.0	5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead	Lag		Lead	Lead	Lag	Lag				
Lead-Lag Optimize?												
Recall Mode	None	None	C-Max		None	None	C-Max	C-Max	None	None		None
Act Effct Green (s)		10.1	92.9			15.0	100.6	100.6	17.0	17.0		17.0
Actuated g/C Ratio		0.07	0.66			0.11	0.72	0.72	0.12	0.12		0.12

Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	28	92
Future Volume (vph)	28	92
Ideal Flow (vphpl)	1900	1900
Grade (%)	-2%	
Storage Length (ft)		100
Storage Lanes		1
Taper Length (ft)		
Lane Util. Factor	1.00	1.00
Frt	0.885	
Flt Protected		
Satd. Flow (prot)	1665	0
Flt Permitted		
Satd. Flow (perm)	1665	0
Right Turn on Red		No
Satd. Flow (RTOR)		
Link Speed (mph)	35	
Link Distance (ft)	1140	
Travel Time (s)	22.2	
Peak Hour Factor	0.90	0.90
Adj. Flow (vph)	31	102
Shared Lane Traffic (%)		
Lane Group Flow (vph)	133	0
Enter Blocked Intersection	Yes	Yes
Lane Alignment	Left	Right
Median Width(ft)	12	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	0.99	0.99
Turning Speed (mph)		9
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	7.0	
Minimum Split (s)	13.5	
Total Split (s)	30.0	
Total Split (%)	21.4%	
Yellow Time (s)	5.1	
All-Red Time (s)	1.4	
Lost Time Adjust (s)	-1.5	
Total Lost Time (s)	5.0	
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	
Act Effct Green (s)	17.0	
Actuated g/C Ratio	0.12	

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
v/c Ratio		0.45	0.45			0.71	0.34	0.03	0.36	0.48		0.36
Control Delay		73.1	13.1			80.3	9.0	8.1	64.1	64.5		62.2
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		73.1	13.1			80.3	9.0	8.1	64.1	64.5		62.2
LOS		E	B			F	A	A	E	E		E
Approach Delay			16.2				18.2			64.4		
Approach LOS			B				B			E		
Queue Length 50th (ft)		52	224			120	148	9	32	83		43
Queue Length 95th (ft)		98	349			185	232	26	68	137		84
Internal Link Dist (ft)			2451				2581			873		
Turn Bay Length (ft)		200				150		150				
Base Capacity (vph)		293	2356			287	2517	1125	157	292		206
Starvation Cap Reductn		0	0			0	0	0	0	0		0
Spillback Cap Reductn		0	0			0	0	0	0	0		0
Storage Cap Reductn		0	0			0	0	0	0	0		0
Reduced v/c Ratio		0.20	0.45			0.47	0.34	0.03	0.24	0.33		0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 63 (45%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 23.7		Intersection LOS: C	
Intersection Capacity Utilization 54.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Daniel Road & College Avenue





Lane Group	SBT	SBR
v/c Ratio	0.66	
Control Delay	73.5	
Queue Delay	0.0	
Total Delay	73.5	
LOS	E	
Approach Delay	70.3	
Approach LOS	E	
Queue Length 50th (ft)	117	
Queue Length 95th (ft)	181	
Internal Link Dist (ft)	1060	
Turn Bay Length (ft)		
Base Capacity (vph)	297	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.45	

Intersection Summary

APPENDIX D

SYNCHRO ANALYSIS REPORTS

PINEY RIDGE ROAD
AND
DANIEL ROAD

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	193	253	19	4	12
Future Vol, veh/h	33	193	253	19	4	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	214	281	21	4	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	302	0	-	0	580	292
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	288	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1259	-	-	-	477	747
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	761	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1259	-	-	-	461	747
Mov Cap-2 Maneuver	-	-	-	-	461	-
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	761	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1259	-	-	-	647
HCM Lane V/C Ratio	0.029	-	-	-	0.027
HCM Control Delay (s)	7.9	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	253	263	27	20	21
Future Vol, veh/h	16	253	263	27	20	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	281	292	30	22	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	322	0	-	0	624	307
Stage 1	-	-	-	-	307	-
Stage 2	-	-	-	-	317	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1238	-	-	-	449	733
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	738	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1238	-	-	-	441	733
Mov Cap-2 Maneuver	-	-	-	-	441	-
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	738	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1238	-	-	-	554
HCM Lane V/C Ratio	0.014	-	-	-	0.082
HCM Control Delay (s)	8	0	-	-	12.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	194	254	19	4	15
Future Vol, veh/h	36	194	254	19	4	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	216	282	21	4	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	303	0	-	0	589	293
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	296	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1258	-	-	-	471	746
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	755	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1258	-	-	-	454	746
Mov Cap-2 Maneuver	-	-	-	-	454	-
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	755	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1258	-	-	-	657
HCM Lane V/C Ratio	0.032	-	-	-	0.032
HCM Control Delay (s)	8	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	48	262	271	27	20	48
Future Vol, veh/h	48	262	271	27	20	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	291	301	30	22	53

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	331	0	-	0	713	316
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	397	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1228	-	-	-	398	724
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	679	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1228	-	-	-	378	724
Mov Cap-2 Maneuver	-	-	-	-	378	-
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	679	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1228	-	-	-	570
HCM Lane V/C Ratio	0.043	-	-	-	0.133
HCM Control Delay (s)	8.1	0	-	-	12.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	39	198	267	19	4	24
Future Vol, veh/h	39	198	267	19	4	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	220	297	21	4	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	318	0	-	0	614	308
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	306	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1242	-	-	-	455	732
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	747	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1242	-	-	-	437	732
Mov Cap-2 Maneuver	-	-	-	-	437	-
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	747	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1242	-	-	-	668
HCM Lane V/C Ratio	0.035	-	-	-	0.047
HCM Control Delay (s)	8	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	58	277	280	27	20	54
Future Vol, veh/h	58	277	280	27	20	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	308	311	30	22	60

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	341	0	-	0	762	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	436	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1218	-	-	-	373	715
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	652	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1218	-	-	-	350	715
Mov Cap-2 Maneuver	-	-	-	-	350	-
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	652	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1218	-	-	-	558
HCM Lane V/C Ratio	0.053	-	-	-	0.147
HCM Control Delay (s)	8.1	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5

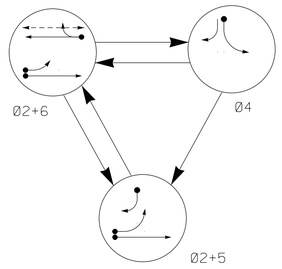
APPENDIX E

SYNCHRO ANALYSIS REPORTS (INCLUDING SIGNAL PLAN)

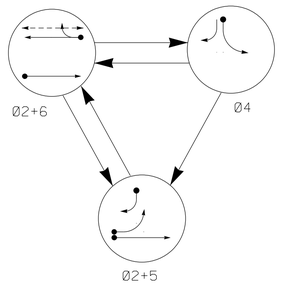
PINEY RIDGE ROAD
AND
OAK STREET EXTENSION

PROJECT REFERENCE NO.	SHEET NO.
U-5833	Sig.2.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø4	FLASH
21, 22	G	G	R	Y
41	R	R	G	R
42	R	R	G	R
51	←	←FY	←R	←Y
61, 62	R	G	R	Y
P61, P62	DW	W	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø4	FLASH
21, 22	G	G	R	Y
41	R	R	G	R
42	R	R	G	R
51	←	←R	←R	←Y
61, 62	R	G	R	Y
P61, P62	DW	W	DW	DRK

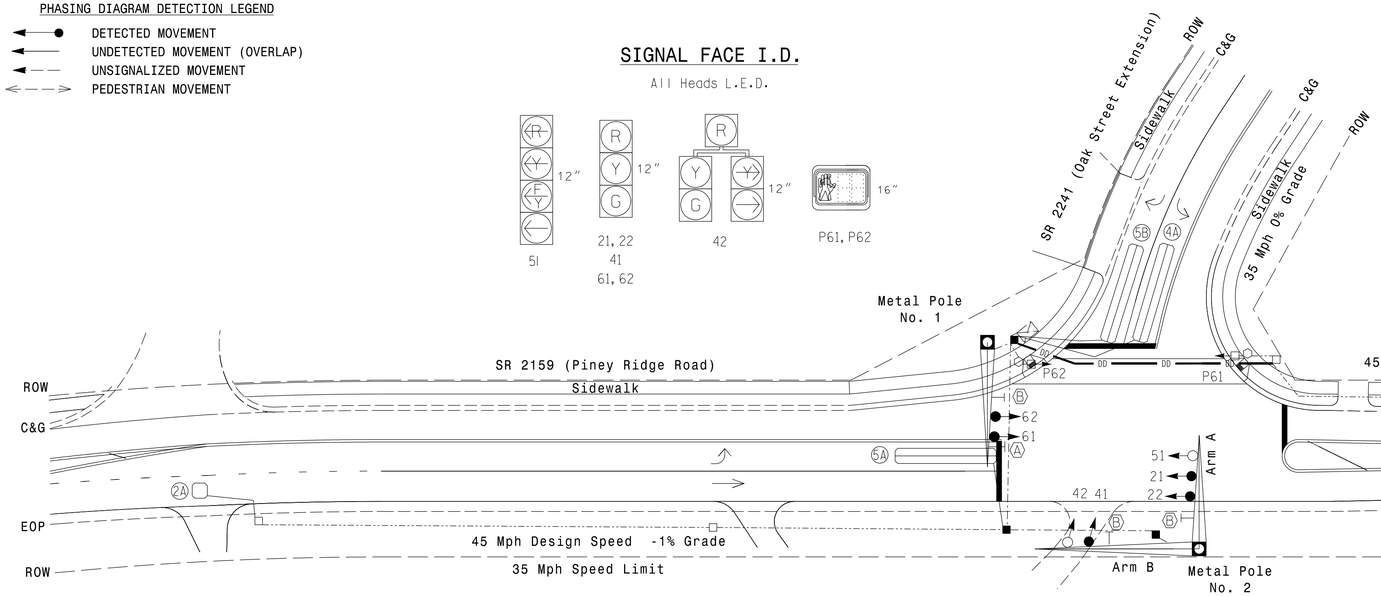
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	300	5	Y	2	Y	Y	-	-	-	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15**	-	Y
					2*	Y	Y	Y	-	3	-	Y
5B	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y
6A	6X6	300	5	Y	6	Y	Y	-	-	-	-	Y

* Disable phase call during Alternate Phasing operaion.
** Reduce delay to 3 sec during Alternate Phasing operation.

SIGNAL FACE I.D.

All Heads L.E.D.



3 Phase Fully Actuated Isolated

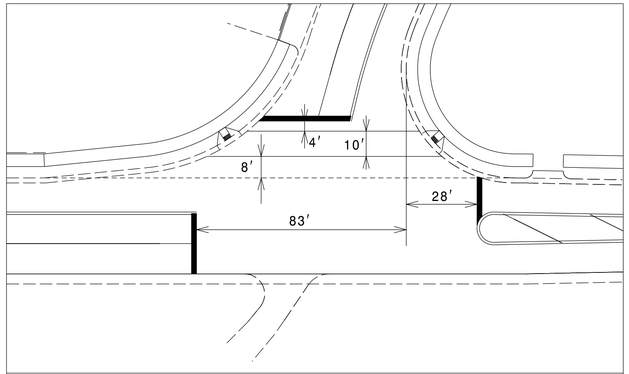
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Enable Backup Protect for phase 2 to allow the controller to clear from phase 2+6 to phase 2+5 by progressing through an all red display.
4. Phase 5 may be lagged.
5. Set all detector units to presence mode.
6. Reposition all existing signal heads.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing 'Don't Walk' time only.
9. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
10. All housing for signal heads, pedestals and housing for pedestrian signal heads should be black in color as specified in the project special provisions.
11. The Division Traffic Engineer will determine the hours of use for each phasing plan.

OASIS 2070 TIMING CHART

FEATURE	PHASE 2	4	5	6
Min Green 1 *	12	7	7	12
Extension 1 *	6.0	2.0	2.0	6.0
Max Green 1 *	90	30	20	90
Yellow Clearance	4.6	3.0	3.0	4.6
Red Clearance	1.8	2.1	2.4	1.8
Red Revert	5.0	2.0	2.0	2.0
Walk 1 *	-	-	-	7
Don't Walk 1	-	-	-	20
Advance Walk Time	-	-	-	-
Seconds Per Actuation *	2.5	-	-	2.5
Max Variable Initial *	34	-	-	34
Time Before Reduction *	15	-	-	15
Time To Reduce *	30	-	-	30
Minimum Gap	3.0	-	-	3.0
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown.
Min Green for all other phases should not be lower than 4 seconds.



STOPBAR AND CROSSWALK LOCATIONS

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	■
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	———
→	Directional Arrow	→
⊙▱	Metal Pole with Mastarm	⊙▱
⬡	Type II Signal Pedestal	⬢
—DD—	Directional Drill	N/A
◢	Curb Ramp	◢
Ⓐ	No U-Turn Sign (R 3-4)	Ⓐ
Ⓑ	Street Name Sign (D3-1)	Ⓑ

NC Dept of Transportation
Division of Highways
Final Drawing Date: 1/12/2018
DocuSigned by: R. N. Zinser F1388973472248F...
ITS & Signals Unit

940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705
919.829.0328

Signal Upgrade-Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SR 2159 (Piney Ridge Road) at SR 2241 (Oak Street Extension)

Division 13 Rutherford County Forest City

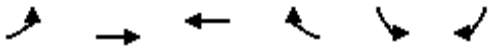
PLAN DATE: Dec. 2017 REVIEWED BY: J. L. Lewis
PREPARED BY: J. Ma VHB PROJECT NO.: 38536.09

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033108 ENGINEER JIANXIN MA
Jianxin Ma 2017.12.15 10:13:36 -05'00'
SIGNATURE DATE
SIG. INVENTORY NO. 13-1241

12/15/2017
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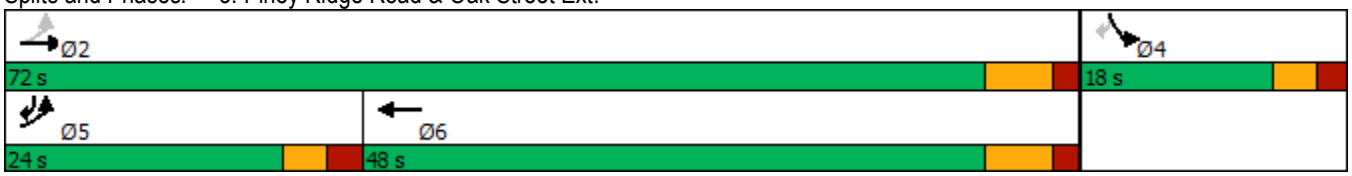


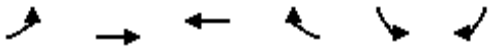
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	135	65	136	70	31	138
Future Volume (vph)	135	65	136	70	31	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Storage Length (ft)	300			0	185	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.954			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1778	1872	1777	0	1770	1583
Flt Permitted	0.453				0.950	
Satd. Flow (perm)	848	1872	1777	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			40			153
Link Speed (mph)		35	35		35	
Link Distance (ft)		1630	1255		1802	
Travel Time (s)		31.8	24.4		35.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	150	72	151	78	34	153
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	72	229	0	34	153
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane					Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	7.0	12.0	12.0		7.0	7.0
Minimum Split (s)	12.4	18.4	33.4		12.1	12.4
Total Split (s)	24.0	72.0	48.0		18.0	24.0
Total Split (%)	26.7%	80.0%	53.3%		20.0%	26.7%
Yellow Time (s)	3.0	4.6	4.6		3.0	3.0
All-Red Time (s)	2.4	1.8	1.8		2.1	2.4
Lost Time Adjust (s)	-0.4	-1.4	-1.4		-0.1	-0.4
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	28.2	32.6	14.8		7.3	10.2
Actuated g/C Ratio	0.80	0.93	0.42		0.21	0.29

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio	0.17	0.04	0.30		0.09	0.27
Control Delay	2.2	1.6	8.5		14.0	3.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	2.2	1.6	8.5		14.0	3.2
LOS	A	A	A		B	A
Approach Delay		2.0	8.5		5.1	
Approach LOS		A	A		A	
Queue Length 50th (ft)	0	0	17		4	0
Queue Length 95th (ft)	27	15	85		26	20
Internal Link Dist (ft)		1550	1175		1722	
Turn Bay Length (ft)	300				185	
Base Capacity (vph)	1194	1872	1756		669	1019
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.13	0.04	0.13		0.05	0.15

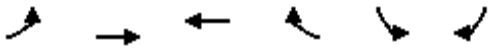
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 35.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.30			
Intersection Signal Delay: 5.2		Intersection LOS: A	
Intersection Capacity Utilization 37.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Piney Ridge Road & Oak Street Ext.





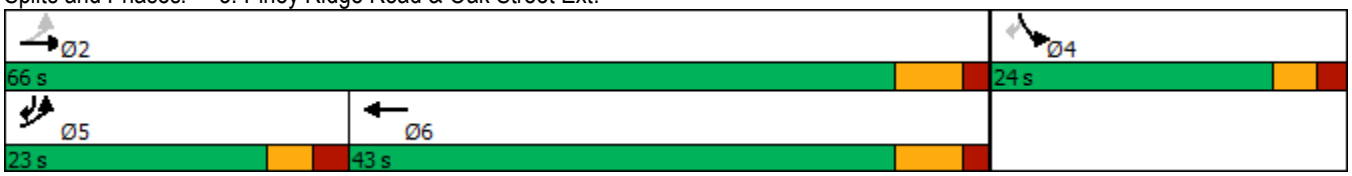
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	163	109	84	71	100	210
Future Volume (vph)	163	109	84	71	100	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Storage Length (ft)	300			0	185	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.938			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1778	1872	1747	0	1770	1583
Flt Permitted	0.467				0.950	
Satd. Flow (perm)	874	1872	1747	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			59			233
Link Speed (mph)		35	35		35	
Link Distance (ft)		1630	1255		1802	
Travel Time (s)		31.8	24.4		35.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	181	121	93	79	111	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	181	121	172	0	111	233
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane					Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	7.0	12.0	12.0		7.0	7.0
Minimum Split (s)	12.4	18.4	33.4		12.1	12.4
Total Split (s)	23.0	66.0	43.0		24.0	23.0
Total Split (%)	25.6%	73.3%	47.8%		26.7%	25.6%
Yellow Time (s)	3.0	4.6	4.6		3.0	3.0
All-Red Time (s)	2.4	1.8	1.8		2.1	2.4
Lost Time Adjust (s)	-0.4	-1.4	-1.4		-0.1	-0.4
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	28.1	29.5	13.8		8.0	18.9
Actuated g/C Ratio	0.65	0.69	0.32		0.19	0.44

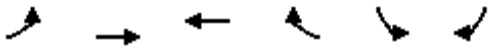


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio	0.24	0.09	0.29		0.34	0.28
Control Delay	4.8	4.1	11.0		20.4	2.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	4.8	4.1	11.0		20.4	2.1
LOS	A	A	B		C	A
Approach Delay		4.6	11.0		8.0	
Approach LOS		A	B		A	
Queue Length 50th (ft)	16	10	21		25	0
Queue Length 95th (ft)	39	27	66		64	23
Internal Link Dist (ft)		1550	1175		1722	
Turn Bay Length (ft)	300				185	
Base Capacity (vph)	960	1872	1515		804	1120
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.19	0.06	0.11		0.14	0.21

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 43			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.34			
Intersection Signal Delay: 7.4		Intersection LOS: A	
Intersection Capacity Utilization 37.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Piney Ridge Road & Oak Street Ext.



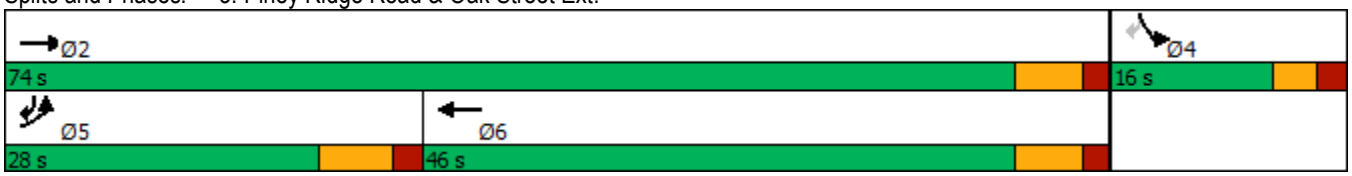


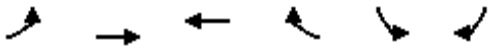
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	135	66	137	70	31	138
Future Volume (vph)	135	66	137	70	31	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Storage Length (ft)	300			0	185	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.954			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1778	1872	1777	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1778	1872	1777	0	1770	1583
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		35	35		35	
Link Distance (ft)		1630	1255		1802	
Travel Time (s)		31.8	24.4		35.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	150	73	152	78	34	153
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	73	230	0	34	153
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane					Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases						4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	7.0	12.0	12.0		7.0	7.0
Minimum Split (s)	14.0	18.4	33.4		12.1	14.0
Total Split (s)	28.0	74.0	46.0		16.0	28.0
Total Split (%)	31.1%	82.2%	51.1%		17.8%	31.1%
Yellow Time (s)	5.0	4.6	4.6		3.0	5.0
All-Red Time (s)	2.0	1.8	1.8		2.1	2.0
Lost Time Adjust (s)	-2.0	-1.4	-1.4		-0.1	-0.4
Total Lost Time (s)	5.0	5.0	5.0		5.0	6.6
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	10.7	35.1	14.9		7.3	10.8
Actuated g/C Ratio	0.28	0.93	0.40		0.19	0.29

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio	0.30	0.04	0.33		0.10	0.34
Control Delay	13.2	1.4	11.5		16.0	11.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	13.2	1.4	11.5		16.0	11.7
LOS	B	A	B		B	B
Approach Delay		9.3	11.5		12.4	
Approach LOS		A	B		B	
Queue Length 50th (ft)	20	0	26		5	22
Queue Length 95th (ft)	74	15	105		29	52
Internal Link Dist (ft)		1550	1175		1722	
Turn Bay Length (ft)	300				185	
Base Capacity (vph)	1117	1872	1707		531	1000
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.13	0.04	0.13		0.06	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 37.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.34			
Intersection Signal Delay: 11.0		Intersection LOS: B	
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Piney Ridge Road & Oak Street Ext.



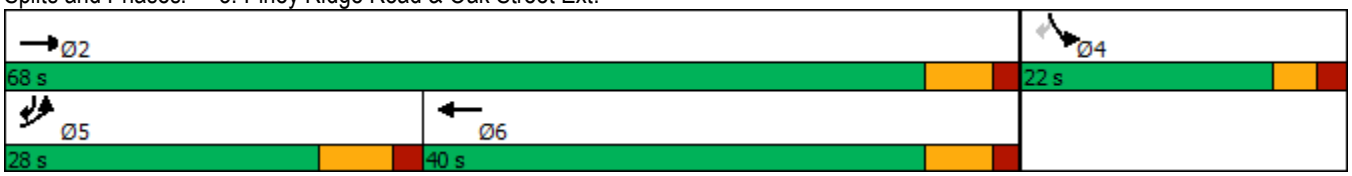


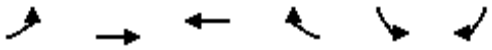
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	167	114	88	71	100	214
Future Volume (vph)	167	114	88	71	100	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Storage Length (ft)	300			0	185	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.940			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1778	1872	1751	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1778	1872	1751	0	1770	1583
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		35	35		35	
Link Distance (ft)		1630	1255		1802	
Travel Time (s)		31.8	24.4		35.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	186	127	98	79	111	238
Shared Lane Traffic (%)						
Lane Group Flow (vph)	186	127	177	0	111	238
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane					Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases						4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	7.0	12.0	12.0		7.0	7.0
Minimum Split (s)	14.0	18.4	33.4		12.1	14.0
Total Split (s)	28.0	68.0	40.0		22.0	28.0
Total Split (%)	31.1%	75.6%	44.4%		24.4%	31.1%
Yellow Time (s)	5.0	4.6	4.6		3.0	5.0
All-Red Time (s)	2.0	1.8	1.8		2.1	2.0
Lost Time Adjust (s)	-2.0	-1.4	-1.4		-0.1	-0.4
Total Lost Time (s)	5.0	5.0	5.0		5.0	6.6
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	11.9	32.6	14.0		8.5	20.4
Actuated g/C Ratio	0.26	0.70	0.30		0.18	0.44

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio	0.41	0.10	0.34		0.35	0.34
Control Delay	18.8	4.1	17.6		22.1	9.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	18.8	4.1	17.6		22.1	9.2
LOS	B	A	B		C	A
Approach Delay		12.9	17.6		13.3	
Approach LOS		B	B		B	
Queue Length 50th (ft)	43	11	38		28	37
Queue Length 95th (ft)	97	30	98		71	73
Internal Link Dist (ft)		1550	1175		1722	
Turn Bay Length (ft)	300				185	
Base Capacity (vph)	910	1872	1336		670	1100
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.20	0.07	0.13		0.17	0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 46.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 14.1		Intersection LOS: B	
Intersection Capacity Utilization 37.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Piney Ridge Road & Oak Street Ext.





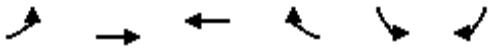
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	144	70	138	70	31	141
Future Volume (vph)	144	70	138	70	31	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Storage Length (ft)	300			0	185	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.954			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1778	1872	1777	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1778	1872	1777	0	1770	1583
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		35	35		35	
Link Distance (ft)		677	1255		1802	
Travel Time (s)		13.2	24.4		35.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	160	78	153	78	34	157
Shared Lane Traffic (%)						
Lane Group Flow (vph)	160	78	231	0	34	157
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane					Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases						4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	7.0	12.0	12.0		7.0	7.0
Minimum Split (s)	14.0	18.4	33.4		12.1	14.0
Total Split (s)	28.0	74.0	46.0		16.0	28.0
Total Split (%)	31.1%	82.2%	51.1%		17.8%	31.1%
Yellow Time (s)	5.0	4.6	4.6		3.0	5.0
All-Red Time (s)	2.0	1.8	1.8		2.1	2.0
Lost Time Adjust (s)	-2.0	-1.4	-1.4		-0.1	-2.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	10.9	35.1	14.6		7.3	12.7
Actuated g/C Ratio	0.29	0.93	0.39		0.19	0.34

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio	0.31	0.04	0.33		0.10	0.29
Control Delay	13.3	1.4	11.7		16.2	9.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	13.3	1.4	11.7		16.2	9.9
LOS	B	A	B		B	A
Approach Delay		9.4	11.7		11.0	
Approach LOS		A	B		B	
Queue Length 50th (ft)	21	0	27		5	21
Queue Length 95th (ft)	79	15	107		29	49
Internal Link Dist (ft)		597	1175		1722	
Turn Bay Length (ft)	300				185	
Base Capacity (vph)	1121	1872	1702		534	1072
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.14	0.04	0.14		0.06	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 37.6			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.33			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 37.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Piney Ridge Road & Oak Street Ext.



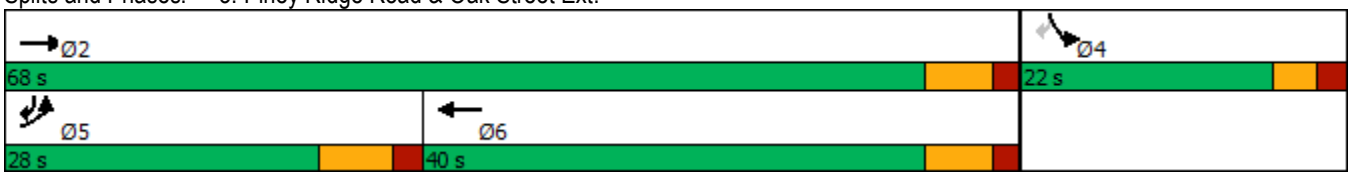


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	173	117	93	71	100	224
Future Volume (vph)	173	117	93	71	100	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Storage Length (ft)	300			0	185	0
Storage Lanes	1			0	1	1
Taper Length (ft)	100				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.941			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1778	1872	1753	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1778	1872	1753	0	1770	1583
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		35	35		35	
Link Distance (ft)		677	1255		1802	
Travel Time (s)		13.2	24.4		35.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	192	130	103	79	111	249
Shared Lane Traffic (%)						
Lane Group Flow (vph)	192	130	182	0	111	249
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane					Yes	
Headway Factor	0.99	0.99	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases						4
Detector Phase	5	2	6		4	5
Switch Phase						
Minimum Initial (s)	7.0	12.0	12.0		7.0	7.0
Minimum Split (s)	14.0	18.4	33.4		12.1	14.0
Total Split (s)	28.0	68.0	40.0		22.0	28.0
Total Split (%)	31.1%	75.6%	44.4%		24.4%	31.1%
Yellow Time (s)	5.0	4.6	4.6		3.0	5.0
All-Red Time (s)	2.0	1.8	1.8		2.1	2.0
Lost Time Adjust (s)	-2.0	-1.4	-1.4		-0.1	-2.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?						
Recall Mode	None	Min	Min		None	None
Act Effct Green (s)	12.1	32.9	14.1		8.5	22.3
Actuated g/C Ratio	0.26	0.70	0.30		0.18	0.48

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
v/c Ratio	0.42	0.10	0.34		0.35	0.33
Control Delay	19.0	4.1	17.8		22.3	8.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	19.0	4.1	17.8		22.3	8.2
LOS	B	A	B		C	A
Approach Delay		13.0	17.8		12.5	
Approach LOS		B	B		B	
Queue Length 50th (ft)	45	11	40		28	36
Queue Length 95th (ft)	100	31	101		71	72
Internal Link Dist (ft)		597	1175		1722	
Turn Bay Length (ft)	300				185	
Base Capacity (vph)	907	1872	1333		667	1152
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.21	0.07	0.14		0.17	0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 46.8			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 37.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Piney Ridge Road & Oak Street Ext.



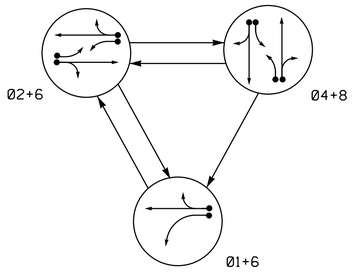
APPENDIX F

SYNCHRO ANALYSIS REPORTS (INCLUDING SIGNAL PLAN

OAKLAND ROAD
AND
POORS FORD ROAD/PINEY RIDGE ROAD

PROJECT REFERENCE NO.	SHEET NO.
POR	Sig.1.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION				
SIGNAL FACE	PHASE 0 1 + 6	0 2 + 6	0 4 + 8	FLASH
21,22	R	G	R	Y
41,42	R	R	G	R
61	G	G	R	Y
62	G	G	R	Y
81,82	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.

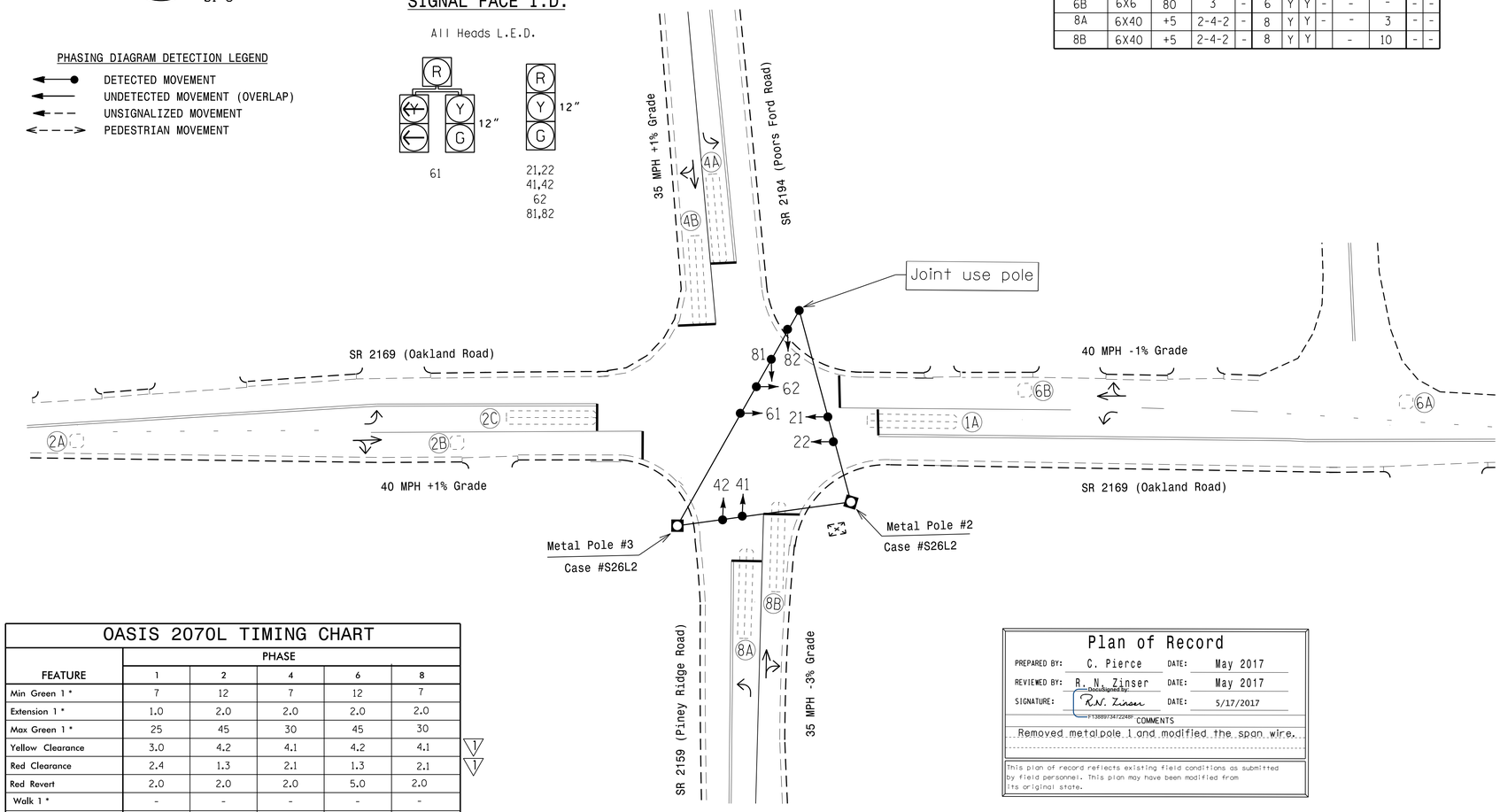
OASIS 2070L LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	+5	2-4-2	-	1	Y	Y	-	-	15	-	-
					6	Y	Y	-	-	-	-	-
2A	6X6	250	4	-	2	Y	Y	-	1.3	-	-	-
2B	6X6	80	3	-	2	Y	Y	-	-	-	-	-
2C	6X40	0	2-4-2	-	2	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	-
6A	6X6	250	4	-	6	Y	Y	-	1.3	-	-	-
6B	6X6	80	3	-	6	Y	Y	-	-	-	-	-
8A	6X40	+5	2-4-2	-	8	Y	Y	-	-	3	-	-
8B	6X40	+5	2-4-2	-	8	Y	Y		-	10	-	-

3 Phase
Fully Actuated
(Isolated)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Enable Backup Protect for phase 6 to allow the controller to clear from phase 2+6 to phase 1+6 by progressing through an all red display.
4. Set all detector units to presence mode.
5. Pavement markings are existing.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Pavement Marking Arrow	
	Metal Strain Pole	

OASIS 2070L TIMING CHART

FEATURE	PHASE 1	2	4	6	8
Min Green 1 *	7	12	7	12	7
Extension 1 *	1.0	2.0	2.0	2.0	2.0
Max Green 1 *	25	45	30	45	30
Yellow Clearance	3.0	4.2	4.1	4.2	4.1
Red Clearance	2.4	1.3	2.1	1.3	2.1
Red Revert	2.0	2.0	2.0	5.0	2.0
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	YELLOW	-
Dual Entry	-	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Plan of Record

PREPARED BY:	C. Pierce	DATE:	May 2017
REVIEWED BY:	R. N. Zinser	DATE:	May 2017
SIGNATURE:	DocuSigned by: R.N. Zinser F138897347224BF...	DATE:	5/17/2017

COMMENTS

Removed metal pole 1 and modified the span wire.

This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

Plan of Record

REVISION V SEAL

NORTH CAROLINA PROFESSIONAL SEAL 043914 ENGINEER RICHARD N. ZINSER

DocuSigned by: R.N. Zinser F138897347224BF... 5/17/2017 DATE

Prepared In the Offices of:

Transportation Mobility and Safety Division
Signal Design Section
DEPARTMENT OF TRANSPORTATION

750 N.Greenfield Pkwy.Garner,NC 27529

N

SCALE 0 30 1"=30'

SR 2169 (Oakland Road) at SR 2159 (Piney Ridge Road)/ SR 2194 (Poors Ford Road)

Division 13 Rutherford County near Spindale

PLAN DATE:	June 2009	REVIEWED BY:	Z.M.LITTLE
PREPARED BY:	Jerry Yaravitz	REVIEWED BY:	

REVISIONS	INIT.	DATE
V Clearance time changes due to relocated stopbars	DS RNZ	5/17/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Not a certified document. This document originally Issued and sealed by Timothy J. Williams, # 24393 on 07/29/09 This document shall not be considered a certified document.

SIG. INVENTORY NO. 13-0480

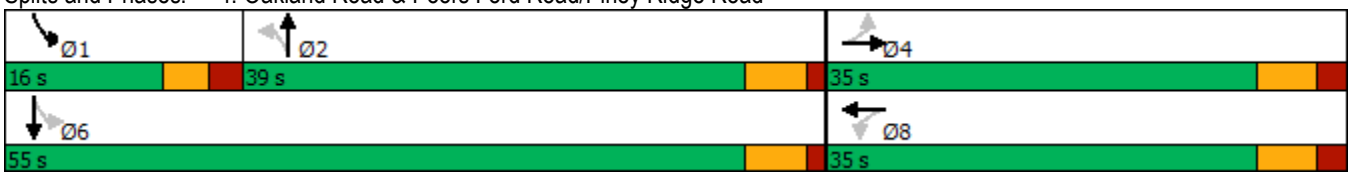
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cbpierce

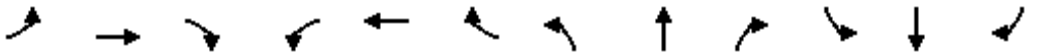
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	145	11	22	38	97	7	196	57	97	90	90
Future Volume (vph)	129	145	11	22	38	97	7	196	57	97	90	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			-1%	
Storage Length (ft)	100		0	100		0	100		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	200			200			200			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.892			0.966			0.925	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1761	1835	0	1796	1686	0	1761	1790	0	1778	1732	0
Flt Permitted	0.662			0.648			0.632			0.400		
Satd. Flow (perm)	1227	1835	0	1225	1686	0	1171	1790	0	749	1732	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			108			19			90	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1206			1660			1633			1675	
Travel Time (s)		23.5			32.3			27.8			28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	143	161	12	24	42	108	8	218	63	108	100	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	173	0	24	150	0	8	281	0	108	200	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.98	0.98	0.98	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		7.0	12.0	
Minimum Split (s)	13.2	13.2		13.2	13.2		17.5	17.5		12.4	17.5	
Total Split (s)	35.0	35.0		35.0	35.0		39.0	39.0		16.0	55.0	
Total Split (%)	38.9%	38.9%		38.9%	38.9%		43.3%	43.3%		17.8%	61.1%	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.2	4.2		3.0	4.2	
All-Red Time (s)	2.1	2.1		2.1	2.1		1.3	1.3		2.4	1.3	
Lost Time Adjust (s)	-1.2	-1.2		-1.2	-1.2		-0.5	-0.5		-0.4	-0.5	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)	11.7	11.7		11.7	11.7		13.9	13.9		23.2	23.2	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.31	0.31		0.51	0.51	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.45	0.36		0.08	0.29		0.02	0.50		0.19	0.22	
Control Delay	20.7	17.1		14.6	7.6		14.0	17.7		7.0	4.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.7	17.1		14.6	7.6		14.0	17.7		7.0	4.5	
LOS	C	B		B	A		B	B		A	A	
Approach Delay		18.7			8.6			17.6			5.4	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)	33	37		5	9		2	58		12	12	
Queue Length 95th (ft)	82	88		20	45		10	136		38	45	
Internal Link Dist (ft)		1126			1580			1553			1595	
Turn Bay Length (ft)	100			100			100			200		
Base Capacity (vph)	845	1266		844	1196		889	1364		643	1687	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.14		0.03	0.13		0.01	0.21		0.17	0.12	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 45.4			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 52.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Oakland Road & Poors Ford Road/Piney Ridge Road



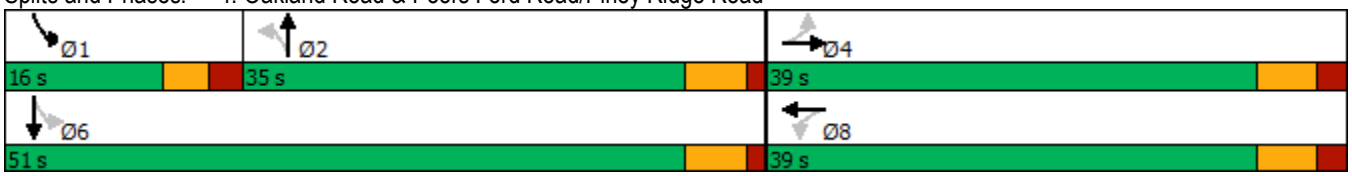


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	115	16	45	119	93	9	159	46	101	181	129
Future Volume (vph)	132	115	16	45	119	93	9	159	46	101	181	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			-1%	
Storage Length (ft)	100		0	100		0	100		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	200			200			200			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.934			0.966			0.938	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1761	1820	0	1796	1766	0	1761	1790	0	1778	1756	0
Flt Permitted	0.604			0.664			0.554			0.450		
Satd. Flow (perm)	1119	1820	0	1255	1766	0	1027	1790	0	842	1756	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			50			17			58	
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1206			1660			1633			1675	
Travel Time (s)		23.5			32.3			27.8			28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	147	128	18	50	132	103	10	177	51	112	201	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	147	146	0	50	235	0	10	228	0	112	344	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.98	0.98	0.98	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		7.0	12.0	
Minimum Split (s)	13.2	13.2		13.2	13.2		17.5	17.5		12.4	17.5	
Total Split (s)	39.0	39.0		39.0	39.0		35.0	35.0		16.0	51.0	
Total Split (%)	43.3%	43.3%		43.3%	43.3%		38.9%	38.9%		17.8%	56.7%	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.2	4.2		3.0	4.2	
All-Red Time (s)	2.1	2.1		2.1	2.1		1.3	1.3		2.4	1.3	
Lost Time Adjust (s)	-1.2	-1.2		-1.2	-1.2		-0.5	-0.5		-0.4	-0.5	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)	12.9	12.9		12.9	12.9		13.6	13.6		22.9	22.9	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.29	0.29		0.49	0.49	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.47	0.28		0.14	0.45		0.03	0.43		0.19	0.38	
Control Delay	20.7	14.9		14.5	14.4		15.7	17.7		7.9	7.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.7	14.9		14.5	14.4		15.7	17.7		7.9	7.9	
LOS	C	B		B	B		B	B		A	A	
Approach Delay		17.8			14.4			17.6			7.9	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)	34	30		11	42		2	47		13	38	
Queue Length 95th (ft)	83	70		32	97		13	120		43	109	
Internal Link Dist (ft)		1126			1580			1553			1595	
Turn Bay Length (ft)	100			100			100			200		
Base Capacity (vph)	836	1362		937	1332		696	1219		650	1647	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.11		0.05	0.18		0.01	0.19		0.17	0.21	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 46.3			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 63.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Oakland Road & Poors Ford Road/Piney Ridge Road

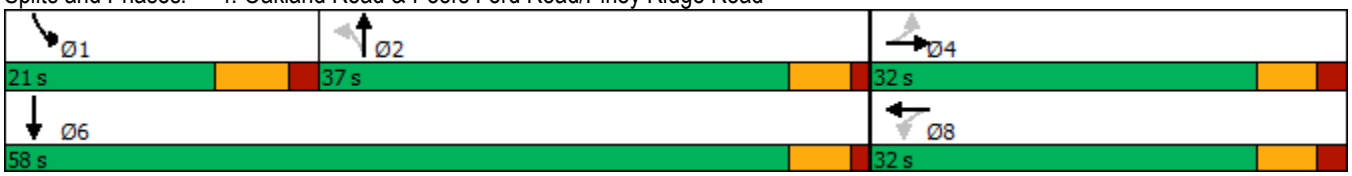


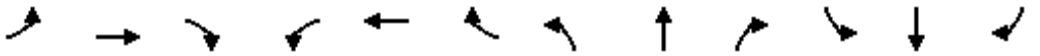
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	146	11	23	39	100	7	196	58	100	90	90
Future Volume (vph)	129	146	11	23	39	100	7	196	58	100	90	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			-1%	
Storage Length (ft)	100		0	100		0	100		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	200			200			200			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.892			0.966			0.925	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1761	1835	0	1796	1686	0	1761	1790	0	1778	1732	0
Flt Permitted	0.659			0.647			0.632			0.950		
Satd. Flow (perm)	1221	1835	0	1223	1686	0	1171	1790	0	1778	1732	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1206			1660			1633			1675	
Travel Time (s)		23.5			32.3			27.8			28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	143	162	12	26	43	111	8	218	64	111	100	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	174	0	26	154	0	8	282	0	111	200	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.98	0.98	0.98	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		7.0	12.0	
Minimum Split (s)	13.2	13.2		13.2	13.2		17.5	17.5		14.0	17.5	
Total Split (s)	32.0	32.0		32.0	32.0		37.0	37.0		21.0	58.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		41.1%	41.1%		23.3%	64.4%	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.2	4.2		5.0	4.2	
All-Red Time (s)	2.1	2.1		2.1	2.1		1.3	1.3		2.0	1.3	
Lost Time Adjust (s)	-1.2	-1.2		-1.2	-1.2		-0.5	-0.5		-2.0	-0.5	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)	12.7	12.7		12.7	12.7		15.0	15.0		10.6	26.4	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.30	0.30		0.21	0.53	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.46	0.37		0.08	0.36		0.02	0.52		0.29	0.22	
Control Delay	23.4	19.9		17.2	20.0		16.3	21.3		22.8	7.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.4	19.9		17.2	20.0		16.3	21.3		22.8	7.1	
LOS	C	B		B	C		B	C		C	A	
Approach Delay		21.5			19.6			21.2			12.7	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	34	41		6	36		2	69		27	25	
Queue Length 95th (ft)	97	107		25	97		12	169		83	68	
Internal Link Dist (ft)		1126			1580			1553			1595	
Turn Bay Length (ft)	100			100			100			200		
Base Capacity (vph)	710	1067		711	980		797	1218		612	1639	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.16		0.04	0.16		0.01	0.23		0.18	0.12	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 49.8			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 18.6		Intersection LOS: B	
Intersection Capacity Utilization 52.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Oakland Road & Poors Ford Road/Piney Ridge Road





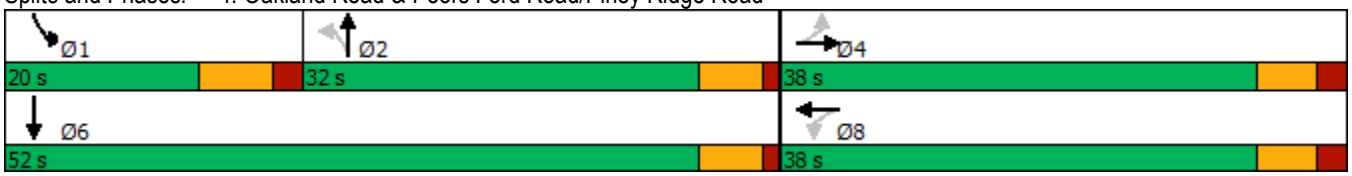
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	123	16	59	128	119	9	159	58	125	181	129
Future Volume (vph)	132	123	16	59	128	119	9	159	58	125	181	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			-1%	
Storage Length (ft)	100		0	100		0	100		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	200			200			200			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.928			0.960			0.938	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1761	1822	0	1796	1755	0	1761	1779	0	1778	1756	0
Flt Permitted	0.518			0.659			0.554			0.950		
Satd. Flow (perm)	960	1822	0	1246	1755	0	1027	1779	0	1778	1756	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1206			1660			1633			1675	
Travel Time (s)		23.5			32.3			27.8			28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	147	137	18	66	142	132	10	177	64	139	201	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	147	155	0	66	274	0	10	241	0	139	344	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.98	0.98	0.98	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		7.0	12.0	
Minimum Split (s)	13.2	13.2		13.2	13.2		17.5	17.5		14.0	17.5	
Total Split (s)	38.0	38.0		38.0	38.0		32.0	32.0		20.0	52.0	
Total Split (%)	42.2%	42.2%		42.2%	42.2%		35.6%	35.6%		22.2%	57.8%	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.2	4.2		5.0	4.2	
All-Red Time (s)	2.1	2.1		2.1	2.1		1.3	1.3		2.0	1.3	
Lost Time Adjust (s)	-1.2	-1.2		-1.2	-1.2		-0.5	-0.5		-2.0	-0.5	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)	15.5	15.5		15.5	15.5		14.8	14.8		11.3	26.8	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.28	0.28		0.21	0.50	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.53	0.29		0.18	0.54		0.03	0.49		0.37	0.39	
Control Delay	25.6	18.0		17.4	21.7		19.4	23.6		25.1	10.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.6	18.0		17.4	21.7		19.4	23.6		25.1	10.0	
LOS	C	B		B	C		B	C		C	A	
Approach Delay		21.7			20.8			23.4			14.3	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	38	37		15	71		2	64		37	54	
Queue Length 95th (ft)	106	94		49	165		15	164		107	143	
Internal Link Dist (ft)		1126			1580			1553			1595	
Turn Bay Length (ft)	100			100			100			200		
Base Capacity (vph)	638	1211		828	1166		565	979		543	1513	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.13		0.08	0.23		0.02	0.25		0.26	0.23	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 53.1
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 19.2 Intersection LOS: B
Intersection Capacity Utilization 65.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: Oakland Road & Poors Ford Road/Piney Ridge Road



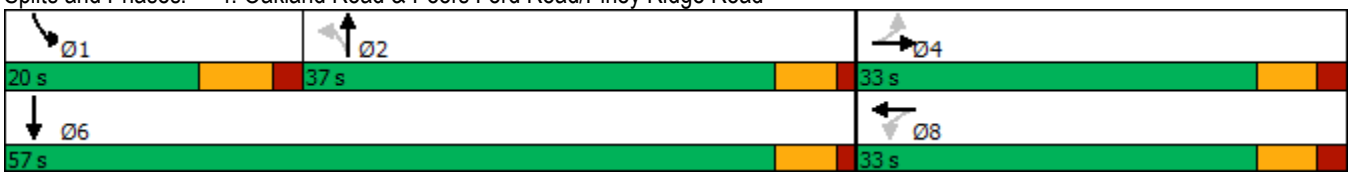
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	147	11	27	43	114	7	196	59	105	90	90
Future Volume (vph)	129	147	11	27	43	114	7	196	59	105	90	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			-1%	
Storage Length (ft)	100		0	100		0	100		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	200			200			200			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.891			0.965			0.925	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1761	1835	0	1796	1685	0	1761	1789	0	1778	1732	0
Flt Permitted	0.647			0.647			0.632			0.950		
Satd. Flow (perm)	1199	1835	0	1223	1685	0	1171	1789	0	1778	1732	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1206			1660			1633			1675	
Travel Time (s)		23.5			32.3			27.8			28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	143	163	12	30	48	127	8	218	66	117	100	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	175	0	30	175	0	8	284	0	117	200	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.98	0.98	0.98	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		7.0	12.0	
Minimum Split (s)	13.2	13.2		13.2	13.2		17.5	17.5		14.0	17.5	
Total Split (s)	33.0	33.0		33.0	33.0		37.0	37.0		20.0	57.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%		41.1%	41.1%		22.2%	63.3%	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.2	4.2		5.0	4.2	
All-Red Time (s)	2.1	2.1		2.1	2.1		1.3	1.3		2.0	1.3	
Lost Time Adjust (s)	-1.2	-1.2		-1.2	-1.2		-0.5	-0.5		-2.0	-0.5	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)	13.1	13.1		13.1	13.1		15.1	15.1		10.8	26.7	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.30	0.30		0.21	0.53	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.46	0.37		0.09	0.40		0.02	0.53		0.31	0.22	
Control Delay	23.6	19.9		17.4	20.6		16.7	21.8		23.3	7.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.6	19.9		17.4	20.6		16.7	21.8		23.3	7.2	
LOS	C	B		B	C		B	C		C	A	
Approach Delay		21.5			20.2			21.7			13.2	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	35	41		7	42		2	71		29	25	
Queue Length 95th (ft)	99	108		28	110		12	174		89	70	
Internal Link Dist (ft)		1126			1580			1553			1595	
Turn Bay Length (ft)	100			100			100			200		
Base Capacity (vph)	715	1095		730	1006		789	1206		568	1614	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.16		0.04	0.17		0.01	0.24		0.21	0.12	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 50.5
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 19.0 Intersection LOS: B
Intersection Capacity Utilization 53.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Oakland Road & Poors Ford Road/Piney Ridge Road



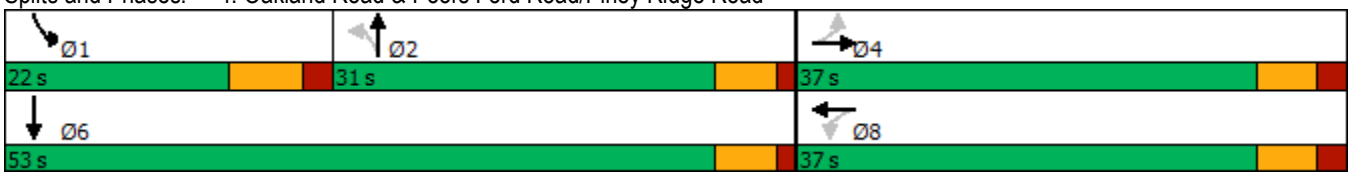
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	128	16	62	131	128	9	159	63	140	181	129
Future Volume (vph)	132	128	16	62	131	128	9	159	63	140	181	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-3%			1%			-1%	
Storage Length (ft)	100		0	100		0	100		0	200		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	200			200			200			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.926			0.957			0.938	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1761	1822	0	1796	1751	0	1761	1774	0	1778	1756	0
Flt Permitted	0.492			0.656			0.554			0.950		
Satd. Flow (perm)	912	1822	0	1240	1751	0	1027	1774	0	1778	1756	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		1206			1660			1633			1675	
Travel Time (s)		23.5			32.3			27.8			28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	147	142	18	69	146	142	10	177	70	156	201	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	147	160	0	69	288	0	10	247	0	156	344	0
Enter Blocked Intersection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	0.98	0.98	0.98	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Prot	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2					
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		7.0	12.0	
Minimum Split (s)	13.2	13.2		13.2	13.2		17.5	17.5		14.0	17.5	
Total Split (s)	37.0	37.0		37.0	37.0		31.0	31.0		22.0	53.0	
Total Split (%)	41.1%	41.1%		41.1%	41.1%		34.4%	34.4%		24.4%	58.9%	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.2	4.2		5.0	4.2	
All-Red Time (s)	2.1	2.1		2.1	2.1		1.3	1.3		2.0	1.3	
Lost Time Adjust (s)	-1.2	-1.2		-1.2	-1.2		-0.5	-0.5		-2.0	-0.5	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)	16.4	16.4		16.4	16.4		15.3	15.3		12.0	27.9	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.28	0.28		0.22	0.50	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.54	0.30		0.19	0.55		0.04	0.51		0.41	0.39	
Control Delay	27.2	18.6		18.0	22.6		20.7	25.0		26.4	10.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.2	18.6		18.0	22.6		20.7	25.0		26.4	10.3	
LOS	C	B		B	C		C	C		C	B	
Approach Delay		22.7			21.7			24.9			15.3	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	39	39		16	77		2	69		43	56	
Queue Length 95th (ft)	113	103		53	184		16	179		124	152	
Internal Link Dist (ft)		1126			1580			1553			1595	
Turn Bay Length (ft)	100			100			100			200		
Base Capacity (vph)	578	1156		786	1111		529	914		599	1528	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.14		0.09	0.26		0.02	0.27		0.26	0.23	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 55.3
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 20.3 Intersection LOS: C
Intersection Capacity Utilization 66.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 4: Oakland Road & Poors Ford Road/Piney Ridge Road



APPENDIX G

SYNCHRO ANALYSIS REPORTS

DANIEL ROAD
AND
ACCESS A

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	40	68	4	14	23
Future Vol, veh/h	4	40	68	4	14	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	44	76	4	16	26

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	136	78	0	0	80	0
Stage 1	78	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	857	983	-	-	1518	-
Stage 1	945	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	848	983	-	-	1518	-
Mov Cap-2 Maneuver	848	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	954	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	2.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	969	1518	-
HCM Lane V/C Ratio	-	-	0.05	0.01	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	25	84	4	45	83
Future Vol, veh/h	4	25	84	4	45	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	28	93	4	50	92

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	287	95	0	0	97	0
Stage 1	95	-	-	-	-	-
Stage 2	192	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	703	962	-	-	1496	-
Stage 1	929	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	678	962	-	-	1496	-
Mov Cap-2 Maneuver	678	-	-	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	812	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	2.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	909	1496	-
HCM Lane V/C Ratio	-	-	0.035	0.033	-
HCM Control Delay (s)	-	-	9.1	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

APPENDIX H

SYNCHRO ANALYSIS REPORTS

PINEY RIDGE ROAD
AND
ACCESS B

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	198	273	4	13	13
Future Vol, veh/h	4	198	273	4	13	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	220	303	4	14	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	307	0	-	0	533	305
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	228	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1254	-	-	-	507	735
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1254	-	-	-	505	735
Mov Cap-2 Maneuver	-	-	-	-	505	-
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	810	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1254	-	-	-	599
HCM Lane V/C Ratio	0.004	-	-	-	0.048
HCM Control Delay (s)	7.9	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	282	298	15	9	9
Future Vol, veh/h	15	282	298	15	9	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	313	331	17	10	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	348	0	-	0	687	340
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	347	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1211	-	-	-	413	702
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	716	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1211	-	-	-	406	702
Mov Cap-2 Maneuver	-	-	-	-	406	-
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	716	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1211	-	-	-	514
HCM Lane V/C Ratio	0.014	-	-	-	0.039
HCM Control Delay (s)	8	0	-	-	12.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

APPENDIX I

SYNCHRO ANALYSIS REPORTS

DANIEL ROAD
AND
ACCESS C

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	13	56	4	4	22
Future Vol, veh/h	6	13	56	4	4	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	14	62	4	4	24

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	96	64	0	0	66	0
Stage 1	64	-	-	-	-	-
Stage 2	32	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	903	1000	-	-	1536	-
Stage 1	959	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	900	1000	-	-	1536	-
Mov Cap-2 Maneuver	900	-	-	-	-	-
Stage 1	959	-	-	-	-	-
Stage 2	988	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	966	1536	-
HCM Lane V/C Ratio	-	-	0.022	0.003	-
HCM Control Delay (s)	-	-	8.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	9	78	7	15	70
Future Vol, veh/h	4	9	78	7	15	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	10	87	8	17	78

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	203	91	0	0	95	0
Stage 1	91	-	-	-	-	-
Stage 2	112	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	786	967	-	-	1499	-
Stage 1	933	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	777	967	-	-	1499	-
Mov Cap-2 Maneuver	777	-	-	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	902	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	1.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	899	1499	-
HCM Lane V/C Ratio	-	-	0.016	0.011	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

APPENDIX J

TURN LANE WARRANTS

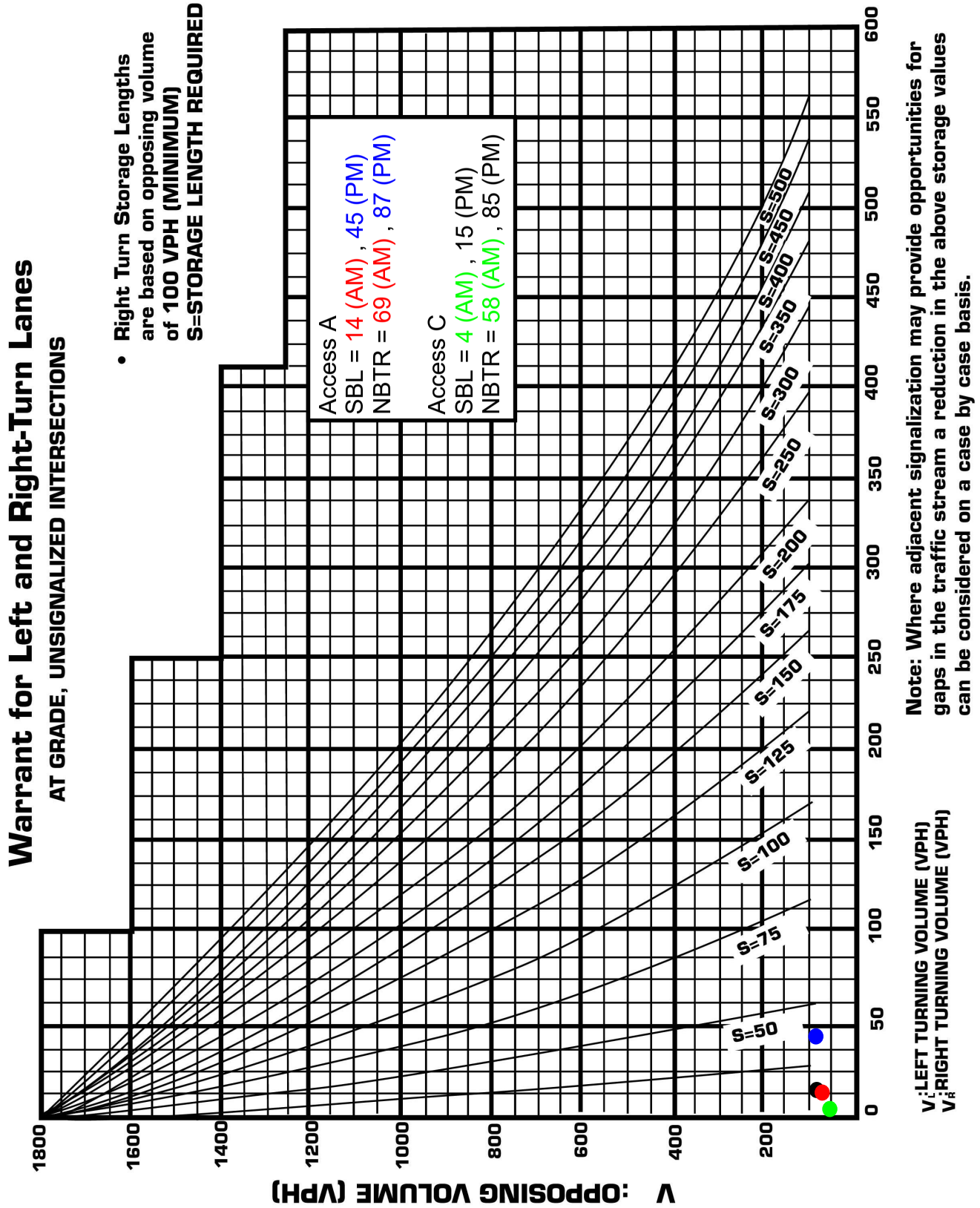
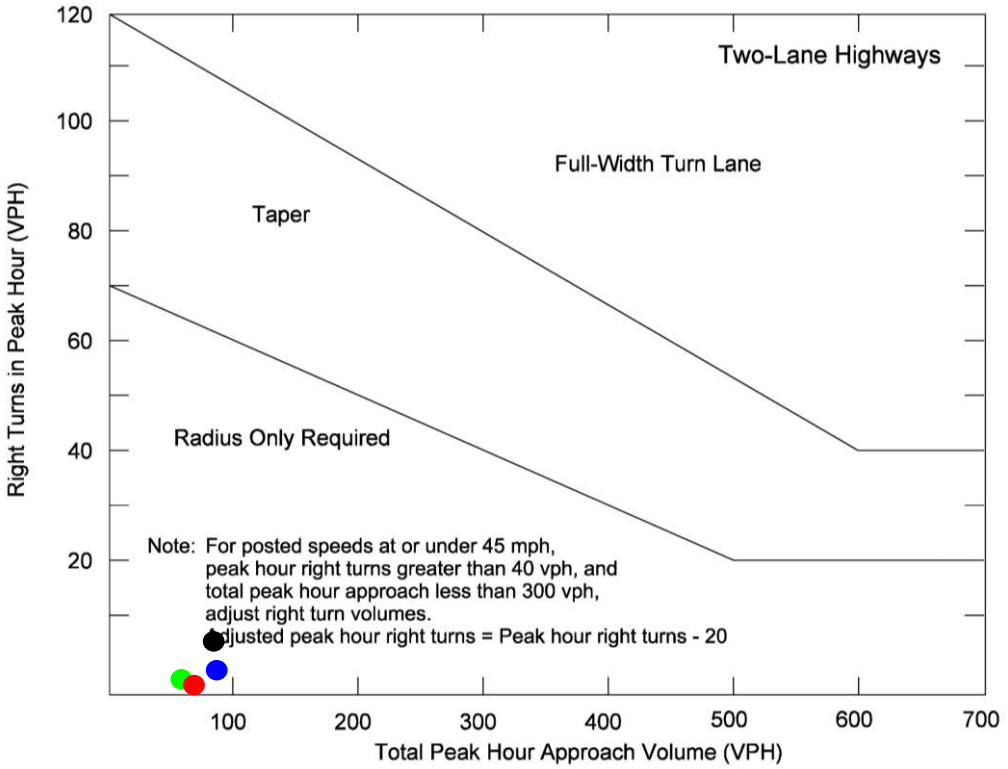
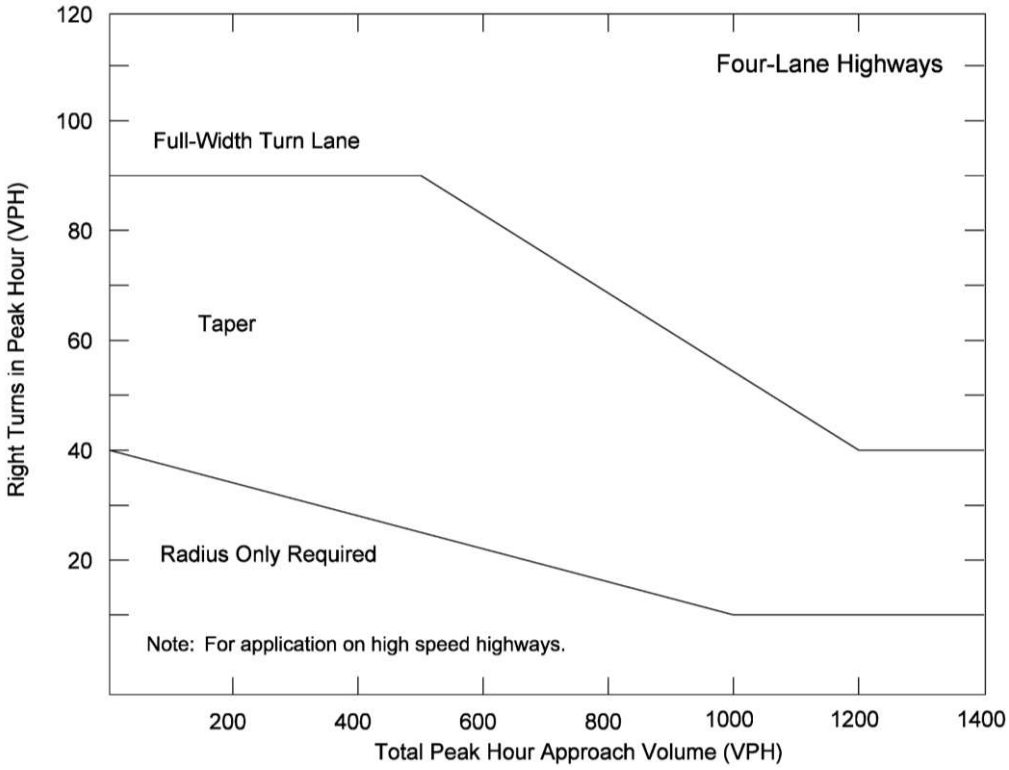

Warrant for Left and Right-Turn Lanes
AT GRADE, UNSIGNALIZED INTERSECTIONS
• Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED
Access A
SBL = 14 (AM) , 45 (PM)
NBTR = 69 (AM) , 87 (PM)
Access C
SBL = 4 (AM) , 15 (PM)
NBTR = 58 (AM) , 85 (PM)
S=50
S=75
S=100
S=125
S=150
S=175
S=200
S=250
S=300
S=350
S=400
S=450
S=500
V : OPPOSING VOLUME (VPH)
0
50
100
150
200
250
300
350
400
450
500
550
600
200
400
600
800
1000
1200
1400
1600
1800
Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.
V_L: LEFT TURNING VOLUME (VPH)
V_R: RIGHT TURNING VOLUME (VPH)

Figure 8-9 Right Turn Lane Warrants



Access A
NBR = 1 (AM) , 3 (PM)
NBTR = 69 (AM) , 87 (PM)

Access C
NBR = 2 (AM) , 7 (PM)
NBTR = 58 (AM) , 85 (PM)



Source: NCHRP 279 Intersection Channelization Design Guide Figure 4-23

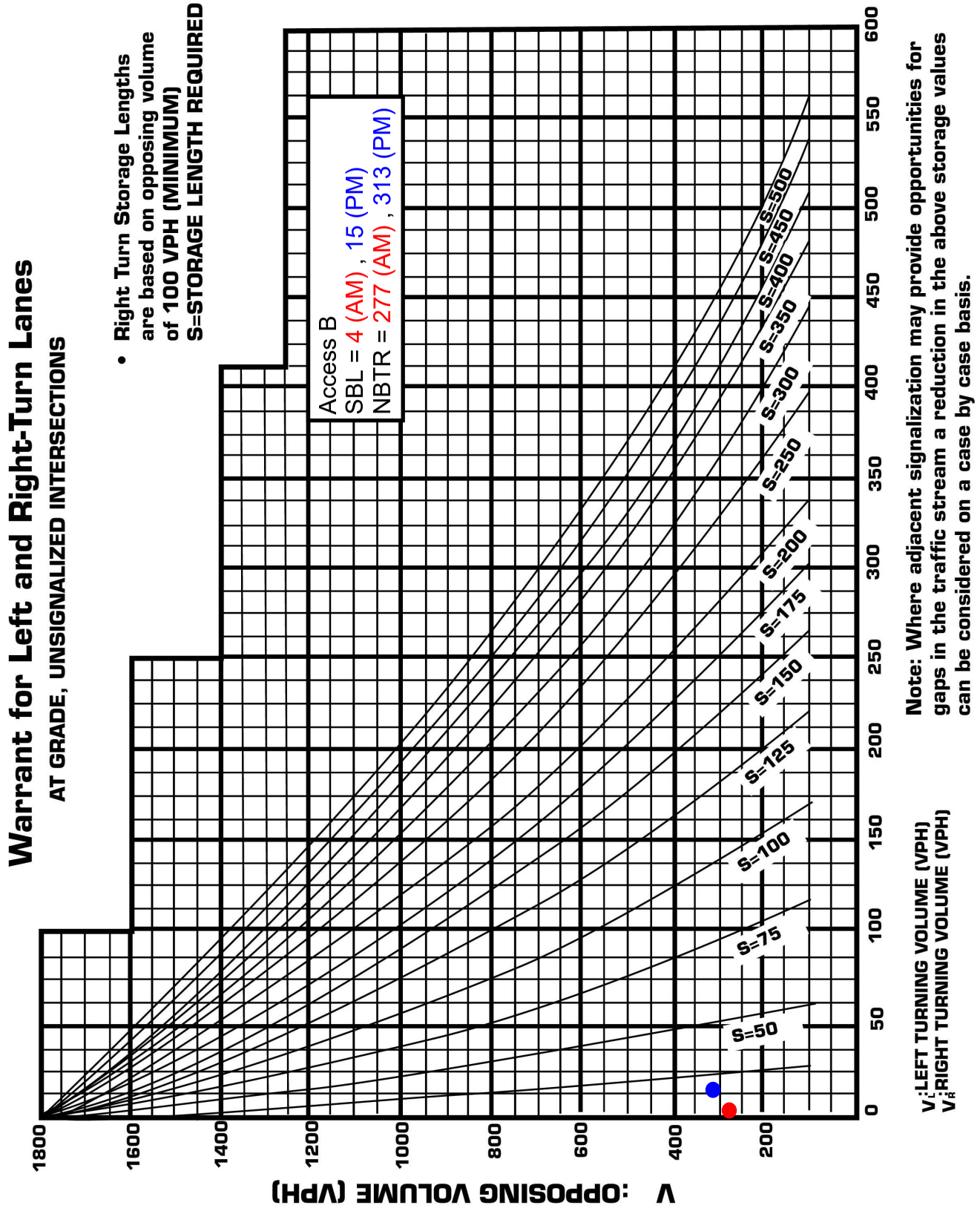
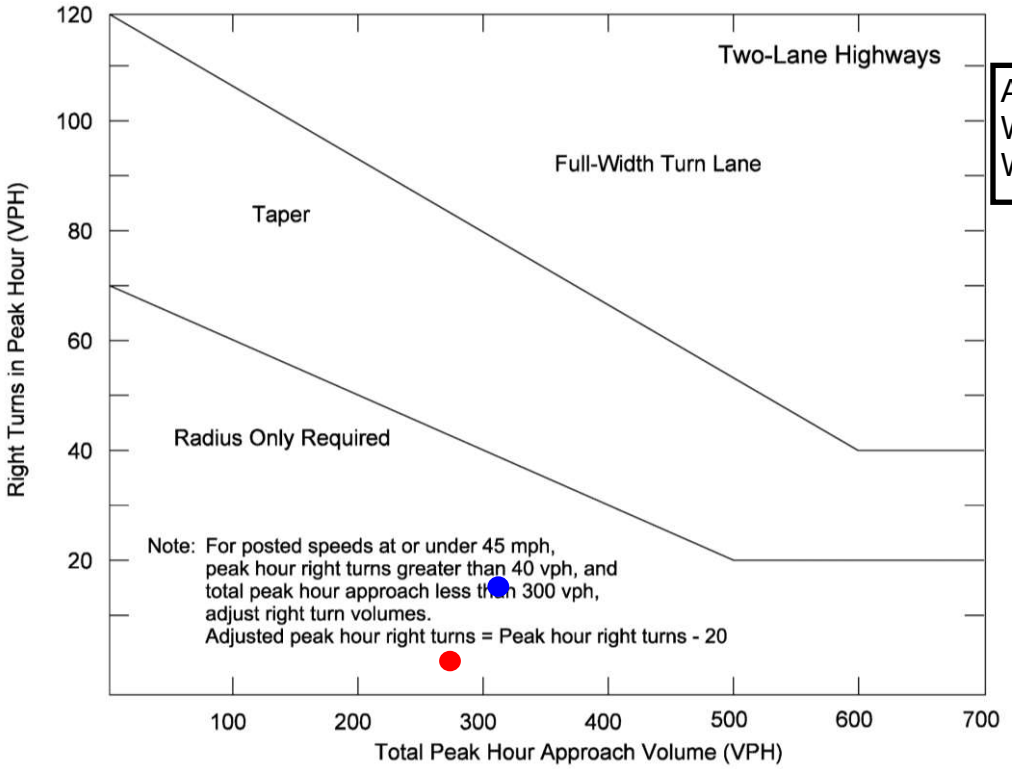
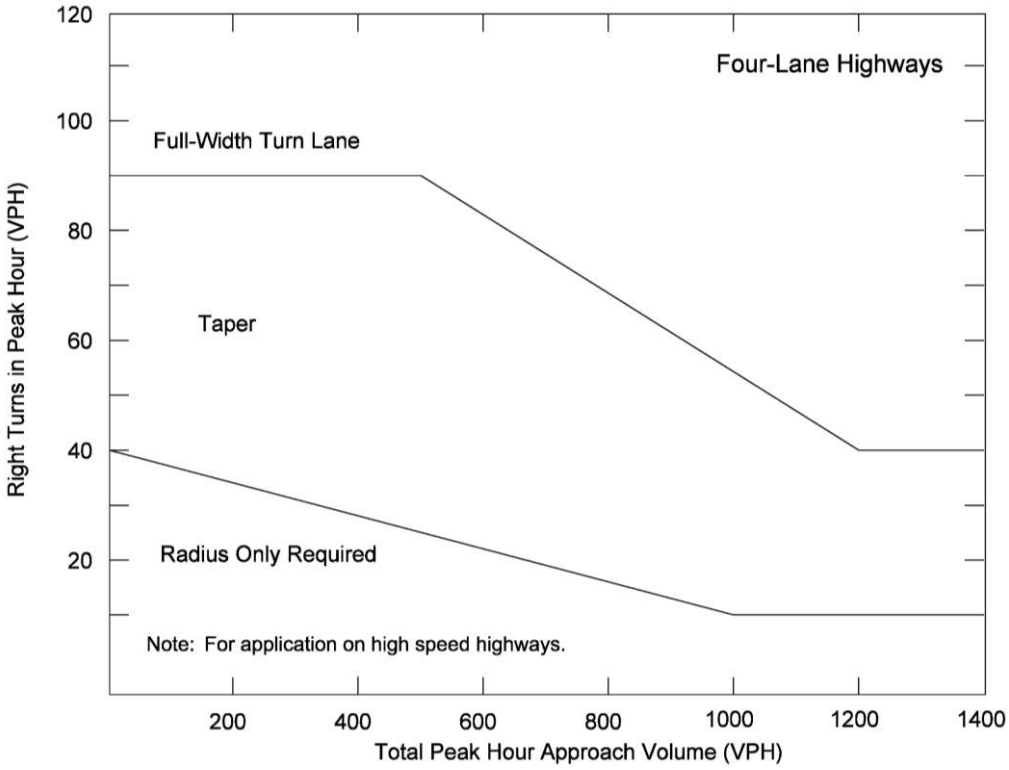

Warrant for Left and Right-Turn Lanes
AT GRADE, UNSIGNALIZED INTERSECTIONS
• Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED
Access B
SBL = 4 (AM) , 15 (PM)
NBTR = 277 (AM) , 313 (PM)
S=50
S=75
S=100
S=125
S=150
S=175
S=200
S=250
S=300
S=350
S=400
S=450
S=500
V : OPPOSING VOLUME (VPH)
0
50
100
150
200
250
300
350
400
450
500
550
600
200
400
600
800
1000
1200
1400
1600
1800
Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.
V_L: LEFT TURNING VOLUME (VPH)
V_R: RIGHT TURNING VOLUME (VPH)

Figure 8-9 Right Turn Lane Warrants



Access B
WBR = 4 (AM) , 15 (PM)
WBTR = 277 (AM) , 313 (PM)



Source: NCHRP 279 Intersection Channelization Design Guide Figure 4-23

APPENDIX K

SIMTRAFFIC REPORTS AND QUEUING ANALYSIS SUMMARY

Intersection: 1: Daniel Road & College Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	L	TR	L	TR
Maximum Queue (ft)	145	113	103	54	112	114	38	49	78	74	106
Average Queue (ft)	72	37	30	11	53	37	6	4	23	7	41
95th Queue (ft)	127	86	77	36	98	86	25	25	58	38	85
Link Distance (ft)		2489	2489		2611	2611		880		1070	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			150			150		100		100
Storage Blk Time (%)	0				0	0		0	0	0	1
Queuing Penalty (veh)	0				0	0		0	0	0	0

Intersection: 2: Piney Ridge Road & Daniel Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	58	42
Average Queue (ft)	7	12
95th Queue (ft)	34	35
Link Distance (ft)	2797	445
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Piney Ridge Road & Oak Street Ext.

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	115	44	123	53	93
Average Queue (ft)	55	5	52	12	30
95th Queue (ft)	97	25	98	35	69
Link Distance (ft)		1566	1196		1738
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	300			185	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Oakland Road & Poors Ford Road/Piney Ridge Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	123	130	61	126	34	140	114	110
Average Queue (ft)	59	57	17	57	4	70	54	43
95th Queue (ft)	104	103	46	107	21	125	95	89
Link Distance (ft)		1165		1596		1592		1641
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		100		200	
Storage Blk Time (%)	1	1	0	2		2		
Queuing Penalty (veh)	2	1	0	0		0		

Network Summary

Network wide Queuing Penalty: 4

Intersection: 1: Daniel Road & College Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	L	TR	L	TR
Maximum Queue (ft)	108	215	218	144	172	174	52	108	115	205	176
Average Queue (ft)	44	116	105	69	87	75	7	19	49	65	81
95th Queue (ft)	90	199	189	127	151	146	29	64	98	157	148
Link Distance (ft)		2489	2489		2611	2611		880		1070	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			150			150		100		100
Storage Blk Time (%)		0		1	0	1		1	1	5	8
Queuing Penalty (veh)		0		2	0	0		1	0	6	4

Intersection: 2: Piney Ridge Road & Daniel Road

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	76	7	67
Average Queue (ft)	14	0	25
95th Queue (ft)	50	5	49
Link Distance (ft)	2797	1566	445
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Piney Ridge Road & Oak Street Ext.

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	154	78	123	85	116
Average Queue (ft)	72	19	53	35	40
95th Queue (ft)	124	57	99	71	89
Link Distance (ft)		1566	1196		1738
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	300			185	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Oakland Road & Poors Ford Road/Piney Ridge Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	118	126	76	174	32	173	122	193
Average Queue (ft)	60	55	32	91	6	80	66	87
95th Queue (ft)	106	100	68	153	24	143	108	160
Link Distance (ft)		1165		1596		1592		1641
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		100		200	
Storage Blk Time (%)	2	1	0	6		4		0
Queuing Penalty (veh)	2	1	0	4		0		0

Network Summary

Network wide Queuing Penalty: 21

Intersection: 1: Daniel Road & College Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	L	TR	L	TR
Maximum Queue (ft)	153	118	106	57	125	120	39	107	111	76	103
Average Queue (ft)	71	47	34	14	59	49	5	28	46	7	41
95th Queue (ft)	128	96	84	42	108	102	24	75	92	38	85
Link Distance (ft)		2489	2489		2611	2611		882		1070	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			150			150		100		100
Storage Blk Time (%)	0				0	0		1	1	0	1
Queuing Penalty (veh)	0				0	0		0	0	0	0

Intersection: 2: Piney Ridge Road & Daniel Road

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	60	26
Average Queue (ft)	12	11
95th Queue (ft)	43	28
Link Distance (ft)	2798	242
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Piney Ridge Road & Oak Street Ext.

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	122	39	116	45	87
Average Queue (ft)	60	4	52	13	29
95th Queue (ft)	105	23	98	34	67
Link Distance (ft)		621	1196		1738
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	300			185	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Oakland Road & Poors Ford Road/Piney Ridge Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	108	137	66	125	28	159	114	106
Average Queue (ft)	55	60	19	61	5	77	56	44
95th Queue (ft)	95	111	53	107	21	136	98	87
Link Distance (ft)		1165		1596		1592		1641
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		100		200	
Storage Blk Time (%)	1	1	0	2		3		
Queuing Penalty (veh)	1	2	0	0		0		

Intersection: 5: Daniel Road & Access A

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	51	15
Average Queue (ft)	22	1
95th Queue (ft)	44	8
Link Distance (ft)	464	346
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Piney Ridge Road & Access B

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	14	36
Average Queue (ft)	1	16
95th Queue (ft)	8	40
Link Distance (ft)	880	464
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Daniel Road & Access C

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	21	12
Average Queue (ft)	10	0
95th Queue (ft)	26	6
Link Distance (ft)	457	1116
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 4

Intersection: 1: Daniel Road & College Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	UL	T	TR	UL	T	T	R	L	TR	L	TR
Maximum Queue (ft)	111	228	231	182	195	178	48	178	153	217	178
Average Queue (ft)	41	131	122	86	93	80	7	45	60	72	83
95th Queue (ft)	88	207	210	153	164	154	31	122	117	170	145
Link Distance (ft)		2489	2489		2611	2611		882		1070	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			150			150		100		100
Storage Blk Time (%)		1		2	1	1		2	3	6	9
Queuing Penalty (veh)		0		9	1	0		2	1	8	4

Intersection: 2: Piney Ridge Road & Daniel Road

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	86	2	64
Average Queue (ft)	19	0	27
95th Queue (ft)	60	3	49
Link Distance (ft)	2798	880	242
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Piney Ridge Road & Oak Street Ext.

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	137	71	121	101	117
Average Queue (ft)	71	16	52	39	43
95th Queue (ft)	118	51	100	79	90
Link Distance (ft)		621	1196		1738
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	300			185	
Storage Blk Time (%)					0
Queuing Penalty (veh)					0

Intersection: 4: Oakland Road & Poors Ford Road/Piney Ridge Road

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	141	126	82	220	34	160	149	167
Average Queue (ft)	64	57	33	102	7	85	72	83
95th Queue (ft)	111	102	69	177	26	147	122	145
Link Distance (ft)		1165		1596		1592		1641
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100		100		100		200	
Storage Blk Time (%)	2	1	0	8		5		0
Queuing Penalty (veh)	3	1	1	5		0		0

Intersection: 5: Daniel Road & Access A

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	41	42
Average Queue (ft)	17	4
95th Queue (ft)	38	22
Link Distance (ft)	464	346
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Piney Ridge Road & Access B

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	42	31
Average Queue (ft)	4	13
95th Queue (ft)	23	37
Link Distance (ft)	880	464
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Daniel Road & Access C

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	26	24
Average Queue (ft)	7	1
95th Queue (ft)	24	11
Link Distance (ft)	457	1116
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 35

SYNCHRO 95TH PERCENTILE QUEUES

Node I.D.	INTERSECTIONS	Lane	Storage	Taper	AM Peak Hour			PM Peak Hour		
					No Build 2030	Build 2030	Comparison	No Build 2030	Build 2030	Comparison
1	College Avenue & Daniel Road	EBL	200	150	139	139		98	98	
		EBTR			113	117	4	313	349	36
		WBL	150	150	36	46	10	154	185	31
		WBT			128	128		230	232	2
		WBR	150	200	18	18		25	26	1
		NBL			16	53	37	42	68	26
		NBTR	100	100	59	90	31	113	137	24
		SBL			18	18		84	84	
		SBTR	100	100	93	95	2	176	181	5
2	Piney Ridge Road & Daniel Road	EBLT			3	3		3	5	2
		WBTR								
		SBLR			3	3		13	13	
3	Piney Ridge Road & Oak Street Ext	EBL	300	100	74	79	5	97	100	3
		EBT			15	15		30	31	1
		WBTR			105	107	2	98	101	3
		SBL	185	TWLTL	29	29		71	71	
		SBR			52	49	-3	73	72	-1
4	Oakland Road & Piney Ridge Road	EBL	100	200	97	99	2	106	113	7
		EBTR			107	108	1	94	103	9
		WBL	100	200	25	28	3	49	53	4
		WBTR			97	110	13	165	184	19
		NBL	100	200	12	12		15	16	1
		NBTR			169	174	5	164	179	15
		SBL	200	200	83	89	6	107	124	17
		SBTR			68	70	2	143	152	9
5	Daniel Road & Access A	WBLR				5	5		3	3
		NBTR								
		SBLT							3	3
6	Piney Ridge Road & Access B	EBLT								
		WBTR								
		SBLR				5	5		3	3
7	Daniel Road & Access C	WBLR				3	3			
		NBTR								
		SBLT								

SIMTRAFFIC MAXIMUM QUEUES

Node I.D.	INTERSECTIONS	Lane	Storage	Taper	AM Peak Hour			PM Peak Hour		
					No Build 2030	Build 2030	Comparison	No Build 2030	Build 2030	Comparison
1	College Avenue & Daniel Road	EBL	200	150	145	153	8	108	111	3
		EBT			113	118	5	215	228	13
		EBTR			103	106	3	218	231	13
		WBL	150	150	54	57	3	144	182	38
		WBT			112	125	13	172	195	23
		WBT			114	120	6	174	178	4
		WBR	150	200	38	39	1	52	48	-4
		NBL			49	107	58	108	178	70
		NBTR	100	100	78	111	33	115	153	38
		SBL			74	76	2	205	217	12
		SBTR	100	100	106	103	-3	176	178	2
2	Piney Ridge Road & Daniel Road	EBLT			58	60	2	76	86	10
		WBTR						7	2	-5
		SBLR			42	26	-16	67	64	-3
3	Piney Ridge Road & Oak Street Ext	EBL	300	100	115	122	7	154	137	-17
		EBT			44	39	-5	78	71	-7
		WBTR			123	116	-7	123	121	-2
		SBL	185	TWLTL	53	45	-8	85	101	16
		SBR			93	87	-6	116	117	1
4	Oakland Road & Piney Ridge Road	EBL	100	200	123	108	-15	118	141	23
		EBTR			130	137	7	126	126	
		WBL	100	200	61	66	5	76	82	6
		WBTR			126	125	-1	174	220	46
		NBL	100	200	34	28	-6	32	34	2
		NBTR			140	159	19	173	160	-13
		SBL	200	200	114	114		122	149	27
		SBTR			110	106	-4	193	167	-26
5	Daniel Road & Access A	WBLR				51	51		41	41
		NBTR								
		SBLT				15	15		42	42
6	Piney Ridge Road & Access B	EBLT				14	14		42	42
		WBTR								
		SBLR				36	36		31	31
7	Daniel Road & Access C	WBLR				21	21		26	26
		NBTR								
		SBLT				12	12		24	24

RFK Engineers PLLC

NCBELS LICENSE #: C-2184

DANIEL ROAD SUBDIVISION - SIDEWALK COST ESTIMATE
FEE-IN-LIEU CALCULATION

ITEM #	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL AMOUNT
SITE, GRADING, & PAVING					
1	4" Concrete Sidewalk on 4" Stone Base (5' width) (materials)	LF	1,495	$18	$26,910
2	Sidewalk Installation (labor forming / pouring / finishing)	LF	1,495	$21	$31,395
3	Sewer Manhole Lid Reset	EA	8	$1,000	$8,000
4	Clearing / Grubbing / Grading	LS	1.0	$10,000	$10,000
5	Engineering / Surveying / Legal / Procurement	LS	1	10%	$7,631
				TOTAL	**$83,936**

NOTES:

1. This estimate is based off of the CDC plans: "The Preserve at Bracketts Creek - May 2026"; estimate costs listed were established on the date as noted above. Due to cost variations over time, this estimate is only valid for 90 days past the estimate date.
2. The ENGINEER maintains no control of labor costs, materials, equipment or services furnished by others, the Contractor(s)' methods for determining prices, or competitive or market conditions. The estimates herein for project and construction costs represent the ENGINEER'S best judgment, and are based on his experience and qualifications as a Professional Engineer who possesses familiarity with the construction industry. The ENGINEER does not guarantee the accuracy of the cost estimates, which may vary from bids or actual project and construction costs.
3. No dry utility costs (removal, relocation, coorindation, new services, etc) anticipated. Sidewalk can meander around existing utility poles / guy wires.

STATE OF NORTH CAROLINA
COUNTY OF RUTHERFORD

INTERLOCAL AGREEMENT
SEWER OPERATIONS

THIS AGREEMENT is entered into this _____ day of _____, 2026 by and between the Town of Forest City ("Forest City"), and the Town of Ellenboro ("Ellenboro");

WITNESSSETH:

THAT WHEREAS, the parties hereto are municipalities located within Rutherford County, North Carolina; and

WHEREAS, Forest City operates and maintains an established sewerage collection and treatment system (the "Forest City System") in and about its city limits which includes a wastewater treatment plant located on Riverside Drive with discharge of treated effluent to the Second Broad River. The Forest City treatment facilities operate under the provisions of an NPDES which limits are subject to change based upon state and federal regulations; and

WHEREAS, Ellenboro owns a sewer collection system (the "Ellenboro System") within and about its city limits and wastewater from this system is conveyed to the Forest City System and is connected to Forest City's System. Forest City has historically provided treatment of the sewage collected by the Town of Ellenboro; and

WHEREAS, Ellenboro has requested that Forest City continue to receive and treat sewage collected by the Ellenboro System, and for Forest City to provide staff and equipment to maintain and operate the Ellenboro sewer collection system, to which Forest City has agreed pursuant to the terms of this Agreement.

NOW, THEREFORE, in consideration of the mutual benefits herein deemed to exist, and pursuant to the provisions of Article 20, Part 1, of Chapter 160A of the North Carolina General Statutes, the parties agree as follows:

1. Ellenboro may discharge into the Forest City System treatable sewer from the Ellenboro System, not to exceed 140,000 gallons per day (140,000 gpd) based on a per day average as reflected by each month's meter reading. Total monthly discharge to the Forest City System shall not exceed 4,200,000 gallons. The Town of Forest City shall be the exclusive treater of all sewage accepted into the Ellenboro System to the extent of said limits. All sewage discharged from the Ellenboro System shall be in compliance with the limitations of the Forest City Sewer Use Ordinance, a copy of which is attached hereto, as it may be changed from time to time within the sole discretion of the Town of Forest City. As a part of this Agreement, Ellenboro shall put in place a similar sewer use ordinance for those customers connected to the Ellenboro System. Ellenboro shall comply with all provisions of the Forest City Sewer Use Ordinance. Forest City may from time to time change or modify the subject Sewer Use Ordinance.

2. Forest City shall have the right to terminate this Agreement upon 120 days advance written notice to Ellenboro if Ellenboro should fail to maintain and keep in force a sewer use ordinance identical to, or more restrictive than, the Forest City Sewer Use Ordinance as amended. Ellenboro hereby acknowledges the receipt of a copy of the current Forest City Sewer Use Ordinance in effect in Forest City, and Forest City shall provide Ellenboro with a copy of all amendments or changes thereto, as they may from time to time be made.

3. Ellenboro shall cooperate and participate with Forest City in the implementation and enforcement of the Forest City Sewer Use Ordinance of the respective connections applicable to the Ellenboro System. Ellenboro and Forest City shall jointly authorize connections to the Ellenboro System. Ellenboro hereby designates the Town of Forest City as *its* agent for the Ellenboro System for the purpose of determining and approving connections and for the enforcement of and monitoring thereof the Forest City Sewer Use Ordinance. Any and all assessment and other charges assessed as the result of a violation of the Forest City Sewer Use Ordinance or any permits issues pursuant thereto shall belong to Forest City, except those assessments and other charges that may be assessed as the direct result of damage to the Ellenboro System for which Forest City is not responsible for repairing or maintaining.

4. Forest City will continue to operate, maintain, and repair the Ellenboro System consistent with the operation, maintenance, and repair of the Forest City System and in compliance with the provisions of applicable laws and regulations. Ellenboro shall make all billings to customers for the use of the Ellenboro System and shall be responsible for the collection of such billings.

5. Forest City does not assume any cost liability for the expansion of the Ellenboro System except those contemplated by this Agreement nor for any changes to the Ellenboro System required as the result of mandatory regulatory changes, and further does not assume any cost or liability for the operation, maintenance or repair of any such expansions or changes, unless expressly approved by Forest City before commencement of any construction.

6. Taps to the Ellenboro System shall be made by the customer and Forest City shall receive from the customer such tap fees as it charges for taps to other similarly situated customers, at such amount as may change from time to time at the sole discretion of Forest City.

7. Ellenboro shall pay Forest City on a monthly basis an amount based on the standard Forest City out of town rates that would be applicable to each customer having access to the Ellenboro System as if they were on the Forest City System. The aggregate monthly bill shall be the total of all such individual sewer customer charges, including minimum charges for those having access to the Ellenboro System but not using the System and for those not exceeding the minimum use charges. The total monthly charge, however, shall not be less

than the total minimum charges for residential households plus business customers. Forest City in its sole discretion may change the rates from time to time throughout the term of this Agreement, however, the rates charged shall be consistent with those charges applicable to similarly situated customers of the Forest City System located outside the city limits. Ellenboro shall provide to Forest City, the name and location of each customer on the Ellenboro System as they change from time to time and such other information concerning the Ellenboro System as may be reasonably requested by Forest City.

8. Forest City will operate, maintain, and repair the Ellenboro System consistent with the operation, maintenance, and repair of the Forest City System and in compliance with the provisions of applicable laws and regulations. Provided, however, that the parties will equally share responsibility for the cost of repairs to the Ellenboro System when the cost of such repairs does not exceed $10,000.00. Ellenboro shall be responsible for all of the repair costs which is greater than $10,000.00. Prior to commencing work on any necessary repair, an estimate for the cost of said repair shall be obtained to determine the cost responsibility for the respective parties. In no event shall Forest City's obligation to repair the Ellenboro System exceed $5,000.00 per incident of repair even if the actual cost of repair exceeds the original estimate. Furthermore Forest City shall not be responsible for the cost of utilities for the operation of the Ellenboro sewer lift stations or other facilities requiring such electrical service.

9. This Agreement shall extend for a term of twenty (20) years from the date of this Agreement. Either party may terminate this Agreement with at least 120 days advanced written notice.

10. The parties hereto acknowledge that environmental and other applicable laws pertaining to the acceptance, treatment, and discharge of sewage are ever changing and becoming more restrictive. The parties, therefore, agree to use their best efforts to fairly and equitably modify, amend, or change the terms and conditions of this Agreement from time to time as applicable laws or requirements change, and unforeseen circumstances occur, in order to perpetuate this Agreement within the term herein set out and to maintain appropriate fiscal responsibility and good environmental practices.

11. In the event that Ellenboro ceases to obtain 100% of its potable water needs from Forest City then Forest City shall have the right to terminate this Agreement upon 30 days written notice.

TOWN OF FOREST CITY SIGNATURE PAGE FOR
INTERLOCAL AGREEMENT SEWER OPERATIONS

IN WITNESS WHEREOF, the Town of Forest City has executed or caused to be executed this Agreement by their duly authorized officials as of the date first above written.

Town of Forest City,

a North Carolina Municipal Corporation

ATTEST: By: _____
Steve Holland, Town Mayor

_____
Emily Sain, Town Clerk

This document has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Roxanne Stiles, Finance Officer for the
Town of Forest City

Approved as to form on the behalf of the Town of Forest City.

_____
Elizabeth T. Miller, Attorney for the
Town of Forest City

STATE OF NORTH CAROLINA

COUNTY OF RUTHERFORD

I, Patricia D. Tuttle, a Notary Public of the County of Rutherford and State of North Carolina, certify that Emily Sain personally came before me this day and acknowledged that she is the Town Clerk of the Town of Forest City, a North Carolina municipal corporation, and that by authority duly given and as the act of the Town Council of the Town of Forest City, the foregoing instrument was signed in its name and by Steve Holland, its Mayor, and attested by her as its Town Clerk.

Witness my hand and seal this ____ day of _____, 2026.

_____
Notary Public

My Commission Expires: 8/10/2030

TOWN OF ELLENBORO SIGNATURE PAGE FOR
INTERLOCAL AGREEMENT SEWER OPERATIONS

IN WITNESS WHEREOF, the Town of Ellenboro has executed this Agreement or caused to be executed by their duly authorized officials as of the date first above written.

Town of Ellenboro,
a North Carolina Municipal Corporation

ATTEST: By: _____
Elizabeth Blanton, Town Mayor

_____
Makayla Dunkle, Town Clerk

This document has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Makayla Dunkle, Finance Officer for the
Town of Ellenboro

Approved as to form on the behalf of the Town of Ellenboro.

_____
_____, Attorney for the
Town of Ellenboro

STATE OF NORTH CAROLINA

COUNTY OF RUTHERFORD

I, _____, a Notary Public of the County of Rutherford and State of North Carolina, certify that Makayla Dunkle personally came before me this day and acknowledged that she is the Town Clerk of the Town of Ellenboro, a North Carolina municipal corporation, and that by authority duly given and as the act of the Town Council of the Town of Ellenboro, the foregoing instrument was signed in its name and by Elizabeth Blanton, its Mayor, and attested by her as its Town Clerk.

Witness my hand and seal this ____ day of _____, 2026.

_____
Notary Public

My Commission Expires: _____

STATE OF NORTH CAROLINA
COUNTY OF RUTHERFORD

INTERLOCAL AGREEMENT
SEWER OPERATIONS

———THIS AGREEMENT is entered into this _____ day of _____, 2026 by and between the Town of Forest City ("Forest City"), and the Town of Ellenboro ("Ellenboro");

WITNESSSETH:

———THAT WHEREAS, the parties hereto are municipalities located within Rutherford County, North Carolina; and

———WHEREAS, Forest City operates and maintains an established sewerage collection and treatment system (the "Forest City System") in and about its city limits which includes a wastewater treatment plant located on Riverside Drive with discharge of treated effluent to the Second Broad River. The Forest City treatment facilities operates under the provisions of an NPDES which limits are subject to change based upon sState and fFederal regulations; and

———WHEREAS, Ellenboro owns a sewer collection system (the "Ellenboro System") within and about its city limits and wastewater from this system is conveyed to the Forest City sSystem and is connected to Forest City's Ssystem. Forest City has historically provided treatment of the sewage collected by the Town of Ellenboro; and

———WHEREAS, Ellenboro has requested that Forest City continue to receive and treat sewage collected by the Ellenboro System, and for Forest City to provide staff and equipment to maintain and operate the Ellenboro sewer collection system, to which Forest City has agreed pursuant to the terms of this Aagreement.

———NOW, THEREFORE, in consideration of the mutual benefits herein deemed to exist, and pursuant to the provisions of Article 20, Part 1, of Chapter 160A of the North Carolina General Statutes, the parties agree as follows:

1. Ellenboro may discharge into the Forest City sewer systemSystem treatable sewer from the Ellenboro sewer sSystem, not to exceed 140,000 gallon per day (140,000 gpd) based on a per day average as reflected by each month's meter reading. Total monthly discharge to the Forest City Ssystem shall not exceed 4,200,000 gallons. The Town of Forest City shall be the exclusive treater of all sewage accepted into the Ellenboro System to the extent of said limits. All sewage discharged from the Ellenboro System shall be in compliance with the limitations of the Forest City Sewer Use Ordinance, a copy of which is attached hereto, as it may be changed from time to time within the sole discretion of the Town of Forest City. As a part of this Aagreement, Ellenboro shall put in place a similar sSewer Uuse Oordinance for those customers connected to the Ellenboro Ssystem. Ellenboro shall comply with all provisions of

the Forest City ~~s~~Sewer ~~u~~Use ~~o~~Ordinance. Forest City may from time to time change or modify the subject Sewer Use Ordinance.

2. Forest City shall have the right to terminate this ~~a~~Agreement upon 120 days advance written notice to Ellenboro if Ellenboro should fail to maintain and keep in force a~~n~~ sewer use ordinance identical to, or more restrictive than, the ~~sewer use ordinance in effect in~~ Forest City Sewer Use Ordinance as amended. Ellenboro hereby acknowledges the receipt of a copy of the current Forest City ~~s~~Sewer ~~u~~Use ~~o~~Ordinance in effect in Forest City, and Forest City shall provide Ellenboro with a copy of all amendments or changes thereto, as they may from time to time be made.

3. Ellenboro shall cooperate and participate with Forest City in the implementation and enforcement of the Forest City ~~s~~Sewer ~~u~~Use ~~o~~Ordinance of the respective connections applicable to the Ellenboro System. Ellenboro and Forest City shall jointly authorize connections to the Ellenboro System. Ellenboro hereby designates the Town of Forest City as *its* agent for the Ellenboro ~~sewer collection s~~System for the purpose of determining and approving connections and for the enforcement of and monitoring thereof the Forest City S~~s~~ewer ~~u~~Use ~~o~~Ordinance. Any and all assessment and other charges assessed as the result of ~~the~~ a violation of the Forest City ~~s~~Sewer ~~u~~Use ~~o~~Ordinance or any permits issues pursuant thereto shall belong to Forest City, except those assessments and other charges that may be assessed as the direct result of damage to the Ellenboro System for which Forest City is not responsible for repairing or maintaining.

4. Forest City will continue to operate, maintain, and repair the Ellenboro System consistent with the operation, maintenance, and repair of ~~its own~~the Forest City System and ~~within~~ in compliance with the provisions of applicable laws and regulations. Ellenboro shall make all billings to customers for the use of ~~its Sewer~~the Ellenboro System and shall be responsible for the collection of such billings.

5. Forest City does not assume any cost liability for the expansion of the Ellenboro System ~~from that~~except those contemplated by this ~~a~~Agreement nor for any changes to the Ellenboro System required as the result of mandatory regulatory changes, and further does not assume any cost or liability for the operation, maintenance or repair of any such expansions or changes, unless expressly approved by Forest City before ~~being constructed~~ commencement of any construction.

6. Taps to the Ellenboro System shall be made by the customer and Forest City shall receive from the customer such tap fees as it charges for taps to other similarly situated customers, at such amount as may change from time to time at the sole discretion of Forest City.

7. Ellenboro shall pay Forest City on a monthly basis an amount based on the standard Forest City out of town rates that would be applicable to each customer having access to the Ellenboro System as if they were on the Forest City System. The aggregate monthly bill shall be the total of all ~~each~~ such individual sewer customer charges, including minimum charges for those having access to the Ellenboro System but not using the ~~s~~System and for those not exceeding the minimum use charges. The total monthly charge, however, shall not be less than the total minimum charges for residential households plus business customers. Forest City in its sole discretion may change the rates from time to time throughout the term of this ~~a~~Agreement, however, the rates charged shall be consistent with those charges applicable to similarly situated customers of the Forest City System located outside the city limits. Ellenboro shall provide, to Forest City, the name and location of each customer on the Ellenboro System as they change from time to time and such other information concerning the Ellenboro System as may be reasonably requested by Forest City.

8. Forest City will operate, maintain, and repair the Ellenboro System consistent with the operation, maintenance, and repair of ~~its own~~the Forest City System and ~~within~~ in compliance with the provisions of applicable laws and regulations. Provided, however, that the parties will equally share responsibility for the cost of repairs to the Ellenboro System when the cost of such repairs does not exceed $105,000.00~~. Any repair cost which exceeds this cost shall be the responsibility of Ellenboro~~. Ellenboro shall be responsible for all of the repair costs which is greater than $10,000.00. Prior to commencing work on any necessary repair, an estimate for the cost of said repair shall be obtained to determine the cost responsibility for the respective parties. In no event shall Forest City's obligation to repair the Ellenboro System exceed $5,000.00 per incident of repair even if the actual cost of repair exceeds the original estimate. Furthermore Forest City shall not be responsible for the cost of utilities for the operation of the Ellenboro sewer lift stations or other facilities requiring ~~an~~such electrical service.

9. This A~~a~~greement shall extend for a term of twenty (20) years from the date of this ~~a~~Agreement. Either party may terminate this Agreement ~~Forest City shall provide Ellenboro~~ with at least 120 days advanced written notice ~~prior to termination of this agreement~~.

10. The parties hereto acknowledge that environmental and other applicable laws pertaining to the acceptance, treatment, and discharge of sewage are ever changing and becoming more restrictive. The parties, therefore, agree to use their best efforts to fairly and equitably modify, amend, or change the terms and conditions of this ~~a~~Agreement from time to time as applicable laws or requirements change, and unforeseen circumstances occur, in order to

perpetuate this ~~a~~Agreement within the term herein set out and to maintain appropriate fiscal responsibility and good environmental practices.

~~9.~~

~~10.~~ In the event that Ellenboro ceases to obtain 100% of its potable water needs from Forest City then Forest City ~~at its option may~~shall have the right to terminate this ~~a~~Agreement upon 30 days written notice. ~~at any time should and in the event that Ellenboro ceases to obtain 100% of its potable water needs from Forest City.~~

TOWN OF FOREST CITY SIGNATURE PAGE FOR
INTERLOCAL AGREEMENT SEWER OPERATIONS

IN WITNESS WHEREOF, the Town of Forest City has executed or caused to be executed this Agreement by their duly authorized officials as of the date first above written.

~~IN WITNESS WHEREOF, the parties, after being duly authorized by their elected body, have signed and sealed this agreement to be effective the day and year first above written.~~

Town of Forest City,
a North Carolina Municipal Corporation

ATTEST: By: _____
Steve Holland, Town Mayor
Emily Sain, Town Clerk

~~TOWN OF FOREST CITY~~ ~~TOWN OF ELLENBORO~~

~~By: _____~~ ~~By: _____~~
~~Mayor~~ ~~Mayor~~

~~Attest: _____~~ ~~Attest: _____~~
~~City Clerk~~ ~~City Clerk~~

~~(Seal)~~ ~~(Seal)~~

This document has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Roxanne Stiles, Finance Officer for the
Town of Forest City

Approved as to form on the behalf of the Town of Forest City.

_____
Elizabeth T. Miller, Attorney for the
Town of Forest City

STATE OF NORTH CAROLINA

COUNTY OF RUTHERFORD

I, Patricia D. Tuttle, a Notary Public of the County of Rutherford and State of North Carolina, certify that Emily Sain personally came before me this day and acknowledged that she is the Town Clerk of the Town of Forest City, a North Carolina municipal corporation, and that by authority duly given and as the act of the Town Council of the Town of Forest City, the foregoing instrument was signed in its name and by Steve Holland, its Mayor, and attested by her as its Town Clerk.

Witness my hand and seal this ____ day of _____, 2026.

_____
Notary Public

My Commission Expires: 8/10/2030

TOWN OF ELLENBORO SIGNATURE PAGE FOR
INTERLOCAL AGREEMENT SEWER OPERATIONS

IN WITNESS WHEREOF, the Town of Ellenboro has executed this Agreement or caused to be executed by their duly authorized officials as of the date first above written.

Town of Ellenboro,
a North Carolina Municipal Corporation

ATTEST: By: _____
Elizabeth Blanton, Town Mayor
Makayla Dunkle, Town Clerk

This document has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Makayla Dunkle, Finance Officer for the
Town of Ellenboro

Approved as to form on the behalf of the Town of Ellenboro.

_____
_____, Attorney for the
Town of Ellenboro

STATE OF NORTH CAROLINA

COUNTY OF RUTHERFORD

I, _____, a Notary Public of the County of Rutherford and State of North Carolina, certify that Makayla Dunkle personally came before me this day and acknowledged that she is the Town Clerk of the Town of Ellenboro, a North Carolina municipal corporation, and that by authority duly given and as the act of the Town Council of the Town of Ellenboro, the foregoing instrument was signed in its name and by Elizabeth Blanton, its Mayor, and attested by her as its Town Clerk.

Witness my hand and seal this ____ day of _____, 2026.

_____
_____Notary Public

My Commission Expires: _____

TOWN OF FOREST CITY
Budget Amendment Ordinance
Fiscal Year 2025-2026

BE IT ORDAINED by the Board of Commissioners of the Town of Forest City:

That the following amendments to the budget for FY 2025 –2026 are hereby approved according to the following schedule:

Budget Amendments
June 1, 2026

	Expense	Revenue
GENERAL FUND		
Police Department - Salaries and Fringe Benefits	$ 7,500	
Fund Balance		$ 7,500
To appropriate funds for the catch up contributions to pension during military leave.		
Sanitation - waste collection contract expense	$ 30,000	
Sanitation - waste collection revenue		$ 30,000
To appropriate additional revenue and expenditures to cover the final invoice for FY26.		
WATER & SEWER FUND		
Wastewater Treatment Plant - Salaries and Fringe Benefits	$ 10,000	
Fund Balance		$ 10,000
To appropriate funds for the unexpected payout of vacation hours for an employee.		

Mayor

ATTEST:

City Clerk