PLANNING AND ZONING BOARD MEETING

CITY OF LAKE CITY

May 14, 2024 at 5:30 PM
Venue: City Hall

AGENDA

The meeting will be held in the City Council Chambers on the second floor of City Hall located at 205 North Marion Avenue, Lake City, FL 32055. Members of the public may also view the meeting on our YouTube channel. YouTube channel information is located at the end of this agenda.

INVOCATION

ROLL CALL

MINUTES

i. Meeting Minutes 04-09-2024

EX PARTE COMMUNICATION

OLD BUSINESS- None

NEW BUSINESS

ii. **SPR24-05**, Petition submitted by Randall Olney, P.E.. (agent) for Concept Companies (owner), for a Site Plan Review for Dollar General, in the Commercial Intensive Zoning District, and located on parcel 08127-005, which is regulated by the Land Development Regulations section 4.13.

iii. **LDR 24-04;** Text amendment to the Land Development Regulations Sections 2.1, 4.2, 4.4, 4.5, and 4.6, more specifically adding definitions and provisions for Accessory Dwelling Units (ADU's) and Tiny Homes for the City of Lake City.

WORKSHOP- None

ADJOURNMENT

YouTube Channel Information

Members of the public may also view the meeting on our YouTube channel at:
https://youtube.com/c/CityofLakeCity

Pursuant to 286.0105, Florida Statutes, the City hereby advises the public if a person decides to appeal any decision made by the City Council with respect to any matter considered at its meeting or hearings, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

Pursuant to 286.26, Florida Statutes, persons needing special accommodations to participate in this meeting should contact the City Manager's Office at (386) 719-5768.

File Attachments for Item:

i. Meeting Minutes 04-09-2024

PLANNING AND ZONING

MEETING MINUTES

DATE: 04/09/2024

ROLL CALL:

Mrs. McKellum- Present Mr. McMahon- Present Mr. Nelson- Present
Mr. Lydick- Present City Attorney- Clay Martin- Present

MINUTES: March 5, 2024 Planning and Zoning Meeting.
Comments or Revisions: None
Motion to approve 03/05/2024 Meeting Minutes by Mr. Nelson and seconded by Mrs. McKellum.

Ex Parte Communications

Mr. Martin polled the Board if they had any ex parte communications for petitions SPR 24-04, CPA 24-01, and Z 24-01
Mrs. McKellum- No, Mr. McMahon- No, Mr. Nelson- No, and Mr. Lydick- Only the regular exercise of his duties on briefing of the agenda. Mr. Martin asked if it would those conversations affect your ability to render a fair decision.

OLD BUSINESS: None
Petition # LDR 24-03 **Presented By:** Dave Young, CBO
As owner or agent and gives address of:
Petitioner is Sworn in by: Clay Martin, City Attorney

Motion to un-table petition LDR 24-03 by; Mr. McMahon and seconded by Mr. Nelson.
Approved by hand vote unanimously.

Discussion:

Mr. Young introduced text amendment. He stated that this text amendment is bringing up to date the parking requirements to other communities our size. Mr. Lydick asked if there were any major changes other than, adding section 4.2.15.17. Mr. Young stated no.

Mr. Martin asked about the strike thru's and the addition of where is states see section 4.2.15 is different then the ordinance that is prepared for council. Mr. Martin asked which one do we want to be recommended by the board to go to Council? Mr. Lydick and Mr. Martin discussed briefly. Robert stated that we could go with how the ordinance is prepared. Mr. Martin stated that the would change the verbiage to subsection instead of paragraph and leave the numbering as is.

Public Comment:

Carol Chadwick stated that per the Boards request, she believes that the City did a great job. Mr. Lydick asked if she seen anything that look like it may be a problem. She stated that until you start applying it you will not know.

Motion to close public comment by: Mr. Nelson **Seconded by:** Mr. McKellum

Board Discussion:

Mr. Lydick asked if any of the other departments weighed in on the amendment. Robert stated that the other departments were aware of them but they did not weigh in. Robert stated that they City did send the text amendment out to over 700 businesses in the City. He stated that we only go a handful of comments back, all in support of it. Mr. McMahon asked if this would go on to the City Council once approved.
Motion to approve petition LDR 24-03, with the amendments suggested by council by: Mr. McMahon
Motion Seconded By: Mr. Nelson

Mrs. McKellum: Aye **Mr. Nelson:** Aye **Mr. McMahon**: Aye
Mr. Lydick: Aye

NEW BUSINESS:

Petition # SPR24-03 **Presented By:** Brandon Stubbs
As owner or agent and gives address of: 1450 SW SR 47, Lake City, FL
Petitioner is Sworn in by: Mr. Lydick
Staff is Sworn in by: Mr. Martin

Discussion:

Mr. Young introduced petition SPR 24-04. He stated that proposed use of the land is for multi-family and is conducive for use per the Land Development Regulations 4.9.2.3. He stated that after review of the site plan that it is consistent with the Land Development Regulations.

Mr. Kurtz the land is currently vacant. He stated that they plan to put one to three bed room town homes. He stated SRWMD has reviewed the project along with the City and they have no concerns. He stated that FDOT said they need a drainage permit. He stated that they will work on that with FDOT.

Mr. McMahon asked about how many units. Mr. Kurtz stated that they want to put in 192 units. Mr. Lydick asked about the size of the large retention pond. Mr. Kurtz stated that due to the slope of the land they had to do two ponds stair stepped to accommodate for the amount of water.

Mr. Martin asked Mr. Young if he was going to move the staff records into evidence. Mr. Young stated yes.

Exhibits introduced: None

Public Comment:

Loretta Nicholas asked about how this is going to affect them as far as traffic, sewer, and water. Mr. Kurtz stated that as far as water and sewer, this will not impact the citizens. He stated as far as traffic they will use Hall of Fame and will not enter Aster Way.

Motion to close public comment by: Mr. Nelson **Seconded by:** Mrs. McKellum

Board Discussion:

No comments.

Motion to approve SPR24-04 as submitted by: Mr. McMahon **Motion Seconded By:** Mr. Nelson

Mrs. McKellum: Aye **Mr. Nelson:** Aye **Mr. McMahon**: Aye
Mr. Lydick: Aye

Petition # CPA 24-01 **Presented By:** Carol Chadwick
As owner or agent and gives address of: 1208 SW Fairfax Glen
Petitioner is Sworn in by: Mr. Lydick
Staff is Sworn in by: Mr. Martin

Discussion:

Mr. Young introduced petition CPA 24-01. He stated that the City staff has determined the petition is consistent with the Land Development Regulations. He stated that he is introducing the staff records into the record.

Carol stated that they are planning to change the Future Land Use and Zoning to allow for a second phase of Sugarmill Apartments. She stated that the site will be accessed from the existing site. She stated they are planning on 46 dwelling units. Mr. Lydick asked if the property ever had a City zoning. She stated that it has not. Mr. Martin asked if she was going to introduce her application into the record.

Public Comment:

David Kraft stated that he owns the property next to it. He stated that there is water all in his yard and would like them to address this in the future review. Mr. Lydick asked Robert if this was going to be in front of the board. Robert stated yes.

Exhibits introduced: None

Motion to close public comment by: Mrs. McKellum **Seconded by:** Mr. Nelson

Board Discussion: None

Motion to approve CPA24-01 as submitted by: Mr. McMahon **Motion Seconded By:** Mr. Nelson

Mrs. McKellum: Aye **Mr. Nelson:** Aye **Mr. McMahon**: Aye
Mr. Lydick: Aye

Petition # Z 24-01 **Presented By:** Carol Chadwick
As owner or agent and gives address of: 1208 SW Fairfax Glen
Petitioner is Sworn in by: Mr. Lydick
Staff is Sworn in by: Mr. Martin

Discussion:

Mr. Young introduced petition Z 24-01. He stated that the City staff has determined the petition is consistent with the Land Development Regulations. He stated that he is introducing the staff records into the record.

Carol stated that project is the rezoning for the previous project. She stated that she is introducing her application into the record.

Public Comment: None

Exhibits introduced: None

Motion to close public comment by: Mr. Nelson **Seconded by:** Mr. Nelson

Board Discussion: None

Motion to approve Z24-01 as submitted by: Mr. Nelson **Motion Seconded By:** Mr. McMahon

Mrs. McKellum: Aye **Mr. Nelson:** Aye **Mr. McMahon**: Aye
Mr. Lydick: Aye

WORKSHOP: None

ADJOURNMENT

Mr. Lydick closed the meeting.

Motion to Adjourn by: Mr. McMahon
Time: 6:11 pm
Motion Seconded By: Mr. Nelson

Mr. Lydick, Board Chairperson **Date Approved**

Robert Angelo, Secretary **Date Approved**

PLANNING AND ZONING

MEETING MINUTES

File Attachments for Item:

ii. SPR24-05, Petition submitted by Randall Olney, P.E.. (agent) for Concept Companies (owner), for a Site Plan Review for Dollar General, in the Commercial Intensive Zoning District, and located on parcel 08127-005, which is regulated by the Land Development Regulations section 4.13.

CITY OF LAKE CITY

GROWTH MANAGEMENT
205 North Marion Ave.
Lake City, FL 32055
Telephone: (386)719-5750
E-Mail:
growthmanagement@lcfla.com

FOR PLANNING USE ONLY
Application # SPR 24-05
Application Fee: **$200.00**
Receipt No. 2024-00042147
Filing Date 3/21/24
Completeness Date ______

Site Plan Application

A. PROJECT INFORMATION

1. Project Name: Commercial Retail Store - Marvin Burnett
2. Address of Subject Property: Northwest of the intersection of SR 47 and SW Marvin Burnett Road, Lake City, Florida 32025
3. Parcel ID Number(s): 07-4S-17-08127-005
4. Future Land Use Map Designation: Commerical
5. Zoning Designation: Commercial, Intensive
6. Acreage: 2.70
7. Existing Use of Property: Vacant
8. Proposed use of Property: Commercial Retail Store
9. Type of Development (Check All That Apply):

( ) Increase of floor area to an existing structure: Total increase of square footage ______
(X) New construction: Total square footage 10,640
( ) Relocation of an existing structure: Total square footage ______

B. APPLICANT INFORMATION

1. Applicant Status ☐ Owner (title holder) ■ Agent
2. Name of Applicant(s): Randall Olney, P.E. Title: Director of Engineering

Company name (if applicable): CHW
Mailing Address: 11801 Research Drive
City: Alachua State: Florida Zip: 32615
Telephone: (352) 331-1976 Fax:(____) ______ Email: randyo@chw-inc.com

PLEASE NOTE: Florida has a very broad public records law. Most written communications to or from government officials regarding government business is subject to public records requests. Your e-mail address and communications may be subject to public disclosure.

3. If the applicant is agent for the property owner*.

Property Owner Name (title holder): Concept Companies
Mailing Address: 1449 SW 74th Dr. Suite 200
City: Gainesville State: Florida Zip: 32607
Telephone: (352) 333-3233 Fax:(____) ______ Email: ______

PLEASE NOTE: Florida has a very broad public records law. Most written communications to or from government officials regarding government business is subject to public records requests. Your e-mail address and communications may be subject to public disclosure.

***Must provide an executed Property Owner Affidavit Form authorizing the agent to act on behalf of the property owner.**

C. ADDITIONAL INFORMATION

1. Is there any additional contract for the sale of, or options to purchase, the subject property?
   If yes, list the names of all parties involved: St. Johns, LLC, Concept Development, Inc.
   If yes, is the contract/option contingent or absolute: ☒ Contingent ☐Absolute
2. Has a previous application been made on all or part of the subject property? ☐Yes ☒No
   Future Land Use Map Amendment: ☐Yes ☒No
   Future Land Use Map Amendment Application No.
   Site Specific Amendment to the Official Zoning Atlas (Rezoning): ☐Yes ☒No
   Site Specific Amendment to the Official Zoning Atlas (Rezoning) Application No.
   Variance: ☐Yes ☒No
   Variance Application No.
   Special Exception: ☐Yes ☒No
   Special Exception Application No.

D. ATTACHMENT/SUBMITTAL REQUIREMENTS

1. Vicinity Map – Indicating general location of the site, abutting streets, existing utilities, complete legal description of the property in question, and adjacent land use.

2. Site Plan – Including, but not limited to the following:
   a. Name, location, owner, and designer of the proposed development.
   b. Present zoning for subject site.
   c. Location of the site in relation to surrounding properties, including the means of ingress and egress to such properties and any screening or buffers on such properties.
   d. Date, north arrow, and graphic scale not less than one inch equal to 50 feet.
   e. Area and dimensions of site (Survey).
   f. Location of all property lines, existing right-of-way approaches, sidewalks, curbs, and gutters.
   g. Access to utilities and points of utility hook-up.
   h. Location and dimensions of all existing and proposed parking areas and loading areas.
   i. Location, size, and design of proposed landscaped areas (including existing trees and required landscaped buffer areas).
   j. Location and size of any lakes, ponds, canals, or other waters and waterways.
   k. Structures and major features fully dimensioned including setbacks, distances between structures, floor area, width of driveways, parking spaces, property or lot lines, and percent of property covered by structures.
   l. Location of trash receptacles.
   m. For multiple-family, hotel, motel, and mobile home park site plans:
      i. Tabulation of gross acreage.
      ii. Tabulation of density.
      iii. Number of dwelling units proposed.
      iv. Location and percent of total open space and recreation areas.
      v. Percent of lot covered by buildings.

    vi. Floor area of dwelling units.
    vii. Number of proposed parking spaces.
    viii. Street layout.
    ix. Layout of mobile home stands (for mobile home parks only).

3. Stormwater Management Plan—Including the following:
    a. Existing contours at one foot intervals based on U.S. Coast and Geodetic Datum.
    b. Proposed finished elevation of each building site and first floor level.
    c. Existing and proposed stormwater management facilities with size and grades.
    d. Proposed orderly disposal of surface water runoff.
    e. Centerline elevations along adjacent streets.
    f. Water management district surface water management permit.

4. Fire Department Access and Water Supply Plan: The Fire Department Access and Water Supply Plan must demonstrate compliance with Chapter 18 of the Florida Fire Prevention Code, be located on a separate signed and sealed plan sheet, and must be prepared by a professional fire engineer licensed in the State of Florida. The Fire Department Access and Water Supply Plan must contain fire flow calculations in accordance with the Guide for Determination of Required Fire Flow, latest edition, as published by the Insurance Service Office ("ISO") and/or Chapter 18, Section 18.4 of the Florida Fire Prevention Code, whichever is greater.

5. Concurrency Impact Analysis: Concurrency Impact Analysis of impacts to public facilities. For commercial and industrial developments, an analysis of the impacts to Transportation, Potable Water, Sanitary Sewer, and Solid Waste impacts are required.

6. Comprehensive Plan Consistency Analysis: An analysis of the application's consistency with the Comprehensive Plan (analysis must identify specific Goals, Objectives, and Policies of the Comprehensive Plan and detail how the application complies with said Goals, Objectives, and Policies).

7. Legal Description with Tax Parcel Number (In Word Format).

8. Proof of Ownership (i.e. deed).

9. Agent Authorization Form (signed and notarized).

10. Proof of Payment of Taxes (can be obtained online via the Columbia County Tax Collector's Office).

11. Fee. The application fee for a Site and Development Plan Application is $200.00. No application shall be accepted or processed until the required application fee has been paid.

NOTICE TO APPLICANT

All eleven (11) attachments are required for a complete application. Once an application is submitted and paid for, a completeness review will be done to ensure all the requirements for a complete application have been met. If there are any deficiencies, the applicant will be notified in writing. If an application is deemed to be incomplete, it may cause a delay in the scheduling of the application before the Planning & Zoning Board.

A total of ten (10) copies of proposed site plan application and all support materials must be submitted along with a PDF copy on a CD. See City of Lake City submittal guidelines for additional submittal requirements.

THE APPLICANT ACKNOWLEDGES THAT THE APPLICANT OR AGENT MUST BE PRESENT AT THE PUBLIC HEARING BEFORETHE PLANNING AND ZONING BOARD, AS ADOPTED IN THE BOARD RULES AND PROCEDURES, OTHERWISE THE REQUEST MAY BE CONTINUED TO A FUTURE HEARING DATE.

I hereby certify that all of the above statements and statements contained in any documents or plans submitted herewith are true and accurate to the best of my knowledge and belief.

Randall Olney, P.E.

Applicant/Agent Name (Type or Print)

Applicant/Agent Signature

3/21/24
Date

Applicant/Agent Name (Type or Print)

Applicant/Agent Signature

Date

STATE OF FLORIDA
COUNTY OF Alachua

The foregoing instrument was acknowledged before me this 21st day of 3, 2024, by (name of person acknowledging).

TRINA LEMNAH
Notary Public - State of Florida
Commission # HH 368686
My Comm. Expires Mar 21, 2027
Bonded through National Notary Assn.

(NOTARY SEAL or STAMP)

Signature of Notary

Trina Lemnah
Printed Name of Notary

Personally Known ✓ OR Produced Identification ________
Type of Identification Produced

March 21, 2024

Robert Angelo
Lake City Growth Management

RE: CRS Lake City Marvin Burnett

Dear Robert:

Please find attached the following items for review:

- Check #0018976 in the amount of $200.00
- Site Plan Application
- Property Appraiser Information
- Agent Authorization Form
- Deed
- Legal Description
- Property Owner Affidavit
- Proof of Tax Payment
- Traffic Study
- Geotechnical Study
- Comprehensive Plan Analysis
- Concurrency Analysis
- Meter Calculations
- Fire Flow Memo
- Lift Station Report
- Stormwater Report
- Signed and Sealed Plans

The ±2.72 acre site is located on SR 47 and SW Marvin Burnett Road in Lake City, Florida on a portion of tax parcel number 07-4S-17-08127-005. The site is currently undeveloped and heavily wooded. The development intent is to construct a ±10,640 s.f. commercial retail store on the parcel with the associated parking, stormwater management, and utility connections. Utility connections consist of a gravity sewer lateral to a private onsite lift station and connection to an existing forcemain within SR 47 ROW. Water and fire protection will be provided by extending a 600' water main along the western ROW of SR 47 and crossing via directional drill under SR 47 to wet tap an existing City water main. Offsite roadway improvements consist of a sidewalk along the project frontage, driveway connection and an eastbound left turn lane to Marvin Burnett Road.

We trust you will find this submittal to be complete for review and approval. If you have any questions, or need additional information, please contact me at (352) 331-1976 or via email at randyo@chw-inc.com.

Sincerely,
CHW

Randall Olney, PE
Director of Engineering, Land Development

\\fs01.chw-inc.local\jobs2\2023\23-0653\Departments\04_Engineering\01_Regulatory Permitting\Municipalities\City\Submittals and Comments\240321\LTR 240321 CRS MB - Cover Letter.docx

Columbia County Property Appraiser

Jeff Hampton

2024 Working Values
updated: 11/23/2023

Parcel: << **07-4S-17-08127-005 (29833)** >>

Owner & Property Info

Result: 1 of 0

Owner	ST JOHNS LLC 13820 W NEWBERRY RD STE 100 NEWBERRY, FL 32669		
Site			
Description*	S1/2 OF NE1/4 OF NE1/4 W OF SR-47. 482-143, LE 1318-991, DC 1327- 1297, DC 1327-1298, WD 1330- 1324, 372-81, 804-766, 894- 679, 912-1064, 1037-1953		
Area	9.694 AC	S/T/R	07-4S-17
Use Code**	VACANT (0000)	Tax District	1

*The Description above is not to be used as the Legal Description for this parcel in any legal transaction.
**The Use Code is a FL Dept. of Revenue (DOR) code and is not maintained by the Property Appraiser's office. Please contact your city or county Planning & Zoning office for specific zoning information.

Property & Assessment Values

2023 Certified Values		2024 Working Values	
Mkt Land	$266,978	Mkt Land	$266,978
Ag Land	$0	Ag Land	$0
Building	$0	Building	$0
XFOB	$0	XFOB	$0
Just	$266,978	Just	$266,978
Class	$0	Class	$0
Appraised	$266,978	Appraised	$266,978
SOH Cap [?]	$0	SOH Cap [?]	$0
Assessed	$266,978	Assessed	$266,978
Exempt	$0	Exempt	$0
Total Taxable	county:$266,978 city:$266,978 other:$0 school:$266,978	Total Taxable	county:$266,978 city:$266,978 other:$0 school:$266,978

Aerial Viewer Pictometery Google Maps

● 2023 ○ 2022 ○ 2019 ○ 2016 ○ 2013 ☑ Sales

▼ Sales History

Sale Date	Sale Price	Book/Page	Deed	V/I	Qualification (Codes)	RCode
2/6/2017	$70,000	1330/1324	WD	I	Q	01
7/7/2016	$100	1318/0991	LE	I	U	14
4/7/1995	$727,500	0804/0766	WD	V	U	35
7/31/1990	$127	1037/1953	WD	V	U	03
7/21/1990	$127	1036/1953	WD	V	U	03

▼ Building Characteristics

Bldg Sketch	Description*	Year Blt	Base SF	Actual SF	Bldg Value
NONE					

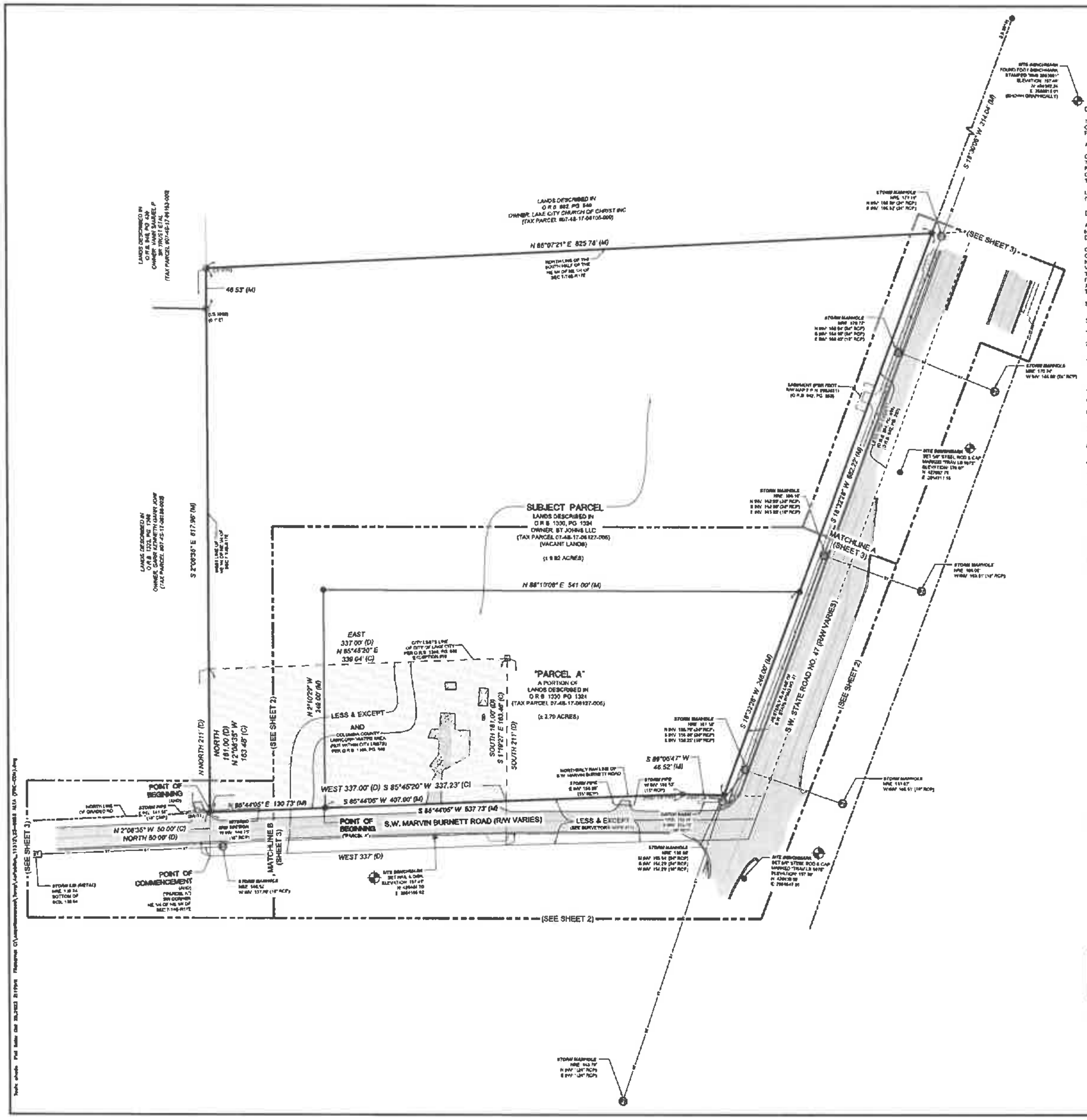
▼ Extra Features & Out Buildings (Codes)

Code	Desc	Year Blt	Value	Units	Dims
NONE					

▼ Land Breakdown

Code	Desc	Units	Adjustments	Eff Rate	Land Value
0000	VAC RES (MKT)	1.000 AC	1.0000/1.0000 1.0000/ /	$35,500 /AC	$35,500
0000	VAC RES (MKT)	8.694 AC	1.0000/1.0000 1.0000/.7500000 /	$26,625 /AC	$231,478

Search Result: 1 of 0



ALTA/NSPS LAND TITLE SURVEY

LOCATED IN THE NORTHEAST QUARTER (NE 1/4)
OF THE NORTHEAST QUARTER (NE 1/4) OF
SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST,
CITY OF LAKE CITY, COLUMBIA COUNTY, FLORIDA

DESCRIPTION: SUBJECT PARCEL (AS FURNISHED PER FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NUMBER 110078642, COMMITMENT DATE JUNE 9, 2023)

THE SOUTH 1/2 OF THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST AS LIES WEST OF SR NO. 47, LESS AND EXCEPT: BEGIN AT THE SOUTHWEST CORNER OF THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF SAID SECTION 7, AND RUN NORTH ALONG WEST LINE OF SAID NORTHEAST 1/4 OF THE NORTHEAST 1/4 211 FEET, THENCE RUN EAST 337 FEET, THENCE RUN SOUTH 211 FEET, THENCE RUN WEST 337 FEET TO THE POINT OF BEGINNING.

AND

COMMENCE AT THE SW CORNER OF THE NE 1/4 OF NE 1/4 OF SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST AND RUN NORTH ALONG WEST LINE OF NE 1/4 OF NE 1/4, 50.00 FEET MORE OR LESS TO THE NORTH RIGHT OF WAY LINE OF GRADED COUNTY ROAD FOR POINT OF BEGINNING, THENCE CONTINUE NORTH ALONG WEST LINE OF THE NE 1/4 OF NE 1/4 FOR 161.00 FEET, THENCE RUN EAST PARALLEL TO THE SOUTH LINE OF THE NE 1/4 OF NE 1/4, 337.00 FEET, THENCE RUN SOUTH PARALLEL TO THE WEST LINE OF THE NE 1/4 OF NE 1/4 FOR 161.00 FEET MORE OR LESS TO THE NORTH RIGHT OF WAY LINE OF SAID GRADED COUNTY ROAD, THENCE RUN WEST PARALLEL TO THE SOUTH LINE OF THE NE 1/4 OF NE 1/4 AND ALONG NORTH RIGHT OF WAY LINE OF SAID GRADED COUNTY ROAD 337.00 FEET MORE OR LESS TO THE POINT OF BEGINNING.

LESS ANY PORTION LYING WITHIN ORDER OF TAKING IN BOOK 884, PAGE 869, AND BOOK 942, PAGE 453
(SEE SURVEYOR'S NOTE #17)

DESCRIPTION: PARCEL "A" (PREPARED BY THIS SURVEYOR)

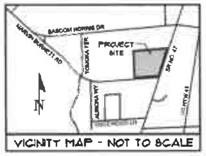
A TRACT OF LAND BEING A PORTION OF LANDS AS DESCRIBED IN OFFICIAL RECORDS BOOK 1330 PAGE 1324 OF THE PUBLIC RECORDS OF COLUMBIA COUNTY, FLORIDA, SITUATED IN THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST, COLUMBIA COUNTY, FLORIDA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHWEST CORNER OF AFOREMENTIONED NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST, COLUMBIA COUNTY, FLORIDA, THENCE NORTH 02°08'35" WEST, ALONG WEST LINE OF SAID NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER, A DISTANCE OF 50.00 FEET TO THE NORTHERLY RIGHT OF WAY LINE OF S.W. MARVIN BURNETT ROAD (RIGHT OF WAY WIDTH VARIES), THENCE DEPARTING SAID WEST LINE, NORTH 85°44'05" EAST, ALONG SAID NORTHERLY RIGHT OF WAY LINE, A DISTANCE OF 130.73 FEET TO THE POINT OF BEGINNING, THENCE NORTH 02°10'29" WEST, A DISTANCE OF 248.00 FEET, THENCE NORTH 88°10'08" EAST, A DISTANCE OF 541.00 FEET TO THE WESTERLY RIGHT OF WAY LINE OF S.W. STATE ROAD NO. 47 (RIGHT OF WAY WIDTH VARIES), THENCE SOUTH 18°32'28" WEST, ALONG SAID WESTERLY RIGHT OF WAY LINE, A DISTANCE OF 248.00 FEET, THENCE CONTINUE ALONG SAID WESTERLY RIGHT OF WAY LINE, SOUTH 86°05'47" WEST, A DISTANCE OF 46.52 FEET TO THE INTERSECTION OF SAID WESTERLY RIGHT OF WAY LINE AND AFOREMENTIONED NORTHERLY RIGHT OF WAY LINE OF S.W. MARVIN BURNETT ROAD, THENCE SOUTH 85°44'05" WEST, ALONG SAID NORTHERLY RIGHT OF WAY LINE, A DISTANCE OF 407.00 FEET TO THE POINT OF BEGINNING.

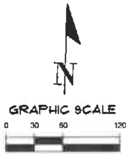
SAID TRACT OF LAND CONTAINING 2.70 ACRES, MORE OR LESS.

SURVEYOR'S NOTES:

1. COORDINATES SHOWN HEREON ARE ARE BASED ON STATE PLANE FLORIDA NORTH ZONE COORDINATES (NAD 83 (2011)) PROJECTED FROM RTK NETWORK GPS SOLUTION.
2. VERTICAL DATUM IS SHOWN IN NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) VERTICAL CONTROL MONUMENT NAMED 2903001BM3, WHICH IS A FDOT BRASS DISK STAMPED "BM3 2903001", WITH A PUBLISHED ELEVATION OF 157.48 FEET.
3. UTILITY NOTE: OBSERVED EVIDENCE OF UTILITIES HAS BEEN SHOWN PURSUANT TO SECTION 5 PARAGRAPH E (IV) OF THE ALTA/NSPS MINIMUM STANDARD DETAIL REQUIREMENTS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
4. THE SURVEYOR HAS NO KNOWLEDGE OF UNDERGROUND FOUNDATIONS WHICH MAY ENCROACH.
5. FENCING, SYMBOLS AND MONUMENTATION SHOWN HEREON MAY BE EXAGGERATED FOR PICTORIAL PURPOSES ONLY AND MAY NOT BE SHOWN TO SCALE.
6. IN THE OPINION OF THIS SURVEYOR, THE PERIMETER LINES AS SHOWN HEREON REPRESENT THE LOCATION OF THE BOUNDARY LINES OF THE SUBJECT PARCEL IN RELATION TO THE DESCRIPTION OF RECORD AND THOSE EXISTING LAND CORNERS FOUND TO BE ACCEPTABLE BY THIS SURVEYOR.
7. THIS SURVEY WAS PRODUCED WITH THE BENEFIT OF FURNISHED TITLE INFORMATION VIA FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NUMBER 110078642, COMMITMENT DATE JUNE 9, 2023. A SEARCH OF THE PUBLIC RECORDS HAS NOT BEEN PERFORMED BY THE SURVEYOR.
8. INFORMATION FROM FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) FLOOD INSURANCE RATE MAP(S) SHOWN ON THIS MAP WAS CURRENT AS OF THE REFERENCED DATE. MAP REVISIONS AND AMENDMENTS ARE PERIODICALLY MADE BY LETTER AND MAY NOT BE REFLECTED ON THE MOST CURRENT MAP.
9. THERE WERE NO MARKED PARKING SPACES OBSERVED AT THE TIME OF THIS SURVEY.
10. THERE WAS NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS BEING CONDUCTED AT THE TIME OF THIS SURVEY.
11. THERE WAS NO EVIDENCE OF CHANGES IN STREET RIGHT OF WAY LINES. THERE WAS NO OBSERVED EVIDENCE OF CURRENT STREET CONSTRUCTION OR REPAIRS. THERE WAS NO OBSERVED EVIDENCE OF CURRENT SIDEWALK CONSTRUCTION OR REPAIRS.
12. THERE IS NO OBSERVED EVIDENCE OF SITE USE AS A CEMETERY, SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
13. ONLY TREES 24" IN DIAMETER OR GREATER (MEASURED AT CHEST HEIGHT) ARE SHOWN HEREON.
14. ADDITIONAL POINTS MAY BE FOUND BY TURNING ON THE "V-NODE" LAYERS IN THE SUPPLIED DIGITAL FILE.
15. TOPOGRAPHIC INFORMATION SHOWN HEREON BASED ON GROUND SURVEY. CONTOURS SHOWN HEREON REFLECT 1-FOOT INTERVALS.
16. PROJECT LIMITS ARE PER CLIENT SPECIFICATIONS.
17. THE FURNISHED LEGAL DESCRIPTION DOES NOT LESS OUT A SECTION OF RIGHT OF WAY FOR S.W. MARVIN BURNETT ROAD AND STATE ROAD NO. 47 FROM THE SUBJECT PARCEL.
18. THIS SURVEY IS A TOTAL OF THREE (3) SHEETS. SEE SHEET ONE (1) FOR OVERALL BOUNDARY INFORMATION FOR THE SUBJECT PARCEL AND PARCEL "A". SEE SHEET TWO (2) AND THREE (3) FOR DETAILED TOPOGRAPHIC INFORMATION AND IMPROVEMENT LOCATIONS FOR PARCEL "A" AND CLIENT SPECIFIED AREAS.



VICINITY MAP - NOT TO SCALE



SCHEDULE B-2 (AS FURNISHED PER FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NUMBER 110078642, COMMITMENT DATE JUNE 9, 2023)

ITEM NO. 9: UNABLE TO DETERMINE IF THIS PROPERTY IS SUBJECT TO THE ORDINANCE NO. 87-492 AS SET FORTH IN INSTRUMENT RECORDED IN BOOK 912, PAGE 1083. (THE DESCRIPTION APPEARS TO BE IN ERROR AND DOES NOT CLOSE)

ITEM NO. 10: THIS PROPERTY IS SUBJECT TO THE ORDINANCE NO. 2016-2127 AS SET FORTH IN INSTRUMENT RECORDED IN BOOK 1396, PAGE 846. (AS SHOWN HEREON)

LEGEND:

(D) = DATA BASED ON FURNISHED DESCRIPTION
(M) = DATA BASED ON FIELD MEASUREMENTS
FEMA = FEDERAL EMERGENCY MANAGEMENT AGENCY
F.I.R.M. = FLOOD INSURANCE RATE MAP
NRE = NORTH RIM ELEVATION
INV = INVERT
CMP = CORRUGATED METAL PIPE
R/W = RIGHT OF WAY
O.R.B. = OFFICIAL RECORDS BOOK
PG = PAGE
ID = IDENTIFICATION
LAO = LAUREL OAK TREE
LO = LIVE OAK TREE
ELM = WINGED ELM TREE
PINE = PINE TREE
PEC = PECAN TREE
RO = RED OAK TREE

⊕ = BENCHMARK
○ = TREE (SIZE/TYPE NOTED)
156 = CONTOUR LINE
X 155.5 = SPOT ELEVATION (PERVIOUS)
X 155.45 = SPOT ELEVATION (IMPERVIOUS)
⊡ = FOUND 4"X4" CONCRETE MONUMENT (AS NOTED)
■ = FOUND 5/8" STEEL ROD & CAP (AS NOTED)
● = SET 5/8" STEEL ROD & CAP (LB 5075)
← = GUY ANCHOR
= SIGN (MARKED AS NOTED)
☼ = CONCRETE LIGHT POLE
⊙ = WOODEN POWER POLE
ST = STORM LID
= MAILBOX

GAS = GAS TANK
= MITERED END SECTION
Ⓓ = STORM SEWER MANHOLE
— OHW — = OVERHEAD WIRE
— SS — = SANITARY SEWER PIPE
— (W) — = WATER LINE (PER PLANS)
—X— = FENCE (4' WIRE)
▨ = ASPHALT SURFACE
☐ = CONCRETE SURFACE
☐ = ADA WARNING SURFACE
☐ = AREA OUTSIDE OF CITY LIMITS

FLOOD ZONE:

THIS PROPERTY IS LOCATED IN FEDERAL FLOOD ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS INTERPOLATED FROM FEMA F.I.R.M. PANEL NO. 282 OF 552, COMMUNITY NUMBER & PANEL NO. "12007C 0282 D AND 120408 0282 D, EFFECTIVE DATE: NOVEMBER 2, 2018"

ZONING RESTRICTIONS: (AS FURNISHED)

CI - COMMERCIAL INTENSIVE
MINIMUM SETBACK REQUIREMENTS
- FRONT: 20 FEET
- SIDE: NONE
- REAR: 15 FEET

PARKING REQUIREMENTS
- 57 SPACES (1 ADA SPACES)

SURVEYOR'S CERTIFICATION:

TO: CONCEPT DEVELOPMENT INC., A FLORIDA CORPORATION, PROVIDENCE TITLE COMPANY, LLC AND FIRST AMERICAN TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 6, 6(b), 8, 9, 11, 13, 14, 16, 17 AND 19, OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON OCTOBER 06, 2023.

Digitally signed by Chad A Colson

CHAD A. COLSON
FLORIDA SURVEYOR & MAPPER CERTIFICATE NUMBER 7142
CHADC@CHW-INC.COM

CHAD A. COLSON, PSM
License Number 7142
STATE OF FLORIDA

10/25/2023
DATE OF PLAT OR MAP

This map prepared by:

Certificate of Authorization No. L.B. 5075
NOT VALID WITHOUT THE ORIGINAL SIGNATURE AND SEAL OR ELECTRONIC DIGITAL SIGNATURE OF A FLORIDA LICENSED SURVEYOR AND MAPPER

CHAD A. COLSON
(SEE SURVEYOR'S CERTIFICATION)
Professional Surveyor & Mapper Fla. License No. 7142

TECHNICIAN: NAD	SURVEY DATE: 10-06-2023
CREW CHIEF: JM	REVISION DATE: N/A
CHECKED BY: CAC	PROJECT NUMBER: 23-0653
FIELD BOOK & PAGE: 71/67	

CERTIFIED TO: (SEE SURVEYOR'S CERTIFICATION)

SCALE: 1" = 60'
VERIFY SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING
0 — 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

CHW
Professional Consultants

11801 Research Drive
Alachua, Florida 32615
(352) 331-1976
www.chw-inc.com
FLORIDA
CA-5075

SHEET NO.: 1 OF 3

ALTA/NSPS LAND TITLE SURVEY

LOCATED IN THE NORTHEAST QUARTER (NE 1/4)
OF THE NORTHEAST QUARTER (NE 1/4) OF
SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST,
CITY OF LAKE CITY, COLUMBIA COUNTY, FLORIDA

SURVEYOR'S NOTES:

1. COORDINATES SHOWN HEREON ARE ARE BASED ON STATE PLANE FLORIDA NORTH ZONE COORDINATES (NAD 83 (2011)) PROJECTED FROM RTK NETWORK GPS SOLUTION
2. VERTICAL DATUM IS SHOWN IN NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) VERTICAL CONTROL MONUMENT NAMED 2903001BM1 WHICH IS A FDOT BRASS DISK STAMPED "BM1 2903001", WITH A PUBLISHED ELEVATION OF 157.48 FEET
3. UTILITY NOTE: OBSERVED EVIDENCE OF UTILITIES HAS BEEN SHOWN PURSUANT TO SECTION 6 PARAGRAPH E (IV) OF THE ALTA/NSPS MINIMUM STANDARD DETAIL REQUIREMENTS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES
4. THE SURVEYOR HAS NO KNOWLEDGE OF UNDERGROUND FOUNDATIONS WHICH MAY ENCROACH
5. FENCING, SYMBOLS AND MONUMENTATION SHOWN HEREON MAY BE EXAGGERATED FOR PICTORIAL PURPOSES ONLY AND MAY NOT BE SHOWN TO SCALE
6. IN THE OPINION OF THIS SURVEYOR, THE PERIMETER LINES AS SHOWN HEREON REPRESENT THE LOCATION OF THE BOUNDARY LINES OF THE SUBJECT PARCEL IN RELATION TO THE DESCRIPTION OF RECORD AND THOSE EXISTING LAND CORNERS FOUND TO BE ACCEPTABLE BY THIS SURVEYOR
7. THIS SURVEY WAS PRODUCED WITH THE BENEFIT OF FURNISHED TITLE INFORMATION VIA FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NUMBER 1107[illegible]42, COMMITMENT DATE JUNE 9, 2023. A SEARCH OF THE PUBLIC RECORDS HAS NOT BEEN PERFORMED BY THE SURVEYOR
8. INFORMATION FROM FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) FLOOD INSURANCE RATE MAP(S), SHOWN ON THIS MAP WAS CURRENT AS OF THE REFERENCED DATE. MAP REVISIONS AND AMENDMENTS ARE PERIODICALLY MADE BY LETTER AND MAY NOT BE REFLECTED ON THE MOST CURRENT MAP.
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14. ADDITIONAL POINTS MAY BE FOUND BY TURNING ON THE "LANDOE" LAYERS IN THE SUPPLIED DIGITAL FILE
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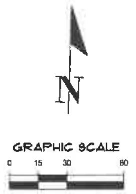
VICINITY MAP - NOT TO SCALE



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This map prepared by:

Certificate of Authorization No. L.B. 5075
NOT VALID WITHOUT THE ORIGINAL SIGNATURE AND SEAL OR ELECTRONIC DIGITAL SIGNATURE OF A FLORIDA LICENSED SURVEYOR AND MAPPER

CHAD A. COLSON

(SEE SURVEYOR'S CERTIFICATION)

Professional Surveyor & Mapper Fla License No. 7142

TECHNICIAN: NAD	SURVEY DATE: 10-08-2023
CREW CHIEF: JM	REVISION DATE: N/A
CHECKED BY: CAC	PROJECT NUMBER: 23-0653
FIELD BOOK & PAGE: 71/67	

CERTIFIED TO: (SEE SURVEYOR'S CERTIFICATION)

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CHW
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www.chw-inc.com
est. 1988 FLORIDA
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SHEET NO.: 2 OF 3

SURVEYOR'S NOTES:

1 COORDINATES SHOWN HEREON ARE ARE BASED ON STATE PLANE FLORIDA NORTH ZONE COORDINATES (NAD 83 (2011)) PROJECTED FROM RTK NETWORK GPS SOLUTION
2 VERTICAL DATUM IS SHOWN IN NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) VERTICAL CONTROL MONUMENT NAMED 2903001BM1, WHICH IS A FOOT BRASS DISK STAMPED "BM1 2903001" WITH A PUBLISHED ELEVATION OF 187.48 FEET
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7 THIS SURVEY WAS PRODUCED WITH THE BENEFIT OF FURNISHED TITLE IN[redacted] FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NUMBER 11009942, COMMITMENT DATE: JUNE 9, 2023. A SEARCH OF THE PUBLIC RECORDS HAS NOT BEEN [redacted] THE SURVEYOR.
8 INFORMATION FROM FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) FLOOD INSURANCE RATE MAP(S), SHOWN ON THIS MAP WAS CURRENT AS OF THE REFERENCED DATE. MAP REVISIONS AND AMENDMENTS ARE PERIODICALLY MADE BY LETTER AND MAY NOT BE REFLECTED ON THE MOST CURRENT MAP
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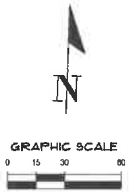
ALTA/NSPS LAND TITLE SURVEY

LOCATED IN THE NORTHEAST QUARTER (NE 1/4)
OF THE NORTHEAST QUARTER (NE 1/4) OF
SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST,
CITY OF LAKE CITY, COLUMBIA COUNTY, FLORIDA

VICINITY MAP - NOT TO SCALE



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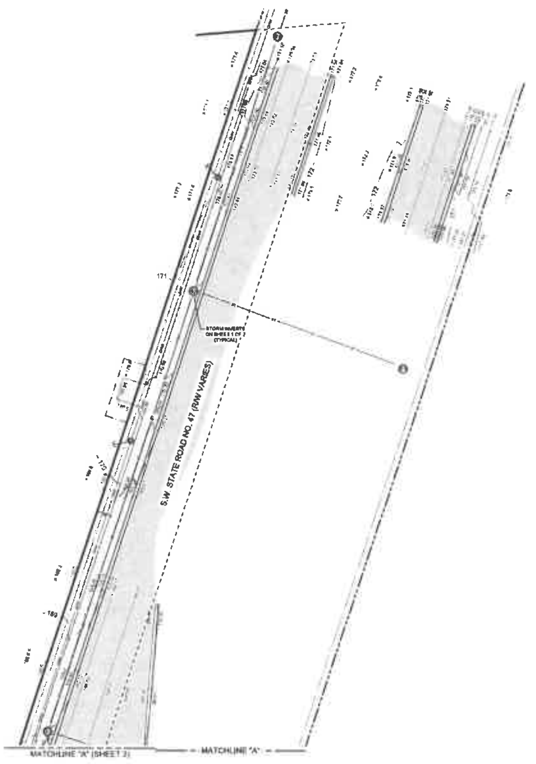

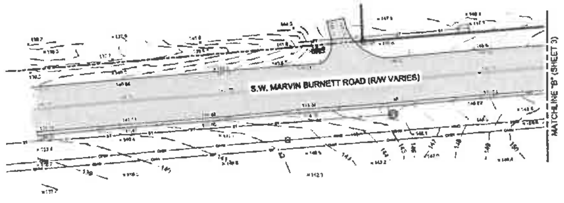

This map prepared by:

Certificate of Authorization No. LB. 5075
NOT VALID WITHOUT THE ORIGINAL
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DIGITAL SIGNATURE OF A FLORIDA
LICENSED SURVEYOR AND MAPPER

CHAD A. COLSON

(SEE SURVEYOR'S CERTIFICATION)

Professional Surveyor & Mapper Fla License No. 7142

NAD	10-06-2023
CREW CHIEF: JSJ	REVISION DATE: N/A
CHECKED BY: CAC	PROJECT NUMBER: 23-0653
FIELD BOOK & PAGE: 71 / 67	

(SEE SURVEYOR'S CERTIFICATION)

1" = 30'

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING
0 1"
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SCALES ACCORDINGLY.

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FLORIDA
CA-5075

3 OF 3

CONSTRUCTION PLANS
FOR:

COMMERCIAL RETAIL STORE
MARVIN BURNETT

LAKE CITY, FLORIDA

SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST

SUBMITTED TO:

CITY OF LAKE CITY
COLUMBIA COUNTY
FLORIDA DEPARTMENT OF TRANSPORTATION
FLORIDA DEPARTMENT OF ENVIROMENTAL PROTECTION
SUWANNEE RIVER WATER MANAGEMENT DISTRICT

DEVELOPER/APPLICANT
MATT CASON, PRESIDENT
CONCEPT DEVELOPMENT, INC.
3324 W. UNIVERSITY AVE. #151
GAINESVILLE, FL 32607
(352) 333-3233

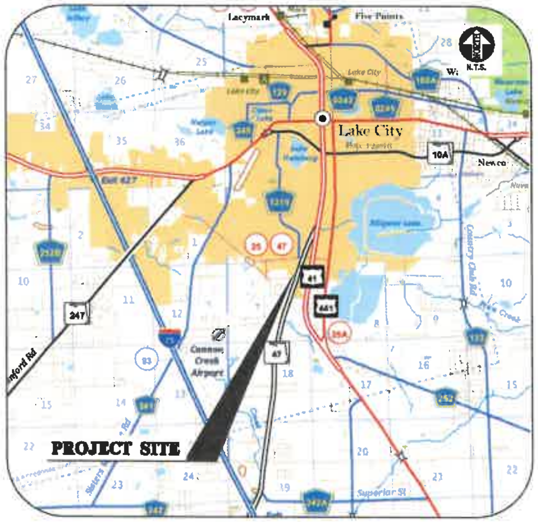
OWNER
ST. JOHNS LIMITED LIABILITY COMPANY
13820 W. NEWBERRY ROAD, SUITE 100
NEWBERRY, FL 32669

SURVEYOR OF RECORD
CHAD A. COLSON
CHW
11801 RESEARCH DRIVE
ALACHUA, FL. 32615
(352) 331-1976

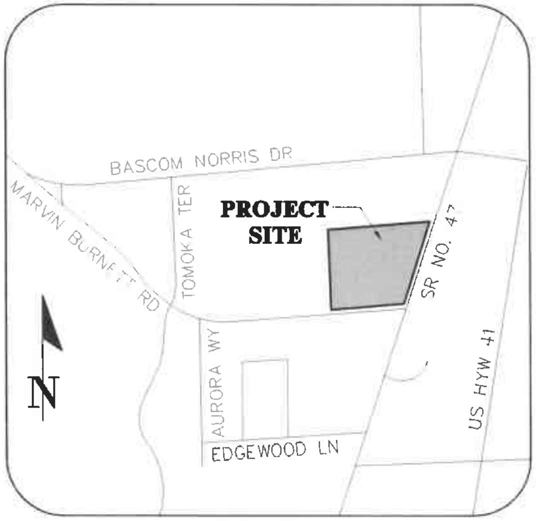
ENGINEER OF RECORD
RANDALL S. OLNEY P.E.
CHW
11801 RESEARCH DRIVE
ALACHUA, FL. 32615
(352) 331-1976

LANDSCAPE ARCHITECT
BRIAN D. BORTON, R.L.A.
BORTON DESIGN, INC.
1354 N. KYLE WAY
SAINT JOHNS, FLORIDA 32259
(904) 287-1996

SHEET INDEX



LOCATION MAP



VICINITY MAP

TRAFFIC STATEMENT:

PROPOSED LAND USE	ITE LU	AREA	RATE	AADT	AM PEAK	PM PEAK
VARIETY STORE	(814)	10,640 S.F.	63.66	677	32	71

1.) BASED ON ITE 11TH EDITION.

PARKING REQUIREMENT:

REQUIRED: (1 SPACE/150 S.F.) x 8,504 S.F. OF NON STORAGE FLOOR AREA= 57 SPACES
PROVIDED: 57 SPACES

ADA PARKING REQUIREMENT:

REQUIRED: 3 SPACES
PROVIDED: 3 SPACES

DEVELOPMENT DATA

ZONING: COMMERCIAL INTENSIVE (CI)
FLU: COMMERCIAL (COM)

	ON-SITE	
DEVELOPMENT AREA:	117,612 S.F.	2.70 AC
BUILDING AREA	10,640 S.F.	9%
SMF	19,619 S.F.	17%
IMPERVIOUS AREA:	44,786 S.F.	38%
OPEN SPACE:	53,007 S.F.	45%

TAX ID: #07-4S-17-08127-005
TYPE OF CONSTRUCTION: PER FBC 2020, TYPE II B

BEFORE YOU DIG!
CALL SUNSHINE STATE ONE CALL OF FLORIDA
AT LEAST TWO FULL BUSINESS DAYS BEFORE DIGGING OR DISTURBING EARTH
1-800-432-4770
811
Know what's below. Call before you dig.

11801 Research Drive
Alachua, Florida 32615
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est. 1985 FLORIDA CA-5075

CHW
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SCALE N/A
VERIFY SCALE: BAR IS ONE INCH ON ORIGINAL DRAWING
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CONSTRUCTION/BID REVISIONS

SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT: CONCEPT DEVELOPMENT, INC.
PROJECT: COMMERCIAL RETAIL STORE MARVIN BURNETT
SHEET TITLE: COVER SHEET AND INDEX

G. WADZINSKI
DESIGNER: C. MENHENNETT
QUALITY CONTROL: R. OLNEY, P.E.
PROJECT NUMBER: 23-0653

RANDALL SCOTT OLNEY
[illegible]
FL PE No. 68382

SHEET NO. C0.00

GENERAL NOTES

1. THE TOPOGRAPHIC AND EXISTING INFORMATION SHOWN HEREON WERE TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY CHW, AND DATED OCTOBER 6, 2023.
2. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THE PLANS HAS BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ACCURACY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE VARIOUS UTILITIES AND TO MAKE NECESSARY ARRANGEMENTS FOR ANY RELOCATION OF THESE UTILITIES WITH THE OWNER OF THE UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING ANY UNDERGROUND UTILITY, WHETHER SHOWN ON THE PLANS OR LOCATED BY THE UTILITY COMPANY. THE RESPECTIVE UTILITY COMPANIES SHALL RELOCATE ALL UTILITIES THAT INTERFERE WITH THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY COMPANIES DURING THE RELOCATION OPERATIONS. ANY DELAY OR INCONVENIENCE CAUSED TO THE CONTRACTOR BY THE VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT AND NO EXTRA COMPENSATION WILL BE ALLOWED.
3. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN AREAS OF BURIED UTILITIES AND SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE APPROPRIATE UTILITY COMPANIES IN ORDER TO ALLOW MARKING OF THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES IN ADVANCE OF CONSTRUCTION BY CALLING THE FLORIDA SUNSHINE STATE ONE-CALL CENTER, INC. AT 1-800-432-4770 OR 811. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY "SUNSHINE" 48 HOURS PRIOR TO ANY CLEARING OF CONSTRUCTION TO IDENTIFY ALL UTILITY LOCATIONS. NO CONSTRUCTION ACTIVITY MAY OCCUR UNTIL THE UTILITIES HAVE BEEN PROPERLY MARKED.
4. THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL LOCATION AND VERTICAL LOCATION OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF THE PROJECT ENVELOPE SHOWN PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL CALL ALL UTILITY COMPANIES TO HAVE THE LOCATIONS OF ALL UTILITIES FIELD MARKED PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONTINUING CONSTRUCTION.
5. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING FACILITIES, ABOVE OR BELOW GROUND THAT MAY OCCUR AS A RESULT OF THE WORK PERFORMED BY THE CONTRACTOR.
6. ALL PRIVATE AND PUBLIC PROPERTY AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITIONS BEFORE COMMENCING CONSTRUCTION WORK, UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. ADDITIONAL COSTS ARE INCIDENTAL TO OTHER CONSTRUCTION AND NO EXTRA COMPENSATION WILL BE ALLOWED.
7. ALL WORK PERFORMED SHALL COMPLY WITH THE REGULATIONS AND ORDINANCES OF THE VARIOUS GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE WORK INCLUDING LANDSCAPING.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BECOME FAMILIAR WITH THE PERMIT AND INSPECTION REQUIREMENTS OF THE VARIOUS GOVERNMENTAL AGENCIES. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION AND SCHEDULE INSPECTIONS ACCORDING TO AGENCY AND/OR MUNICIPALITY INSTRUCTIONS.
9. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH AND ENFORCE ALL APPLICABLE SAFETY REGULATIONS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXCAVATIONS AGAINST COLLAPSE AND SHALL PROVIDE BRACING, SHEETING OR SHORING AS NECESSARY. TRENCHES SHALL BE KEPT DRY WHILE PIPES ARE BEING PLACED. DEWATERING SHALL BE USED AS REQUIRED, AND PERMITTED THROUGH LOCAL GOVERNMENTAL AGENCIES AND WATER MANAGEMENT DISTRICT PER CURRENT REGULATIONS AT THE SOLE COST OF THE CONTRACTOR.
11. CONTRACTOR TO REVIEW GEOTECHNICAL REPORT AND BORINGS PRIOR TO BIDDING THE PROJECT AND FOLLOW OUTLINED CONSTRUCTION TECHNIQUES.
12. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING APPLICABLE TESTING WITH THE SERVICES OF AN APPROVED TESTING LABORATORY AND/OR SOILS ENGINEER, APPLICABLE REGULATORY AGENCIES, AND AS MAY BE FOUND IN THE ENGINEERING CONSTRUCTION DRAWINGS OR SPECIFICATIONS. CONTRACTOR TO VERIFY ALL TESTING WITH THE OWNER PRIOR TO COMMENCING CONSTRUCTION. UPON COMPLETION OF THE WORK, THE TESTING LABORATORY AND/OR SOILS ENGINEER MUST SUBMIT TO THE OWNER'S ENGINEER CERTIFICATIONS STATING THAT ALL REQUIREMENTS HAVE BEEN MET.
13. INSTALL SILT FENCE PRIOR TO SITE DEMOLITION OR NEW SITE CONSTRUCTION. INSTALL SILT FENCE PER FLORIDA STORMWATER EROSION AND SEDIMENTATION CONTROL INSPECTOR'S MANUAL AND PROVIDE TOE-IN. THE CONTRACTOR SHALL MAINTAIN THE SILT FENCE IN WORKING ORDER THROUGHOUT THE CONSTRUCTION PHASE. THE PROJECT SILT FENCE SHALL BE INSPECTED DAILY AND ANY CORRECTIVE MEASURES SHALL BE COMPLETED WITHIN 24 HOURS.
14. ALL TREE BARRICADES AND SILT FENCING SHALL BE INSTALLED AND INSPECTED BY THE CITY OF LAKE CITY PRIOR TO COMMENCEMENT OF ANY DEMOLITION OR CONSTRUCTION ACTIVITIES.
15. THE CONTRACTOR IS TO PREPARE THE SITE PRIOR TO BEGINNING ACTUAL CONSTRUCTION IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
16. ALL DELETERIOUS MATERIAL (I.E. MUCK, PEAT, BURIED DEBRIS) IS TO BE EXCAVATED IN ACCORDANCE WITH THESE PLANS OR AS DIRECTED BY THE OWNER'S ENGINEER OR OWNER'S SOIL TESTING COMPANY. DELETERIOUS MATERIAL IS TO BE STOCKPILED AND REMOVED FROM THE SITE. EXCAVATED AREAS ARE TO BE BACKFILLED WITH APPROVED MATERIALS AND COMPACTED AS SHOWN ON THESE AREAS.
17. CONTRACTOR SHALL CLEAR AND GRUB ONLY THOSE PORTIONS OF THE SITE NECESSARY FOR CONSTRUCTION. DISTURBED AREAS SHALL BE SODDED, SEEDED, MULCHED, OR PLANTED WITH OTHER APPROVED LANDSCAPE MATERIAL, AS DIRECTED BY THESE PLANS. IMMEDIATELY FOLLOWING CONSTRUCTION PER LOCAL INSPECTOR.
18. WORK BEING PERFORMED UNDER THIS CONTRACT SHALL INTERFACE SMOOTHLY WITH OTHER WORK BEING PERFORMED ON THE SITE BY OTHER CONTRACTORS AND/OR UTILITY COMPANIES. IT WILL BE NECESSARY FOR THE CONTRACTOR TO COORDINATE AND SCHEDULE HIS ACTIVITIES, WHERE NECESSARY, WITH OTHER CONTRACTORS AND UTILITY COMPANIES.
19. ALL PAVEMENT DIMENSIONS SHOWN ARE TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
20. THE GOVERNING STANDARDS AND SPECIFICATIONS, UNLESS STATED OTHERWISE SHALL BE PER FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD PLANS (FY 2023-24 ROAD CONSTRUCTION), AND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (FY 2023-24), AS AMENDED BY CONTRACT DOCUMENTS. ALL MATERIALS AND METHODS SHALL MEET FDOT SPECIFICATIONS AND SHALL BE PRODUCED OR OBTAINED FROM AN FDOT APPROVED SOURCE.
21. ALL NEW TRAFFIC CONTROL DEVICES (SIGNS AND PAVEMENT MARKINGS) SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND FDOT STANDARDS.
22. ALL STRIPING WITHIN THE COLUMBIA COUNTY RIGHT OF WAY SHALL BE PLACED FIRST AS TEMPORARY STRIPING FOLLOWED BY APPLICATION OF THERMOPLASTIC STRIPING 30 DAYS LATER.
23. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING PROPER BENCHMARKS ON-SITE. EXISTING BENCH MARKS SCHEDULED FOR REMOVAL SHALL BE RELOCATED AT CONTRACTORS EXPENSE AND RE-ESTABLISHED BY A LICENSED SURVEYOR.
24. ALL HANDICAP RAMPS SHALL COMPLY WITH THE FLORIDA ACCESSIBILITY CODE AND AMERICANS WITH DISABILITIES ACT.
25. A PRE-CONSTRUCTION CONFERENCE SHALL BE REQUIRED. THE CONTRACTOR, ENGINEER OF RECORD, AND THE OWNER SHALL MEET WITH THE CITY OF LAKE CITY PUBLIC WORKS DEPARTMENT PRIOR TO INITIATION OF SITE CONSTRUCTION.
26. ANY CHANGE ORDER REQUESTS, SITE REVISIONS, AND PAY REQUESTS MUST BE SUBMITTED TO AND APPROVED BY THE ENGINEER OF RECORD.
27. CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING AS NEEDED THROUGHOUT ALL CONSTRUCTION ACTIVITIES COVERED BY THESE PLANS. DEWATERING SHALL BE DONE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS, FY 2023-24 EDITION, SECTION 120.
28. THE CONTRACTOR IS RESPONSIBLE FOR THE PERFORMANCE AND COST OF ALL CLEARING AND GRUBBING AND ALL WORK OF REMOVAL, DISPOSAL, AND REPAIR OR REPLACEMENT OF EXISTING IMPROVEMENTS WHERE SHOWN IN THE PLANS, OR ORDERED BY THE ENGINEER TO BE REMOVED, OR WHERE REQUIRED BECAUSE OF THE CONSTRUCTION OPERATIONS, IN ORDER TO CONSTRUCT THE PROPOSED IMPROVEMENTS (THIS INCLUDES BUT IS NOT LIMITED TO PROPOSED PIPING, STRUCTURES, UTILITIES, PAVING, CURBING, ETC.).
29. AN AS-BUILT SURVEY MAY BE REQUIRED BY REGULATORY AGENCIES. CONTRACTOR TO COORDINATE WITH PROJECT OWNER FOR COMPLETION OF AS-BUILT SURVEYS PRIOR TO PROJECT / PERMIT CLOSE-OUT.

MAINTENANCE OF TRAFFIC (MOT) NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR CREATING A MAINTENANCE OF TRAFFIC (MOT) PLAN FOR CONSTRUCTION ACTIVITY THAT OCCURS WITHIN THE PUBLIC RIGHT-OF-WAY, INCLUDING BUT NOT LIMITED TO SIDEWALK WORK AND ACTIVITIES THAT REQUIRE A LANE (OR ROAD) CLOSURE, SUCH AS CONNECTION TO SEWER MANHOLES AND WATER MAINS. THE MOT PLAN MUST BE CREATED BY A REGISTERED PROFESSIONAL ENGINEER WHO IS CERTIFIED TO DO SO BY THE FDOT MOT CERTIFICATION TRAINING. THE MOT PLAN MUST ALSO BE IN ACCORDANCE WITH FDOT STANDARDS PLANS AND FDOT STANDARD SPECIFICATIONS REQUIREMENTS AND MUST BE REVIEWED AND APPROVED BY THE FDOT.
2. THE CONTRACTOR SHALL SUBMIT THE MOT TO THE APPROPRIATE REGULATORY AUTHORITY PRIOR TO WORK REQUIRING THE MOT FOR APPROVAL. NO WORK IN THE ROW SHALL OCCUR UNTIL THE MOT IS APPROVED.

DEMOLITION GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO DISPOSE OF ALL DEMOLITION MATERIALS IN A SAFE AND LAWFUL MANNER. THE CONTRACTOR SHALL SALVAGE TO THE OWNER ANY ITEM AS DETERMINED BY THE OWNER. ONCE DEMOLISHED, MATERIAL SHALL BE DISPOSED OF PROPERLY AND IMMEDIATELY.
2. REMOVE ALL IMPROVEMENTS DEFINED ON THE DEMOLITION PLAN. SALVAGE ITEMS TO OWNER AS DEFINED BY THE OWNER'S REPRESENTATIVE AND CONSTRUCTION DOCUMENT SPECIFICATIONS.
3. EXISTING PAVEMENT AND SIDEWALK EDGES THAT BORDER NEW CONSTRUCTION OR DEMOLITION ARE TO BE SAW-CUT TO PROVIDE A SMOOTH TRANSITION.
4. ALL EXISTING TREES ARE TO REMAIN UNLESS OTHERWISE NOTED.
5. ROOTS LARGER THAN 1 INCH IN DIAMETER ON TREES TO BE PRESERVED THAT ARE ENCOUNTERED DURING CONSTRUCTION MUST BE CUT CLEANLY AND COVERED OVER WITH SOIL BY THE END OF THE WORKING DAY.
6. ALL ASPHALT AND LIMEROCK WILL BE COMPLETELY REMOVED FROM AREAS THAT WILL BE LANDSCAPED. IN PARTICULAR, AREAS WHERE ASPHALT WILL BE REMOVED MUST HAVE THE TOP HARD SURFACE, LIMEROCK, AND COMPACTED SOIL REMOVED. REPLACEMENT SOIL SHALL BE CLEAN DEEP FILL OF PH 5.5 - 6.5. THE DEPTH OF UNCOMPACTED SOIL PRIOR TO PLANTING MUST BE AT LEAST 3 FEET TO ACCOMMODATE FUTURE TREE ROOT GROWTH. NO LIMEROCK, LARGE STONES, OR OTHER CONSTRUCTION DEBRIS CAN REMAIN IN AREAS TO BE LANDSCAPED.

PAVING, GRADING, AND DRAINAGE GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR EROSION/SEDIMENTATION CONTROL PRACTICES DURING CONSTRUCTION TO MINIMIZE ON-SITE EROSION/SEDIMENTATION AND TO PROTECT AGAINST DAMAGE TO OFF SITE PROPERTY. THE FOLLOWING PRACTICES SHALL BE EMPLOYED:
   - A. A. EROSION AND SEDIMENTATION CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. AREAS OF OFF-SITE DISCHARGE DURING CONSTRUCTION SHALL BE PROTECTED WITH A SEDIMENT BARRIER PER FLORIDA STORMWATER EROSION AND SEDIMENTATION CONTROL INSPECTOR'S MANUAL TO PREVENT OFF-SITE DISCHARGE OF SEDIMENTS. A SILT BARRIER SHALL SPECIFICALLY BE REQUIRED, CONSTRUCTED, AND MAINTAINED AS INDICATED ON THIS SHEET. TEMPORARY SEED AND MULCH SHOULD BE USED TO CONTROL ON-SITE EROSION WHEN IT IS NOT PRACTICAL TO ESTABLISH PERMANENT VEGETATION. SOD SHALL BE PLACED AS EARLY AS POSSIBLE ON ALL SLOPES STEEPER THAN 5 (FT) HORIZONTAL TO 1 (FT) VERTICAL. SOD SHALL BE PINNED AS REQUIRED. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED IN WORKING ORDER THROUGHOUT THE CONSTRUCTION PHASE. THE CONTRACTOR SHALL INSPECT AND REPAIR AS NECESSARY THE EROSION/SEDIMENTATION PROTECTION AT THE END OF EACH WORKING DAY.
   - B. NOTE: EROSION/SEDIMENTATION CONTROL SHALL BE PLACED PRIOR TO SITE EXCAVATION AND SHALL REMAIN IN PLACE UNTIL SITE VEGETATION AND LANDSCAPING IS COMPLETE.
   - C. B. ALL INLET STRUCTURES AND PIPE SHALL BE PROTECTED FROM SILTATION BY CONSTRUCTING INLET PROTECTION AS DEFINED BY THESE PLANS OR IN THE FDOT STANDARDS. IF SILTATION OCCURS, THE CONTRACTOR IS RESPONSIBLE TO REMOVE SILTATION AS PART OF THE BASE CONTRACT AT NO ADDITIONAL COST TO THE OWNER.
   - D. C. EXCAVATED STORMWATER FACILITIES SHALL BE CONSTRUCTED AS PART OF THE INITIAL CONSTRUCTION. THE FACILITIES SHALL BE ROUGH GRADED TO THE DESIGN ELEVATIONS. AFTER THE CONTRIBUTING DRAINAGE AREA IS STABILIZED, THE FACILITIES BOTTOM SHALL BE OVER-EXCAVATED BY SIX INCHES, SCARIFIED, BACKFILLED WITH ARCHER FILL (HAVING NO MORE THAN 5% PASSING NO. 200 SIEVE), AND GRADED TO FINAL DESIGN GRADES. EXCESS AND UNSUITABLE SOILS SHALL BE REMOVED FROM THE BASIN (REMOVE ALL ACCUMULATED SILTS, CLAYS, ORGANIC, AND DEBRIS). FINALLY, SCARIFY AND RAKE BOTTOM AND VEGETATE.
   - E. D. PERMANENT VEGETATIVE STABILIZATION SHALL BE APPLIED ON FINE GRADED SITES AS SOON AS PRACTICAL. TEMPORARY SEEDING SHOULD BE EMPLOYED TO PREVENT EXPOSURE OF BARREN SOILS UNTIL PERMANENT VEGETATION CAN BE APPLIED.
   - F. E. ALL SLOPES 1:3 OR STEEPER REQUIRE LAPPED OR PEGGED SOD.
   - G. F. EROSION, SEDIMENT AND TURBIDITY CONTROL ARE THE RESPONSIBILITY OF THE CONTRACTOR. THESE DELINEATED MEASURES ARE THE MINIMUM REQUIRED, WITH ADDITIONAL CONTROLS TO BE UTILIZED AS NEEDED, DEPENDENT UPON ACTUAL SITE CONDITIONS AND CONSTRUCTION OPERATION.
   - H. G. ALL SYNTHETIC BALES, SILT FENCE, AND OTHER EROSION CONTROL MEASURES SHALL BE REMOVED AT THE COMPLETION OF THE PROJECT.
2. THE CONTRACTOR SHALL MAINTAIN IN HIS POSSESSION A COPY OF THE WATER MANAGEMENT DISTRICT CONSTRUCTION PERMIT. HE SHALL BE RESPONSIBLE FOR ADHERENCE TO ALL CONDITIONS CONTAINED IN THE PERMIT.
3. PROPOSED SPOT ELEVATIONS REPRESENT FINISHED PAVEMENT OR GROUND SURFACE GRADE UNLESS OTHERWISE NOTED ON DRAWINGS.
4. CONTRACTOR SHALL SUBMIT FOR REVIEW TO THE OWNER AND OWNER'S ENGINEER SHOP DRAWINGS ON ALL PRECAST AND MANUFACTURED ITEMS TO BE USED ON THIS SITE. FAILURE TO OBTAIN APPROVAL BEFORE INSTALLATION MAY RESULT IN REMOVAL AND REPLACEMENT AT CONTRACTOR'S EXPENSE. ENGINEER'S APPROVAL OF A SHOP DRAWING DOES NOT RELIEVE THE CONTRACTOR'S RESPONSIBILITY FOR THE PERFORMANCE OF THE ITEM.
5. THE COST OF ALL TESTING OF COMPACTION AND OTHER REQUIRED TESTS SHALL BE PAID BY THE CONTRACTOR AND MADE AVAILABLE TO THE ENGINEER OF RECORD DURING SITE INSPECTIONS.
6. GENERAL CONTRACTOR TO CONTACT ENGINEER OF RECORD AND THE OWNER REPRESENTATIVE 48 HOURS IN ADVANCE PRIOR TO BACKFILLING TRENCHES FOR FIELD INSPECTION AND PRIOR TO LAYING ASPHALT FOR FIELD INSPECTION.
7. CONTRACTOR IS TO SUBMIT FDOT APPROVED ASPHALT DESIGN MIXES TO THE OWNER'S REPRESENTATIVE AND ENGINEER OF RECORD BEFORE ANY WORK IS TO COMMENCE ON PROJECT. THE MIXTURE AT THE PLANT OR ON THE ROAD SHALL NOT EXCEED 335 DEGREES. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE AND PROVIDE TEMPERATURE READINGS PRIOR TO LAYING ASPHALT.
8. AS DETERMINED NECESSARY AND DIRECTED BY THE CITY OF LAKE CITY PUBLIC WORKS DEPARTMENT OR ENGINEER OF RECORD, THE CONTRACTOR SHALL UNDERCUT ALL UNSUITABLE MATERIAL 24 INCHES BELOW THE BOTTOM OF ANY PROPOSED LIMEROCK BASE, AND SHALL BACKFILL WITH FILL MATERIAL MEETING FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. SEE FDOT INDEX 120-001 AND 120-002.
9. PROVIDE LEVEL PLATFORM IN FRONT OF ALL EGRESS DOORS. THE FLOOR SURFACE ON BOTH SIDES OF A DOOR SHALL BE AT THE SAME ELEVATION. THE FLOOR SURFACE OR LANDING ON EACH SIDE OF THE DOOR SHALL EXTEND FROM THE DOOR IN THE CLOSED POSITION A DISTANCE EQUAL TO THE DOOR WIDTH AND SHALL COMPLY WITH SECTION 4.13.6 MANEUVERING CLEARANCES AT DOORS OF THE FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION.
10. RAMPS SHALL HAVE LEVEL LANDINGS AT THE BOTTOM AND TOP OF EACH RAMP RUN. CURB RAMPS ARE NOT REQUIRED TO HAVE LANDINGS. LANDINGS SHALL HAVE THE FOLLOWING FEATURES:
    - A. THE LANDING SHALL BE AT LEAST AS WIDE AS THE RAMP RUN LEADING TO IT.
    - B. ALL LANDINGS ON RAMPS SHALL BE NOT LESS THAN 60" CLEAR, AND THE BOTTOM OF EACH RAMP SHALL HAVE NOT LESS THAN 72" OF STRAIGHT AND LEVEL CLEARANCE.
    - C. IF RAMPS CHANGE DIRECTION AT LANDINGS, THE MINIMUM LANDING SIZE SHALL BE 60"X60". IF A RAMP RUN HAS A RISE GREATER THAN 6" OR A HORIZONTAL PROJECTION GREATER THAN 72" THEN IT SHALL HAVE HANDRAILS ON BOTH SIDES. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. HANDRAILS SHALL BE SHOWN ON THE SITE PLAN.
11. THE CONTRACTOR SHALL STOCKPILE TOPSOIL AND CONSTRUCTION MATERIALS IN AREAS DESIGNATED BY THE OWNER.
12. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING RECORD DRAWINGS AS NOTED IN NOTE #29 UNDER SITE GENERAL NOTES.
13. ALL CONCRETE USED SHALL BE 2,500 PSI MINIMUM.
14. ALL WELLS, CLEANOUTS, MANHOLE TOPS, PULL BOX COVERS AND OTHER UTILITY APPURTENANCES IN THE AREA OF REDEVELOPMENT SHALL BE PROTECTED AND TOPS ADJUSTED TO MATCH PROPOSED GRADES.
15. CONTRACTOR SHALL SAW CUT, TACK, AND MATCH EXISTING PAVEMENT AT LOCATIONS WHERE NEW PAVEMENT MEETS ANY EXISTING PAVEMENT.
16. SOD SHALL BE PLACED AROUND ALL STRUCTURES AS DIRECTED BY THE FDOT INDEX 524-001 AND FDOT INDEX 425- AND 430- SERIES AS APPROPRIATE. ALL OTHER DISTURBED AREAS SHALL BE SEEDED AND MULCHED.
17. ALL STORM SEWER CURB AND DITCH BOTTOM INLETS SHALL CONFORM TO THE APPLICABLE FDOT INDEX. ALL DRAINAGE STRUCTURES WITH GRATES THAT ARE LOCATED IN GRASSED AREAS SHALL HAVE THE GRATE CHAINED TO THE STRUCTURE USING AN EYE BOLT AND CHAIN.
18. ALL CONCRETE STRUCTURES SHALL HAVE ALL EXPOSED EDGES CHAMFERED 3/4" AND CLASS I SURFACE FINISH.
19. ALL HDPE FITTINGS AND CONNECTORS SHALL BE WATER TIGHT. SEE SPECIFICATIONS FOR MORE INFORMATION.
20. COMPACTION OF ALL MATERIALS SHALL BE LIMITED TO STATIC MODE ONLY, UNLESS DIRECTED OTHERWISE BY THE ENGINEER OF RECORD.
21. ALL RCP PIPE JOINTS SHALL BE WRAPPED WITH FILTER FABRIC IN ACCORDANCE WITH FDOT STANDARD SPECIFICATION SECTION 430.

WATER AND WASTEWATER GENERAL NOTES

1. MATERIALS AND CONSTRUCTION METHODS FOR WATER AND WASTEWATER SYSTEMS SHALL BE IN ACCORDANCE WITH THE LOCAL REGULATORY AGENCY CODES, PLANS, AND SPECIFICATIONS FOR CONSTRUCTION, LATEST REVISION THEREOF AND SUPPLEMENTAL SPECIFICATIONS THERETO. APPROVAL AND CONSTRUCTION OF ALL UTILITY EXTENSIONS AND CONNECTIONS MUST BE COORDINATED THROUGH THE REGULATORY AGENCY DEPARTMENT FOR PUBLIC UTILITIES.

2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES TO DISCONNECT OR REMOVE THEIR FACILITIES PRIOR TO REMOVING OR DEMOLISHING ANY EXISTING STRUCTURES FROM THE SITE.

3. THE CONTRACTOR IS RESPONSIBLE FOR ANY NECESSARY UTILITY FIELD LOCATION AND RELOCATION AS REQUIRED.

4. THE COST OF ALL TESTING OF COMPACTION AND OTHER REQUIRED TESTS SHALL BE PAID BY THE CONTRACTOR AND MADE AVAILABLE TO THE ENGINEER OF RECORD DURING SITE INSPECTIONS.

5. THE CONTRACTOR SHALL PERFORM AN INFILTRATION/EXFILTRATION TEST ON GRAVITY SEWERS IN ACCORDANCE WITH THE REGULATORY JURISDICTION. SAID TESTS ARE TO BE CERTIFIED BY THE ENGINEER AND SUBMITTED TO THE REGULATORY AGENCY FOR APPROVAL. COORDINATION AND NOTIFICATION OF PARTIES US THE CONTRACTOR'S RESPONSIBILITY.

6. ALL FORCE MAINS SHALL BE SUBJECT TO A HYDROSTATIC PRESSURE TEST IN ACCORDANCE WITH THE REGULATORY AGENCY HAVING JURISDICTION. SAID TESTS ARE TO BE CERTIFIED BY THE ENGINEER AND SUBMITTED TO THE REGULATORY AGENCY FOR APPROVAL. COORDINATION AND NOTIFICATION OF PARTIES IS THE CONTRACTOR'S RESPONSIBILITY.

7. CONTRACTOR SHALL SUBMIT FOR REVIEW TO THE OWNER AND OWNER'S ENGINEER SHOP DRAWINGS ON ALL PRECAST AND MANUFACTURED ITEMS TO BE USED ON THIS SITE. FAILURE TO OBTAIN APPROVAL BEFORE INSTALLATION MAY RESULT IN REMOVAL AND REPLACEMENT AT CONTRACTOR'S EXPENSE. ENGINEER'S APPROVAL OF A SHOP DRAWING DOES NOT RELIEVE THE CONTRACTOR'S RESPONSIBILITY FOR THE PERFORMANCE OF THE ITEM.

8. A HORIZONTAL SEPARATION OF TEN FEET PREFERRED, BUT NO LESS THAN SIX FEET. SHALL BE MAINTAINED BETWEEN POTABLE WATER MAINS AND GRAVITY OR PRESSURE WASTEWATER MAINS, WASTEWATER FORCE MAINS, AND RECLAIMED WATER MAINS NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. A HORIZONTAL SEPARATION OF TEN FEET PREFERRED. BUT NO LESS THAN THREE FEET. SHALL BE MAINTAINED BETWEEN POTABLE WATER MAINS AND VACUUM WASTEWATER MAINS. A HORIZONTAL SEPARATION OF THREE FEET SHALL BE MAINTAINED BETWEEN POTABLE WATER MAINS AND STORM SEWERS, STORMWATER FORCE MAINS. AND RECLAIMED WATER MAINS REGUATED UNDER PART III OF CHAPTER 62-610, F.A.C.

9. WHEN POTABLE WATER MAINS CROSS OTHER PIPES, THE TWO PIPES SHALL HAVE JOINTS A MINIMUM OF SIX FEET FROM THE CROSSING. WHEN POTABLE WATER MAINS CROSS UNDERNEATH OTHER PIPES. THE MINIMUM VERTICAL SEPARATION IS TWELVE INCHES. WHEN POTABLE WATER MAINS CROSS ABOVE PRESSURE WASTEWATER MAINS, WASTEWATER FORCE MAINS, AND RECLAIMED WATER MAINS, THE MINIMUM VERTICAL SEPARATION IS TWELVE INCHES. WHEN POTABLE WATER MAINS CROSS ABOVE GRAVITY AND VACUUM WASTEWATER MAINS, STORM SEWERS, AND STORMWATER FORCE MAINS, THE PREFERRED VERTICAL SEPARATION IS TWELVE INCHES AND THE THE MINIMUM VERTICAL SEPARATION IS SIX INCHES.

10. ALL WATER MAINS SHALL HAVE A MINIMUM OF 36 INCHES OF COVER.

11. RESTRAINED JOINTS SHALL BE PROVIDED AT ALL FITTINGS AND HYDRANTS IN ACCORDANCE WITH AWWA STANDARDS.

12. ALL PVC WATER SERVICE LINES SHALL BE SCH 40 PVC.

13. THE SITE WORK CONTRACTOR SHALL ENGAGE THE SERVICES OF A LICENSED UNDERGROUND UTILITY AND EXCAVATION CONTRACTOR TO INSTALL THE NEW WATER SERVICE LINE AND FORCE MAIN CONNECTIONS.

14. ALL SANITARY SEWER SERVICE LATERALS SHALL BE 4" PVC SDR 35 OR 6" PVC SDR 35 WITH A CLEAN-OUT LOCATED PER THE PLANS. MINIMUM SLOPE FOR 4" LATERALS SHALL BE 1.0% AND A MINIMUM CLEANOUT SPACING OF 75 FEET ON-CENTER AND MINIMUM SLOPE FOR 6" LATERALS SHALL BE 0.6% AND A MINIMUM CLEANOUT SPACING OF 100 FEET ON-CENTER.

15. PUBLIC UTILITY EASEMENTS WILL BE PROVIDED AS REQUIRED FOR ALL UTILITIES SHOWN HEREON BY METES AND BOUND DESCRIPTION AND IN ACCORDANCE WITH THE REGULATORY AGENCY DEPARTMENT FOR PUBLIC UTILITIES.

ELECTRIC SERVICE GENERAL NOTES

1. ALL ELECTRICAL UTILITIES AND INFORMATION SHOWN ON THE CIVIL PLANS ARE FOR LOCATION AND COORDINATION PURPOSES ONLY. REFER TO ELECTRICAL PLANS BY OTHERS FOR THE ELECTRICAL DESIGN AND DETAILS.

2. ELECTRIC DESIGN PROVIDED BY OTHERS.

FDOT GENERAL NOTES

1. ALL WORK PERFORMED WITHIN THE FLORIDA DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY SHALL CONFORM TO THE FOLLOWING:

   A. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (FY 2023-24).
   B. FDOT STANDARD PLANS (FY 2023-24 ROAD CONSTRUCTION)
   C. FDOT DESIGN MANUAL (2024)
   D. FDOT FLEXIBLE PAVEMENT DESIGN MANUAL FOR NEW CONSTRUCTION AND PAVEMENT REHABILITATION

SHOULD A CONFLICT ARISE BETWEEN THE DETAILS SHOWN IN THE PLANS AND THE DEPARTMENT OF TRANSPORTATION STANDARDS THE ENGINEER/PERMITTEE SHALL IMMEDIATELY CONFER WITH THE DEPARTMENT'S ENGINEER IN ORDER TO RESOLVE THE DISCREPANCY. IN NO CASE WILL ANYTHING LESS THAT THE DEPARTMENT'S MINIMUM STANDARD BE ALLOWED.

2. ALL TRAFFIC STRIPING AND MARKINGS ARE TO BE LEAD-FREE. NON-SOLVENT BASED THERMOPLASTIC.

3. REMOVAL OF EXISTING STRIPING SHALL BE ACCOMPLISHED USING THE "HYDRO-BLAST" METHOD.

4. ALL CURB AND GUTTER AND SIDEWALK WILL BE REMOVED AND REPLACED JOINT TO JOINT.

5. ALL DISTURBED AREA WITH THE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY WILL RESTORED TO ORIGINAL OR BETTER CONDITION BY GRADING AND SODDING THE AREA DISTURBED (BERMUDA IN RURAL, CENTIPEDE IN UTILITY STRIPS).

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CHW
Professional Consultants

SCALE: N/A
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

CONSTRUCTION/BID REVISIONS:

SUBMITTALS: 03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT: CONCEPT DEVELOPMENT, INC.
PROJECT: COMMERCIAL RETAIL STORE
MARVIN BURNETT
SHEET TITLE: GENERAL NOTES

TECHNICIAN: G. WADZINSKI
DESIGNER: C. MENHENNETT
QUALITY CONTROL: R. OLNEY, P.E.
PROJECT NUMBER: 23-0653

RANDALL SCOTT OLNEY
FL PE No. 68182

SHEET NO: C0.10

ABBREVIATIONS

	SYMBOLS
'	FEET (WHEN USED WITH LENGTHS)
°	DEGREES
'	MINUTES (WHEN USED WITH ANGLES)
"	SECONDS
%	PERCENT
@	AT
	A
AASHTO	ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AC	ACRES
ADA	AMERICAN WITH DISABILITIES ACT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ARCH	ARCHITECT
ARV	AIR RELEASE VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWWA	AMERICAN WATER WORKS ASSOCIATION
	B
BC	BACK OF CURB
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
BM	BENCHMARK
BMP	BEST MANAGEMENT PRACTICE
BOC	BACK OF CURB
BVCS	BEGIN VERTICAL CURVE STATION
BVCE	BEGIN VERTICAL CURVE ELEVATION
BW	BOTTOM OF WALL
BSL	BUILDING SETBACK LINE
	C
CATV	CABLE TELEVISION
CI	CURB INLET
CIP	CAST IRON PIPE
CLDIP	CEMENT LINE DUCTILE IRON PIPE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
COORD	COORDINATE
CR	COUNTY ROAD
C/O	CLEANOUT
	D
DBH	DIAMETER AT BREAST HEIGHT
DE	DRAINAGE EASEMENT
DEG	DEGREE
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
	E
ε	RATE OF ELEVATION
E	EAST
EA	EACH
EL	ELEVATION
ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EOR	ENGINEER OF RECORD
ERCP	ELLIPTICAL REINFORCED CONCRETE PIPE
ESMT	EASEMENT
EVCS	END VERTICAL CURVE STATION
EVCE	END VERTICAL CURVE ELEVATION
EX	EXISTING
	F
FAC	FLORIDA ADMINISTRATIVE CODE
FBR	FLORIDA BEARING RATIO
FC	FRICTION COURSE
FDEP	FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FHWA	FLORIDA HIGHWAY ADMINISTRATION
FIG	FIGURE
FM	FORCE MAIN
FOC	FACE OF CURB
FS	FLORIDA STATUTES
FT	FEET
	G
GALV	GALVANIZED
GM	GAS MAIN
GV	GATE VALVE
	H
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
	I
ID	IDENTIFICATION
INV	INVERT
INV EL	INVERT ELEVATION
IP	IRON PIPE
	K
K	VERTICAL CURVE RATE OF CHANGE
	L
L	LENGTH
LA	LANDSCAPE ARCHITECT
LBR	LIMEROCK BEARING RATIO
LDR	LAND DEVELOPMENT REGULATION
LF	LINEAR FEET
LP	LOW POINT
LT	LEFT
	M
MAX	MAXIMUM
ME	MATCH EXISTING
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
	N
N	NORTH
N-E	NORTHING - EASTING
N/A	NOT APPLICABLE
NAVD	NORTH AMERICAN VERTICAL DATUM OF 1988
NGVD	NATIONAL GEODETIC VERTICAL DATUM OF 1929
NO	NUMBER
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
NTS	NOT TO SCALE
	O
OC	ON CENTER
OHW	OVERHEAD WIRE
ORB	OFFICIAL RECORDS BOOK
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
	P
PAVT	PAVEMENT
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PE	POLYETHYLENE
PERF	PERFORATED
PIV	POST INDICATOR VALVE
PROP	PROPOSED
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PUE	PUBLIC UTILITY EASEMENT
PVI	POINT OF VERTICAL INTERSECTION
	R
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RPM	RAISED REFLECTIVE PAVEMENT MARKER
RPZ	REDUCED PRESSURE ZONE
RT	RIGHT
RWM	RECLAIMED WATER MAIN
R/W	RIGHT-OF-WAY
	S
S	SOUTH
SAN	SANITARY
SHWE	SEASONAL HIGH WATER ELEVATION
SF	SILT FENCE
SL	SLOPE
SP	SUPERPAVE
SR	STATE ROAD
SS	SANITARY SEWER
ST	STORM
STA	STATION
STD	STANDARD
	T
TB	TREE BARRICADE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TEMP	TEMPORARY
TOB	TOP OF BANK
TV	TELEVISION
TW	TOP OF WALL
TYP	TYPICAL
	U
USF	UNITED STATES FOUNDRY
USGS	UNITED STATES GEOLOGICAL SURVEY
UTIL	UTILITY
	V
V	VERTICAL
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
	W
W	WEST
W	WATER
W/	WITH
WM	WATER MAIN
WW	WASTEWATER
WWF	WELDED WIRE FABRIC

SIGNAGE

SIGNS ARE PER FDOT SPECIFICATIONS OR PER MUTCD. SIGN POSTS AND INSTALLATION SHALL BE PER FDOT INDEX NO. 700-010. SIGN PLACEMENT SHALL BE PER FDOT INDEX NO. 700-101.

- FTP-20-06 (12" X 18") PER FDOT INDEX NO. 700-102
- STOP R1-1 "STOP" - SEE PLANS FOR SIZE

SITE INFORMATION

- EX. PROPERTY LINE
- LANDSCAPE BUFFER LINE
- BUILDING SETBACK LINE
- WETLAND LIMITS LINE
- WETLAND SETBACK LINE
- CENTER LINE
- EASEMENT LINE
- RIGHT-OF-WAY LINE
- — SF — SF — SILT FENCE LINE
- — TB — TB — TREE BARRICADE LINE
- EX. STRUCTURE OR BUILDING
- PROPOSED BUILDING
- PROPOSED ASPHALTIC PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED DETECTABLE WARNING SURFACE
- DIRECTIONAL TRAFFIC ARROW PER FDOT INDEX NO. 17346
- WATERSHED DIVIDE
- EX. ELEVATION CONTOUR
- PROPOSED CONTOUR
- EX. SPOT ELEVATION
- 83.23 PROPOSED SPOT ELEVATION
- DIRECTION OF SURFACE DRAINAGE FLOW
- PROPOSED SWALE LINE
- — X — X — EX. FENCE
- PROPOSED FENCE
- EX. TREE (SIZE & TYPE)
- EX. TREE (TREE ID)
- EX. TREE TO BE REMOVED (SIZE & TYPE)
- EX. TREE TO BE REMOVED (TREE ID)
- PROJECT BENCHMARK

STORMWATER

THE PROPOSED STORMWATER STRUCTURES DEPICTED BELOW ARE DRAWN PER FDOT SPECIFICATIONS AND TO SCALE WHEN SHOWN ON THE PLAN SHEETS.

- — ST — ST — EX. GRAVITY STORMWATER MAIN
- — P-ST — PROPOSED GRAVITY STORMWATER MAIN (PIPE LENGTHS ARE FROM N-E LOCATION OF A STRUCTURE TO N-E LOCATION OF A STRUCTURE)
- EX. STORMWATER MANHOLE
- N-E LOCATION / TOP/RIM ELEV. LOCATION — PROPOSED 48" DIA. STORMWATER MANHOLE PER FDOT INDEX. NO. 425-001 AND 425-010
- N-E LOCATION / TOP/GRATE ELEV. LOCATION — PROPOSED CIRCULAR AREA DRAIN
- N-E LOCATION / TOP/GRATE ELEV. LOCATION — PROPOSED SQUARE AREA DRAIN
- N-E LOCATION / TOP ELEV. LOCATION — PROPOSED TYPE 1 CURB INLET TOP PER FDOT INDEX NO. 425-020 (SEE PLANS FOR BOTTOM SPECIFICATION)
- N-E LOCATION / TOP ELEV. LOCATION — PROPOSED TYPE 2 CURB INLET TOP PER FDOT INDEX NO. 425-020 (SEE PLANS FOR BOTTOM SPECIFICATION)
- N-E LOCATION / TOP ELEV. LOCATION — PROPOSED TYPE 3 CURB INLET TOP PER FDOT INDEX NO. 425-020 (SEE PLANS FOR BOTTOM SPECIFICATION)
- N-E LOCATION / TOP ELEV. LOCATION — PROPOSED TYPE 4 CURB INLET TOP PER FDOT INDEX NO. 425-020 (SEE PLANS FOR BOTTOM SPECIFICATION)
- N-E LOCATION / TOP ELEV. LOCATION — PROPOSED TYPE 5 CURB INLET TOP PER FDOT INDEX NO. 425-021 (SEE PLANS FOR BOTTOM SPECIFICATION)
- N-E LOCATION / TOP ELEV. LOCATION — PROPOSED TYPE 6 CURB INLET TOP PER FDOT INDEX NO. 425-021 (SEE PLANS FOR BOTTOM SPECIFICATION)
- N-E LOCATION / TOP/GRATE ELEV. LOCATION — PROPOSED TYPE 9 CURB INLET TOP PER FDOT INDEX NO. 425-024 (SEE PLANS FOR BOTTOM SPECIFICATION)
- N-E LOCATION / TOP/GRATE ELEV. LOCATION — PROPOSED TYPE 'C' DITCH BOTTOM INLET TOP PER FDOT INDEX NO. 425-052 (SEE PLANS FOR GRATE MATERIAL AND BOTTOM SPECIFICATION)
- N-E LOCATION / TOP/GRATE ELEV. LOCATION — PROPOSED TYPE 'D' DITCH BOTTOM INLET TOP PER FDOT INDEX NO. 425-052 (SEE PLANS FOR GRATE MATERIAL AND BOTTOM SPECIFICATION)
- N-E LOCATION / TOP/GRATE ELEV. LOCATION — PROPOSED TYPE 'E' DITCH BOTTOM INLET TOP PER FDOT INDEX NO. 425-052 (SEE PLANS FOR GRATE MATERIAL AND BOTTOM SPECIFICATION)
- N-E LOCATION / TOP/GRATE ELEV. LOCATION — PROPOSED TYPE 'F' DITCH BOTTOM INLET TOP WITH STEEL GRATE PER FDOT INDEX NO. 425-053 (SEE PLANS FOR BOTTOM SPECIFICATION)
- N-E LOCATION / TOP/GRATE ELEV. LOCATION — PROPOSED TYPE 'G' DITCH BOTTOM INLET TOP WITH STEEL GRATE PER FDOT INDEX NO. 425-053 (SEE PLANS FOR BOTTOM SPECIFICATION)
- N-E LOCATION / TOP/GRATE ELEV. LOCATION — PROPOSED TYPE 'H' DITCH BOTTOM INLET TOP PER FDOT INDEX NO. 425-052 (SEE PLANS FOR GRATE MATERIAL AND BOTTOM SPECIFICATION)
- N-E LOCATION / TOP/GRATE ELEV. LOCATION — PROPOSED TYPE 'J' DITCH BOTTOM INLET TOP WITH STEEL GRATE PER FDOT INDEX NO. 425-054 (SEE PLANS FOR BOTTOM SPECIFICATION)
- PIPE INV. LOCATION / N-E LOCATION — PROPOSED U-TYPE CONCRETE ENDWALLS WITH GRATES PER FDOT INDEX NO. 430-010 (SEE PLANS FOR SIZE)
- N-E LOCATION / INV. ELEV. LOCATION — PROPOSED FLARED END SECTION PER FDOT INDEX NO. 430-020 (SEE PLANS FOR SIZE)
- N-E LOCATION / PIPE INV. ELEV. LOCATION — PROPOSED CROSS DRAIN MITERED END SECTION PER FDOT INDEX NO. 430-021 (SEE PLANS FOR SIZE)
- N-E LOCATION / PIPE INV. ELEV. LOCATION — PROPOSED SIDE DRAIN MITERED END SECTION PER FDOT INDEX NO. 430-022 (SEE PLANS FOR SIZE)
- S-10 PROPOSED STORMWATER STRUCTURE ID TAG

POTABLE AND RECLAIMED WATER

- — W — W — EX. POTABLE WATER MAIN
- — P-W — PROPOSED POTABLE WATER MAIN
- — RCW — RCW — EX. RECLAIMED WATER MAIN
- — P-RCW — PROPOSED RECLAIMED WATER MAIN
- 11.25° BEND W/ MECHANICALLY RESTRAINED JOINTS (POTABLE AND RCW)
- 22.5° BEND W/ MECHANICALLY RESTRAINED JOINTS (POTABLE AND RCW)
- 45° BEND W/ MECHANICALLY RESTRAINED JOINTS (POTABLE AND RCW)
- 90° BEND W/ MECHANICALLY RESTRAINED JOINTS (POTABLE AND RCW)
- TEE (POTABLE AND RCW)
- CROSS (POTABLE AND RCW)
- BLOWOFF ASSEMBLY (POTABLE AND RCW)
- REDUCER (POTABLE AND RCW)
- EX. GATE VALVE AND BOX (POTABLE AND RCW)
- PROPOSED GATE VALVE AND BOX (POTABLE AND RCW)
- EX. AIR RELEASE VALVE (POTABLE AND RCW)
- POST INDICATOR VALVE (POTABLE AND RCW)
- EX. FIRE HYDRANT ASSEMBLY
- PROPOSED FIRE HYDRANT ASSEMBLY
- PROPOSED SAMPLE POINT
- EX. WATER METER (POTABLE AND RCW)
- PROPOSED POTABLE WATER METER
- PROPOSED POTABLE WATER BACK FLOW PREVENTER
- PROPOSED RECLAIMED WATER METER
- Ⓦ EX. WATER WELL
- EX. HOSE BIB (POTABLE AND RECLAIMED)
- PROPOSED HOSE BIB (POTABLE AND RECLAIMED)
- ⑪ PROPOSED FITTING ID TAG (POTABLE AND RECLAIMED)

WASTEWATER

- — WW — WW — EX. GRAVITY WASTEWATER MAIN
- — P-WW — PROPOSED GRAVITY WASTEWATER MAIN (PIPE LENGTHS ARE FROM N-E LOCATION OF A STRUCTURE TO N-E LOCATION OF A STRUCTURE)
- — FM — FM — EX. WASTEWATER FORCE MAIN
- — P-FM — PROPOSED WASTEWATER FORCE MAIN
- EX. WASTEWATER MANHOLE
- N-E LOCATION / RIM ELEV. LOCATION — PROPOSED WASTEWATER MANHOLE
- EX. WASTEWATER CLEANOUT
- PROPOSED WASTEWATER CLEANOUT
- PROPOSED WASTEWATER GREASE TRAP
- MH# PROPOSED WASTEWATER MANHOLE ID
- 11.25° BEND W/ MECHANICALLY RESTRAINED JOINTS (WW FORCE MAIN)
- 22.5° BEND W/ MECHANICALLY RESTRAINED JOINTS (WW FORCE MAIN)
- 45° BEND W/ MECHANICALLY RESTRAINED JOINTS (WW FORCE MAIN)
- 90° BEND W/ MECHANICALLY RESTRAINED JOINTS (WW FORCE MAIN)
- WYE W/ MECHANICALLY RESTRAINED JOINTS (WW FORCE MAIN)
- EX. PLUG VALVE AND BOX (WW FORCE MAIN)
- PROPOSED PLUG VALVE AND BOX (WW FORCE MAIN)
- EX. AIR RELEASE VALVE (WW FORCE MAIN)
- PROPOSED AIR RELEASE VALVE (WW FORCE MAIN)

MISCELLANEOUS UTILITIES

THE PROPOSED UTILITIES BELOW ARE DESIGN BY OTHERS AND ARE DEPICTED FOR COORDINATION PURPOSES ONLY. REFER TO PLANS BY OTHERS FOR EXACT LOCATIONS, DIMENSION, AND DETAILS.

- — P-ATT — PROPOSED AT&T LINE
- — BC — BC — EX. BURIED CABLE LINE
- — P-BC — PROPOSED BURIED CABLE LINE
- — BTEL — EX. BURIED TELEPHONE LINE
- — P-TEL — PROPOSED TELEPHONE LINE
- — CATV — EX. CABLE TELEVISION LINE
- — P-TV — PROPOSED CABLE/TELEVISION LINE
- — FO — FO — EX. FIBER OPTIC LINE
- — UGTEL — EX. UNDERGROUND TELEPHONE LINE
- EX. TELEPHONE PEDESTAL
- EX. TELEVISION/CABLE PEDESTAL
- — CHW — CHW — EX. CHILLED WATER MAIN
- — P-CHW — PROPOSED CHILLED WATER MAIN
- — FIRE — EX. FIRE MAIN
- — P-FIRE — PROPOSED FIRE MAIN
- — IRR — IRR — EX. IRRIGATION LINE
- — P-IRR — PROPOSED IRRIGATION LINE
- — STEAM — EX. STEAM LINE
- — P-STEAM — PROPOSED STEAM LINE
- — P-CLAY — PROPOSED CLAY ELECTRIC LINE
- — E — E — EX. ELECTRIC LINE
- — P-E — PROPOSED ELECTRIC LINE
- — EN — EN — EX. ENERGY LINE
- — P-LIGHT — PROPOSED PRIVATE LIGHTING LINE
- — OHW — OHW — EX. OVERHEAD WIRE LINE
- — UGE — UGE — EX. UNDERGROUND ELECTRIC LINE
- EX. LIGHT
- EX. UTILITY POLE
- EX. UTILITY POLE
- EX. WOOD POWER POLE
- EX. GUY ANCHOR
- T PROPOSED TRANSFORMER
- — GAS — GAS — EX. GAS LINE
- — P-GAS — PROPOSED GAS LINE
- EX. GAS MARKER
- EX. GAS MARKER

NOTES:
1. THIS LEGEND IS ALL INCLUSIVE AND MAY INCLUDE ITEMS NOT A PART OF THIS PLAN SET.

2. SYMBOLS SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. UNLESS NOTED OTHERWISE, SYMBOLS IN THESE PLANS MAY NOT BE REPRESENTATIVE OF SIZE.

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CHW
Professional Consultants

SCALE
N/A

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT
CONCEPT DEVELOPMENT, INC.

PROJECT
COMMERCIAL RETAIL STORE
MARVIN BURNETT

SHEET TITLE
LEGEND

PROJ. MGR.
G. WADZINSKI

DESIGNER
C. MENHENNETT

QUALITY CONTROL
R. OLNEY, P.E.

PROJECT NUMBER
23-0653

RANDALL SCOTT OLNEY

FL PE No. 68382

SHEET NO.
C0.11

I. INTRODUCTION

THIS DOCUMENT WAS PREPARED IN ORDER TO ILLUSTRATE COMPLIANCE WITH CHAPTER 62-621.300 (4) OF THE FLORIDA ADMINISTRATIVE CODE, WHICH PERTAINS TO THE GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES. THE ADMINISTRATIVE CODE GRANTS THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) THE AUTHORITY TO REGULATE POINT SOURCE DISCHARGE OF STORMWATER FROM CONSTRUCTION SITES. THIS DOCUMENT ESTABLISHES A STORMWATER POLLUTION PREVENTION PLAN FOR THE SITE USING STANDARD PRACTICE AND BEST MANAGEMENT PRACTICES (BMPs) AND IS ORGANIZED TO CORRESPOND TO 62-621.300(4)(a) GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES FDEP FORM 62-621.300(4)(b) IS TO BE SUBMITTED IN CONJUNCTION WITH THIS DOCUMENT. CONTRACTOR(S) MUST FILL IN THE ACTIVITIES SEQUENCE (SECTION II. B. BELOW) AND SIGN THIS SHEET (REFER TO SIGNATURE TABLE THIS SHEET) AND RETAIN THIS SHEET AND ALL FOLLOWING SWPPP SHEETS ON SITE. ALTERNATIVELY, CONTRACTOR(S) MAY PREPARE AND SIGN THEIR OWN SWPP PLAN MEETING THE REQUIREMENTS. IF THE SITE OR CONTRACTOR ACTIVITIES REQUIRE ANY BMPs THAT ARE NOT DESCRIBED ON THIS SHEET, THE CONTRACTOR MUST PREPARE AN ALTERNATIVE OR ADDITIONAL SWPPP DOCUMENT CONTAINING THE NECESSARY BMPs.

II. SITE DESCRIPTION

COUNTY:	COLUMBIA COUNTY, FLORIDA
SECTION, TOWNSHIP, RANGE.	SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST
COUNTY PARCEL NO.:	PORTION OF #07-4S-17-08127-005
STREET ADDRESS:	NORTHWEST OF THE INTERSECTION OF MARVIN BURNETT ROAD AND STATE ROAD 47
PROJECT AREA.	2.70 ACRES
SITE LOCATION MAP	SEE COVER SHEET OF CONSTRUCTION

A. NATURE OF CONSTRUCTION ACTIVITY

THE PROPOSED DEVELOPMENT INCLUDES THE CONSTRUCTION OF A ±10,640 SF COMMERCIAL RETAIL STORE, PARKING AREA, STORMWATER MANAGEMENT SYSTEM, AND ASSOCIATED UTILITY INFRASTRUCTURE. THE PROJECT SITE IS LOCATED ALONG AT THE INTERSECTION OF MARVIN BURNETT ROAD AND STATE ROAD 47, IN LAKE CITY, FLORIDA. THE PROJECT SITE TOTAL AREA IS APPROXIMATELY 2.70 ACRES.

B. SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES - CONTRACTOR MUST FILL IN DAYS

DAYS

FROM_____TO_____ PRIOR TO CONSTRUCTION, SILT FENCING AND TREE PROTECTION FENCING SHALL BE INSTALLED AND ALL EXISTING STORM DRAINAGE SWALE AND INLETS SHALL BE PROTECTED IN ACCORDANCE WITH THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEWER MANUAL, DATED JULY 2013, AND THESE PLANS.

FROM_____TO_____ THE CONSTRUCTION SERVICE ENTRANCE SHALL BE STABILIZED TO MINIMIZE THE CREATION OF DUST AND OFF-SITE TRACKING OF SEDIMENTS.

FROM_____TO_____ ONLY THE AREA COMPRISING THE PROPOSED STORMWATER MANAGEMENT FACILITY(S) SHALL BE CLEARED AND GRUBBED OF UNWANTED VEGETATION.

FROM_____TO_____ THE PROPOSED STORMWATER MANAGEMENT FACILITY(S) SHALL BE CONSTRUCTED.

FROM_____TO_____ IF SUITABLE, THE EXCAVATED SOIL FROM THE FACILITY(S) MAY BE USED AS FILL FOR ON-SITE GRADING THAT IS DEPICTED IN THESE CONSTRUCTION PLANS. THE CONTRACTOR SHALL DISPOSE OF ALL UNSUITABLE MATERIAL ON-SITE OR OFF-SITE TO A PERMITTED LOCATION.

FROM_____TO_____ THE REMAINING PORTION OF THE SITE THAT IS TREATED BY THE CONSTRUCTED STORMWATER MANAGEMENT FACILITY(S) SHALL BE CLEARED AND GRUBBED.

FROM_____TO_____ THE PERMANENT ROADWAYS/DRIVEWAYS SHALL BE ROUGHLY GRADED.

FROM_____TO_____ THE UNDERGROUND UTILITIES INFRASTRUCTURE AND STORMWATER PIPING SYSTEM SHALL BE INSTALLED. ANY DE-WATERING (PUMPED) SHALL BE DIVERTED TO THE ASSOCIATED STORMWATER MANAGEMENT FACILITY(S).

FROM_____TO_____ THE PERMANENT ROADWAY/DRIVEWAY SUBGRADE SHALL BE COMPACTED, A LIMEROCK BASE SHALL BE ESTABLISHED, AND THEN FOLLOWED BY AN OVERLAY OF ASPHALT.

FROM_____TO_____ UPON SIGNIFICANT COMPLETION OF CONSTRUCTION, THE STORMWATER PIPING SYSTEM SHALL BE FLUSHED OUT TO REMOVE ACCUMULATED DEBRIS AND SEDIMENT.

FROM_____TO_____ UPON COMPLETION OF THE DEBRIS AND SEDIMENT REMOVAL FROM THE STORMWATER PIPING SYSTEM, THE PROPOSED STORMWATER MANAGEMENT FACILITY(S) SHALL BE FINE GRADED AND SHALL BE EXCAVATED A MINIMUM OF SIX INCHES BELOW THE DESIGN BOTTOM ELEVATION AND REPLACED WITH FILL HAVING A MINIMUM PERMEABILITY RATE OF 20 FEET/DAY WITH A MAXIMUM OF 5% SOIL FINES PASSING THE NO. 200 SIEVE. THE BOTTOM SHALL BE SCARIFIED AND STABILIZED ACCORDING TO THESE PLANS. ONCE COMPLETED, NO HEAVY MACHINERY SHALL BE ALLOWED WITHIN THE STORMWATER MANAGEMENT FACILITY(S).

FROM_____TO_____ ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION AREA SHALL BE COMPLETELY GRASSED AND/OR LANDSCAPED ACCORDING TO THESE PLANS. TURF ESTABLISHMENT SHALL BE PER FDOT STANDARD SPECIFICATIONS SECTION 570. EVIDENCE OF GROWTH MUST BE PRESENT PRIOR TO REMOVAL OF SILT FENCING AND OTHER EROSION CONTROL APPLICATIONS.

C. SITE DEVELOPMENT DATA:

TOTAL PROJECT SITE AREA:	2.70 ACRES
TOTAL SITE AREA TO BE DISTURBED:	2.55 ACRES
TOTAL IMPERVIOUS AREA (AS SHOWN IN CONSTRUCTION DRAWINGS)*	0.93 ACRES
TOTAL DETENTION VOLUME:	1.14 ACRE-FEET
TOTAL OPEN AREA:	1.91 ACRES

D. SOIL CONDITIONS AND STORMWATER QUALITY

THE NRCS DATA FOR THE SITE REVEALS THAT THE SITE SOILS ARE COMPRISED OF BLANTON FINE SAND (0 TO 5 PERCENT SLOPE), ICHETUCKNEE FINE SAND (5 TO 8 PERCENT SLOPE), MASCOTTE FINE SAND, AND PELHAM FINE SAND (0 TO 2 PERCENT SLOPE). GSE ENGINEERING & CONSULTING, INC. CONDUCTED A GEOTECHNICAL EXPLORATION OF THE PROPOSED STORMWATER MANAGEMENT FACILITY(S) LOCATION IN DECEMBER OF 2023. THE INVESTIGATION REVEALED THAT THE PROJECT SITE'S SURFACE SOILS HAVE THE FOLLOWING CHARACTERISTICS:

DEPTH TO EFFECTIVE OR MOBILIZED AQUIFER:	8 FEET BELOW SURFACE
DEPTH TO SEASONAL HIGH WATER TABLE:	2 FEET BELOW SURFACE
HORIZONTAL HYDRAULIC CONDUCTIVITY:	10 FEET/DAY
UNSATURATED VERTICAL INFILTRATION:	10 FEET/DAY

DESIGN PERCOLATION RATES FOR THE STORMWATER MANAGEMENT FACILITY(S) WERE DETERMINED BASED ON LABORATORY PERMEABILITY TEST RESULTS FROM BORING SAMPLES TAKEN WITHIN THE LIMITS OF THE STORMWATER MANAGEMENT FACILITY(S). A FACTOR OF SAFETY OF 2 WAS APPLIED TO THE RATES FOR USE IN THE STORMWATER CALCULATIONS.

THE STORMWATER MANAGEMENT FACILITY(S) WAS DESIGNED TO PROVIDE RATE AND VOLUME CONTROL AND WATER QUALITY TREATMENT OF THE STORMWATER RUNOFF RESULTING FROM THE POST DEVELOPMENT SITE UNDER 100-YEAR CRITICAL STORM EVENT RAINFALL CONDITIONS. THE STORMWATER POLLUTION PREVENTION PLAN (C0.21) DEPICTS THE POST-DEVELOPMENT WATERSHED(S) LIMITS AND THE TABLE BELOW SUMMARIZES EACH WATERSHED.

WATERSHED ID	POST DEVELOPMENT AREA (ACRES)	POST DEVELOPMENT RUNOFF FACTOR (CN)	POST DEVELOPMENT IMPERVIOUS AREA (ACRES)	STORMWATER MANAGEMENT FACILITY TYPE	FACILITY DETENTION CAPACITY (ACRE FEET)	100-YEAR FLOOD ELEVATION (FT)
DA-1	3.29	72	0.93	DRY RETENTION	1.14	158.78

E. SITE MAP

PLEASE SEE THE STORMWATER POLLUTION PREVENTION PLAN (C0.21) FOR DETAILS.

F. STORMWATER OUTFALL LOCATION AND RECEIVING WATER BODY

THE SMF 1 OUTFALL STRUCTURE IS LOCATED AT THE NORTHWEST PORTION OF THE PROJECT (30°09'40" N, 82°34'50" W). THE ASSOCIATED RECEIVING WATER BODY IS AN UNNAMED SLOUGH

III. CONTROLS TO REDUCE POLLUTION

AS OUTLINED IN THE SUWANNEE RIVER WATER MANAGEMENT DISTRICT (SRWMD) PERMIT, ALL CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED IN A MANNER AS TO NOT VIOLATE STATE WATER QUALITY STANDARDS. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES REQUIRED TO RETAIN SEDIMENT ON-SITE. IF SITE CONDITIONS ARE SUCH THAT ADDITIONAL CONTROL MEASURES ARE REQUIRED OTHER THAN WHAT IS SPECIFIED IN THE EROSION AND SEDIMENTATION CONTROL PLAN, THEN THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL BEST MANAGEMENT PRACTICES. THESE MEASURES MUST BE INSPECTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PHASE AND UNTIL AS DIRECTED BY THESE PLANS. THE STORMWATER POLLUTION PREVENTION PLAN (C0.21) AND SECTION IV BELOW PROVIDE DETAILS ON THE SPECIFIC CONTROL MEASURES TO REDUCE STORMWATER POLLUTION.

IV. EROSION AND SEDIMENT CONTROLS

A. STABILIZATION PRACTICES

EXISTING TREES AND NATURAL VEGETATION TO REMAIN ON-SITE SHALL BE PROTECTED BY TREE BARRICADE FENCING AS DEPICTED ON THE STORMWATER POLLUTION PREVENTION PLAN (C0.21). TYPE III SILT FENCING SHALL PROTECT ALL DRAINAGE STRUCTURES AND SHALL BUFFER AREAS WITH POTENTIAL TO CONTRIBUTE OFF SITE RUNOFF AND AS SPECIFICALLY DEPICTED ON THE STORMWATER POLLUTION PREVENTION PLAN (C0.21). STABILIZATION MEASURES SHALL BE INITIATED FOR EROSION AND SEDIMENT CONTROL ON DISTURBED AREAS AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 7 DAYS, IN PORTIONS OF THE SITE WHERE CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED. AS SPECIFIED IN SECTION II.B. ABOVE, UPON COMPLETION OF CONSTRUCTION, ALL STORMWATER MANAGEMENT FACILITIES SHALL BE SCRAPED CLEAN OF ACCUMULATED SEDIMENT AFTER THE COMPLETION OF CONSTRUCTION. ALL TURF ESTABLISHMENT SHALL BE PERFORMED MEETING THE REQUIREMENTS OF SECTION 570 OF THE STANDARD SPECIFICATIONS. EVIDENCE OF GROWTH MUST BE PRESENT PRIOR TO FINAL RELEASE.

B. STRUCTURE PRACTICES

AS DEPICTED IN THE STORMWATER POLLUTION PREVENTION PLAN (C0.21), A STORMWATER MANAGEMENT SYSTEM WILL BE CONSTRUCTED AND WILL BE COMPRISED OF A DRY RETENTION FACILITY AND A STORM PIPE CONVEYANCE SYSTEM. TO PREVENT EROSION DURING CONSTRUCTION, TYPE III SILT FENCING WILL BE INSTALLED IN THE LOCATIONS SHOWN ON THE PLANS. ALL EXISTING AND PROPOSED STORM DRAINS AND DRAINAGE SWALES SHALL BE PROTECTED ACCORDING TO THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEWER MANUAL, DATED JULY 2013 OR PER DETAILS PROVIDED ON SHEET C0.21 UNTIL CONSTRUCTION IS COMPLETE. THE STORM PIPE CONVEYANCE SYSTEM SHALL BE FLUSHED OUT TO REMOVE ALL ACCUMULATED DEBRIS AND SEDIMENT UPON COMPLETION OF CONSTRUCTION

C. DRAINAGE LOCATIONS THAT SERVE AREAS WITH LESS THAN 10 DISTURBED ACRES

AS SPECIFIED IN THE "SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES," THE SMF(S) WILL BE CONSTRUCTED PRIOR TO CLEARING AND GRUBBING OUTSIDE OF THE SMF(S) AREAS AND CONSTRUCTION OF THE PERMANENT PAVED AREAS. THE TOTAL CONTRIBUTING DRAINAGE AREA TO THE STORMWATER MANAGEMENT SYSTEM IS APPROXIMATELY 3.29 ACRES AND WILL CONSIST OF APPROXIMATELY 2.54 ACRES OF DISTURBED CONSTRUCTION AREA. THEREFORE, NO ADDITIONAL SEDIMENT TRAP BASINS ARE NECESSARY TO PROVIDE SEDIMENT STORAGE ON-SITE DURING CONSTRUCTION. AS SHOWN ON THE STORMWATER POLLUTION PREVENTION PLAN (C0.21), THE PROPOSED STORMWATER MANAGEMENT SYSTEM WILL PREVENT OFF-SITE EROSION DURING CONSTRUCTION. SILT FENCES OR EQUIVALENT SEDIMENT CONTROLS SHALL BE INSTALLED AT SIDE SLOPE AND DOWN SLOPE BOUNDARIES, INLET LOCATION, OUTLET LOCATIONS, AND OTHER LOCATIONS AS SHOWN ON THE STORMWATER POLLUTION PREVENTION PLAN, AS REQUIRED. BY COMPLETION OF CONSTRUCTION, THE SIDE SLOPES, SWALES, AND ALL DISTURBED AREAS SHALL BE STABILIZED WITH GRASS AND LANDSCAPING AS SPECIFIED ON THE CONSTRUCTION DRAWINGS.

D. DRAINAGE LOCATIONS THAT SERVE AREAS WITH MORE THAN 10 DISTURBED ACRES

NOT APPLICABLE, SEE SECTION C, ABOVE.

V. STORMWATER MANAGEMENT

A. BEST MANAGEMENT PRACTICES

AFTER CONSTRUCTION, THE STORMWATER MANAGEMENT SYSTEM SHALL BE MAINTAINED IN ACCORDANCE WITH THE SPECIFIED STORMWATER MAINTENANCE NOTES IN THE INCLUDED CONSTRUCTION DRAWINGS AND/OR RESPECTIVE MAINTENANCE REPORTS. SPECIFICALLY, THE PROPOSED SMF(S) SHALL BE MOWED REGULARLY IN THE SPECIFIED AREAS, STORM PIPES AND STRUCTURES WILL BE INSPECTED SEMI-ANNUALLY AND CLEANED ANNUALLY, SMF(S) SIDE SLOPES SHALL BE MAINTAINED TO PREVENT EROSION, AND LANDSCAPING AND GRASS THAT PREVENTS EROSION SHALL BE MAINTAINED. ADDITIONALLY, REMEDIAL ACTIONS SHALL BE TAKEN SHOULD THE SMF(S) NOT PERFORM AS DESIGNED.

B. VEGETATED SWALES

WHEN VEGETATED SWALES ARE UTILIZED, SILT FENCING OR EQUIVALENT SEDIMENT CONTROLS SHALL BE INSTALLED AT ADEQUATE INTERVALS TO COLLECT SEDIMENT ALONG THE SWALE. THE SEDIMENT SHALL BE REMOVED WHEN SEDIMENT REACHES ONE-THIRD OF THE HEIGHT OF THE SILT FENCING. SEE THE STORMWATER POLLUTION PREVENTION PLAN (C0.21) FOR DETAILS AND LOCATIONS, AS REQUIRED.

C. VELOCITY DISSIPATION DEVICES AT DISCHARGE POINTS

WHEN DISCHARGE POINTS ARE NOT LOCATED UNDER WATER, RIP RAP PADS HAVE BEEN PROVIDED AT LOCATIONS WHERE NECESSARY DUE TO ANTICIPATED DISCHARGE VELOCITIES. PLEASE SEE THE CONSTRUCTION PLANS FOR DETAILS AND LOCATIONS, AS NEEDED.

VI. CONTROLS FOR OTHER POTENTIAL POLLUTANTS

A. WASTE DISPOSAL

THE CONTRACTOR SHALL PROVIDE LITTER COLLECTION CONTAINERS WITHIN THE PROJECT BOUNDARIES DURING CONSTRUCTION. CONTRACTOR SHALL DISPOSE OF ALL UNSUITABLE MATERIALS AND CONSTRUCTION DEBRIS IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.

B. DUST CONTROL

TO PREVENT OFF SITE VEHICULAR TRACKING OF SEDIMENTS AND DUST GENERATION, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE ESTABLISHED BY THE SITE CONTRACTOR. PLEASE SEE THE STORMWATER POLLUTION PREVENTION PLAN (C0.21) FOR DETAILS AND LOCATION(S).

C. EXISTING VERSUS PROPOSED POTABLE AND SANITARY SEWER SYSTEMS

THERE ARE EXISTING SANITARY SEWER AND POTABLE WATER SYSTEMS LOCATED NEAR THE PROJECT SITE. EXTENSION AND UPGRADES ARE PROPOSED. IF TEMPORARY SANITARY SYSTEMS ARE UTILIZED DURING CONSTRUCTION, THE CONTRACTOR SHALL PROPERLY CONTROL AND DISCHARGE ANY SANITARY WASTE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.

D. FERTILIZER & PESTICIDES

THE USE OF FERTILIZERS, HERBICIDES, AND PESTICIDES ON THE PROJECT SITE, WILL BE DIRECTED BY THE LANDSCAPE PLAN AND THE FDOT STANDARD SPECIFICATIONS SECTION 570, TO SUPPORT THE GROWTH OF THE PROPOSED VEGETATION. ESTABLISHING THIS VEGETATION WILL AID IN THE STABILIZATION OF THE PROJECT SITE AND REDUCE EROSION. APPLICATION RATES FOR THE FERTILIZERS, HERBICIDES, AND PESTICIDES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS TO GUARD AGAINST OVER-USE, WHICH CAN LEAD TO VIOLATIONS OF STATE WATER QUALITY STANDARDS.

E. TOXIC MATERIAL

THE CONSTRUCTION SITE WILL BE IN FULL COMPLIANCE WITH STATE AND FEDERAL REQUIREMENTS. A PLASTIC MAT, TAR PAPER, OR OTHER IMPERVIOUS MATERIAL SHALL BE PLACED UNDER AREAS WHERE TOXIC LIQUIDS ARE TO BE OPENED AND STORED.

F. HAZARDOUS MATERIALS

ALL HAZARDOUS MATERIALS SHALL BE STORED IN A SECURE LOCATION, UNDER COVER, AND IN APPROPRIATE TIGHTLY, SEALED CONTAINERS WHEN NOT IN USE. ALL PRODUCTS SHALL BE STORED IN AND USED FROM THE ORIGINAL CONTAINER WITH THE ORIGINAL PRODUCT LABEL. CONTAINERS MUST BE STORED IN A MANNER TO PROTECT THEM FROM THE ELEMENTS AND INCIDENTAL DAMAGE. THE MINIMUM PRACTICAL QUANTITY OF ALL SUCH MATERIALS SHALL BE KEPT ON THE JOB SITE AND SCHEDULED FOR DELIVERY AS CLOSE TO TIME OF USE AS PRACTICAL.

ALL PRODUCTS SHALL BE USED IN STRICT COMPLIANCE WITH THE INSTRUCTIONS ON THE PRODUCT LABEL.

SUFFICIENT EQUIPMENT AND/OR MATERIALS SHALL BE KEPT ONSITE TO CONTAIN AND CLEAN UP SPILLS OF HAZARDOUS MATERIALS IN THE AREAS WHERE THESE MATERIALS ARE STORED OR USED. SPILL CONTROL AND CONTAINMENT KIT SUPPLIES SHALL BE OF SUFFICIENT QUANTITIES AND APPROPRIATE CONTENT TO CONTAIN A SPILL FROM THE LARGEST ANTICIPATED PIECE OF EQUIPMENT AND FROM THE LARGEST ANTICIPATED QUANTITIES OF PRODUCTS STORED ON THE SITE AT ANY GIVEN TIME.

CONTRACTOR TO CONTAIN AND CLEAN UP ANY SPILLS IMMEDIATELY AFTER THEY OCCUR. ANY SPILLS OF PETROLEUM PRODUCTS OR HAZARDOUS MATERIALS IN EXCESS OF REPORTABLE QUANTITIES AS DEFINED BY EPA, STATE, OR LOCAL AGENCY REGULATIONS SHALL BE REPORTED TO THE APPROPRIATE AGENCIES IN THE REQUIRED TIME FRAMES. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE OWNER IMMEDIATELY UPON IDENTIFICATION OF ANY SPILL.

ALL EXCESS, USED, OR SPILLED PRODUCTS, INCLUDING CONTAMINATED SOIL, SHALL BE DISPOSED OF BY THE CONTRACTOR IN STRICT COMPLIANCE WITH INSTRUCTIONS ON THE PRODUCT LABEL AND ALL APPLICABLE REGULATIONS.

VII. APPROVED STATE AND LOCAL PLANS

THE CONSTRUCTION DRAWINGS FOR THE PROJECT WERE APPROVED AND PERMITTED BY THE FOLLOWING AGENCIES:

- *CITY OF LAKE CITY
- *COLUMBIA COUNTY
- *FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
- *SUWANNEE RIVER WATER MANAGEMENT DISTRICT
- *FLORIDA DEPARTMENT OF TRANSPORTATION

VIII. CONSTRUCTION ACTIVITY DISCHARGES

IN ACCORDANCE WITH THIS PLAN, THERE ARE NO ANTICIPATED DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES.

IX. CHANGES TO THE POLLUTION PREVENTION PLAN

THIS STORMWATER POLLUTION PREVENTION PLAN SHALL BE AMENDED TO REFLECT ANY APPLICABLE CHANGE IN A STATE, REGIONAL, OR LOCAL PERMIT FOR WHICH THE PERMITTEE RECEIVES WRITTEN NOTICE. WHEN WRITTEN NOTICE IS RECEIVED, THE PERMITTEE SHALL PROVIDE A RE-CERTIFICATION OF THIS POLLUTION PREVENTION PLAN, WHICH HAS BEEN REVISED TO ADDRESS SUCH CHANGES. AMENDMENTS TO THE PLAN SHALL BE PREPARED, SIGNED, DATE, AND KEPT AS ATTACHMENTS TO THE ORIGINAL PLAN.

X. ALTERNATIVE PERMIT REQUIREMENTS

NO ALTERNATIVE PERMIT REQUIREMENTS ARE REQUESTED.

XI. MAINTENANCE

THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE, INSPECTION SCHEDULE, AND REPAIRS OUTLINED IN THIS PLAN. MAINTENANCE SHALL CONTINUE THROUGHOUT THE PROJECT UNTIL WORK IS COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AFTER CONSTRUCTION IS COMPLETE. IN ADDITION TO THE TIMES MENTIONED IN THE PREVIOUS SECTIONS, THE CONTRACTOR SHALL INITIATE ANY REPAIRS WITHIN 24 HOURS OF BEING REPORTED. IN THE EVENT THAT THE SMF(S) DO NOT PERFORM PROPERLY OR IF A SINKHOLE DEVELOPS, THE PROJECT ENGINEER SHALL BE NOTIFIED TO ASSIST IN COORDINATING REMEDIAL ACTION. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM SILT FENCING WHEN IT HAS REACHED ONE-THIRD THE HEIGHT OF THE SILT FENCE. UPON FINAL COMPLETION OF CONSTRUCTION AND ACCEPTANCE BY BOTH THE CITY AND OWNER, THE OPERATION AND MAINTENANCE ENTITY WILL BE "CONCEPT DEVELOPMENT, INC."

XII. INSPECTIONS

THE CONTRACTOR SHALL INSPECT ALL POINTS OF POTENTIAL DISCHARGE FROM THE PROJECT SITE FOR ALL DISTURBED AREAS ON THE CONSTRUCTION SITE AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.50 INCHES OR GREATER. FOR POINTS OF DISCHARGE INTO SURFACE WATERS OF THE STATE OR AN MS4, A QUALIFIED INSPECTOR (PROVIDED BY THE OPERATOR) SHALL PERFORM THE REQUIRED INSPECTIONS. THE CONTRACTOR SHALL INSTALL A RAIN GAUGE AT THE SITE TO MONITOR AND DOCUMENT RAINFALL EVENTS 0.50 INCHES OR GREATER. LOCATIONS WHERE THE SITE IS COMPLETELY CONSTRUCTED AND STABILIZED, SUCH INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE A MONTH. ALL INSPECTIONS SHALL BE RECORDED ON THE CONSTRUCTION INSPECTION FORM. THE CONTRACTOR MAY USE THEIR OWN FORM (MEETING FDEP SWPPP REQUIREMENTS) OR A SAMPLE FORM FROM FDEP. A SAMPLE CONSTRUCTION FORM IS AVAILABLE AT: "HTTPS://FLORIDADEP.GOV/WATER/STORMWATER/DOCUMENTS/CONSTRUCTION-SWPPP". MORE SPECIFICALLY, THE INSPECTION SHALL ENSURE THE FOLLOWING CATEGORIES.

A. DISTURBED AREAS

ALL DISTURBED AREAS AND AREAS USED FOR MATERIAL STORAGE SHALL BE INSPECTED FOR POLLUTANTS ENTERING THE STORMWATER SYSTEM. THE STORMWATER MANAGEMENT SYSTEM AND EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE INSPECTED TO ENSURE THEY ARE OPERATING CORRECTLY. LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFF SITE SEDIMENT TRACKING.

B. MAINTENANCE PERFORMANCE

BASED ON THE RESULTS OF THE INSPECTION, ALL MAINTENANCE OPERATIONS NEEDED TO ASSURE PROPER COMPLIANCE WITH THIS PLAN SHALL BE DONE IN A TIMELY MANNER, BUT IN NO CASE LATER THAN 7 DAYS FOLLOWING THE INSPECTION.

C. REPORTING REQUIREMENTS

ALL INSPECTIONS SHALL BE RECORDED ON THE CONSTRUCTION INSPECTION FORM. THIS FORM IS CREATED TO SUMMARIZE THE SCOPE OF THE INSPECTION, THE NAME(S) AND QUALIFICATION OF THE INSPECTOR(S), THE DATE OF INSPECTION, RAINFALL DATA, OBSERVATIONS, THE ACTIONS TAKEN TO CORRECT INCIDENTS OF NON-COMPLIANCE WITH THE PROVISIONS OF THIS PLAN. IF NO INCIDENTS OF NON-COMPLIANTS ARE OBSERVED, THE REPORT SHALL CONTAIN A CERTIFICATION THAT THE FACILITY IS IN COMPLIANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND THE ASSOCIATED PERMIT.

XIII. NON-STORMWATER DISCHARGES

IN ADDITION TO STORMWATER RUNOFF, THIS PLAN APPLIES TO RUNOFF FROM IRRIGATION OPERATIONS AND CONSTRUCTION PRACTICES. THIS PLAN DOES NOT PERTAIN TO DISCHARGES FROM FIRE FIGHTING ACTIVITIES.

XIV. CONTRACTORS CERTIFICATION

THE CONTRACTORS OR SUB-CONTRACTORS SHALL PHOTOCOPY AND COMPLETE THE FORM ON THIS PAGE. IT SHALL BE PROVIDED TO THE OWNER AND KEPT ON FILE PURSUANT TO SECTION XV REGARDING PROJECT RECORDS.

XV. RETENTION OF RECORDS

THE PERMITTEE SHALL RETAIN COPIES OF STORMWATER POLLUTION PREVENTION PLANS AND ALL REPORTS REQUIRED BY THIS PERMIT, AND RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT, FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE SITE IS FINALLY STABILIZED.

THE PERMITTEE SHALL RETAIN A COPY OF THE STORMWATER POLLUTION PREVENTION PLAN AND ALL REPORTS, RECORDS, AND DOCUMENTATION REQUIRED BY THIS PERMIT AT THE CONSTRUCTION SITE, OR AN APPROPRIATE ALTERNATIVE LOCATION AS SPECIFIED IN THE NOTICE OF INTENT, FROM THE DATE OF PROJECT INITIATION TO THE DATE OF FINAL STABILIZATION.

XVI. NOTICE OF TERMINATION

NOTICE OF TERMINATION:

1. WHERE A SITE HAS BEEN FINALLY STABILIZED AND ALL STORMWATER DISCHARGES AUTHORIZED BY THIS PERMIT ARE ELIMINATED, THE PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION (DEP FORM 62-621.300(6)), SIGNED IN ACCORDANCE WITH PART VII.C OF DEP DOCUMENT NO. 62-621.300(4)(a), WITHIN 14 DAYS OF FINAL STABILIZATION OF THE SITE TO TERMINATE COVERAGE UNDER THIS PERMIT.
2. ELIMINATION OF STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY MEANS THAT ALL DISTURBED SOILS AT THE SITE HAVE BEEN FINALLY STABILIZED AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN REMOVED OR WILL BE REMOVED AT AN APPROPRIATE TIME, OR THAT ALL STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY FROM THE SITE THAT ARE AUTHORIZED BY THIS GENERIC PERMIT HAVE OTHERWISE BEEN ELIMINATED.
3. FOR CONSTRUCTION ACTIVITIES WHERE THE OPERATOR CHANGES, THE EXISTING OPERATOR SHALL FILE AN N.O.T. IN ACCORDANCE WITH THIS PART WITHIN 14 DAYS OF RELINQUISHING CONTROL OF THE PROJECT TO A NEW OPERATOR.

THE PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION TO THE FOLLOWING ADDRESS:

NPDES STORMWATER NOTICES CENTER, MS# 2510
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

PROJECTS THAT DISCHARGED STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY TO A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) SHALL SUBMIT A COPY OF THE N.O.T. TO THE OPERATOR OF THE MS4.

Contractor/Subcontractor Certification Statement
Stormwater Pollution Prevention Plan

Site Name: Commercial Retail Store - Marvin Burnett
Site Location: Marvin Burnett Road, Lake City, FL 32025
Columbia County, Florida

THE CONTRACTOR(S) OR SUB-CONTRACTOR(S) RESPONSIBLE FOR COMPLYING WITH THIS STORMWATER POLLUTION PREVENTION PLAN SHALL SIGN THE CERTIFICATION STATEMENT BELOW. MULTIPLE COPIES OF THE CERTIFICATION STATEMENT MAY BE NECESSARY DEPENDING ON THE NUMBER OF SUB-CONTRACTORS ASSOCIATED WITH THE PROJECT

I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND, AND SHALL COMPLY WITH, THE TERMS AND CONDITIONS OF THE STATE OF FLORIDA GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES AND THIS STORMWATER POLLUTION PREVENTION PLAN PREPARED THEREUNDER

DATE	RESPONSIBLE INDIVIDUAL'S NAME	RESPONSIBLE INDIVIDUAL'S SIGNATURE	TITLE	COMPANY NAME, ADDRESS, AND PHONE NUMBER

11801 Research Drive
Alachua, Florida 32616
(352) 331-1976
www.chw-inc.com
est. 1985 FLORIDA CA-5075

Professional Consultants

SCALE N/A

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

CONSTRUCTION/BID REVISIONS

SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT
CONCEPT DEVELOPMENT, INC.

PROJECT
COMMERCIAL RETAIL STORE
MARVIN BURNETT

SHEET TITLE
STORMWATER POLLUTION PREVENTION NOTES

C. WADZINSKI
DESIGN
C. MENHENNETT
QUALITY CONTROL
R. OLNEY, P.E.
PROJECT NUMBER
23-0653

RANDALL SCOTT OLNEY

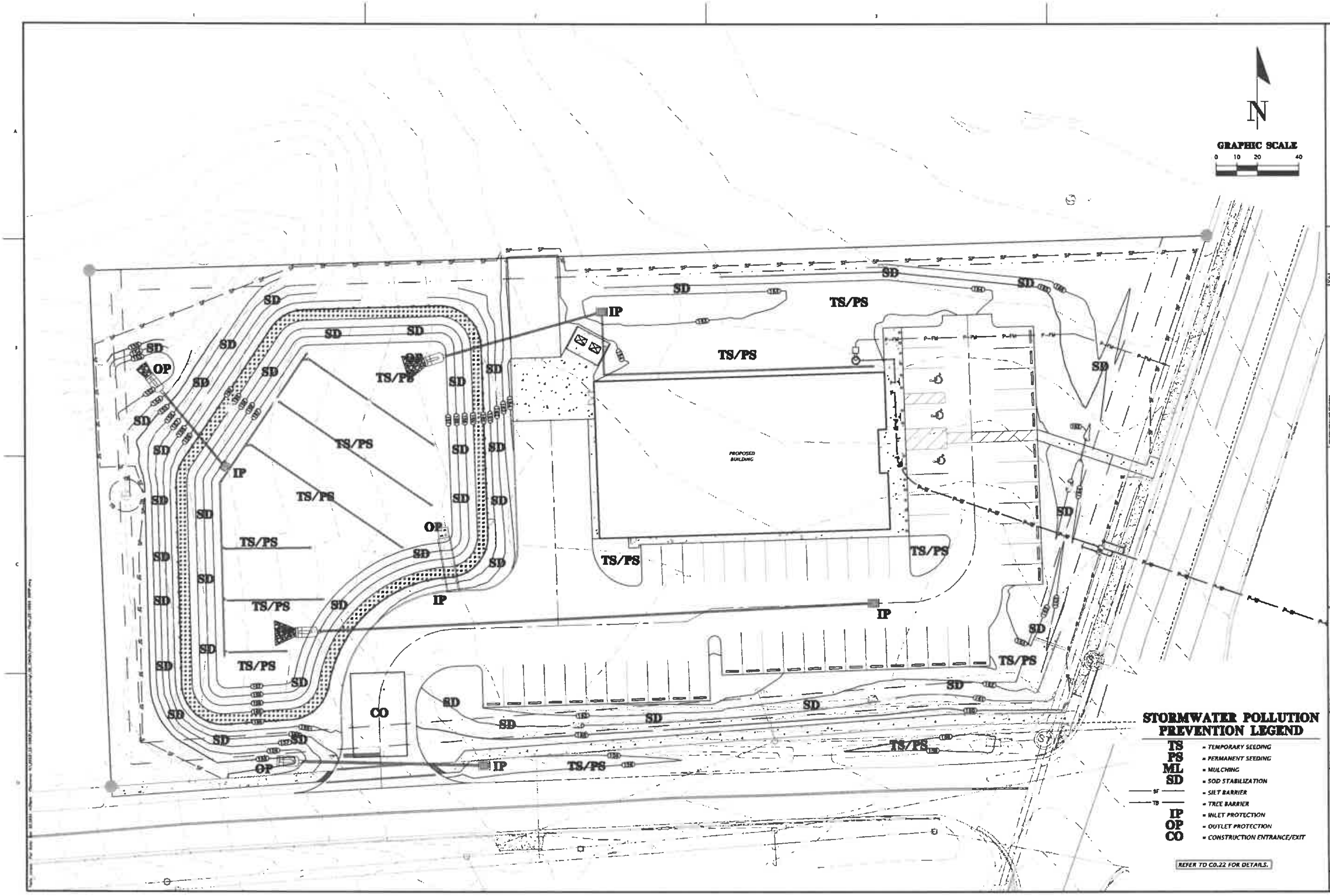
Randall Scott Olney, State of Florida Professional Engineer, License No. 68382

This item has been electronically signed and sealed by Randall Scott Olney, PE, On the date adjacent using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

FL PE No. 68382

SHEET NO.
C0.20



STORMWATER POLLUTION PREVENTION LEGEND

TS	= TEMPORARY SEEDING
PS	= PERMANENT SEEDING
ML	= MULCHING
SD	= SOD STABILIZATION
—— SF ——	= SILT BARRIER
—— TB ——	= TREE BARRIER
IP	= INLET PROTECTION
OP	= OUTLET PROTECTION
CO	= CONSTRUCTION ENTRANCE/EXIT

REFER TO C0.22 FOR DETAILS.

CHW
Professional Consultants

11801 Research Drive
Alachua, Florida 32615
(352) 331-1976
www.chw-inc.com
est. 1988 FLORIDA
CA-5075

SCALE 1"=20'

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 —— 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

CONSTRUCTION/AS-BUILT REVISIONS

SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT
CONCEPT DEVELOPMENT, INC.

PROJECT
COMMERCIAL RETAIL STORE
MARVIN BURNETT

SHEET TITLE
STORMWATER POLLUTION
PREVENTION PLAN

C. WADZINSKI

DESIGNER
C. MENHENNETT

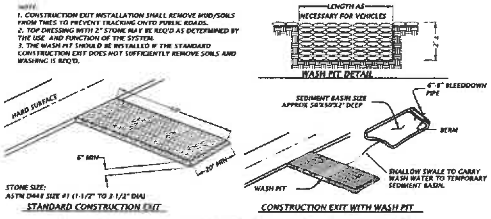
QUALITY CONTROL
R. OLNEY, P.E.

PROJECT NUMBER
23-0653

RANDALL SCOTT OLNEY

FL PE No. 68382

SHEET NO.
C0.21



NOTE:
1. CONSTRUCTION EXIT INSTALLATION SHALL REMOVE MUD/SOILS FROM TIRES TO PREVENT TRACKING ONTO PUBLIC ROADS.
2. TOP DRESSING WITH 2" STONE MAY BE REQ'D AS DETERMINED BY THE USE AND FUNCTION OF THE SYSTEM.
3. THE WASH PIT SHOULD BE INSTALLED IF THE STANDARD CONSTRUCTION EXIT DOES NOT SUFFICIENTLY REMOVE SOILS AND WASHING IS REQ'D.

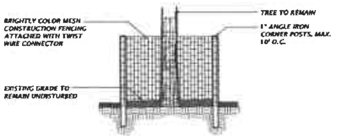
STONE SIZE:
ASTM D448 SIZE #1 (1-1/2" TO 3-1/2" DIA)

STANDARD CONSTRUCTION EXIT

CONSTRUCTION EXIT WITH WASH PIT

TEMPORARY CONSTRUCTION EXIT DETAIL

NTS



TREE PROTECTION DETAIL

NTS

TREE PROTECTION NOTES

1) PROTECTIVE BARRIERS SHALL BE CONSTRUCTED, AS NECESSARY, TO PREVENT THE DESTRUCTION OR DAMAGING OF REGULATED TREES THAT ARE LOCATED WITHIN 50 FEET OF ANY CONSTRUCTION ACTIVITY OR STORAGE OF EQUIPMENT AND MATERIALS.

2) PROTECTIVE BARRIERS SHALL BE PLAINLY VISIBLE AND SHALL CREATE A CONTINUOUS BOUNDARY AROUND TREES OR VEGETATION CLUSTERS IN ORDER TO PREVENT ENCROACHMENT BY MACHINERY, VEHICLES OR STORED MATERIALS.

3) NO TRENCHING ALLOWED WITHIN THE PROTECTIVE BARRIER ZONE. HAND DIG TO INSTALL UTILITY IF APPROVED BY CITY MANAGER OR DESIGNEE. WHERE ROOTS GREATER THAN ONE INCH IN DIAMETER ARE DAMAGED OR EXPOSED, THEY SHALL BE CUT CLEANLY AND RE-COVERED WITH SOIL WITHIN ONE HOUR OF DAMAGE OR EXPOSURE.

4) PROTECTIVE BARRIERS SHALL REMAIN IN PLACE AND INTACT UNTIL SUCH TIME AS LANDSCAPE OPERATIONS BEGIN.

5) LANDSCAPE PREPARATION IN THE PROTECTED AREA SHALL BE LIMITED TO SHALLOW DISCING OF THE AREA. DISCING SHALL BE LIMITED TO A DEPTH OF 4 INCHES.

6) NO BUILDING MATERIALS, MACHINERY OR HARMFUL CHEMICALS SHALL BE PLACED WITHIN PROTECTIVE BARRIERS.

7) THE AMERICAN NATIONAL STANDARDS INSTITUTE A-300 PART V. MANAGEMENT OF TREES AND SHRUBS DURING SITE PLANNING, SITE DEVELOPMENT, AND SITE CONSTRUCTION OR OTHER NATIONALLY RECOGNIZED ARBORICULTURAL STANDARDS SHALL BE USED AS GUIDELINES FOR TREE PROTECTION, PLANTING, PRUNING AND CARE DURING DEVELOPMENT AND CONSTRUCTION.

TYPICAL INSTALLATION SEQUENCE FOR SILT-SAVER FRAME AND FILTER

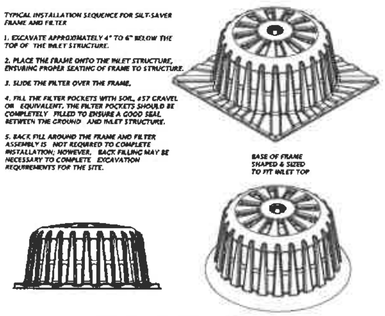
1. EXCAVATE APPROXIMATELY 4" TO 6" BELOW THE TOP OF THE INLET STRUCTURE.

2. PLACE THE FRAME ONTO THE INLET STRUCTURE, ENSURING PROPER SEATING OF FRAME TO STRUCTURE.

3. SLIDE THE FILTER OVER THE FRAME.

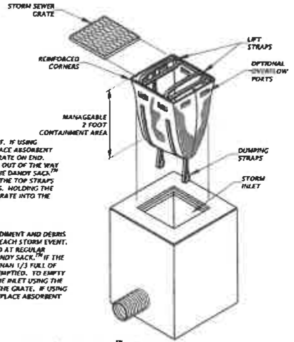
4. FILL THE FILTER POCKETS WITH SOIL, #57 GRAVEL OR EQUIVALENT. THE FILTER POCKETS SHOULD BE COMPLETELY FILLED TO ENSURE A GOOD SEAL BETWEEN THE GROUND AND INLET STRUCTURE.

5. BACK FILL AROUND THE FRAME AND FILTER ASSEMBLY IS NOT REQUIRED TO COMPLETE INSTALLATION; HOWEVER, BACK FILLING MAY BE NECESSARY TO COMPLETE EXCAVATION REQUIREMENTS FOR THE SITE.



SILT-SAVER® DETAIL

NTS



INSTALLATION.

REMOVE THE GRATE FROM INLET. IF USING OPTIONAL OIL ABSORBENTS; PLACE ABSORBENT PILLOW IN UNIT. STAND THE GRATE ON END. MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO THE DANDY SACK™ SO THAT THE GRATE IS BELOW THE TOP STRAPS AND ABOVE THE LOWER STRAPS. HOLDING THE LIFTING DEVICES, INSERT THE GRATE INTO THE INLET.

MAINTENANCE:

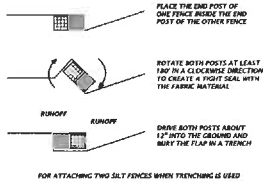
REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM VICINITY OF UNIT AFTER EACH STORM EVENT. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE DANDY SACK.™ IF THE CONTAINMENT AREA IS MORE THAN 1/3 FULL OF SEDIMENT, THE UNIT MUST BE EMPTIED. TO EMPTY UNIT, LIFT THE UNIT OUT OF THE INLET USING THE LIFTING STRAPS AND REMOVE THE GRATE. IF USING OPTIONAL OIL ABSORBENTS; REPLACE ABSORBENT WHEN NEAR SATURATION.

DANDY SACK™ DETAIL

NTS

INLET PROTECTION OPTIONS DETAIL

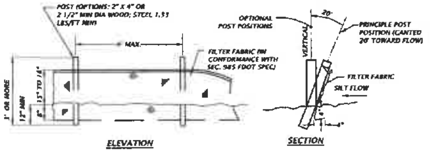
NTS



FOR ATTACHING TWO SILT FENCES WHEN TRENCHING IS USED

TYPE III SILT FENCE WRAPPING DETAIL

NTS



ELEVATION

SECTION

TYPE III SILT FENCE DETAIL

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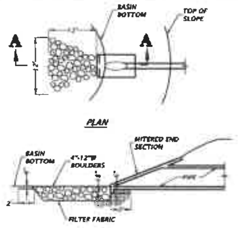
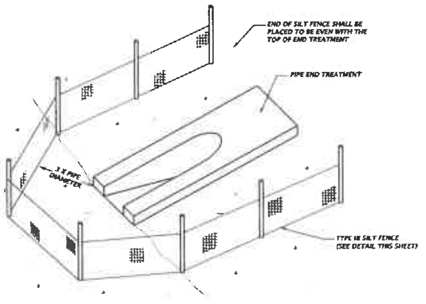


NOTES:

1. ANCHOR FILTER FABRIC BY EXTENDING BEYOND RIPRAP AND BACKFILLING AS SHOWN ON DETAIL.
2. RIPRAP SHALL NOT EXTEND ONTO SIDE SLOPES.
3. ADJUST SHAPE OF APRON WHERE REQUIRED TO MATCH TOE OF SLOPE.
4. BROKEN SLOPE IS NOT ACCEPTABLE.

RIP-RAP EROSION PROTECTION

NTS



OUTFALL PROTECTION DETAIL

NTS

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SCALE: N/A
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
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CONSTRUCTION/BID REVISIONS

SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT: CONCEPT DEVELOPMENT, INC.
PROJECT: COMMERCIAL RETAIL STORE
MARVIN BURNETT
SHEET TITLE: STORMWATER POLLUTION PREVENTION DETAILS

TECHNICIAN: G. WADZINSKI
DESIGNER: C. MENHENNETT
QUALITY CONTROL: R. OLNEY, P.E.
PROJECT NUMBER: 23-0653

RANDALL SCOTT OLNEY
Randall Scott Olney
State of Florida, Professional Engineer, License No. 68382
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FL PE No. 68382

SHEET NO.
C0.22

NOTES:

1. CONTRACTOR SHALL HAVE ALL SILT FENCE & TREE BARRICADES INSTALLED PRIOR TO ANY SITE WORK.
2. CONTRACTOR SHALL REPAIR/RESTORE ANY DISTURBED AREAS TO EXISTING OR BETTER CONDITION.
3. CONTRACTOR TO COORDINATE WITH DOH OR FDEP FOR PROPER REMOVAL AND DISPOSAL OF ANY EXISTING ONSITE SEPTIC SYSTEMS OR WELL SYSTEMS.
4. CONTRACTOR TO USE EXTREME CAUTION WHEN WORKING AROUND EXISTING ABOVE AND UNDERGROUND UTILITIES.
5. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH UTILITY COMPANY AS NEEDED TO SUPPORT POLES DURING CONSTRUCTION.

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CONSTRUCTION/RECORD REVISIONS

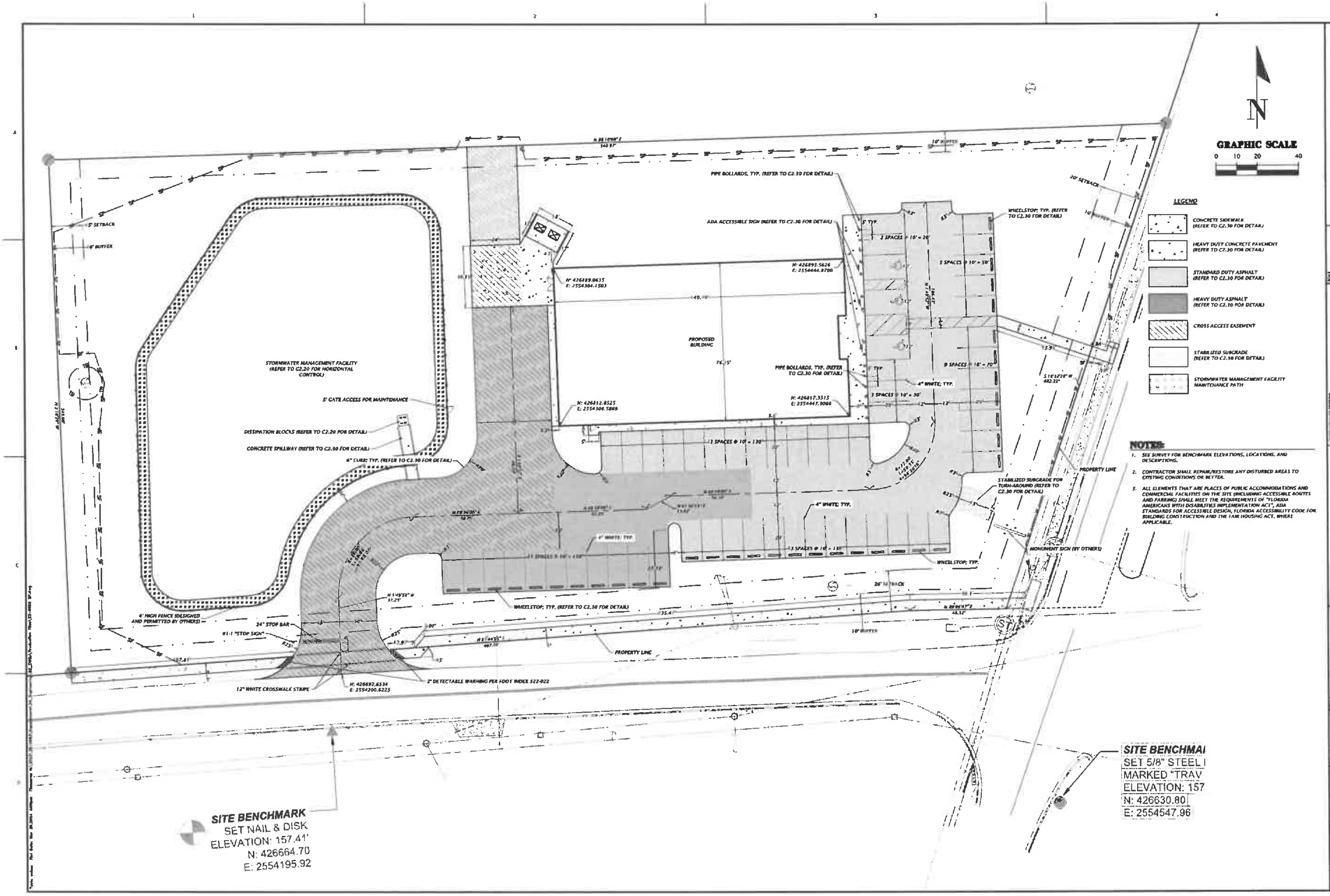
SUBMITTALS
01/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT: CONCEPT DEVELOPMENT, INC.
PROJECT: COMMERCIAL RETAIL STORE
MARVIN BURNETT
SHEET TITLE: DEMOLITION AND TREE PRESERVATION PLAN

TECHNICIAN: G. WADZINSKI
DESIGNER: C. MENHENNETT
QUALITY CONTROL: B. OLNEY, P.E.
PROJECT NUMBER: 23-0653

RANDALL SCOTT OLNEY
FL PE No. 68382

SHEET NO.
C0.30



NOTES:

1. SEE SURVEY FOR BENCHMARK ELEVATIONS, LOCATIONS, AND DESCRIPTIONS.
2. CONTRACTOR SHALL REPAIR/RESTORE ANY DISTURBED AREAS TO EXISTING CONDITIONS OR BETTER.
3. ALL ELEMENTS THAT ARE PLACES OF PUBLIC ACCOMMODATIONS AND COMMERCIAL FACILITIES ON THE SITE (INCLUDING ACCESSIBLE ROUTES AND PARKING) SHALL MEET THE REQUIREMENTS OF "FLORIDA AMERICANS WITH DISABILITIES IMPLEMENTATION ACT", ADA STANDARDS FOR ACCESSIBLE DESIGN, FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION AND THE FAIR HOUSING ACT, WHERE APPLICABLE.

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SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT
CONCEPT DEVELOPMENT, INC.

PROJECT
COMMERCIAL RETAIL STORE
MARVIN BURNETT

SHEET TITLE
SITE PLAN AND HORIZONTAL CONTROL

DRAWN BY
G. WADZINSKI

DESIGNER
C. MEN HENNETT

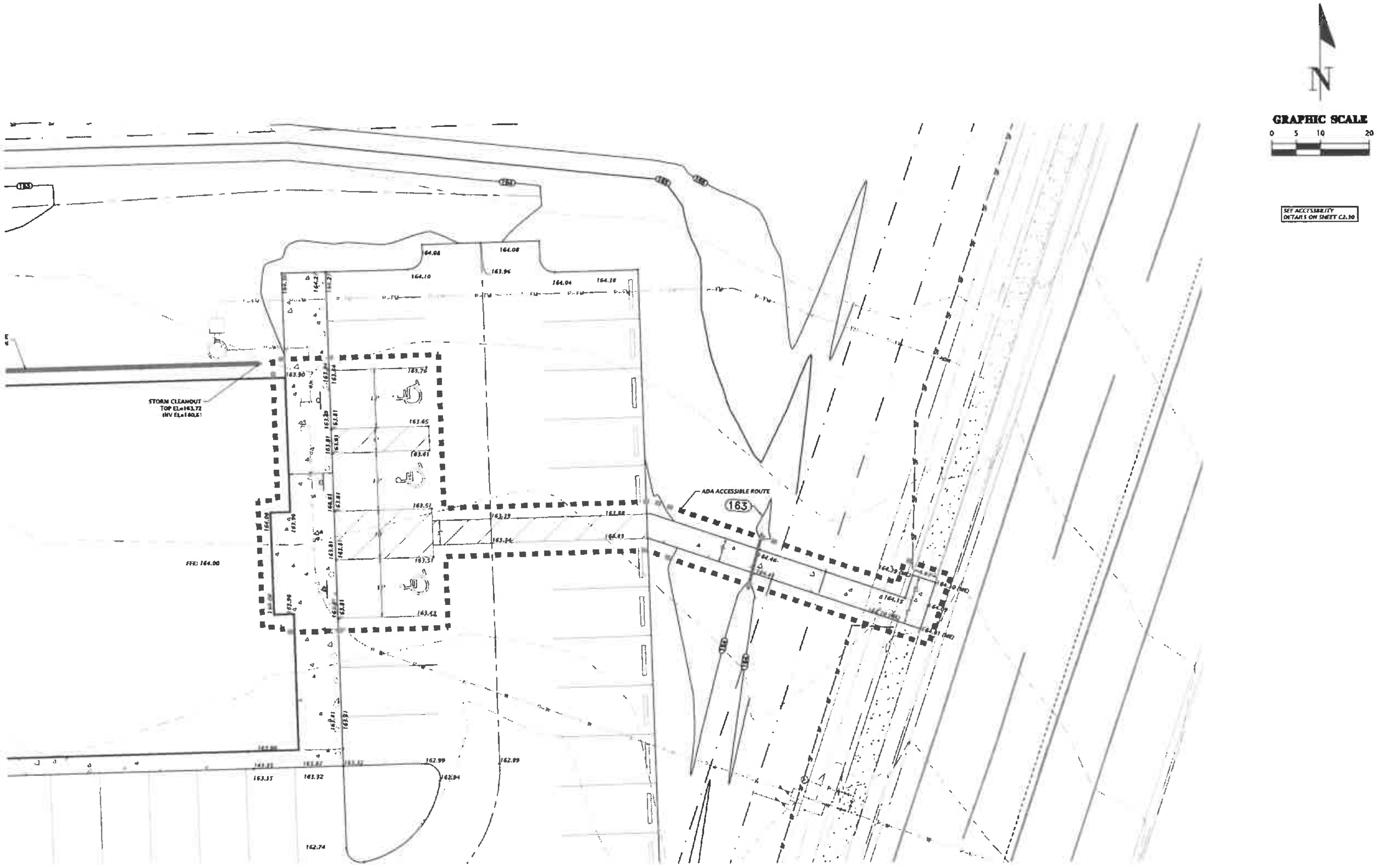
QUALITY CONTROL
R. OLNEY, P.E.

PROJECT NUMBER
23-0653

RANDALL SCOTT OLNEY

FL PE No. 68382

SHEET NO.
C1.00



SEE ACCESSIBILITY DETAILS ON SHEET C2.30

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CONSTRUCTION/BID REVISIONS

SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT
CONCEPT DEVELOPMENT, INC.

PROJECT
COMMERCIAL RETAIL STORE
MARVIN BURNETT

SHEET TITLE
ACCESSIBILITY PLAN

TECHNICIAN
G. WADZINSKI

DESIGNER
C. MENHENNETT

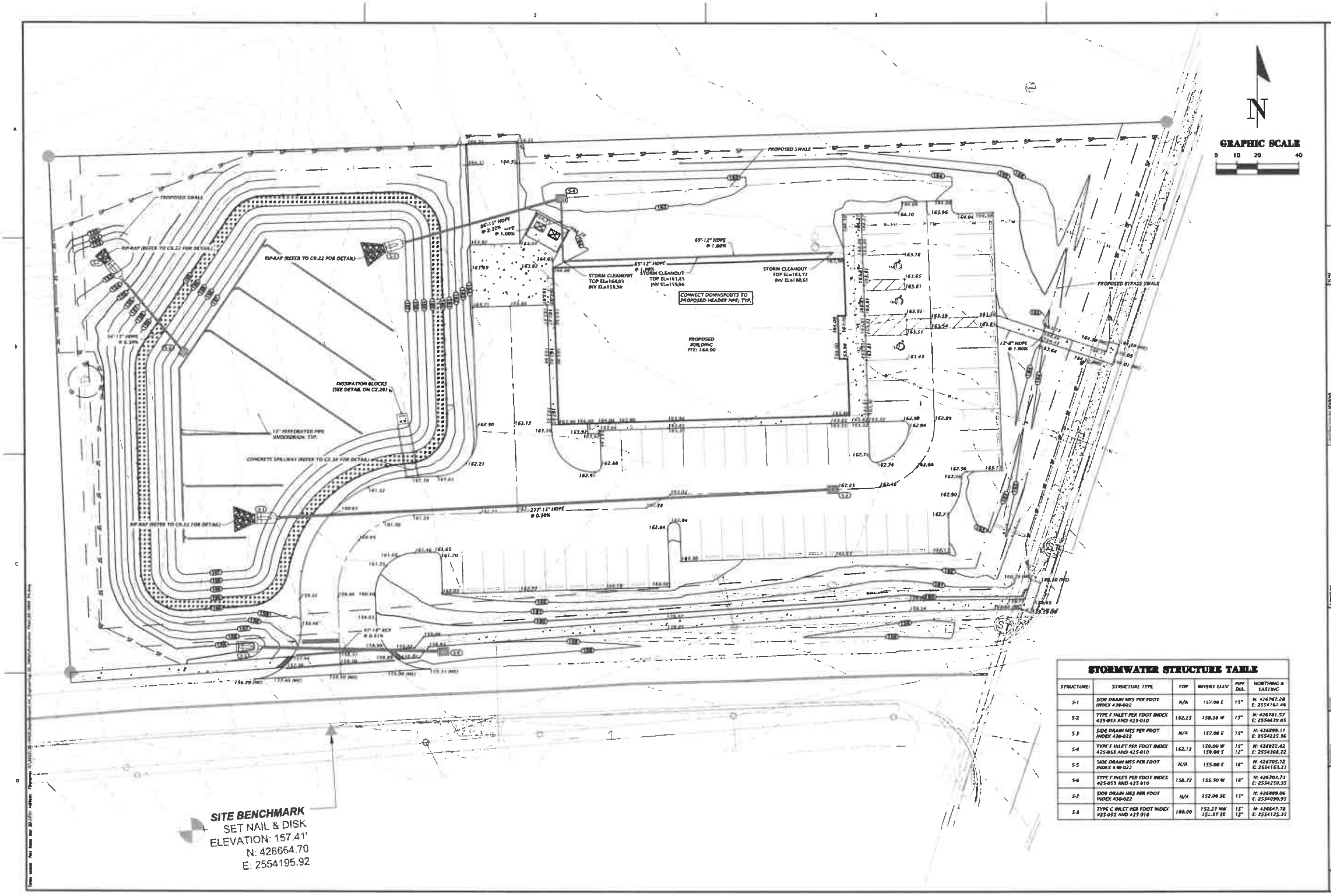
QUALITY CONTROL
R. OLNEY, P.E.

PROJECT NUMBER
23-0653

RANDALL SCOTT OLNEY

FL PE No. 68382

SHEET NO.
C1.20



STORMWATER STRUCTURE TABLE

STRUCTURE:	STRUCTURE TYPE	TOP	INVERT ELEV	PIPE DIA.	NORTHING & EASTING
S-1	SIDE DRAIN MES PER FDOT INDEX 430-022	N/A	157.00 E	15"	N: 426767.28 E: 2554162.46
S-2	TYPE F INLET PER FDOT INDEX 425-053 AND 425-010	162.23	158.38 W	15"	N: 426781.57 E: 2554439.05
S-3	SIDE DRAIN MES PER FDOT INDEX 430-022	N/A	157.00 E	15"	N: 426899.11 E: 2554225.36
S-4	TYPE F INLET PER FDOT INDEX 425-053 AND 425-010	162.12	159.00 W 159.00 S	15" 12"	N: 426822.42 E: 2554308.22
S-5	SIDE DRAIN MES PER FDOT INDEX 430-022	N/A	155.00 E	18"	N: 426705.72 E: 2554153.21
S-6	TYPE F INLET PER FDOT INDEX 425-053 AND 425-010	158.72	155.50 W	18"	N: 426703.73 E: 2554250.35
S-7	SIDE DRAIN MES PER FDOT INDEX 430-022	N/A	152.00 SE	15"	N: 426889.06 E: 2554090.95
S-8	TYPE C INLET PER FDOT INDEX 425-052 AND 425-010	160.00	152.27 NW 152.27 SE	15" 12"	N: 426847.78 E: 2554125.35

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REVISIONS

SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CONCEPT DEVELOPMENT, INC.

PROJECT
COMMERCIAL RETAIL STORE
MARVIN BURNETT

SHEET TITLE
GRADING AND DRAINAGE PLAN

G. WADZINSKI

DESIGNER
C. MENHENNETT

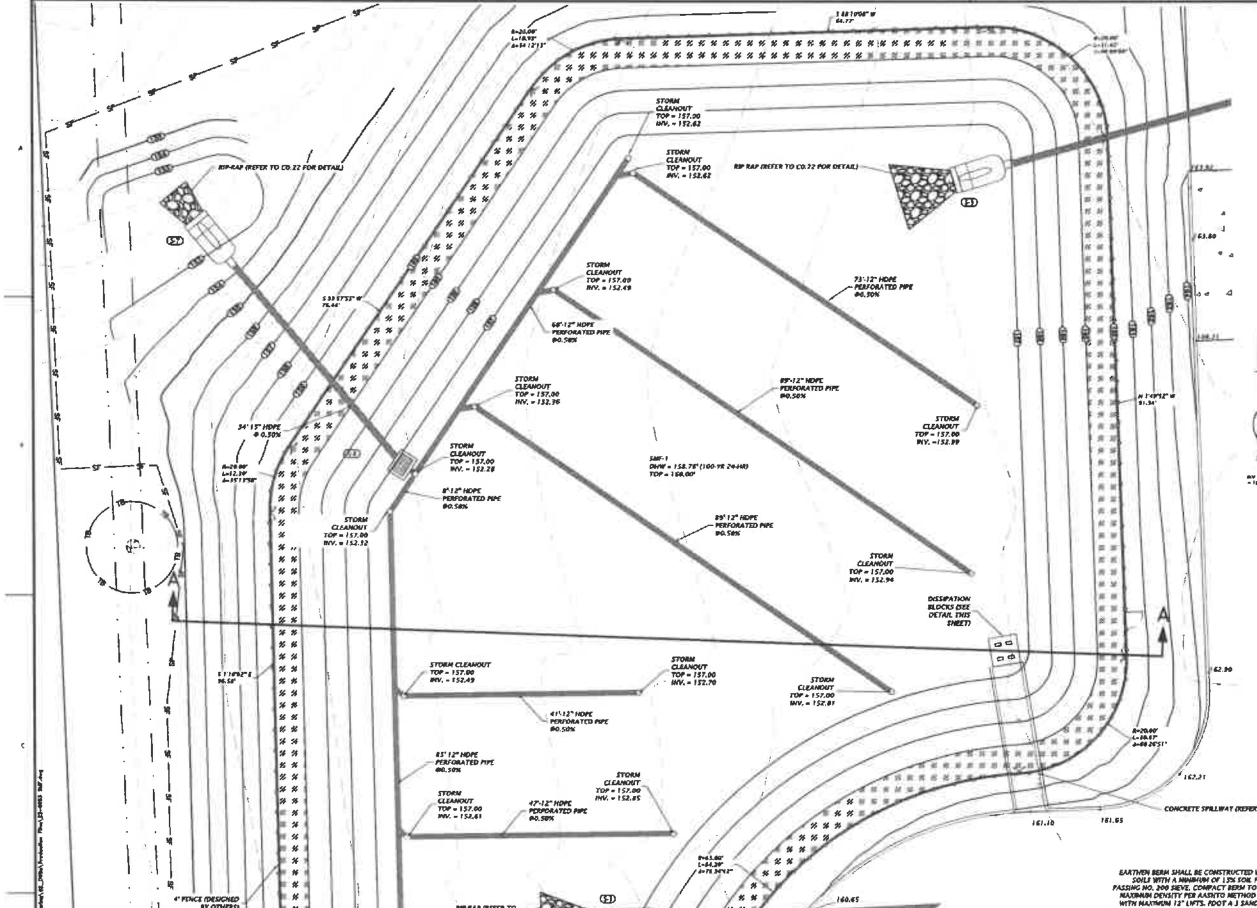
QUALITY CONTROL
R. OLNEY, P.E.

PROJECT NUMBER
23-0653

RANDALL SCOTT OLNEY

FL PE No. 48382

SHEET NO.
C2.00



STORMWATER STRUCTURE TABLE

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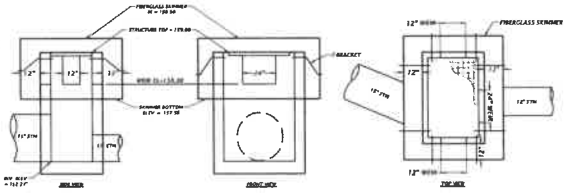
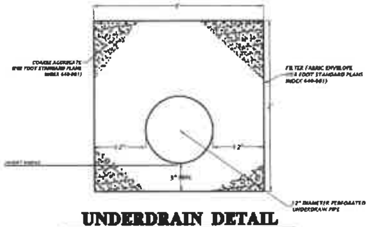


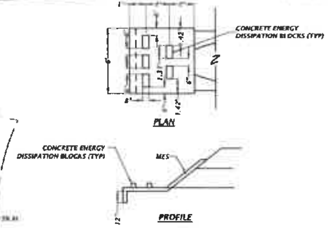
SMF-1 OUTFALL STRUCTURE
MODIFIED FDOT TYPE 'C' INLET PER FDOT INDEX 425-052

NTS



UNDERDRAIN DETAIL

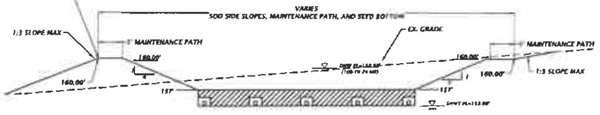
NTS



DISSIPATION BLOCK DETAIL

NTS

EARTHEN BERM SHALL BE CONSTRUCTED WITH SOILS WITH A MINIMUM OF 15% SOIL FINES PASSING NO. 200 SIEVE. COMPACT BERM TO 95% MAXIMUM DENSITY PER AASHTO METHOD T 99 WITH MAXIMUM 12" LIFTS. FDOT A-3 SAND (OR ANY OTHER HIGHLY PERMEABLE MATERIAL) SHALL NOT BE USED.



1. IF A CONTINUOUS LIMEROCK FORMATION IS ENCOUNTERED IN THE BASIN AREA CONTACT THE ENGINEER OF RECORD. THE LIMEROCK SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 3 FEET BEYOND THE BASIN UNDERCUT LIMITS.
2. IF A SOLUTION PIPE SINKHOLE DOES FORM IN THE STORMWATER BASIN, THEN THE SINKHOLE SHALL BE REPAIRED BY BACKFILLING WITH MATERIAL OF LOWER-PERMEABILITY MATERIAL, SUCH AS CLAYEY SAND OR CLAY. THE MATERIAL SHALL BE COMPACTED AND THE SINKHOLE REPAIR SHOULD BRING THE SURFACE BACK TO AN ELEVATION WHICH IS SLIGHTLY ABOVE THE ORIGINAL BOTTOM, CREATING A SMALL MOUND.
3. IN AREAS WHERE CLAY RICH SOILS ARE ENCOUNTERED AT THE BASIN BOTTOM, UNDERCUT SOILS A MINIMUM OF 2 FEET AND BACKFILL WITH ON-SITE OR IMPORTED SANDS AND SAND WITH SILT (SP-SM) HAVING A MAXIMUM OF 12 PERCENT SOIL FINES PASSING THE NO. 200 SIEVE.
4. AREA ABOVE AND BETWEEN UNDER DRAINS (HATCHED) SHALL BE BACKFILLED WITH ON-SITE OR IMPORTED SANDS AND SAND WITH SILT (SP-SM) HAVING A MAXIMUM OF 12 PERCENT SOIL FINES PASSING THE NO. 200 SIEVE. BACKFILL MATERIAL SHALL HAVE A MINIMUM HORIZONTAL AND VERTICAL INFILTRATION RATE OF 10 FT/DAY.

STORMWATER MANAGEMENT FACILITY #1
CROSS SECTION A-A

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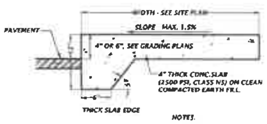
SUBMITTALS
01/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

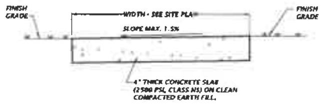
CONCEPT DEVELOPMENT, INC.
PROJECT COMMERCIAL RETAIL STORE MARVIN BURNETT
SHEET TITLE STORMWATER MANAGEMENT FACILITY PLAN AND DETAILS

PROJ MGR G. WADZINSKI
DESIGNER C. MENHENNETT
QUALITY CONTROL R. OLNEY, P.E.
PROJECT NUMBER 23-0653

RANDALL SCOTT OLNEY
FL PE No. 68382

SHEET NO. C2.20





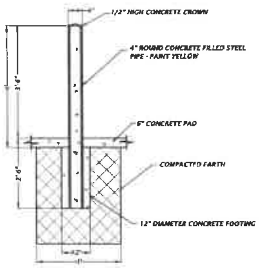
NOTES.

1. SAWCUT CONTROL JOINTS SHALL BE CONSTRUCTED 5 FEET ON CENTER
2. EXPANSION JOINTS WITH PREFORMED JOINT FILLER SHALL BE CONSTRUCTED BETWEEN ALL FIXED OBJECTS AND WALK AND AT CONSTRUCTION JOINTS.

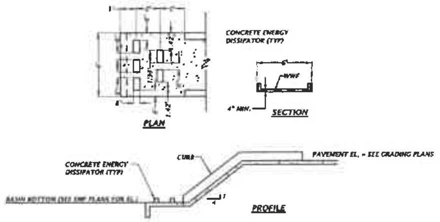
ADJACENT TO PAVEMENT
NTS

NOT ADJACENT TO PAVEMENT
NTS

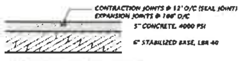
CONCRETE SIDEWALK DETAILS



PIPE BOLLARD DETAIL
NTS

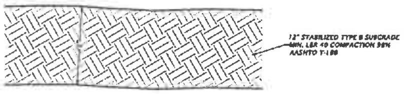


CONCRETE SPILLWAY DETAIL
NTS



NOTE. CONCRETE PAVEMENT & JOINTS SHALL BE CONSTRUCTED TO FC & PA STANDARDS.

HEAVY DUTY CONCRETE DETAIL
NTS

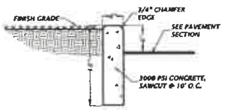


STABILIZED TURNAROUND DETAIL
NTS

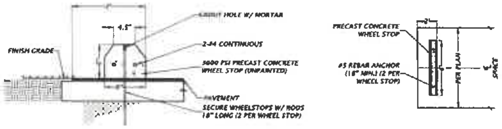
STANDARD DUTY ASPHALT DETAIL

HEAVY DUTY ASPHALT DETAIL

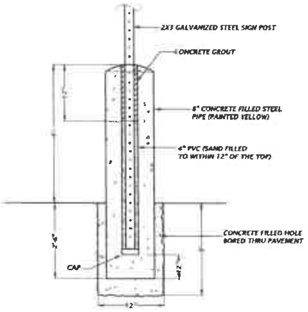
ASPHALT PAVEMENT DETAILS
NTS



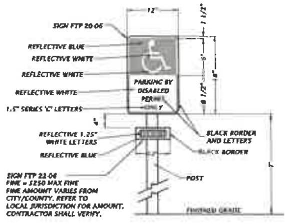
TYPICAL 6" CURB DETAIL
NTS



WHEEL STOP DETAIL
NTS



BOLLARD & ACCESSIBLE SIGN DETAIL
NTS

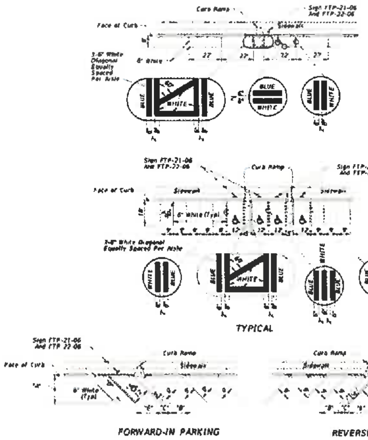


SIGN FTP 22-06
FINE = $250 MAX FINE
FINE AMOUNT VARIES FROM CITY/COUNTY. REFER TO LOCAL JURISDICTION FOR AMOUNT. CONTRACTOR SHALL VERIFY.

SIGN NOTES:

1. SIGN CONSTRUCTION, DESIGN AND PLACEMENT SHALL COMPLY WITH STATE AND LOCAL STATUTES.

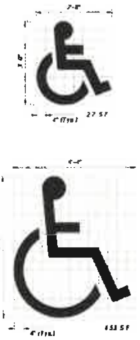
ACCESSIBLE PARKING SIGN DETAIL
NTS



*FOR ACCESSIBLE MARKINGS - SEE ABOVE

DIMENSIONS					
∠θ	"A"	"B"	"C"	"D"	"E"
45°	17'-0"	12'-9"	7'-0"	24'-0"	17'-0"

PAVEMENT MARKING FOR PARKING



(See Note 5)

UNIVERSAL SYMBOL OF ACCESSIBILITY

NOTES:

1. Dimensions are to the centerline of markings
2. An Access Aisle is required for each accessible space when angle parking is used
3. Criteria for pavement markings only, not public sidewalk curb ramp locations. For ramp locations refer to plans
4. Mount FTP-22-06 sign below the FTP-21-06 sign
5. Use of the pavement symbol in accessible parking spaces is optional. When pavement symbol is used, the symbol is either 3'-0" or 5'-0" high and white in color

LAST REVISION 11/01/21 | DESCRIPTION: | FDOT FY 2023-24 STANDARD PLANS | PAVEMENT MARKINGS | INDEX 711-001 | SHEET 11 of 13

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CONSTRUCTION/RECORD REVISIONS

SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT: CONCEPT DEVELOPMENT, INC.
PROJECT: COMMERCIAL RETAIL STORE MARVIN BURNETT
SHEET TITLE: CONSTRUCTION DETAILS

TECHNICIAN: G. WADZINSKI
DESIGNER: C. MENHENNETT
QUALITY CONTROL: R. OLNEY, P.E.
PROJECT NUMBER: 23-0653

RANDALL SCOTT OLNEY

Randall Scott Olney
State of Florida Professional Engineer License No. 68382

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FL PE No. 68382

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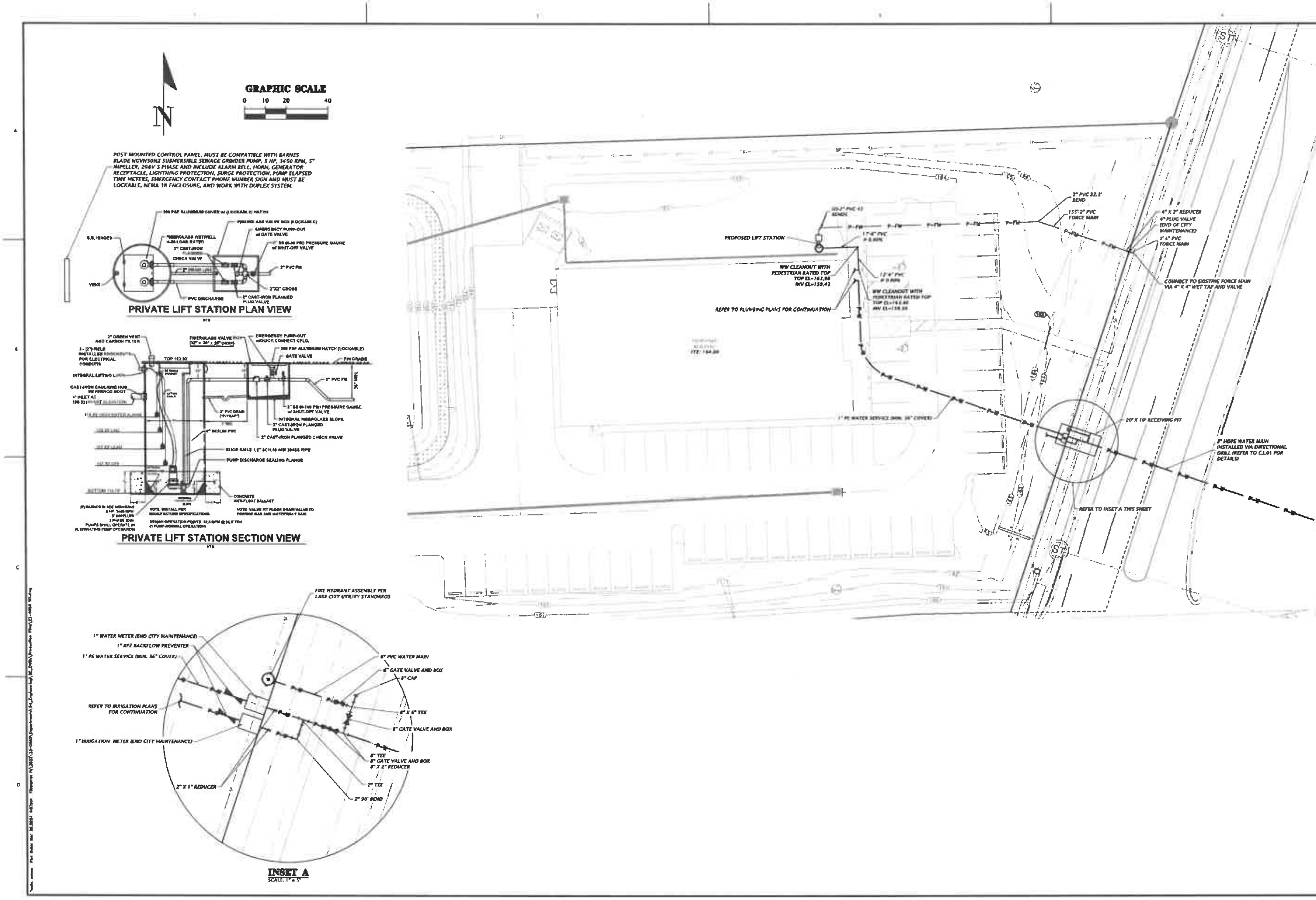

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CONSTRUCTION/BID REVISIONS

SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CONCEPT DEVELOPMENT, INC.

PROJECT
COMMERCIAL RETAIL STORE
MARVIN BURNETT

SHEET TITLE
UTILITY PLAN

TECHNICIAN
G. WADZINSKI
DESIGNER
C. MENHENNETT
QUALITY CONTROL
R. OLNEY, P.E.
PROJECT NUMBER
23-0653

RANDALL SCOTT OLNEY

Randall Scott Olney
State of Florida Professional Engineer License No. 68382

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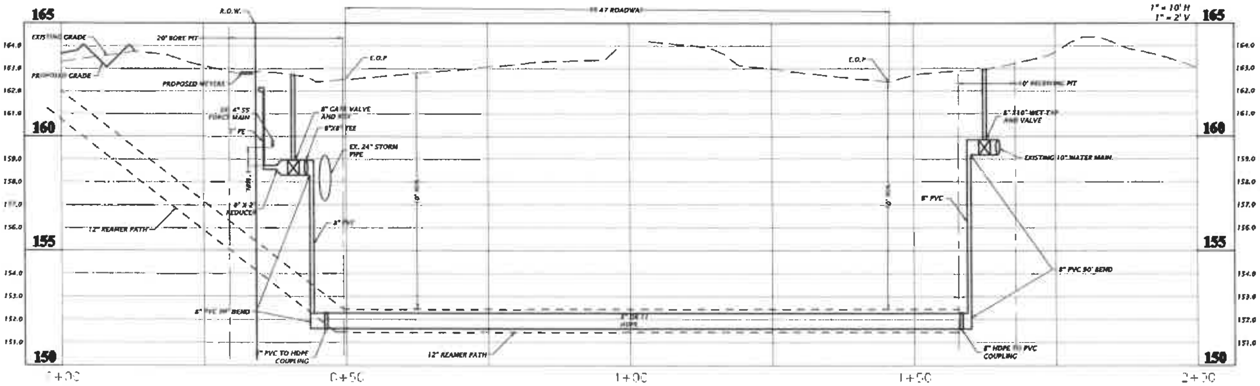

DIRECTIONAL DRILL PROFILE

HORIZ. SCALE: 1" = 10'
VERT. SCALE: 1" = 2'

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CONSTRUCTION/RECORD REVISIONS

SUBMITTALS
03/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT
CONCEPT DEVELOPMENT, INC.

PROJECT
COMMERCIAL RETAIL STORE
MARVIN BURNETT

SHEET TITLE
DIRECTIONAL DRILL PLAN AND PROFILE

TECHNICIAN
G. WADZINSKI

DESIGNER
C. MENHENNETT

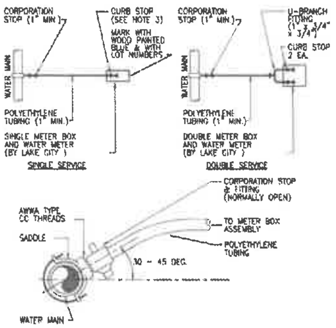
QUALITY CONTROL
R. OLNEY, P.E.

PROJECT NUMBER
23-0653

RANDALL SCOTT OLNEY

FL PE No. 68302

SHEET NO.
C3.01

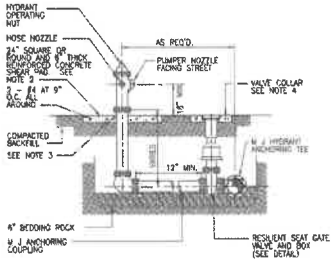


NOTES:
1. ALL FITTINGS SHALL BE BRASS WITH COMPRESSION/PACK JOINT TYPE CONNECTIONS.
2. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
3. EACH SERVICE SHALL TERMINATE AT A CURB STOP(S) WHICH SHALL BE BURIED APPROXIMATELY 3" BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2" X 2" X 18" STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE NUMBER OF THE LOT(S) TO BE SERVED.
4. INDENT CURB WITH "W" AT EACH WATER SERVICE LOCATION

CITY OF LAKE CITY

WATER SERVICE CONNECTION DETAILS

Date | Revisions | Appr. | By
Date: Sept. 1998 | Scale: N.T.S. | Dwg: 0408 | Fig: 408

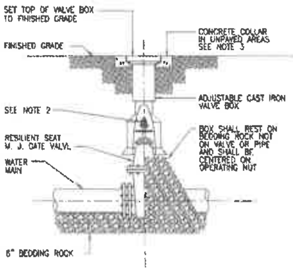


NOTES:
1. FIRE HYDRANT SHALL BE SUPPLIED WITHOUT A WEEP HOLE OR WITH A PERMANENTLY PLUGGED WEEP HOLE.
2. THE DEVELOPER MAY INSTALL THE SHEAR PAD RECESSED UP TO 4 INCHES BELOW FINISHED GRADE AND SOD THE RECESSED SECTION.
3. CLEARANCE BETWEEN BOTTOM OF BOLTS AND TOP OF SHEAR PAD SHALL BE A 6" MINIMUM.
4. VALVE COLLAR SHALL BE 18"X18"X6" CONCRETE COLLAR W/4 - #4 BARS

CITY OF LAKE CITY

FIRE HYDRANT ASSEMBLY DETAIL

Date | Revisions | Appr. | By
Date: Sept. 1998 | Scale: N.T.S. | Dwg: 0402 | Fig: 402

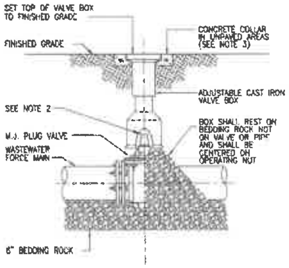


NOTES
1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE
3. VALVE COLLAR SHALL BE 18"X18"X6" CONCRETE COLLAR W/4 - #4 BARS.

CITY OF LAKE CITY

GATE VALVE AND BOX DETAIL

Date | Revisions | Appr. | By
Date: Sept. 1998 | Scale: N.T.S. | Dwg: 0400 | Fig: 400



NOTES.
1 PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.
3. VALVE COLLAR SHALL BE 18"X18"X6" CONCRETE COLLAR W/4 - #4 BARS

CITY OF LAKE CITY

PLUG VALVE AND BOX DETAIL

Date | Revisions | Appr. | By
Date: Sept. 1998 | Scale: N.T.S. | Dwg: 0203 | Fig: 203

11801 Research Drive
Alachua, Florida 32615
(352) 331-1976
www.chw-inc.com
est. 1988 FLORIDA
CA-5075

CHW
Professional Consultants

N/A

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

CONSTRUCTION REVISIONS

SUBMITTALS
01/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FDOT

CLIENT
CONCEPT DEVELOPMENT, INC.

PROJECT
COMMERCIAL RETAIL STORE
MARVIN BURNETT

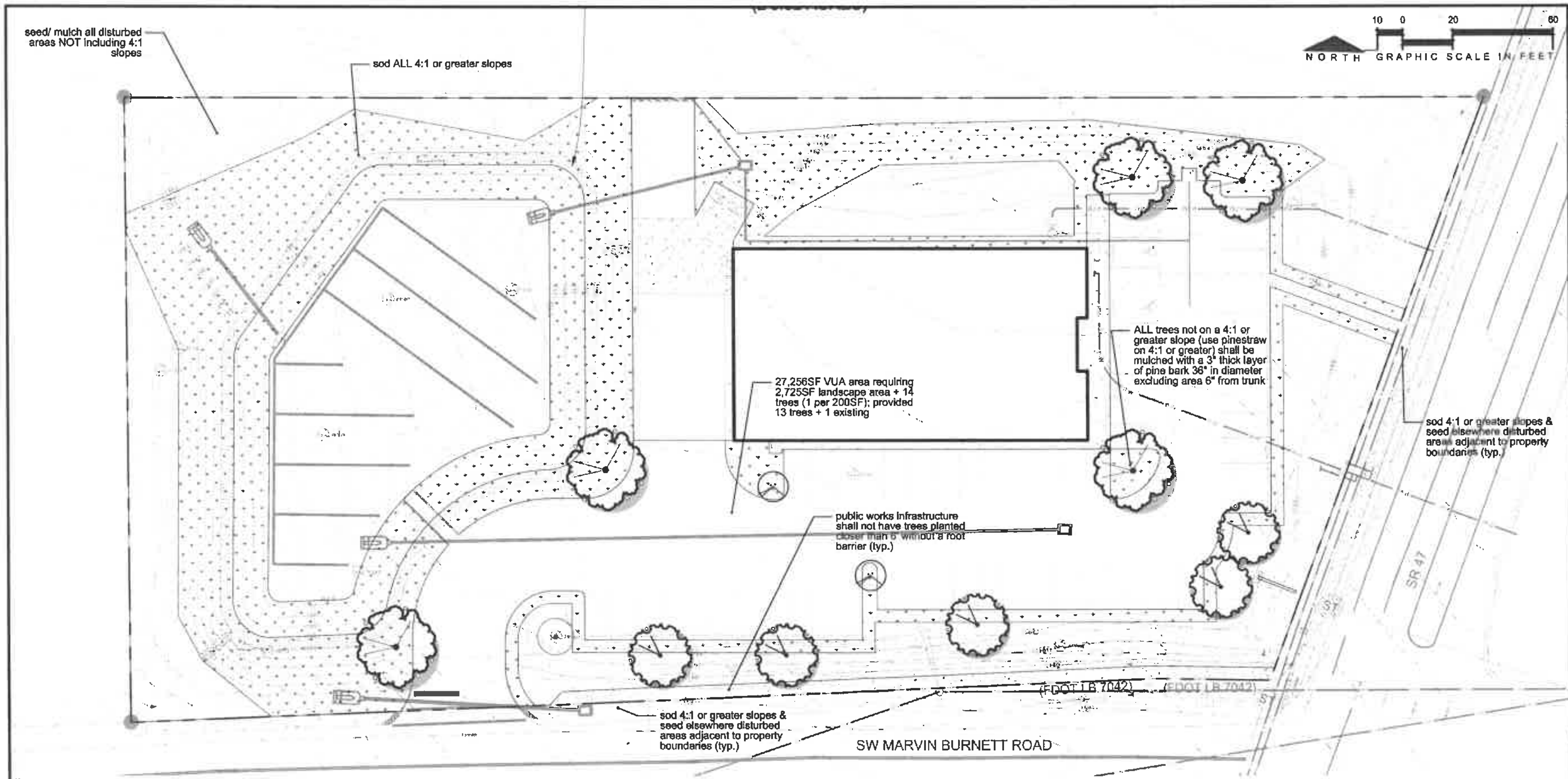
SHEET TITLE
UTILITY DETAILS

G. WADZINSKI
DESIGNER
C. MENHENNETT
QUALITY CONTROL
R. OLNEY, P.E.
PROJECT NUMBER
23-0653

RANDALL SCOTT OLNEY

FL PE No. 68382

SHEET NO
C3.20



Trees

Quantity	Abbr.	Botanical Name /	Size / Caliper	Spacing	Comments
5		*Quercus virginiena* live oak	4'HT	per plan	
5		*Ulmus alata* winged elm	4'HT	per plan	
2		*Lagerstroemia indica 'Natchez'* crape myrtle	4'HT	per plan	

Groundcovers

235SF x 3" thick	☐	*Pine Bark Nuggets* 3" layer		
32,894SF	⁘	*Pasapalum notatum 'Argentine'* bahia grass		
39,652SF	☐	*Pasapalum notatum 'Argentine'* bahia grass seed on basin bottom covered in pinestraw		
0	AJ	*T. asiaticum 'Minima'* asiatic jasmine	1GAL, full	2'OC
0	PP	*Arachis glabrata 'Ecoturf'* perennial peanut	1G	2'OC

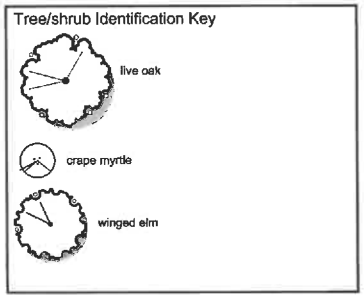
General Notes

1. Contractor shall provide proposed soil amendment quantities on bid form to ensure healthy vigorous growth of plant material, lateral movement of irrigation water within soil, & soil nutrient holding capacity.
2. Any vegetation planted adjacent to a parking stall where it may interfere with a vehicles door opening shall be offset 2' from back of curb. Trim plant material as needed to keep a 6" clearance from back of curb in these areas.
3. ALL mulched areas adjacent to edge of curb, pavement, shall be composed of a compressed 3" thick layer of mulch. Top of mulch shall be 1/2" below edge of adjacent surface so mulch has a containment edge.
4. ALL proposed sod areas adjacent to edge of curb/pavement shall be excavated so the sod does not impede water runoff into the pervious areas.
5. All revisions shall be submitted to Lake City for review and approval prior to installation.

Soil Testing

Existing soil composition has not been tested. Contractor excavate 2' depth all material used in construction of parking lots and buildings inside plant beds and infill with suitable soil and amendments to support healthy growth.

Tree/shrub Identification Key



BORTON DESIGN INC.

REVISIONS:

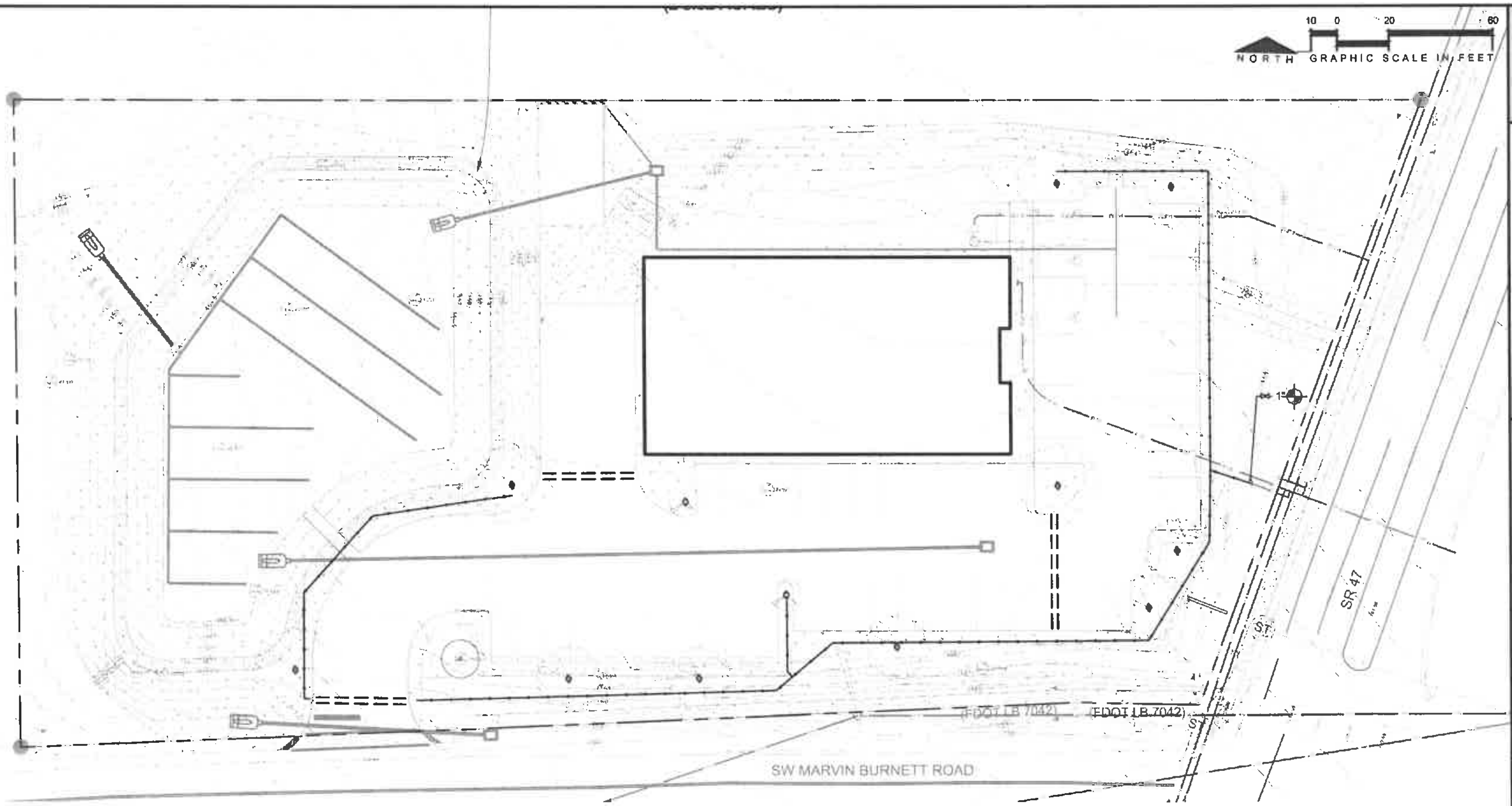
LANDSCAPE PLAN

COMMERCIAL RETAIL STORE - MARVIN BURNETT
PREPARED FOR
CONCEPT COMAPANIES

BDI NO.	24200
DRAWN BY:	BDB
DESIGNED BY:	BDB
CHECKED BY:	BDB
DATE:	12/19/2023

PLANS PREPARED BY
Brian D Borton
2023.12.19 09:06:51 -05'00'
BRIAN DAVID BORTON FL NO. LA6667028

LS-01



Legend

▬ ▬ ▬	sleeve₁,₂
───	lateral₂
───	blank poly tubing
C	controller
S	rain sensor
⋈	control valves
▶	1/2" drip shut-off valve
⊕	zone # and flow rate in gallons per minute
+	irrigation drip break
POC	lateral/drip point of connection

₁sleeves - Unless specified on plans all sleeves shall be 2". When plans show lateral in pipe, install pipe in sleeve and cap both ends 12" beyond end of sleeve.
₂irrigation lateral lines and sleeving may be diagrammatic in nature and are intended to be installed in suitable locations within property boundaries.

Irrigation Notes

1. Dripline. Drip shall be installed on top of soil and covered with mulch.
2. Control Valves & Regulators. Control valves shall be installed and set 5% over proposed flow.
3. Pipe. 1/2" pipe shall be Class 315 PVC. Piping larger than 1/2" shall use Class 200 PVC.
4. Irrigation materials not identified on irrigation schedule or in specifications as to brand and model # shall be either Rainbird, Nelson, or Hunter and sized appropriately by contractor to meet requirements by the manufacturer. Contractor shall include all materials including quantity, model, size, and installed price for each item on bid form.
5. All irrigation revisions shall be submitted to Lake City for review and approval prior to installation.
6. No irrigation to be provided at sod. Contractor shall irrigate with a water truck as needed for the first two weeks.
7. Pipe shall not be installed within 50% of any existing tree dripline UNLESS piping is installed via a trenchless installation method.

Watering Schedule for Zone 1

Water all plants listed once per day for (60) sixty minutes during the first (30) thirty days and every other day for the next (30) thirty days; thereafter, follow water restrictions per jurisdiction until established. Shrub drip valves may be shut-off after (3) three months. After (1) one year trees should be sufficiently rooted into existing soil for shutdown; however, it is recommended that a review be performed by a certified arborist before shutting off the system. After establishment irrigation should be turned on IF a drought occurs. Bahia grass shall be temporarily watered via hand moved sprinklers for two weeks if rainfall is not occurring as needed.

Number of emitters per tree/shrub

live oak	2-2gph emitters
winged elm	2-2gph emitters
crape myrtle	2-2gph emitters
walters vib.	1-1gph emitter
asiatic jasmine	1-.5gph emitter

Irrigation Schedule

Quantity	Description
100'	Rainbird XFD blank tubing
1	Rainbird ESP-RZX Series Controller
1	Rainbird WR2 - RC sensor
1	Rainbird 075-DV
1	Rainbird PSI-M50X-100
0	Rainbird QKCHK100 drip filters
0	Netafim 01WPCJL1.2 drip emitter .32GPH
0	Rainbird XB-05PC drip emitter .5GPH
0	Rainbird XB-10PC drip emitter 1GPH
TBD	Rainbird XB-20PC drip emitter 2GPH
0	Rainbird PC-05 drip emitter 5GPH
TBD	Rainbird BVAL50-1S138 drip valve
TBD	1/2" Perma-Loc EndCap w/ Flush Valve
TBD	Rain Bird PVB6RND 6 in. round valve box
TBD	9" 9-gauge galvanized ground staples

BORTON DESIGN INC.

REVISIONS:

IRRIGATION PLAN

COMMERCIAL RETAIL STORE - MARVIN BURNETT
PREPARED FOR
CONCEPT COMAPANIES

BDI NO. 24200
DRAWN BY: BDB
DESIGNED BY: BDB
CHECKED BY: BDB
DATE: 12/19/2023

PLANS PREPARED BY
BRIAN DAVID BORTON FL
NO. LA6667028

LS-02

LANDSCAPE PART 1 GENERAL NOTES

Scope. This section includes all planting of shrubs, trees, ground covers, and other landscape supplementary work shown on the drawings and specified herein, complete.

Applicable Documents. The following publications, specifications, and standards of the issues listed in this paragraph (including the amendments and addenda designated), but referred to hereinafter by basic designation only, form a part of this specification to the extent required by the references thereto.

Publication of Reference. Publications as herein listed shall be held in basic reference:

Grades and Standards for Nursery Plants, Parts I and II, State Department of Agriculture and/or State Plant Board of Florida, Seagle Building, Gainesville, Florida.

State of Florida Fertilizer Law, Office of the Secretary of State, Tallahassee, Florida.

American Standard for Nursery Stock (ANSIZ60.1-), American Association of Nurserymen.

Standards for Tree Care Operations (ANSI A300)

Guideline Specifications to Sodding, America Sod Producers Association (ASPA)

Plant Quantities. All plant quantities shown in the plans are approximate based on the plan locations. The Contractor shall be fully responsible for determining all final plant quantities and shall submit a revised plant schedule with final plant quantities as part of the contract and prior to construction.

Substitutions of Plant Material. If a plant is found to be unavailable, submit proof of non-availability and a proposal for use of equivalent material. When authorized, adjustment of contract amount will be made. No substitutions will otherwise be authorized. To prove non-availability, The Contractor must provide at least eight (8) letters from growers or dealers from the States of Florida and Georgia explaining the non-Availability of the plant material.

On-Site Conditions and Adjustments. The locations of plants, as shown on the plans, are fairly accurate. Planting shall be adjusted only when necessary to accommodate actual as-built conditions on the site and any changes in locations caused thereby shall be made without additional cost to the Owner, Owner's Representative, or Landscape Architect. The Contractor shall immediately notify the Owner's Representative when conditions detrimental to plant growth are encountered, such as rubble fill, lime rock, or obstructions; and when field conditions are different than portrayed on the plans prior to planting. The owner or Owner's Representative may adjust the layout or location of specified plant materials to avoid these areas without additional costs.

Coordination of Plantings. Coordinate all landscape work with the Owner's Representative and other contractors. Plant trees and shrubs after final grades are established and prior to planting of lawns, unless otherwise directed by the Owner's Representative.

Fine Grading. Provide fine grading necessary to establish finish grade in all landscape areas. Fine grading shall include only minor grading to correct random or infrequent grade irregularities of 12" or less, unless otherwise noted on plans.

Liability of Contractor. The Contractor shall be liable for any and all damages to property that result from his performance. He shall, without extra cost, restore to original condition any areas and/or construction damaged, defaced, disturbed, or destroyed by him or his workmen.

Tree Tagging. A tree tagging trip may be requested by Owner's Representative prior to approval of plant material. Contractor shall be responsible for providing transportation and accommodations if necessary.

Inferior Materials. Contractor shall reject inferior materials. The Owner's Representative reserves the right to reject any or all materials not meeting the criteria specified herein or determined to be damaged or unhealthy.

Onsite Debris. Contractor shall be responsible for removing and disposing of offsite all stones over 1" in diameter, sticks, roots, and other extraneous matter in planted areas to a depth of 2'. If debris is excessive and results from construction waste please contact Owner's Representative for appropriate actions.

LANDSCAPE PART 2 SUBMITTALS

Soil Testing for Plant Material. The Contractor shall be responsible for testing soils in planted areas to confirm that soil is suitable for healthy plant growth and shall submit a report to the Owner's Representative prior to construction showing test data and any conflicts determined by the contractor.

Seed Certification. All seed must comply with regulatory agencies for fertilizer and herbicide composition.

Inspection Certificates, Manufacturer's Data. Upon request of Representative copies of inspection certificates or manufacturer's data shall be provided for any material used onsite or for existing materials found onsite.

LANDSCAPE PART 3 MATERIALS

General Plant Material Requirements. Provide state inspected, nursery grown plants, and according to the plant schedule unless otherwise specified. Conform to the. "Florida Department of Agriculture Grades and Standards For Nursery Plants", local landscape ordinance, and, where applicable, to ANSI Z60.1 All plant materials shall be Nursery grown, Florida No. 1 stock. All materials shall be healthy, vigorous, free of diseases and insects, pruned for best shape without appearance of "de-horning", and without symptoms of nutritional deficiency. Furnish plants grown under climatic conditions must measure according to sizing required detailed on the drawings. Plants must be naturally bushy, dense, in good foliage, well branched, and of good appearance. The nursery/nurseries from which plants are derived shall be under regulatory inspection by the Florida State Department of Agriculture and/or the Florida State Plant Board, or an equivalent agency if derived from outside the State of Florida. Plants entering from outside the State of Florida must bear the entry certificate of the State Department of Agriculture of the State of Florida. All plant materials will be subject to approval of the Owners or Owner's Representative for quality, size and color.

Soil Additives. Contractor shall be responsible for adding peat, humus, fertilizer, manure, pH adjusters or any other commercially accepted soil additive to ensure normal, healthy plant growth or as noted on the plans.

Balled and Bur lapped Trees. Ensure that field grown material follows local industry standards for root pruning, digging, balling and bur lapping, etc. All balled and bur lapped materials must be hardened off before shipment. All materials are subject to approval by the Owner's Representative prior to shipping to project site. The top 5 inches of natural burlap shall be removed and completely remove any synthetic burlap wrapping or wire cages before installation.

Spaded Trees. Trees shall have been spaded from a commercial nursery field that has been inspected by the Department of Agriculture and Consumer Services within the last 9 months. The Contractor shall provide a copy of the most recent Nursery, Stock dealer and Special Inspection Report for verification upon Owner's Representative request. Ball size shall be at least one size greater then recommended by ANSI Z60.1, American Standard for Nursery Stock, unless otherwise specified. Spaded material is subject to approval and tagging by the Owner's Representative prior to shipping to project site.

Container Plants. Provide container-grown plants with sufficient roots to hold the container soil together after removal from the container. Root bound plants and plants with inadequate root systems are not acceptable.

Surface Mulch. Use mulch type specified in plans. Mulch shall be in a non-decomposed state; not more then one (1) season old.

Herbicides, Insecticides. Chemical sprays, dusts, or gaseous compounds used on or around plant materials, including but not limited to trees, shall be approved for such uses by the Environmental Protection Agency and the Florida Department of Agriculture, and Consumer Services. Such materials as may be used shall not constitute a hazard to human health or interfere with site working conditions and habitation.

Seed Requirements General. Where seeding may be required on the plans, the seed required shall comply with all minimum provisions of the Florida Seed Certification and Testing Law. Noxious weed seeds shall be non-existent and foreign materials shall not exceed two percent.

Sod Requirements General. See plan for specified sod. All sod shall be healthy, strongly rooted and not less than two (2) years old, free of weeds and undesirable native grasses in 18" x 24" pads, 1-1/2" thick. Sod shall conform to "Nursery Grown" grade as established by American Sod Producers Association (ASPA). Sod shall be considered free of weeds if less than 5 weeds are found per 100 square feet of area. Brown, dry irregularly smooth, and/or unfresh sod will be rejected.

LANDSCAPE PART 4 PLANTING PROCEDURES

General. Prior to commencement of any work, the Landscape Contractor shall inspect the site, locate planting areas, placement of guying devices, locate electrical cables, conduits, and other underground and above utilities so that proper precautions and procedures may be followed during and throughout construction. The Contractor shall become familiar with other job trade activity which has an impact upon his work or upon which his work has an impact and shall arrange to carefully coordinate his work with other trades through the Owner's Representative. All planting practices listed herein shall ensure healthy plant growth.

Layout. The location of plants, planting beds and plant quantities, are approximate. The locations and bed lines shall be staked on the project site by the Contractor and approved by the Owner's Representative before any plant pits or beds are dug. The Owner's Representative may adjust plant material locations to meet field conditions. Contractor shall make minor adjustment without additional cost to the Owner.

Finish Grades. The Landscape Contractor is responsible for all fine grading and preparation for planting. Finish grades (top of soil) for all sod areas after settlement shall be one-half inch below the top of abutting curbs, walks, walls and abutments. The finish grade of all plant beds prior to mulching shall be three inches below finish grade of sod, abutting curbs, walks and walls. Three inches of mulch shall be added to all plant beds after planting.

Planting Seasons/Times. The planting of plant materials and lawns may proceed at any time, period, or season agreed upon by the Contractor and Owner or Owner's Representative

Plant Installation. All plants existing rooball top shall be 0-1" above finished grade. Area surrounding tree shall excavated/loosened to 3X the width and 1X depth prior to installation. Plants shall be set plumb and straight. When backfilling lightly tamp layers in 6" lifts. Do not over compact. A ¼" probe should be able to penetrate to a depth of the rootball with hand pressure. A 3" mulch layer shall be applied over rootball excluding the area 6" from the trunk/stem. Stake and install trees according to details. Trees shall be secured loosely and allow trunk to sway. Sod. All areas to be either seeded, sprigged, or sodded shall be prepared in a manner to ensure normal, vigorous and healthy growth.

Fine grade lawn areas to smooth, even surface with with loss, uniformly fine texture. Roll, rake and drag lawn areas, remove ridges and fill depressions with topsoil as required to meet finish grades. In areas to be sodded, allow for sod thickness.

Sod Installation. Lay sod in straight, parallel rows to form a solid mass with tightly fitted joints, without overlap. Stagger strips to offset joints. Work topsoil into minor cracks. On 1:3 slopes or greater, lay sod with long dimension of pads parallel to contours and stake sod as necessary to stabilize. Drive sod stakes flush with top of sod.

Sprigging and Seeding. Sprigging/seeding shall be done in a manner to ensure a quick grow-in period achieving a uniform green lawn prior to final acceptance.

LANDSCAPE PART 5 MAINTENANCE

Plant Material. Maintain all plant materials until Final Acceptance. Maintenance shall include all required watering, cultivation, weeding, mowing, pruning, wound dressing, immediate replacement of dead and unacceptable material, straightening plants which lean or sag, adjustment of plants which are planted too low, and any other procedure consistent with good horticultural practice necessary to ensure normal, vigorous and healthy growth of all planting under the Contract.

Lawn. Maintain lawns until Final Acceptance. Reset settled or eroded sod areas to proper grade. Fill open joints with topsoil. Keep sod free of insects and disease.

LANDSCAPE PART 6 FINAL INSPECTION AND ACCEPTANCE

Final Cleanup. Upon final completion of work and before inspection and acceptance, all aspects of the project site shall be thoroughly and completely cleaned of debris, stains, materials, defacements, and temporary facilities. Likewise, any repairs which are the obligation of this Contractor shall be completed.

Initial Inspection and Acceptance. Inspection shall be made by the Owner or Owner's Representative within (10) ten days of written notification from the Contractor that installation is complete. If all work and materials meet specifications, project will be accepted as is. Materials and work not in compliance with specifications shall be rejected by Owner's Representative and replaced by the contractor within (15) fifteen days of notification by Owner's Representative. Notification will graphically depict all rejected material on plans. Upon replacement of all rejected work and materials by the Contractor, the Owner's Representative shall conduct a final inspection within ten (10) days of written notification from the Contractor that all rejected work has been replaced according to specifications. Approval will be granted upon the acceptance of all replaced material noted on plans. After final acceptance, the Contractor will not be responsible for damage to work resulting from: neglect by Owner, conditions such as floods, excessive wind, severe freezing or abnormal rains; or other activities clearly beyond the Landscape Contractor's control.

LANDSCAPE PART 7 GUARANTEE

Guarantee. All plant materials and trees installed by the Contractor shall be guaranteed for 365 days from the date of final acceptance. The Contractor shall replace at no additional cost to the Owner, all plant materials which die and/or which are not healthy and in a good growing condition during the guarantee period. Replacement of such material shall occur within ten (10) days from Owner's written notification to the Contractor. The 365-day guarantee period for replaced plant materials shall commence on the date of acceptance of the replaced item or items of plant material. The Contractor shall not be required to replace, repair, or restore any portion of the work that is damaged, defaced, disturbed, improperly maintained, and/or destroyed by others after final acceptance.

IRRIGATION PART 1 GENERAL NOTES

Scope. This section includes irrigation and supplementary work shown on the drawings and specified herein, complete.

Applicable Documents. The following publications, specifications, and standards of the issues listed in this paragraph (including the amendments and addenda designated), but referred to hereinafter by basic designation only, form a part of this specification to the extent required by the references thereto.

Publication of Reference. Publications as herein listed shall be held in basic reference:

- HANDBOOK OF TECHNICAL IRRIGATION INFORMATION by Hunter Industries Inc. - 1998
- THE COMPLETE IRRIGATION WORKBOOK by Larry Keesen - 1998
- PUBLICATIONS, NOTES, AND PAPERS by The Center of Irrigation Technology, California State University - Fresno, California
- PUBLICATIONS and STANDARDS by The Florida Irrigation Society - Orlando, Florida
- PUBLICATIONS by The Irrigation Association - Falls Church, Virginia INSTALLATION GUIDE FOR PVC

Irrigation Quantities. All irrigation material quantities shown in the plans are approximate. The Contractor shall be fully responsible for determining all quantities. The Contractor shall submit a revised irrigation schedule with final irrigation quantities as part of the contract and prior to construction.

On-Site Conditions and Adjustments. Irrigation equipment shown on the plans is approximate. Irrigation shall be adjusted to fit actual as-built conditions on the site and any changes in locations caused thereby shall be made without additional cost to the Owner, Owner's Representative, or Landscape Architect.

Liability of Contractor. The Contractor shall be liable for any and all damages to property that result from his performance. He shall, without extra cost and by licensed contractors, restore to original condition any areas and/or construction damaged, defaced, disturbed, or destroyed by him or his workmen.

Substitution of Materials. Any substitution from the specified brands, models or sizes shall be submitted to the owner or the owner's representative for approval. Material substitutions or design changes must be shown to comply with the system design intent and rectify any necessary performance changes and be in compliance with all city, state, and federal regulations.

IRRIGATION PART 2 INSTALLATION PROCEDURES

General. Prior to commencement of any work the Irrigation Contractor shall obtain all necessary permits and licenses, inspect the site and locate electrical cables, conduits, and other underground and above utilities so that proper precautions and procedures may be followed during and throughout construction. The Contractor shall become familiar with other job trade activity which has an impact upon his work or upon which his work has an impact and shall arrange to carefully coordinate his work with other trades through the Owner's Representative.

Backflow Prevention. Backflow preventer shall be installed according to manufacturer's recommendations.

Filters and Strainers. Filter/Strainers shall be installed per manufacturer's recommendations.

Irrigation Controller. The irrigation controller shall be UL listed, conform to the provisions of the National Electric Code, and properly grounded in accordance with manufacturer's recommendations.

Rainfall Shutoff Device. A rain sensor shall be installed as close as possible to the control equipment and per manufacturer's recommendations. Install the first 18 inches of rain sensor wire below ground level and all wire above ground in conduit. When systems are pressurized by a pump, provision shall be made to ensure shutoff device does not allow pump to activate.

Pipe.

1. Pipe shall be installed at sufficient depth below ground to protect it from hazards such as vehicular traffic. Landscape vehicular traffic areas are those landscaped areas subject to vehicular use such as traffic crossings, parking areas, etc. Depths of cover shall conform to NRCS-FL- 430-DD, Water Conveyance, as follows:
    a. Landscaped Vehicle Traffic Areas - Landscaped areas subject to routine automotive or heavy equipment traffic.

Pipe Size (Inches)	Depth of Cover" (Inches)
1/2" - 2-1/2"	18"
3"-5"	24"
6" and larger	36"

    b. Non-Traffic and Non-Cultivated Areas

Pipe Size (Inches)	Depth of Cover" (Inches)
1/2" - 1-1/2"	8"
2"-3"	12"
4"-6"	18"
More than 6"	24"

2. The trench bottom must be uniform, free of debris, and of sufficient width to properly place pipe and support it over its entire length. Make all pipe joints and connections according to the material manufacturer's recommendations. Perform all solvent-weld connections in accordance with ASTM D-2855. Contractor shall install all piping and related materials in accordance with the manufacturer's specifications and the following standards: ASTM D-1785-99, ASTM D-2241-00, ASTM D-2466-01, ASTM D-2464-99, ASTM D-2239-99, ASTM D-2564-96a, ASTM F-656-96a, ASAE S436.
3. Thrust blocks are required on all fittings at dead ends and whenever the line changes direction of 30 degrees or more. Thrust blocks shall be installed in a manner to ensure no pipe shifting occurs. Size thrust blocks in accordance with ASAE Standard S-376.2.
4. Contractor shall flush irrigation system installation at the appropriate stages based on commercially accepted methods.
5. After installation, flushing, and inspection or testing, contractor shall backfill the pipe trench with soil free from rocks or stones larger then 1-inch in diameter in a commercially accepted manner.

Pipe Sleeving. Pipe sleeves shall be at least two pipe sizes larger than the carrier pipe or twice the diameter of the wire bundle to be placed under the paving or roadway, and extending a distance at least equal to its installed depth beyond the paved area. Schedule 40 PVC pipe shall be used for sleeves.

Valves. Valve installation shall allow enough clearance for proper operation and maintenance. Where valves are installed underground, they shall be provided with a valve box with cover extending from grade to the body of the valve. The top of the valve body should have a minimum of 8 inches of cover in non-traffic and non-cultivated areas and 18 inches of cover in traffic areas.

Locate manually operated control valves so they can be operated without wetting the operator.

Valve Boxes. Contractor shall install valve boxes according to the manufacturer's recommendations.

Wire. Electrical control wire shall be sized in accordance with the valve manufacturer's specifications. Install only UL listed direct burial low voltage wire (30 volts or less) with a minimum depth of cover of 12 inches. Provide a sufficient length of wire at each connection to allow for thermal expansion/shrinkage. As a minimum, provide a 12-inch diameter loop at all splices and connections. Terminations at valves will have 24" minimum free wire. Provide common wires with a different color than the power wires (white shall be used for common wires). Use wire connectors that are approved for direct burial. A valve box shall be used for all underground wire splices. Install all above-ground wire runs and wire entries into buildings in conduit.

Sprinklers. Install sprinklers plumb unless they are installed on slopes where they can be tilted as required to prevent erosion. Sprinklers shall be adjusted to avoid unnecessary discharge on pavements and structures. Provide a minimum separation of 4 inches between sprinklers and pavement and 12 inches between sprinklers and vertical structures or as local codes dictate. Riser-mounted sprinklers shall be supported. Swing joints shall be constructed to provide a flexible, leak-free connection between the sprinkler and lateral pipeline to allow movement in any direction and to prevent equipment damage.

Micro Irrigation. Micro-irrigation equipment shall be installed according to the manufacturer's recommendations for the specific application. Stake all surface tubing every three to six feet depending on site conditions and manufacturer's recommendations with eight inch staples.

IRRIGATION PART 3 TESTING, SUBMITTALS, FINAL INSPECTION AND ACCEPTANCE

Testing. All mainlines and laterals shall be tested to be free of leaks. Rainfall shutoff device shall be tested to ensure proper shut-off of control equipment.

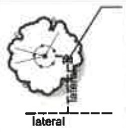
Cleanup. Upon final completion of work and before inspection and acceptance, all aspects of the project site shall be thoroughly and completely cleaned of debris, stains, materials, defacements, and temporary facilities. Likewise, any repairs which are the obligation of this Contractor shall be completed.

Inspections and Acceptance. Inspection shall be made by the Owner or Owner's Representative within (10) ten days of written notification from the Contractor that installation is complete. If all work and materials meet specifications, project will be accepted as is. Materials and work not in compliance with specifications shall be rejected by Owner's Representative and replaced by the contractor within (15) fifteen days of notification by Owner's Representative. Notification will graphically depict all rejected material on plans. Upon replacement of all rejected work and materials by the Contractor, the Owner's Representative shall conduct a final inspection within ten (10) days of written notification from the Contractor that all rejected work has been replaced according to specifications. Approval will be granted upon the acceptance of all replaced material noted on plans.

Post Construction Documentation & Instruction. The Contractor shall provide manufacturer's product literature, operation manuals, testing and inspection certificates, and record drawings to the owner or owner's representative. Record drawings shall show all changes in the design to indicate the actual installation sizes, types, and locations of all equipment and materials with the application for final payment. Contractor shall provide minimal instruction to owner, if applicable, describing any need to know information regarding the daily operation of the system.

IRRIGATION PART 4 GUARANTEES

The irrigation system contractor shall assume full responsibility for the proper installation of the system. Contractor shall guarantee the installation workmanship for a minimum period of one (1) year from date of final acceptance. The irrigation system contractor shall make all necessary, reasonable efforts to handle any warranty claims within the guarantee period in a reasonable time period. The Contractor shall not be required to replace, repair, or restore any portion of the work without additional service fees that are damaged, defaced, disturbed, and/or destroyed by others after final acceptance. Repairs made by other licensed contractors during the guarantee period shall not void the guarantee.



Install Rainbird BVAL50-1S139 or equal shut-off valve at all trees. Install Rainbird or equal XFD blank tubing around each tree with appropriate amount of equally spaced drip emitters. Quantity of Rainbird XB-#PC or equal emitters per tree are specified on the irrigation sheet. Drip shall encircle tree and be offset 2" from edge of rootball. Terminate drip encircling each tree with a compression hose end cap. Secure all emitter locations with ground staples.

Detail for individual tree drip

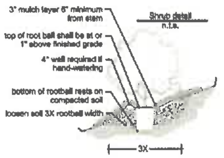
Not To Scale

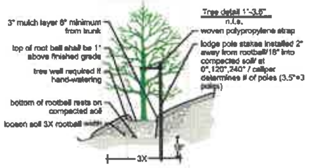
Rainbird or equal XFD blank tubing with Rainbird XB-#PC or equal emitter at same precipitation rate installed overtop of rootball or attach 1/4" tubing to emitter with bug cap to reach plant rootball off of 1/2" tubing when applicable. Use ground staples to secure emitter locations. Start all drip runs with a Rainbird BVAL50-1S139 shut-off valve. Terminate all drip runs with a compression hose end flush cap. Secure all emitter locations with ground staples.

Detail for shrub emitters

Not To Scale

Use ground staples to secure ALL emitter locations. Pressure regulators shall be used in appropriate locations so all emitters receive pressures between 20-50 psi.





BORTON DESIGN INC.
[illegible]
[illegible]
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REVISIONS:

LANDSCAPE PLAN
Specifications/Details

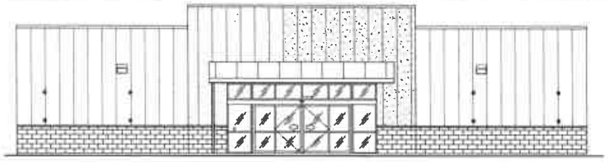
COMMERCIAL RETAIL STORE - MARVIN BURNETT
PREPARED FOR
CONCEPT COMAPANIES

BDI NO.	24200
DRAWN BY:	BDB
DESIGNED BY:	BDB
CHECKED BY:	BDB
DATE:	12/19/2023

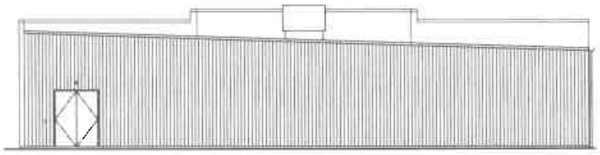
PLANS PREPARED BY

BRIAN DAVID BORTON FL
NO. LA6667028

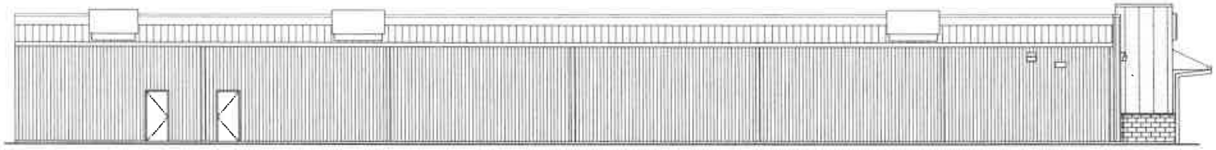
LS-03



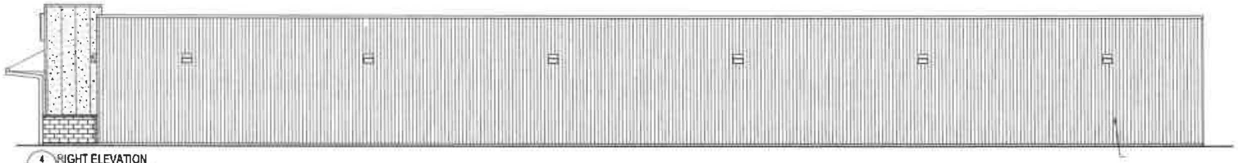
1 FRONT ELEVATION
A2.0 SCALE: 1/8" = 1'-0"



2 REAR ELEVATION
A2.0 SCALE: 1/8" = 1'-0"



3 LEFT ELEVATION
A2.0 SCALE: 1/8" = 1'-0"



4 RIGHT ELEVATION
A2.0 SCALE: 1/8" = 1'-0"

DUMPSTER KEY NOTES

1 TOP OF WALL, BOND BEAM SOLID POURED CONT. W/(2) #5 REBAR

2 SOLID POURED CELL EVERY 48" W/(1) #5 CONT. DRILLED & EPOXIED FROM TOP TO BOTTOM W/12" HOOK EACH END AND MIN. 30" SPLICE

3 8" SPLI-FACED CMU W/(1) #5 AT 48" O.C. TYP. (PAINT BLOCK TO MATCH BUILDING

4 FINISHED SLAB

5 20"x18" CONCRETE FOOTING

6 (2) #5 CONT. W/12" STANDARD HOOK

7 6" STEEL BOLLARD, POUR SOLID. PAINT TO MATCH BUILDING/CMU. SEE CIVIL PLANS FOR EMBEDMENT.

8 DUMPSTER (NIC)

CONCRETE FOOTING W/REINFORCED CONCRETE AS SHOWN

CONCRETE SHALL BE STANDARD MIX F'c=3000 PSI FOR ALL FOOTINGS AND SLABS OR SHALL BE STANDARD PUMP MIX F'x=3000 PSI. STRENGTH SHALL BE ATTAINED WITHIN 28 DAYS OF PLACEMENT. MIXING, PLACING AND FINISHING SHALL BE PER ACI STANDARDS.

CONCRETE SHALL BE PER MANUFATURER'S PRODUCT GUIDE ASTM C-90 REQUIREMENTS WITH MEDIUM SURFACE FINISH.

MORTAR SHALL BE TYPE 'M' OR 'N' FOR ALL MASONRY UNITS.

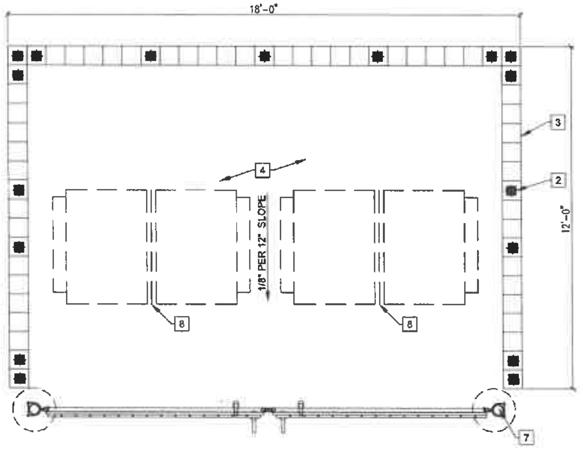
DUMPSTER ENCL. CONCRETE SPECS:

CONSTRUCT FOOTING w/REINFORCED CONCRETE AS SHOWN.

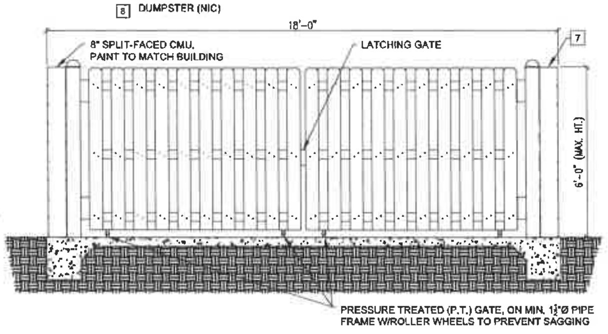
CONCRETE SHALL BE STANDARD MIX F'c = 3000 PSI FOR ALL FOOTINGS AND SLABS OR SHALL BE STANDARD PUMP MIX F'c = 3000 PSI. STRENGTH SHALL BE ATTAINED WITHIN 28 DAYS OF PLACEMENT. MIXING, PLACING AND FINISHING SHALL BE AS PER ACI STANDARDS.

CONCRETE BLOCK PER ASTM C-90 REQUIREMENTS WITH MEDIUM SURFACE FINISH. SEE SPECS ON A-12.

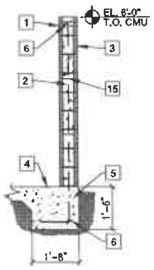
USE TYPE 'M' OR 'N' MORTAR TO LAY UP CONCRETE MASONRY BLOCK.



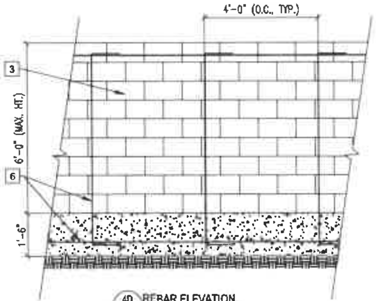
4A DUMPSTER ENCLOSURE PLAN
C2 SCALE: 1/2" = 1'-0"



4B DUMPSTER ENCLOSURE ELEVATION
C2 SCALE: 1/2" = 1'-0"



4C TYP. SECTION
C2 SCALE: 1/2" = 1'-0"



4D REBAR ELEVATION
C2 SCALE: 1/2" = 1'-0"

JAMES
BLYTHE
REGISTERED ARCHITECT
RA LEED AP BD+C
1459 SW 74 DR
GAINESVILLE, FL 32607
AR94452

THESE DRAWINGS HAVE BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ARCHITECT ASSUMED NO RESPONSIBILITY FOR THE ACCURACY OF THESE DRAWINGS FOR ANY ERRORS OR OMISSIONS THAT MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT OF INCORRECT INFORMATION PROVIDED TO THE ARCHITECT. THOSE RELYING ON THIS DOCUMENT ARE ADVISED TO OBTAIN VERIFICATION OF ITS ACCURACY. ALL WORK SHALL COMPLY WITH ANY AND ALL APPLICABLE CODES AND ORDINANCES. SUPERINTENDENTS ARE TO VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. ALL INFORMATION, DESIGN AND BUILDING TECHNIQUES HELD WITHIN ARE THE EXCLUSIVE PROPERTY OF THE PARTIES NOTED ON THE TITLE-BLOCK.

CONCEPT
COMPANIES
1449 SW 74th DR, SU. 200 / GAINESVILLE, FL 32607
LICENSE# COC-1848491
PH 877-308-1029 FAX 800-218-7800
WWW.CONCEPTCOMPANIES.NET

DOLLAR GENERAL
SR 47
LAKE CITY, FL 32025
STORE # TBD
PLAN '12480B' - 12,480 SQ. FT.

DRAWING DATE / DRAWN BY
12/1/23 - JEM
REVISION DATE / REVISED BY
PROJECT NUMBER
4000.255
DRAWING TITLE
EXTERIOR ELEVATIONS & EXTERIOR FINISH SCHEDULE
SHEET NO
C2

MEMORANDUM

CRS Marvin Burnett

23-0653

CHW
Professional Consultants

To: The City of Lake City

From: Randall Olney, P.E.

Date: March 20, 2024

RE: CRS Marvin Burnett – Meter Sizing Calculations

The following is a calculation for meter sizing for the proposed project based on the City of Lake City Utility Standards.

CRS Marvin Burnett Building data is based on the information available from the project architect at the time of this memo. Any changes to the building data will void the provided meter sizing calculation and requires a revised analysis to verify calculations are compliant with the City of Lake City Utility Standards criteria.

PROJECT NAME:	CRS Marvin Burnett
PROJECT No.:	23-0653
FILE PATH:	N:\2023\23-0653\Departments\04_Engineering\01_Regulatory Permitting\Utilities\Meter Sizing

ADF and ADF METER SIZING CALCULATIONS

Proposed Average Daily Flow – Stores per Bathroom = 200 gpd per bathroom per FAC 62E-6

Proposed Average Water Demand	2 bathrooms	X	200 gpd		400	gpd
				Total=	400	gpd
Proposed Average Water Demand ERC (Eqv. Residential Connection =350)					1.14	ERC
Peak Water Demand ERC (PF=4)					4.6	ERC
Peak Flow for Meter Sizing based on ADF (PF = 4, over 16 hours)					1.67	gpm
Peak Flow meter size per Lake City Utility Standards 2010					5/8	inch

<u>Use 5/8" Meter with 1" RPZ Backflow Preventer</u>

Randall Scott Olney
Digitally signed by Randall Scott Olney
DN: E=randyo@chw-inc.com, CN=Randall Scott Olney, O=Randall Scott Olney, L=Alachua, S=Florida, C=US
Date: 2024.03.21 13:50:11-04'00'

Randall Olney, FL P.E. No. 68382

03/21/2024

Date

Randall Scott Olney, State of Florida, Professional Engineer, License No. 68382

This item has been electronically signed and sealed by Randall Scott Olney, PE. On 03/21/2024 using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Professional Consultants

CRS Marvin Burnett

Private Lift Station Report

3/20/2024

Prepared for:
Florida Department of Environmental Protection
City of Lake City Utility Department

Prepared on behalf of:
Concept Development, Inc.
1449 SW 74th Drive. Suite 200
Gainesville, FL 32607

Prepared by:
Randall S. Olney
CHW

Randall Scott Olney
Digitally signed by Randall Scott Olney
DN
E=randyo@chw-inc.com,
CN=Randall Scott Olney,
O=Randall Scott Olney,
L=Alachua, S=Florida, C=US
Date 2024.03.21
13 51 50-04'00'

**Randall Scott Olney,
State of Florida, Professional
Engineer, License No. 68382**

**This item has been
electronically signed and
sealed by Randall Scott
Olney, PE. On 03/21/2024
using a Digital Signature.**

**Printed copies of this
document are not considered
signed and sealed and the
signature must be verified on
any electronic copies.**

23-0653

N:\2023\23-0653\Departments\04_Engineering\01_Regulatory Permitting\Utilities\Lift Station

CHW
Professional Consultants

Project Number: 23-0653
Project Name: CRS Marvin Burnett
Date: 1/16/2024
Calculated by: JHP
Checked by: CCM

Flow Generation

Notes: 1) Estimated sewage flow per FAC 62-6.008, Table I

2 Water closets X 200 gpd 400 gpd

Total average daily flow = 400 GPD
Average Daily In-Flow (Based on 16-hour Operation period) = 0.42 gpm

Peak Hour Factor = 4.0
Design In-Flow = 1.7 gpm

Wetwell Design

PROPOSED
Desired Cycle Time = 30 min
Design In-Flow = 1.7 gpm
Average Daily Flow = 0.4 gpm
Minimum Storage Volume = 9.4 gallons
= 1.3 ft^3
Wetwell Diameter = 4.0 ft
Minimum Storage Depth = 0.10 ft
Actual Storage Depth = 0.13 ft
Actual Storage Volume = 12.22 gallons
Rim Elevation = 163.80 ft
Invert Elevation = 159.33 ft
High Water Alarm Elevation = 158.83 ft
Lag Pump on Elevation = 158.33 ft
Lead Pump on Elevation = 157.83 ft
Pumps off Elevation = 157.70 ft
Bottom of Wetwell Elevation = 155.70 ft
Highest Point Along Force Main = 166.40 ft
Height of Wetwell = 8.10 ft

$$Min\_Volume = \frac{T}{\frac{1}{DF - ADF} + \frac{1}{ADF}}$$

Force Main Hydraulics

Inside Wet Well/Valve Box Pipe Diameter = 2.0 in
Onsite Forcemain Pipe Diameter = 2.0 in
Offsite Forcemain Pipe Diameter = 4.0 in
Hazen-Williams C = 120

Normal Operating Tie-in Pressure = 35.0 psi
= 80.9 ft
Static Elevation Head = 8.7 ft

Calculation for friction head loss:

$$H_L = L \frac{10.5}{D^{4.87}} \left(\frac{Q}{C} \right)^{1.852}$$

Equivalent Length of Straight Pipe for Fittings

$$L_2 = L_1 \left(\frac{D_2}{D_1} \right)^{4.87}$$

Fitting Type			Equivalent Length (ft)	x	Quantity	=	Subtotal (ft) Eq. Length of same diam. PVC	Subtotal (ft) Eq. Length of 2 in. PVC Pipe
Inside Pump Station and Valve Vault	**2.00**	**in**						
Straight Pipe			12	x	1	=	12.0	12.0
90° Bend			3.1	x	2	=	6.2	6.2
Plug Valve			2.6	x	1	=	2.6	2.6
Tee Branch Flow			6.6	x	1	=	6.6	6.6
Check Valve			17.0	x	1	=	17.0	17.0
Gate Valve			1.5	x	1	=	1.5	1.5
Onsite Forcemain	**2.00**	**in**						
Straight Pipe			155	x	1	=	155.0	155.0
22.5° Bend			1.7	x	1	=	1.7	1.7
45° Bend			1.7	x	4	=	6.8	6.8
90° Bend			3.1	x	0	=	0.0	0.0
Check Valve			17.0	x	0	=	0.0	0.0
Plug Valve			2.6	x	1	=	2.6	2.6
Offsite Forcemain (Proposed)	**4.00**	**in**						
Straight Pipe			2	x	1	=	2.0	0.1
11.25° Bend			3.5	x	0	=	0.0	0.0
22.5° Bend			3.5	x	0	=	0.0	0.0
45° Bend			3.5	x	0	=	0.0	0.0
Tee Branch Flow			12.0	x	1	=	12.0	0.4
Check Valve			38.0	x	0	=	0.0	0.0
Gate Valve			2.5	x	1	=	2.5	0.1

NORMAL CONDITION:

Total Proposed Force Main Length = 169 ft (Includes length within lift station)
Total Proposed Effective Force Main Length = 213 ft

Out-Flow Design

Pump Run Time = 0.50 min
Design Out-Flow = 24.4 gpm
Design Out-Flow Velocity = 2.5 ft/s (No less than 2.0 ft/s, No more than 8 ft/s)

CHW
Professional Consultants

Project Number: 23-0653
Project Name: CRS Marvin Burnett
Date: 1/16/2024
Calculated by: JHP
Checked by: CCM

System Performance Curve

Flow (gpm)	*Normal Operation (with tie-in pressure)* Head (ft)
0	89.6
10	90.3
20	92.3
30	95.4
40	99.5
50	104.6
60	110.7
70	117.7
80	125.6
90	134.3
100	144.0
110	154.5
120	165.9
130	178.1
140	191.1
150	204.9
160	219.6
170	235.0
180	251.3
190	268.3
200	286.1
210	304.7
220	324.1
230	344.2
240	365.1
250	386.7
260	409.1
270	432.2
280	456.1
290	480.7
300	506.1
310	532.2
320	559.0
330	586.5
340	614.7
350	643.7
360	673.4
370	703.8

Pump Curve

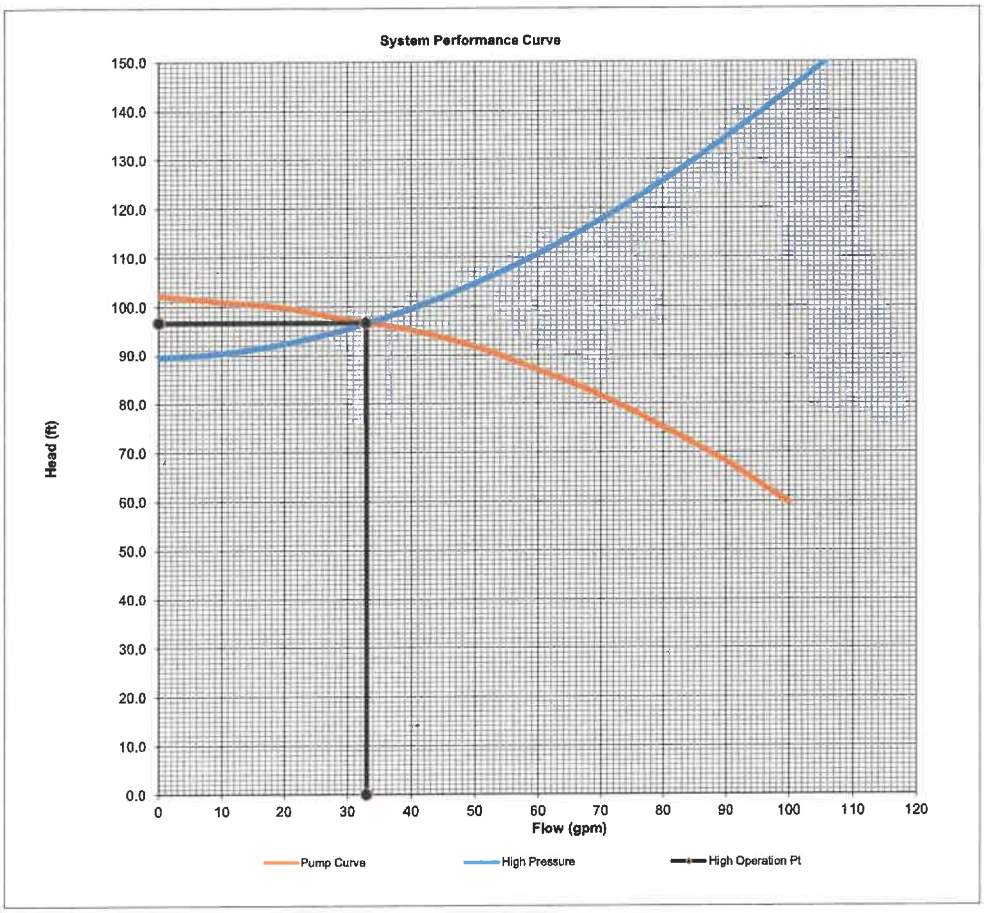
One Pump - Simplex Flow (gpm)	Head (ft)
0	102.2
10	100.9
20	99.7
30	97.3
40	95.1
50	91.7
60	86.9
70	81.7
80	75.2
90	68.1
100	59.7

CHW Professional Consultants

Project Number: 23-0653
Project Name: CRS Marvin Burnett
Date: 1/16/2024
Calculated by: JHP
Checked by: CCM

Pump Specifications:

Pump:	Barnes	Imp Dia:	5
Model:	NGVH50N2	Power:	5 hp
Discharge Flange Dia:	2.5"	Electrial Req:	3 Phase
Speed:	3450	Voltage:	208 V



Design Operation Point (1 Pump - Normal Operation)

Flow (gpm)	Velocity (fps) in 2" FM	Head (ft)
33.0	3.4	96.6

System Performance at Normal Operation Design Point

Forcemain Velocity =	3.37	ft/s
Pump Run Time =	0.37	min
Cycle Time =	29.70	min
	0.49	hrs

$$Pump\ Run\ Time = \frac{Storage\ Volume}{Design\ Operation\ Flow}$$

$$Cycle\ Time = \frac{Storage\ Volume}{ADF} + Pump\ Run\ Time$$

Fiberglass Wetwell

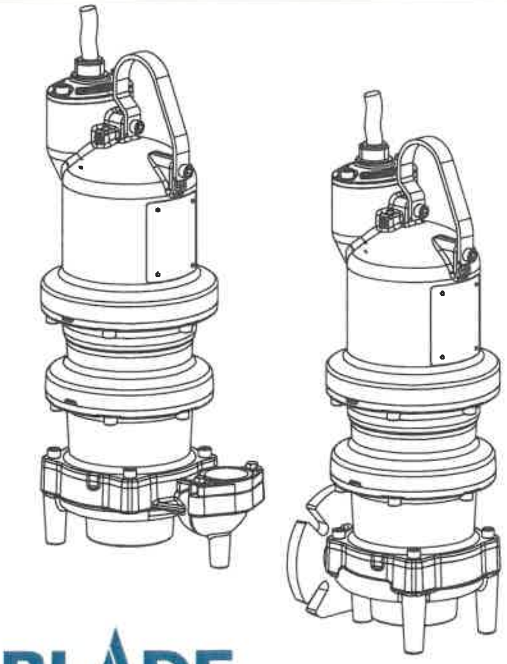
Displaced Volume =	101.8	cf
Unit Weight of Water =	62.4	pcf
Weight of Displaced Water =	6,352	lb
Bouyant Weight of Concrete =	77.60	pcf
Bouyant Weight of Soil above Concrete Ring =	47.60	pcf
Width of Bouyancy Concrete Ring =	1	ft
Required Height of Bouyancy Concrete Ring =	1.97	ft

Specifications:

DISCHARGE:		
	NGV Vertical	2" NPT
	NGVH Flange	2"/2.50"/3", Horizontal
	NGVHH Flange	2.50"/3", Horizontal
LIQUID TEMPERATURE		104°F (40°C) Continuous
VOLUTE		Cast Iron ASTM A-48, Class 30
MOTOR HOUSING		Cast Iron ASTM A-48, Class 30
SEAL PLATE		Cast Iron ASTM A-48, Class 30
IMPELLER:	*Design*	12 Vane,Vortex, With Pump Out Vanes On Back Side. Dynamically Balanced, ISO G6.3
	Material	Cast Iron ASTM A-48, Class 30
SHREDDING RING		Hardened 440C Stainless Steel, Rockwell® C-55
CUTTER		Hardened 440C Stainless Steel, Rockwell® C-55
SHAFT		416 Stainless Steel
SQUARE RINGS		Buna-N
HARDWARE		300 Series Stainless Steel
PAINT		Axalta™ Corlar® Epoxy, Two Coats
SEAL:	*Design*	Tandem Mechanical, Oil Filled Reservoir
	Material	Rotating Faces - Carbon Stationary Faces - Ceramic Elastomer - Buna-N Hardware -300 Series Stainless
CORD ENTRY		Custom Molded, Quick Connected for Sealing and Strain Relief
POWER CORD		CSA Certified Submersible Power Cable 2000V - Ordered Separately
UPPER BEARING:		
	Design	Single Row, Ball, Oil Lubrication
	Load	Radial
LOWER BEARING:		
	Design	Double Row, Ball, Oil Lubrication
	Load	Radial & Thrust
MOTOR:	*Design*	NEMA B Three Phase Torque Curve Oil-Filled, Squirrel Cage Induction, Inverter Duty rated per NEMA MG1
	Insulation	Class H Varnish & Magnet Wire
SINGLE PHASE		Requires overload protection to be included in control panel. Requires start components to be included in panel. Provided with pump
THREE PHASE		Requires overload protection to be included in control panel
MOISTURE SENSORS		Normally Open (N/O), Requires relay in control panel
TEMPERATURE SENSOR		Normally Closed (N/C) To be wired in series with control circuit
OPTIONAL EQUIPMENT		Seal Material, Impeller Trims, Cord Length, Leg Kit, 3" Spool Kit

C US
LR16567

MEMBER



BLADE

Series: NGV
3, 5 , 7.5 & 10HP, 3450RPM, 60Hz

Sample Specifications: Section 3 Page 12.

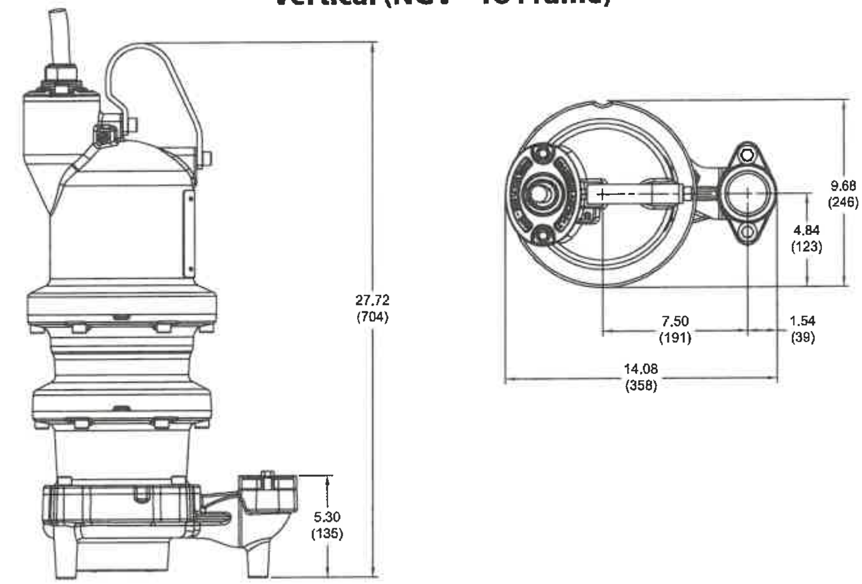
DESCRIPTION:

THE GRINDER PUMP IS DESIGNED TO **REDUCE** DOMESTIC, COMMERCIAL, INSTITUTIONAL AND LIGHT INDUSTRIAL SEWAGE TO A FINELY GROUND SLURRY.

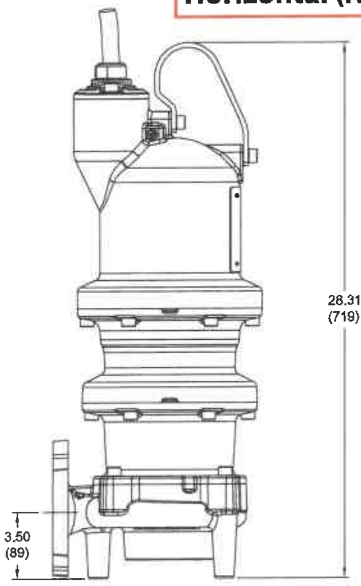
WARNING:
CANCER AND REPRODUCTIVE HARM - WWW.P65WARNINGS.CA.GOV

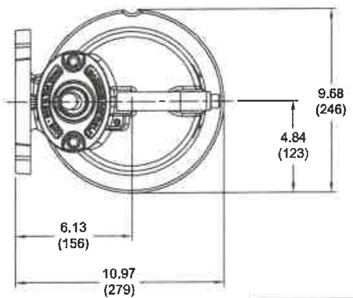
Vertical (NGV - 18 Frame)

inches
(mm)

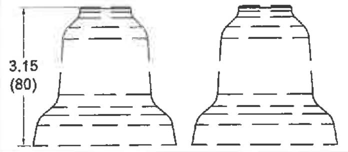


Horizontal (NGVH - 18 Frame)





Optional Leg Kit - p/n 125506



IMPORTANT !

1.) MOISTURE AND TEMPERATURE SENSORS MUST BE CONNECTED TO VALIDATE THE WARRANTY.
2.) A SPECIAL MOISTURE SENSOR RELAY IS REQUIRED IN THE CONTROL PANEL FOR PROPER OPERATION OF THE MOISTURE SENSORS. CONTACT BARNES PUMPS FOR INFORMATION CONCERNING MOISTURE SENSING RELAYS FOR CUSTOMER SUPPLIED CONTROL PANELS.
3.) THESE PUMPS ARE CSA LISTED FOR PUMPING WATER AND WASTEWATER. **DO NOT USE TO PUMP FLAMMABLE LIQUIDS.**
4.) INSTALLATIONS SUCH AS DECORATIVE FOUNTAINS OR WATER FEATURES PROVIDED FOR VISUAL ENJOYMENT MUST BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ANSI/NFPA 70 AND/OR THE AUTHORITY HAVING JURISDICTION. THIS PUMP IS NOT INTENDED FOR USE IN SWIMMING POOLS, RECREATIONAL WATER PARKS, OR INSTALLATIONS IN WHICH HUMAN CONTACT WITH PUMPED MEDIA IS A COMMON OCCURRENCE.
5.) THIS PUMP IS NOT APPROPRIATE FOR THOSE APPLICATIONS SPECIFIED AS CLASS 1 DIVISION 1 HAZARDOUS LOCATIONS.

Submersible Grinder Pumps

	MODEL NO	PART NO	HP	VOLT	PH	Hz	RPM (Nom)	NEMA START CODE	FULL LOAD AMPS	SERVICE FACTOR	LOCKED ROTOR AMPS	DRIVER FRAME	CORD P/N ▲	CORD SIZE	CORD O.D.
BLADE NGVH Pump - Horizontal	NGVH3072	141350N	3.0	208	1	60	3450	J	25.0	1.0	113.2	18	125496	12/4 - 18/4	.86 ± .02
				230				M	23.2		131.2				
	NGVH30N2	141351N	3.0	208	3	60	3450	P	12.1	1.0	85.4	18	125496	12/4 - 18/4	.86 ± .02
				230					12.6		95.2				
				460					6.3		47.6		125497	12/4 - 18/4	.86 ± .02
	NGVH3052	141353N	3.0	575	3	60	3450	P	5.0	1.0	38.1	18	125497	12/4 - 18/4	.86 ± .02
	NGVH5072	141354N	5.0	208	1	60	3450	E	34.1	1.0	113.2	18	125498	8/4 - 18/4	1.12 ± .02
				230				G	29.9		131.2				
	NGVH50N2	141355N	5.0	208	3	60	3450	J	17.8	1.0	85.4	18	125496	12/4 - 18/4	.86 ± .02
				230					16.0		95.2				
				460					8.0		47.6		125497	12/4 - 18/4	.86 ± .02
	NGVH5052	141357N	5.0	575	3	60	3450	J	6.4	1.0	38.1	18	125497	12/4 - 18/4	.86 ± .02
	NGVH75N2	141358N	7.5	208	3	60	3450	M	28.0	1.0	173.9	18	125496	12/4 - 18/4	.86 ± .02
				230					28.2		201.0				
				460					14.1		100.5		125497	12/4 - 18/4	.86 ± .02
	NGVH7552	141360N	7.5	575	3	60	3450	M	11.3	1.0	80.4	18	125497	12/4 - 18/4	.86 ± .02

NOTE: A 3" Pipe Spool Kit is recommended for use of a NGVH with a 3x3 BAF.

IMPORTANT !
Moisture and Temperature sensor leads are integral to power cord.
Pump rated for operation at ± 10% voltage at motor.
▲ Cord Suffix: XC - 30 Feet, XF - 50 Feet, XJ - 75 Feet, or XL - 100 Feet.
▲ Cord sold separately.
Single Phase pumpes require start components to be included in panel. Provided with pump.

BLADE Series NGV / NGVH

Performance Curve
3, 5 & 7.5HP, 3450RPM, 60Hz

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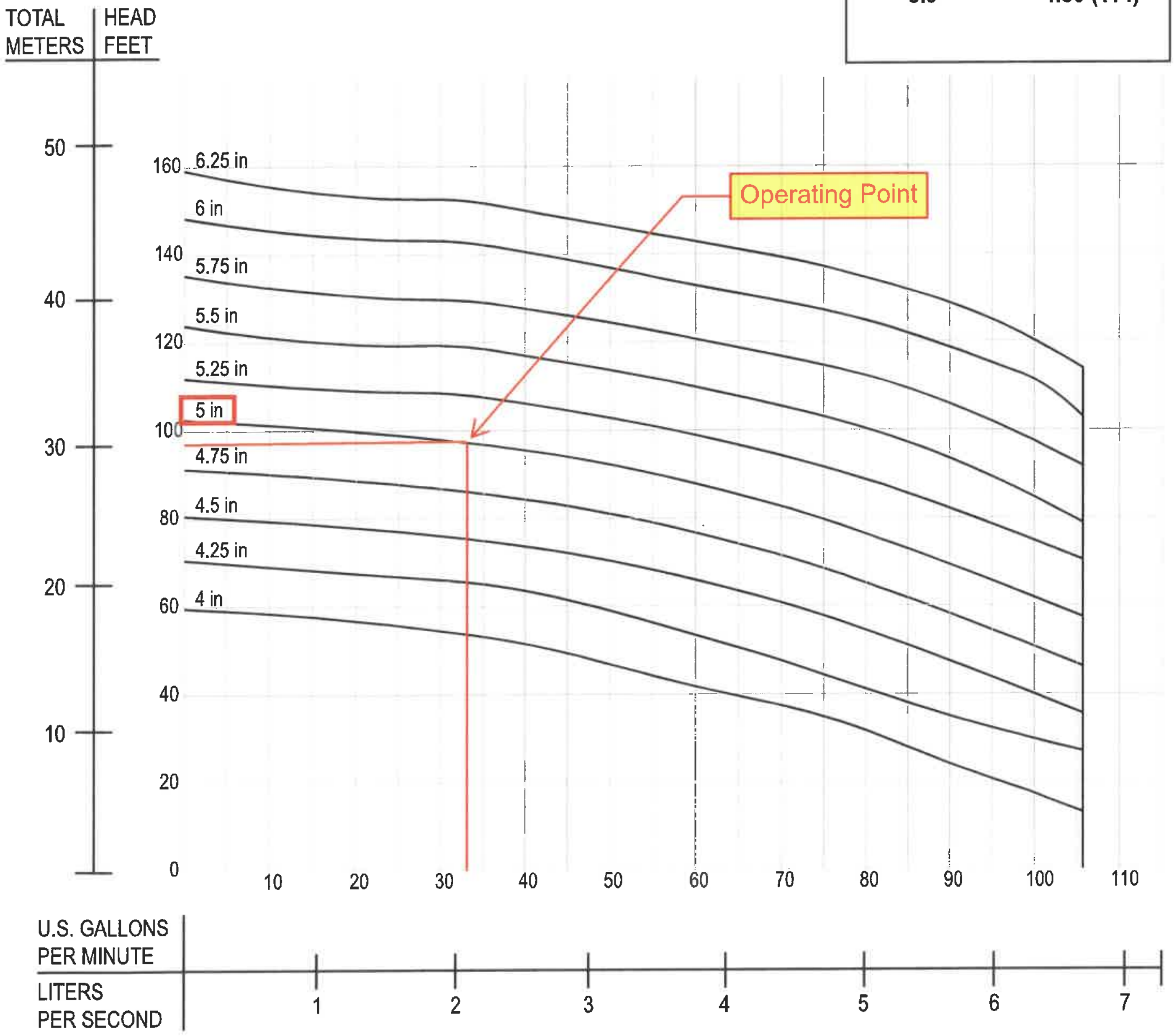
Submersible Grinder Pumps

STANDARD IMPELLER SIZES

Pump HP	Impeller Dia. in. (mm)
7.5	6.25 (159)
5.0	5.25 (133)
3.0	4.50 (114)



Testing is performed with water, specific gravity 1.0 @ 68° F @ (20°C), other fluids may vary performance

SECTION 3B
PAGE 40
DATE 12/18

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MEMORANDUM

CRS Marvin Burnett

23-0653

CHW
Professional Consultants

To: City of Lake City
From: Randall S. Olney, PE
Date: March 20, 2024
RE: CRS Marvin Burnett– Required Fire Flow

The following is a calculation for the required fire flow for the proposed project based on the NFPA 1: Fire Code.

Building data is based on the information available from the project architect at the time of this memo. Any changes to the building data will void the provided fire flow calculation and requires a revised analysis to verify the building complies with the applicable fire protection criteria. The building will not be protected by an approved automatic fire sprinkler system.

NFPA Required Flow Calculations:

Building: **Commercial Retail Store**
Construction Type: II (000)
Fire Flow Area: ±10,640 SF

Required Fire Flow per NFPA Table 18.4.5.1.2: 2,250 gpm

Available Fire Flow:

Based on the hydrant flow data supplied by the City of Lake City, the total available fire flow at 20 PSI is as follows:

Total Available: **2,345 gpm**

Minimum Required Fire Flow to be provided: **2,250 gpm**

Conclusions:

The total available flow (2,345 GPM) is higher than the minimum required (2,250 GPM).

As part of this development, a new hydrant will be installed onsite.

Randall Scott Olney
Digitally signed by Randall Scott Olney
DN: E=randyo@chw-inc.com, CN=Randall Scott Olney, O=Randall Scott Olney, L=Alachua, S=Florida, C=US
Date: 2024.03.21 13:51:12-04'00'

Randall S. Olney, P.E. 68382

Date: 03/21/2024

Randall Scott Olney, State of Florida, Professional Engineer, License No. 68382

This item has been electronically signed and sealed by Randall Scott Olney, PE. On 03/21/2024 using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

City of Lake City
Water flow report

HYDRANT # & LOCATION: 701 SW State Road 47 DATE: 12/4/2023

TEST BY: Al/Brandon Day: Monday Time: 9:10 Minutes: 2

WATER SUPPLIED BY: Municipal

PURPOSE OF TEST: request

DATA

FLOW HYDRANT(S)

	A1	A2	A3
SIZE OPENING:	2.5	2.5	2.5
COEFFICIENT:	0.8		
PITOT READING:	40		
GPM:	943	0	0

TOTAL FLOW DURING TEST: 943 GPM

STATIC READING: 74 PSI RESIDUAL: 64 PSI

RESULTS: AT 20 PSI RESIDUAL 2345 GPM AT 0 PSI 2780 GPM

ESTIMATED CONSUMPTION: 1887 GAL.

REMARKS:

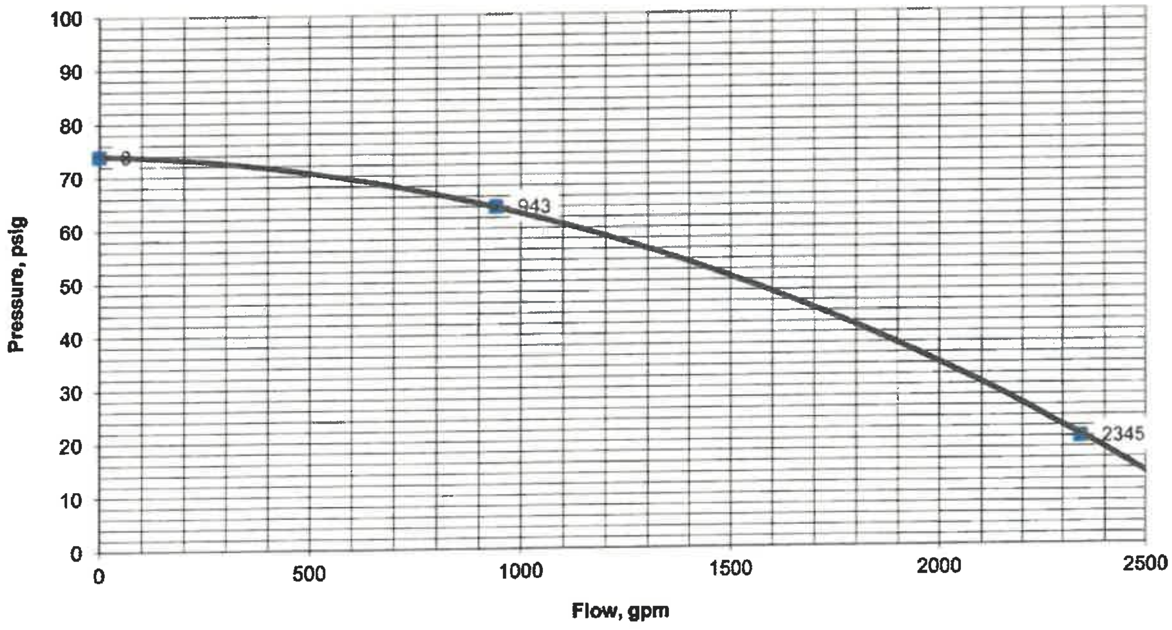

Table 18.4.5.1.2 Minimum Required Fire Flow and Flow Duration for Buildings

Fire Flow Area ft^2 (× 0.0929 for m^2)					Fire Flow gpm† (× 3.785 for L/min)	Flow Duration (hours)
I(443), I(332), II(222)*	II(111), III(211)*	IV(2HH), V(111)*	II(000), III(200)*	V(000)*		
0–22,700	0–12,700	0–8200	0–5900	0–3600	1500	2
22,701–30,200	12,701–17,000	8201–10,900	5901–7900	3601–4800	1750	
30,201–38,700	17,001–21,800	10,901–12,900	7901–9800	4801–6200	2000	
38,701–48,300	21,801–24,200	12,901–17,400	9801–12,600	6201–7700	2250	
48,301–59,000	24,201–33,200	17,401–21,300	12,601–15,400	7701–9400	2500	
59,001–70,900	33,201–39,700	21,301–25,500	15,401–18,400	9401–11,300	2750	
70,901–83,700	39,701–47,100	25,501–30,100	18,401–21,800	11,301–13,400	3000	3
83,701–97,700	47,101–54,900	30,101–35,200	21,801–25,900	13,401–15,600	3250	
97,701–112,700	54,901–63,400	35,201–40,600	25,901–29,300	15,601–18,000	3500	
112,701–128,700	63,401–72,400	40,601–46,400	29,301–33,500	18,001–20,600	3750	
128,701–145,900	72,401–82,100	46,401–52,500	33,501–37,900	20,601–23,300	4000	4
145,901–164,200	82,101–92,400	52,501–59,100	37,901–42,700	23,301–26,300	4250	
164,201–183,400	92,401–103,100	59,101–66,000	42,701–47,700	26,301–29,300	4500	
183,401–203,700	103,101–114,600	66,001–73,300	47,701–53,000	29,301–32,600	4750	
203,701–225,200	114,601–126,700	73,301–81,100	53,001–58,600	32,601–36,000	5000	
225,201–247,700	126,701–139,400	81,101–89,200	58,601–65,400	36,001–39,600	5250	
247,701–271,200	139,401–152,600	89,201–97,700	65,401–70,600	39,601–43,400	5500	
271,201–295,900	152,601–166,500	97,701–106,500	70,601–77,000	43,401–47,400	5750	
Greater than 295,900	Greater than 166,500	106,501–115,800	77,001–83,700	47,401–51,500	6000	
		115,801–125,500	83,701–90,600	51,501–55,700	6250	
		125,501–135,500	90,601–97,900	55,701–60,200	6500	
		135,501–145,800	97,901–106,800	60,201–64,800	6750	
		145,801–156,700	106,801–113,200	64,801–69,600	7000	
		156,701–167,900	113,201–121,300	69,601–74,600	7250	
		167,901–179,400	121,301–129,600	74,601–79,800	7500	
		179,401–191,400	129,601–138,300	79,801–85,100	7750	
		Greater than 191,400	Greater than 138,300	Greater than 85,100	8000	

*Types of construction are based on NFPA 220.

†Measured at 20 psi (139.9 kPa).

COMPREHENSIVE PLAN CONSISTENCY ANALYSIS

CRS Marvin Burnett

23-0653

To:	Robert Angelo, City of Lake City Growth Management
From:	Braxton Linton III, Project Planner
Date:	December 7th, 2023
RE:	CRS Marvin Burnett – Comprehensive Plan Consistency Analysis

This Concurrency Analysis is submitted for CRS Marvin Burnett Lake City. The proposed use is a ±10,640-square-foot Commercial Retail Store and associated parking and stormwater. The site is on a portion of tax parcel is 07-4S-17-08127-005 in Columbia County, FL. A lot split is being completed on the site to create a 2.72-acre parcel adjacent to the intersection. One driveway connection will be to Marvin Burnett Road which is a county road. The future land use category is Commercial, and the zoning district is Commercial, Intensive (CI).

The following analysis estimates potential impacts on Lake City public facilities that may result from the proposed development. The following tables include data obtained within the City Comprehensive Plan and Florida Administrative Code (F.A.C.).

<u>Future Land Use Element</u>

Policy I.1.1: The location of higher density residential, high intensity commercial and heavy industrial uses shall be directed to areas adjacent to arterial or collector roads, identified on the Future Traffic Circulation Map, where public facilities are available to support such higher density or intensity.

> COMMERCIAL
> Lands classified as commercial use consist of areas used for the sale, rental, and Distribution of products or performance of services, as well as public, charter and private elementary, middle and high schools. In addition, off-site signs, churches and other house of worship, private clubs and lodges, residential dwelling units, which existed within this category on the date of adoption of this objective, and other similar uses compatible with commercial uses may be approved as special exceptions and be subject to an intensity of less than or equal to 0.25 floor area ratio except withing the (CG) Commercial, General, (CI) Commercial, Intensive, (C-CBD) Commercial-Central Business District and (CHI) Commercial, Highway Interchange districts being subject to intensity of less than or equal to 1.0 floor area ratio.

The proposed use, a Commercial Retail Store, is considered a retail use, which is consistent with the Commercial FLU category. Development will be consistent with standards set forth by the Commercial FLU category and CI Zoning District.

Objective I.2 The City shall adopt performance standards which regulate the location of land development consistent with topography and soil conditions and the availability of facilities and services.

The site is composed of three soils:

1. **Blanton Fine Sand, 0 to 5 percent slopes (hydro group: A)**

2. **Pelham Fine Sand, 0 to 2 percent slopes (hydro group: B/D)**
3. **Ichetucknee Fine Sand, 5 to 8 percent slopes (hydro group: D)**

According to the NRCS soil database, these soil types are conducive to the proposed development, which is also demonstrated on adjacent sites with similar uses and soil types.

Currently, there are no buildings located on the project site, there are developments to the north and east of the site.

Objective I.3	The City shall require that all proposed development be approved only where the public facilities meet or exceed the adopted level of service standard

Currently, there is no development on the project site. The proposed commercial retail store does not result in a degradation of Level of Service (LOS) standards, as is demonstrated in the Concurrency Impact Analysis memorandum submitted as part of this application.

Policy I.6.2	The City shall continue to include provisions for drainage, stormwater management, open space and safe and convenient on-site traffic flow including the provisions of needed vehicle parking for all development.

The proposed development will have onsite stormwater management facilities and adhere to all open space requirements set forth in Lake City's LDR. Safe and convenient on-site traffic flow will include one ingress and egress point on Marvin Burnett Road which is a county road. Parking will adhere to standards set in Lake City's LDR.

Objective I.6.5	The City shall continue to require that where a commercial or industrial use is erected or expanded on land abutting a residential district, then the proposed use shall provide a landscaped buffer. A masonry or wood opaque structure may be substituted for the planted buffer.

The subject property, specifically tax parcel 07-4S-17-08127-005, abuts a residential district to on the southwestern boundary. A landscape buffer is provided following guidelines from Lake City's LDR as shown in the landscape plan.

Transportation Element

Objective II.1:	Level of Service

The City shall establish a safe, convenient, and efficient level of service standard which shall be maintained for all roadways.

The proposed Commercial Retail Store (Institute of Transportation Engineers (ITE) Land Use Code 814) will not result in a degradation of transportation Level of Service (LOS) standards. Demonstrated in the Concurrency Impact Analysis memorandum submitted as part of this application, there will be 447 net total projected daily trips.

Policy II.1.2	The City shall control the number and frequency of connection and access points of driveways and roads to arterials and collectors by requiring access points for state roads to be in conformance with Chapter 14-96 and 14-97, Florida Administrative Code, and the following requirements for non-state roads:

1. Permitting 1 access point for ingress and egress purposes to a single property or development.

The subject property includes one ingress and egress point one ingress and egress point on Marvin Burnett Road which is a county road.

Policy II.1.3 The City shall continue to require development to provide safe and convenient on-site traffic flow, which includes the provisions for vehicle parking.

Safe and convenient on-site traffic flow will be achieved by having one ingress and egress point one ingress and egress point on Marvin Burnett Road which is a county road. The parking lot will adhere to parking requirements set forth in Lake City's LDR.

Conservation Element

Policy V.5.2: Soils. The City shall protect soil resources through erosion and sedimentation control, by requiring proper design criteria on specific soils.

In an effort to conserve potable water, that at least 50 percent of the following required landscaped areas be comprised of vegetation native or indigenous to the north Florida area:

1. 10 percent of offstreet parking areas;

Parking area landscaped islands have been provided as shown in the landscape plan.

2. 10 foot buffer between residential and commercial uses;

This buffer has been provided following guidelines from Lake City's LDR as shown in the landscape plan.

3. 15 foot buffer between single family uses and multi-family uses or mobile home parks; and

Not Applicable.

4. 25 foot buffer between residential and industrial uses.

Not Applicable.

Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater aquifer Recharge Element

Objective IV.3: The City shall coordinate the extension of, or increase in the capacity of facilities by scheduling the completion of public sanitary sewer improvements concurrent with projected demand.

Policy IV.3.1: The City hereby establishes the following Level of Service standards for sanitary sewer facilities:

FACILITY TYPE	LEVEL OF SERVICE STANDARD
City of Lake City Community Sanitary Sewer System	135 gallons per capita per day

The proposed development will allow a use of ±10,640 sq. ft. of nonresidential use. As is demonstrated in the Concurrency Impact Analysis submitted as part of this application, this facility is estimated to use 1,064 Gallons Per day by the proposed use.

Objective IV.4: The City shall continue to coordinate the extension of, or increase in the capacity of solid waste facilities by scheduling the completion of public facility improvements and requiring that they are concurrent with projected demand.

Policy IV.4.1: The City hereby establishes the following level of service standards for solid waste disposal facilities:

FACILITY TYPE	LEVEL OF SERVICE STANDARD
Solid Waste Landfill	.85 tons per capita per year
	Residual capacity of landfill

The proposed development will allow a use of ±10,640sq. ft. of nonresidential use. As is demonstrated in the Concurrency Impact Analysis submitted as part of this application, this facility is estimated to use 233.02 lbs./day and 42.53 tons/year.

Objective IV.6: The City shall continue to coordinate the extension of, or increase in the capacity of potable water facilities by scheduling the completion of public facility improvements and requiring that they are concurrent with projected demand.

Policy IV.4.1: The City hereby establishes the following level of service standards for potable water.

FACILITY TYPE	LEVEL OF SERVICE STANDARD
City of Lake City	150 gallons per capita per day
	Residual capacity of landfill

The proposed development will allow a use of ±10,640 sq. ft. of nonresidential use. As is demonstrated in the Concurrency Impact Analysis submitted as part of this application, this facility is estimated to use 1,064 Gallons Per day by the proposed use.

CONCURRENCY ANALYSIS

CRS Marvin Burnett

23-0653

Professional Consultants

To: Robert Angelo, City of Lake City Growth Management

From: Braxton Linton III, Project Planner

Date: December 7th, 2023

Re: CRS Marvin Burnett – Concurrency Impact Analysis

This Concurrency Analysis is submitted for CRS Marvin Burnett Lake City. The proposed use is a ±10,640-square-foot Commercial Retail Store and associated parking and stormwater. The site is on a portion of tax parcel is 07-4S-17-08127-005 in Columbia County, FL. A lot split is being completed on the site to create a 2.72 acre parcel adjacent to the intersection. One driveway connection will be to Marvin Burnett Road which is a county road. The future land use category is Commercial, and the zoning district is Commercial, Intensive (CI).

The following analysis estimates potential impacts on Lake City public facilities that may result from the proposed development. The following tables include data obtained within the City Comprehensive Plan and Florida Administrative Code (F.A.C.).

Roadways / Transportation

Trip generation figures are based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition.

Table 1: Projected Trip Generation

Land Use[1]	Variable KSF	Daily	AM Peak			PM Peak		
(ITE)		Total	Total	In	Out	Total	In	Out
Variety Store (ITE 814)	10.640	677	32	18	14	71	36	35
Pass-by Rate: = 34%*		230	11	6	5	24	12	12
Net Total Project Trips		**447**	**21**	**12**	**9**	**47**	**24**	**23**

1. *Source: ITE Trip Generation 11th Edition*

** The IT Trip Generation Manual, 11th Edition provides a pass-by rate of 34% during the PM peak but does not provide a pass-by rate for the AM and daily conditions, therefore, a pass-by rate of 34% is applied to the AM and daily scenarios.*

Conclusion: Approval of this application may generate **447** daily vehicle trips. This is not anticipated to negatively impact the adopted LOS for adjacent and nearby roadways.

Potable Water / Sanitary Sewer / Solid Waste

Table 2: Projected Potable Water Impacts

Land Use	Maximum Units	Gallons Per Day[1]	Estimated Demand (GPD)
Shopping center without food or laundry	10,640	.01 gallons / sq. ft. / day	1,064

1. *Source: Ch. 62E-6.008, Table 1, Florida Administrative Code*

Conclusion: The project site will be served by the existing Lake City potable water infrastructure. The subject property is served by Lake City's potable water, and it's anticipated to generate 1,064 Gallons per day.

Table 3: Projected Sanitary Sewer Impacts

Land Use	Maximum Units	Gallons Per Day[1]	Estimated Demand (GPD)
Shopping center without food or laundry	10,640	.01 gallons / sq. ft. / day	1,064

1. *Source: Ch. 62E-6.008, Table 1, Florida Administrative Code*

Conclusion: The project site will be served by the existing Lake City wastewater infrastructure. The subject property is served by Lake City's sanitary sewer, and it's anticipated to generate 1,064 Gallons per day.

Table 4: Projected Solid Waste Impacts

Land Use	Units	Solid Waste Generated (lbs/day)[1]	Solid Waste Generated (tons/year)[2]
Nonresidential	10,640 sq. ft.	233.02	42.53

1. *Formulas per Sincero and Sincero; Environmental Engineering: A Design Approach. Prentice Hall, New Jersey, 1996.*
    a. *Formula used, nonresidential: (((12 lbs. / 1,000 sq. ft./day * [10,640 sq. ft.]) * 365)/2,000)*
2. *Formula used, pounds per day to tons per year: ([lbs/day] * 0.005) * 365*

Conclusion: Solid waste facility capacity exists to adequately serve the intended office development for the subject property. The subject property is served by Lake City's solid waste, and it's anticipated to generate 233.02 pounds per day and 42.53 tons per year.

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF A
GEOTECHNICAL SITE EXPLORATION – REVISION 1

DOLLAR GENERAL – LAKE CITY SW MARVIN BURNETT
LAKE CITY, COLUMBIA COUNTY, FLORIDA

GSE PROJECT NO. 16251

Prepared For:

CONCEPT DEVELOPMENT, INC.

DECEMBER 2023

GSE Engineering & Consulting, Inc.

December 7, 2023

Andrea Barnett
Concept Development, Inc.
1449 SW 74th Drive, Suite 200
Gainesville, Florida 32607

Subject: Summary Report of a Geotechnical Site Exploration – Revision 1
Dollar General – Lake City SW Marvin Burnett
Lake City, Columbia County, Florida
GSE Project No. 16251

GSE Engineering & Consulting, Inc. (GSE) is pleased to submit this geotechnical site exploration report for the above referenced project.

Presented herein are the findings and conclusions of our exploration, including the geotechnical parameters and recommendations to assist with building foundation, pavement, and stormwater management designs. This revision includes recommended soil parameters for stormwater management design with underdrains.

GSE appreciates this opportunity to have assisted you on this project. If you have any questions or comments concerning this report, please contact us.

Sincerely,

GSE Engineering & Consulting, Inc.

JASON E. GOWLAND
LICENSE
No.66467

This item has been digitally signed and sealed by
Jason E Gowland
Digitally signed by Jason E Gowland
Date: 2023.12.07 15:39:40 -05'00'
on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Angelina

Angelina X. Liu, E.I.
Staff Engineer

Jason E. Gowland, P.E.
Principal Engineer
Florida Registration No. 66467

AXL / JEG: tlf
Q:\Projects\16251 Dollar General – Lake City SW Marvin Burnett\16251 Rev.1.docx

Distribution: Addressee (1 - Electronic)
File (1)

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
(352) 377-3233 Phone ◆ (352) 377-0335 Fax
www.gseengineering.com

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LIST OF FIGURES

Figure

1.0 INTRODUCTION

1.1 General

GSE Engineering & Consulting, Inc. (GSE) has completed this geotechnical exploration for the proposed commercial retail store located on SW Marvin Burnett Road in Lake City, Columbia County, Florida. This exploration was performed in accordance with GSE Proposal No. 2023-589 dated September 12, 2023. Ms. Andrea Barnett authorized our services on September 15, 2023.

1.2 Project Description

We understand that you are coordinating due diligence related work related to the development of this site into a commercial retail store. The site is located on the northwest corner of the State Road 47 and SW Marvin Burnett Road intersection in Lake City, Columbia County, Florida. The site is approximately +/-2.72 acres.

You provided GSE with information about the project. We understand the project will consist of an approximate 10,640 square foot building, a parking lot, and a stormwater management facility.

The structure is expected to be a single-story, high wall concrete masonry unit (CMU) and steel frame construction. Structural loads have not been provided but are expected to be on the order of 1 to 2 kips per foot for non-load bearing CMU walls, and less than 50 kips for columns. The finished floor of the structure is anticipated to be constructed within 1 to 2 feet of the existing site grades.

The building will be located in the northern portion of the site. The parking lot will be located west, south, and east of the structure. The stormwater management facility will be located on the western portion of the site.

A recent aerial photograph of the site was obtained and reviewed. The site plan and aerial photograph were used in preparation of this exploration and report.

1.3 Purpose

The purpose of this geotechnical exploration was to determine the general subsurface conditions, evaluate these conditions with respect to the proposed construction, and prepare geotechnical parameters and recommendations to assist with building foundation, stormwater management, and pavement designs.

2.0 FIELD AND LABORATORY TESTS

2.1 General Description

The procedures used for field sampling and testing are in general accordance with industry standards of care and established geotechnical engineering practices for this geographic region. This exploration consisted of performing five (5) Standard Penetration Test (SPT) borings to a depth of 20 feet below land surface (bls) within the proposed building area, five (5) auger borings to a depth of 5 feet bls in the area of the parking lot and driveways, and five (5) auger borings to depths of 15 feet bls in the area of the stormwater management facility.

The soil borings were performed at the approximate locations as shown on Figure 2. The borings were located at the site using the provided site plan, Global Positioning System (GPS) coordinates, and obvious site features as reference. The boring locations should be considered approximate. The soil borings were performed on September 20, 2023.

2.2 Auger Borings

The auger borings were performed in accordance with ASTM D1452. The borings were performed with flight auger equipment that was rotated into the ground in a manner that reduces soil disturbance. After penetrating to the required depth, the auger was retracted and the soils collected on the auger flights were field classified and placed in sealed containers. Representative samples of each stratum were retained from the auger boring. Results from the auger borings are provided in Section 5.1.

2.3 Standard Penetration Test Borings

The soil borings were performed with a drill rig employing mud rotary drilling techniques and Standard Penetration Testing (SPT) in accordance with ASTM D1586. The SPTs were performed continuously to 10 feet and at 5-foot intervals thereafter. Soil samples were obtained at the depths where the SPTs were performed. The soil samples were classified in the field, placed in sealed containers, and returned to our laboratory for further evaluation.

After drilling to the sampling depth, the standard two-inch O.D. split-barrel sampler was seated by driving it 6 inches into the undisturbed soil. The sampler was then driven an additional 12 inches by blows of a 140-pound hammer falling 30 inches. The number of blows required to produce the next 12 inches of penetration were recorded as the penetration resistance (N-value). These values and the complete SPT boring logs are provided in Section 5.2.

Upon completion of the sampling, the boreholes were abandoned in accordance with Water Management District guidelines.

2.4 Soil Laboratory Tests

The soil samples recovered from the soil borings were returned to our laboratory, and examined to confirm the field descriptions. Representative samples were then selected for laboratory testing. The laboratory tests consisted of nine (9) percent soil fines passing the No. 200 sieve, nine (9) natural moisture content determinations, two (2) Atterberg Limits tests, and three (3) constant head hydraulic conductivity tests. These tests were performed in order to aid in classifying the soils and to further evaluate their engineering properties. The laboratory tests are provided in Section 5.3.

3.0 FINDINGS

3.1 Surface Conditions

Karen Roylos with GSE visited the site on September 18, 2023 to observe the site conditions and mark the boring locations. Mr. Jason Kite with Jason Kite, LLC was retained by GSE to clear lanes to allow access to the boring locations for drilling equipment.

The majority of the site is densely vegetated with trees, scattered saw palmettos, shrubs, vines and weedy groundcover. Portions of the site were densely vegetated and more difficult to traverse. To the south of the site is SW Marvin Burnett Road. State Road 47 is located east of the site. Undeveloped wooded land borders the site to the north and west.

The topography at the site is moderately sloping from northeast towards southwest. Regional topography can be characterized as gently to moderately sloping. The Lake City West USGS Topographic Map indicates the ground surface elevations at the site are near 155 to 165 feet[1] NAVD 88.

3.2 Subsurface Conditions

The locations of the auger and SPT borings are provided on Figure 2. Complete logs for the borings are provided in Sections 5.1 and 5.2. Descriptions for the soils encountered are accompanied by the Unified Soil Classification System symbol (SM, SP-SM, etc.) and are based on visual examination of the recovered soil samples and the laboratory tests performed. Stratification boundaries between the soil types should be considered approximate, as the actual transition between soil types may be gradual.

The auger borings located within the proposed parking lot and driveways encountered relatively similar soil conditions. Auger borings A-1 to A-3 encountered poorly graded sand, and sand with silt (SP, SP-SM) to the explored depths of 5 feet bls. Auger borings A-4 and A-5 initially encountered sand with silt (SP-SM) to depths of 1.5 to 3.5 feet bls. This was underlain by clayey to very clayey sand (SC, SC/CL) to the explored depths of 5 feet bls.

The auger borings located within the stormwater management facility encountered relatively consistent soil conditions. Auger boring P-1 encountered 6 feet of silty sand, and poorly graded sand (SM, SP) overlying clayey to very clayey sand, and clay with sand (SC, SC/CL, CL/CH) to the explored depth of 15 feet bls. Auger borings P-2 to P-4 initially encountered poorly graded sand, sand with silt, and silty sand (SP, SP-SM, SM) to depths of 2 to 5 feet bls, overlying silty clayey sand, and clayey to very clayey sand (SM-SC, SC, SC/CL) to depths of 7 to 10.5 feet bls. This was underlain by sand with silt (SP-SM) to depths of 12 to 13.5 feet bls, followed by clay-rich soils (CL/CH) to the explored depth of 15 feet bls. Auger boring P-5 initially encountered 5.5 feet of clayey sand (SC) and 5 feet of sand with silt (SP-SM) overlying clay with sand (CL/CH) to a depth of 12.5 feet bls. This was underlain by sand with silt (SP-SM) to the explored depth of 15 feet bls.

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[1] United States Geological Survey, Lake City West Quadrangle, 2021.

The SPT borings located within the proposed building footprint indicate the soils across these areas are relatively consistent. SPT boring B-1 initially encountered 3 feet of sand with silt (SP-SM), and 4.5 feet of sandy clay (CL) overlying sand with clay, and poorly graded sand (SP-SC, SP) to a depth of 12 feet bls. This was underlain by clay (CL/CH) to the explored depth of 20 feet bls. SPT borings B-2 to B-5 encountered poorly graded sand, sand with silt, sand with clay, silty sand, and silty clayey sand (SP, SP-SM, SP-SC, SM-SC) with some interbedded layers of clayey to very clayey sand (SC, SC/CL) to depths of 13.5 to 17.5 feet bls. This was underlain by clay-rich (CL, CL/CH) soils to the explored depths of 20 feet bls.

The sandy soils (SP, SP-SM, SP-SC) encountered are generally in a very loose to dense condition with N-values ranging from 2 to 45 blows per foot. The silty sand, silty clayey sand, and clayey to very clayey sands (SM, SM-SC, SC, SC/CL) encountered are generally in a very loose to dense condition with N-values ranging from 4 to 38 blows per foot. The sandy clay, clay with sand, and clay (CL/CH, CL) encountered are generally in a very soft to hard condition with N-values ranging from 3 to 33 blows per foot.

Weight-of-rod strength material was encountered in SPT boring B-2 at depth range from 13.5 to 14.5 feet bls. This isolated occurrence is likely related to depositional characteristics of the soil materials and transitions between material types.

The groundwater table was encountered in the auger and SPT borings at depths of 6.1 to 8.8 feet bls at the time of our investigation.

3.3 Review of Published Data

The majority of the site is mapped as three soil series by the Soil Conservation Service (SCS) Soil Survey for Columbia County[2]. The following soil descriptions are from the Soil Survey.

Blanton fine sand, 0 to 5 percent slopes

Map Unit Setting

- *National map unit symbol:* 2w0q2
- *Elevation:* 30 to 200 feet
- *Mean annual precipitation:* 51 to 59 inches
- *Mean annual air temperature:* 64 to 72 degrees F
- *Frost-free period:* 258 to 310 days
- *Farmland classification:* Not prime farmland

Map Unit Composition

- *Blanton and similar soils:* 85 percent
- *Minor components:* 15 percent
- *Estimates are based on observations, descriptions, and transects of the map unit.*

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[2] Soil Survey of Hamilton County, Florida. Soil Conservation Service, U.S. Department of Agriculture.

Description of Blanton

Setting

- *Landform:* Knolls on marine terraces, ridges on marine terraces
- *Landform position (two-dimensional):* Backslope
- *Landform position (three-dimensional):* Side slope, interfluve, riser
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Parent material:* Sandy and loamy marine deposits

Typical profile

- *A - 0 to 7 inches:* fine sand
- *E - 7 to 52 inches:* fine sand
- *Bt - 52 to 80 inches:* fine sandy loam

Properties and qualities

- *Slope:* 0 to 5 percent
- *Depth to restrictive feature:* More than 80 inches
- *Drainage class:* Moderately well drained
- *Runoff class:* Negligible
- *Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 6.00 in/hr)
- *Depth to water table:* About 42 to 72 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- *Sodium adsorption ratio, maximum:* 4.0
- *Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

Interpretive groups

- *Land capability classification (irrigated):* None specified
- *Land capability classification (nonirrigated):* 3s
- *Hydrologic Soil Group:* A
- *Forage suitability group:* Sandy soils on rises, knolls, and ridges of mesic uplands (G138XA121FL)
- *Other vegetative classification:* Sandy soils on rises, knolls, and ridges of mesic uplands (G138XA121FL)
- *Hydric soil rating:* No

Minor Components

Albany

- *Percent of map unit:* 6 percent
- *Landform:* Ridges on marine terraces
- *Landform position (two-dimensional):* Shoulder
- *Landform position (three-dimensional):* Interfluve, talf
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G138XA131FL), North Florida Flatwoods (R138XY004FL)
- *Hydric soil rating:* No

Troup

- *Percent of map unit:* 4 percent
- *Landform:* Ridges, knolls
- *Landform position (two-dimensional):* Summit
- *Landform position (three-dimensional):* Interfluve
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy soils on ridges and dunes of xeric uplands (G133AA111FL), Longleaf Pine-Turkey Oak Hills (R133AY002FL)
- *Hydric soil rating:* No

Chipley

- *Percent of map unit:* 3 percent
- *Landform:* Knolls on marine terraces, rises on marine terraces, flats on marine terraces
- *Landform position (two-dimensional):* Shoulder, footslope
- *Landform position (three-dimensional):* Interfluve
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G138XA131FL)
- *Hydric soil rating:* No

Alpin

- *Percent of map unit:* 2 percent
- *Landform:* Flatwoods on marine terraces, knolls on marine terraces, ridges on marine terraces
- *Landform position (two-dimensional):* Shoulder, backslope
- *Landform position (three-dimensional):* Interfluve
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy soils on ridges and dunes of xeric uplands (G138XA111FL), Sand Pine Scrub (R153AY001FL)
- *Hydric soil rating:* No

Ichetucknee fine sand, 5 to 8 percent slopes

Map Unit Setting

- *National map unit symbol:* vrt4
- *Elevation:* 330 to 660 feet
- *Mean annual precipitation:* 50 to 58 inches
- *Mean annual air temperature:* 64 to 72 degrees F
- *Frost-free period:* 258 to 288 days
- *Farmland classification:* Not prime farmland

Map Unit Composition

- *Ichetucknee and similar soils:* 80 percent
- *Minor components:* 20 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Ichetucknee

Setting

- *Landform:* Hills on marine terraces, ridges on marine terraces
- *Landform position (three-dimensional):* Interfluve, side slope
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Parent material:* Sandy and clayey marine deposits over limestone

Typical profile

- *A - 0 to 4 inches:* fine sand
- *E - 4 to 7 inches:* fine sand
- *Bg - 7 to 75 inches:* clay
- *2R - 75 to 79 inches:* weathered bedrock

Properties and qualities

- *Slope:* 5 to 8 percent
- *Depth to restrictive feature:* 50 to 75 inches to lithic bedrock
- *Drainage class:* Somewhat poorly drained
- *Runoff class:* Negligible
- *Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
- *Depth to water table:* About 18 to 36 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- *Sodium adsorption ratio, maximum:* 4.0
- *Available water supply, 0 to 60 inches:* Moderate (about 8.4 inches)

Interpretive groups

- *Land capability classification (irrigated):* None specified
- *Land capability classification (nonirrigated):* 6e
- *Hydrologic Soil Group:* D
- *Forage suitability group:* Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G138XA322FL)
- *Other vegetative classification:* Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G138XA322FL)
- *Hydric soil rating:* No

Minor Components

Goldsboro

- *Percent of map unit:* 10 percent
- *Landform:* Knolls on marine terraces, ridges on marine terraces
- *Landform position (three-dimensional):* Interfluve
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Loamy and clayey soils on flats and rises of mesic lowlands (G138XA331FL)
- *Hydric soil rating:* No

Ocilla

- *Percent of map unit:* 10 percent
- *Landform:* Rises on marine terraces
- *Landform position (three-dimensional):* Interfluve
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy over loamy soils on rises and knolls of mesic uplands (G138XA231FL)
- *Hydric soil rating:* No

Pelham fine sand, 0 to 2 percent slopes

Map Unit Setting

- *National map unit symbol:* 2tg56
- *Elevation:* 0 to 190 feet
- *Mean annual precipitation:* 48 to 63 inches
- *Mean annual air temperature:* 57 to 79 degrees F
- *Frost-free period:* 251 to 293 days
- *Farmland classification:* Not prime farmland

Map Unit Composition

- *Pelham and similar soils:* 75 percent
- *Minor components:* 25 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Pelham

Setting

- *Landform:* Flatwoods
- *Landform position (three-dimensional):* Talf
- *Down-slope shape:* Linear
- *Across-slope shape:* Linear
- *Parent material:* Sandy and loamy marine deposits

Typical profile

- *A - 0 to 6 inches:* fine sand
- *Eg - 6 to 26 inches:* fine sand
- *Btg1 - 26 to 42 inches:* sandy clay loam
- *Btg2 - 42 to 83 inches:* sandy clay loam

Properties and qualities

- *Slope:* 0 to 2 percent
- *Depth to restrictive feature:* More than 80 inches
- *Drainage class:* Poorly drained
- *Runoff class:* High
- *Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 5.95 in/hr)
- *Depth to water table:* About 6 to 12 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- *Sodium adsorption ratio, maximum:* 4.0
- *Available water supply, 0 to 60 inches:* Moderate (about 7.0 inches)

Interpretive groups

- *Land capability classification (irrigated):* None specified
- *Land capability classification (nonirrigated):* 3w
- *Hydrologic Soil Group:* B/D
- *Ecological site:* F153AY060NC - Wet Loamy Flats and Depressions
- *Forage suitability group:* Sandy over loamy soils on flats of hydric or mesic lowlands (G153AA241FL)
- *Other vegetative classification:* Sandy over loamy soils on flats of hydric or mesic lowlands (G153AA241FL)
- *Hydric soil rating:* No

Minor Components

Unnamed

- *Percent of map unit:* 13 percent
- *Landform:* Flatwoods
- *Landform position (three-dimensional):* Talf
- *Down-slope shape:* Linear
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy over loamy soils on flats of hydric or mesic lowlands (G153AA241FL)
- *Hydric soil rating:* Yes

Albany

- *Percent of map unit:* 6 percent
- *Landform:* Flatwoods
- *Landform position (three-dimensional):* Talf
- *Microfeatures of landform position:* Rises
- *Down-slope shape:* Convex
- *Across-slope shape:* Convex
- *Ecological site:* F153AY040NC - Moist Loamy Rises and Flats
- *Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G153AA131FL)
- *Hydric soil rating:* No

Meggett

- *Percent of map unit:* 3 percent
- *Landform:* Flatwoods
- *Landform position (three-dimensional):* Talf
- *Down-slope shape:* Linear
- *Across-slope shape:* Linear
- *Ecological site:* F153AY090NC - Flooded Mineral Soil Floodplains and Terraces
- *Other vegetative classification:* Loamy and clayey soils on flats of hydric or mesic lowlands (G153AA341FL)
- *Hydric soil rating:* Yes

Surrency

- *Percent of map unit:* 3 percent
- *Landform:* Drainageways, depressions
- *Landform position (three-dimensional):* Dip
- *Down-slope shape:* Linear, concave
- *Across-slope shape:* Convex, concave
- *Ecological site:* F153AY060NC - Wet Loamy Flats and Depressions
- *Other vegetative classification:* Sandy over loamy soils on stream terraces, flood plains, or in depressions (G153AA245FL)
- *Hydric soil rating:* Yes

3.4 Laboratory Soil Analysis

Selected soil samples recovered from the soil borings were analyzed for the percent soil fines passing the No. 200 sieve, natural moisture content, Atterberg Limits, and hydraulic conductivity. Samples selected for laboratory testing were collected at depths ranging from near-surface to 15 feet bls. These tests were performed to confirm visual soil classification and evaluate their engineering properties. The complete laboratory report is provided in Section 5.3.

The laboratory tests indicate the tested soils consist sand with silt, silty sand, silty sand with clay, sand with clay, clayey sand, very clayey sand, and sandy clay. The tested sand with silt (SP-SM) contains approximately 11 percent soil fines passing the No. 200 sieve with a natural moisture content of about 8.7 percent. The tested silty sand, and silty sand with clay (SM, SM-SC) contains approximately 14 to 27 percent soil fines passing the No. 200 sieve with natural moisture contents of about 7.8 to 18 percent. The tested sand with clay (SP-SC) contains approximately 11 percent soil fines passing the No. 200 sieve with a natural moisture content of about 17 percent. The tested clayey sand (SC) contains approximately 30 percent soil fines passing the No. 200 sieve with a natural moisture content of about 13 percent. The tested very clayey sand (SC/CL) contains approximately 34 percent soil fines passing the No. 200 sieve with a natural moisture content of about 18 percent. The tested sandy clay (CL) contains approximately 56 to 62 percent soil fines passing the No. 200 sieve with natural moisture contents of about 17 to 23 percent.

Atterberg Limits tests indicate the tested sandy clay (CL) has Liquid Limit (LL) values of 35 and 41, Plastic Limit (PL) values of 15 to 18, and Plasticity Index (PI) values of 17 and 26. These values correspond to materials with low potential ($LL < 50$) to marginal potential ($PI \leq 35$) for expansive behavior[3].

The constant head hydraulic conductivity test results indicate the near-surface silty sand (SM) has hydraulic conductivity values of 0.8 to 1.1 feet per day. The tested clayey sand (SC) has no flow. Tests were not conducted on the deeper very clayey sand due to the limitations of the test method on soils having moderate to high fines content, but these soils are expected to have permeability values at least one order of magnitude lower than the sandy soils.

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[3] U.S. Department of the Army USA, 1983, Foundations in Expansive Soils, TM 5-818-7, p. 4-1.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General

The following recommendations are made based upon our understanding of the proposed construction, a review of the attached soil borings and laboratory test data, and experience with similar projects and subsurface conditions. If plans or the location of proposed construction changes from those discussed previously, GSE requests the opportunity to review and possibly amend our recommendations with respect to those changes.

The final design of a foundation system is dependent upon adequate integration of geotechnical and structural engineering considerations. Consequently, GSE must review the final foundation design in order to evaluate the effectiveness and applicability of our initial analyses, and to determine if additional recommendations may be warranted. Without such a review, the recommendations presented herein could be misinterpreted or misapplied resulting in potentially unacceptable performance of the foundation system.

The performance of site improvements may be sensitive to their post-construction relationship to site groundwater levels, seepage zones, or soil/rock characteristics exposed at final site grades. GSE recommends that use of boring information for final design of all site improvements be predicated on proper horizontal and vertical control of borings.

In this section of the report, we present our geotechnical parameters and recommendations to assist with building foundation, stormwater management, and pavement designs as well as our general site preparation guidelines.

4.2 Groundwater

The groundwater table was encountered in the borings at depths of 6.1 to 8.8 feet bls at the time of our exploration. The Soil Survey indicates the groundwater table is typically at a depth of near-surface to 6 feet bls. We anticipate the seasonal high groundwater table will be near depths of 1 to 3.5 feet bls. Estimates for the seasonal high groundwater table are shown on the individual boring logs.

4.3 Building Foundations

The SPT borings located within the proposed building footprint indicate the soils across these areas are relatively consistent. SPT boring B-1 initially encountered 3 feet of sand with silt (SP-SM), and 4.5 feet of sandy clay (CL) overlying sand with clay, and poorly graded sand (SP-SC, SP) to a depth of 12 feet bls. This was underlain by clay (CL/CH) to the explored depth of 20 feet bls. SPT borings B-2 to B-5 encountered poorly graded sand, sand with silt, sand with clay, silty sand, and silty clayey sand (SP, SP-SM, SP-SC, SM-SC) with some interbedded layers of clayey to very clayey sand (SC, SC/CL) to depths of 13.5 to 17.5 feet bls. This was underlain by clay-rich (CL, CL/CH) soils to the explored depths of 20 feet bls.

Based upon the soil conditions encountered and our limited understanding of the structural loads and site grading, we recommend the building be supported by conventional, shallow strip and/or spread foundations. We recommend the shallow foundations be designed for a maximum allowable gross bearing pressure of 2,500 psf. The gross bearing pressure is defined as the soil contact pressure that can be imposed from the maximum structural loads, weight of the concrete foundations, and weight of the soil above the foundations. The foundations should be designed based upon the maximum load that could be imposed by all loading conditions.

The foundations should be embedded a minimum of 18 inches below the lowest adjacent grade. Interior foundations or thickened sections should be embedded a minimum of 12 inches. The foundations should have minimum widths of 18 inches for strip footings, and 24 inches for columns, even though the maximum soil bearing pressure may not be fully developed.

Due to the mostly sandy nature of the majority of the near-surface soils, we expect settlement to be mostly elastic in nature. The majority of the settlement will occur on application of the loads, during and immediately following construction. Using the recommended maximum bearing pressure, the assumed maximum structural loads, and the field and laboratory test data which we have correlated into the strength and compressibility characteristics of the subsurface soils, we estimate the total settlements of the structure to be 1 inch or less, with approximately half of it occurring upon load application (during construction).

Differential settlement results from differences in applied bearing pressures and the variations in the compressibility characteristics of the subsurface soils. For the building pad prepared as recommended, we anticipate differential settlement of less than 1/2 inch.

Post-construction settlement of the structures will be influenced by several interrelated factors, such as (1) subsurface stratification and strength/compressibility characteristics of the bearing soils; (2) footing size, bearing level, applied loads, and resulting bearing pressures beneath the foundation; (3) site preparation and earthwork construction techniques used by the contractor, and (4) external factors, including but not limited to vibration from off-site sources and groundwater fluctuations beyond those normally anticipated for the naturally-occurring site and soil conditions which are present.

Our settlement estimates for the structure are based upon our limited understanding of the structural loads and site grading and the use of successful adherence to the site preparation recommendations presented later in this report. Any deviation from our project understanding and/or our site preparation recommendations could result in an increase in the estimated post-construction settlement of the structure.

4.4 Flexible Pavement

Overall soil conditions encountered by our borings at this site are suitable for supporting conventional limerock base and asphalt wearing surface pavements. We have not been provided the anticipated traffic loading conditions; therefore, the following pavement component recommendations should be used only as guidelines. The below recommendations are intended to be minimums. Increasing base course and asphalt thicknesses would increase the design life of the pavement.

The seasonal high groundwater table is estimated to be approximately 12 inches to about 3.5 feet beneath existing grade across the site. We recommend a minimum of either 12 to 24 inches of separation (depending upon the pavement section design) be present between the bottom of the base course and the estimated seasonal high groundwater table. If this separation cannot be achieved by site grading, GSE recommends underdrains be used beneath the base course.

4.4.1 Stabilized Subgrade

If a crushed limerock or recycled concrete base is used, we recommend a stabilized subgrade be located beneath the base. The stabilized subgrade should have a minimum Limerock Bearing Ratio (LBR) of 40, with minimum thicknesses of 6 inches for automobile parking areas and 12 inches for driveways.

The stabilized subgrade can be imported material or a mixture of imported and on-site material. If a mix is proposed, a mix design should be performed to determine the optimum mix proportions. The stabilized subgrade should be compacted to a minimum of 98 percent of the Modified Proctor maximum dry density (ASTM D1557) for soils with less than 15 percent fines content. Soils with 15 percent or greater fines content should be compacted to 100 percent of the Standard Proctor maximum dry density (ASTM D698).

4.4.2 Base Course

The base course can consist of either crushed limerock, soil cement, or recycled concrete. If you should use a soil cement base course, a stabilized subgrade is not required.

Limerock should have an LBR of at least 100, be obtained from a FDOT approved source and meet FDOT gradation requirements. The base course thickness should be a minimum of 6 inches in automobile parking areas, and 8 inches in driveway areas. The base course should be compacted to at least 98 percent of the Modified Proctor maximum dry density (ASTM D1557). We recommend a minimum 24 inches separation between the bottom of the limerock base course and the estimated seasonal high-water table. If site grading does not allow for this separation, we recommend underdrains be considered.

Soil cement can consist of an imported material or a blend of the on-site soils and cement. A mix design should be performed to determine the optimum cement content. We recommend the soil cement have a minimum 28-day compressive strength of 500 psi. Soil cement can be blended off-site (in a pug mill) or on site. Soil cement pills should be cast from each day's production to verify the recommended compressive strength has been achieved at 28 days. We recommend the soil cement base course be a minimum of 8 inches thick throughout the project. We recommend a minimum 18 inches separation between the bottom of the soil cement base course and the estimated seasonal high-water table. If site grading does not allow for this separation, we recommend underdrains be considered.

Recycled concrete should have an LBR of at least 150, be obtained from a FDOT approved source and meet FDOT gradation requirements. The base course thickness should be a minimum of 8 inches. The base course should be compacted to at least 98 percent of the Modified Proctor maximum dry density (ASTM D1557). We recommend a minimum 12 inches separation between the bottom of the recycled concrete base course and the estimated seasonal high-water table. If site grading does not allow for this separation, we recommend underdrains be considered.

4.4.3 Wearing Surface

The asphalt-wearing surface should consist of an FDOT Type SP Hot Mix Asphalt mixture. For automobile parking areas, the thickness should be a minimum of 1.5 inches. For driveway areas, the thickness should be a minimum of 2 inches. The asphalt-wearing surface should consist of an SP-12.5 mix. The asphalt should be compacted to at least 95 percent of the mix design density.

The constructability of differing asphalt thicknesses may be difficult, and having a uniform 2-inch thick asphalt wearing surface may be more practical.

4.5 Rigid Pavement

Concrete pavement is a rigid pavement that results in smaller load transfers to the subgrade soils than flexible pavement. For concrete pavement subgrade, we recommend using the existing surficial sands or recommended clean sand (SP) fill, compacted to at least 98 percent of the Modified Proctor maximum dry density without additional stabilization with the following stipulations:

1. Subgrade soils must be compacted to at least 98 percent of Modified Proctor maximum dry density to a depth of at least 2 feet prior to placement of concrete.
2. The surface of the subgrade soils must be smooth and any disturbances or wheel rutting corrected prior to placement of the concrete.
3. The subgrade soils must be moistened prior to placement of concrete.
4. Concrete pavement thickness should be uniform throughout, with the exception of thickened edges (curb or footing).
5. The bottom of the pavement should be separated from the estimated seasonal high groundwater level by at least 18 inches.
6. Limerock or any other impermeable base is not suitable unless it meets the minimum recommended permeability of 10 ft/day.
7. The upper 12 inches of subgrade underlying the base course must also be “free-draining” and water that enters the base and subgrade must be allowed to seep out by gravity or if this is not possible, underdrains must be incorporated into the subgrade. A “bathtub” condition within the base/subgrade must be avoided.

Our recommendations for slab thickness for both light-duty and heavy-duty concrete pavements is based on a.) subgrade soils are compacted to 98 percent of the Modified Proctor maximum dry density, b.) modulus of subgrade reaction (k) of 200 pounds per cubic inch, c.) a 20-year design life, and d.) previously stated design parameters. For an anticipated light-duty traffic group, a minimum pavement thickness of 5.5 inches is recommended, using Table 2.4 from the ACI 330 Guide for Design and Construction of Concrete Parking Lots, ACI 330R-01. For an anticipated heavy-duty traffic group, a minimum pavement thickness of 8 inches is recommended, using Table 3.4 from the FDOT *Rigid Pavement Design Manual*, January 2019.

We recommend using concrete with a minimum 28-day compressive strength of 4,000 pounds per square inch and a minimum 28-day flexural strength (modulus of rupture) of at least 600 pounds per square inch based on the third point loading of concrete beam test samples. Maximum control joint spacing of 12.5 by 12.5 feet is suggested for light-duty concrete pavements. Maximum control joint spacing of 15 by 15 feet is suggested for heavy-duty concrete pavements. Layout of sawcut control joints should form square panels, and the depth of sawcut joint should be at least 1/4 of the concrete slab thickness. The joints should be sawed within six hours of concrete placement or as soon as the concrete has developed sufficient strength to support workers and equipment.

For further details on concrete pavement construction, refer to "Guide to Jointing Non-reinforced Concrete Pavements" published by the Florida Concrete and Products Associates, Inc. and "Building Quality Concrete Parking Areas", published by the Portland Cement Association.

4.6 Site Preparation

The soils at this site should be suitable for supporting the proposed construction using normal, good practice site preparation procedures. The following recommendations are our general guidelines for site preparation.

4.6.1 Stripping

Strip the construction limits and 10 feet beyond the perimeter of all grass, roots, topsoil, and other deleterious materials. You should expect to strip to depths of 12 or more inches. Deeper stripping will likely be necessary due to major root systems present at the site.

4.6.2 Dewatering

Temporary dewatering may be necessary for this project. If needed, we anticipate dewatering can be accomplished with sumps placed near the construction area, or with underdrains connected to a vacuum pump.

In any case, the site should always be graded to promote runoff and limit the amount of ponding. Localized ponding of stormwater is expected without proper grading during construction, and could render previously acceptable surfaces unacceptable.

4.6.3 Proof-Rolling

Proof-roll the subgrade with heavy rubber-tired equipment, such as a loaded front-end loader or dump truck, to identify any loose or soft zones not found by the soil borings. The proof-rolling should be monitored by a geotechnical engineer or qualified technician. Undercut or otherwise treat these zones as recommended by the geotechnical engineer in this report.

4.6.4 Proof Compaction

Compact the subgrade to a density of at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557). The specified compaction should be obtained to a depth of 1 foot below the foundation bottoms and the existing grade prior to placing fill. Vibratory roller equipment should not be used within approximately 100 feet of existing structures. Lighter "walk-behind" compaction equipment may be used to achieve the degree of compaction.

Should clayey sand be encountered at the bearing surface, this material should be probed and visually confirmed to be unyielding in the upper 12 inches in lieu of density testing. If the foundation excavations penetrate the clayey sand, the excavation should be performed in a manner that reduces soil disturbance. Clayey sand soils (with fines content in excess of 15 percent) that are removed and replaced or appreciably disturbed need to be re-compacted to 98 percent of the Standard Proctor maximum dry density (ASTM D698).

4.6.5 Fill Placement

Imported fill placed to raise the site grades should consist of clean sand having less than 10 percent passing the No. 200 sieve. On-site soils meeting the requirements of Section 4.9 may also be used as structural fill. The fill should be placed in maximum 12-inch loose lifts that are compacted to at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557). If lighter "walk-behind" compaction equipment is used, this may require lifts of 4 inches or less to achieve the required degree of compaction.

4.7 Quality Control and Construction Materials Testing

It should be noted that the geotechnical engineering design does not end with the advertisement of the construction documents. As the geotechnical engineer of record, GSE is the most qualified to perform the construction materials testing that will be required for this project. The benefits of having the geotechnical engineer of record also perform the construction materials testing are numerous. If GSE continues to be involved with the project through construction, we will be able to constantly re-evaluate and possibly alter our geotechnical recommendations in a timely and cost effective manner once final design and construction techniques are developed. This often results in cost savings for the project.

We recommend performing compaction testing beneath the concrete floor slab and the building foundations. We recommend one test be performed every 50 linear feet of continuous footing and every other column footing, per foot depth of fill or native material. We recommend a compaction test be performed for each 2,500 square feet of floor area or 10,000 square feet of pavement area per foot of fill or native material, or a minimum of three tests each, whichever is greater. Test all footing excavations to a depth of 12 inches at the frequencies stated above.

4.8 Stormwater Management

The auger borings located within the stormwater management facility encountered relatively consistent soil conditions. Auger boring P-1 encountered 6 feet of silty sand, and poorly graded sand (SM, SP) overlying clayey to very clayey sand, and clay with sand (SC, SC/CL, CL/CH) to the explored depth of 15 feet bls. Auger borings P-2 to P-4 initially encountered poorly graded sand, sand with silt, and silty sand (SP, SP-SM, SM) to depths of 2 to 5 feet bls, overlying silty clayey sand, and clayey to very clayey sand (SM-SC, SC, SC/CL) to depths of 7 to 10.5 feet bls. This was underlain by sand with silt (SP-SM) to depths of 12 to 13.5 feet bls, followed by clay-rich soils (CL/CH) to the explored depth of 15 feet bls. Auger boring P-5 initially encountered 5.5 feet of clayey sand (SC) and 5 feet of sand with silt (SP-SM) overlying clay with sand (CL/CH) to a depth of 12.5 feet bls. This was underlain by sand with silt (SP-SM) to the explored depth of 15 feet bls.

The water table was encountered in the auger borings at depths of 7.5 to 8.8 feet bls at the time of our exploration. We anticipate the seasonal high groundwater table to be at depths of 1 to 2.5 feet bls.

The laboratory permeability tests indicate the surficial layers of silty sand (SM) has hydraulic conductivity values of 0.8 to 1.1 feet per day, and clayey sand (SC) has no flow. The deeper very clayey sand encountered below the surficial sandy soils is friable and will have permeability values at least one order of magnitude lower than the sandy soils. The underlying dense soils and clay-rich soils are expected to be confining soils.

Mr. Cole Menhennett with CHW confirmed the proposed stormwater management facility as a dry pond via email. We understand that the current design will consider underdrains. We understand that imported clean sand will be used for the backfill for the underdrains. This revision includes soil parameters considering and underdrain design with clean sand backfill.

Based upon our findings and test results, our recommended soil parameters for the stormwater management design in the explored areas are presented below. The recommended parameters consider the results of the permeability tests, wash 200 determinations, and our experience with these types of soils. The parameters below do not consider a factor of safety.

Proposed Stormwater Management Facility

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to 8 feet bls.
2. Unsaturated vertical infiltration rate of 10 foot per day.
3. Horizontal hydraulic conductivity equal to 10 feet per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 2 feet bls.
6. Average seasonal low groundwater table depth equal to 6 feet bls.

In areas where clay-rich soils are present at the basin bottom, we recommend these soils be undercut a minimum of 2 feet and backfilled with the on-site sands and sands with silt (SP, SP-SM) having a maximum of 12 percent soil fines passing the No. 200 sieve. This fill should also be used above the bottom of the underdrains. The intent of this undercutting and replacement is to provide a more uniform sand "blanket" at the basin bottom that allows the migration of water to the underdrains. This sand blanket will also reduce the potential for clay-fines leaching out of the soils when water is present in the basin that can result in a thin layer of confining type material on the basin bottom that can reduce the effectiveness of the basin.

4.9 Fill Suitability

The soils encountered at this site within the explored depths range from sands (SP) to clays (CL/CH). A discussion of the suitability for reuse as structural fill for each soil classification according to the Unified Soil Classification System (USCS) designation is provided below.

SP, SP/SM – Sands (SP) and sand with silt (SP/SM) have less than 5 percent and 12 percent soil fines passing the No. 200 sieve, respectively, and are typically well draining soils that are suitable for reuse as structural fill. The sands with silt may require moisture conditioning (drying) to make the material more workable. These soils will require stockpiling and drying before they are reused if they are excavated from below the water table.

SM – Silty sands (SM) can have between 12 percent and 50 percent soil fines passing the No. 200 sieve. Silty sands are typically non-plastic or have low plasticity, and can be reused as structural fill with precautions. Silty sands can be moisture sensitive and difficult to work and compact and can rut if the moisture content is near or above the optimum moisture content. We recommend these soils be moisture conditioned (dried) so that the moisture content during use is at or below the optimum moisture content. Aerating and exposure to the sun is typically the most effective methods of drying these soils. It may not be practical to reuse these materials during the wet season, as frequent rain showers may not allow these soils to dry to a workable moisture content. Suitable silty sands are limited to soil having less than 30 percent soil fines passing the No. 200 sieve. Silty sands with more than 30 percent soil fines are especially moisture sensitive, and are not recommended for reuse as structural fill. These soils will behave more as sandy silt, and for this reason, very silty sands having more than 30 percent soil fines passing the No. 200 sieve have been assigned a dual classification of SM/ML. Silty sand soils that are excavated from below the water table are not recommended for reuse as structural fill due to the amount of time that will be required to dry these soils to a workable condition.

SC – Clayey sand (SC) soils can have between 12 percent and 50 percent soil fines passing the No. 200 sieve. Clayey sands can have a high range of plasticity, varying from a PI of 7 or greater and plotting above the A-line to highly plastic. Friable clayey sands are typically suitable for use as structural fill with precautions. Clayey sands will be moisture sensitive and difficult to work and compact and can rut during placement if the moisture content is near or above the natural moisture content. We recommend these soils be moisture conditioned (dried) so that the moisture content during use is at or below the optimum moisture content. Aerating and exposure to the sun is typically the most effective methods of drying these soils. It may not be practical to reuse these materials during the wet season, as frequent rain showers may not allow these soils to dry to a workable moisture content. Suitable clayey sands are limited to soil having less than 30 percent soil fines passing the No. 200 sieve. Clayey sands with more than 30 percent soil fines passing the No. 200 sieve are especially moisture sensitive and are typically highly plastic, and are not recommended for reuse as structural fill. These soils will behave more as sandy clay, and for this reason, very clayey sands having more than 30 percent soil fines passing the No. 200 sieve have been assigned a dual classification of SC/CH or SC/CL. Clayey sand soils that are excavated from below the water table are not recommended for reuse as structural fill due to the amount of time that will be required to dry these soils to a workable condition.

ML, MH, CL, CH – Silts and clays are not suitable materials for reuse as structural fill.

When using on-site soils as fill materials, we recommend the silty and clayey sand soils (SM, SC) be used in the lower depths of the fill. Sand and sand with silt (SP, SP-SM) should be used in the upper portions of the fill. We recommend a minimum of 2 feet of sand (SP, SP-SM) cover the silty and clayey sand fill materials to reduce the potential for soggy surface conditions due to the low permeability characteristics of the silty and clayey sand materials.

4.10 Surface Water Control and Landscaping

Roof gutters should be considered to divert runoff away from the building. The gutter downspouts should discharge a minimum of 10 feet from the structure to reduce the amount of water collecting around the foundations. Where possible, the gutter downspouts should discharge directly into the storm sewer system or onto the asphalt paved areas in order to reduce the amount of water collecting around the foundations. Grading of the site should be such that water is diverted away from the building on all sides to reduce the potential for erosion and water infiltration along the foundation.

With respect to landscaping, it is recommended that any trees and large "tree-like" shrubbery with potential for developing large root systems be planted a minimum distance of half their mature height, and preferably their expected final height, away from the structure. The purpose of this is to reduce the potential for foundation or slab movements from the growth of root systems as the landscaping matures.

5.0 FIELD DATA

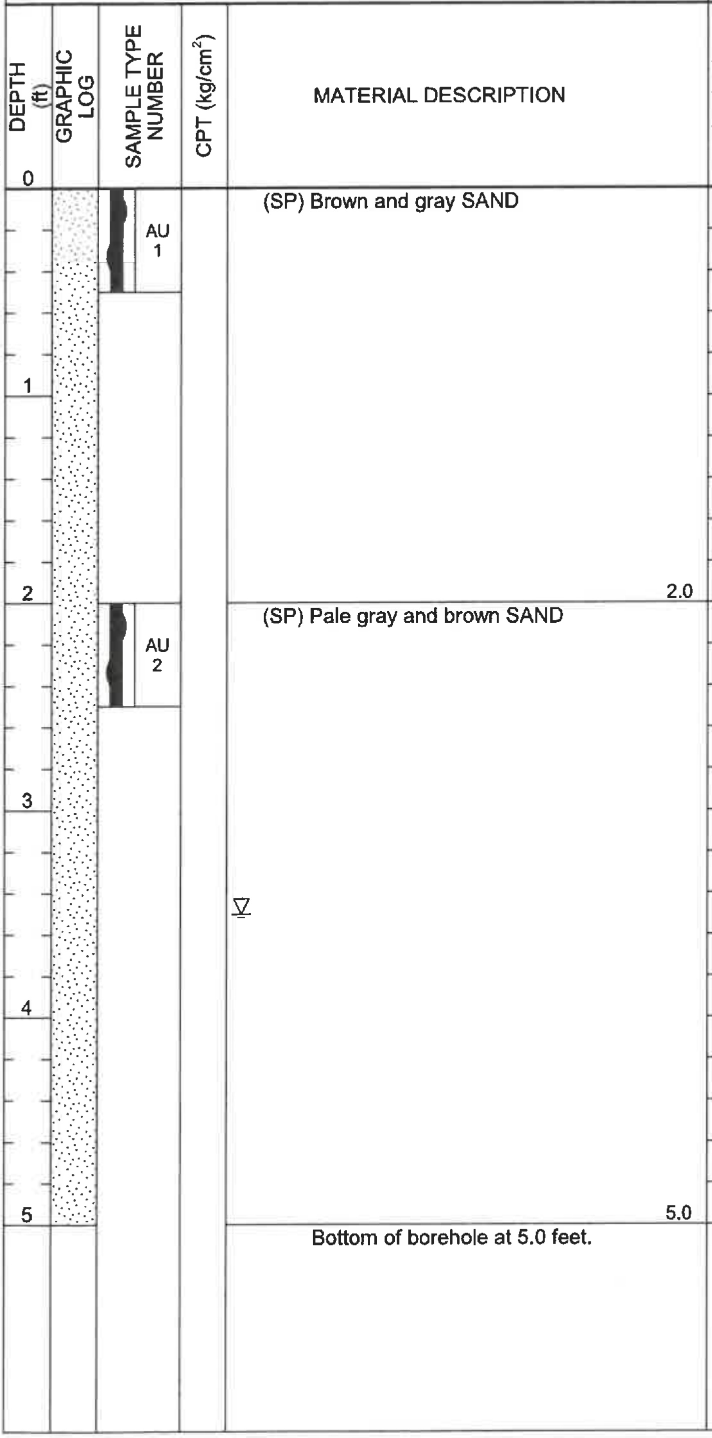
5.1 Auger Boring Logs

GSE Engineering & Consulting, Inc.
GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida

BORING NUMBER A-1

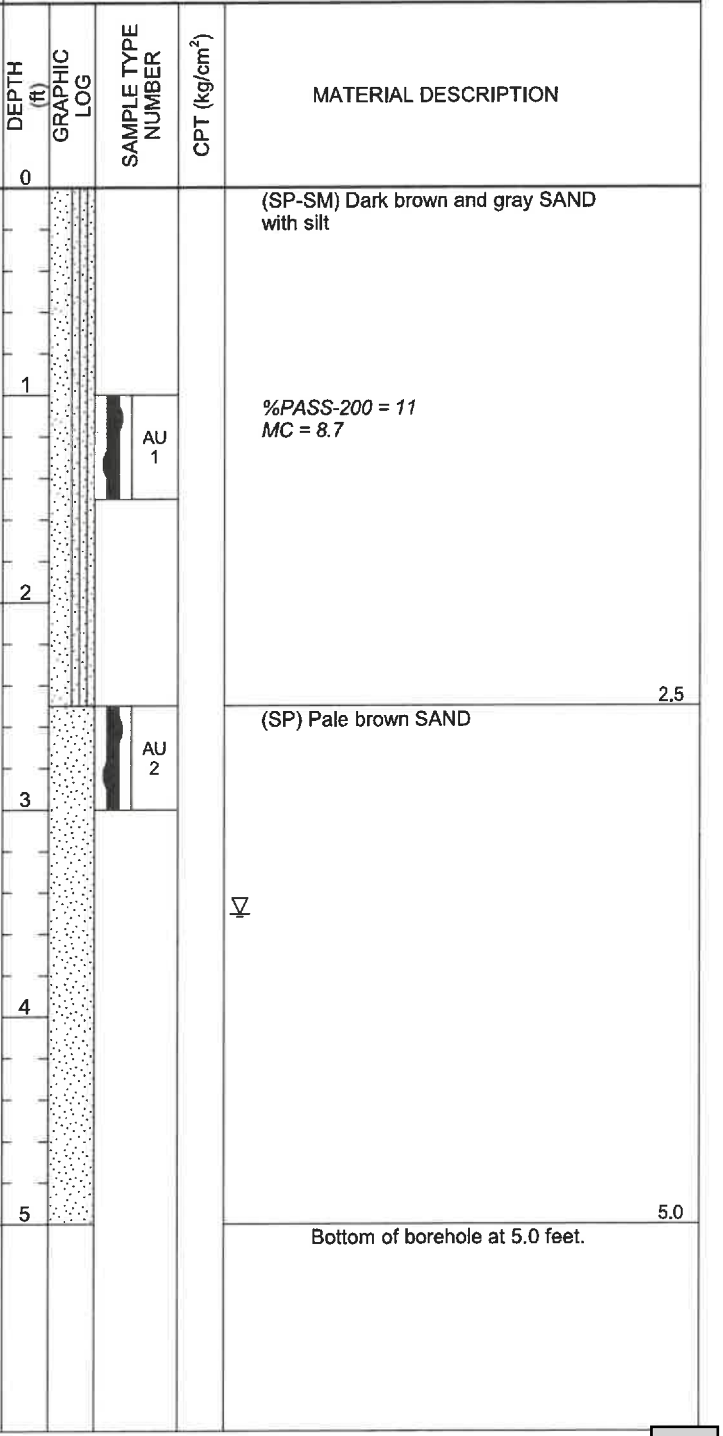
DATE PERFORMED 9/20/2023
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
AT TIME OF DRILLING NE
CHECKED BY AXL
ESTIMATED SEASONAL HIGH 3.5 ft
NOTES



DEPTH (ft)	MATERIAL DESCRIPTION
0	(SP) Brown and gray SAND
2.0	(SP) Pale gray and brown SAND
5.0	Bottom of borehole at 5.0 feet.

BORING NUMBER A-2

DATE PERFORMED 9/20/2023
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
AT TIME OF DRILLING NE
CHECKED BY AXL
ESTIMATED SEASONAL HIGH 3.5 ft
NOTES



DEPTH (ft)	MATERIAL DESCRIPTION
0	(SP-SM) Dark brown and gray SAND with silt *%PASS-200 = 11* *MC = 8.7*
2.5	(SP) Pale brown SAND
5.0	Bottom of borehole at 5.0 feet.

(Continued Next Page)

GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida

DATE PERFORMED 9/20/2023 **BORING NUMBER A-3**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
▼ AT TIME OF DRILLING NE CHECKED BY AXL
∇ ESTIMATED SEASONAL HIGH 3.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm²)	MATERIAL DESCRIPTION
0		AU 1		(SP-SM) Brown and gray SAND with silt
2.0		AU 2		(SP) Pale gray and brown SAND
3.5				∇
5.0				Bottom of borehole at 5.0 feet.

DATE PERFORMED 9/20/2023 **BORING NUMBER A-4**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
▼ AT TIME OF DRILLING NE CHECKED BY AXL
∇ ESTIMATED SEASONAL HIGH 3.0 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm²)	MATERIAL DESCRIPTION
0		AU 1		(SP-SM) Brown and gray SAND with silt
1.5	▨			(SC/CL) Brown, gray, and orange very clayey SAND
3.0		AU 2		∇ *%PASS-200 = 34* *MC = 18*
5.0				Bottom of borehole at 5.0 feet.

(Continued Next Page)

GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

CLIENT Concept Development, Inc.

PROJECT NUMBER 16251

PROJECT NAME Dollar General - Lake City SW Marvin Burnett

PROJECT LOCATION Lake City, Columbia County, Florida

DATE PERFORMED 9/20/2023

BORING NUMBER A-5

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

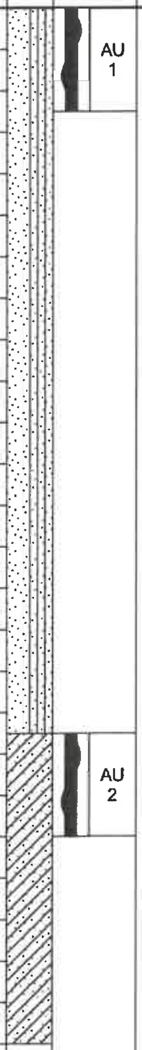
▼ AT TIME OF DRILLING NE

∇ ESTIMATED SEASONAL HIGH 3.0 ft

LOGGED BY WDI

CHECKED BY AXL

NOTES



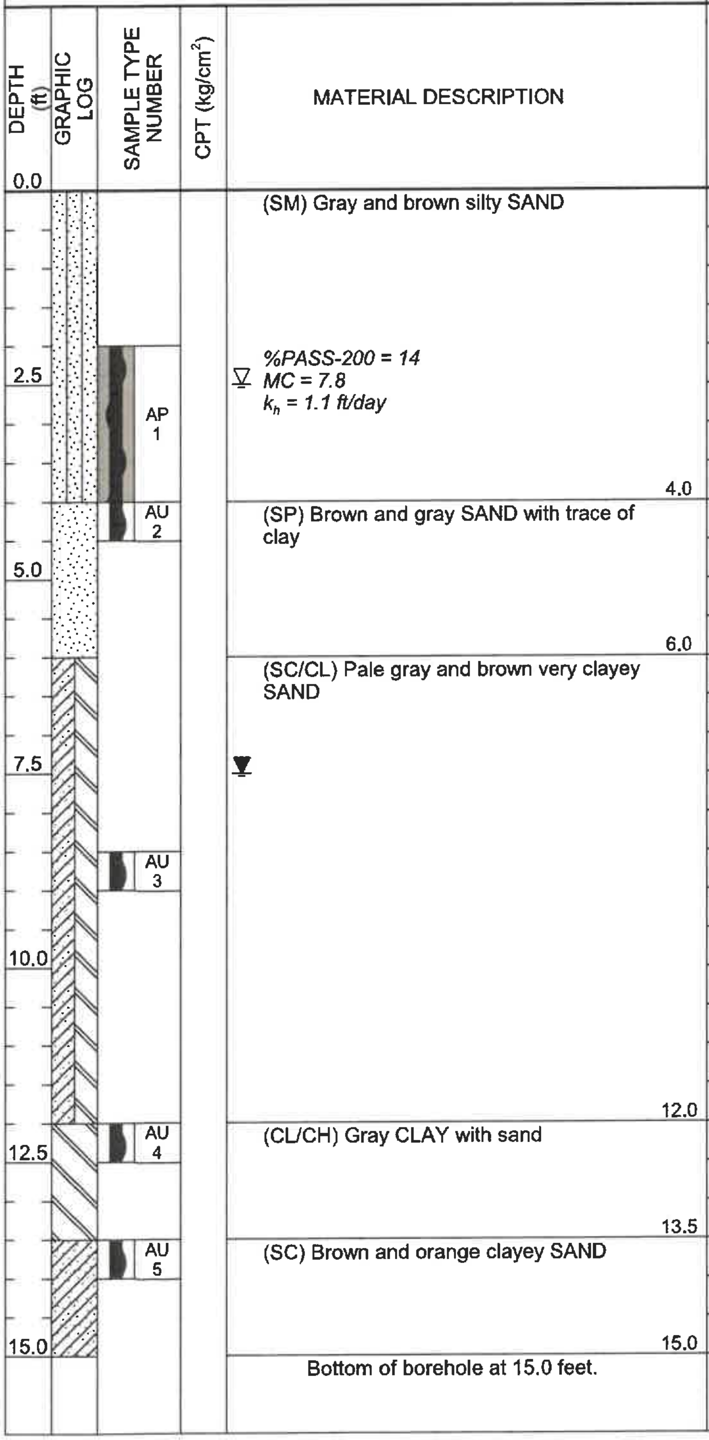
DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm^2)	MATERIAL DESCRIPTION
0		AU 1		(SP-SM) Brown and gray SAND with silt
3				∇
3.5		AU 2		(SC) Brown and gray clayey SAND
5.0				Bottom of borehole at 5.0 feet.

AB 2 PORTRAIT CPT - GINT STD US.GDT - 10/11/23 09:53 - P:\GENERAL\PROJECTS\16251 DOLLAR GENERAL - LAKE CITY SW MARVIN BURNETT\16251 BORINGS\16251 BORINGS.GPJ

GSE Engineering & Consulting, Inc.
GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

CLIENT Concept Development, Inc.
PROJECT NUMBER 16251
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT LOCATION Lake City, Columbia County, Florida

DATE PERFORMED 9/20/2023 **BORING NUMBER P-1**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
▼ AT TIME OF DRILLING 7.5 ft CHECKED BY AXL
▽ ESTIMATED SEASONAL HIGH 2.5 ft
NOTES



(SM) Gray and brown silty SAND

%PASS-200 = 14
MC = 7.8
k_h = 1.1 ft/day

(SP) Brown and gray SAND with trace of clay

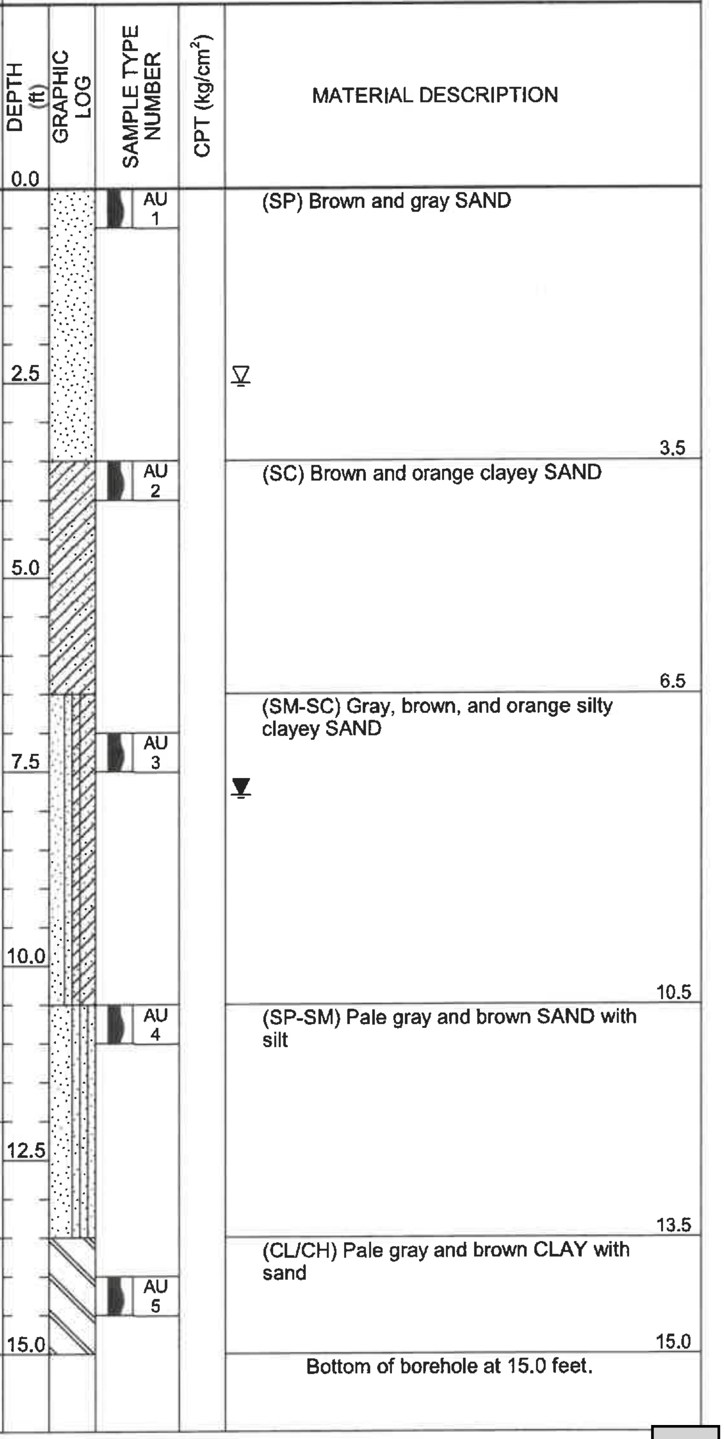
(SC/CL) Pale gray and brown very clayey SAND

(CL/CH) Gray CLAY with sand

(SC) Brown and orange clayey SAND

Bottom of borehole at 15.0 feet.

DATE PERFORMED 9/20/2023 **BORING NUMBER P-2**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
▼ AT TIME OF DRILLING 7.8 ft CHECKED BY AXL
▽ ESTIMATED SEASONAL HIGH 2.5 ft
NOTES



(SP) Brown and gray SAND

(SC) Brown and orange clayey SAND

(SM-SC) Gray, brown, and orange silty clayey SAND

(SP-SM) Pale gray and brown SAND with silt

(CL/CH) Pale gray and brown CLAY with sand

Bottom of borehole at 15.0 feet.

(Continued Next Page)

GSE Engineering & Consulting, Inc.

GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

CLIENT Concept Development, Inc.
PROJECT NUMBER 16251
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT LOCATION Lake City, Columbia County, Florida

BORING NUMBER P-3

DATE PERFORMED 9/20/2023
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
▼ AT TIME OF DRILLING 7.5 ft
CHECKED BY AXL
▽ ESTIMATED SEASONAL HIGH 1.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm²)	MATERIAL DESCRIPTION
0.0		AP 1		(SM) Brown silty SAND %PASS-200 = 15 ▽ MC = 9.7 k_h = 0.8 ft/day
2.0		AU 2		(SC) Brown, gray, and orange clayey SAND
7.0		AU 3		▼ (SP-SM) Pale gray and pale brown SAND with silt
12.0		AU 4		(CL/CH) Green CLAY with sand
15.0				Bottom of borehole at 15.0 feet.

BORING NUMBER P-4

DATE PERFORMED 9/20/2023
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
▼ AT TIME OF DRILLING 8.8 ft
CHECKED BY AXL
▽ ESTIMATED SEASONAL HIGH 2.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm²)	MATERIAL DESCRIPTION
0.0		AU 1		(SP-SM) Brown and gray SAND with silt ▽
5.0		AU 2		(SC) Brown, gray, and orange clayey SAND
7.5		AU 3		(SC/CL) Brown, gray, and orange very clayey SAND ▼
10.0		AU 4		(SP-SM) Pale brown and pale gray SAND with silt
12.5		AU 5		(CL/CH) Brown and gray CLAY with sand
15.0				Bottom of borehole at 15.0 feet.

(Continued Next Page)

GSE
Engineering & Consulting, Inc.

GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

CLIENT Concept Development, Inc.
PROJECT NUMBER 16251
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT LOCATION Lake City, Columbia County, Florida

DATE PERFORMED 9/20/2023
BORING NUMBER P-5

DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
▼ AT TIME OF DRILLING 8.8 ft
∇ ESTIMATED SEASONAL HIGH 1.0 ft
LOGGED BY WDI
CHECKED BY AXL
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm²)	MATERIAL DESCRIPTION	
0.0				(SC) Brown and gray clayey SAND	
				∇	
2.5					
		AP 1		%PASS-200 = 30 MC = 13 k_h = NF	
5.0					5.5
		AU 2		(SP-SM) Brown, gray, and orange SAND with silt	
7.5					
				▼	
10.0					10.5
		AU 3		(CL/CH) Gray and brown CLAY with sand	
12.5					12.5
		AU 4		(SP-SM) Brown and orange SAND with silt	
15.0					15.0
				Bottom of borehole at 15.0 feet.	

5.2 Standard Penetration Test Soil Boring Logs

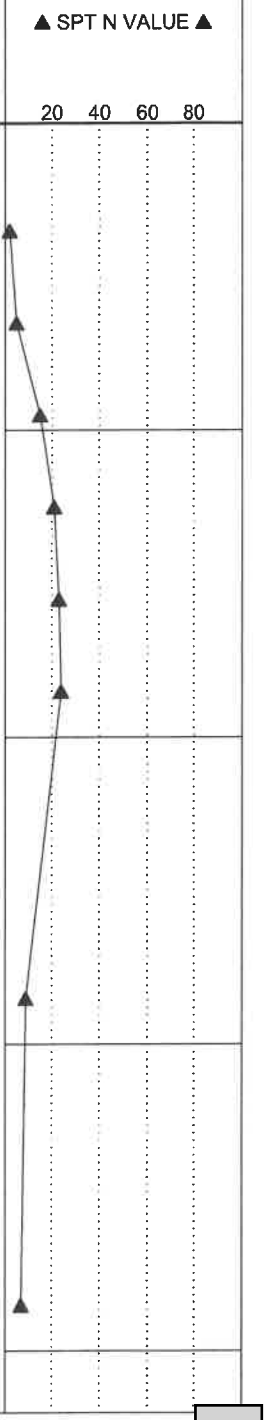
GSE Engineering & Consulting, Inc.

GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

BORING NUMBER B-1

CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida
DATE STARTED 9/20/23 **COMPLETED** 9/20/23
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 6.5 ft
LOGGED BY WDI **CHECKED BY** AXL
∇ **ESTIMATED SEASONAL HIGH** 3.5 ft
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SP-SM) Very loose brown SAND with silt	3	SPT 1	1-1-1 (2)					
	∇ (CL) Firm to very stiff brown, gray, and orange sandy CLAY		SPT 2	1-2-3 (5)					
5			SPT 3	4-6-9 (15)	35	18	17	56	17
	▼	7.5	SPT 4	7-10-11 (21)					
	(SP-SC) Medium dense brown, gray, and orange SAND with clay	9.5	SPT 5	8-11-12 (23)					
			SPT 6	9-10-14 (24)					
10	(SP) Medium dense pale gray and brown SAND	12							
	(CL/CH) Firm to stiff green and orange CLAY								
15			SPT 7	3-4-5 (9)					
20		20	SPT 8	2-3-4 (7)					
	Bottom of borehole at 20.0 feet.								



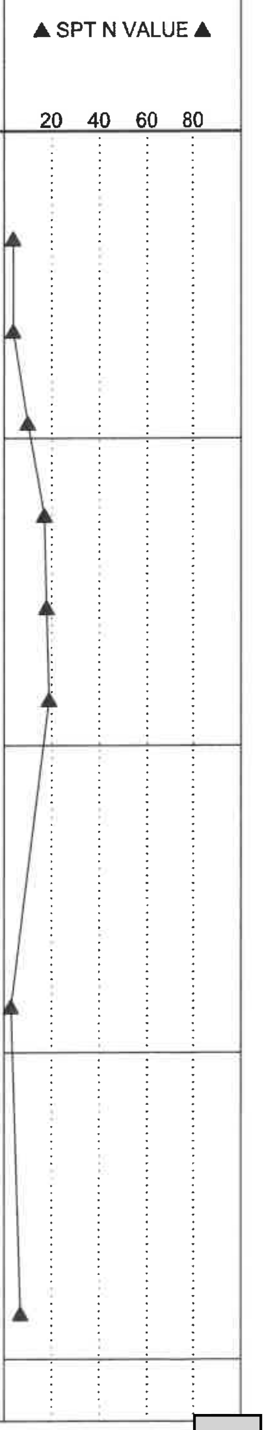
GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

Engineering & Consulting, Inc.

BORING NUMBER B-2

CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida
DATE STARTED 9/20/23 **COMPLETED** 9/20/23
GROUND ELEVATION ____ **HOLE SIZE** ____
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 6.1 ft
LOGGED BY WDI **CHECKED BY** AXL
▽ **ESTIMATED SEASONAL HIGH** 3.5 ft
NOTES ____

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SP-SM) Very loose gray and brown SAND with silt								
			SPT 1	1-2-2 (4)					
	▽ (SM-SC) Very loose to medium dense gray, brown, and orange silty clayey SAND	3	SPT 2	1-2-2 (4)					
5			SPT 3	2-4-6 (10)					
	▼		SPT 4	7-9-8 (17)					
			SPT 5	7-8-10 (18)					
	(SP-SC) Very loose to medium dense pale gray and brown SAND with clay	8.5	SPT 6	7-9-10 (19)					
10									
	Weight-of-Rod from 13.5 to 14.5 ft bls.		SPT 7	0-0-3 (3)					
15	(CL/CH) Soft gray sandy CLAY	14.5							
	(CL/CH) Firm green and orange CLAY	16.5							
			SPT 8	3-3-4 (7)					
20	Bottom of borehole at 20.0 feet.	20							



GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

BORING NUMBER B-3

CLIENT Concept Development, Inc.

PROJECT NAME Dollar General - Lake City SW Marvin Burnett

PROJECT NUMBER 16251

PROJECT LOCATION Lake City, Columbia County, Florida

DATE STARTED 9/20/23 **COMPLETED** 9/20/23

GROUND ELEVATION

HOLE SIZE

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Flight Auger

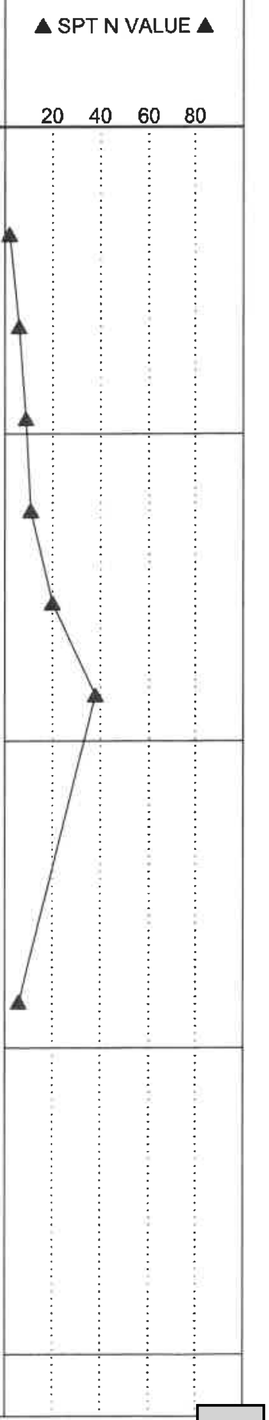
▼ **AT TIME OF DRILLING** 6.1 ft

LOGGED BY WDI **CHECKED BY** AXL

▽ **ESTIMATED SEASONAL HIGH** 3.5 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0		(SP-SM) Very loose gray and brown SAND with silt		SPT 1	1-1-1 (2)					
			2.5							
		(SP) Loose pale gray SAND ▽		SPT 2	1-2-4 (6)					
			4.5							
5		(SP-SC) Loose to gray and brown SAND with clay		SPT 3	2-4-5 (9)					
			6							
		▼ (SC/CL) Medium dense to dense gray, brown, and orange very clayey SAND		SPT 4	6-2-9 (11)					
				SPT 5	7-9-11 (20)					
10				SPT 6	14-16-22 (38)					
			13.5							
15		(CL) Firm gray sandy CLAY		SPT 7	2-3-3 (6)	41	15	26	62	23
			16							
		(CL/CH) Green and orange CLAY								
20			20							
		Bottom of borehole at 20.0 feet.								



BORING NUMBER B-4

GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

CLIENT Concept Development, Inc.

PROJECT NAME Dollar General - Lake City SW Marvin Burnett

PROJECT NUMBER 16251

PROJECT LOCATION Lake City, Columbia County, Florida

DATE STARTED 9/20/23 **COMPLETED** 9/20/23

GROUND ELEVATION **HOLE SIZE**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

DRILLING METHOD Flight Auger

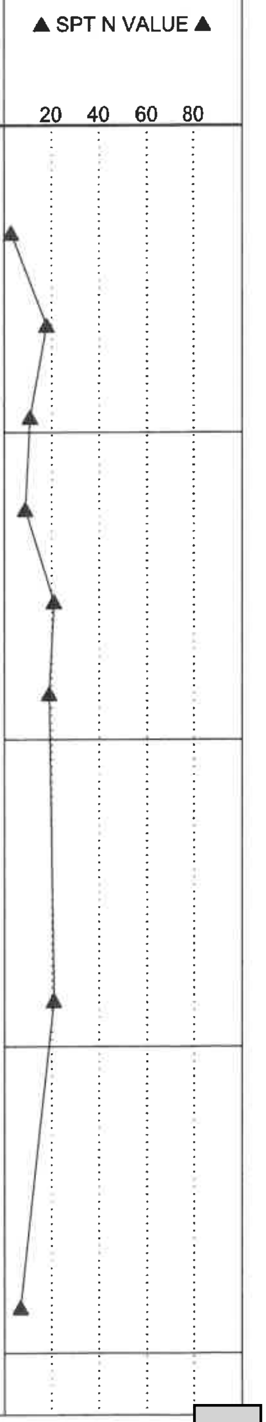
▼ **AT TIME OF DRILLING** 6.5 ft

LOGGED BY WDI **CHECKED BY** AXL

∇ **ESTIMATED SEASONAL HIGH** 3.5 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0		(SP-SM) Very loose gray and brown SAND with silt								
				SPT 1	1-1-2 (3)					
		∇ (SP) Medium dense pale gray and brown SAND	3	SPT 2	4-7-11 (18)					
5				SPT 3	7-5-6 (11)					
		▼ (SM-SC) Loose to medium dense gray, brown, and orange silty SAND with clay	6	SPT 4	3-4-5 (9)					
				SPT 5	5-7-14 (21)				27	18
10		(SC) gray and brown clayey SAND	9	SPT 6	12-10-9 (19)					
15		(SP-SC) Medium dense gray, brown, and orange SAND with clay	13	SPT 7	4-9-12 (21)					
20		(CL/CH) Firm green and gray sandy CLAY	17	SPT 8	3-3-4 (7)					
		Bottom of borehole at 20.0 feet.	20							



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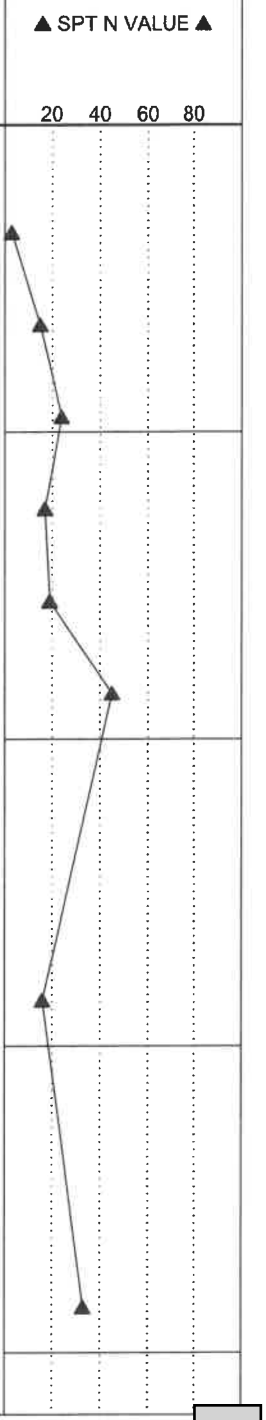
BORING NUMBER B-5

GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

Engineering & Consulting, Inc.

CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida
DATE STARTED 9/20/23 **COMPLETED** 9/20/23
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 6.5 ft
LOGGED BY WDI **CHECKED BY** AXL
∇ **ESTIMATED SEASONAL HIGH** 3.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0		(SP-SM) Very loose brown and gray SAND with silt								
				SPT 1	1-1-2 (3)					
		∇ (SP) Medium dense pale brown and pale gray SAND	3	SPT 2	4-7-8 (15)					
5				SPT 3	10-11-13 (24)					
		▼		SPT 4	10-8-9 (17)					
				SPT 5	7-8-11 (19)					
		(SP-SC) Medium dense to dense brown and orange SAND with clay	8	SPT 6	17-21-24 (45)				11	17
10		(SP) Medium dense pale brown and gray SAND	10							
				SPT 7	5-7-9 (16)					
15										
		(CL/CH) Hard pale gray sandy CLAY	17.5							
				SPT 8	8-14-19 (33)					
20		Bottom of borehole at 20.0 feet.	20							



SPT BORINGS - GINT STD US.GDT - 10/11/23 09:54 - P:\GENERAL\PROJECTS\16251 DOLLAR GENERAL – LAKE CITY SW MARVIN BURNETT\16251 BORINGS\16251 BORINGS.GPJ

5.3 Laboratory Results

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF LABORATORY TEST RESULTS

Project Number: 16251

Project Name: Dollar General - Lake City SW Marvin Burnett

Boring Number	Depth (ft)	Soil Description	Natural Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Percent Passing No. 200 Sieve	Organic Content (%)	Hydraulic Conductivity (ft/day)	Unified Soil Classification
A-2	1-1.5	Dark brown and gray SAND with silt	8.7				11			SP-SM
A-4	3-3.5	Brown, gray, and orange very clayey SAND	18				34			SC/CL
B-1	4-5.5	Brown, gray, and orange sandy CLAY	17	35	18	17	56			CL
B-3	13.5-15	Gray sandy CLAY	23	41	15	26	62			CL
B-4	7-8.5	Gray, brown, and orange silty SAND with clay	18				27			SM-SC
B-5	8.5-10	Pale brown and gray SAND with clay	17				11			SP-SC
P-1	2-4	Gray and brown silty SAND	7.8				14		1.1	SM
P-3	0-2	Brown silty SAND	9.7				15		0.8	SM
P-5	3-5	Brown and gray clayey SAND	13				30		NF	SC

5.4 Key to Soil Classification

KEY TO SOIL CLASSIFICATION CHART

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests				SYMBOLS		GROUP NAME
				GRAPHIC	LETTER	
COARSE-GRAINED SOILS	Gravels	Clean Gravels	$Cu \geq 4$ and $1 \leq Cc \leq 3$	▨	GW	Well graded GRAVEL
More than 50% retained on No. 200 sieve	More than 50% of coarse fraction retained on No. 4 sieve	Less than 5% fines	$Cu < 4$ and/or $1 > Cc > 3$	▨	GP	Poorly graded GRAVEL
		Gravels with fines	Fines classify as ML or MH	▨	GM	Silty GRAVEL
		More than 12% fines	Fines classify as CL or CH	▨	GC	Clayey GRAVEL
	Sands	Clean Sands	$Cu \geq 6$ and $1 \leq Cc \leq 3$	▨	SW	Well graded SAND
	50% or more of coarse fraction passes No. 4 sieve	Less than 5% fines	$Cu < 6$ and/or $1 > Cc > 3$	▨	SP	Poorly graded SAND
		Sand with fines	Fines classify as ML or MH	▨	SP-SM	SAND with silt
		$5\% \leq$ fines $< 12\%$	Fines classify as CL or CH	▨	SP-SC	SAND with clay
		Sand with fines	Fines classify as ML or MH	▨	SM	Silty SAND
		$12\% \leq$ fines $< 30\%$	Fines classify as CL or CH	▨	SC	Clayey SAND
		Sand with fines	Fines classify as ML or MH	▨	SM	Very silty SAND
		30% fines or more	Fines classify as CL or CH	▨	SC	Very clayey SAND
FINE-GRAINED SOILS	Clays	inorganic	$50\% \leq$ fines $< 70\%$	▨	CL/CH	Sandy CLAY
50% or more passes the No. 200 sieve			$70\% \leq$ fines $< 85\%$	▨	CL/CH	CLAY with sand
			fines $\geq 85\%$	▨	CL/CH	CLAY
	Silts and Clays	inorganic	$PI > 7$ and plots on/above "A" line	▨	CL	Lean CLAY
	Liquid Limit less than 50		$PI < 4$ or plots below "A" line	▨	ML	SILT
		organic	Liquid Limit - oven dried Liquid Limit - not dried < 0.75	▨	OL	Organic clay Organic silt
	Silts and Clays	inorganic	PI plots on or above "A" line	▨	CH	Fat CLAY
	Liquid Limit 50 or more		PI plots below "A" line	▨	MH	Elastic SILT
		organic	Liquid Limit - oven dried Liquid Limit - not dried < 0.75	▨	OH	Organic clay Organic silt
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor			▨	PT	PEAT

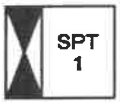
CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

	No. OF BLOWS, N	RELATIVE DENSITY
SANDS:	0 - 4	Very Loose
	5 - 10	Loose
	11 - 30	Medium dense
	31 - 50	Dense
	OVER 50	Very Dense

	No. OF BLOWS, N	CONSISTENCY
SILTS & CLAYS:	0 - 2	Very Soft
	3 - 4	Soft
	5 - 8	Firm
	9 - 15	Stiff
	16 - 30	Very Stiff
	31 - 50	Hard
	OVER 50	Very Hard

	No. OF BLOWS, N	RELATIVE DENSITY
LIMESTONE:	0 - 8	Very Soft
	9 - 18	Soft
	19 - 32	Moderately Hard
	33 - 50	Hard
	OVER 50	Very Hard

SAMPLE GRAPHIC TYPE LEGEND



Location of SPT Sample

Location of Auger Sample

PARTICLE SIZE IDENTIFICATION

BOULDERS:		Greater than 300 mm
COBBLES:		75 mm to 300 mm
GRAVEL:	Coarse -	19.0 mm to 75 mm
	Fine -	4.75 mm to 19.0 mm
SANDS:	Coarse -	2.00 mm to 4.75 mm
	Medium -	0.425 mm to 2.00 mm
	Fine -	0.075 mm to 0.425 mm
SILTS & CLAYS:		Less than 0.075 mm

LABORATORY TEST LEGEND

LL = Liquid Limit, %

PL = Plastic Limit, %

PI = Plasticity Index, %

% PASS - 200 = Percent Passing the No. 200 Sieve

MC = Moisture Content, %

ORG = Organic Content, %

k_h = Horizontal Hydraulic Conductivity, ft/day

6.0 LIMITATIONS

6.1 Warranty

This report has been prepared for our client for their exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

6.2 Auger and SPT Borings

The determination of soil type and conditions was performed from the ground surface to the maximum depth of the borings, only. Any changes in subsurface conditions that occur between or below the borings would not have been detected or reflected in this report.

Soil classifications that were made in the field are based upon identifiable textural changes, color changes, changes in composition or changes in resistance to penetration in the intervals from which the samples were collected. Abrupt changes in soil type, as reflected in boring logs and/or cross sections may not actually occur, but instead, be transitional.

Depth to the water table is based upon observations made during the performance of the auger and SPT borings. This depth is an estimate and does not reflect the annual variations that would be expected in this area due to fluctuations in rainfall and rates of evapotranspiration.

6.3 Site Figures

The measurements used for the preparation of the figures in this report were made using the provided site plan and by estimating distances from existing structures and site features. Figures in this report were not prepared by a licensed land surveyor and should not be interpreted as such.

6.4 Unanticipated Soil Conditions

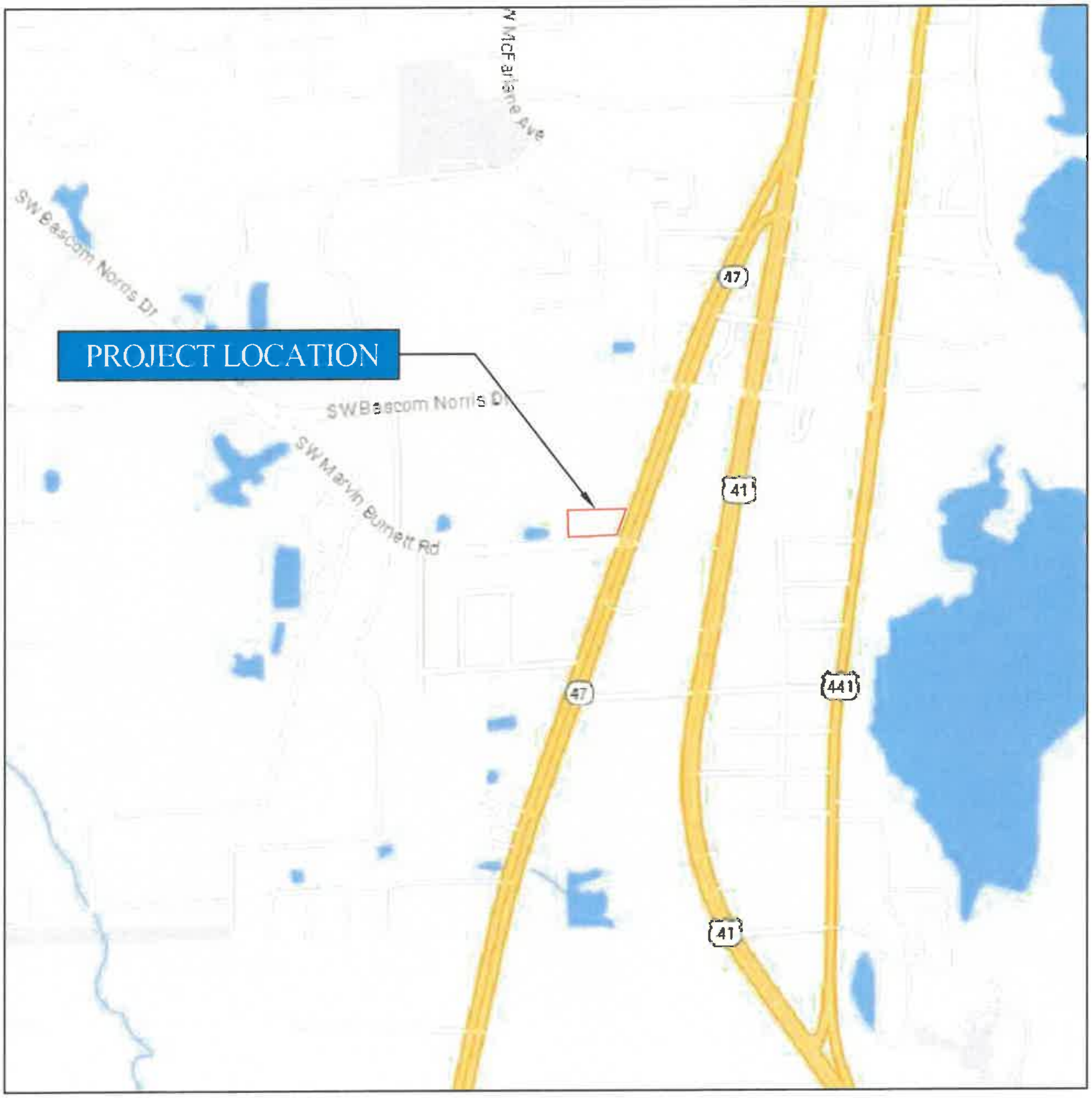
The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on Figure 2. This report does not reflect any variations that may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

6.5 Misinterpretation of Soil Engineering Report

GSE Engineering & Consulting, Inc. is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If others make the conclusions or recommendations based upon the data presented, those conclusions or recommendations are not the responsibility of GSE.

FIGURES



NORTH

NOT TO SCALE

DOLLAR GENERAL - LAKE CITY
SW MARVIN BURNETT
LAKE CITY, COLUMBIA COUNTY, FLORIDA
GSE PROJECT NO. 16251

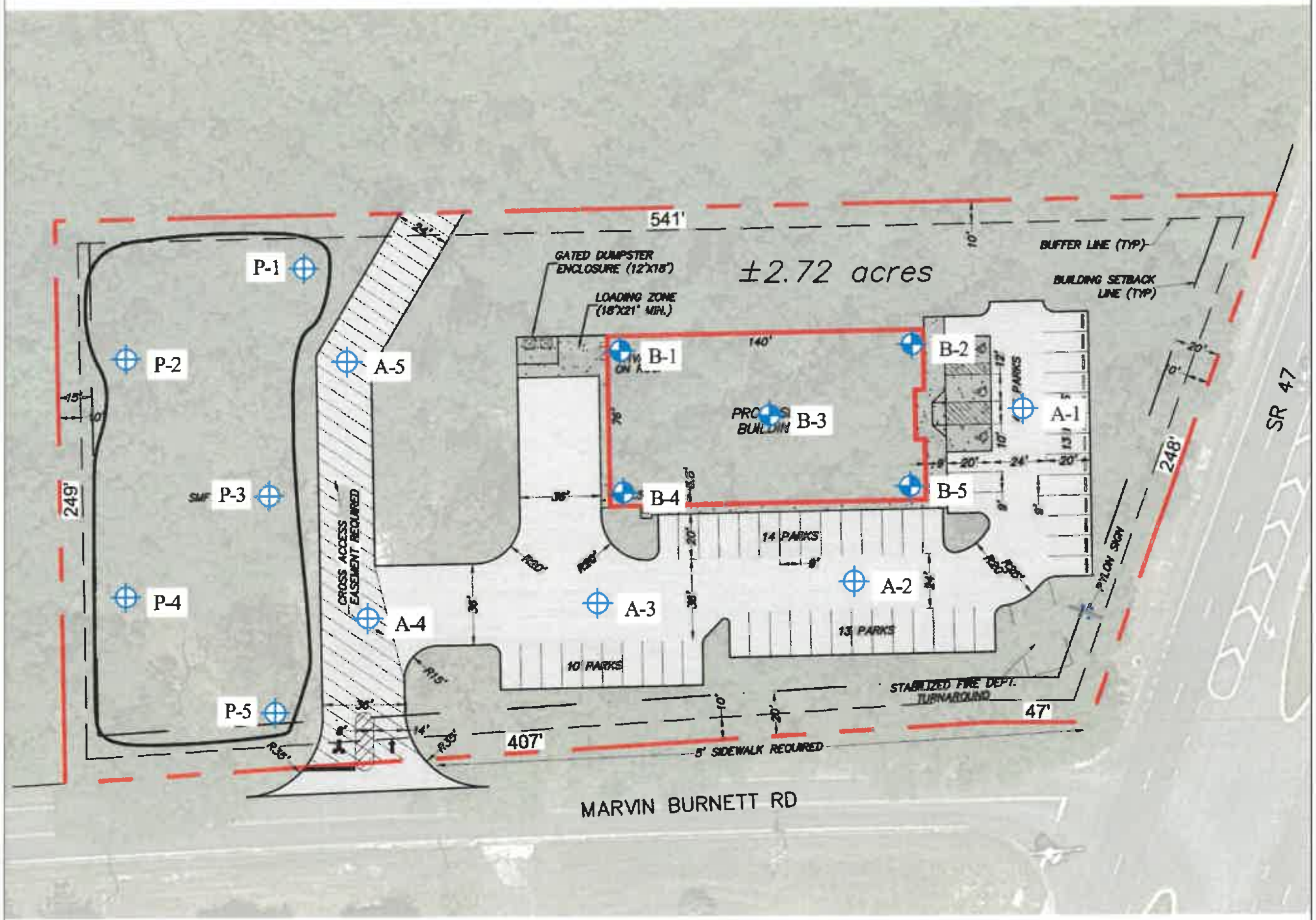
PROJECT SITE LOCATION MAP

DESIGNED BY : AXL
CHECKED BY : JEG
DRAWN BY : EEW

GSE
Engineering & Consulting, Inc.

FIGURE

1



LEGEND:

● SPT BORING

⊕ AUGER BORING

NORTH

0 80'

SCALE: 1" = 80' APPROX.

DOLLAR GENERAL - LAKE CITY
SW MARVIN BURNETT
LAKE CITY, COLUMBIA COUNTY, FLORIDA
GSE PROJECT NO. 15396

SITE PLAN SHOWING APPROXIMATE LOCATIONS OF FIELD TESTS

DESIGNED BY: AXL
CHECKED BY : JEG
DRAWN BY : AXL

GSE
Engineering & Consulting, Inc.

FIGURE

2

CHW
Professional Consultants

LEGAL DESCRIPTION

23-0653

DATE: OCTOBER 25, 2023
PROJECT NAME: DG LAKE CITY ALTA
PROJECT NO: 23-0653
DESCRIPTION FOR: PARCEL A

A TRACT OF LAND BEING A PORTION OF LANDS AS DESCRIBED IN OFFICIAL RECORDS BOOK 1330 PAGE 1324 OF THE PUBLIC RECORDS OF COLUMBIA COUNTY, FLORIDA, SITUATED IN THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST, COLUMBIA COUNTY, FLORIDA, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHWEST CORNER OF AFOREMENTIONED NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 7, TOWNSHIP 4 SOUTH, RANGE 17 EAST, COLUMBIA COUNTY, FLORIDA; THENCE NORTH 02°08'35" WEST, ALONG WEST LINE OF SAID NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER, A DISTANCE OF 50.00 FEET TO THE NORTHERLY RIGHT OF WAY LINE OF S.W. MARVIN BURNETT ROAD (RIGHT OF WAY WIDTH VARIES); THENCE DEPARTING SAID WEST LINE, NORTH 85°44'05" EAST, ALONG SAID NORTHERLY RIGHT OF WAY LINE, A DISTANCE OF 130.73 FEET TO THE **POINT OF BEGINNING**; THENCE NORTH 02°10'29" WEST, A DISTANCE OF 249.00 FEET; THENCE NORTH 88°10'08" EAST, A DISTANCE OF 541.00 FEET TO THE WESTERLY RIGHT OF WAY LINE OF S.W. STATE ROAD NO. 47 (RIGHT OF WAY WIDTH VARIES); THENCE SOUTH 18°32'28" WEST, ALONG SAID WESTERLY RIGHT OF WAY LINE, A DISTANCE OF 248.00 FEET; THENCE, CONTINUE ALONG SAID WESTERLY RIGHT OF WAY LINE, SOUTH 89°06'47" WEST, A DISTANCE OF 46.52 FEET TO THE INTERSECTION OF SAID WESTERLY RIGHT OF WAY LINE AND AFOREMENTIONED NORTHERLY RIGHT OF WAY LINE OF S.W. MARVIN BURNETT ROAD; THENCE SOUTH 85°44'05" WEST, ALONG SAID NORTHERLY RIGHT OF WAY LINE A DISTANCE OF 407.00 FEET TO THE **POINT OF BEGINNING**.

SAID TRACT OF LAND CONTAINING 2.70 ACRES, MORE OR LESS.

PROPERTY OWNER AFFIDAVIT

Property Owner Name: St. Johns Limited Liability Company	**Owner Mailing Address:** 13820 W. Newberry Road, Suite 100 Newberry, FL 32669

Owner phone:

Owner email:

Property County: Columbia

Parcel ID #: 07-4S-17-08127-005

Agent:
Concept Development, Inc. and Concept Construction of North Florida, Inc.
1449 SW 74th Drive, Suite 200
Gainesville, FL 32607
(352) 333-3233

Authorized Actions of Agent:
Design and submission of documentation, forms and plans and application for all permits as required from those regulatory agencies having jurisdiction over the Property (e.g. County, City, Water Management District, FDOT, FDEP, etc.) and on-site access for inspections, testing, data collection, etc.

I hereby certify that I am the owner of record. I hereby authorize the above listed agents to act on my behalf for the purposes of any and all applications and securing the above requested actions.

St. Johns Limited Liability Company,
a Florida limited liability company

By: ______________________
William B. Martin
Its: Manager

STATE OF FLORIDA
COUNTY OF Alachua

The foregoing instrument was acknowledged before me this 30th day of June, 2023, by William. B. Martin, as Manager of St. Johns Limited Liability Company, a Florida limited liability company, on behalf of said company who is personally known to me or has produced ______________________ as identification.

JAMES D. SALTER
Commission # HH 253673
Expires May 30, 2026

____
Notary Public, State of Florida at Large

This instrument prepared by
and after recording return to:

John C. Bovay, Attorney at Law
901 N.W. 57th Street
Gainesville, Florida 32605

Inst:2005003121 Date:02/09/2005 Time:15:12
Doc Stamp-Deed : 0.70
DC,P.DeWitt Cason,Columbia County B:1037 P:1953

[redacted]
07-4S-[redacted]
Property Appraiser's Parcel
Identification Number(s)

WARRANTY DEED

The Grantor, William B. Martin, as Trustee of the William B. Martin Trust, dated July 31, 1990, in consideration of Ten and grants and conveys to the Grantee, St. Johns, LLC (a Florida limited liability company), whose mailing address is 2841 NW 41st Street, Gainesville, Florida 32606, the real property in Columbia County, Florida, described as follows:

> The South ½ of the Northeast ¼ of the Northeast ¼ of Section 7, Township 4 South, Range 17 East as lies West of S.R. No. 47; LESS AND EXCEPT: Begin at the Southwest Corner of the Northeast ¼ of the Northeast ¼ of said Section 7, and run North along West Line of said Northeast ¼ of the Northeast ¼ 211 feet; thence run East 337 feet; thence run South 211 feet; thence run West 337 feet to the Point of Beginning.

The Grantor warrants that the property is free of all encumbrances, except the lien for real estate taxes not yet due and payable and restrictions, reservations, and easements of record, and that lawful seisin of and good right to convey the property are vested in the Grantor. The Grantor hereby fully warrants the title to the property and will defend the same against the lawful claims of all persons.

This deed was prepared without examination of title or legal opinion, but upon information, including the legal description and the ownership interest, supplied by the Grantor.

The interest conveyed is not the homestead of the Grantor.

Inst:2005003121 Date:02/09/2005 Time:15:12
Doc Stamp-Deed : 0.70
DC,P.DeWitt Cason,Columbia County B:1037 P:1954

Signed on February 4, 2005.

Signed in the presence of:

Print Name: Joseph W Salvestein

William B. Martin, as Trustee of the
William B. Martin Trust, dated July 31, 1990
2841 NW 41st Street
Gainesville, Florida 32606

Julia Cook
Print Name: Julia Cook

Two witnesses as to
William B. Martin, as Trustee of the
William B. Martin Trust, dated July 31, 1990

STATE OF FLORIDA
COUNTY OF ALACHUA

The foregoing instrument was acknowledged before me on February 4, 2005, by William B. Martin.

Notary Public--State of Florida
Print Notary Name: ____________
My Commission Number is: ____________
My Commission Expires: ____________

Personally Known ✓
Produced Identification ____________
Type of Identification ____________

JOHN C. BOVAY
Comm# DD0308617
Expires 8/3/2008
Bonded thru (800)432-4254
Florida Notary Assn., Inc

CITY OF LAKE CITY

GROWTH MANAGEMENT DEPARTMENT
205 North Marion Ave, Lake City, FL 32055
Phone: 386-719-5750
E-mail: growthmanagement@lcfla.com

AGENT AUTHORIZATION FORM

I, MatthewCason________________________(owner name), owner of property parcel

number 07-4S-17-08127-005________________________(parcel number), do certify that

the below referenced person(s) listed on this form is/are contracted/hired by me, the owner, or, is an officer of the corporation; or, partner as defined in Florida Statutes Chapter 468, and the said person(s) is/are authorized to sign, speak and represent me as the owner in all matters relating to this parcel.

Printed Name of Person Authorized	Signature of Authorized Person
1. Randall Olney (CHW)	1.
2.	2.
3.	3.
4.	4.
5.	5.

I, the owner, realize that I am responsible for all agreements my duly authorized agent agrees with, and I am fully responsible for compliance with all Florida Statutes, City Codes, and Land Development Regulations pertaining to this parcel.

If at any time the person(s) you have authorized is/are no longer agents, employee(s), or officer(s), you must notify this department in writing of the changes and submit a new letter of authorization form, which will supersede all previous lists. Failure to do so may allow unauthorized persons to use your name and/or license number to obtain permits.

________________________ 12-15-2023

Owner Signature (Notarized) **Date**

NOTARY INFORMATION:
STATE OF: Florida COUNTY OF: Alachua

The above person, whose name is Matt Cason,
personally appeared before me and [✓ is known by me] or has produced identification
(type of I.D.)__________________ on this 15 day of December, 20 23.

Sonia Hopewell
NOTARY'S SIGNATURE (Seal/Stamp)

Notary Public State of Florida
Sonia R. Hopewell
My Commission HH 428758
Expires 8/2/2027

Department of State / Division of Corporations / Search Records / Search by Entity Name /

Detail by Entity Name

Florida Limited Liability Company
ST. JOHNS LIMITED LIABILITY COMPANY

Filing Information

Document Number	L05000000431
FEI/EIN Number	20-3739691
Date Filed	12/23/2004
Effective Date	01/01/2005
State	FL
Status	ACTIVE

Principal Address

13820 W Newberry Rd
Suite 100
GAINESVILLE, FL 32669

Changed: 01/14/2018

Mailing Address

13820 W Newberry Rd
Suite 100
GAINESVILLE, FL 32669

Changed: 01/14/2018

Registered Agent Name & Address

Martin, William B
13820 W Newberry Road
Suite 100
Newberry, FL 32669

Name Changed: 03/10/2019

Address Changed: 03/10/2019

Authorized Person(s) Detail

Name & Address

Title MGR

Banks, Judith
13820 W Newberry Road
Suite 100
Newberry, FL 32669

Title MGR

Martin, William B
13820 W Newberry Rd
Suite 100
GAINESVILLE, FL 32669

Annual Reports

Report Year	Filed Date
2022	02/23/2022
2023	02/08/2023
2024	02/12/2024

Document Images

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01/14/2017 -- ANNUAL REPORT	View image in PDF format
03/02/2016 -- ANNUAL REPORT	View image in PDF format
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02/27/2007 -- ANNUAL REPORT	View image in PDF format
06/21/2006 -- ANNUAL REPORT	View image in PDF format
12/23/2004 -- Florida Limited Liabilites	View image in PDF format

Division of Corporations
an official State of Florida website

Department of State / Division of Corporations / Search Records / Search by Entity Name /

Detail by Entity Name

Florida Profit Corporation
CONCEPT COMPANIES, INC.

Filing Information

Document Number	P14000067003
FEI/EIN Number	47-1672849
Date Filed	08/07/2014
Effective Date	07/08/2009
State	FL
Status	ACTIVE
Last Event	CONVERSION
Event Date Filed	08/07/2014
Event Effective Date	NONE

Principal Address

1449 SW 74th Drive
Suite 200
Gainesville, FL 32607

Changed: 04/18/2022

Mailing Address

1449 SW 74th Drive
Suite 200
Gainesville, FL 32607

Changed: 04/18/2022

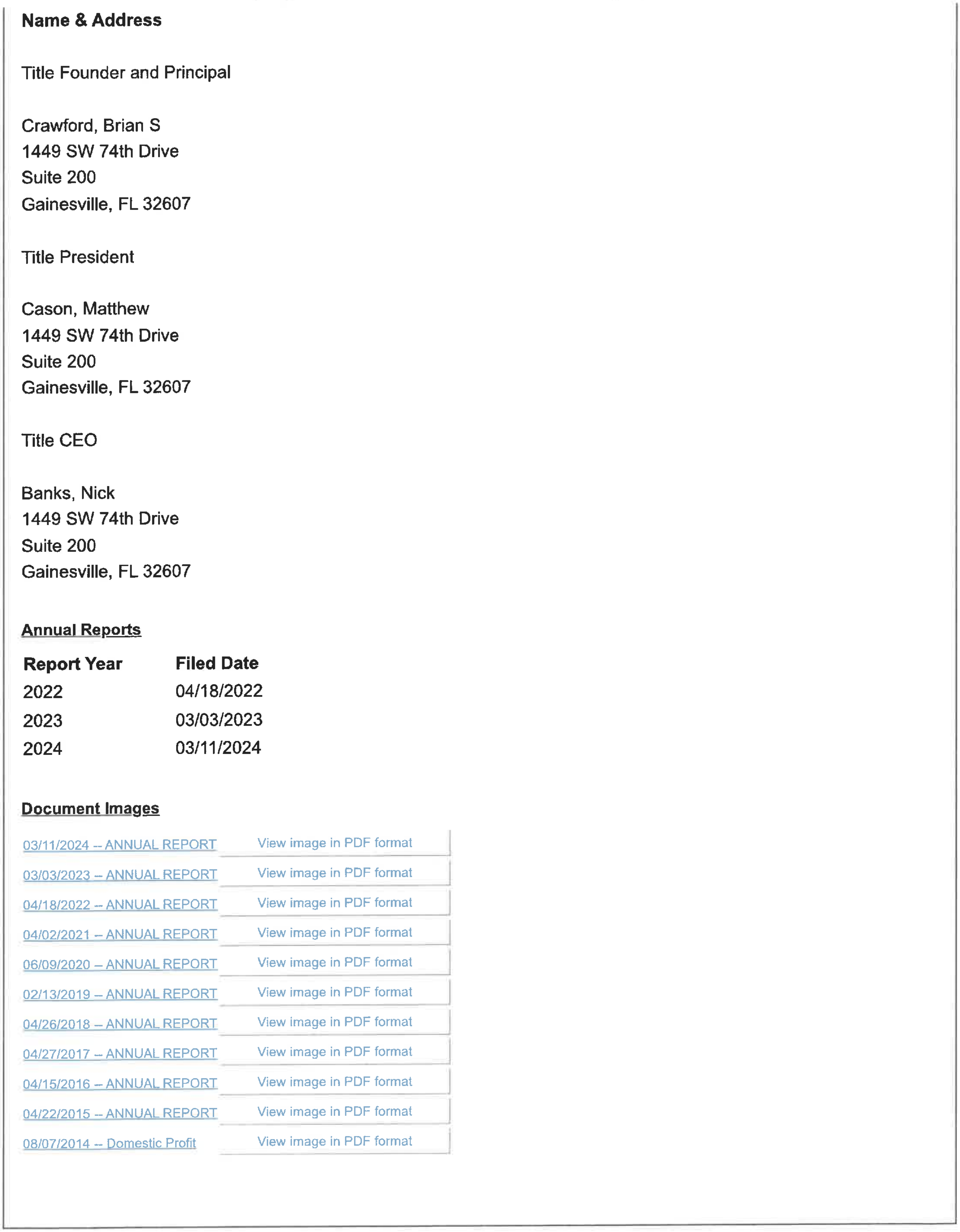
Registered Agent Name & Address

Burch, Stephanie
1449 SW 74th Drive
Suite 200
Gainesville, FL 32607

Name Changed: 04/18/2022

Address Changed: 04/18/2022

Officer/Director Detail



Name & Address

Title Founder and Principal

Crawford, Brian S
1449 SW 74th Drive
Suite 200
Gainesville, FL 32607

Title President

Cason, Matthew
1449 SW 74th Drive
Suite 200
Gainesville, FL 32607

Title CEO

Banks, Nick
1449 SW 74th Drive
Suite 200
Gainesville, FL 32607

Annual Reports

Report Year	Filed Date
2022	04/18/2022
2023	03/03/2023
2024	03/11/2024

Document Images

03/11/2024 -- ANNUAL REPORT	View image in PDF format
03/03/2023 -- ANNUAL REPORT	View image in PDF format
04/18/2022 -- ANNUAL REPORT	View image in PDF format
04/02/2021 -- ANNUAL REPORT	View image in PDF format
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04/26/2018 -- ANNUAL REPORT	View image in PDF format
04/27/2017 -- ANNUAL REPORT	View image in PDF format
04/15/2016 -- ANNUAL REPORT	View image in PDF format
04/22/2015 -- ANNUAL REPORT	View image in PDF format
08/07/2014 -- Domestic Profit	View image in PDF format

Columbia County Tax Collector

generated on 3/20/2024 3:04:29 PM EDT

Tax Record

Last Update: 3/20/2024 3:02:58 PM EDT

Register for eBill

Ad Valorem Taxes and Non-Ad Valorem Assessments

The information contained herein does not constitute a title search and should not be relied on as such.

Account Number	Tax Type	Tax Year
R08127-005	REAL ESTATE	2023

Mailing Address
ST JOHNS LLC
13820 W NEWBERRY RD STE 100
NEWBERRY FL 32669

Property Address

GEO Number
074S17-08127-005

Exempt Amount	Taxable Value
See Below	See Below

Exemption Detail	Millage Code	Escrow Code
NO EXEMPTIONS	001	

Legal Description (click for full description)
07-4S-17 0000/00009.69 Acres S1/2 OF NE1/4 OF NE1/4 W OF SR-47. 482-143, LE 1318-991, DC 1327- 1297, DC 1327-1298, WD 1330- 1324, 372-81, 804- 766, 894- 679, 912-1064, 1037-1953

Ad Valorem Taxes

Taxing Authority	Rate	Assessed Value	Exemption Amount	Taxable Value	Taxes Levied
CITY OF LAKE CITY	4.9000	266,978	0	$266,978	$1,308.19
BOARD OF COUNTY COMMISSIONERS	7.8150	266,978	0	$266,978	$2,086.43
COLUMBIA COUNTY SCHOOL BOARD					
DISCRETIONARY	0.7480	266,978	0	$266,978	$199.70
LOCAL	3.2170	266,978	0	$266,978	$858.87
CAPITAL OUTLAY	1.5000	266,978	0	$266,978	$400.47
SUWANNEE RIVER WATER MGT DIST	0.3113	266,978	0	$266,978	$83.11
LAKE SHORE HOSPITAL AUTHORITY	0.0001	266,978	0	$266,978	$0.03

Total Millage	18.4914	Total Taxes	$4,936.80

Non-Ad Valorem Assessments

Code	Levying Authority	Amount
XLCF	CITY FIRE ASSESSMENT	$61.26

Total Assessments	$61.26
Taxes & Assessments	$4,998.06

If Paid By	Amount Due
	$0.00

Date Paid	Transaction	Receipt	Item	Amount Paid
11/27/2023	PAYMENT	9921508.0001	2023	$4,798.14

Prior Years Payment History

Prior Year Taxes Due

NO DELINQUENT TAXES

TRAFFIC IMPACT STUDY

Variety Retail Store
Marvin Burnett Road
Lake City, Florida

October 3, 2023

prepared for:
FLORIDA DOT DISTRICT 2
and
THE CITY OF LAKE CITY

submitted on behalf of:
Concept Development, Inc.

prepared by:
HAGEN
CONSULTING
SERVICES, LLC

PROFESSIONAL ENGINEER ENDORSEMENT

I hereby certify that I am a Registered Professional Engineer in the State of Florida and currently practicing as the principal of Hagen Consulting Services, LLC.

Hagen Consulting Services, LLC is authorized via Registry No: 27955 to operate as an Engineering Business by the Florida Board of Professional Engineers, State of Florida, Department of Professional Regulation.

I have prepared or supervised the preparation of the evaluation, findings, conclusions, recommendations, and professional opinions/advice contained in this document. My endorsement constitutes my approval of these items.

PROJECT: Marvin Burnett Road Retail Store
LOCATION: Lake City, Florida
CLIENT: Concept Development, Inc.

The results contained in this report were developed using procedures and references standard to the transportation engineering practice. These references and procedures were applied using professional judgment and experience.

Name: Lawrence T. Hagen, P.E., PTOE, RSP
Florida P.E. No.: 43968

LAWRENCE THOMAS HAGEN
LICENSE No. 43968

Lawrence T Hagen

Digitally signed by Lawrence T Hagen
Date: 2023.10.03 08:20:11 -04'00'

This item has been digitally signed and sealed by Lawrence T. Hagen on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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FIGURES

TABLES

EXECUTIVE SUMMARY

The results of the traffic impact analysis for the proposed variety retail store location at the intersection of State Road 47 and SW Marvin Burnett Road near the City of Lake City show that the traffic generated by the development will not have a significant impact on the operation of the roadway network surrounding it. The existing STOP-Controlled intersection adjacent to the project site will continue to operate well with the addition of the projected traffic from the development. Additionally, the nearby intersection of SW Bascom Norris Drive and SW Marvin Burnett Road will also continue to operate well.

The project location is within Columbia County south of the City of Lake City, Florida and State Road 47 is under the jurisdiction of the Florida DOT, District 2. This study utilized turning movement count data for the AM and PM Peak Hours collected by Hagen Consulting Services in July of 2023. The turning movement count information for the AM and PM Peak Hours of traffic were adjusted using a seasonal adjustment factor from FDOT's Peak Season Factor Category Report and a growth factor was applied to adjust traffic volumes to the build-out year (2024). The adjusted traffic volumes were then analyzed with and without the project traffic utilizing the Highway Capacity Manual (HCM) procedures.

The project traffic was developed using the Institute of Transportation Engineers (ITE) *Trip Generation* – 11th Edition. The ITE Land Use Code for a variety retail store was used to estimate the trips generated by the proposed 12,480 square foot building. The trips were then distributed on the transportation network to estimate the traffic impacts.

The HCM analysis showed that the intersections, and hence the roadway network adjacent to the site, will be able to accommodate the traffic from the proposed development without a significant degradation in operational performance. Traffic conditions in the area will continue to operate at a very good level that meets the needs of the traveling public.

INTRODUCTION

Hagen Consulting Services, LLC is assisting Concept Development, Inc. with the transportation impacts for the proposed new 10,640 square foot variety retail store in Columbia County, Florida. The site will serve the southern Lake City area. The proposed retail store site is located on SW Marvin Burnett Road, at the intersection with State Road 47. State Road 47 is under the jurisdiction of the Florida Department of Transportation, District Two. The proposed site will have a connection to SW Marvin Burnett Road. The site currently is undeveloped and heavily wooded. There is a single family home foundation and accessory shed and propane tank on the site. The project location is shown in **Figure 1** below.

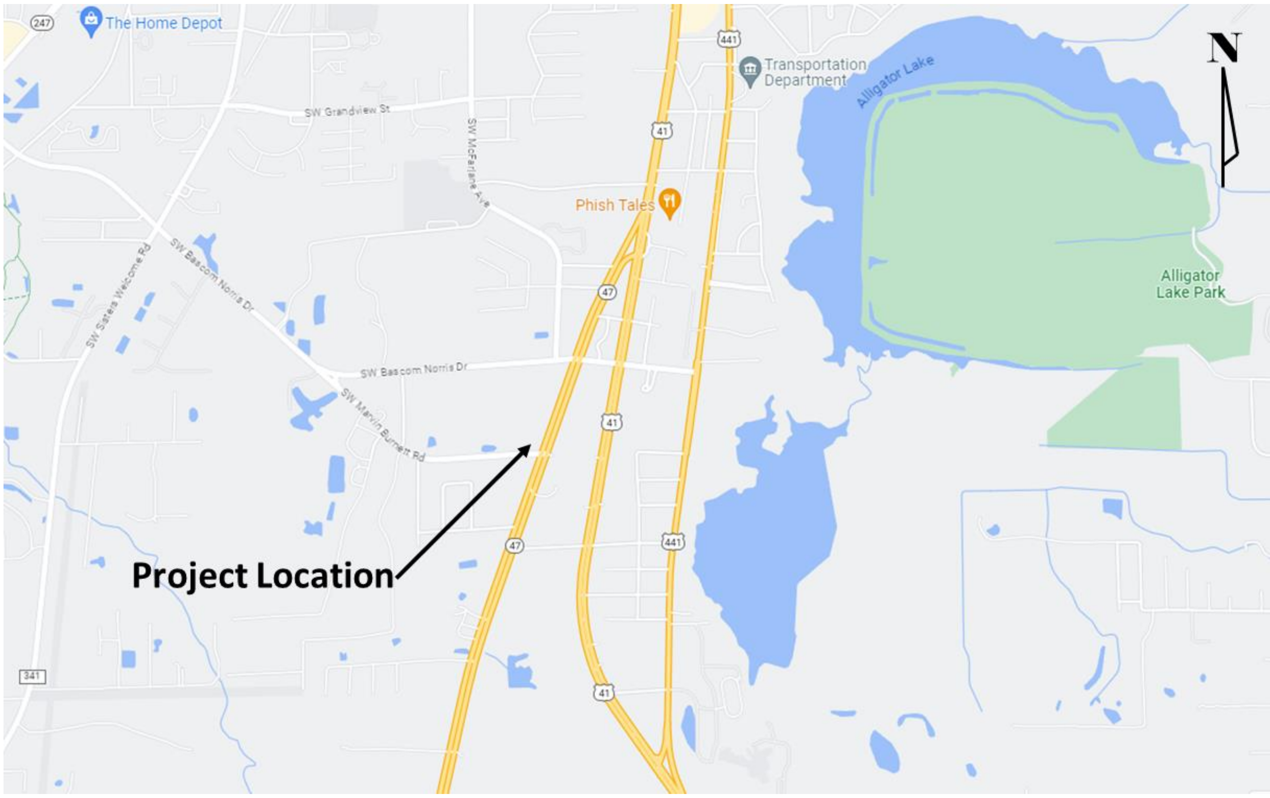


Figure 1 - Project Location Map

The preliminary site plan for the proposed retail store is shown in **Figure 2** on the following page.

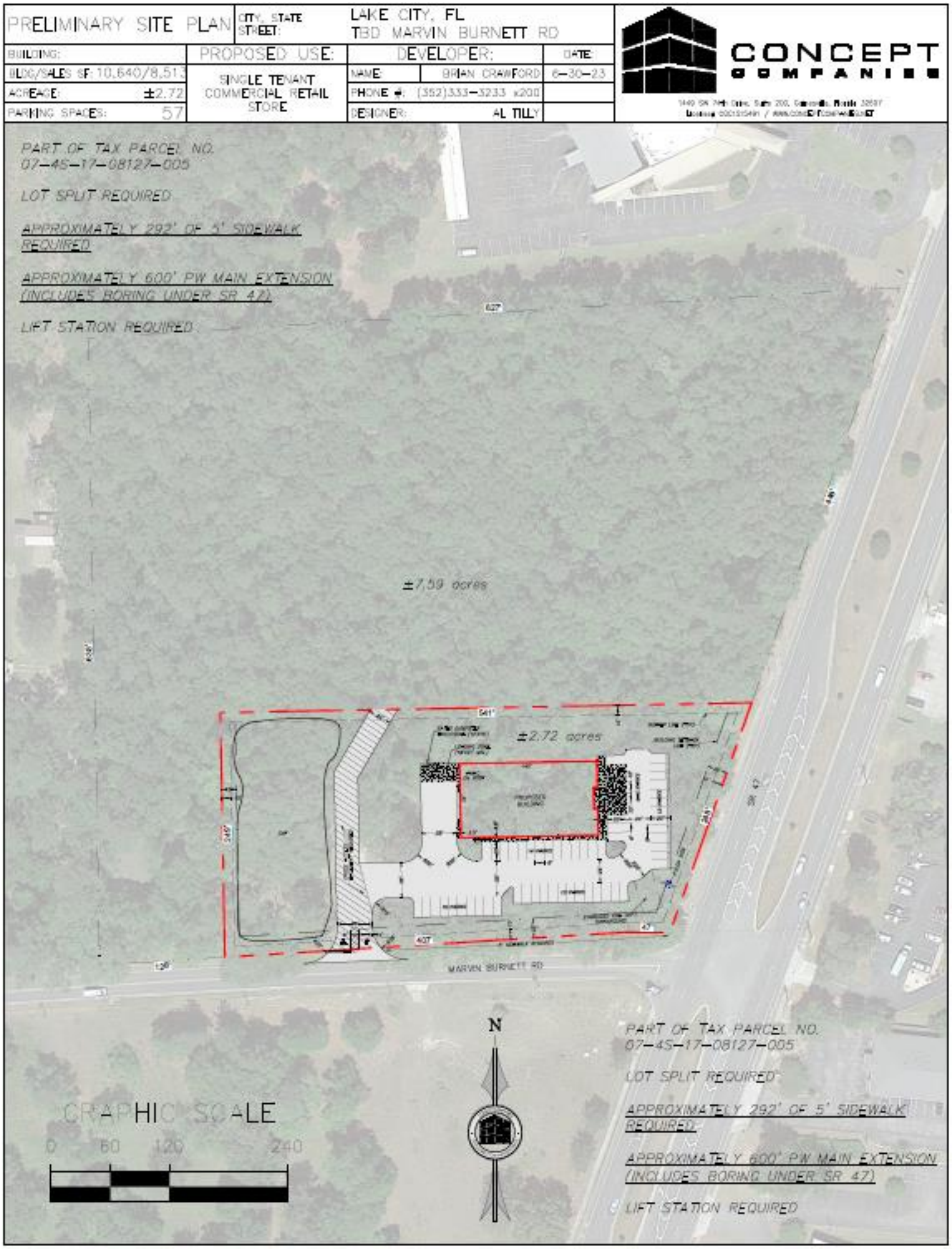


Figure 2 - Preliminary Site Plan

The 11th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation* is the recognized authoritative source for estimating the trips generated by developments such as the proposed variety retail store facility. According to *Trip Generation*, a variety retail facility such as proposed here falls under ITE Land Use Code 814 – Variety Store. The assessment of the traffic impacts of the proposed variety retail store will be based on the impacts to traffic in the AM and PM peak hour periods.

The traffic impacts of the proposed development will be based on a Highway Capacity Software analysis of the operation of the signalized intersection adjoining the site both with and without the traffic generated by the development. A comparison of the delay and Level Of Service (LOS) with and without the project traffic will serve as the basis of the analysis.

EXISTING CONDITIONS

State Road 47 is a four-lane divided highway with an urban typical section (curb and gutter). The posted speed limit in the vicinity of the project site is 45 miles per hour. There are existing bike lanes and sidewalks on both sides of the roadway. State Road 47 is classified as an Urban Minor Arterial. There are existing NB and SB left turn lanes at the Marvin Burnett Road intersection. Marvin Burnett Road is a two-lane roadway that is functionally classified as a minor collector rural with a posted speed of 35 miles per hour. The cross-section features a flush shoulder on the north side of the road and the south side has raised curb. There are currently no bike lanes or sidewalks present.

Existing AM and PM Peak Hour turning movement counts were collected at the intersection of State Road 47 and Marvin Burnett Road. Two hours of AM Peak data (7:00 AM – 9:00 AM) and two hours of PM Peak data (4:00 PM – 6:00 PM) were collected. From these counts, the AM Peak Hour (7:30 – 8:30 AM) and PM Peak Hour (4:30 – 5:30 PM) turning movement counts were determined. The AM and PM Peak Hour turning movement counts are shown in **Figure 3** below.

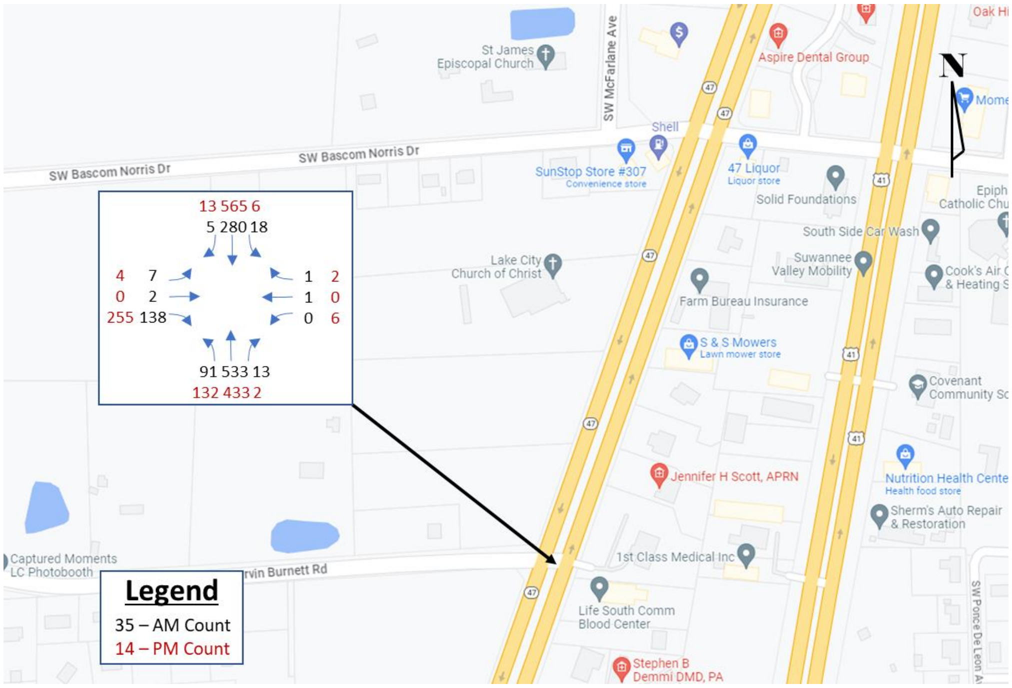


Figure 3 - Existing AM and PM Peak Hour Turning Movement Counts

The raw turning movement count data for the AM and PM Peak Hour is included in Appendix A.

TRIP GENERATION

The Institute of Transportation Engineers (ITE) *Trip Generation* 11th Edition was used to calculate the project trip estimates for the new land use at the project site. Trip generations estimates are shown in terms of daily traffic, as well as the AM and PM peak hours. The proposed Variety Retail Store falls under ITE Land Use Code 814 – Variety Store. The trip generation information for the proposed Variety Retail Store is shown in Table 1 below.

TABLE 1: Trip Generation
Variety Retail Store – ITE Land Use 814 – 10,640 SF

Lake City, Florida

				Distribution		Trips		
Period	**ITE Rate**	**Units**	**Trips**	**% In**	**% Out**	**In**	**Out**	**Net**
Weekday	T = 63.66 (X)	10.64	677	50%	50%	339	338	677
AM Peak	T = 3.04 (X)	10.64	32	55%	45%	18	14	32
PM Peak	T = 6.70 (X)	10.64	71	51%	49%	36	35	71

Source: ITE 11th Edition of Trip Generation - Units: 1,000 square feet Gross Floor Area

The 2021 Pass-By Tables for ITE's *Trip Generation* indicate a 34% pass-by rate for Land Use 814. This means that 34% of the trips generated are existing pass-by trips, and the net new trips represent 66% of the estimated *Trip Generation* number.

TABLE 2: Net Trip Generation with Pass-By Reduction

				Distribution		Net Trips		
Period	**Trips**	**Pass-By**	**Net Trips**	**% In**	**% Out**	**In**	**Out**	**Net**
Weekday	677	34%	447	50%	50%	224	224	447
AM Peak	32	34%	21	55%	45%	12	10	21
PM Peak	71	34%	47	51%	49%	24	23	47

The trip generation data is then used to develop the external distribution of project trips onto the adjacent roadway network from the project site. The next section of the report presents information on the trip distribution.

TRIP DISTRIBUTION

The distribution of project trips on the roadway network is a manual assignment derived from the AM and PM peak period traffic data collected on the adjacent roadway and a review of existing locations of interacting land-uses. The distribution is based on engineering judgment of the expected routes that patrons would take to / from the proposed development. The project has access just on SW Marvin Burnett Road. The AM and PM Peak Hour Project Trip Distribution is shown in **Figure 4** below.

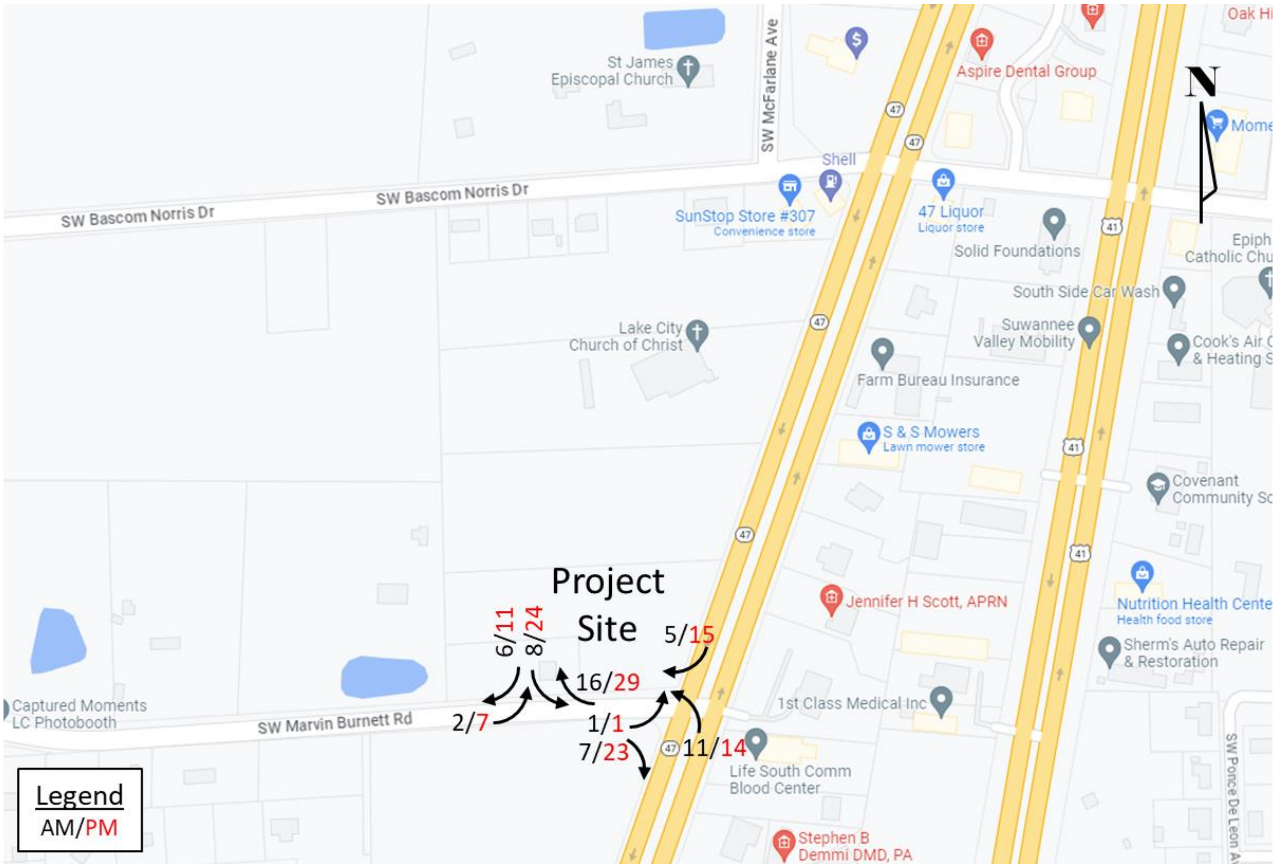


Figure 4 - Peak Hour Project Trip Distribution

LEFT TURN LANE ANALYSIS – Marvin Burnett Road

The criteria for evaluating left turn lanes are established in *NCHRP Report 457: Evaluating Intersection Improvements: An Engineering Study Guide*. The highest left turning volume into the project site from Marvin Burnett Road is the PM Peak Hour left turn volume of 7 vehicles. The left + through + right turn volumes are added together to compute the "advancing volume." The through + right turning volumes opposing the left turn are used as the "opposing volume."

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

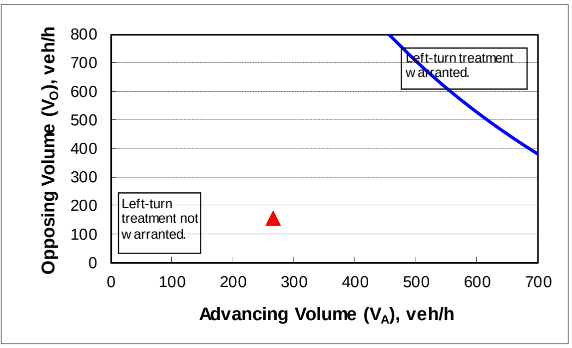
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	3%
Advancing volume (V_A), veh/h:	266
Opposing volume (V_O), veh/h:	156

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	898
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

RIGHT TURN LANE ANALYSIS – Marvin Barnett Road

Similarly, the criteria for evaluating right turn lanes are established in *NCHRP Report 457: Evaluating Intersection Improvements: An Engineering Study Guide*. For this analysis, we need to enter the major road speed, the major road volume (through + right), and the right turn volume.

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

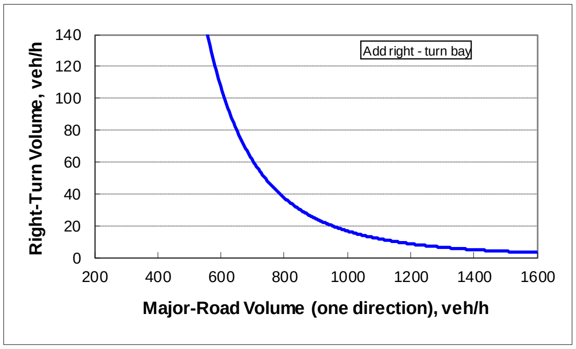
INPUT

Roadway geometry: 2-lane roadway ▼

Variable	Value
Major-road speed, mph:	35
Major-road volume (one direction), veh/h:	156
Right-turn volume, veh/h:	29

OUTPUT

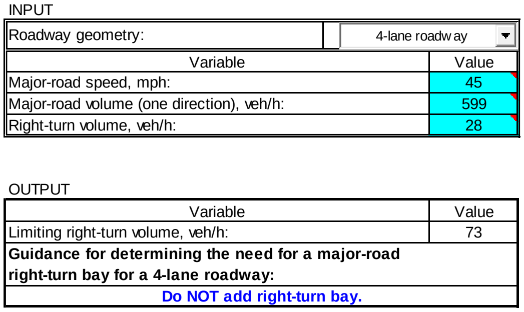
Variable	Value
Limiting right-turn volume, veh/h:	14198
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



RIGHT TURN LANE ANALYSIS – State Road 47

As indicated previously, the criteria for evaluating right turn lanes are established in *NCHRP Report 457: Evaluating Intersection Improvements: An Engineering Study Guide*. For this analysis, we need to enter the major road speed, the major road volume (left + through + right), and the right turn volume.

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

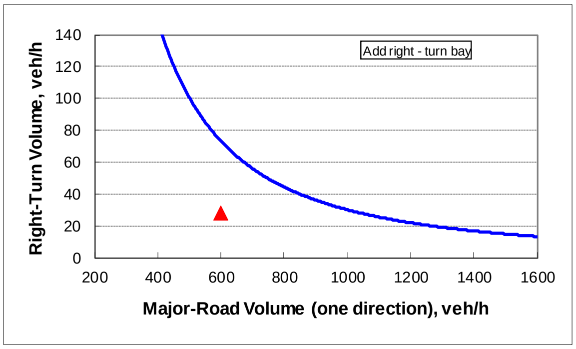


INPUT

Roadway geometry:	4-lane roadway
Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	599
Right-turn volume, veh/h:	28

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	73
Guidance for determining the need for a major-road right-turn bay for a 4-lane roadway:	
Do NOT add right-turn bay.	



INTERSECTION LEVEL OF SERVICE (LOS) ANALYSIS

The roadway Level Of Service (LOS) analysis is conducted using the procedures outlined in the Transportation Research Board's *Highway Capacity Manual* (HCM). The HCM procedures represent the state-of-the-practice for the analysis of transportation facilities.

Existing turning movement count data was collected on Tuesday, July 18, 2023 at the intersection of State Road 47 and SW Marvin Burnett Road. Two hours of turning movement count data were collected for both the AM peak period (7 AM to 9 AM) and the PM peak period (4 PM to 6 PM). Out of that two-hours of data collection in each period, the overall AM peak hour of 7:30 AM to 8:30 AM and the overall PM peak hour of 4:30 PM to 5:30 PM were used in the analysis. A seasonal adjustment of 1.02 is then applied based on FDOT Peak Season Factor Category Report for Columbia County (included in Appendix A). A growth factor of 3% is then added to the volumes to convert to 2024 (expected build-out year) volumes. The AM peak hour volumes along with the assigned new project trips are provided in **Table 3** below. The PM peak hour volumes along with the assigned new project trips are provided in **Table 4** below.

Table 3 – AM Peak Hour Volumes

Roadway	State Road 47						SW Marvin Burnett Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Movement	Lt	Thru	Rt	Lt	Thru	Rt	Lt	Thru	Rt	Lt	Thru	Rt
2023	91	533	13	18	280	5	7	2	138	0	1	1
Seasonal	93	544	13	18	286	5	7	2	141	0	1	1
2024	96	560	14	19	294	5	7	2	145	0	1	1
Project	11	0	0	0	0	5	1	0	7	0	0	0
Total	107	560	14	19	294	10	8	2	152	0	1	1

Table 4 – PM Peak Hour Volumes

Roadway	State Road 47						SW Marvin Burnett Road					
Approach	Northbound			Southbound			Eastbound			Westbound		
Movement	Lt	Thru	Rt	Lt	Thru	Rt	Lt	Thru	Rt	Lt	Thru	Rt
2023	132	433	2	6	565	13	4	0	255	6	0	2
Seasonal	135	442	2	6	576	13	4	0	260	6	0	2
2024	139	455	2	6	594	14	4	0	268	6	0	2
Project	14	0	0	0	0	15	1	0	23	0	0	0
Total	153	455	2	6	594	29	5	0	291	6	0	2

The Highway Capacity Software (HCS) Two-Way Stop-Controlled intersection module was utilized in analyzing the no-build and the build-out traffic volumes at the intersection of SR 47 and Marvin Burnett Road. The results from the HCS analyses are summarized in **Table 5** and **Table 6** below. The outputs from HCS are included in Appendix B.

Table 5 – Intersection Level Of Service (AM)

Roadway	State Road 47				SW Marvin Burnett Road			
Approach	Northbound		Southbound		Eastbound		Westbound	
MOE	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
No-Build	8.3	A	9.0	A	11.3	B	19.4	C
Build	8.3	A	9.0	A	11.5	B	20.1	C

Table 6 – Intersection Level Of Service (PM)

Roadway	State Road 47				SW Marvin Burnett Road			
Approach	Northbound		Southbound		Eastbound		Westbound	
MOE	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
No-Build	9.8	A	8.5	A	15.9	C	28.8	D
Build	10.0	B	8.5	A	17.2	C	35.0	E

The HCS analyses show that the impacts of the proposed variety retail store development on the operation of the intersection are minimal in the AM period. In the PM period, the westbound approach degrades from LOS D to LOS E, despite the fact that the project assigns no trips to the westbound approach. The westbound approach is a minor approach to the intersection and even in the LOS E scenario is operating at a volume to capacity ratio of 0.07 with an hourly flow rate of just nine vehicles. The HCS two-way stop-controlled analysis is well known for being overly pessimistic, and this is an example of that. An average delay of 35 seconds is not an intolerable scenario for those vehicles.

The City of Lake City requested that the intersection of SW Bascom Norris Drive and SW Marvin Burnett Road also be analyzed for this project. Existing turning movement count data was also collected on Tuesday, July 18, 2023 at this intersection. Two hours of turning movement count data were collected for both the AM peak period (7 AM to 9 AM) and the PM peak period (4 PM to 6 PM). Out of that two-hours of data collection in each period, the overall AM peak hour of 7:30 AM to 8:30 AM and the overall PM peak hour of 4:45 PM to 5:45 PM were used in the analysis. A seasonal adjustment of 1.02 is then applied based on FDOT Peak Season Factor Category Report for Columbia County. A growth factor of 3% is then added to the volumes to convert to 2024 (expected build-out year) volumes. The AM peak hour volumes along with the assigned new project trips are provided in **Table 7** below. The PM peak hour volumes along with the assigned new project trips are provided in **Table 8** below. For this analysis, a worst-case scenario where all of the project trips from the proposed retail site are presumed to make a northbound left at the intersection.

Table 7 – AM Peak Hour Volumes

Roadway	SW Marvin Burnett Road						SW Bascom Norris Drive					
Approach	Northbound			Southbound			Eastbound			Westbound		
Movement	Lt	Thru	Rt	Lt	Thru	Rt	Lt	Thru	Rt	Lt	Thru	Rt
2023	102	0	0	-	-	-	0	234	0	0	249	0
Seasonal	104	0	0	-	-	-	0	239	0	0	254	0
2024	107	0	0	-	-	-	0	246	0	0	262	0
Project	6	0	0	-	-	-	0	0	0	0	0	0
Total	113	0	0	-	-	-	0	246	0	0	262	0

Table 8 – PM Peak Hour Volumes

Roadway	SW Marvin Burnett Road						SW Bascom Norris Drive					
Approach	Northbound			Southbound			Eastbound			Westbound		
Movement	Lt	Thru	Rt	Lt	Thru	Rt	Lt	Thru	Rt	Lt	Thru	Rt
2023	145	0	2	-	-	-	0	205	0	0	422	0
Seasonal	148	0	2	-	-	-	0	209	0	0	430	0
2024	152	0	2	-	-	-	0	215	0	0	443	0
Project	11	0	0	-	-	-	0	0	0	0	0	0
Total	163	0	2	-	-	-	0	215	0	0	443	0

The intersection of Bascom Norris Drive and Marvin Burnett Road is a somewhat unusual T-intersection: Bascom Norris Drive is the major street that does not stop, and Marvin Burnett Road intersects and is controlled by a STOP sign. However, the left turn from Bascom Norris Drive WB onto Marvin Burnett Road is prohibited, and the right turn from Bascom Norris Drive EB onto Marvin Burnett Road is a free-flowing movement that is channelized and unimpeded. Thus, the only movement that has any control delay is the northbound left or right turn from Marvin Barnett Road onto Bascom Norris Drive. The layout of the intersection is shown in **Figure 5** below.

Figure 5 - SW Bascom Norris Dr & SW Marvin Burnett Rd

The results from the HCS analyses are summarized in **Table 9** and **Table 10** below. The outputs from HCS are included in Appendix B.

Table 9 – Intersection Level Of Service (AM)

Roadway	SW Marvin Burnett Road				SW Bascom Norris Drive			
Approach	Northbound		Southbound		Eastbound		Westbound	
MOE	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
No-Build	15.8	C	-	-	-	-	-	-
Build	16.1	C	-	-	-	-	-	-

Table 10 – Intersection Level Of Service (PM)

Roadway	SW Marvin Burnett Road				SW Bascom Norris Drive			
Approach	Northbound		Southbound		Eastbound		Westbound	
MOE	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
No-Build	24.6	C	-	-	-	-	-	-
Build	26.0	D	-	-	-	-	-	-

The HCS analyses show that the impact of the project traffic on the intersection of SW Marvin Burnett Road and SW Bascom Norris Drive is minimal. Although in the PM period the LOS does go from C to D, it is only an increase of 1.4 seconds of delay per vehicle. This movement operates with a volume to capacity ratio of just 0.54 in the PM period with the project traffic.

CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing data and analysis provided, the following conclusions and recommendations are offered:

Conclusions:

- The proposed variety retail store is estimated to generate 32 trips in the AM Peak Hour and 71 trips in the PM Peak Hour. To be conservative in the analyses, these numbers were used. If the pass-by reductions from ITE are used, the net trips would be 21 in the AM Peak Hour and 47 in the PM Peak Hour.
- The additional traffic generated by the proposed variety retail store will not have a noticeable impact on the adjoining STOP-controlled intersections and will not degrade the performance of the transportation network.
- Neither left-turn lanes nor right-turn lanes are warranted on either State Road 47 or on SW Marvin Burnett Road. There is very little disruption to traffic with the addition of the project driveways and the generated project traffic.

Recommendations:

- Approve the project for construction and approve the associated driveway connection onto SW Marvin Burnett Road.

APPENDIX A: TURNING MOVEMENT COUNTS

SR 47 & SW Marvin Burnett - TMC

Tue Jul 18, 2023
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091860, Location: 30.160196, -82.645384, Site Code: SR 47 & Marvin Burnett

HAGEN
Consulting
Services, LLC

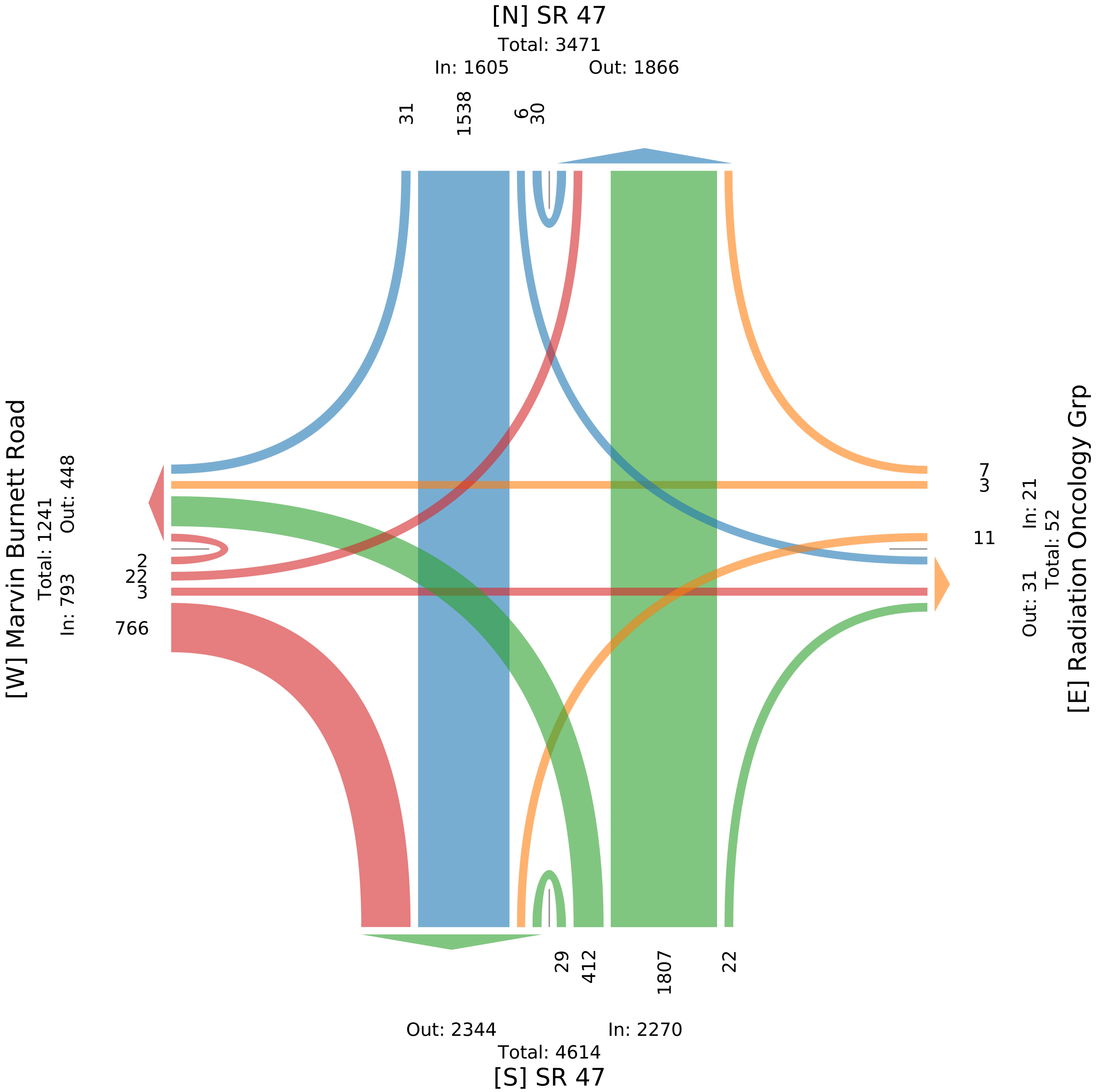
Provided by: Hagen Consulting Services
361 Strawder Road, Ray City, GA, 31645, US

Leg	Marvin Burnett Road					Radiation Oncology Grp					SR 47					SR 47					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	**Int**
2023-07-18 7:00AM	0	0	17	0	**17**	0	0	0	0	**0**	13	91	2	0	**106**	0	58	1	1	**60**	**183**
7:15AM	1	0	16	0	**17**	0	0	0	0	**0**	16	140	2	0	**158**	0	42	0	0	**42**	**217**
7:30AM	2	0	34	0	**36**	0	0	0	0	**0**	20	163	3	0	**186**	2	63	1	4	**70**	**292**
7:45AM	0	0	35	0	**35**	0	1	0	0	**1**	27	150	3	0	**180**	1	82	2	4	**89**	**305**
Hourly Total	3	0	102	0	**105**	0	1	0	0	**1**	76	544	10	0	**630**	3	245	4	9	**261**	**997**
8:00AM	2	0	31	0	**33**	0	0	1	0	**1**	23	121	5	0	**149**	0	63	2	4	**69**	**252**
8:15AM	3	2	38	0	**43**	0	0	0	0	**0**	20	99	2	1	**122**	1	72	0	2	**75**	**240**
8:30AM	0	1	33	0	**34**	0	1	2	0	**3**	28	117	1	0	**146**	0	54	1	2	**57**	**240**
8:45AM	3	0	40	1	**44**	0	0	2	0	**2**	32	137	1	0	**170**	1	65	0	2	**68**	**284**
Hourly Total	8	3	142	1	**154**	0	1	5	0	**6**	103	474	9	1	**587**	2	254	3	10	**269**	**1016**
4:00PM	2	0	51	0	**53**	1	0	0	0	**1**	33	90	0	1	**124**	0	124	3	2	**129**	**307**
4:15PM	3	0	71	0	**74**	1	1	0	0	**2**	27	92	0	1	**120**	0	103	3	1	**107**	**303**
4:30PM	1	0	64	0	**65**	3	0	0	0	**3**	21	117	1	1	**140**	0	141	3	4	**148**	**356**
4:45PM	0	0	67	0	**67**	0	0	1	0	**1**	35	96	0	3	**134**	0	137	0	1	**138**	**340**
Hourly Total	6	0	253	0	**259**	5	1	1	0	**7**	116	395	1	6	**518**	0	505	9	8	**522**	**1306**
5:00PM	1	0	63	0	**64**	3	0	0	0	**3**	36	133	1	9	**179**	0	147	7	0	**154**	**400**
5:15PM	2	0	61	0	**63**	0	0	1	0	**1**	21	97	0	6	**124**	0	140	3	1	**144**	**332**
5:30PM	2	0	66	1	**69**	3	0	0	0	**3**	36	88	0	6	**130**	1	148	4	1	**154**	**356**
5:45PM	0	0	79	0	**79**	0	0	0	0	**0**	24	76	1	1	**102**	0	99	1	1	**101**	**282**
Hourly Total	5	0	269	1	**275**	6	0	1	0	**7**	117	394	2	22	**535**	1	534	15	3	**553**	**1370**
Total	22	3	766	2	**793**	11	3	7	0	**21**	412	1807	22	29	**2270**	6	1538	31	30	**1605**	**4689**
% Approach	2.8%	0.4%	96.6%	0.3%	-	52.4%	14.3%	33.3%	0%	-	18.1%	79.6%	1.0%	1.3%	-	0.4%	95.8%	1.9%	1.9%	-	-
% Total	0.5%	0.1%	16.3%	0%	**16.9%**	0.2%	0.1%	0.1%	0%	**0.4%**	8.8%	38.5%	0.5%	0.6%	**48.4%**	0.1%	32.8%	0.7%	0.6%	**34.2%**	-
Lights and Motorcycles	21	3	759	2	**785**	11	2	7	0	**20**	410	1743	22	28	**2203**	6	1489	28	29	**1552**	4560
% Lights and Motorcycles	95.5%	100%	99.1%	100%	**99.0%**	100%	66.7%	100%	0%	**95.2%**	99.5%	96.5%	100%	96.6%	**97.0%**	100%	96.8%	90.3%	96.7%	**96.7%**	97.2%
Heavy	1	0	7	0	**8**	0	1	0	0	**1**	2	64	0	1	**67**	0	49	3	1	**53**	129
% Heavy	4.5%	0%	0.9%	0%	**1.0%**	0%	33.3%	0%	0%	**4.8%**	0.5%	3.5%	0%	3.4%	**3.0%**	0%	3.2%	9.7%	3.3%	**3.3%**	2.8%

*L: Left, R: Right, T: Thru, U: U-Turn

SR 47 & SW Marvin Burnett - TMC
Tue Jul 18, 2023
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091860, Location: 30.160196, -82.645384, Site Code: SR 47 & Marvin Burnett

Provided by: Hagen Consulting Services
361 Strawder Road, Ray City, GA, 31645, US



SR 47 & SW Marvin Burnett - TMC

Tue Jul 18, 2023
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091860, Location: 30.160196, -82.645384, Site Code: SR 47 & Marvin Burnett

Provided by: Hagen Consulting Services
361 Strawder Road, Ray City, GA, 31645, US

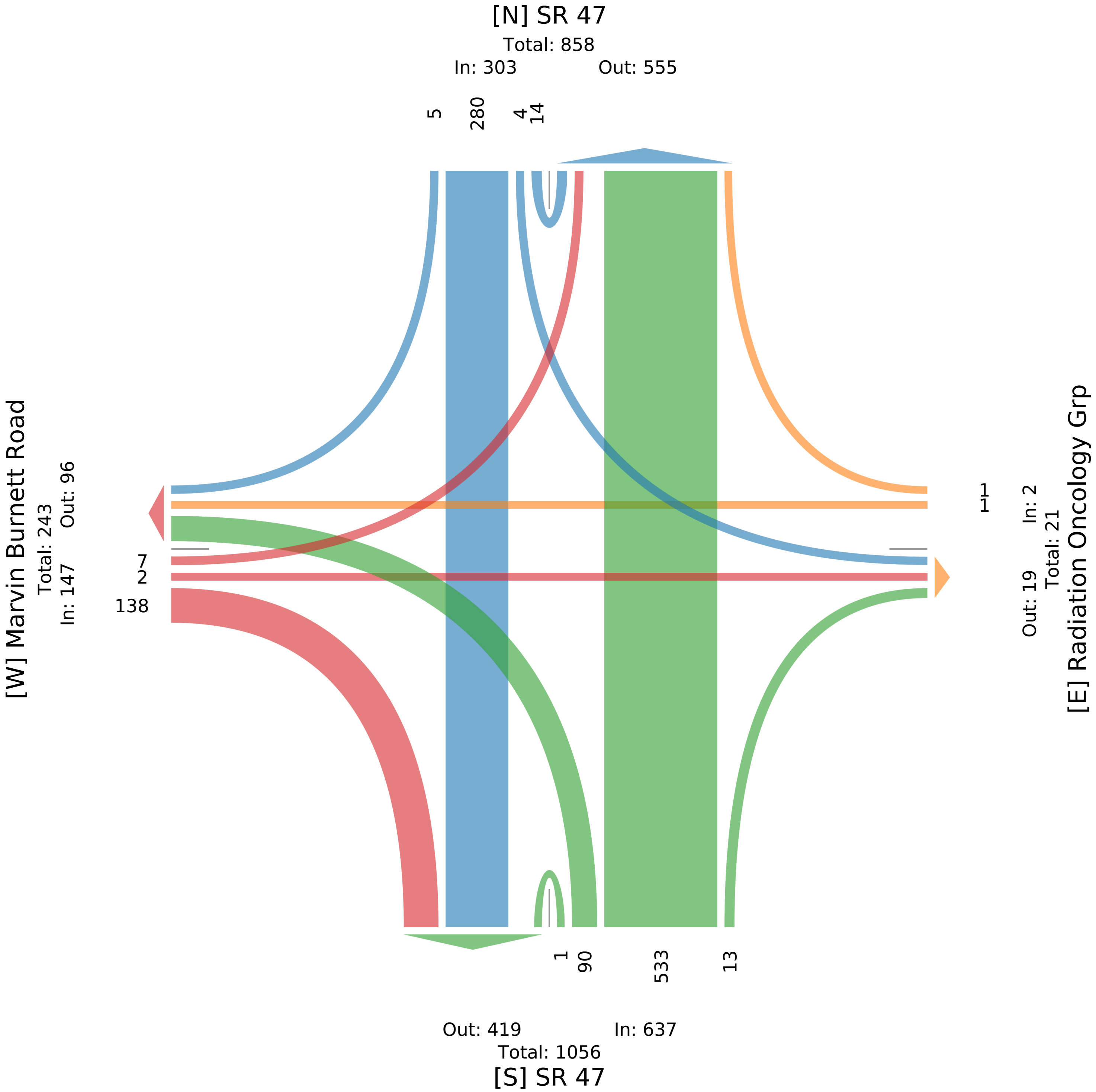
Leg	Marvin Burnett Road					Radiation Oncology Grp					SR 47					SR 47					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	**Int**
2023-07-18 7:30AM	2	0	34	0	**36**	0	0	0	0	**0**	20	163	3	0	**186**	2	63	1	4	**70**	**292**
7:45AM	0	0	35	0	**35**	0	1	0	0	**1**	27	150	3	0	**180**	1	82	2	4	**89**	**305**
8:00AM	2	0	31	0	**33**	0	0	1	0	**1**	23	121	5	0	**149**	0	63	2	4	**69**	**252**
8:15AM	3	2	38	0	**43**	0	0	0	0	**0**	20	99	2	1	**122**	1	72	0	2	**75**	**240**
Total	7	2	138	0	**147**	0	1	1	0	**2**	90	533	13	1	**637**	4	280	5	14	**303**	**1089**
% Approach	4.8%	1.4%	93.9%	0%	-	0%	50.0%	50.0%	0%	-	14.1%	83.7%	2.0%	0.2%	-	1.3%	92.4%	1.7%	4.6%	-	-
% Total	0.6%	0.2%	12.7%	0%	**13.5%**	0%	0.1%	0.1%	0%	**0.2%**	8.3%	48.9%	1.2%	0.1%	**58.5%**	0.4%	25.7%	0.5%	1.3%	**27.8%**	-
PHF	0.583	0.250	0.908	-	**0.855**	-	0.250	0.250	-	**0.500**	0.833	0.817	0.650	0.250	**0.856**	0.500	0.854	0.625	0.875	**0.851**	0.893
Lights and Motorcycles	7	2	137	0	**146**	0	0	1	0	**1**	89	515	13	1	**618**	4	272	3	13	**292**	1057
% Lights and Motorcycles	100%	100%	99.3%	0%	**99.3%**	0%	0%	100%	0%	**50.0%**	98.9%	96.6%	100%	100%	**97.0%**	100%	97.1%	60.0%	92.9%	**96.4%**	97.1%
Heavy	0	0	1	0	**1**	0	1	0	0	**1**	1	18	0	0	**19**	0	8	2	1	**11**	32
% Heavy	0%	0%	0.7%	0%	**0.7%**	0%	100%	0%	0%	**50.0%**	1.1%	3.4%	0%	0%	**3.0%**	0%	2.9%	40.0%	7.1%	**3.6%**	2.9%

*L: Left, R: Right, T: Thru, U: U-Turn

SR 47 & SW Marvin Burnett - TMC

Tue Jul 18, 2023
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091860, Location: 30.160196, -82.645384, Site Code: SR 47 & Marvin Burnett

Provided by: Hagen Consulting Services
361 Strawder Road, Ray City, GA, 31645, US



SR 47 & SW Marvin Burnett - TMC

Tue Jul 18, 2023
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091860, Location: 30.160196, -82.645384, Site Code: SR 47 & Marvin Burnett

HAGEN CONSULTING SERVICES, LLC

Provided by: Hagen Consulting Services
361 Strawder Road, Ray City, GA, 31645, US

Leg	Marvin Burnett Road					Radiation Oncology Grp					SR 47					SR 47					
Direction	Eastbound					Westbound					Northbound					Southbound					
Time	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	L	T	R	U	**App**	**Int**
2023-07-18 4:30PM	1	0	64	0	**65**	3	0	0	0	**3**	21	117	1	1	**140**	0	141	3	4	**148**	**356**
4:45PM	0	0	67	0	**67**	0	0	1	0	**1**	35	96	0	3	**134**	0	137	0	1	**138**	**340**
5:00PM	1	0	63	0	**64**	3	0	0	0	**3**	36	133	1	9	**179**	0	147	7	0	**154**	**400**
5:15PM	2	0	61	0	**63**	0	0	1	0	**1**	21	97	0	6	**124**	0	140	3	1	**144**	**332**
Total	4	0	255	0	**259**	6	0	2	0	**8**	113	443	2	19	**577**	0	565	13	6	**584**	**1428**
% Approach	1.5%	0%	98.5%	0%	-	75.0%	0%	25.0%	0%	-	19.6%	76.8%	0.3%	3.3%	-	0%	96.7%	2.2%	1.0%	-	-
% Total	0.3%	0%	17.9%	0%	**18.1%**	0.4%	0%	0.1%	0%	**0.6%**	7.9%	31.0%	0.1%	1.3%	**40.4%**	0%	39.6%	0.9%	0.4%	**40.9%**	-
PHF	0.500	-	0.951	-	**0.966**	0.500	-	0.500	-	**0.667**	0.785	0.833	0.500	0.528	**0.806**	-	0.961	0.464	0.375	**0.948**	0.893
Lights and Motorcycles	3	0	253	0	**256**	6	0	2	0	**8**	113	430	2	18	**563**	0	549	12	6	**567**	1394
% Lights and Motorcycles	75.0%	0%	99.2%	0%	**98.8%**	100%	0%	100%	0%	**100%**	100%	97.1%	100%	94.7%	**97.6%**	0%	97.2%	92.3%	100%	**97.1%**	97.6%
Heavy	1	0	2	0	**3**	0	0	0	0	**0**	0	13	0	1	**14**	0	16	1	0	**17**	34
% Heavy	25.0%	0%	0.8%	0%	**1.2%**	0%	0%	0%	0%	**0%**	0%	2.9%	0%	5.3%	**2.4%**	0%	2.8%	7.7%	0%	**2.9%**	2.4%

*L: Left, R: Right, T: Thru, U: U-Turn

SR 47 & SW Marvin Burnett - TMC
Tue Jul 18, 2023
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091860, Location: 30.160196, -82.645384, Site Code: SR 47 & Marvin Burnett

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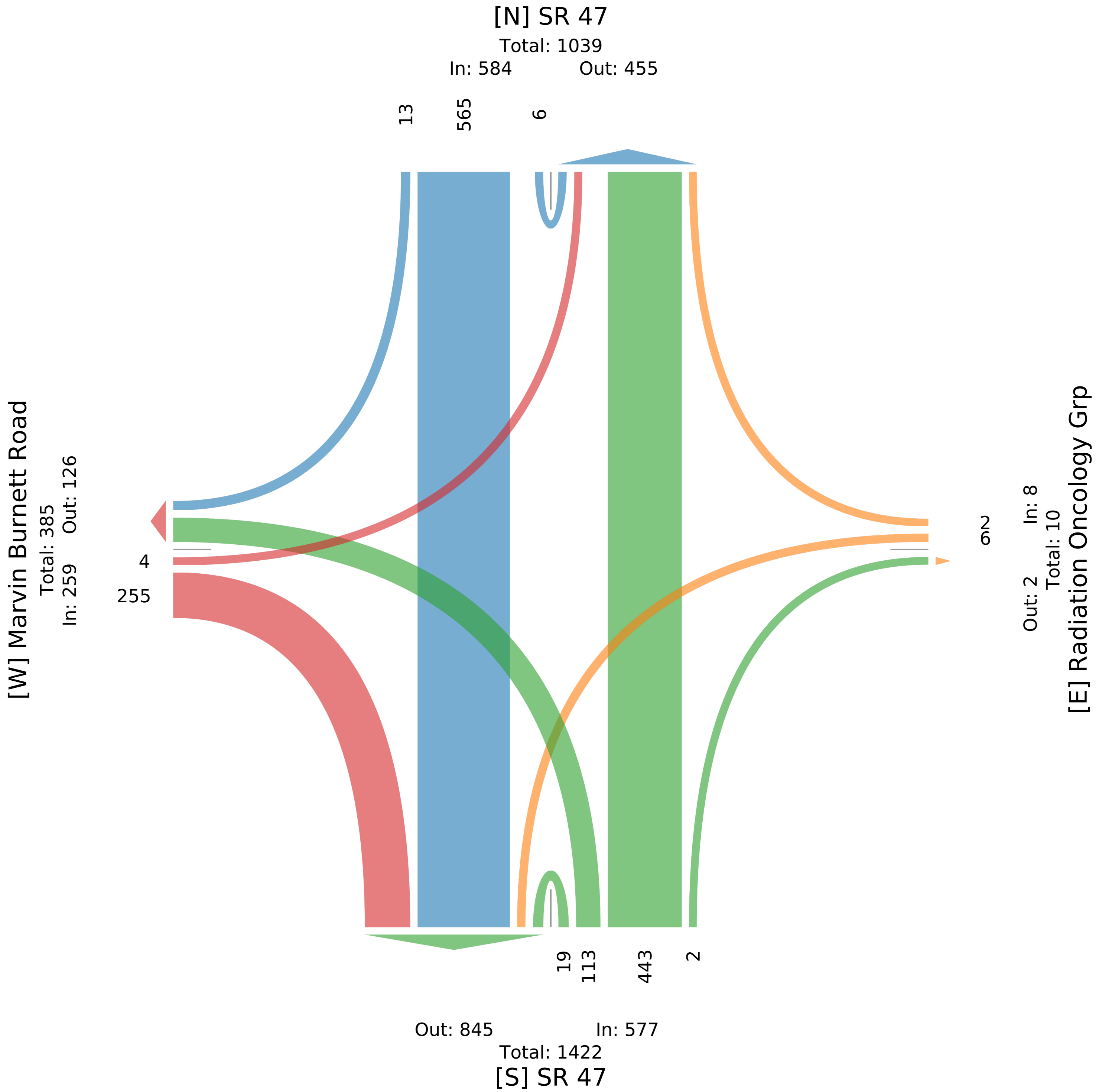

Marvin Burnett & Bascom Norris - TMC

Tue Jul 18, 2023
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091861, Location: 30.163397, -82.655082, Site Code: Marvin Burnett & Bascom Norris

Provided by: Hagen Consulting Services
361 Strawder Road,
Ray City, GA, 31645, US

Leg	SW Bascom Norris Dr				SW Bascom Norris Dr				SW Marvin Burnett Rd				
Direction	Eastbound				Westbound				Northbound				
Time	T	R	U	**App**	L	T	U	**App**	L	R	U	**App**	**Int**
2023-07-18 7:00AM	33	0	0	**33**	0	27	0	**27**	16	0	0	**16**	**76**
7:15AM	31	0	0	**31**	0	48	0	**48**	16	0	0	**16**	**95**
7:30AM	59	0	0	**59**	0	63	0	**63**	21	0	0	**21**	**143**
7:45AM	78	0	0	**78**	0	63	0	**63**	34	0	0	**34**	**175**
Hourly Total	201	0	0	**201**	0	201	0	**201**	87	0	0	**87**	**489**
8:00AM	41	0	0	**41**	0	58	0	**58**	24	0	0	**24**	**123**
8:15AM	56	0	0	**56**	0	65	0	**65**	23	0	0	**23**	**144**
8:30AM	49	0	0	**49**	0	57	0	**57**	26	0	0	**26**	**132**
8:45AM	41	0	0	**41**	0	74	0	**74**	38	0	0	**38**	**153**
Hourly Total	187	0	0	**187**	0	254	0	**254**	111	0	0	**111**	**552**
4:00PM	43	0	0	**43**	0	103	0	**103**	36	0	0	**36**	**182**
4:15PM	52	0	0	**52**	0	107	0	**107**	38	0	0	**38**	**197**
4:30PM	48	0	0	**48**	0	97	0	**97**	20	0	0	**20**	**165**
4:45PM	48	0	0	**48**	0	95	0	**95**	32	0	0	**32**	**175**
Hourly Total	191	0	0	**191**	0	402	0	**402**	126	0	0	**126**	**719**
5:00PM	52	0	0	**52**	0	142	0	**142**	35	0	0	**35**	**229**
5:15PM	58	0	0	**58**	0	98	0	**98**	22	1	0	**23**	**179**
5:30PM	47	0	0	**47**	0	87	0	**87**	56	1	0	**57**	**191**
5:45PM	44	0	0	**44**	0	62	0	**62**	29	0	0	**29**	**135**
Hourly Total	201	0	0	**201**	0	389	0	**389**	142	2	0	**144**	**734**
Total	780	0	0	**780**	0	1246	0	**1246**	466	2	0	**468**	**2494**
% Approach	100%	0%	0%	**-**	0%	100%	0%	**-**	99.6%	0.4%	0%	**-**	-
% Total	31.3%	0%	0%	**31.3%**	0%	50.0%	0%	**50.0%**	18.7%	0.1%	0%	**18.8%**	-
Lights and Motorcycles	759	0	0	**759**	0	1221	0	**1221**	461	2	0	**463**	2443
% Lights and Motorcycles	97.3%	0%	0%	**97.3%**	0%	98.0%	0%	**98.0%**	98.9%	100%	0%	**98.9%**	98.0%
Heavy	21	0	0	**21**	0	25	0	**25**	5	0	0	**5**	51
% Heavy	2.7%	0%	0%	**2.7%**	0%	2.0%	0%	**2.0%**	1.1%	0%	0%	**1.1%**	2.0%

*L: Left, R: Right, T: Thru, U: U-Turn

Marvin Burnett & Bascom Norris - TMC
Tue Jul 18, 2023
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091861, Location: 30.163397, -82.655082, Site Code: Marvin Burnett & Bascom Norris

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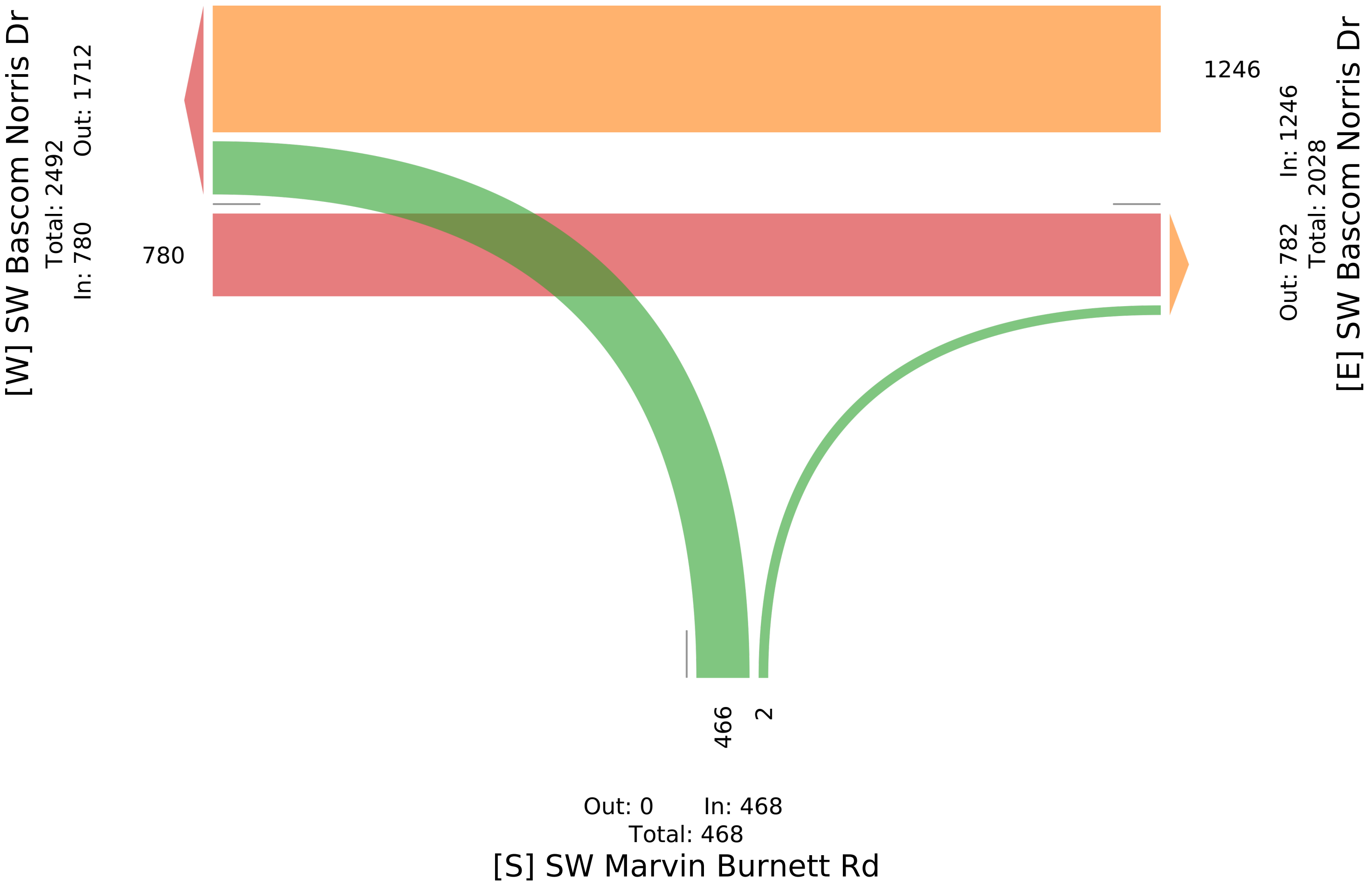
Ray City, GA, 31645, US



Marvin Burnett & Bascom Norris - TMC

Tue Jul 18, 2023
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091861, Location: 30.163397, -82.655082, Site Code: Marvin Burnett & Bascom Norris

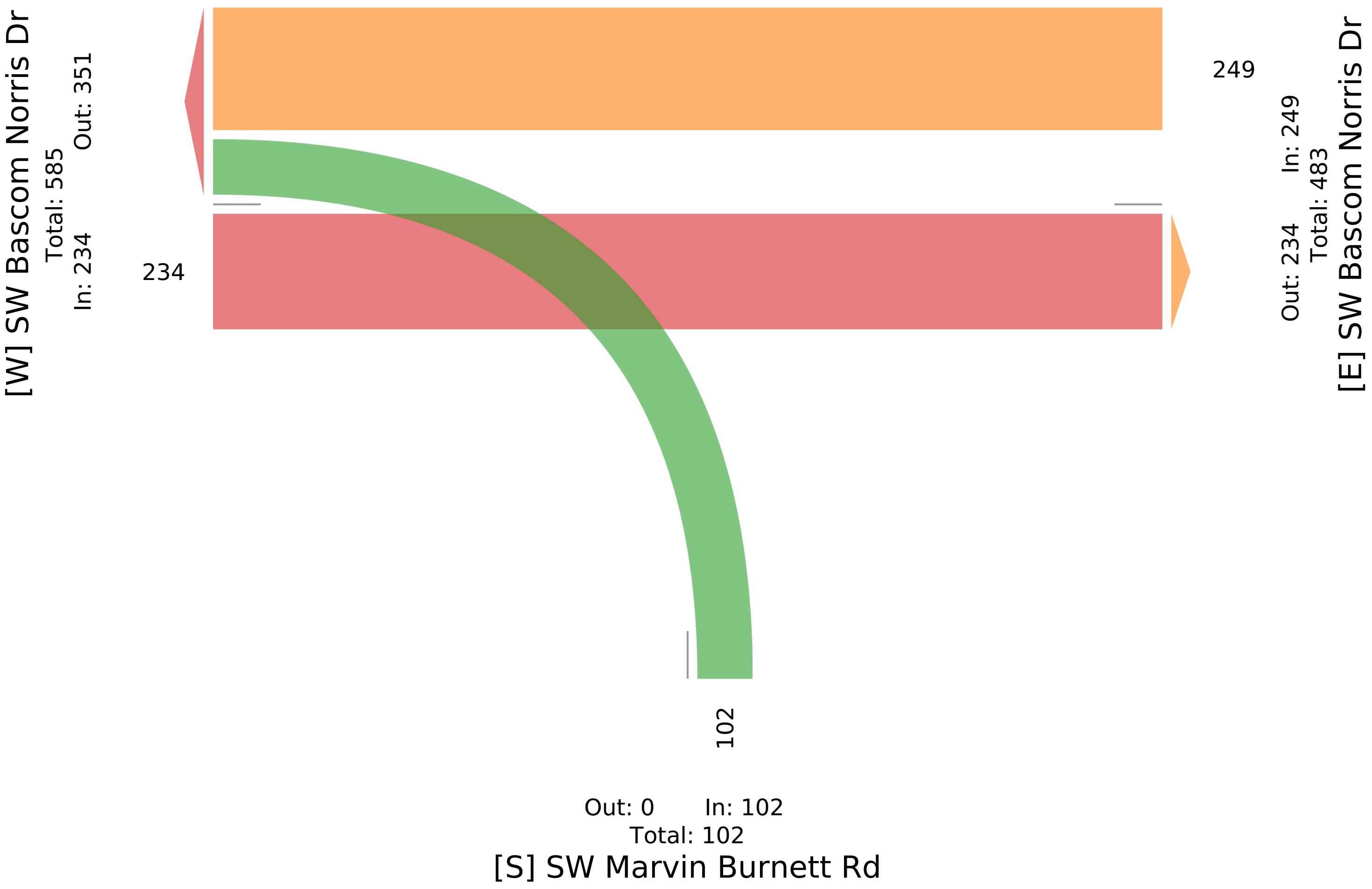
Provided by: Hagen Consulting Services
361 Strawder Road,
Ray City, GA, 31645, US

Leg	SW Bascom Norris Dr				SW Bascom Norris Dr				SW Marvin Burnett Rd				
Direction	Eastbound				Westbound				Northbound				
Time	T	R	U	**App**	L	T	U	**App**	L	R	U	**App**	**Int**
2023-07-18 7:30AM	59	0	0	**59**	0	63	0	**63**	21	0	0	**21**	**143**
7:45AM	78	0	0	**78**	0	63	0	**63**	34	0	0	**34**	**175**
8:00AM	41	0	0	**41**	0	58	0	**58**	24	0	0	**24**	**123**
8:15AM	56	0	0	**56**	0	65	0	**65**	23	0	0	**23**	**144**
Total	234	0	0	**234**	0	249	0	**249**	102	0	0	**102**	**585**
% Approach	100%	0%	0%	-	0%	100%	0%	-	100%	0%	0%	-	-
% Total	40.0%	0%	0%	**40.0%**	0%	42.6%	0%	**42.6%**	17.4%	0%	0%	**17.4%**	-
PHF	0.750	-	-	**0.750**	-	0.958	-	**0.958**	0.750	-	-	**0.750**	0.836
Lights and Motorcycles	222	0	0	**222**	0	240	0	**240**	99	0	0	**99**	561
% Lights and Motorcycles	94.9%	0%	0%	**94.9%**	0%	96.4%	0%	**96.4%**	97.1%	0%	0%	**97.1%**	95.9%
Heavy	12	0	0	**12**	0	9	0	**9**	3	0	0	**3**	24
% Heavy	5.1%	0%	0%	**5.1%**	0%	3.6%	0%	**3.6%**	2.9%	0%	0%	**2.9%**	4.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Marvin Burnett & Bascom Norris - TMC
Tue Jul 18, 2023
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091861, Location: 30.163397, -82.655082, Site Code: Marvin Burnett & Bascom Norris

Provided by: Hagen Consulting Services
361 Strawder Road,
Ray City, GA, 31645, US



Marvin Burnett & Bascom Norris - TMC

Tue Jul 18, 2023
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091861, Location: 30.163397, -82.655082, Site Code: Marvin Burnett & Bascom Norris

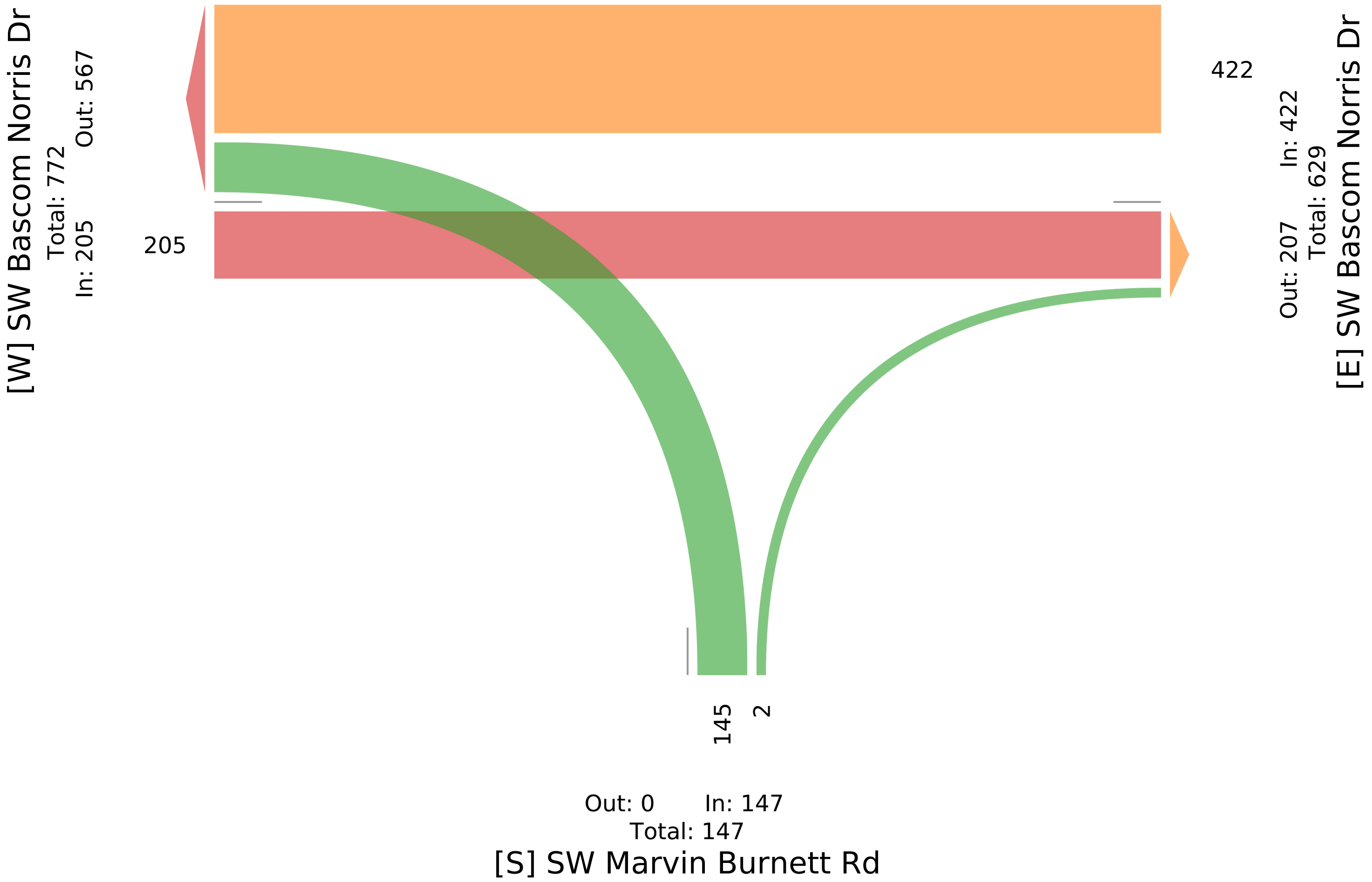
Provided by: Hagen Consulting Services
361 Strawder Road,
Ray City, GA, 31645, US

Leg	SW Bascom Norris Dr				SW Bascom Norris Dr				SW Marvin Burnett Rd				
Direction	Eastbound				Westbound				Northbound				
Time	T	R	U	**App**	L	T	U	**App**	L	R	U	**App**	**Int**
2023-07-18 4:45PM	48	0	0	**48**	0	95	0	**95**	32	0	0	**32**	**175**
5:00PM	52	0	0	**52**	0	142	0	**142**	35	0	0	**35**	**229**
5:15PM	58	0	0	**58**	0	98	0	**98**	22	1	0	**23**	**179**
5:30PM	47	0	0	**47**	0	87	0	**87**	56	1	0	**57**	**191**
Total	205	0	0	**205**	0	422	0	**422**	145	2	0	**147**	**774**
% Approach	100%	0%	0%	-	0%	100%	0%	-	98.6%	1.4%	0%	-	-
% Total	26.5%	0%	0%	**26.5%**	0%	54.5%	0%	**54.5%**	18.7%	0.3%	0%	**19.0%**	-
PHF	0.884	-	-	**0.884**	-	0.743	-	**0.743**	0.647	0.500	-	**0.645**	0.845
Lights and Motorcycles	204	0	0	**204**	0	416	0	**416**	144	2	0	**146**	766
% Lights and Motorcycles	99.5%	0%	0%	**99.5%**	0%	98.6%	0%	**98.6%**	99.3%	100%	0%	**99.3%**	99.0%
Heavy	1	0	0	**1**	0	6	0	**6**	1	0	0	**1**	8
% Heavy	0.5%	0%	0%	**0.5%**	0%	1.4%	0%	**1.4%**	0.7%	0%	0%	**0.7%**	1.0%

*L: Left, R: Right, T: Thru, U: U-Turn

Marvin Burnett & Bascom Norris - TMC
Tue Jul 18, 2023
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1091861, Location: 30.163397, -82.655082, Site Code: Marvin Burnett & Bascom Norris

Provided by: Hagen Consulting Services
361 Strawder Road,
Ray City, GA, 31645, US



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 2022 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 2900  COLUMBIA COUNTYWIDE
                                                MOCF: 0.98
WEEK          DATES               SF            PSCF
================================================================================
  1    01/01/2022 - 01/01/2022    1.02          1.04
  2    01/02/2022 - 01/08/2022    1.05          1.07
  3    01/09/2022 - 01/15/2022    1.08          1.10
  4    01/16/2022 - 01/22/2022    1.07          1.09
  5    01/23/2022 - 01/29/2022    1.05          1.07
  6    01/30/2022 - 02/05/2022    1.03          1.05
  7    02/06/2022 - 02/12/2022    1.02          1.04
  8    02/13/2022 - 02/19/2022    1.00          1.02
  9    02/20/2022 - 02/26/2022    1.00          1.02
 10    02/27/2022 - 03/05/2022    0.99          1.01
 11    03/06/2022 - 03/12/2022    0.99          1.01
*12    03/13/2022 - 03/19/2022    0.98          1.00
*13    03/20/2022 - 03/26/2022    0.98          1.00
*14    03/27/2022 - 04/02/2022    0.98          1.00
*15    04/03/2022 - 04/09/2022    0.97          0.99
*16    04/10/2022 - 04/16/2022    0.97          0.99
*17    04/17/2022 - 04/23/2022    0.97          0.99
*18    04/24/2022 - 04/30/2022    0.97          0.99
*19    05/01/2022 - 05/07/2022    0.97          0.99
*20    05/08/2022 - 05/14/2022    0.97          0.99
*21    05/15/2022 - 05/21/2022    0.98          1.00
*22    05/22/2022 - 05/28/2022    0.98          1.00
*23    05/29/2022 - 06/04/2022    0.99          1.01
*24    06/05/2022 - 06/11/2022    0.99          1.01
 25    06/12/2022 - 06/18/2022    1.00          1.02
 26    06/19/2022 - 06/25/2022    1.00          1.02
 27    06/26/2022 - 07/02/2022    1.01          1.03
 28    07/03/2022 - 07/09/2022    1.02          1.04
 29    07/10/2022 - 07/16/2022    1.03          1.05
 30    07/17/2022 - 07/23/2022    1.02          1.04
 31    07/24/2022 - 07/30/2022    1.01          1.03
 32    07/31/2022 - 08/06/2022    1.01          1.03
 33    08/07/2022 - 08/13/2022    1.00          1.02
 34    08/14/2022 - 08/20/2022    0.99          1.01
 35    08/21/2022 - 08/27/2022    1.00          1.02
 36    08/28/2022 - 09/03/2022    1.00          1.02
 37    09/04/2022 - 09/10/2022    1.01          1.03
 38    09/11/2022 - 09/17/2022    1.01          1.03
 39    09/18/2022 - 09/24/2022    1.00          1.02
 40    09/25/2022 - 10/01/2022    0.99          1.01
 41    10/02/2022 - 10/08/2022    0.98          1.00
 42    10/09/2022 - 10/15/2022    0.97          0.99
 43    10/16/2022 - 10/22/2022    0.98          1.00
 44    10/23/2022 - 10/29/2022    0.99          1.01
 45    10/30/2022 - 11/05/2022    1.00          1.02
 46    11/06/2022 - 11/12/2022    1.01          1.03
 47    11/13/2022 - 11/19/2022    1.02          1.04
 48    11/20/2022 - 11/26/2022    1.02          1.04
 49    11/27/2022 - 12/03/2022    1.02          1.04
 50    12/04/2022 - 12/10/2022    1.02          1.04
 51    12/11/2022 - 12/17/2022    1.02          1.04
 52    12/18/2022 - 12/24/2022    1.05          1.07
 53    12/25/2022 - 12/31/2022    1.08          1.10

* PEAK SEASON

23-FEB-2023 09:11:19                        830UPD              2_2900_PKSEASON.TXT
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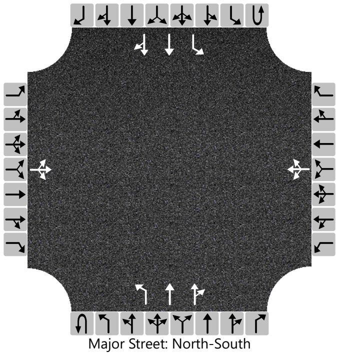
APPENDIX B: HIGHWAY CAPACITY ANALYSES

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	L. Hagen	Intersection	SR 47 & Marvin Burnett Road
Agency/Co.	Hagen Consulting Services	Jurisdiction	Columbia County
Date Performed	10/2/2023	East/West Street	SW Marvin Burnett Road
Analysis Year	2024	North/South Street	SR 47
Time Analyzed	AM Peak Period	Peak Hour Factor	0.89
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	No-build scenario		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		7	2	145		0	1	1	0	96	560	14	0	19	294	5
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

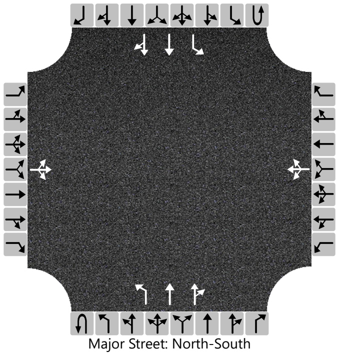
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			173				2			108				21		
Capacity, c (veh/h)			743				252			1213				929		
v/c Ratio			0.23				0.01			0.09				0.02		
95% Queue Length, Q_{95} (veh)			0.9				0.0			0.3				0.1		
Control Delay (s/veh)			11.3				19.4			8.3				9.0		
Level of Service (LOS)			B				C			A				A		
Approach Delay (s/veh)	11.3				19.4				1.2				0.5			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	L. Hagen	Intersection	SR 47 & Marvin Burnett Road
Agency/Co.	Hagen Consulting Services	Jurisdiction	Columbia County
Date Performed	10/2/2023	East/West Street	SW Marvin Burnett Road
Analysis Year	2024	North/South Street	SR 47
Time Analyzed	AM Peak Period	Peak Hour Factor	0.89
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Build scenario		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		8	2	152		0	1	1	0	107	560	14	0	19	294	10
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

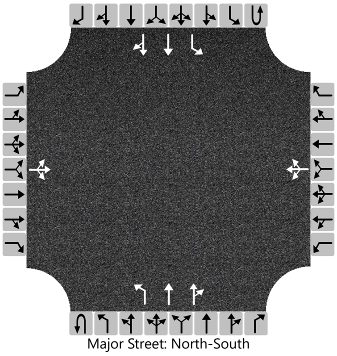
Flow Rate, v (veh/h)			182				2			120				21		
Capacity, c (veh/h)			732				241			1207				929		
v/c Ratio			0.25				0.01			0.10				0.02		
95% Queue Length, Q_{95} (veh)			1.0				0.0			0.3				0.1		
Control Delay (s/veh)			11.5				20.1			8.3				9.0		
Level of Service (LOS)			B				C			A				A		
Approach Delay (s/veh)	11.5				20.1				1.3				0.5			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

General Information / Site Information

Analyst	L. Hagen	Intersection	SR 47 & Marvin Burnett Road
Agency/Co.	Hagen Consulting Services	Jurisdiction	Columbia County
Date Performed	10/2/2023	East/West Street	SW Marvin Burnett Road
Analysis Year	2024	North/South Street	SR 47
Time Analyzed	PM Peak Period	Peak Hour Factor	0.89
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	No-build scenario		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		4	0	268		6	0	2	0	139	455	2	0	6	594	14
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

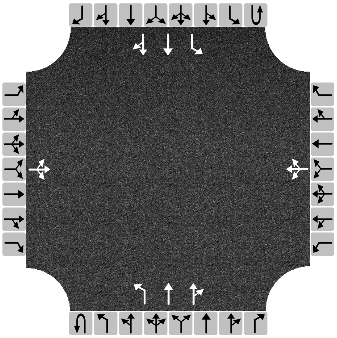
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			306				9			156				7		
Capacity, c (veh/h)			634				160			899				1041		
v/c Ratio			0.48				0.06			0.17				0.01		
95% Queue Length, Q_{95} (veh)			2.6				0.2			0.6				0.0		
Control Delay (s/veh)			15.9				28.8			9.8				8.5		
Level of Service (LOS)			C				D			A				A		
Approach Delay (s/veh)	15.9				28.8				2.3				0.1			
Approach LOS	C				D				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	L. Hagen	Intersection	SR 47 & Marvin Burnett Road
Agency/Co.	Hagen Consulting Services	Jurisdiction	Columbia County
Date Performed	10/2/2023	East/West Street	SW Marvin Burnett Road
Analysis Year	2024	North/South Street	SR 47
Time Analyzed	PM Peak Period	Peak Hour Factor	0.89
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Build scenario		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR				LTR			L	T	TR		L	T	TR
Volume (veh/h)		5	0	291		6	0	2	0	153	455	2	0	6	594	29
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Left Only								1							

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

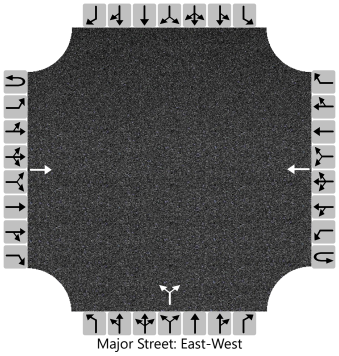
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			333				9			172				7		
Capacity, c (veh/h)			622				129			886				1041		
v/c Ratio			0.53				0.07			0.19				0.01		
95% Queue Length, Q_{95} (veh)			3.2				0.2			0.7				0.0		
Control Delay (s/veh)			17.2				35.0			10.0				8.5		
Level of Service (LOS)			C				E			B				A		
Approach Delay (s/veh)	17.2				35.0				2.5				0.1			
Approach LOS	C				E				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	L. Hagen	Intersection	Bascom Norris & Marvin Burnett
Agency/Co.	Hagen Consulting Services	Jurisdiction	Columbia County
Date Performed	10/2/2023	East/West Street	Bascom Norris Drive
Analysis Year	2024	North/South Street	Marvin Burnett Road
Time Analyzed	AM Peak	Peak Hour Factor	0.84
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	No-build scenario		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration			T				T				LR					
Volume (veh/h)			246				262			107		0				
Percent Heavy Vehicles (%)										3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)										7.1		6.2				
Critical Headway (sec)										6.43		6.23				
Base Follow-Up Headway (sec)										3.5		3.3				
Follow-Up Headway (sec)										3.53		3.33				

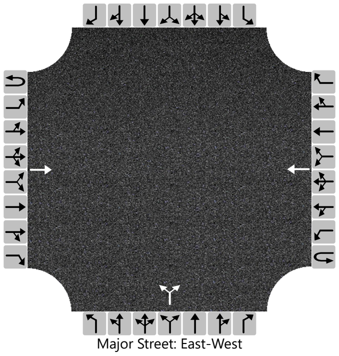
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)											127					
Capacity, c (veh/h)											459					
v/c Ratio											0.28					
95% Queue Length, Q_{95} (veh)											1.1					
Control Delay (s/veh)											15.8					
Level of Service (LOS)											C					
Approach Delay (s/veh)									15.8							
Approach LOS									C							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	L. Hagen	Intersection	Bascom Norris & Marvin Burnett
Agency/Co.	Hagen Consulting Services	Jurisdiction	Columbia County
Date Performed	10/2/2023	East/West Street	Bascom Norris Drive
Analysis Year	2024	North/South Street	Marvin Burnett Road
Time Analyzed	AM Peak	Peak Hour Factor	0.84
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Build scenario		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration			T				T				LR					
Volume (veh/h)			246				262			113		0				
Percent Heavy Vehicles (%)										3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)										7.1		6.2				
Critical Headway (sec)										6.43		6.23				
Base Follow-Up Headway (sec)										3.5		3.3				
Follow-Up Headway (sec)										3.53		3.33				

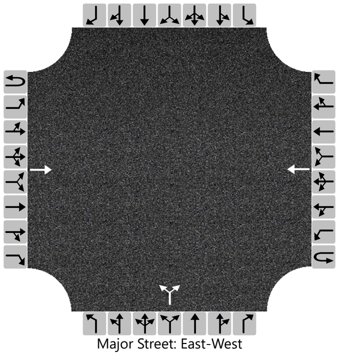
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)											135					
Capacity, c (veh/h)											459					
v/c Ratio											0.29					
95% Queue Length, Q_{95} (veh)											1.2					
Control Delay (s/veh)											16.1					
Level of Service (LOS)											C					
Approach Delay (s/veh)									16.1							
Approach LOS									C							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	L. Hagen	Intersection	Bascom Norris & Marvin Burnett
Agency/Co.	Hagen Consulting Services	Jurisdiction	Columbia County
Date Performed	10/2/2023	East/West Street	Bascom Norris Drive
Analysis Year	2024	North/South Street	Marvin Burnett Road
Time Analyzed	PM Peak	Peak Hour Factor	0.84
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	No-build scenario		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration			T				T				LR					
Volume (veh/h)			215				443			152		0				
Percent Heavy Vehicles (%)										3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)										7.1		6.2				
Critical Headway (sec)										6.43		6.23				
Base Follow-Up Headway (sec)										3.5		3.3				
Follow-Up Headway (sec)										3.53		3.33				

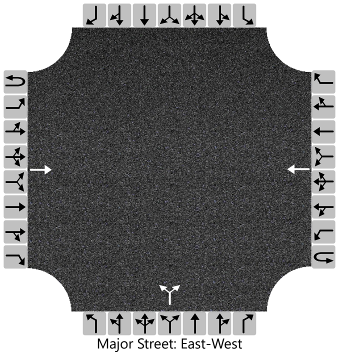
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)											181					
Capacity, c (veh/h)											361					
v/c Ratio											0.50					
95% Queue Length, Q_{95} (veh)											2.7					
Control Delay (s/veh)											24.6					
Level of Service (LOS)											C					
Approach Delay (s/veh)									24.6							
Approach LOS									C							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	L. Hagen	Intersection	Bascom Norris & Marvin Burnett
Agency/Co.	Hagen Consulting Services	Jurisdiction	Columbia County
Date Performed	10/2/2023	East/West Street	Bascom Norris Drive
Analysis Year	2024	North/South Street	Marvin Burnett Road
Time Analyzed	PM Peak	Peak Hour Factor	0.84
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Build scenario		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration			T				T				LR					
Volume (veh/h)			215				443			163		0				
Percent Heavy Vehicles (%)										3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)										7.1		6.2				
Critical Headway (sec)										6.43		6.23				
Base Follow-Up Headway (sec)										3.5		3.3				
Follow-Up Headway (sec)										3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)											194					
Capacity, c (veh/h)											361					
v/c Ratio											0.54					
95% Queue Length, Q_{95} (veh)											3.0					
Control Delay (s/veh)											26.0					
Level of Service (LOS)											D					
Approach Delay (s/veh)									26.0							
Approach LOS									D							

Stormwater Management System Report

CRS Marvin Burnett

Prepared For: Concept Development, Inc.

Submitted To: City of Lake City and Suwannee River Water Management District

Date: 03/20/2024
PN# 23-0653
PM: Randall S. Olney, P.E.

Address: 1449 SW 74th Drive
Suite 200
Gainesville, Florida 32607

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Engineer's Certification Statement

I hereby certify that the design of the stormwater management systems for the project known as CRS Marvin Burnett has been designed substantially in accordance with the City of Lake City, the Suwannee River Water Management District, and the Florida Department of Transportation applicable rules and regulations.

Randall Scott Olney,
State of Florida, Professional Engineer, License No. 68382

This item has been electronically signed and sealed by Randall Scott Olney, PE. On 03/21/2024 using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Randall Scott Olney

Digitally signed by Randall Scott Olney
DN: E=randyo@chw-inc.com, CN=Randall Scott Olney, O=Randall Scott Olney, L=Alachua, S=Florida, C=US
Date: 2024.03.21 13:52:58-04'00'

Randall S. Olney, FL PE No. 68382

03/21/2024

Date

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Introduction

The CRS Marvin Burnett project proposes the development of a ±10,640 sf commercial retail store with associated parking, stormwater, and utility infrastructure. The total proposed site area is ± 2.70 acres, located along the northwest corner of the intersection of State Road 47 and SW Marvin Burnett Road in Lake City, Florida.

The project site is located on a portion of tax parcel #07-4S-17-08127-005 according to the Columbia County Property Appraiser's website. Figure 1 provides a Location Map and Figure 2 depicts the site on a portion of the Lake City West USGS Quadrangle Map. The site is located in Section 7, Township 4 South, Range 17 East in Columbia County, Florida.

Refer to the accompanying engineering plans for details about the proposed construction and demolition regarding this project.

Design Criteria

The design criteria for the proposed stormwater management facility (SMF) is based upon the criteria set forth by the City of Lake City (CLC), the Suwannee River Water Management District (SRWMD), and the Florida Department of Transportation (FDOT) for a dry retention system design in a closed watershed. The criteria are as follows:

1. Provide Peak Discharge Rate Attenuation: Attenuate the post-development peak discharge rates to be less than the pre-development peak discharge rates for:
    a. The 100 year – 1 hour, 100 year – 2 hour, 100 year – 4 hour, 100 year – 8 hour, 100 year – 24 hour storm events (SRWMD).
    b. The 3, 5, 10, 25, 50, and 100-year frequency analysis of the 1, 2, 4, 8, 24, 72, 168, and 240-hr storm events (FDOT).

2. Provide Peak Discharge Volume Attenuation: Attenuate the post-development peak discharge volumes to be less than the pre-development peak discharge volume for:
    a. The 100 year – 1 hour, 100 year – 2 hour, 100 year – 4 hour, 100 year – 8 hour, 100 year – 24 hour storm events (SRWMD).
    b. The 3, 5, 10, 25, 50, and 100-year frequency analysis of the 1, 2, 4, 8, 24, 72, 168, and 240-hr storm events (FDOT).

3. Provide Water Quality Treatment Volume (WQTV): The minimum stormwater treatment volume shall be the runoff from the first 2.0 inch of runoff from the design storm. WQTV must be recovered within 72 hours (SRWMD).

4. Freeboard: Retention ponds shall have a freeboard of 1 foot above the maximum stage in order to function properly during storms greater than the design storm (SRWMD).

5. Provide Volume Recovery: Retention systems must have one-half of the total volume available within 7 days following the end of the design storm event, and the total volume must be recovered within 30 days following the end of the storm event (SRWMD and FDOT).

Alternatively, if recovery requirements cannot be met, back-to-back storms can be routed through the system (SRWMD).

6. Fencing: Any water retention areas that have a potential of holding water in excess of one (1) foot depth to be fenced with a four (4) foot high fence and screened by trees or shrubbery (CLC).

City of Lake City, SRWMD, and FDOT also require that best management practices be employed to control erosion, sedimentation, and that an operation and maintenance entity be established.

Site Characteristics

Physical characteristics of the site are described in the following sections. Additional details are provided in the accompanying Engineering plans.

Site Topography

The existing site is undeveloped and heavily wooded with existing pavement and structures that are to be removed. The project site is bordered by a single-family residence to the west, a church to the north, State Road 47 to the east, and Marvin Burnett Road to the south. The site is sloped from the northeast to the southwest. Site topography ranges from EL. ± 167.00’ (NAVD 88) in the northeast corner of the site to EL. ± 152.60’ (NAVD 88) in the southwest corner.

Please refer to the accompanying engineering plans for details.

Pre-Development Drainage

Pre-development drainage consists of two watersheds: Pre-Development Watershed #1 (Pre DA-1) and Pre-Development Watershed #2 (Pre DA-2). Pre DA-1 is ±2.03 acres in size and includes a portion of offsite area to the north of the site as well as most of the western portion of the project site. Stormwater runoff from Pre DA-1 flows via sheet flow and shallow concentrated flow to a natural low area along the western boundary of the site. Pre DA-2 is ±1.79 acres in size and includes offsite area to the north as well as the eastern portion of the project site. Stormwater runoff from Pre DA-2 flows via sheet flow and shallow concentrated flow into the SR-47 (FDOT) storm sewer system.

Refer to Figure 4 for a NRCS Soils Map. Refer to Figure 6 for more information on the pre-development watershed.

Post-Development Drainage

Post-Development drainage consists of two watersheds: Post-Development Watershed #1 (Post DA-1) and Post-Development Watershed #2 (Post DA-2). Post DA-1 comprises ±3.29 acres including ±0.93 acres of impervious area as well as a portion of offsite area. Stormwater runoff from Post DA-1 will be routed via sheet flow and shallow concentrated flow to a stormwater pipe conveyance system and into the proposed stormwater management facility (SMF-1). Post DA-2 comprises

±0.53 acres including ±0.02 acres of impervious area from a small portion of sidewalk. Stormwater runoff from Post DA-2 will be routed via sheet flow and shallow concentrated flow to the SR-47 (FDOT) storm sewer system as in the pre-development condition. The drainage area discharging to the FDOT system is greatly reduced in comparison to pre-development. Additionally, the CN of this area did not increase. Therefore, it is assumed that runoff rates and volumes have been reduced for each design storm event and these watersheds were not included in the drainage model.

SMF-1 is designed as a dry retention facility that will retain and infiltrate the difference between pre-development and post-development runoff volume. The top of bank for SMF-1 is set at EL. 160.00’ while the bottom of pond is at EL. 157.00’ with 4:1 side slope. The resulting total storage volume is ±49,744 cf. An underdrain system is proposed to lower the seasonal high-water table and meet recovery requirements. An outfall structure has been provided, which enables discharge to the existing depression beyond the western border of the site, mimicking the pre-development drainage patterns.

Refer to Figure 7 for more information on the post-development watershed.

Soils Information

The National Resource Conservation Service (NRCS) Soil Survey for Columbia County describes the near surface soil profile for the project area as *Blanton fine sand* (0 – 5% slopes) of hydrologic soil group rating of ‘A’, *Ichetucknee fine sand* (5 – 8% slopes) of hydrologic soil group rating of ‘D’, *Mascotte fine sand* of hydrologic soil group rating of ‘B/D’, *Pelham fine sand* (0 – 2% slopes) of hydrologic soil group rating of ‘B/D’. Refer to Figure 4 for the NRCS Soils Map.

A site-specific soils investigation was conducted by GSE Engineering & Consulting, Inc. on October 11th, 2023 and the report was later revised on December 7th, 2023. Based on the Summary Report of Geotechnical Site Exploration, the following design parameters were recommended for the stormwater management facility calculations. Refer to Appendix C for further details.

SMF-1

- Average ground elevation of borings within proposed SMF-1 area: 156.70’ (NAVD 88)
- Base elevation of effective or mobilized aquifer: 148.70’ (NAVD 88)
- Average seasonal high groundwater table elevation: *152.99’ (NAVD 88)
- Horizontal hydraulic conductivity: 10 feet per day (5 feet per day used in calculations)
- Unsaturated vertical infiltration rate: 10 feet per day (5 feet per day used in calculations)
- Specific yield (fillable porosity): 20%

*Seasonal high-water table established based on highest invert of the underdrain system.

Drainage Analysis

The proposed stormwater management system (SMF-1) has been designed to provide attenuation of the discharge rates and volumes for the 100 year – 1 hour, 100 year – 2 hour, 100 year – 4 hour, 100 year – 8 hour, and 100 year – 24 hour storm events. Since the portion of the site draining towards the FDOT ROW (Post DA-2) is minimal and has been reduced from its pre- development condition (Pre DA-2), the FDOT storms were not modeled. SMF-1 should recover one-half of the total volume available within 7 days following the end of the design storm event, and the total volume must be recovered within 30 days. Additionally, the stormwater management system is designed to retain the water quality treatment volume and recover this volume within 72 hours.

Appendix A contains details and calculations as well as a section for routing results, recovery analysis, hydraulic calculations, and general drainage calculations.

Analysis Methodology

The drainage analysis was conducted using the computer program PONDS (v3.3) to generate runoff hydrographs and route the runoff hydrographs through the proposed stormwater system. The required storm events were analyzed using SRWMD rainfall amounts for the pre-development and post-development watersheds.

Unit Hydrograph Parameters

Unit hydrograph parameters required for the drainage analysis include run-off curve number (CN), time of concentration (Tc), and drainage area. Values used in the analysis are summarized as follows:

Pre-Development Watershed #1 (Pre DA-1):
Watershed Area = 2.03 ac.
Impervious Area (Existing) = 0.02 ac.
Woods (Good, Type ‘A’ Soil) = 0.47 ac.
Woods (Good, Type ‘D’ Soil) = 1.55 ac.

CN = 66
Tc = 29 min.

Post-Development Watershed #1 (Post DA-1):
Watershed Area = 3.29 ac.
Impervious Area = 0.93 ac.
Stormwater Management Facility = 0.45 ac.
Open Space (Good, Type ‘A’ Soil) = 1.29 ac.
Open Space (Good, Type ‘D’ Soil) = 0.62 ac.

CN = 72
Tc = 10 min.*

*Time of Concentration is assumed to be 10 minutes.

Pond Storage

Stage-storage values for the proposed stormwater management facilities are provided in Appendix A.

Water Quality Treatment Volume (WQTV)

Per SRWMD, the required water quality treatment volume (WQTV) required for a dry retention system is 2.0 inch of runoff over the drainage area, that must draw down within 72 hours. The WQTV calculations and modeling results are summarized in Table 1, additional details can be found in appendix A.

Table 1: Post Development Watershed Water Quality Treatment

Stormwater Management Facility	Required WQTV (cf)	Peak Elevation at WQTV (ft)	Time to Recover WQTV (hours)
SMF-1	12,483	157.87	< 6

Run-off and Facility Routing Results

The routing results for Pre DA-1 and Post DA-1 (SMF-1) are summarized in Tables 2 and 3. Table 2 displays the peak stage, freeboard, and recovery time for the analyzed storm events, while Table 3 displays the discharge rates and volumes for pre and post-development. Detailed results and calculations are provided in Appendix A.

Table 2: Pre DA-1 vs. Post DA-1 Routing Results

Storm Event	Peak Stage (ft.)	Freeboard (ft)	Full Volume Recovery (days after storm)
SRWMD 100YR-1HR	158.14	1.86	< 1
SRWMD 100YR-2HR	158.35	1.65	< 1
SRWMD 100YR-4HR	158.46	1.54	< 1
SRWMD 100YR-8HR	158.61	1.39	< 4
SRWMD 100YR-24HR	158.78	1.22	< 7

Table 3: Pre DA-1 vs. Post DA-1 Attenuation Results

Storm Event	Discharge Rates (cfs)			Discharge Volumes (cf)		
	Pre	Post	Change	Pre	Post	Change
SRWMD 100YR-1HR	4.27	0.31	-3.96	8,901	463	-8439
SRWMD 100YR-2HR	5.47	1.28	-4.19	13,242	4,512	-8730
SRWMD 100YR-4HR	6.46	1.93	-4.53	18,428	10,552	-7876
SRWMD 100YR-8HR	7.25	3.00	-4.25	25,727	17,171	-8556
SRWMD 100YR-24HR	6.67	4.28	-2.39	40,983	37,974	-3009

Summary and Conclusions

The proposed drainage system meets CLC, SRWMD, and FDOT criteria for dry retention system designs in a closed watershed. The criteria are as follows:

1. Provide Peak Discharge Rate Attenuation: SMF-1 attenuates the post-development peak discharge rates to be less than the pre-development peak discharge rates for:
   a. The 100 year – 1 hour, 100 year – 2 hour, 100 year – 4 hour, 100 year – 8 hour, 100 year – 24 hour storm events (SRWMD).
   b. The 3, 5, 10, 25, 50, and 100-year frequency analysis of the 1, 2, 4, 8, 24, 72, 168, and 240-hr storm events (FDOT).

2. Provide Peak Discharge Volume Attenuation: SMF-1 attenuates the post-development peak discharge volumes to be less than the pre-development peak discharge volume for:
   a. The 100 year – 1 hour, 100 year – 2 hour, 100 year – 4 hour, 100 year – 8 hour, 100 year – 24 hour storm events (SRWMD).
   b. The 3, 5, 10, 25, 50, and 100-year frequency analysis of the 1, 2, 4, 8, 24, 72, 168, and 240-hr storm events (FDOT).

3. Provide Water Quality Treatment Volume (WQTV): SMF-1 has been designed to retain the runoff from the first 2.0 inch of runoff from the design storm. WQTV is recovered within 72 hours. (SRWMD).

4. Freeboard: SMF-1 provides 1 foot of freeboard above the maximum stage in order to function properly during storms greater than the design storm (SRWMD).

5. Provide Volume Recovery: SMF-1 provides half of the total available volume within 7 days after the end of all storm events, and provides the total available volume within 30 days after the end of all storm events (SRWMD and FDOT).

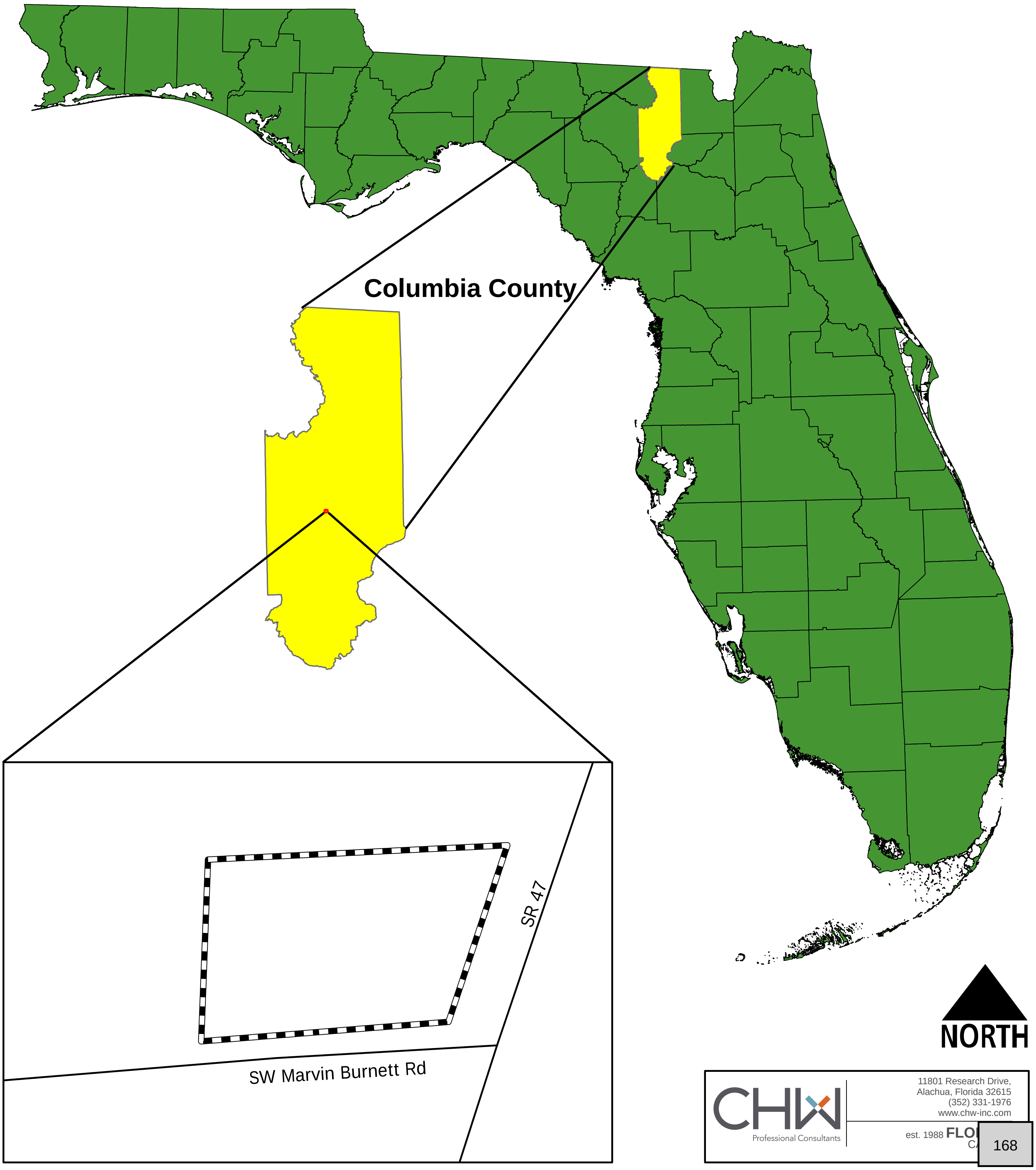
6. Fencing: SMF-1 has the potential to hold water in excess of one (1) foot depth, therefore a (4) foot high fence and sufficient screening by trees and shrubbery is proposed. (CLC).

Based on the information provided, the project is eligible for approval by City of Lake City, SRWMD, and FDOT.

Figure 1

Project Location Map

Project Location Map
CRS Marvin Burnett



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C

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Figure 2

USGS Quadrangle Map

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CRS Marvin Burnett Quad Map

0 600 1,200
Feet

N

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Figure 3

Aerial Map

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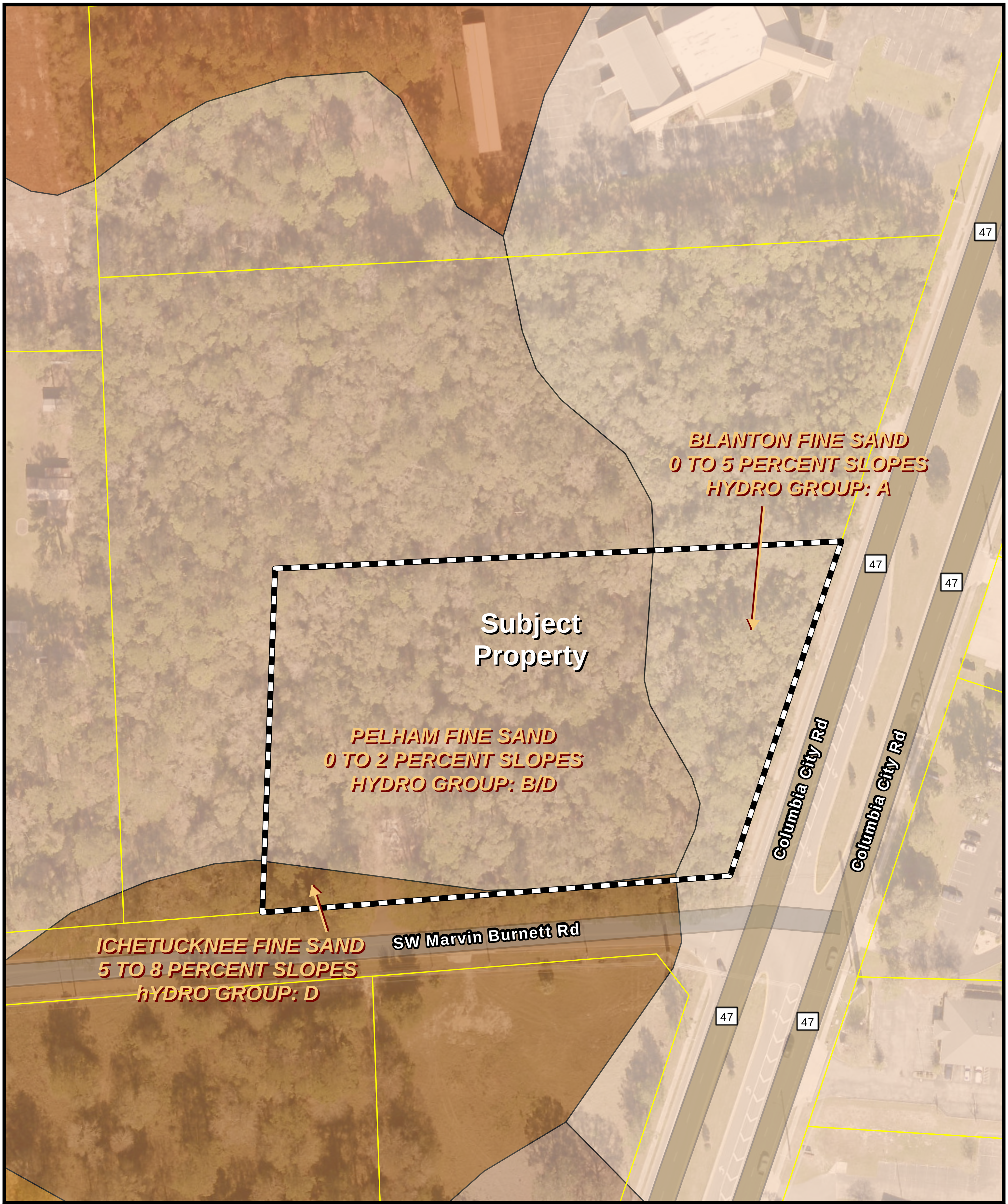
CRS Marvin Burnett Aerial Map

0 60 120
Feet

Figure 4

NRCS Soils Map



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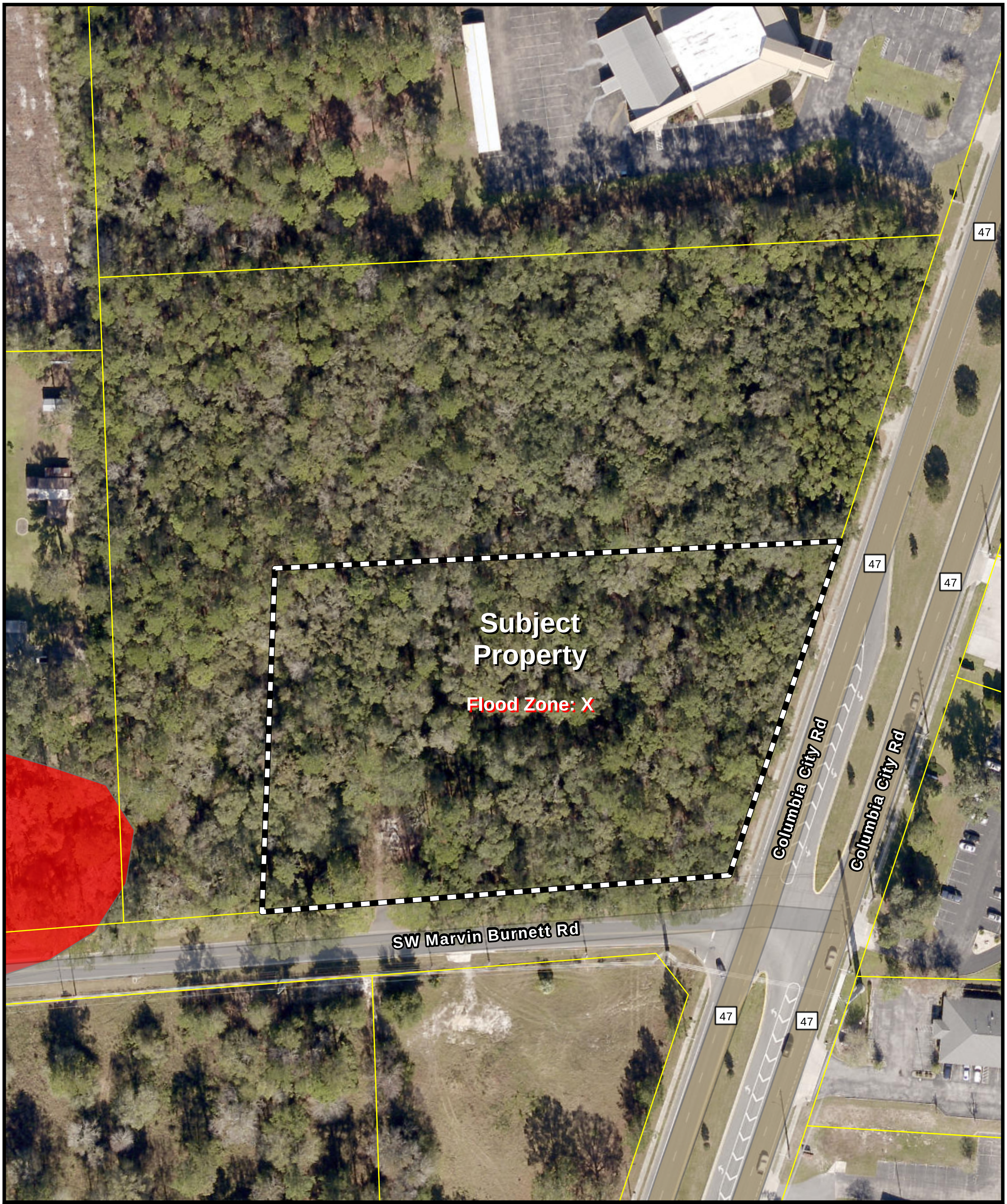
CRS Marvin Burnett NRCS Soils Map

0 60 120
Feet

NO

Figure 5

FEMA Flood Map



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CRS Marvin Burnett FEMA Flood Map

0 60 120
Feet

NO

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Figure 6

Pre-Development Drainage Map

LEGEND

PRE-DEVELOPMENT WATERSHED 1 (PRE DA-1) BOUNDARY:

PRE-DEVELOPMENT WATERSHED 2 (PRE DA-2) BOUNDARY:

EXISTING IMPERVIOUS AREA TO BE REMOVED: ▨

PRE-DEVELOPMENT DRAINAGE FLOW PATTERNS:

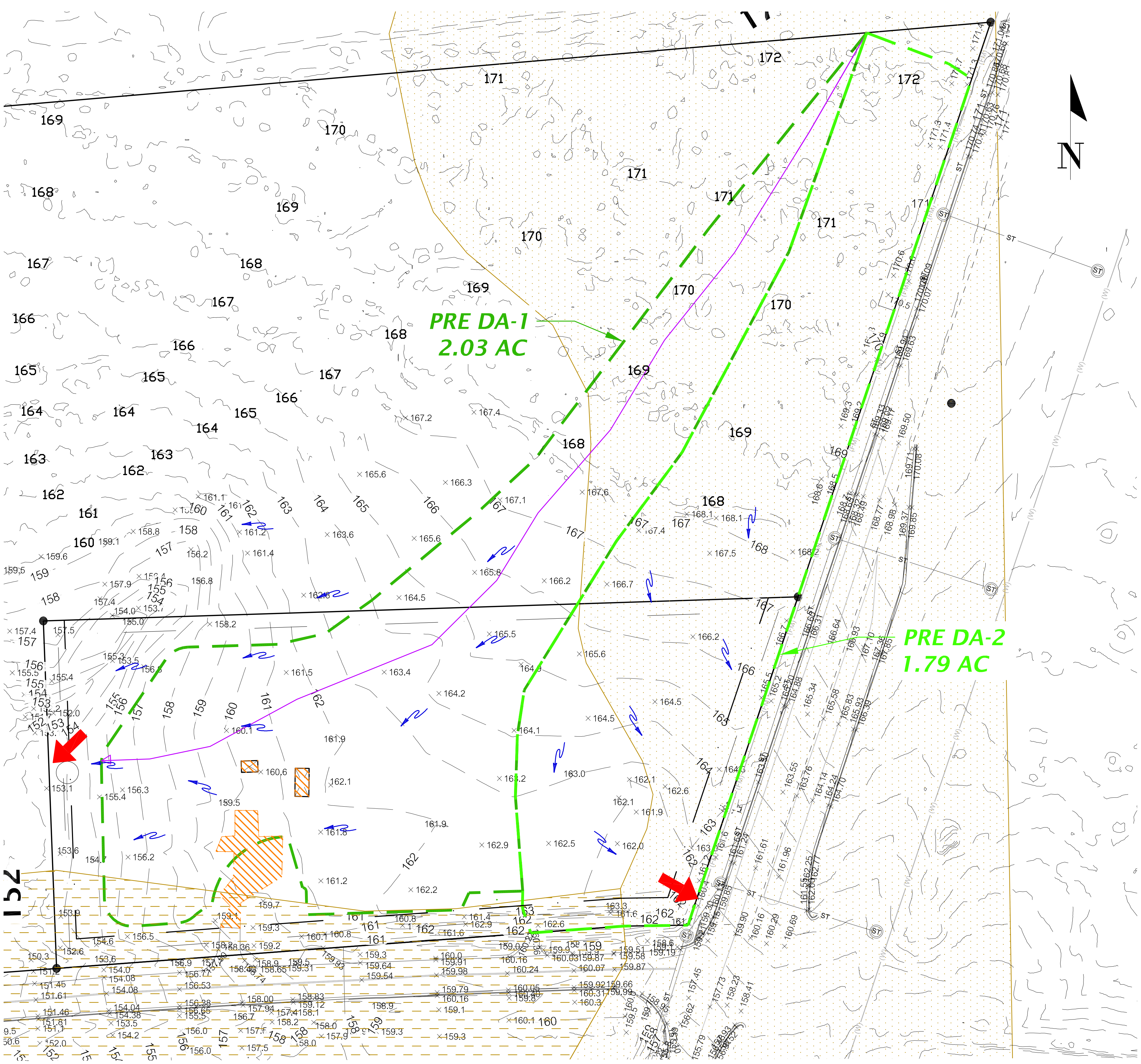
PRE-DEVELOPMENT TIME OF CONCENTRATION →

PRE-DEVELOPMENT DISCHARGE POINT: ➡

TYPE 'A' SOILS

TYPE 'D' SOILS

NOTE: ALL SOILS ARE TYPE 'B/D' UNLESS OTHERWISE NOTED



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SCALE: 1"=75'
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

CONSTRUCTION/BID REVISIONS:

SUBMITTALS:

CLIENT: CONCEPT COMPANIES, LLC.
PROJECT: CRS MARVIN BURNETT
SHEET TITLE: PRE-DEVELOPMENT DRAINAGE MAP

TECHNICIAN: CCM
DESIGNER: CCM
QUALITY CONTROL: RSO
PROJECT NUMBER: 23-0653

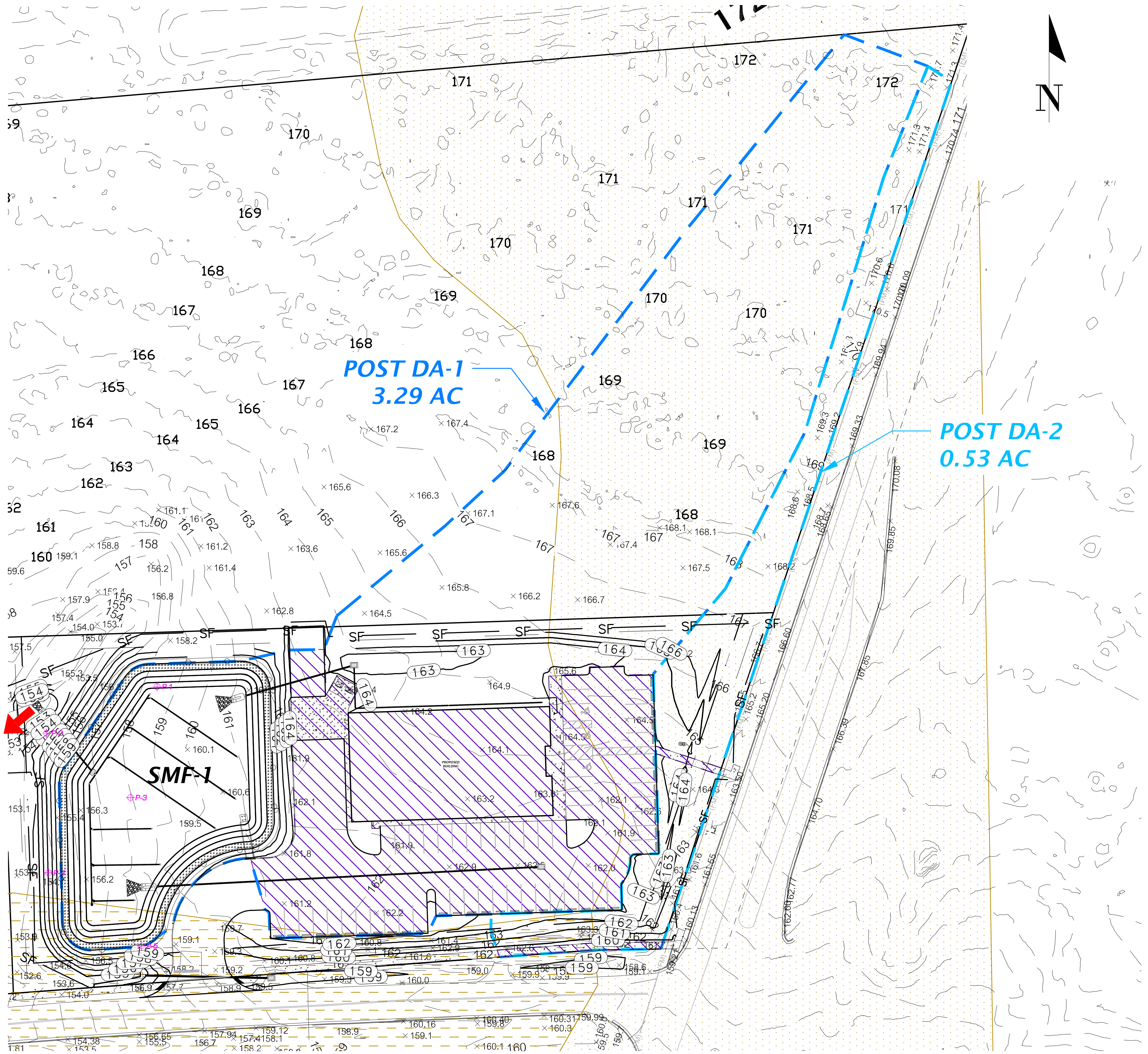
SHEET N
FIGURE 1

Figure 7

Post-Development Drainage Map

LEGEND

POST-DEVELOPMENT WATERSHED 1 (POST DA-1) BOUNDARY:	⬚
POST-DEVELOPMENT WATERSHED 2 (POST DA-2) BOUNDARY:	⬚
POST-DEVELOPMENT DISCHARGE POINT:	➡
PROPOSED ONSITE IMPERVIOUS AREA:	▨
SOIL BORING LOCATION:	⌖P-4



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SCALE: 1"=75'

VERIFY SCALE
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IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY.

CONSTRUCTION/BID REVISIONS:

SUBMITTALS:

CLIENT: CONCEPT COMPANIES, LLC.

PROJECT: CRS MARVIN BURNETT

SHEET TITLE: POST-DEVELOPMENT DRAINAGE EXHIBIT

TECHNICIAN: CCM

DESIGNER: CCM

QUALITY CONTROL: RSO

PROJECT NUMBER: 23-0653

SHEET N
FIGURE 2

Appendix A

Drainage Calculations and Computer Model Output

CURVE NUMBER CALCULATIONS:

Pre DA-1

Total Area:	88,582	s.f.	2.03	ac.	CN	CN * Area	C	C * Area
Woods (Good, Group "A" Soil)	20,340	s.f.	0.47	ac.	30	610200	0.2	4068
Woods (Good, Group "D" Soil)	67,311	s.f.	1.55	ac.	77	5182947	0.2	13462.2
Exisitng Impervious Area	931	s.f.	0.02	ac.	98	91238	0.95	884.45

Weighted C: **0.21**
Weighted CN: **66**
Time of Concentration: **29** minutes

Post DA-1

Total Area:	143,411	s.f.	3.29	ac.	CN	CN * Area	C	C * Area
Open Space (Good, Group "A" Soil)	56,007	s.f.	1.29	ac.	39	2184273	0.2	11201.4
Open Space (Good, Group "D" Soil)	27,102	s.f.	0.62	ac.	80	2168160	0.2	5420.4
Impervious Area	40,483	s.f.	0.93	ac.	98	3967334	0.95	38458.85
Stormwater Management Facility	19,819	s.f.	0.45	ac.	100	1981900	1	19819

Weighted C: **0.52**
Weighted CN: **72**
Time of Concentration: **10** minutes

WQTV CALCULATIONS: SMF-1 (Dry Retention)

SRWMD WQTV Calculation:		
Runoff from the first 2.0" of rainfall		
2" x Drainage Area:	23901.83	c.f.
C =	**0.52**	
SRWMD WQTV:	**12,483**	**c.f.**

Pre DA-2

Total Area:	77,911	s.f.	1.79	ac.	CN	CN * Area
Woods (Good, Group "A" Soil)	62,699	s.f.	1.44	ac.	30	1880970
Woods (Good, Group "D" Soil)	15,212	s.f.	0.35	ac.	77	1171324

Weighted CN: **39**

Post DA-2

Total Area:	23,090	s.f.	0.53	ac.	CN	CN * Area
Woods (Good, Group "A" Soil)	9,873	s.f.	0.23	ac.	30	296190
Open Space (Good, Group "A" Soil)	11,246	s.f.	0.26	ac.	39	438594
Open Space (Good, Group "D" Soil)	1,162	s.f.	0.03	ac.	80	92960
Impervious Area	809	s.f.	0.02	ac.	98	79282

Weighted CN: **39**

Project Number: 23-0653
Project Name: CRS Marvin Burnett
Calculated by: JHP
Checked by: CCM
Date: 1/4/2024

Tc CALCULATIONS:

	SHEET FLOW					SHALLOW CONCENTRATED FLOW					CHANNEL / PIPE FLOW							
BASIN	Manning's n (--)	Flow Length L (ft)	2-Year 24-Hour Rain, P2 (in)	Land Slope s (ft/ft)	Tt1 (hr)	Paved or Unpvd. (P or U)	Flow Length L (ft)	Water-course Slope, s (ft/ft)	Avg. Velocity V (ft/s)	Tt2 (hr)	Cross-Section Area, a (ft^2)	Wetted Perim. Pw (ft)	Hydraulic Radius r (ft)	Pipe Slope s (ft/ft)	Manning n (--)	Avg. Velocity V (ft/s)	Flow Length L (ft)	Tt3 (hr)
Pre DA-1	0.4	100	4.2	0.011	**0.40**	U	694	0.023	2.44	**0.08**	-	-	-	-	-	-	-	**-**

ID #	Tc (hr)	Tc (min)
PRE DA-1	0.48	**29**

If Tc less than 10 minutes, 10 minutes was assumed per FDOT standards

<u>TIME OF CONCENTRATION VALUES DETERMINED USING TR-55 METHODOLOGY.</u>

SHEET FLOW:

$$Tt = \frac{0.007\ (nL)^{0.8}}{(P2)^{0.5} s^{0.4}}$$

SHALLOW CONCENTRATED FLOW:

1. For slopes < 0.005 ft/ft

Unpaved	$V=16.1345\ s^{0.5}$
Paved	$V=20.3282\ s^{0.5}$

2. For slopes > 0.005 ft/ft
Velocity per Figure 3-1, TR-55

CHANNEL/PIPE FLOW:

$$V = \frac{1.49 r^{2/3} s^{1/2}}{n}$$

$$Tt = \frac{L}{3600\ V}$$

STAGE-STORAGE CALCULATIONS:

Post-Development: SMF-1 Stage-Storage Relationship

ELEV.	AREA (SF)	AREA (AC.)	STORAGE (CF)	STORAGE VOLUME (AC-FT)
157.00	13,469	0.3092	0	0.00
158.00	15,494	0.3557	14,482	0.33
159.00	17,606	0.4042	31,032	0.71
160.00	19,819	0.4550	49,744	1.14

Geotech Borings

Boring #	Ex. Grade EL.
P-1	158.50
P-2	154.00
P-3	158.00
P-4	154.75
P-5	158.25
Avg.	**156.70**

WQTV = 12,483 cf
WQTV EL. = 157.86 ft

Weir Elevation = 158.00 ft

Eq. Length = 200 ft
Eq. Width = 83 ft

SHWT = *152.99 ft
Confining Layer = 148.70 ft
Kv = 5.00 ft/day
Kh = 5.00 ft/day
Porosity = 20 %

Depth = 3.00 ft
Perimeter = 566 ft

*Established based on Invert of Underdrain System

Project Number: 23-0653
Project Name: CRS Marvin Burnett
Calculated by: JHP
Checked by: CCM
Date: 1/4/2024

PIPE CALCS: CRS Marvin Burnett (23-0653)

Structure No.		Invert Elev.		Length (ft)	Slope (ft/foot)	Dia. (in)	C	Tc (min)	i (in/hr)	A (sf)	A (ac)	Q (cfs) Actual		Q Allowed (cfs)	Pipe A (sq-ft)	V - Full Flow (fps)	Pipe R (ft)	Minor Loss Coeff.	Minor Loss (ft)	Loss (ft)	HGL		ToG/ EoP	F.B. (in)
From	To	U.S.	D.S.									Inc	Cumul								U.S.	D.S.		
S-2	S-1	158.38	157.00	277	0.0050	15	0.95	10	6.2	18163	0.42	2.5	2.5	4.94	1.2	4.0	0.31	0.5	0.03	0.3	158.51	158.14	162.23	45
C/O-1	C/O-2	160.61	159.96	65	0.0100	12	0.95	10	6.2	3547	0.08	0.5	0.5	3.86	0.8	4.9	0.25	0.5	0.00	0.0	160.93	160.91	163.72	34
C/O-2	C/O-3	159.96	159.30	65	0.0102	12	0.95	10	6.2	3547	0.08	0.5	1.0	3.89	0.8	5.0	0.25	0.5	0.01	0.0	160.91	160.86	163.85	35
C/O-3	S-4	159.30	159.00	30	0.0100	12	0.95	10	6.2	3547	0.08	0.5	1.4	3.86	0.8	4.9	0.25	0.8	0.04	0.0	160.86	160.78	164.03	38
S-4	S-3	159.00	157.00	86	0.0233	15	0.80	10	6.2	76339	1.75	8.7	10.1	10.67	1.2	8.7	0.31	0.8	0.85	1.8	160.78	158.14	162.12	16

1. ToG = Top of Grate/EoP = Edge of Pavement
2. FB = Free Board
3. Rainfall intensity is based on the FDOT Zone 3 Rainfall Intensity-Duration-Frequency curve for the 3 year - 10 min storm event (6.2 inches/hr)
4. The tailwater condition was set at the peak stage for the 100 year - 1 hour storm event of the receiving SMF.

Pre-Development Model

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method

Devo Seereeram, Ph.D., P.E.

Project Data

Project Name:	CRS Marvin Burnett
Simulation Description:	Pre-Development
Project Number:	23-0653
Engineer :	Jarrett Pearson
Supervising Engineer:	Cole Menhennett
Date:	12-28-2023

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
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Scenario Input Data

Scenario 1 :: SRWMD 100YR-1HR

Hydrograph Type: Inline SCS
- **Modflow Routing: Not routed**

Repetitions: 1

Basin Area (acres)	2.030
Time Of Concentration (minutes)	29.0
DCIA (%)	0.0
Curve Number	66
Design Rainfall Depth (inches)	4.2
Design Rainfall Duration (hours)	1.0
Shape Factor	UHG 484
Rainfall Distribution	SCS Type II Florida Modified

Initial ground water level (ft datum) 154.70 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.250	6.250	12.250	18.250	24.250
0.500	6.500	12.500	18.500	24.500
0.750	6.750	12.750	18.750	24.750
1.000	7.000	13.000	19.000	25.000
1.250	7.250	13.250	19.250	25.250
1.500	7.500	13.500	19.500	25.500
1.750	7.750	13.750	19.750	25.750
2.000	8.000	14.000	20.000	26.000
2.250	8.250	14.250	20.250	26.250
2.500	8.500	14.500	20.500	26.500
2.750	8.750	14.750	20.750	26.750
3.000	9.000	15.000	21.000	27.000
3.250	9.250	15.250	21.250	27.250
3.500	9.500	15.500	21.500	27.500
3.750	9.750	15.750	21.750	27.750
4.000	10.000	16.000	22.000	28.000
4.250	10.250	16.250	22.250	28.250
4.500	10.500	16.500	22.500	28.500
4.750	10.750	16.750	22.750	28.750
5.000	11.000	17.000	23.000	29.000
5.250	11.250	17.250	23.250	29.250
5.500	11.500	17.500	23.500	29.500
5.750	11.750	17.750	23.750	29.750
6.000	12.000	18.000	24.000	30.000

Scenario Input Data (cont'd.)

Scenario 2 :: SRWMD 100YR-2HR

Hydrograph Type:	Inline SCS
• **Modflow Routing:**	**Not routed**
Repetitions:	1

Basin Area (acres)	2.030
Time Of Concentration (minutes)	29.0
DCIA (%)	0.0
Curve Number	66
Design Rainfall Depth (inches)	5.1
Design Rainfall Duration (hours)	2.0
Shape Factor	UHG 484
Rainfall Distribution	SCS Type II Florida Modified

Initial ground water level (ft datum) 154.70 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.250	6.250	12.250	18.250	24.250
0.500	6.500	12.500	18.500	24.500
0.750	6.750	12.750	18.750	24.750
1.000	7.000	13.000	19.000	25.000
1.250	7.250	13.250	19.250	25.250
1.500	7.500	13.500	19.500	25.500
1.750	7.750	13.750	19.750	25.750
2.000	8.000	14.000	20.000	26.000
2.250	8.250	14.250	20.250	26.250
2.500	8.500	14.500	20.500	26.500
2.750	8.750	14.750	20.750	26.750
3.000	9.000	15.000	21.000	27.000
3.250	9.250	15.250	21.250	27.250
3.500	9.500	15.500	21.500	27.500
3.750	9.750	15.750	21.750	27.750
4.000	10.000	16.000	22.000	28.000
4.250	10.250	16.250	22.250	28.250
4.500	10.500	16.500	22.500	28.500
4.750	10.750	16.750	22.750	28.750
5.000	11.000	17.000	23.000	29.000
5.250	11.250	17.250	23.250	29.250
5.500	11.500	17.500	23.500	29.500
5.750	11.750	17.750	23.750	29.750
6.000	12.000	18.000	24.000	30.000

Scenario Input Data (cont'd.)

Scenario 3 :: SRWMD 100YR-4HR

Hydrograph Type:	Inline SCS
• **Modflow Routing:**	**Not routed**
Repetitions:	1

Basin Area (acres)	2.030
Time Of Concentration (minutes)	29.0
DCIA (%)	0.0
Curve Number	66
Design Rainfall Depth (inches)	6.1
Design Rainfall Duration (hours)	4.0
Shape Factor	UHG 484
Rainfall Distribution	SCS Type II Florida Modified

Initial ground water level (ft datum)	154.70 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.250	6.250	12.250	18.250	24.250
0.500	6.500	12.500	18.500	24.500
0.750	6.750	12.750	18.750	24.750
1.000	7.000	13.000	19.000	25.000
1.250	7.250	13.250	19.250	25.250
1.500	7.500	13.500	19.500	25.500
1.750	7.750	13.750	19.750	25.750
2.000	8.000	14.000	20.000	26.000
2.250	8.250	14.250	20.250	26.250
2.500	8.500	14.500	20.500	26.500
2.750	8.750	14.750	20.750	26.750
3.000	9.000	15.000	21.000	27.000
3.250	9.250	15.250	21.250	27.250
3.500	9.500	15.500	21.500	27.500
3.750	9.750	15.750	21.750	27.750
4.000	10.000	16.000	22.000	28.000
4.250	10.250	16.250	22.250	28.250
4.500	10.500	16.500	22.500	28.500
4.750	10.750	16.750	22.750	28.750
5.000	11.000	17.000	23.000	29.000
5.250	11.250	17.250	23.250	29.250
5.500	11.500	17.500	23.500	29.500
5.750	11.750	17.750	23.750	29.750
6.000	12.000	18.000	24.000	30.000

Scenario Input Data (cont'd.)

Scenario 4 :: SRWMD 100YR-8HR

Hydrograph Type:	Inline SCS
• **Modflow Routing:**	**Not routed**
Repetitions:	1

Basin Area (acres)	2.030
Time Of Concentration (minutes)	29.0
DCIA (%)	0.0
Curve Number	66
Design Rainfall Depth (inches)	7.4
Design Rainfall Duration (hours)	8.0
Shape Factor	UHG 484
Rainfall Distribution	SCS Type II Florida Modified

Initial ground water level (ft datum) 154.70 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.250	6.250	12.250	18.250	24.250
0.500	6.500	12.500	18.500	24.500
0.750	6.750	12.750	18.750	24.750
1.000	7.000	13.000	19.000	25.000
1.250	7.250	13.250	19.250	25.250
1.500	7.500	13.500	19.500	25.500
1.750	7.750	13.750	19.750	25.750
2.000	8.000	14.000	20.000	26.000
2.250	8.250	14.250	20.250	26.250
2.500	8.500	14.500	20.500	26.500
2.750	8.750	14.750	20.750	26.750
3.000	9.000	15.000	21.000	27.000
3.250	9.250	15.250	21.250	27.250
3.500	9.500	15.500	21.500	27.500
3.750	9.750	15.750	21.750	27.750
4.000	10.000	16.000	22.000	28.000
4.250	10.250	16.250	22.250	28.250
4.500	10.500	16.500	22.500	28.500
4.750	10.750	16.750	22.750	28.750
5.000	11.000	17.000	23.000	29.000
5.250	11.250	17.250	23.250	29.250
5.500	11.500	17.500	23.500	29.500
5.750	11.750	17.750	23.750	29.750
6.000	12.000	18.000	24.000	30.000

Scenario Input Data (cont'd.)

Scenario 5 :: SRWMD 100YR-24HR

Hydrograph Type:	Inline SCS
• **Modflow Routing:**	**Not routed**
Repetitions:	1

Basin Area (acres)	2.030
Time Of Concentration (minutes)	29.0
DCIA (%)	0.0
Curve Number	66
Design Rainfall Depth (inches)	9.8
Design Rainfall Duration (hours)	24.0
Shape Factor	UHG 484
Rainfall Distribution	SCS Type II Florida Modified

Initial ground water level (ft datum) 154.70 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.250	6.250	12.250	18.250	24.250
0.500	6.500	12.500	18.500	24.500
0.750	6.750	12.750	18.750	24.750
1.000	7.000	13.000	19.000	25.000
1.250	7.250	13.250	19.250	25.250
1.500	7.500	13.500	19.500	25.500
1.750	7.750	13.750	19.750	25.750
2.000	8.000	14.000	20.000	26.000
2.250	8.250	14.250	20.250	26.250
2.500	8.500	14.500	20.500	26.500
2.750	8.750	14.750	20.750	26.750
3.000	9.000	15.000	21.000	27.000
3.250	9.250	15.250	21.250	27.250
3.500	9.500	15.500	21.500	27.500
3.750	9.750	15.750	21.750	27.750
4.000	10.000	16.000	22.000	28.000
4.250	10.250	16.250	22.250	28.250
4.500	10.500	16.500	22.500	28.500
4.750	10.750	16.750	22.750	28.750
5.000	11.000	17.000	23.000	29.000
5.250	11.250	17.250	23.250	29.250
5.500	11.500	17.500	23.500	29.500
5.750	11.750	17.750	23.750	29.750
6.000	12.000	18.000	24.000	30.000

Sort-By-Category Report

Scenarios Considered: 1 to 5

Discharge - Rate - Maximum Positive

Rank	Scenario Number	Maximum Positive Discharge Rate (ft³/s)	Time (hours)	Description
1	4	7.25	4.25	SRWMD 100YR-8HR
2	5	6.67	12.12	SRWMD 100YR-24HR
3	3	6.46	2.32	SRWMD 100YR-4HR
4	2	5.47	1.35	SRWMD 100YR-2HR
5	1	4.27	0.84	SRWMD 100YR-1HR

Discharge - Cumulative Volume - Maximum Positive

Rank	Scenario Number	Maximum Positive Cumulative Discharge Volume (ft³)	Time (hours)	Description
1	5	40983.17	25.58	SRWMD 100YR-24HR
2	4	25726.74	9.60	SRWMD 100YR-8HR
3	3	18428.31	5.54	SRWMD 100YR-4HR
4	2	13241.67	3.61	SRWMD 100YR-2HR
5	1	8901.35	2.58	SRWMD 100YR-1HR

Post-Development Model

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
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Project Data

Project Name: CRS Marvin Burnett

Simulation Description: Post-Development DA-1

Project Number: 23-0653

Engineer : Jarrett Pearson

Supervising Engineer: Cole Menhennett

Date: 01-04-2024

Aquifer Data

Base Of Aquifer Elevation, [B] (ft datum): 148.70

Water Table Elevation, [WT] (ft datum): 152.99

Horizontal Saturated Hydraulic Conductivity, [Kh] (ft/day): 5.00

Fillable Porosity, [n] (%): 20.00

Unsaturated Vertical Infiltration Rate, [Iv] (ft/day): 5.0

Maximum Area For Unsaturated Infiltration, [Av] (ft²): 19819.0

Geometry Data

Equivalent Pond Length, [L] (ft): 200.0

Equivalent Pond Width, [W] (ft): 83.0

Ground water mound is expected to intersect the pond bottom

Stage vs Area Data

Stage (ft datum)	Area (ft²)
157.00	13469.0
158.00	15494.0
159.00	17606.0
160.00	19819.0

Discharge Structures

Discharge Structure #1 is active as weir

Structure Parameters

Description: WQTV

Weir elevation, (ft datum): 158.00
Weir coefficient: 3.13
Weir length, (ft): 2
Weir exponent: 1.5

Tailwater - disabled, free discharge

Discharge Structure #2 is inactive

Discharge Structure #3 is inactive

PONDS Version 3.3.0241
Retention Pond Recovery - Refined Method
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Scenario Input Data

Scenario 1 :: SRWMD 100YR-1HR

Hydrograph Type:	Inline SCS
Modflow Routing:	Routed with infiltration
Repetitions:	1

Basin Area (acres)	3.290
Time Of Concentration (minutes)	10.0
DCIA (%)	0.0
Curve Number	72
Design Rainfall Depth (inches)	4.2
Design Rainfall Duration (hours)	1.0
Shape Factor	UHG 484
Rainfall Distribution	SCS Type II Florida Modified

Initial ground water level (ft datum) 152.99 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.250	6.250	12.250	18.250	24.250
0.500	6.500	12.500	18.500	24.500
0.750	6.750	12.750	18.750	24.750
1.000	7.000	13.000	19.000	25.000
1.250	7.250	13.250	19.250	25.250
1.500	7.500	13.500	19.500	25.500
1.750	7.750	13.750	19.750	25.750
2.000	8.000	14.000	20.000	26.000
2.250	8.250	14.250	20.250	26.250
2.500	8.500	14.500	20.500	26.500
2.750	8.750	14.750	20.750	26.750
3.000	9.000	15.000	21.000	27.000
3.250	9.250	15.250	21.250	27.250
3.500	9.500	15.500	21.500	27.500
3.750	9.750	15.750	21.750	27.750
4.000	10.000	16.000	22.000	28.000
4.250	10.250	16.250	22.250	28.250
4.500	10.500	16.500	22.500	28.500
4.750	10.750	16.750	22.750	28.750
5.000	11.000	17.000	23.000	29.000
5.250	11.250	17.250	23.250	29.250
5.500	11.500	17.500	23.500	29.500
5.750	11.750	17.750	23.750	29.750
6.000	12.000	18.000	24.000	30.000

Scenario Input Data (cont'd.)

Scenario 2 :: SRWMD 100YR-2HR

Hydrograph Type:	Inline SCS
Modflow Routing:	Routed with infiltration
Repetitions:	1

Basin Area (acres)	3.290
Time Of Concentration (minutes)	10.0
DCIA (%)	0.0
Curve Number	72
Design Rainfall Depth (inches)	5.1
Design Rainfall Duration (hours)	2.0
Shape Factor	UHG 484
Rainfall Distribution	SCS Type II Florida Modified

Initial ground water level (ft datum)	152.99 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.250	6.250	12.250	18.250	24.250
0.500	6.500	12.500	18.500	24.500
0.750	6.750	12.750	18.750	24.750
1.000	7.000	13.000	19.000	25.000
1.250	7.250	13.250	19.250	25.250
1.500	7.500	13.500	19.500	25.500
1.750	7.750	13.750	19.750	25.750
2.000	8.000	14.000	20.000	26.000
2.250	8.250	14.250	20.250	26.250
2.500	8.500	14.500	20.500	26.500
2.750	8.750	14.750	20.750	26.750
3.000	9.000	15.000	21.000	27.000
3.250	9.250	15.250	21.250	27.250
3.500	9.500	15.500	21.500	27.500
3.750	9.750	15.750	21.750	27.750
4.000	10.000	16.000	22.000	28.000
4.250	10.250	16.250	22.250	28.250
4.500	10.500	16.500	22.500	28.500
4.750	10.750	16.750	22.750	28.750
5.000	11.000	17.000	23.000	29.000
5.250	11.250	17.250	23.250	29.250
5.500	11.500	17.500	23.500	29.500
5.750	11.750	17.750	23.750	29.750
6.000	12.000	18.000	24.000	30.000

Scenario Input Data (cont'd.)

Scenario 3 :: SRWMD 100YR-4HR

Hydrograph Type: Inline SCS
Modflow Routing: Routed with infiltration
Repetitions: 1

Basin Area (acres)	3.290
Time Of Concentration (minutes)	10.0
DCIA (%)	0.0
Curve Number	72
Design Rainfall Depth (inches)	6.1
Design Rainfall Duration (hours)	4.0
Shape Factor	UHG 484
Rainfall Distribution	SCS Type II Florida Modified

Initial ground water level (ft datum) 152.99 (default)

Time After Storm Event (days)
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
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26.000
26.250
26.500
26.750
27.000
27.250
27.500
27.750
28.000
28.250
28.500
28.750
29.000
29.250
29.500
29.750
30.000

Scenario Input Data (cont'd.)

Scenario 4 :: SRWMD 100YR-8HR

Hydrograph Type: Inline SCS
Modflow Routing: Routed with infiltration
Repetitions: 1

Basin Area (acres)	3.290
Time Of Concentration (minutes)	10.0
DCIA (%)	0.0
Curve Number	72
Design Rainfall Depth (inches)	7.4
Design Rainfall Duration (hours)	8.0
Shape Factor	UHG 484
Rainfall Distribution	SCS Type II Florida Modified

Initial ground water level (ft datum) 152.99 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.250	6.250	12.250	18.250	24.250
0.500	6.500	12.500	18.500	24.500
0.750	6.750	12.750	18.750	24.750
1.000	7.000	13.000	19.000	25.000
1.250	7.250	13.250	19.250	25.250
1.500	7.500	13.500	19.500	25.500
1.750	7.750	13.750	19.750	25.750
2.000	8.000	14.000	20.000	26.000
2.250	8.250	14.250	20.250	26.250
2.500	8.500	14.500	20.500	26.500
2.750	8.750	14.750	20.750	26.750
3.000	9.000	15.000	21.000	27.000
3.250	9.250	15.250	21.250	27.250
3.500	9.500	15.500	21.500	27.500
3.750	9.750	15.750	21.750	27.750
4.000	10.000	16.000	22.000	28.000
4.250	10.250	16.250	22.250	28.250
4.500	10.500	16.500	22.500	28.500
4.750	10.750	16.750	22.750	28.750
5.000	11.000	17.000	23.000	29.000
5.250	11.250	17.250	23.250	29.250
5.500	11.500	17.500	23.500	29.500
5.750	11.750	17.750	23.750	29.750
6.000	12.000	18.000	24.000	30.000

Scenario Input Data (cont'd.)

Scenario 5 :: SRWMD 100YR-24HR

Hydrograph Type:	Inline SCS
Modflow Routing:	Routed with infiltration
Repetitions:	1

Basin Area (acres)	3.290
Time Of Concentration (minutes)	10.0
DCIA (%)	0.0
Curve Number	72
Design Rainfall Depth (inches)	9.8
Design Rainfall Duration (hours)	24.0
Shape Factor	UHG 484
Rainfall Distribution	SCS Type II Florida Modified

Initial ground water level (ft datum) 152.99 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.250	6.250	12.250	18.250	24.250
0.500	6.500	12.500	18.500	24.500
0.750	6.750	12.750	18.750	24.750
1.000	7.000	13.000	19.000	25.000
1.250	7.250	13.250	19.250	25.250
1.500	7.500	13.500	19.500	25.500
1.750	7.750	13.750	19.750	25.750
2.000	8.000	14.000	20.000	26.000
2.250	8.250	14.250	20.250	26.250
2.500	8.500	14.500	20.500	26.500
2.750	8.750	14.750	20.750	26.750
3.000	9.000	15.000	21.000	27.000
3.250	9.250	15.250	21.250	27.250
3.500	9.500	15.500	21.500	27.500
3.750	9.750	15.750	21.750	27.750
4.000	10.000	16.000	22.000	28.000
4.250	10.250	16.250	22.250	28.250
4.500	10.500	16.500	22.500	28.500
4.750	10.750	16.750	22.750	28.750
5.000	11.000	17.000	23.000	29.000
5.250	11.250	17.250	23.250	29.250
5.500	11.500	17.500	23.500	29.500
5.750	11.750	17.750	23.750	29.750
6.000	12.000	18.000	24.000	30.000

Scenario 6 :: WQTV

Hydrograph Type:	Slug Load
Modflow Routing:	Routed with infiltration

Treatment Volume (ft³) 12483

Initial ground water level (ft datum) 152.99 (default)

Scenario Input Data (cont'd.)

Scenario 6 (cont'd.) :: Slug Load :: WQTV

Time After Storm Event (days)	Time After Storm Event (days)
0.100	2.000
0.250	2.500
0.500	3.000
1.000	3.500
1.500	4.000

Sort-By-Category Report

Scenarios Considered: 1 to 6

Stage - Maximum

Rank	Scenario Number	Maximum Stage (ft datum)	Time (hours)	Description
1	5	158.78	12.58	SRWMD 100YR-24HR
2	4	158.61	4.47	SRWMD 100YR-8HR
3	3	158.46	2.64	SRWMD 100YR-4HR
4	2	158.35	1.89	SRWMD 100YR-2HR
5	1	158.14	1.13	SRWMD 100YR-1HR
6	6	157.87	0.00	WQTV

Discharge - Rate - Maximum Positive

Rank	Scenario Number	Maximum Positive Discharge Rate (ft^3/s)	Time (hours)	Description
1	5	4.28	12.58	SRWMD 100YR-24HR
2	4	3.00	4.47	SRWMD 100YR-8HR
3	3	1.93	2.64	SRWMD 100YR-4HR
4	2	1.28	1.89	SRWMD 100YR-2HR
5	1	0.31	1.13	SRWMD 100YR-1HR
6	6	None	N.A.	WQTV

Discharge - Cumulative Volume - Maximum Positive

Rank	Scenario Number	Maximum Positive Cumulative Discharge Volume (ft^3)	Time (hours)	Description
1	5	37974.45	30.58	SRWMD 100YR-24HR
2	4	17170.97	8.47	SRWMD 100YR-8HR
3	3	10552.48	4.58	SRWMD 100YR-4HR
4	2	4512.00	2.58	SRWMD 100YR-2HR
5	1	462.72	1.58	SRWMD 100YR-1HR
6	6	None	N.A.	WQTV

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Detailed Results *:: Scenario 1 :: SRWMD 100YR-1HR*

Elapsed Time (hours)	Inflow Rate (ft³/s)	Outside Recharge (ft/day)	Stage Elevation (ft datum)	Infiltration Rate (ft³/s)	Overflow Discharge (ft³/s)	Cumulative Inflow Volume (ft³)	Cumulative Infiltration Volume (ft³)	Cumulative Discharge Volume (ft³)	Flow Type
0.000	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	N.A.
0.022	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.044	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.067	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.089	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.111	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.133	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.156	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.178	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.200	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.222	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.244	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.267	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.289	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.311	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.333	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.356	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.378	0.0000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	U
0.400	0.0000	0.0000	152.990	0.00120	0.00000	0.0	0.0	0.0	U
0.422	0.0048	0.0000	152.990	0.01123	0.00000	0.2	0.2	0.0	U
0.444	0.0353	0.0000	152.990	0.05641	0.00000	1.8	1.8	0.0	U
0.467	0.1503	0.0000	152.992	0.28887	0.00000	9.2	9.2	0.0	U
0.489	0.8197	0.0000	153.002	0.63289	0.00000	48.0	48.0	0.0	U
0.511	3.0541	0.0000	157.007	0.78234	0.00000	203.0	110.5	0.0	U/P
0.533	7.3661	0.0000	157.033	0.78715	0.00000	619.8	173.2	0.0	U/P
0.556	13.2100	0.0000	157.089	0.79551	0.00000	1442.8	236.4	0.0	U/P
0.578	18.1747	0.0000	157.176	0.80685	0.00000	2698.2	300.5	0.0	U/P
0.600	20.6736	0.0000	157.283	0.81971	0.00000	4252.1	365.5	0.0	U/P
0.622	20.8533	0.0000	157.395	0.83258	0.00000	5913.2	431.6	0.0	U/P
0.644	19.2460	0.0000	157.502	0.84432	0.00000	7517.2	498.7	0.0	U/P
0.667	16.5416	0.0000	157.596	0.85437	0.00000	8948.7	566.7	0.0	U/P
0.689	13.9483	0.0000	157.674	0.86274	0.00000	10168.3	635.4	0.0	U/P
0.711	11.8984	0.0000	157.738	0.86972	0.00000	11202.2	704.8	0.0	U/P
0.733	10.2784	0.0000	157.793	0.87561	0.00000	12089.2	774.6	0.0	U/P
0.756	8.9361	0.0000	157.839	0.88063	0.00000	12857.8	844.9	0.0	U/P
0.778	7.8660	0.0000	157.879	0.88496	0.00000	13529.9	915.5	0.0	U/P
0.800	6.9880	0.0000	157.913	0.88872	0.00000	14124.1	986.4	0.0	U/P
0.822	6.2744	0.0000	157.943	0.89202	0.00000	14654.6	1057.7	0.0	U/P
0.844	5.6997	0.0000	157.969	0.89496	0.00000	15133.5	1129.2	0.0	U/P
0.867	5.2272	0.0000	157.993	0.89764	0.00000	15570.6	1200.9	0.0	U/P
0.889	4.8274	0.0000	158.014	0.90011	0.01044	15972.8	1272.8	0.4	U/P
0.911	4.4846	0.0000	158.033	0.90236	0.03797	16345.3	1344.9	2.4	U/P
0.933	4.1987	0.0000	158.051	0.90441	0.07132	16692.6	1417.2	6.7	U/P
0.956	3.9662	0.0000	158.067	0.90628	0.10723	17019.2	1489.6	13.9	U/P
0.978	3.7655	0.0000	158.081	0.90800	0.14413	17328.5	1562.2	23.9	U/P
1.000	3.5795	0.0000	158.094	0.90957	0.18099	17622.2	1634.9	36.9	U/P
1.022	3.3573	0.0000	158.106	0.91097	0.21671	17899.7	1707.7	52.8	U/P
1.044	3.0563	0.0000	158.117	0.91215	0.24959	18156.3	1780.6	71.5	U/P
1.067	2.6439	0.0000	158.125	0.91306	0.27735	18384.3	1853.6	92.6	U/P
1.089	2.1539	0.0000	158.131	0.91365	0.29779	18576.2	1926.7	115.6	U/P
1.111	1.6654	0.0000	158.135	0.91394	0.30981	18729.0	1999.8	139.9	U/P
1.133	1.2315	0.0000	158.136	0.91396	0.31371	18844.8	2073.0	164.8	U/P
1.156	0.8803	0.0000	158.135	0.91376	0.31073	18929.3	2146.1	189.8	U/P
1.178	0.6289	0.0000	158.133	0.91341	0.30262	18989.7	2219.2	214.3	U/P
1.200	0.4528	0.0000	158.129	0.91294	0.29108	19032.9	2292.2	238.1	U/P
1.222	0.3260	0.0000	158.125	0.91240	0.27735	19064.1	2365.2	260.8	U/P
1.244	0.2330	0.0000	158.121	0.91182	0.26226	19086.5	2438.2	282.4	U/P
1.267	0.1669	0.0000	158.116	0.91119	0.24642	19102.5	2511.1	302.7	U/P
1.289	0.1190	0.0000	158.111	0.91055	0.23026	19113.9	2584.0	321.8	U/P
1.311	0.0845	0.0000	158.105	0.90990	0.21408	19122.0	2656.8	339.6	U/P
1.333	0.0599	0.0000	158.100	0.90923	0.19809	19127.8	2729.6	356.1	U/P
1.356	0.0421	0.0000	158.095	0.90857	0.18244	19131.9	2802.3	371.3	U/P
1.378	0.0293	0.0000	158.089	0.90791	0.16723	19134.7	2874.9	385.3	U/P
1.400	0.0201	0.0000	158.084	0.90725	0.15251	19136.7	2947.5	398.1	U/P
1.422	0.0134	0.0000	158.079	0.90660	0.13835	19138.0	3020.1	409.7	U/P
1.444	0.0086	0.0000	158.074	0.90595	0.12475	19138.9	3092.6	420.2	U/P
1.467	0.0049	0.0000	158.068	0.90531	0.11175	19139.5	3165.1	429.7	U/P
1.489	0.0023	0.0000	158.063	0.90468	0.09934	19139.8	3237.5	438.1	U/P
1.511	0.0007	0.0000	158.058	0.90405	0.08755	19139.9	3309.8	445.6	U/P
1.533	0.0000	0.0000	158.053	0.90343	0.07638	19139.9	3382.1	452.2	U/P
1.556	0.0000	0.0000	158.048	0.90282	0.06584	19139.9	3454.4	457.9	U/P
1.578	0.0000	0.0000	158.043	0.90177	0.05593	19139.9	3526.6	462.7	U/P
7.578	0.0000	0.0000	156.339	0.35071	0.00000	19139.9	18677.2	462.7	U/S
13.578	0.0000	0.0000	156.032	0.00000	0.00000	19139.9	18677.2	462.7	S

Detailed Results (cont,d.) *:: Scenario 2 :: SRWMD 100YR-2HR*

Elapsed Time (hours)	Inflow Rate (ft³/s)	Outside Recharge (ft/day)	Stage Elevation (ft datum)	Infiltration Rate (ft³/s)	Overflow Discharge (ft³/s)	Cumulative Inflow Volume (ft³)	Cumulative Infiltration Volume (ft³)	Cumulative Discharge Volume (ft³)	Flow Type
1.644	2.8768	0.0000	158.329	0.93836	1.18168	23236.3	2444.0	1097.9	U/P
1.667	2.8113	0.0000	158.333	0.93878	1.20074	23463.9	2519.1	1193.2	U/P
1.689	2.7507	0.0000	158.336	0.93914	1.21770	23686.3	2594.2	1289.9	U/P
1.711	2.6872	0.0000	158.339	0.93946	1.23263	23903.9	2669.4	1387.9	U/P
1.733	2.6123	0.0000	158.341	0.93973	1.24535	24115.8	2744.5	1487.1	U/P
1.756	2.5262	0.0000	158.343	0.93993	1.25561	24321.4	2819.7	1587.1	U/P
1.778	2.4400	0.0000	158.344	0.94008	1.26331	24520.0	2894.9	1687.9	U/P
1.800	2.3649	0.0000	158.345	0.94018	1.26864	24712.2	2970.1	1789.1	U/P
1.822	2.3054	0.0000	158.346	0.94024	1.27203	24899.0	3045.4	1890.8	U/P
1.844	2.2636	0.0000	158.346	0.94027	1.27397	25081.8	3120.6	1992.6	U/P
1.867	2.2352	0.0000	158.346	0.94029	1.27492	25261.7	3195.8	2094.6	U/P
1.889	2.2139	0.0000	158.346	0.94029	1.27517	25439.7	3271.0	2196.6	U/P
1.911	2.1931	0.0000	158.346	0.94027	1.27485	25616.0	3346.2	2298.6	U/P
1.933	2.1665	0.0000	158.346	0.94024	1.27390	25790.4	3421.5	2400.5	U/P
1.956	2.1306	0.0000	158.346	0.94019	1.27214	25962.3	3496.7	2502.4	U/P
1.978	2.0834	0.0000	158.345	0.94011	1.26931	26130.8	3571.9	2604.0	U/P
2.000	2.0249	0.0000	158.344	0.94000	1.26515	26295.1	3647.1	2705.4	U/P
2.022	1.9305	0.0000	158.343	0.93982	1.25906	26453.4	3722.3	2806.4	U/P
2.044	1.7813	0.0000	158.342	0.93956	1.24989	26601.8	3797.5	2906.7	U/P
2.067	1.5542	0.0000	158.339	0.93917	1.23598	26735.3	3872.6	3006.2	U/P
2.089	1.2738	0.0000	158.335	0.93863	1.21577	26848.4	3947.7	3104.2	U/P
2.111	0.9890	0.0000	158.330	0.93793	1.18876	26938.9	4022.8	3200.4	U/P
2.133	0.7342	0.0000	158.324	0.93710	1.15562	27007.8	4097.8	3294.2	U/P
2.156	0.5253	0.0000	158.317	0.93616	1.11765	27058.2	4172.7	3385.1	U/P
2.178	0.3755	0.0000	158.309	0.93515	1.07648	27094.2	4247.6	3472.9	U/P
2.200	0.2706	0.0000	158.301	0.93410	1.03363	27120.1	4322.4	3557.3	U/P
2.222	0.1954	0.0000	158.293	0.93303	0.99016	27138.7	4397.0	3638.2	U/P
2.244	0.1399	0.0000	158.284	0.93195	0.94675	27152.1	4471.6	3715.7	U/P
2.267	0.1004	0.0000	158.275	0.93087	0.90387	27161.7	4546.2	3789.7	U/P
2.289	0.0717	0.0000	158.267	0.92980	0.86184	27168.6	4620.6	3860.4	U/P
2.311	0.0511	0.0000	158.258	0.92874	0.82086	27173.5	4694.9	3927.7	U/P
2.333	0.0363	0.0000	158.250	0.92770	0.78106	27177.0	4769.2	3991.7	U/P
2.356	0.0255	0.0000	158.241	0.92667	0.74251	27179.5	4843.4	4052.7	U/P
2.378	0.0177	0.0000	158.233	0.92566	0.70526	27181.2	4917.5	4110.6	U/P
2.400	0.0121	0.0000	158.225	0.92467	0.66930	27182.4	4991.5	4165.6	U/P
2.422	0.0081	0.0000	158.217	0.92370	0.63462	27183.2	5065.4	4217.7	U/P
2.444	0.0052	0.0000	158.210	0.92275	0.60121	27183.8	5139.3	4267.2	U/P
2.467	0.0030	0.0000	158.202	0.92182	0.56904	27184.1	5213.0	4314.0	U/P
2.489	0.0014	0.0000	158.195	0.92090	0.53807	27184.3	5286.8	4358.3	U/P
2.511	0.0005	0.0000	158.188	0.92000	0.50827	27184.3	5360.4	4400.1	U/P
2.533	0.0000	0.0000	158.180	0.91913	0.47960	27184.3	5434.0	4439.6	U/P
2.556	0.0000	0.0000	158.173	0.91826	0.45203	27184.3	5507.4	4476.9	U/P
2.578	0.0000	0.0000	158.167	0.91737	0.42553	27184.3	5580.9	4512.0	U/P
8.578	0.0000	0.0000	156.340	0.39564	0.00000	27184.3	22672.3	4512.0	U/S
14.578	0.0000	0.0000	156.033	0.00000	0.00000	27184.3	22672.3	4512.0	S
20.578	0.0000	0.0000	155.832	0.00000	0.00000	27184.3	22672.3	4512.0	S
26.578	0.0000	0.0000	155.680	0.00000	0.00000	27184.3	22672.3	4512.0	S
32.578	0.0000	0.0000	155.558	0.00000	0.00000	27184.3	22672.3	4512.0	S
38.578	0.0000	0.0000	155.455	0.00000	0.00000	27184.3	22672.3	4512.0	S
44.578	0.0000	0.0000	155.366	0.00000	0.00000	27184.3	22672.3	4512.0	S
50.578	0.0000	0.0000	155.288	0.00000	0.00000	27184.3	22672.3	4512.0	S
56.578	0.0000	0.0000	155.219	0.00000	0.00000	27184.3	22672.3	4512.0	S
62.578	0.0000	0.0000	155.156	0.00000	0.00000	27184.3	22672.3	4512.0	S
68.578	0.0000	0.0000	155.099	0.00000	0.00000	27184.3	22672.3	4512.0	S
74.578	0.0000	0.0000	155.047	0.00000	0.00000	27184.3	22672.3	4512.0	S
80.578	0.0000	0.0000	154.998	0.00000	0.00000	27184.3	22672.3	4512.0	S
86.578	0.0000	0.0000	154.954	0.00000	0.00000	27184.3	22672.3	4512.0	S
92.578	0.0000	0.0000	154.912	0.00000	0.00000	27184.3	22672.3	4512.0	S
98.578	0.0000	0.0000	154.873	0.00000	0.00000	27184.3	22672.3	4512.0	S
104.578	0.0000	0.0000	154.836	0.00000	0.00000	27184.3	22672.3	4512.0	S
110.578	0.0000	0.0000	154.801	0.00000	0.00000	27184.3	22672.3	4512.0	S
116.578	0.0000	0.0000	154.768	0.00000	0.00000	27184.3	22672.3	4512.0	S
122.578	0.0000	0.0000	154.737	0.00000	0.00000	27184.3	22672.3	4512.0	S
128.578	0.0000	0.0000	154.708	0.00000	0.00000	27184.3	22672.3	4512.0	S
134.578	0.0000	0.0000	154.680	0.00000	0.00000	27184.3	22672.3	4512.0	S
140.578	0.0000	0.0000	154.653	0.00000	0.00000	27184.3	22672.3	4512.0	S
146.578	0.0000	0.0000	154.628	0.00000	0.00000	27184.3	22672.3	4512.0	S
152.578	0.0000	0.0000	154.603	0.00000	0.00000	27184.3	22672.3	4512.0	S
158.578	0.0000	0.0000	154.580	0.00000	0.00000	27184.3	22672.3	4512.0	S
164.578	0.0000	0.0000	154.557	0.00000	0.00000	27184.3	22672.3	4512.0	S
170.578	0.0000	0.0000	154.536	0.00000	0.00000	27184.3	22672.3	4512.0	S
176.578	0.0000	0.0000	154.515	0.00000	0.00000	27184.3	22672.3	4512.0	S
182.578	0.0000	0.0000	154.495	0.00000	0.00000	27184.3	22672.3	4512.0	S
188.578	0.0000	0.0000	154.476	0.00000	0.00000	27184.3	22672.3	4512.0	S

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Detailed Results (cont,d.) *:: Scenario 3 :: SRWMD 100YR-4HR*

Elapsed Time (hours)	Inflow Rate (ft³/s)	Outside Recharge (ft/day)	Stage Elevation (ft datum)	Infiltration Rate (ft³/s)	Overflow Discharge (ft³/s)	Cumulative Inflow Volume (ft³)	Cumulative Infiltration Volume (ft³)	Cumulative Discharge Volume (ft³)	Flow Type
3.289	1.6884	0.0000	158.378	0.94412	1.45726	32414.7	5467.0	6451.7	U/P
3.311	1.6908	0.0000	158.375	0.94370	1.43741	32549.9	5542.5	6567.5	U/P
3.333	1.6865	0.0000	158.372	0.94328	1.41816	32685.0	5618.0	6681.7	U/P
3.356	1.6727	0.0000	158.368	0.94286	1.39929	32819.4	5693.5	6794.4	U/P
3.378	1.6482	0.0000	158.365	0.94245	1.38050	32952.2	5768.9	6905.6	U/P
3.400	1.6107	0.0000	158.362	0.94202	1.36146	33082.5	5844.2	7015.3	U/P
3.422	1.5651	0.0000	158.358	0.94157	1.34190	33209.6	5919.6	7123.4	U/P
3.444	1.5196	0.0000	158.355	0.94112	1.32172	33333.0	5994.9	7230.0	U/P
3.467	1.4789	0.0000	158.351	0.94065	1.30104	33452.9	6070.2	7334.9	U/P
3.489	1.4456	0.0000	158.347	0.94017	1.28002	33569.9	6145.4	7438.1	U/P
3.511	1.4219	0.0000	158.343	0.93969	1.25892	33684.6	6220.6	7539.7	U/P
3.533	1.4055	0.0000	158.339	0.93921	1.23796	33797.7	6295.8	7639.6	U/P
3.556	1.3939	0.0000	158.336	0.93874	1.21731	33909.6	6370.9	7737.8	U/P
3.578	1.3855	0.0000	158.332	0.93828	1.19706	34020.8	6445.9	7834.3	U/P
3.600	1.3799	0.0000	158.328	0.93782	1.17726	34131.4	6521.0	7929.3	U/P
3.622	1.3760	0.0000	158.325	0.93737	1.15798	34241.7	6596.0	8022.7	U/P
3.644	1.3736	0.0000	158.321	0.93694	1.13922	34351.7	6671.0	8114.6	U/P
3.667	1.3720	0.0000	158.318	0.93651	1.12099	34461.5	6745.9	8205.0	U/P
3.689	1.3711	0.0000	158.314	0.93610	1.10330	34571.2	6820.8	8294.0	U/P
3.711	1.3706	0.0000	158.311	0.93569	1.08615	34680.9	6895.7	8381.6	U/P
3.733	1.3704	0.0000	158.308	0.93530	1.06951	34790.5	6970.5	8467.8	U/P
3.756	1.3702	0.0000	158.305	0.93492	1.05338	34900.1	7045.3	8552.7	U/P
3.778	1.3677	0.0000	158.302	0.93454	1.03771	35009.7	7120.1	8636.4	U/P
3.800	1.3606	0.0000	158.299	0.93417	1.02239	35118.8	7194.9	8718.8	U/P
3.822	1.3466	0.0000	158.296	0.93380	1.00726	35227.1	7269.6	8799.9	U/P
3.844	1.3273	0.0000	158.293	0.93342	0.99218	35334.0	7344.3	8879.9	U/P
3.867	1.3057	0.0000	158.290	0.93305	0.97704	35439.4	7418.9	8958.7	U/P
3.889	1.2832	0.0000	158.287	0.93267	0.96182	35542.9	7493.6	9036.3	U/P
3.911	1.2614	0.0000	158.284	0.93228	0.94650	35644.7	7568.2	9112.6	U/P
3.933	1.2401	0.0000	158.281	0.93190	0.93112	35744.8	7642.7	9187.7	U/P
3.956	1.2168	0.0000	158.278	0.93150	0.91566	35843.0	7717.3	9261.6	U/P
3.978	1.1871	0.0000	158.274	0.93110	0.90001	35939.2	7791.8	9334.2	U/P
4.000	1.1521	0.0000	158.271	0.93069	0.88406	36032.8	7866.2	9405.5	U/P
4.022	1.1018	0.0000	158.268	0.93025	0.86757	36122.9	7940.7	9475.6	U/P
4.044	1.0235	0.0000	158.264	0.92977	0.85005	36207.9	8015.1	9544.3	U/P
4.067	0.8987	0.0000	158.260	0.92923	0.83066	36284.8	8089.4	9611.5	U/P
4.089	0.7409	0.0000	158.256	0.92861	0.80857	36350.4	8163.8	9677.1	U/P
4.111	0.5789	0.0000	158.250	0.92790	0.78349	36403.2	8238.0	9740.8	U/P
4.133	0.4312	0.0000	158.244	0.92713	0.75569	36443.6	8312.2	9802.4	U/P
4.156	0.3085	0.0000	158.238	0.92629	0.72579	36473.2	8386.4	9861.6	U/P
4.178	0.2204	0.0000	158.231	0.92542	0.69459	36494.3	8460.4	9918.4	U/P
4.200	0.1588	0.0000	158.224	0.92453	0.66288	36509.5	8534.4	9972.7	U/P
4.222	0.1147	0.0000	158.217	0.92363	0.63120	36520.4	8608.3	10024.5	U/P
4.244	0.0820	0.0000	158.209	0.92273	0.59988	36528.3	8682.2	10073.7	U/P
4.267	0.0589	0.0000	158.202	0.92183	0.56915	36533.9	8756.0	10120.5	U/P
4.289	0.0420	0.0000	158.195	0.92094	0.53917	36538.0	8829.7	10164.8	U/P
4.311	0.0299	0.0000	158.188	0.92007	0.51003	36540.9	8903.3	10206.8	U/P
4.333	0.0213	0.0000	158.181	0.91920	0.48180	36542.9	8976.9	10246.5	U/P
4.356	0.0150	0.0000	158.174	0.91835	0.45450	36544.4	9050.4	10283.9	U/P
4.378	0.0104	0.0000	158.167	0.91751	0.42815	36545.4	9123.8	10319.2	U/P
4.400	0.0071	0.0000	158.161	0.91668	0.40273	36546.1	9197.2	10352.5	U/P
4.422	0.0048	0.0000	158.154	0.91587	0.37825	36546.6	9270.5	10383.7	U/P
4.444	0.0031	0.0000	158.148	0.91507	0.35468	36546.9	9343.7	10413.0	U/P
4.467	0.0018	0.0000	158.141	0.91429	0.33200	36547.1	9416.9	10440.5	U/P
4.489	0.0009	0.0000	158.135	0.91351	0.31019	36547.2	9490.0	10466.2	U/P
4.511	0.0003	0.0000	158.129	0.91276	0.28922	36547.2	9563.1	10490.2	U/P
4.533	0.0000	0.0000	158.123	0.91201	0.26909	36547.2	9636.1	10512.5	U/P
4.556	0.0000	0.0000	158.117	0.91128	0.24976	36547.2	9709.0	10533.3	U/P
4.578	0.0000	0.0000	158.111	0.90990	0.23121	36547.2	9781.9	10552.5	U/P
10.578	0.0000	0.0000	157.182	0.35377	0.00000	36547.2	23509.0	10552.5	U/S
16.578	0.0000	0.0000	157.069	0.05754	0.00000	36547.2	25065.0	10552.5	S
22.578	0.0000	0.0000	156.950	0.02152	0.00000	36547.2	25994.7	10552.5	S
28.578	0.0000	0.0000	156.719	0.00000	0.00000	36547.2	25994.7	10552.5	S
34.578	0.0000	0.0000	156.537	0.00000	0.00000	36547.2	25994.7	10552.5	S
40.578	0.0000	0.0000	156.387	0.00000	0.00000	36547.2	25994.7	10552.5	S
46.578	0.0000	0.0000	156.259	0.00000	0.00000	36547.2	25994.7	10552.5	S
52.578	0.0000	0.0000	156.147	0.00000	0.00000	36547.2	25994.7	10552.5	S
58.578	0.0000	0.0000	156.048	0.00000	0.00000	36547.2	25994.7	10552.5	S
64.578	0.0000	0.0000	155.958	0.00000	0.00000	36547.2	25994.7	10552.5	S
70.578	0.0000	0.0000	155.878	0.00000	0.00000	36547.2	25994.7	10552.5	S
76.578	0.0000	0.0000	155.804	0.00000	0.00000	36547.2	25994.7	10552.5	S
82.578	0.0000	0.0000	155.736	0.00000	0.00000	36547.2	25994.7	10552.5	S
88.578	0.0000	0.0000	155.673	0.00000	0.00000	36547.2	25994.7	10552.5	S
94.578	0.0000	0.0000	155.614	0.00000	0.00000	36547.2	25994.7	10552.5	S

Detailed Results (cont,d.) :: *Scenario 4* :: *SRWMD 100YR-8HR*

Elapsed Time (hours)	Inflow Rate (ft³/s)	Outside Recharge (ft/day)	Stage Elevation (ft datum)	Infiltration Rate (ft³/s)	Overflow Discharge (ft³/s)	Cumulative Inflow Volume (ft³)	Cumulative Infiltration Volume (ft³)	Cumulative Discharge Volume (ft³)	Flow Type
8.222	0.0696	0.0000	158.052	0.90330	0.07386	49421.5	16989.3	17144.9	U/P
8.244	0.0498	0.0000	158.047	0.90272	0.06409	49426.3	17061.5	17150.4	U/P
8.267	0.0358	0.0000	158.042	0.90214	0.05471	49429.7	17133.7	17155.2	U/P
8.289	0.0255	0.0000	158.038	0.90156	0.04582	49432.1	17205.8	17159.2	U/P
8.311	0.0182	0.0000	158.033	0.90097	0.03747	49433.9	17277.9	17162.5	U/P
8.333	0.0129	0.0000	158.028	0.90039	0.02971	49435.1	17350.0	17165.2	U/P
8.356	0.0091	0.0000	158.024	0.89981	0.02260	49436.0	17422.0	17167.3	U/P
8.378	0.0064	0.0000	158.019	0.89924	0.01619	49436.6	17494.0	17168.8	U/P
8.400	0.0044	0.0000	158.014	0.89866	0.01056	49437.1	17565.9	17169.9	U/P
8.422	0.0030	0.0000	158.010	0.89809	0.00581	49437.4	17637.8	17170.6	U/P
8.444	0.0020	0.0000	158.005	0.89752	0.00213	49437.5	17709.6	17170.9	U/P
8.467	0.0011	0.0000	158.000	1.15253	0.00002	49437.7	17781.4	17171.0	U/P
8.489	0.0006	0.0000	157.993	1.05693	0.00000	49437.7	17894.0	17171.0	U/S
8.511	0.0002	0.0000	157.989	0.70395	0.00000	49437.8	17950.5	17171.0	S
8.533	0.0000	0.0000	157.986	0.69816	0.00000	49437.8	18006.6	17171.0	S
8.556	0.0000	0.0000	157.982	0.68940	0.00000	49437.8	18062.2	17171.0	S
8.578	0.0000	0.0000	157.979	0.68240	0.00000	49437.8	18116.9	17171.0	S
14.578	0.0000	0.0000	157.750	0.12199	0.00000	49437.8	21590.3	17171.0	S
20.578	0.0000	0.0000	157.630	0.07204	0.00000	49437.8	23387.1	17171.0	S
26.578	0.0000	0.0000	157.540	0.05534	0.00000	49437.8	24702.6	17171.0	S
32.578	0.0000	0.0000	157.466	0.04630	0.00000	49437.8	25777.7	17171.0	S
38.578	0.0000	0.0000	157.401	0.04039	0.00000	49437.8	26702.7	17171.0	S
44.578	0.0000	0.0000	157.343	0.03613	0.00000	49437.8	27522.5	17171.0	S
50.578	0.0000	0.0000	157.291	0.03286	0.00000	49437.8	28263.3	17171.0	S
56.578	0.0000	0.0000	157.242	0.03026	0.00000	49437.8	28942.2	17171.0	S
62.578	0.0000	0.0000	157.197	0.02812	0.00000	49437.8	29570.6	17171.0	S
68.578	0.0000	0.0000	157.155	0.02632	0.00000	49437.8	30157.0	17171.0	S
74.578	0.0000	0.0000	157.115	0.02478	0.00000	49437.8	30707.7	17171.0	S
80.578	0.0000	0.0000	157.077	0.02345	0.00000	49437.8	31227.6	17171.0	S
86.578	0.0000	0.0000	157.040	0.02227	0.00000	49437.8	31720.5	17171.0	S
92.578	0.0000	0.0000	157.006	0.01265	0.00000	49437.8	32189.6	17171.0	S
98.578	0.0000	0.0000	156.905	0.00179	0.00000	49437.8	32266.8	17171.0	S
104.578	0.0000	0.0000	156.803	0.00000	0.00000	49437.8	32266.8	17171.0	S
110.578	0.0000	0.0000	156.711	0.00000	0.00000	49437.8	32266.8	17171.0	S
116.578	0.0000	0.0000	156.626	0.00000	0.00000	49437.8	32266.8	17171.0	S
122.578	0.0000	0.0000	156.548	0.00000	0.00000	49437.8	32266.8	17171.0	S
128.578	0.0000	0.0000	156.475	0.00000	0.00000	49437.8	32266.8	17171.0	S
134.578	0.0000	0.0000	156.407	0.00000	0.00000	49437.8	32266.8	17171.0	S
140.578	0.0000	0.0000	156.343	0.00000	0.00000	49437.8	32266.8	17171.0	S
146.578	0.0000	0.0000	156.283	0.00000	0.00000	49437.8	32266.8	17171.0	S
152.578	0.0000	0.0000	156.226	0.00000	0.00000	49437.8	32266.8	17171.0	S
158.578	0.0000	0.0000	156.172	0.00000	0.00000	49437.8	32266.8	17171.0	S
164.578	0.0000	0.0000	156.121	0.00000	0.00000	49437.8	32266.8	17171.0	S
170.578	0.0000	0.0000	156.072	0.00000	0.00000	49437.8	32266.8	17171.0	S
176.578	0.0000	0.0000	156.026	0.00000	0.00000	49437.8	32266.8	17171.0	S
182.578	0.0000	0.0000	155.981	0.00000	0.00000	49437.8	32266.8	17171.0	S
188.578	0.0000	0.0000	155.938	0.00000	0.00000	49437.8	32266.8	17171.0	S
194.578	0.0000	0.0000	155.897	0.00000	0.00000	49437.8	32266.8	17171.0	S
200.578	0.0000	0.0000	155.858	0.00000	0.00000	49437.8	32266.8	17171.0	S
206.578	0.0000	0.0000	155.820	0.00000	0.00000	49437.8	32266.8	17171.0	S
212.578	0.0000	0.0000	155.783	0.00000	0.00000	49437.8	32266.8	17171.0	S
218.578	0.0000	0.0000	155.748	0.00000	0.00000	49437.8	32266.8	17171.0	S
224.578	0.0000	0.0000	155.714	0.00000	0.00000	49437.8	32266.8	17171.0	S
230.578	0.0000	0.0000	155.681	0.00000	0.00000	49437.8	32266.8	17171.0	S
236.578	0.0000	0.0000	155.650	0.00000	0.00000	49437.8	32266.8	17171.0	S
242.578	0.0000	0.0000	155.619	0.00000	0.00000	49437.8	32266.8	17171.0	S
248.578	0.0000	0.0000	155.589	0.00000	0.00000	49437.8	32266.8	17171.0	S
254.578	0.0000	0.0000	155.560	0.00000	0.00000	49437.8	32266.8	17171.0	S
260.578	0.0000	0.0000	155.532	0.00000	0.00000	49437.8	32266.8	17171.0	S
266.578	0.0000	0.0000	155.505	0.00000	0.00000	49437.8	32266.8	17171.0	S
272.578	0.0000	0.0000	155.479	0.00000	0.00000	49437.8	32266.8	17171.0	S
278.578	0.0000	0.0000	155.453	0.00000	0.00000	49437.8	32266.8	17171.0	S
284.578	0.0000	0.0000	155.428	0.00000	0.00000	49437.8	32266.8	17171.0	S
290.578	0.0000	0.0000	155.404	0.00000	0.00000	49437.8	32266.8	17171.0	S
296.578	0.0000	0.0000	155.380	0.00000	0.00000	49437.8	32266.8	17171.0	S
302.578	0.0000	0.0000	155.357	0.00000	0.00000	49437.8	32266.8	17171.0	S
308.578	0.0000	0.0000	155.335	0.00000	0.00000	49437.8	32266.8	17171.0	S
314.578	0.0000	0.0000	155.313	0.00000	0.00000	49437.8	32266.8	17171.0	S
320.578	0.0000	0.0000	155.292	0.00000	0.00000	49437.8	32266.8	17171.0	S
326.578	0.0000	0.0000	155.271	0.00000	0.00000	49437.8	32266.8	17171.0	S
332.578	0.0000	0.0000	155.251	0.00000	0.00000	49437.8	32266.8	17171.0	S
338.578	0.0000	0.0000	155.231	0.00000	0.00000	49437.8	32266.8	17171.0	S
344.578	0.0000	0.0000	155.211	0.00000	0.00000	49437.8	32266.8	17171.0	S
350.578	0.0000	0.0000	155.192	0.00000	0.00000	49437.8	32266.8	17171.0	S

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Detailed Results (cont,d.) *:: Scenario 5 :: SRWMD 100YR-24HR*

Elapsed Time (hours)	Inflow Rate (ft³/s)	Outside Recharge (ft/day)	Stage Elevation (ft datum)	Infiltration Rate (ft³/s)	Overflow Discharge (ft³/s)	Cumulative Inflow Volume (ft³)	Cumulative Infiltration Volume (ft³)	Cumulative Discharge Volume (ft³)	Flow Type
48.578	0.0000	0.0000	157.790	0.04142	0.00000	75765.1	26523.4	37974.5	S
54.578	0.0000	0.0000	157.733	0.03772	0.00000	75765.1	27373.4	37974.5	S
60.578	0.0000	0.0000	157.681	0.03474	0.00000	75765.1	28152.7	37974.5	S
66.578	0.0000	0.0000	157.632	0.03228	0.00000	75765.1	28874.2	37974.5	S
72.578	0.0000	0.0000	157.586	0.03021	0.00000	75765.1	29547.2	37974.5	S
78.578	0.0000	0.0000	157.543	0.02843	0.00000	75765.1	30179.2	37974.5	S
84.578	0.0000	0.0000	157.502	0.02689	0.00000	75765.1	30775.5	37974.5	S
90.578	0.0000	0.0000	157.463	0.02554	0.00000	75765.1	31340.8	37974.5	S
96.578	0.0000	0.0000	157.425	0.02433	0.00000	75765.1	31878.7	37974.5	S
102.578	0.0000	0.0000	157.389	0.02325	0.00000	75765.1	32392.0	37974.5	S
108.578	0.0000	0.0000	157.355	0.02228	0.00000	75765.1	32883.3	37974.5	S
114.578	0.0000	0.0000	157.322	0.02140	0.00000	75765.1	33354.6	37974.5	S
120.578	0.0000	0.0000	157.289	0.02059	0.00000	75765.1	33807.7	37974.5	S
126.578	0.0000	0.0000	157.258	0.01985	0.00000	75765.1	34244.2	37974.5	S
132.578	0.0000	0.0000	157.228	0.01917	0.00000	75765.1	34665.4	37974.5	S
138.578	0.0000	0.0000	157.199	0.01854	0.00000	75765.1	35072.5	37974.5	S
144.578	0.0000	0.0000	157.170	0.01795	0.00000	75765.1	35466.4	37974.5	S
150.578	0.0000	0.0000	157.143	0.01741	0.00000	75765.1	35848.2	37974.5	S
156.578	0.0000	0.0000	157.116	0.01690	0.00000	75765.1	36218.5	37974.5	S
162.578	0.0000	0.0000	157.089	0.01642	0.00000	75765.1	36578.1	37974.5	S
168.578	0.0000	0.0000	157.064	0.01597	0.00000	75765.1	36927.7	37974.5	S
174.578	0.0000	0.0000	157.039	0.01554	0.00000	75765.1	37267.9	37974.5	S
180.578	0.0000	0.0000	157.014	0.01210	0.00000	75765.1	37599.1	37974.5	S
186.578	0.0000	0.0000	156.967	0.00443	0.00000	75765.1	37790.6	37974.5	S
192.578	0.0000	0.0000	156.889	0.00000	0.00000	75765.1	37790.6	37974.5	S
198.578	0.0000	0.0000	156.818	0.00000	0.00000	75765.1	37790.6	37974.5	S
204.578	0.0000	0.0000	156.752	0.00000	0.00000	75765.1	37790.6	37974.5	S
210.578	0.0000	0.0000	156.690	0.00000	0.00000	75765.1	37790.6	37974.5	S
216.578	0.0000	0.0000	156.632	0.00000	0.00000	75765.1	37790.6	37974.5	S
222.578	0.0000	0.0000	156.577	0.00000	0.00000	75765.1	37790.6	37974.5	S
228.578	0.0000	0.0000	156.525	0.00000	0.00000	75765.1	37790.6	37974.5	S
234.578	0.0000	0.0000	156.475	0.00000	0.00000	75765.1	37790.6	37974.5	S
240.578	0.0000	0.0000	156.428	0.00000	0.00000	75765.1	37790.6	37974.5	S
246.578	0.0000	0.0000	156.382	0.00000	0.00000	75765.1	37790.6	37974.5	S
252.578	0.0000	0.0000	156.338	0.00000	0.00000	75765.1	37790.6	37974.5	S
258.578	0.0000	0.0000	156.296	0.00000	0.00000	75765.1	37790.6	37974.5	S
264.578	0.0000	0.0000	156.256	0.00000	0.00000	75765.1	37790.6	37974.5	S
270.578	0.0000	0.0000	156.216	0.00000	0.00000	75765.1	37790.6	37974.5	S
276.578	0.0000	0.0000	156.179	0.00000	0.00000	75765.1	37790.6	37974.5	S
282.578	0.0000	0.0000	156.142	0.00000	0.00000	75765.1	37790.6	37974.5	S
288.578	0.0000	0.0000	156.107	0.00000	0.00000	75765.1	37790.6	37974.5	S
294.578	0.0000	0.0000	156.073	0.00000	0.00000	75765.1	37790.6	37974.5	S
300.578	0.0000	0.0000	156.040	0.00000	0.00000	75765.1	37790.6	37974.5	S
306.578	0.0000	0.0000	156.008	0.00000	0.00000	75765.1	37790.6	37974.5	S
312.578	0.0000	0.0000	155.976	0.00000	0.00000	75765.1	37790.6	37974.5	S
318.578	0.0000	0.0000	155.946	0.00000	0.00000	75765.1	37790.6	37974.5	S
324.578	0.0000	0.0000	155.917	0.00000	0.00000	75765.1	37790.6	37974.5	S
330.578	0.0000	0.0000	155.888	0.00000	0.00000	75765.1	37790.6	37974.5	S
336.578	0.0000	0.0000	155.860	0.00000	0.00000	75765.1	37790.6	37974.5	S
342.578	0.0000	0.0000	155.833	0.00000	0.00000	75765.1	37790.6	37974.5	S
348.578	0.0000	0.0000	155.807	0.00000	0.00000	75765.1	37790.6	37974.5	S
354.578	0.0000	0.0000	155.781	0.00000	0.00000	75765.1	37790.6	37974.5	S
360.578	0.0000	0.0000	155.756	0.00000	0.00000	75765.1	37790.6	37974.5	S
366.578	0.0000	0.0000	155.731	0.00000	0.00000	75765.1	37790.6	37974.5	S
372.578	0.0000	0.0000	155.707	0.00000	0.00000	75765.1	37790.6	37974.5	S
378.578	0.0000	0.0000	155.684	0.00000	0.00000	75765.1	37790.6	37974.5	S
384.578	0.0000	0.0000	155.661	0.00000	0.00000	75765.1	37790.6	37974.5	S
390.578	0.0000	0.0000	155.638	0.00000	0.00000	75765.1	37790.6	37974.5	S
396.578	0.0000	0.0000	155.616	0.00000	0.00000	75765.1	37790.6	37974.5	S
402.578	0.0000	0.0000	155.595	0.00000	0.00000	75765.1	37790.6	37974.5	S
408.578	0.0000	0.0000	155.574	0.00000	0.00000	75765.1	37790.6	37974.5	S
414.578	0.0000	0.0000	155.554	0.00000	0.00000	75765.1	37790.6	37974.5	S
420.578	0.0000	0.0000	155.534	0.00000	0.00000	75765.1	37790.6	37974.5	S
426.578	0.0000	0.0000	155.514	0.00000	0.00000	75765.1	37790.6	37974.5	S
432.578	0.0000	0.0000	155.495	0.00000	0.00000	75765.1	37790.6	37974.5	S
438.578	0.0000	0.0000	155.476	0.00000	0.00000	75765.1	37790.6	37974.5	S
444.578	0.0000	0.0000	155.457	0.00000	0.00000	75765.1	37790.6	37974.5	S
450.578	0.0000	0.0000	155.439	0.00000	0.00000	75765.1	37790.6	37974.5	S
456.578	0.0000	0.0000	155.421	0.00000	0.00000	75765.1	37790.6	37974.5	S
462.578	0.0000	0.0000	155.404	0.00000	0.00000	75765.1	37790.6	37974.5	S
468.578	0.0000	0.0000	155.386	0.00000	0.00000	75765.1	37790.6	37974.5	S
474.578	0.0000	0.0000	155.370	0.00000	0.00000	75765.1	37790.6	37974.5	S
480.578	0.0000	0.0000	155.353	0.00000	0.00000	75765.1	37790.6	37974.5	S
486.578	0.0000	0.0000	155.337	0.00000	0.00000	75765.1	37790.6	37974.5	S

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Retention Pond Recovery - Refined Method
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Detailed Results *:: Scenario 6 :: WQTV*

Elapsed Time (hours)	Inflow Rate (ft³/s)	Outside Recharge (ft/day)	Stage Elevation (ft datum)	Infiltration Rate (ft³/s)	Overflow Discharge (ft³/s)	Cumulative Inflow Volume (ft³)	Cumulative Infiltration Volume (ft³)	Cumulative Discharge Volume (ft³)	Flow Type
0.000	2080.5000	0.0000	152.990	0.00000	0.00000	0.0	0.0	0.0	N.A.
0.002	2080.5000	0.0000	157.870	0.88138	0.00000	12483.0	5.3	0.0	U/P
2.400	0.0000	0.0000	157.369	0.51210	0.00000	12483.0	7372.3	0.0	U/P
6.000	0.0000	0.0000	----	----	----	12483.0	12483.0	0.0	dry
12.000	0.0000	0.0000	----	----	----	12483.0	12483.0	0.0	dry
24.000	0.0000	0.0000	----	----	----	12483.0	12483.0	0.0	dry
36.000	0.0000	0.0000	----	----	----	12483.0	12483.0	0.0	dry
48.000	0.0000	0.0000	----	----	----	12483.0	12483.0	0.0	dry
60.000	0.0000	0.0000	----	----	----	12483.0	12483.0	0.0	dry
72.000	0.0000	0.0000	----	----	----	12483.0	12483.0	0.0	dry
84.000	0.0000	0.0000	----	----	----	12483.0	12483.0	0.0	dry
96.000	0.0000	0.0000	----	----	----	12483.0	12483.0	0.0	dry

Underdrain Analysis

BACKGROUND SEEPAGE PONDS INPUTS

Aquifer Data

Base of Aquifer:	148.7	ft
Seasonal High Water Table:	154.7	ft
Hydraulic Conductivity	5	ft/day
Fillable Porosity	20	%

Geometry: Underdrain Stage Storage

Based on the theoretical volume of water the underdrains could draw down.

ELEV.	AREA (SF)	STORAGE (CF)	STORAGE VOLUME (AC-FT)	
152.00	13,469	0	0.000	*Based on minimum Underdrain Orifice EL. 152.28'
153.00	15,494	14,482	0.332	
154.00	17,606	31,032	0.712	
155.00	19,819	49,744	1.142	**Set above the measured SHWT EL. 154.7'

Volume:	49,744	cf
Area:	19819	sf
Depth:	3.00	ft
Perimeter:	566	ft
Eq. Length:	200	ft
Eq: Width:	83	ft

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Retention Pond Recovery - Refined Method
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Project Data

Project Name: CRS Marvin Burnett

Simulation Description: Background Seepage

Project Number: 23-0653

Engineer : JHP

Supervising Engineer: CCM

Date: 01-18-2024

Aquifer Data

Base Of Aquifer Elevation, [B] (ft datum): 148.70

Water Table Elevation, [WT] (ft datum): 154.70

Horizontal Saturated Hydraulic Conductivity, [Kh] (ft/day): 5.00

Fillable Porosity, [n] (%): 20.00

Vertical infiltration was not considered.

Geometry Data

Equivalent Pond Length, [L] (ft): 200.0

Equivalent Pond Width, [W] (ft): 83.0

Ground water mound is expected to intersect the pond bottom

Stage vs Area Data

Stage (ft datum)	Area (ft²)
152.00	13469.0
153.00	15494.0
154.00	17606.0
155.00	19819.0

Discharge Structures

Discharge Structure #1 is active as orifice

Structure Parameters

Description: 12" Underdrain

Orifice elevation, (ft datum): 152.27
Orifice coefficient: 4.9
Orifice area, (ft²): 0.785
Orifice exponent: 0.5

Tailwater - disabled, free discharge

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Scenario Input Data

Scenario 1 :: 12" Underdrain

Hydrograph Type:	Baseflow
Modflow Routing:	Routed with infiltration

Seasonal Water Table Fluctuation (ft)	0.01
Duration of Wet Season (days)	120.0
Number of Increments	240
Initial (seasonal low) ground water level (ft datum)	154.69
Recharge is applied inside pond (in addition to outside pond)?	No

Note: when this option is selected, water will be added to the pond to synchronize the rise in the pond level with the rise in the groundwater. Otherwise, no water will be added directly to the pond, and the pond water level will rise as a result of infiltration only.

Detailed Results (cont,d.) *:: Scenario 1 :: 12" Underdrain*

Elapsed Time (hours)	Inflow Rate (ft³/s)	Outside Recharge (ft/day)	Stage Elevation (ft datum)	Infiltration Rate (ft³/s)	Overflow Discharge (ft³/s)	Cumulative Inflow Volume (ft³)	Cumulative Infiltration Volume (ft³)	Cumulative Discharge Volume (ft³)	Flow Type
2664.000	0.0000	0.0000	152.270	-0.00331	0.00331	0.0	-178509.4	218681.4	S
2676.000	0.0000	0.0000	152.270	-0.00331	0.00331	0.0	-178652.3	218824.3	S
2688.000	0.0000	0.0000	152.270	-0.00330	0.00330	0.0	-178795.1	218967.1	S
2700.000	0.0000	0.0000	152.270	-0.00330	0.00330	0.0	-178937.7	219109.7	S
2712.000	0.0000	0.0000	152.270	-0.00329	0.00329	0.0	-179080.1	219252.1	S
2724.000	0.0000	0.0000	152.270	-0.00329	0.00329	0.0	-179222.4	219394.4	S
2736.000	0.0000	0.0000	152.270	-0.00329	0.00329	0.0	-179364.5	219536.4	S
2748.000	0.0000	0.0000	152.270	-0.00328	0.00328	0.0	-179506.3	219678.3	S
2760.000	0.0000	0.0000	152.270	-0.00328	0.00328	0.0	-179648.1	219820.1	S
2772.000	0.0000	0.0000	152.270	-0.00327	0.00327	0.0	-179789.6	219961.6	S
2784.000	0.0000	0.0000	152.270	-0.00327	0.00327	0.0	-179931.0	220103.0	S
2796.000	0.0000	0.0000	152.270	-0.00327	0.00327	0.0	-180072.2	220244.2	S
2808.000	0.0000	0.0000	152.270	-0.00326	0.00326	0.0	-180213.2	220385.2	S
2820.000	0.0000	0.0000	152.270	-0.00326	0.00326	0.0	-180354.1	220526.1	S
2832.000	0.0000	0.0000	152.270	-0.00325	0.00325	0.0	-180494.8	220666.8	S
2844.000	0.0000	0.0000	152.270	-0.00325	0.00325	0.0	-180635.3	220807.3	S
2856.000	0.0000	0.0000	152.270	-0.00325	0.00325	0.0	-180775.7	220947.7	S
2868.000	0.0000	0.0000	152.270	-0.00324	0.00324	0.0	-180915.9	221087.9	S
2880.000	0.0000	0.0000	152.270	----	----	0.0	-181055.9	221227.9	N.A.

FLOW RATE WHEN SYSTEM ACHIEVES STEADY STATE (120 DAYS) WITH SEASONAL HIGH WATER TABLE ELEVATION

PONDS Underdrain Analysis
Version 3.3.0051

Devo Seereeram, Ph.D., P.E.

Job Information

Job Name:	23-0653 CRS Marvin Burnett
Engineer:	JHP
Date:	01-18-2024

Input Data

Area at top of pond, [ATOP]:	19819	ft^2
Depth of basin, [d]:	3	ft
Aquifer depth below pond bottom, [B]:	8	ft
Desired depth to water table below pond bottom, [R]:	0.5	ft
Hydraulic conductivity of soil, [K]:	10	ft/day
Drain diameter, [D]:	12	in
Thickness of gravel envelope, [t]:	9	in
Thickness of soil cover, [H]:	2	ft
Treatment volume, [PAV]:	31032	ft^3
Recovery time, [T]:	30	days
Factor of safety, [FS]:	2	
Background seepage, [qb]:	1.45	gpm
Free discharge / no tailwater		

0.00324 ft^3/s converted to gallons per minute

Results

Computed underdrain spacing, [S]:	106.6505	ft
Computed total length of laterals, [L]:	185.8312	ft
Computed flow rate through outfall, [Q]:	2.717507E-02	ft^3/sec
Computed flow rate per lineal foot of lateral, [ql]:	1.462352E-04	ft^3/sec/ft

PONDS Underdrain Analysis
Version 3.3.0051
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Notes

1. Laterals should be no farther than S/2 from the top of the basin.
2. A gravel envelope at least 3 inches thick is recommended around the underdrain pipes. If a gravel envelope is used, a filter fabric will be required around this envelope.
3. The underdrain pipe should have a filter fabric sock to prevent fines from moving into and clogging the perforated pipe.
4. Ensure outfall elevation for system will allow gravity flow without tailwater backpressure to the underdrains.
5. Theory is applicable where ground water flow is largely in a horizontal direction (i.e., natural gradients less than 1%).
6. Capped and sealed inspection and cleanout ports which extend to the ground surface are recommended at the following locations for each drain pipe:
    a. the terminus
    b. at every 400 feet or every bend of 45 or more degrees, whichever is shortest
7. Underdrain basin should be stabilized with permanent vegetative cover.

Warnings

None.

PONDS Underdrain Analysis
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Job Information

Job Name:	23-0653 CRS Marvin Burnett
Engineer:	JHP
Date:	01-18-2024

Input Data

Area at top of pond, [ATOP]:	19819	ft²
Depth of basin, [d]:	3	ft
Aquifer depth below pond bottom, [B]:	8	ft
Desired depth to water table below pond bottom, [R]:	0.5	ft
Hydraulic conductivity of soil, [K]:	10	ft/day
Drain diameter, [D]:	12	in
Thickness of gravel envelope, [t]:	9	in
Thickness of soil cover, [H]:	2	ft
Treatment volume, [PAV]:	12483	ft³
Recovery time, [T]:	3	days
Factor of safety, [FS]:	2	
Background seepage, [qb]:	1.45	gpm
Free discharge / no tailwater		

0.00324 ft^3/s converted to gallons per minute

Results

Computed underdrain spacing, [S]:	55.72212	ft
Computed total length of laterals, [L]:	355.6756	ft
Computed flow rate through outfall, [Q]:	9.955007E-02	ft³/sec
Computed flow rate per lineal foot of lateral, [ql]:	2.798901E-04	ft³/sec/ft

Note

Maximum Underdrain Spacing:	55.7	ft
Provided Underdrain Spacing:	25.0	ft
Minimum Lateral Length:	355	ft
Provided Lateral Length:	375	ft

Notes

1. Laterals should be no farther than S/2 from the top of the basin.
2. A gravel envelope at least 3 inches thick is recommended around the underdrain pipes. If a gravel envelope is used, a filter fabric will be required around this envelope.
3. The underdrain pipe should have a filter fabric sock to prevent fines from moving into and clogging the perforated pipe.
4. Ensure outfall elevation for system will allow gravity flow without tailwater backpressure to the underdrains.
5. Theory is applicable where ground water flow is largely in a horizontal direction (i.e., natural gradients less than 1%).
6. Capped and sealed inspection and cleanout ports which extend to the ground surface are recommended at the following locations for each drain pipe:
    a. the terminus
    b. at every 400 feet or every bend of 45 or more degrees, whichever is shortest
7. Underdrain basin should be stabilized with permanent vegetative cover.

Warnings

None.

Appendix B

Operation and Maintenance Requirements and Erosion and Sedimentation Control Requirements

Proposed operation and maintenance and soil erosion and sediment control practices are outlined in the following paragraphs.

Surface water Management Facilities

The man-made surface water facility shall be maintained free of sediments and debris. Areas shall be inspected on a routine basis and nuisance plants shall be removed a minimum of twice annually. Grassed areas shall be mowed a minimum of 6 times per year. The natural systems shall be least disturbed as possible. Minimal maintenance is required for the natural and undisturbed areas. All ponds shall be inspected monthly. Monthly documentation shall be noted based upon the inspection findings.

Erosion Control

All erosion damage at spillways, outfall structures, and along pond side slopes shall be repaired (grading and grassing) as conditions occur. All side slopes and other areas disturbed by construction shall be stabilized by sodding, hydro-mulching or other appropriate vegetative or non-vegetative erosion control measures.

Swale/Ditch

All swales, if any, shall be maintained free of debris and sediment. Sediments shall be removed when the depth has been reduced by 20 percent. Sediments removed from swales/ditches should be evenly spread over grassed areas away from the stormwater management facilities.

Culverts, Pipes and Structures

All pipes, if any, shall be inspected bi-annually. Culverts and pipes shall be maintained free of debris and sediment. Sediments removed from culverts and pipes should be evenly spread over grassed areas away from the stormwater management facilities.

The structures and paved flow lines, if any, shall be maintained clear of debris. Remove any debris and silt collected in inlets and pipes as routine inspections dictates.

Inspection Reporting

Annual inspection reports, prepared by a properly licensed professional engineer, should be submitted to the water management district as appropriate. The engineer shall inspect the site and report on the status and function of the system. Noted deficiencies and/or maintenance requirements shall be reported to the owner with recommendations for repairs. Repairs shall be executed.

Limerock/Sinkhole

If continuous limerock is encountered during excavation of the swales/pond or if a sinkhole forms in the area of a drainage swale/pond the engineer of record shall be notified by either the contractor or the established operation and maintenance entity. The engineer of record shall inspect the repaired area upon completion of the repair.

Where continuous limerock is encountered during excavation of the swales/ponds, the limerock shall be over excavated by 2 feet and replaced with clayey soils that extend 2 feet beyond the perimeter of the limerock outcropping. The clayey soil shall have at least 20% passing the no. 200 sieve, compacted to 95% of standard proctor, and compacted in a wet condition with moisture 2% - 4% above optimum.

All swales/ponds shall be inspected monthly for sinkhole occurrence. Should a sinkhole occur, the area shall be repaired as soon as possible. Repair shall include filling (limerock such as road base material, clay/sand mixture, or concrete if necessary). A 2-foot deep cap that extends 2 feet beyond the perimeter of the sinkhole shall be constructed with clayey soils. The clayey soil shall have at least 20% passing the no. 200 sieve, compacted to 95% of standard proctor, and compacted in a wet condition with moisture 2% - 4% above optimum. The clay soil cap shall be re-graded to prevent concentration of waters (ponding) and re-vegetated.

Outfall Structures

All outfall and drawdown orifices are to be inspected bi-annually for sediment or debris in the flow line of weirs or orifices. All sediment and debris should be removed and disposed of in an approved manner.

Operation & Maintenance Entity:

Concept Development, Inc.
1449 SW 74th Drive. Suite 200
Gainesville, FL 32607

Appendix C

Geotechnical Report

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF A GEOTECHNICAL SITE EXPLORATION – REVISION 1

DOLLAR GENERAL – LAKE CITY SW MARVIN BURNETT
LAKE CITY, COLUMBIA COUNTY, FLORIDA

GSE PROJECT NO. 16251

Prepared For:

CONCEPT DEVELOPMENT, INC.

DECEMBER 2023

GSE Engineering & Consulting, Inc.

December 7, 2023

Andrea Barnett
Concept Development, Inc.
1449 SW 74th Drive, Suite 200
Gainesville, Florida 32607

Subject: Summary Report of a Geotechnical Site Exploration – Revision 1
Dollar General – Lake City SW Marvin Burnett
Lake City, Columbia County, Florida
GSE Project No. 16251

GSE Engineering & Consulting, Inc. (GSE) is pleased to submit this geotechnical site exploration report for the above referenced project.

Presented herein are the findings and conclusions of our exploration, including the geotechnical parameters and recommendations to assist with building foundation, pavement, and stormwater management designs. This revision includes recommended soil parameters for stormwater management design with underdrains.

GSE appreciates this opportunity to have assisted you on this project. If you have any questions or comments concerning this report, please contact us.

Sincerely,

GSE Engineering & Consulting, Inc.

JASON E. GOWLAND
LICENSE
No.66467

This item has been digitally signed and sealed by
Jason E Gowland
Digitally signed by Jason E Gowland
Date: 2023.12.07 15:39:40 -05'00'
on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Angelina

Angelina X. Liu, E.I.
Staff Engineer

Jason E. Gowland, P.E.
Principal Engineer
Florida Registration No. 66467

AXL / JEG: tlf
Q:\Projects\16251 Dollar General – Lake City SW Marvin Burnett\16251 Rev.1.docx

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GSE Engineering & Consulting, Inc.
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Gainesville, Florida 32608
(352) 377-3233 Phone ◆ (352) 377-0335 Fax
www.gseengineering.com

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LIST OF FIGURES

Figure

1.0 INTRODUCTION

1.1 General

GSE Engineering & Consulting, Inc. (GSE) has completed this geotechnical exploration for the proposed commercial retail store located on SW Marvin Burnett Road in Lake City, Columbia County, Florida. This exploration was performed in accordance with GSE Proposal No. 2023-589 dated September 12, 2023. Ms. Andrea Barnett authorized our services on September 15, 2023.

1.2 Project Description

We understand that you are coordinating due diligence related work related to the development of this site into a commercial retail store. The site is located on the northwest corner of the State Road 47 and SW Marvin Burnett Road intersection in Lake City, Columbia County, Florida. The site is approximately +/-2.72 acres.

You provided GSE with information about the project. We understand the project will consist of an approximate 10,640 square foot building, a parking lot, and a stormwater management facility.

The structure is expected to be a single-story, high wall concrete masonry unit (CMU) and steel frame construction. Structural loads have not been provided but are expected to be on the order of 1 to 2 kips per foot for non-load bearing CMU walls, and less than 50 kips for columns. The finished floor of the structure is anticipated to be constructed within 1 to 2 feet of the existing site grades.

The building will be located in the northern portion of the site. The parking lot will be located west, south, and east of the structure. The stormwater management facility will be located on the western portion of the site.

A recent aerial photograph of the site was obtained and reviewed. The site plan and aerial photograph were used in preparation of this exploration and report.

1.3 Purpose

The purpose of this geotechnical exploration was to determine the general subsurface conditions, evaluate these conditions with respect to the proposed construction, and prepare geotechnical parameters and recommendations to assist with building foundation, stormwater management, and pavement designs.

2.0 FIELD AND LABORATORY TESTS

2.1 General Description

The procedures used for field sampling and testing are in general accordance with industry standards of care and established geotechnical engineering practices for this geographic region. This exploration consisted of performing five (5) Standard Penetration Test (SPT) borings to a depth of 20 feet below land surface (bls) within the proposed building area, five (5) auger borings to a depth of 5 feet bls in the area of the parking lot and driveways, and five (5) auger borings to depths of 15 feet bls in the area of the stormwater management facility.

The soil borings were performed at the approximate locations as shown on Figure 2. The borings were located at the site using the provided site plan, Global Positioning System (GPS) coordinates, and obvious site features as reference. The boring locations should be considered approximate. The soil borings were performed on September 20, 2023.

2.2 Auger Borings

The auger borings were performed in accordance with ASTM D1452. The borings were performed with flight auger equipment that was rotated into the ground in a manner that reduces soil disturbance. After penetrating to the required depth, the auger was retracted and the soils collected on the auger flights were field classified and placed in sealed containers. Representative samples of each stratum were retained from the auger boring. Results from the auger borings are provided in Section 5.1.

2.3 Standard Penetration Test Borings

The soil borings were performed with a drill rig employing mud rotary drilling techniques and Standard Penetration Testing (SPT) in accordance with ASTM D1586. The SPTs were performed continuously to 10 feet and at 5-foot intervals thereafter. Soil samples were obtained at the depths where the SPTs were performed. The soil samples were classified in the field, placed in sealed containers, and returned to our laboratory for further evaluation.

After drilling to the sampling depth, the standard two-inch O.D. split-barrel sampler was seated by driving it 6 inches into the undisturbed soil. The sampler was then driven an additional 12 inches by blows of a 140-pound hammer falling 30 inches. The number of blows required to produce the next 12 inches of penetration were recorded as the penetration resistance (N-value). These values and the complete SPT boring logs are provided in Section 5.2.

Upon completion of the sampling, the boreholes were abandoned in accordance with Water Management District guidelines.

2.4 Soil Laboratory Tests

The soil samples recovered from the soil borings were returned to our laboratory, and examined to confirm the field descriptions. Representative samples were then selected for laboratory testing. The laboratory tests consisted of nine (9) percent soil fines passing the No. 200 sieve, nine (9) natural moisture content determinations, two (2) Atterberg Limits tests, and three (3) constant head hydraulic conductivity tests. These tests were performed in order to aid in classifying the soils and to further evaluate their engineering properties. The laboratory tests are provided in Section 5.3.

3.0 FINDINGS

3.1 Surface Conditions

Karen Roylos with GSE visited the site on September 18, 2023 to observe the site conditions and mark the boring locations. Mr. Jason Kite with Jason Kite, LLC was retained by GSE to clear lanes to allow access to the boring locations for drilling equipment.

The majority of the site is densely vegetated with trees, scattered saw palmettos, shrubs, vines and weedy groundcover. Portions of the site were densely vegetated and more difficult to traverse. To the south of the site is SW Marvin Burnett Road. State Road 47 is located east of the site. Undeveloped wooded land borders the site to the north and west.

The topography at the site is moderately sloping from northeast towards southwest. Regional topography can be characterized as gently to moderately sloping. The Lake City West USGS Topographic Map indicates the ground surface elevations at the site are near 155 to 165 feet[1] NAVD 88.

3.2 Subsurface Conditions

The locations of the auger and SPT borings are provided on Figure 2. Complete logs for the borings are provided in Sections 5.1 and 5.2. Descriptions for the soils encountered are accompanied by the Unified Soil Classification System symbol (SM, SP-SM, etc.) and are based on visual examination of the recovered soil samples and the laboratory tests performed. Stratification boundaries between the soil types should be considered approximate, as the actual transition between soil types may be gradual.

The auger borings located within the proposed parking lot and driveways encountered relatively similar soil conditions. Auger borings A-1 to A-3 encountered poorly graded sand, and sand with silt (SP, SP-SM) to the explored depths of 5 feet bls. Auger borings A-4 and A-5 initially encountered sand with silt (SP-SM) to depths of 1.5 to 3.5 feet bls. This was underlain by clayey to very clayey sand (SC, SC/CL) to the explored depths of 5 feet bls.

The auger borings located within the stormwater management facility encountered relatively consistent soil conditions. Auger boring P-1 encountered 6 feet of silty sand, and poorly graded sand (SM, SP) overlying clayey to very clayey sand, and clay with sand (SC, SC/CL, CL/CH) to the explored depth of 15 feet bls. Auger borings P-2 to P-4 initially encountered poorly graded sand, sand with silt, and silty sand (SP, SP-SM, SM) to depths of 2 to 5 feet bls, overlying silty clayey sand, and clayey to very clayey sand (SM-SC, SC, SC/CL) to depths of 7 to 10.5 feet bls. This was underlain by sand with silt (SP-SM) to depths of 12 to 13.5 feet bls, followed by clay-rich soils (CL/CH) to the explored depth of 15 feet bls. Auger boring P-5 initially encountered 5.5 feet of clayey sand (SC) and 5 feet of sand with silt (SP-SM) overlying clay with sand (CL/CH) to a depth of 12.5 feet bls. This was underlain by sand with silt (SP-SM) to the explored depth of 15 feet bls.

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[1] United States Geological Survey, Lake City West Quadrangle, 2021.

The SPT borings located within the proposed building footprint indicate the soils across these areas are relatively consistent. SPT boring B-1 initially encountered 3 feet of sand with silt (SP-SM), and 4.5 feet of sandy clay (CL) overlying sand with clay, and poorly graded sand (SP-SC, SP) to a depth of 12 feet bls. This was underlain by clay (CL/CH) to the explored depth of 20 feet bls. SPT borings B-2 to B-5 encountered poorly graded sand, sand with silt, sand with clay, silty sand, and silty clayey sand (SP, SP-SM, SP-SC, SM-SC) with some interbedded layers of clayey to very clayey sand (SC, SC/CL) to depths of 13.5 to 17.5 feet bls. This was underlain by clay-rich (CL, CL/CH) soils to the explored depths of 20 feet bls.

The sandy soils (SP, SP-SM, SP-SC) encountered are generally in a very loose to dense condition with N-values ranging from 2 to 45 blows per foot. The silty sand, silty clayey sand, and clayey to very clayey sands (SM, SM-SC, SC, SC/CL) encountered are generally in a very loose to dense condition with N-values ranging from 4 to 38 blows per foot. The sandy clay, clay with sand, and clay (CL/CH, CL) encountered are generally in a very soft to hard condition with N-values ranging from 3 to 33 blows per foot.

Weight-of-rod strength material was encountered in SPT boring B-2 at depth range from 13.5 to 14.5 feet bls. This isolated occurrence is likely related to depositional characteristics of the soil materials and transitions between material types.

The groundwater table was encountered in the auger and SPT borings at depths of 6.1 to 8.8 feet bls at the time of our investigation.

3.3 Review of Published Data

The majority of the site is mapped as three soil series by the Soil Conservation Service (SCS) Soil Survey for Columbia County[2]. The following soil descriptions are from the Soil Survey.

Blanton fine sand, 0 to 5 percent slopes

Map Unit Setting

- *National map unit symbol:* 2w0q2
- *Elevation:* 30 to 200 feet
- *Mean annual precipitation:* 51 to 59 inches
- *Mean annual air temperature:* 64 to 72 degrees F
- *Frost-free period:* 258 to 310 days
- *Farmland classification:* Not prime farmland

Map Unit Composition

- *Blanton and similar soils:* 85 percent
- *Minor components:* 15 percent
- *Estimates are based on observations, descriptions, and transects of the map unit.*

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[2] Soil Survey of Hamilton County, Florida. Soil Conservation Service, U.S. Department of Agriculture.

Description of Blanton

Setting

- *Landform:* Knolls on marine terraces, ridges on marine terraces
- *Landform position (two-dimensional):* Backslope
- *Landform position (three-dimensional):* Side slope, interfluve, riser
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Parent material:* Sandy and loamy marine deposits

Typical profile

- *A - 0 to 7 inches:* fine sand
- *E - 7 to 52 inches:* fine sand
- *Bt - 52 to 80 inches:* fine sandy loam

Properties and qualities

- *Slope:* 0 to 5 percent
- *Depth to restrictive feature:* More than 80 inches
- *Drainage class:* Moderately well drained
- *Runoff class:* Negligible
- *Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 6.00 in/hr)
- *Depth to water table:* About 42 to 72 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- *Sodium adsorption ratio, maximum:* 4.0
- *Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

Interpretive groups

- *Land capability classification (irrigated):* None specified
- *Land capability classification (nonirrigated):* 3s
- *Hydrologic Soil Group:* A
- *Forage suitability group:* Sandy soils on rises, knolls, and ridges of mesic uplands (G138XA121FL)
- *Other vegetative classification:* Sandy soils on rises, knolls, and ridges of mesic uplands (G138XA121FL)
- *Hydric soil rating:* No

Minor Components

Albany

- *Percent of map unit:* 6 percent
- *Landform:* Ridges on marine terraces
- *Landform position (two-dimensional):* Shoulder
- *Landform position (three-dimensional):* Interfluve, talf
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G138XA131FL), North Florida Flatwoods (R138XY004FL)
- *Hydric soil rating:* No

Troup

- *Percent of map unit:* 4 percent
- *Landform:* Ridges, knolls
- *Landform position (two-dimensional):* Summit
- *Landform position (three-dimensional):* Interfluve
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy soils on ridges and dunes of xeric uplands (G133AA111FL), Longleaf Pine-Turkey Oak Hills (R133AY002FL)
- *Hydric soil rating:* No

Chipley

- *Percent of map unit:* 3 percent
- *Landform:* Knolls on marine terraces, rises on marine terraces, flats on marine terraces
- *Landform position (two-dimensional):* Shoulder, footslope
- *Landform position (three-dimensional):* Interfluve
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G138XA131FL)
- *Hydric soil rating:* No

Alpin

- *Percent of map unit:* 2 percent
- *Landform:* Flatwoods on marine terraces, knolls on marine terraces, ridges on marine terraces
- *Landform position (two-dimensional):* Shoulder, backslope
- *Landform position (three-dimensional):* Interfluve
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy soils on ridges and dunes of xeric uplands (G138XA111FL), Sand Pine Scrub (R153AY001FL)
- *Hydric soil rating:* No

Ichetucknee fine sand, 5 to 8 percent slopes

Map Unit Setting

- *National map unit symbol:* vrt4
- *Elevation:* 330 to 660 feet
- *Mean annual precipitation:* 50 to 58 inches
- *Mean annual air temperature:* 64 to 72 degrees F
- *Frost-free period:* 258 to 288 days
- *Farmland classification:* Not prime farmland

Map Unit Composition

- *Ichetucknee and similar soils:* 80 percent
- *Minor components:* 20 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Ichetucknee

Setting

- *Landform:* Hills on marine terraces, ridges on marine terraces
- *Landform position (three-dimensional):* Interfluve, side slope
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Parent material:* Sandy and clayey marine deposits over limestone

Typical profile

- *A - 0 to 4 inches:* fine sand
- *E - 4 to 7 inches:* fine sand
- *Bg - 7 to 75 inches:* clay
- *2R - 75 to 79 inches:* weathered bedrock

Properties and qualities

- *Slope:* 5 to 8 percent
- *Depth to restrictive feature:* 50 to 75 inches to lithic bedrock
- *Drainage class:* Somewhat poorly drained
- *Runoff class:* Negligible
- *Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
- *Depth to water table:* About 18 to 36 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- *Sodium adsorption ratio, maximum:* 4.0
- *Available water supply, 0 to 60 inches:* Moderate (about 8.4 inches)

Interpretive groups

- *Land capability classification (irrigated):* None specified
- *Land capability classification (nonirrigated):* 6e
- *Hydrologic Soil Group:* D
- *Forage suitability group:* Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G138XA322FL)
- *Other vegetative classification:* Loamy and clayey soils on rises, knolls, and ridges of mesic uplands (G138XA322FL)
- *Hydric soil rating:* No

Minor Components

Goldsboro

- *Percent of map unit:* 10 percent
- *Landform:* Knolls on marine terraces, ridges on marine terraces
- *Landform position (three-dimensional):* Interfluve
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Loamy and clayey soils on flats and rises of mesic lowlands (G138XA331FL)
- *Hydric soil rating:* No

Ocilla

- *Percent of map unit:* 10 percent
- *Landform:* Rises on marine terraces
- *Landform position (three-dimensional):* Interfluve
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy over loamy soils on rises and knolls of mesic uplands (G138XA231FL)
- *Hydric soil rating:* No

Pelham fine sand, 0 to 2 percent slopes

Map Unit Setting

- *National map unit symbol:* 2tg56
- *Elevation:* 0 to 190 feet
- *Mean annual precipitation:* 48 to 63 inches
- *Mean annual air temperature:* 57 to 79 degrees F
- *Frost-free period:* 251 to 293 days
- *Farmland classification:* Not prime farmland

Map Unit Composition

- *Pelham and similar soils:* 75 percent
- *Minor components:* 25 percent
- *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Pelham

Setting

- *Landform:* Flatwoods
- *Landform position (three-dimensional):* Talf
- *Down-slope shape:* Linear
- *Across-slope shape:* Linear
- *Parent material:* Sandy and loamy marine deposits

Typical profile

- *A - 0 to 6 inches:* fine sand
- *Eg - 6 to 26 inches:* fine sand
- *Btg1 - 26 to 42 inches:* sandy clay loam
- *Btg2 - 42 to 83 inches:* sandy clay loam

Properties and qualities

- *Slope:* 0 to 2 percent
- *Depth to restrictive feature:* More than 80 inches
- *Drainage class:* Poorly drained
- *Runoff class:* High
- *Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 5.95 in/hr)
- *Depth to water table:* About 6 to 12 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- *Sodium adsorption ratio, maximum:* 4.0
- *Available water supply, 0 to 60 inches:* Moderate (about 7.0 inches)

Interpretive groups

- *Land capability classification (irrigated):* None specified
- *Land capability classification (nonirrigated):* 3w
- *Hydrologic Soil Group:* B/D
- *Ecological site:* F153AY060NC - Wet Loamy Flats and Depressions
- *Forage suitability group:* Sandy over loamy soils on flats of hydric or mesic lowlands (G153AA241FL)
- *Other vegetative classification:* Sandy over loamy soils on flats of hydric or mesic lowlands (G153AA241FL)
- *Hydric soil rating:* No

Minor Components

Unnamed

- *Percent of map unit:* 13 percent
- *Landform:* Flatwoods
- *Landform position (three-dimensional):* Talf
- *Down-slope shape:* Linear
- *Across-slope shape:* Linear
- *Other vegetative classification:* Sandy over loamy soils on flats of hydric or mesic lowlands (G153AA241FL)
- *Hydric soil rating:* Yes

Albany

- *Percent of map unit:* 6 percent
- *Landform:* Flatwoods
- *Landform position (three-dimensional):* Talf
- *Microfeatures of landform position:* Rises
- *Down-slope shape:* Convex
- *Across-slope shape:* Convex
- *Ecological site:* F153AY040NC - Moist Loamy Rises and Flats
- *Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G153AA131FL)
- *Hydric soil rating:* No

Meggett

- *Percent of map unit:* 3 percent
- *Landform:* Flatwoods
- *Landform position (three-dimensional):* Talf
- *Down-slope shape:* Linear
- *Across-slope shape:* Linear
- *Ecological site:* F153AY090NC - Flooded Mineral Soil Floodplains and Terraces
- *Other vegetative classification:* Loamy and clayey soils on flats of hydric or mesic lowlands (G153AA341FL)
- *Hydric soil rating:* Yes

Surrency

- *Percent of map unit:* 3 percent
- *Landform:* Drainageways, depressions
- *Landform position (three-dimensional):* Dip
- *Down-slope shape:* Linear, concave
- *Across-slope shape:* Convex, concave
- *Ecological site:* F153AY060NC - Wet Loamy Flats and Depressions
- *Other vegetative classification:* Sandy over loamy soils on stream terraces, flood plains, or in depressions (G153AA245FL)
- *Hydric soil rating:* Yes

3.4 Laboratory Soil Analysis

Selected soil samples recovered from the soil borings were analyzed for the percent soil fines passing the No. 200 sieve, natural moisture content, Atterberg Limits, and hydraulic conductivity. Samples selected for laboratory testing were collected at depths ranging from near-surface to 15 feet bls. These tests were performed to confirm visual soil classification and evaluate their engineering properties. The complete laboratory report is provided in Section 5.3.

The laboratory tests indicate the tested soils consist sand with silt, silty sand, silty sand with clay, sand with clay, clayey sand, very clayey sand, and sandy clay. The tested sand with silt (SP-SM) contains approximately 11 percent soil fines passing the No. 200 sieve with a natural moisture content of about 8.7 percent. The tested silty sand, and silty sand with clay (SM, SM-SC) contains approximately 14 to 27 percent soil fines passing the No. 200 sieve with natural moisture contents of about 7.8 to 18 percent. The tested sand with clay (SP-SC) contains approximately 11 percent soil fines passing the No. 200 sieve with a natural moisture content of about 17 percent. The tested clayey sand (SC) contains approximately 30 percent soil fines passing the No. 200 sieve with a natural moisture content of about 13 percent. The tested very clayey sand (SC/CL) contains approximately 34 percent soil fines passing the No. 200 sieve with a natural moisture content of about 18 percent. The tested sandy clay (CL) contains approximately 56 to 62 percent soil fines passing the No. 200 sieve with natural moisture contents of about 17 to 23 percent.

Atterberg Limits tests indicate the tested sandy clay (CL) has Liquid Limit (LL) values of 35 and 41, Plastic Limit (PL) values of 15 to 18, and Plasticity Index (PI) values of 17 and 26. These values correspond to materials with low potential ($LL < 50$) to marginal potential ($PI \leq 35$) for expansive behavior[3].

The constant head hydraulic conductivity test results indicate the near-surface silty sand (SM) has hydraulic conductivity values of 0.8 to 1.1 feet per day. The tested clayey sand (SC) has no flow. Tests were not conducted on the deeper very clayey sand due to the limitations of the test method on soils having moderate to high fines content, but these soils are expected to have permeability values at least one order of magnitude lower than the sandy soils.

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[3] U.S. Department of the Army USA, 1983, Foundations in Expansive Soils, TM 5-818-7, p. 4-1.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General

The following recommendations are made based upon our understanding of the proposed construction, a review of the attached soil borings and laboratory test data, and experience with similar projects and subsurface conditions. If plans or the location of proposed construction changes from those discussed previously, GSE requests the opportunity to review and possibly amend our recommendations with respect to those changes.

The final design of a foundation system is dependent upon adequate integration of geotechnical and structural engineering considerations. Consequently, GSE must review the final foundation design in order to evaluate the effectiveness and applicability of our initial analyses, and to determine if additional recommendations may be warranted. Without such a review, the recommendations presented herein could be misinterpreted or misapplied resulting in potentially unacceptable performance of the foundation system.

The performance of site improvements may be sensitive to their post-construction relationship to site groundwater levels, seepage zones, or soil/rock characteristics exposed at final site grades. GSE recommends that use of boring information for final design of all site improvements be predicated on proper horizontal and vertical control of borings.

In this section of the report, we present our geotechnical parameters and recommendations to assist with building foundation, stormwater management, and pavement designs as well as our general site preparation guidelines.

4.2 Groundwater

The groundwater table was encountered in the borings at depths of 6.1 to 8.8 feet bls at the time of our exploration. The Soil Survey indicates the groundwater table is typically at a depth of near-surface to 6 feet bls. We anticipate the seasonal high groundwater table will be near depths of 1 to 3.5 feet bls. Estimates for the seasonal high groundwater table are shown on the individual boring logs.

4.3 Building Foundations

The SPT borings located within the proposed building footprint indicate the soils across these areas are relatively consistent. SPT boring B-1 initially encountered 3 feet of sand with silt (SP-SM), and 4.5 feet of sandy clay (CL) overlying sand with clay, and poorly graded sand (SP-SC, SP) to a depth of 12 feet bls. This was underlain by clay (CL/CH) to the explored depth of 20 feet bls. SPT borings B-2 to B-5 encountered poorly graded sand, sand with silt, sand with clay, silty sand, and silty clayey sand (SP, SP-SM, SP-SC, SM-SC) with some interbedded layers of clayey to very clayey sand (SC, SC/CL) to depths of 13.5 to 17.5 feet bls. This was underlain by clay-rich (CL, CL/CH) soils to the explored depths of 20 feet bls.

Based upon the soil conditions encountered and our limited understanding of the structural loads and site grading, we recommend the building be supported by conventional, shallow strip and/or spread foundations. We recommend the shallow foundations be designed for a maximum allowable gross bearing pressure of 2,500 psf. The gross bearing pressure is defined as the soil contact pressure that can be imposed from the maximum structural loads, weight of the concrete foundations, and weight of the soil above the foundations. The foundations should be designed based upon the maximum load that could be imposed by all loading conditions.

The foundations should be embedded a minimum of 18 inches below the lowest adjacent grade. Interior foundations or thickened sections should be embedded a minimum of 12 inches. The foundations should have minimum widths of 18 inches for strip footings, and 24 inches for columns, even though the maximum soil bearing pressure may not be fully developed.

Due to the mostly sandy nature of the majority of the near-surface soils, we expect settlement to be mostly elastic in nature. The majority of the settlement will occur on application of the loads, during and immediately following construction. Using the recommended maximum bearing pressure, the assumed maximum structural loads, and the field and laboratory test data which we have correlated into the strength and compressibility characteristics of the subsurface soils, we estimate the total settlements of the structure to be 1 inch or less, with approximately half of it occurring upon load application (during construction).

Differential settlement results from differences in applied bearing pressures and the variations in the compressibility characteristics of the subsurface soils. For the building pad prepared as recommended, we anticipate differential settlement of less than 1/2 inch.

Post-construction settlement of the structures will be influenced by several interrelated factors, such as (1) subsurface stratification and strength/compressibility characteristics of the bearing soils; (2) footing size, bearing level, applied loads, and resulting bearing pressures beneath the foundation; (3) site preparation and earthwork construction techniques used by the contractor, and (4) external factors, including but not limited to vibration from off-site sources and groundwater fluctuations beyond those normally anticipated for the naturally-occurring site and soil conditions which are present.

Our settlement estimates for the structure are based upon our limited understanding of the structural loads and site grading and the use of successful adherence to the site preparation recommendations presented later in this report. Any deviation from our project understanding and/or our site preparation recommendations could result in an increase in the estimated post-construction settlement of the structure.

4.4 Flexible Pavement

Overall soil conditions encountered by our borings at this site are suitable for supporting conventional limerock base and asphalt wearing surface pavements. We have not been provided the anticipated traffic loading conditions; therefore, the following pavement component recommendations should be used only as guidelines. The below recommendations are intended to be minimums. Increasing base course and asphalt thicknesses would increase the design life of the pavement.

The seasonal high groundwater table is estimated to be approximately 12 inches to about 3.5 feet beneath existing grade across the site. We recommend a minimum of either 12 to 24 inches of separation (depending upon the pavement section design) be present between the bottom of the base course and the estimated seasonal high groundwater table. If this separation cannot be achieved by site grading, GSE recommends underdrains be used beneath the base course.

4.4.1 Stabilized Subgrade

If a crushed limerock or recycled concrete base is used, we recommend a stabilized subgrade be located beneath the base. The stabilized subgrade should have a minimum Limerock Bearing Ratio (LBR) of 40, with minimum thicknesses of 6 inches for automobile parking areas and 12 inches for driveways.

The stabilized subgrade can be imported material or a mixture of imported and on-site material. If a mix is proposed, a mix design should be performed to determine the optimum mix proportions. The stabilized subgrade should be compacted to a minimum of 98 percent of the Modified Proctor maximum dry density (ASTM D1557) for soils with less than 15 percent fines content. Soils with 15 percent or greater fines content should be compacted to 100 percent of the Standard Proctor maximum dry density (ASTM D698).

4.4.2 Base Course

The base course can consist of either crushed limerock, soil cement, or recycled concrete. If you should use a soil cement base course, a stabilized subgrade is not required.

Limerock should have an LBR of at least 100, be obtained from a FDOT approved source and meet FDOT gradation requirements. The base course thickness should be a minimum of 6 inches in automobile parking areas, and 8 inches in driveway areas. The base course should be compacted to at least 98 percent of the Modified Proctor maximum dry density (ASTM D1557). We recommend a minimum 24 inches separation between the bottom of the limerock base course and the estimated seasonal high-water table. If site grading does not allow for this separation, we recommend underdrains be considered.

Soil cement can consist of an imported material or a blend of the on-site soils and cement. A mix design should be performed to determine the optimum cement content. We recommend the soil cement have a minimum 28-day compressive strength of 500 psi. Soil cement can be blended off-site (in a pug mill) or on site. Soil cement pills should be cast from each day’s production to verify the recommended compressive strength has been achieved at 28 days. We recommend the soil cement base course be a minimum of 8 inches thick throughout the project. We recommend a minimum 18 inches separation between the bottom of the soil cement base course and the estimated seasonal high-water table. If site grading does not allow for this separation, we recommend underdrains be considered.

Recycled concrete should have an LBR of at least 150, be obtained from a FDOT approved source and meet FDOT gradation requirements. The base course thickness should be a minimum of 8 inches. The base course should be compacted to at least 98 percent of the Modified Proctor maximum dry density (ASTM D1557). We recommend a minimum 12 inches separation between the bottom of the recycled concrete base course and the estimated seasonal high-water table. If site grading does not allow for this separation, we recommend underdrains be considered.

4.4.3 Wearing Surface

The asphalt-wearing surface should consist of an FDOT Type SP Hot Mix Asphalt mixture. For automobile parking areas, the thickness should be a minimum of 1.5 inches. For driveway areas, the thickness should be a minimum of 2 inches. The asphalt-wearing surface should consist of an SP-12.5 mix. The asphalt should be compacted to at least 95 percent of the mix design density.

The constructability of differing asphalt thicknesses may be difficult, and having a uniform 2-inch thick asphalt wearing surface may be more practical.

4.5 Rigid Pavement

Concrete pavement is a rigid pavement that results in smaller load transfers to the subgrade soils than flexible pavement. For concrete pavement subgrade, we recommend using the existing surficial sands or recommended clean sand (SP) fill, compacted to at least 98 percent of the Modified Proctor maximum dry density without additional stabilization with the following stipulations:

1. Subgrade soils must be compacted to at least 98 percent of Modified Proctor maximum dry density to a depth of at least 2 feet prior to placement of concrete.
2. The surface of the subgrade soils must be smooth and any disturbances or wheel rutting corrected prior to placement of the concrete.
3. The subgrade soils must be moistened prior to placement of concrete.
4. Concrete pavement thickness should be uniform throughout, with the exception of thickened edges (curb or footing).
5. The bottom of the pavement should be separated from the estimated seasonal high groundwater level by at least 18 inches.
6. Limerock or any other impermeable base is not suitable unless it meets the minimum recommended permeability of 10 ft/day.
7. The upper 12 inches of subgrade underlying the base course must also be “free-draining” and water that enters the base and subgrade must be allowed to seep out by gravity or if this is not possible, underdrains must be incorporated into the subgrade. A “bathtub” condition within the base/subgrade must be avoided.

Our recommendations for slab thickness for both light-duty and heavy-duty concrete pavements is based on a.) subgrade soils are compacted to 98 percent of the Modified Proctor maximum dry density, b.) modulus of subgrade reaction (k) of 200 pounds per cubic inch, c.) a 20-year design life, and d.) previously stated design parameters. For an anticipated light-duty traffic group, a minimum pavement thickness of 5.5 inches is recommended, using Table 2.4 from the ACI 330 Guide for Design and Construction of Concrete Parking Lots, ACI 330R-01. For an anticipated heavy-duty traffic group, a minimum pavement thickness of 8 inches is recommended, using Table 3.4 from the FDOT *Rigid Pavement Design Manual*, January 2019.

We recommend using concrete with a minimum 28-day compressive strength of 4,000 pounds per square inch and a minimum 28-day flexural strength (modulus of rupture) of at least 600 pounds per square inch based on the third point loading of concrete beam test samples. Maximum control joint spacing of 12.5 by 12.5 feet is suggested for light-duty concrete pavements. Maximum control joint spacing of 15 by 15 feet is suggested for heavy-duty concrete pavements. Layout of sawcut control joints should form square panels, and the depth of sawcut joint should be at least 1/4 of the concrete slab thickness. The joints should be sawed within six hours of concrete placement or as soon as the concrete has developed sufficient strength to support workers and equipment.

For further details on concrete pavement construction, refer to "Guide to Jointing Non-reinforced Concrete Pavements" published by the Florida Concrete and Products Associates, Inc. and "Building Quality Concrete Parking Areas", published by the Portland Cement Association.

4.6 Site Preparation

The soils at this site should be suitable for supporting the proposed construction using normal, good practice site preparation procedures. The following recommendations are our general guidelines for site preparation.

4.6.1 Stripping

Strip the construction limits and 10 feet beyond the perimeter of all grass, roots, topsoil, and other deleterious materials. You should expect to strip to depths of 12 or more inches. Deeper stripping will likely be necessary due to major root systems present at the site.

4.6.2 Dewatering

Temporary dewatering may be necessary for this project. If needed, we anticipate dewatering can be accomplished with sumps placed near the construction area, or with underdrains connected to a vacuum pump.

In any case, the site should always be graded to promote runoff and limit the amount of ponding. Localized ponding of stormwater is expected without proper grading during construction, and could render previously acceptable surfaces unacceptable.

4.6.3 Proof-Rolling

Proof-roll the subgrade with heavy rubber-tired equipment, such as a loaded front-end loader or dump truck, to identify any loose or soft zones not found by the soil borings. The proof-rolling should be monitored by a geotechnical engineer or qualified technician. Undercut or otherwise treat these zones as recommended by the geotechnical engineer in this report.

4.6.4 Proof Compaction

Compact the subgrade to a density of at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557). The specified compaction should be obtained to a depth of 1 foot below the foundation bottoms and the existing grade prior to placing fill. Vibratory roller equipment should not be used within approximately 100 feet of existing structures. Lighter "walk-behind" compaction equipment may be used to achieve the degree of compaction.

Should clayey sand be encountered at the bearing surface, this material should be probed and visually confirmed to be unyielding in the upper 12 inches in lieu of density testing. If the foundation excavations penetrate the clayey sand, the excavation should be performed in a manner that reduces soil disturbance. Clayey sand soils (with fines content in excess of 15 percent) that are removed and replaced or appreciably disturbed need to be re-compacted to 98 percent of the Standard Proctor maximum dry density (ASTM D698).

4.6.5 Fill Placement

Imported fill placed to raise the site grades should consist of clean sand having less than 10 percent passing the No. 200 sieve. On-site soils meeting the requirements of Section 4.9 may also be used as structural fill. The fill should be placed in maximum 12-inch loose lifts that are compacted to at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557). If lighter "walk-behind" compaction equipment is used, this may require lifts of 4 inches or less to achieve the required degree of compaction.

4.7 Quality Control and Construction Materials Testing

It should be noted that the geotechnical engineering design does not end with the advertisement of the construction documents. As the geotechnical engineer of record, GSE is the most qualified to perform the construction materials testing that will be required for this project. The benefits of having the geotechnical engineer of record also perform the construction materials testing are numerous. If GSE continues to be involved with the project through construction, we will be able to constantly re-evaluate and possibly alter our geotechnical recommendations in a timely and cost effective manner once final design and construction techniques are developed. This often results in cost savings for the project.

We recommend performing compaction testing beneath the concrete floor slab and the building foundations. We recommend one test be performed every 50 linear feet of continuous footing and every other column footing, per foot depth of fill or native material. We recommend a compaction test be performed for each 2,500 square feet of floor area or 10,000 square feet of pavement area per foot of fill or native material, or a minimum of three tests each, whichever is greater. Test all footing excavations to a depth of 12 inches at the frequencies stated above.

4.8 Stormwater Management

The auger borings located within the stormwater management facility encountered relatively consistent soil conditions. Auger boring P-1 encountered 6 feet of silty sand, and poorly graded sand (SM, SP) overlying clayey to very clayey sand, and clay with sand (SC, SC/CL, CL/CH) to the explored depth of 15 feet bls. Auger borings P-2 to P-4 initially encountered poorly graded sand, sand with silt, and silty sand (SP, SP-SM, SM) to depths of 2 to 5 feet bls, overlying silty clayey sand, and clayey to very clayey sand (SM-SC, SC, SC/CL) to depths of 7 to 10.5 feet bls. This was underlain by sand with silt (SP-SM) to depths of 12 to 13.5 feet bls, followed by clay-rich soils (CL/CH) to the explored depth of 15 feet bls. Auger boring P-5 initially encountered 5.5 feet of clayey sand (SC) and 5 feet of sand with silt (SP-SM) overlying clay with sand (CL/CH) to a depth of 12.5 feet bls. This was underlain by sand with silt (SP-SM) to the explored depth of 15 feet bls.

The water table was encountered in the auger borings at depths of 7.5 to 8.8 feet bls at the time of our exploration. We anticipate the seasonal high groundwater table to be at depths of 1 to 2.5 feet bls.

The laboratory permeability tests indicate the surficial layers of silty sand (SM) has hydraulic conductivity values of 0.8 to 1.1 feet per day, and clayey sand (SC) has no flow. The deeper very clayey sand encountered below the surficial sandy soils is friable and will have permeability values at least one order of magnitude lower than the sandy soils. The underlying dense soils and clay-rich soils are expected to be confining soils.

Mr. Cole Menhennett with CHW confirmed the proposed stormwater management facility as a dry pond via email. We understand that the current design will consider underdrains. We understand that imported clean sand will be used for the backfill for the underdrains. This revision includes soil parameters considering and underdrain design with clean sand backfill.

Based upon our findings and test results, our recommended soil parameters for the stormwater management design in the explored areas are presented below. The recommended parameters consider the results of the permeability tests, wash 200 determinations, and our experience with these types of soils. The parameters below do not consider a factor of safety.

Proposed Stormwater Management Facility

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to 8 feet bls.
2. Unsaturated vertical infiltration rate of 10 foot per day.
3. Horizontal hydraulic conductivity equal to 10 feet per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 2 feet bls.
6. Average seasonal low groundwater table depth equal to 6 feet bls.

In areas where clay-rich soils are present at the basin bottom, we recommend these soils be undercut a minimum of 2 feet and backfilled with the on-site sands and sands with silt (SP, SP-SM) having a maximum of 12 percent soil fines passing the No. 200 sieve. This fill should also be used above the bottom of the underdrains. The intent of this undercutting and replacement is to provide a more uniform sand “blanket” at the basin bottom that allows the migration of water to the underdrains. This sand blanket will also reduce the potential for clay-fines leaching out of the soils when water is present in the basin that can result in a thin layer of confining type material on the basin bottom that can reduce the effectiveness of the basin.

4.9 Fill Suitability

The soils encountered at this site within the explored depths range from sands (SP) to clays (CL/CH). A discussion of the suitability for reuse as structural fill for each soil classification according to the Unified Soil Classification System (USCS) designation is provided below.

SP, SP/SM – Sands (SP) and sand with silt (SP/SM) have less than 5 percent and 12 percent soil fines passing the No. 200 sieve, respectively, and are typically well draining soils that are suitable for reuse as structural fill. The sands with silt may require moisture conditioning (drying) to make the material more workable. These soils will require stockpiling and drying before they are reused if they are excavated from below the water table.

SM – Silty sands (SM) can have between 12 percent and 50 percent soil fines passing the No. 200 sieve. Silty sands are typically non-plastic or have low plasticity, and can be reused as structural fill with precautions. Silty sands can be moisture sensitive and difficult to work and compact and can rut if the moisture content is near or above the optimum moisture content. We recommend these soils be moisture conditioned (dried) so that the moisture content during use is at or below the optimum moisture content. Aerating and exposure to the sun is typically the most effective methods of drying these soils. It may not be practical to reuse these materials during the wet season, as frequent rain showers may not allow these soils to dry to a workable moisture content. Suitable silty sands are limited to soil having less than 30 percent soil fines passing the No. 200 sieve. Silty sands with more than 30 percent soil fines are especially moisture sensitive, and are not recommended for reuse as structural fill. These soils will behave more as sandy silt, and for this reason, very silty sands having more than 30 percent soil fines passing the No. 200 sieve have been assigned a dual classification of SM/ML. Silty sand soils that are excavated from below the water table are not recommended for reuse as structural fill due to the amount of time that will be required to dry these soils to a workable condition.

SC – Clayey sand (SC) soils can have between 12 percent and 50 percent soil fines passing the No. 200 sieve. Clayey sands can have a high range of plasticity, varying from a PI of 7 or greater and plotting above the A-line to highly plastic. Friable clayey sands are typically suitable for use as structural fill with precautions. Clayey sands will be moisture sensitive and difficult to work and compact and can rut during placement if the moisture content is near or above the natural moisture content. We recommend these soils be moisture conditioned (dried) so that the moisture content during use is at or below the optimum moisture content. Aerating and exposure to the sun is typically the most effective methods of drying these soils. It may not be practical to reuse these materials during the wet season, as frequent rain showers may not allow these soils to dry to a workable moisture content. Suitable clayey sands are limited to soil having less than 30 percent soil fines passing the No. 200 sieve. Clayey sands with more than 30 percent soil fines passing the No. 200 sieve are especially moisture sensitive and are typically highly plastic, and are not recommended for reuse as structural fill. These soils will behave more as sandy clay, and for this reason, very clayey sands having more than 30 percent soil fines passing the No. 200 sieve have been assigned a dual classification of SC/CH or SC/CL. Clayey sand soils that are excavated from below the water table are not recommended for reuse as structural fill due to the amount of time that will be required to dry these soils to a workable condition.

ML, MH, CL, CH – Silts and clays are not suitable materials for reuse as structural fill.

When using on-site soils as fill materials, we recommend the silty and clayey sand soils (SM, SC) be used in the lower depths of the fill. Sand and sand with silt (SP, SP-SM) should be used in the upper portions of the fill. We recommend a minimum of 2 feet of sand (SP, SP-SM) cover the silty and clayey sand fill materials to reduce the potential for soggy surface conditions due to the low permeability characteristics of the silty and clayey sand materials.

4.10 Surface Water Control and Landscaping

Roof gutters should be considered to divert runoff away from the building. The gutter downspouts should discharge a minimum of 10 feet from the structure to reduce the amount of water collecting around the foundations. Where possible, the gutter downspouts should discharge directly into the storm sewer system or onto the asphalt paved areas in order to reduce the amount of water collecting around the foundations. Grading of the site should be such that water is diverted away from the building on all sides to reduce the potential for erosion and water infiltration along the foundation.

With respect to landscaping, it is recommended that any trees and large "tree-like" shrubbery with potential for developing large root systems be planted a minimum distance of half their mature height, and preferably their expected final height, away from the structure. The purpose of this is to reduce the potential for foundation or slab movements from the growth of root systems as the landscaping matures.

5.0 FIELD DATA

5.1 Auger Boring Logs

GSE
Engineering & Consulting, Inc.

GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

CLIENT Concept Development, Inc.

PROJECT NAME Dollar General - Lake City SW Marvin Burnett

PROJECT NUMBER 16251

PROJECT LOCATION Lake City, Columbia County, Florida

BORING NUMBER A-1

DATE PERFORMED 9/20/2023
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
CHECKED BY AXL
▼ AT TIME OF DRILLING NE
▽ ESTIMATED SEASONAL HIGH 3.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm^2)	MATERIAL DESCRIPTION
0	⁘	AU 1		(SP) Brown and gray SAND
2.0	⁘	AU 2		(SP) Pale gray and brown SAND
3.5	⁘			▽
5.0				Bottom of borehole at 5.0 feet.

BORING NUMBER A-2

DATE PERFORMED 9/20/2023
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
CHECKED BY AXL
▼ AT TIME OF DRILLING NE
▽ ESTIMATED SEASONAL HIGH 3.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm^2)	MATERIAL DESCRIPTION
0	⁘			(SP-SM) Dark brown and gray SAND with silt
1.0	⁘	AU 1		*%PASS-200 = 11* *MC = 8.7*
2.5	⁘	AU 2		(SP) Pale brown SAND
3.5	⁘			▽
5.0				Bottom of borehole at 5.0 feet.

(Continued Next Page)

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CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida

DATE PERFORMED 9/20/2023 **BORING NUMBER A-3**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
▼ AT TIME OF DRILLING NE CHECKED BY AXL
▽ ESTIMATED SEASONAL HIGH 3.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm^2)	MATERIAL DESCRIPTION
0		AU 1		(SP-SM) Brown and gray SAND with silt
2		AU 2		2.0 (SP) Pale gray and brown SAND
3				
4				▽
5				5.0 Bottom of borehole at 5.0 feet.

DATE PERFORMED 9/20/2023 **BORING NUMBER A-4**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
▼ AT TIME OF DRILLING NE CHECKED BY AXL
▽ ESTIMATED SEASONAL HIGH 3.0 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm^2)	MATERIAL DESCRIPTION
0		AU 1		(SP-SM) Brown and gray SAND with silt
1				1.5 (SC/CL) Brown, gray, and orange very clayey SAND
3		AU 2		▽ *%PASS-200 = 34* *MC = 18*
5				5.0 Bottom of borehole at 5.0 feet.

(Continued Next Page)

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Gainesville, FL 32608
Telephone: 3523773233

CLIENT Concept Development, Inc.

PROJECT NAME Dollar General - Lake City SW Marvin Burnett

PROJECT NUMBER 16251

PROJECT LOCATION Lake City, Columbia County, Florida

DATE PERFORMED 9/20/2023

BORING NUMBER A-5

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

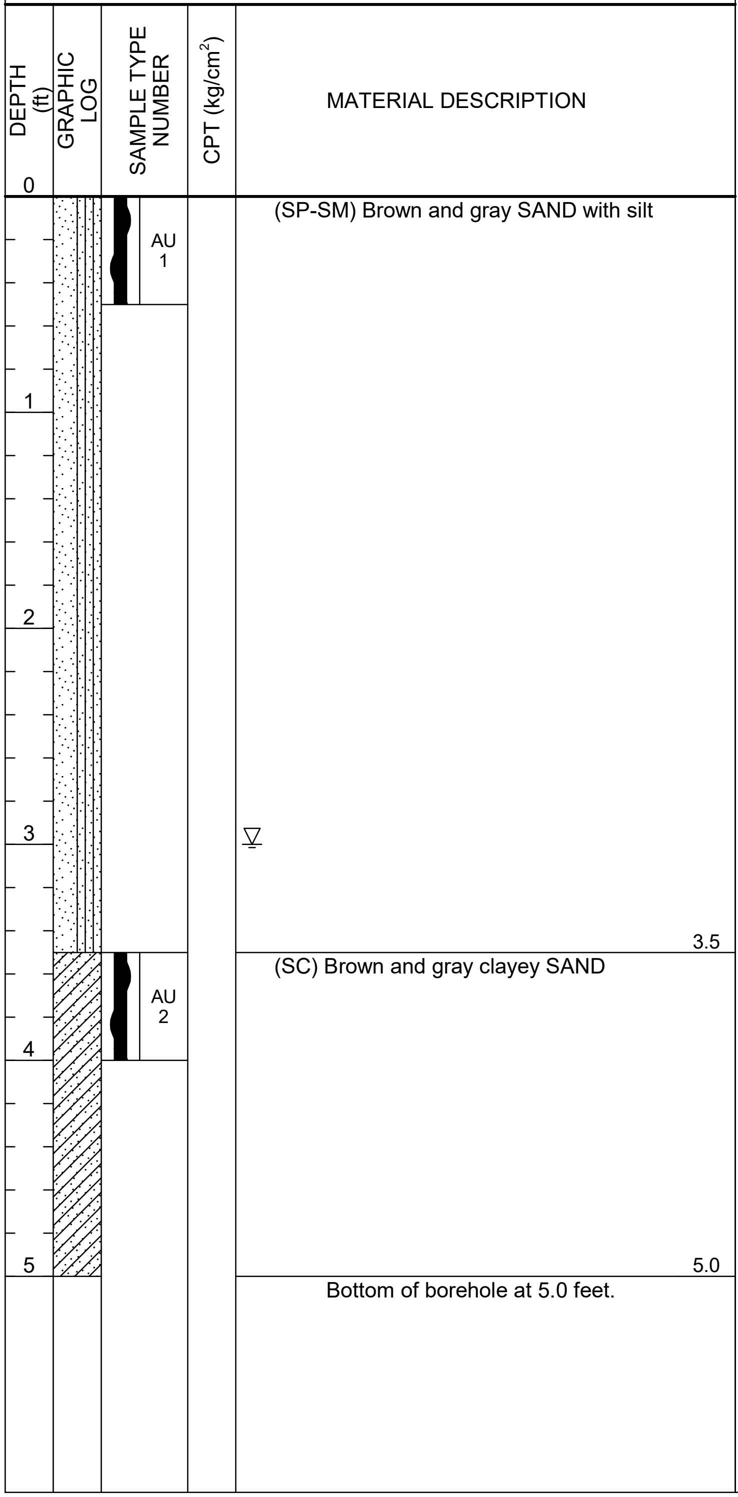
▼ AT TIME OF DRILLING NE

▽ ESTIMATED SEASONAL HIGH 3.0 ft

NOTES

LOGGED BY WDI

CHECKED BY AXL



Depth (ft)	Sample	Material Description
0.0 – 3.5	AU 1	(SP-SM) Brown and gray SAND with silt
3.5 – 5.0	AU 2	(SC) Brown and gray clayey SAND
5.0		Bottom of borehole at 5.0 feet.

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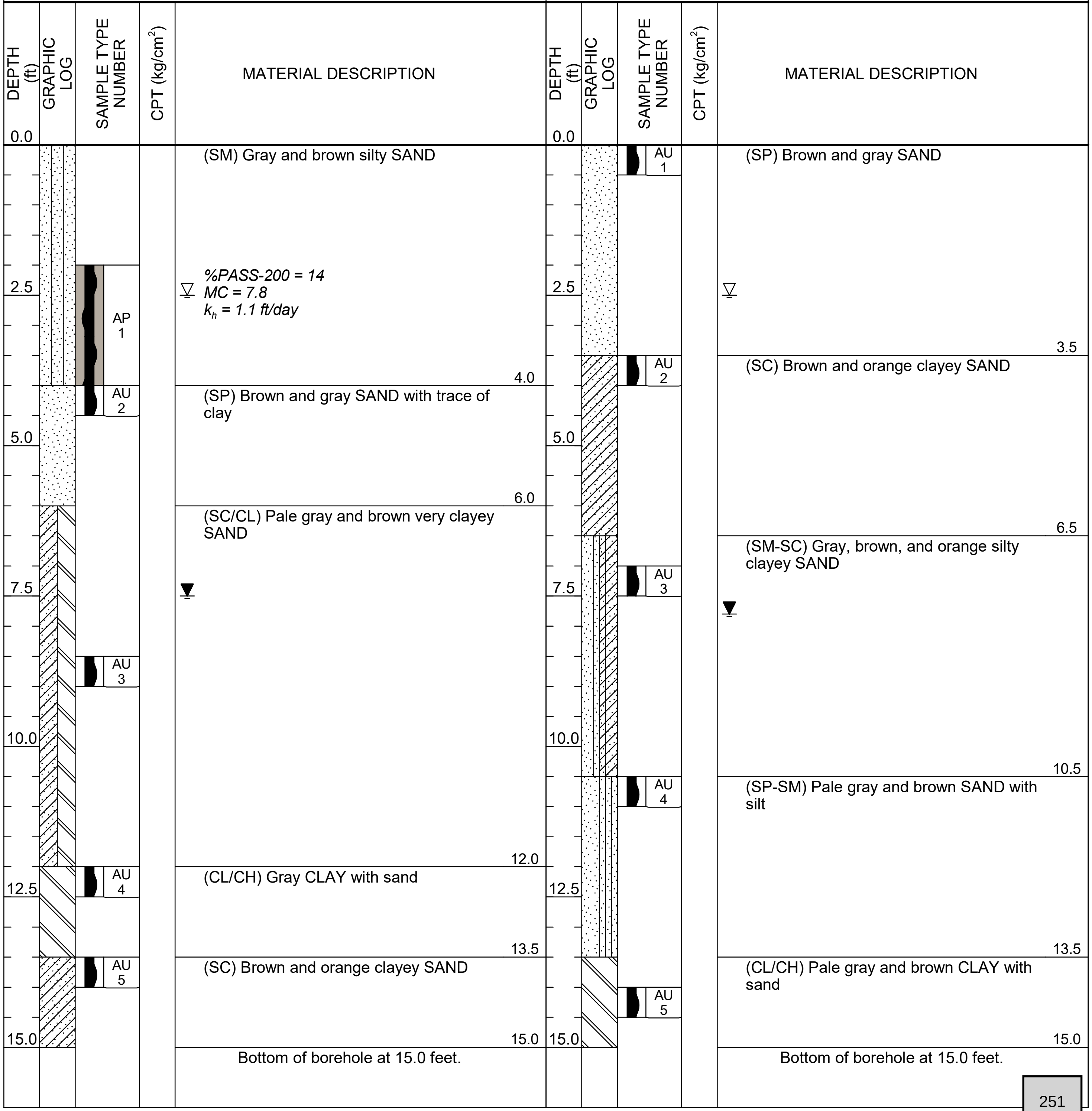
Gainesville, FL 32608
Telephone: 3523773233

CLIENT Concept Development, Inc.
PROJECT NUMBER 16251
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT LOCATION Lake City, Columbia County, Florida

DATE PERFORMED 9/20/2023 **BORING NUMBER P-1**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
▼ AT TIME OF DRILLING 7.5 ft
▽ ESTIMATED SEASONAL HIGH 2.5 ft
LOGGED BY WDI
CHECKED BY AXL
NOTES

DATE PERFORMED 9/20/2023 **BORING NUMBER P-2**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
▼ AT TIME OF DRILLING 7.8 ft
▽ ESTIMATED SEASONAL HIGH 2.5 ft
LOGGED BY WDI
CHECKED BY AXL
NOTES



P-1

DEPTH (ft)	SAMPLE TYPE NUMBER	CPT (kg/cm^2)	MATERIAL DESCRIPTION
0.0			(SM) Gray and brown silty SAND
2.5	AP 1		▽ *%PASS-200 = 14* *MC = 7.8* *k_h = 1.1 ft/day*
4.0	AU 2		(SP) Brown and gray SAND with trace of clay
6.0			(SC/CL) Pale gray and brown very clayey SAND
7.5			▼
	AU 3		
12.0	AU 4		(CL/CH) Gray CLAY with sand
13.5	AU 5		(SC) Brown and orange clayey SAND
15.0			Bottom of borehole at 15.0 feet.

P-2

DEPTH (ft)	SAMPLE TYPE NUMBER	CPT (kg/cm^2)	MATERIAL DESCRIPTION
0.0	AU 1		(SP) Brown and gray SAND
2.5			▽
3.5	AU 2		(SC) Brown and orange clayey SAND
6.5	AU 3		(SM-SC) Gray, brown, and orange silty clayey SAND
			▼
10.5	AU 4		(SP-SM) Pale gray and brown SAND with silt
13.5	AU 5		(CL/CH) Pale gray and brown CLAY with sand
15.0			Bottom of borehole at 15.0 feet.

(Continued Next Page)

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Gainesville, FL 32608
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CLIENT Concept Development, Inc.

PROJECT NAME Dollar General - Lake City SW Marvin Burnett

PROJECT NUMBER 16251

PROJECT LOCATION Lake City, Columbia County, Florida

BORING NUMBER P-3

DATE PERFORMED 9/20/2023
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
▼ AT TIME OF DRILLING 7.5 ft
▽ ESTIMATED SEASONAL HIGH 1.5 ft
NOTES
LOGGED BY WDI
CHECKED BY AXL

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm^2)	MATERIAL DESCRIPTION
0.0		AP 1		(SM) Brown silty SAND ▽ *%PASS-200 = 15* *MC = 9.7* *k_h = 0.8 ft/day*
2.0		AU 2		(SC) Brown, gray, and orange clayey SAND
7.0		AU 3		▼ (SP-SM) Pale gray and pale brown SAND with silt
12.0		AU 4		(CL/CH) Green CLAY with sand
15.0				Bottom of borehole at 15.0 feet.

BORING NUMBER P-4

DATE PERFORMED 9/20/2023
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
▼ AT TIME OF DRILLING 8.8 ft
▽ ESTIMATED SEASONAL HIGH 2.5 ft
NOTES
LOGGED BY WDI
CHECKED BY AXL

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm^2)	MATERIAL DESCRIPTION
0.0		AU 1		(SP-SM) Brown and gray SAND with silt ▽
5.0		AU 2		(SC) Brown, gray, and orange clayey SAND
7.5		AU 3		(SC/CL) Brown, gray, and orange very clayey SAND ▼
10.0		AU 4		(SP-SM) Pale brown and pale gray SAND with silt
12.5		AU 5		(CL/CH) Brown and gray CLAY with sand
15.0				Bottom of borehole at 15.0 feet.

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CLIENT Concept Development, Inc.

PROJECT NAME Dollar General - Lake City SW Marvin Burnett

PROJECT NUMBER 16251

PROJECT LOCATION Lake City, Columbia County, Florida

DATE PERFORMED 9/20/2023 **BORING NUMBER P-5**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS:

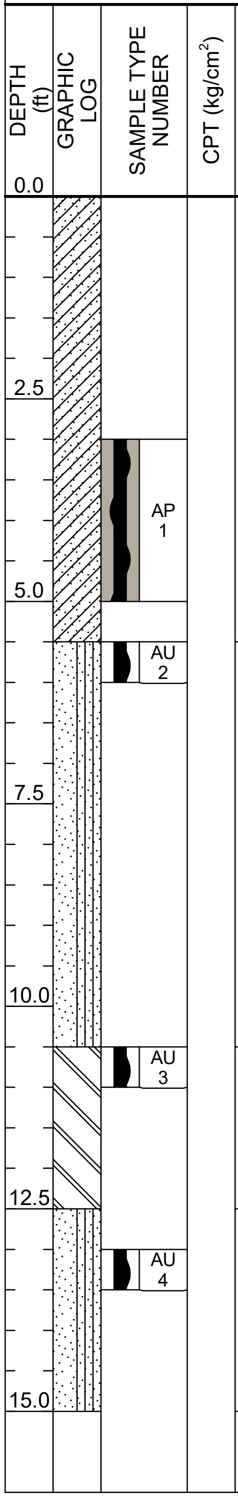
▼ AT TIME OF DRILLING 8.8 ft

▽ ESTIMATED SEASONAL HIGH 1.0 ft

LOGGED BY WDI

CHECKED BY AXL

NOTES



MATERIAL DESCRIPTION

(SC) Brown and gray clayey SAND

▽

%PASS-200 = 30
MC = 13
k_h = NF

5.5

(SP-SM) Brown, gray, and orange SAND with silt

▼

10.5

(CL/CH) Gray and brown CLAY with sand

12.5

(SP-SM) Brown and orange SAND with silt

15.0

Bottom of borehole at 15.0 feet.

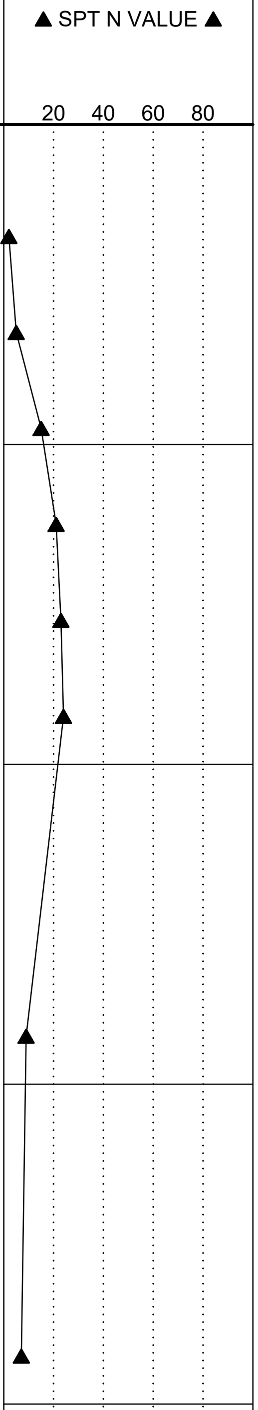
5.2 Standard Penetration Test Soil Boring Logs

GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

BORING NUMBER B-1

CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida
DATE STARTED 9/20/23 **COMPLETED** 9/20/23
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 6.5 ft
LOGGED BY WDI **CHECKED BY** AXL
▽ **ESTIMATED SEASONAL HIGH** 3.5 ft
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SP-SM) Very loose brown SAND with silt								
			SPT 1	1-1-1 (2)					
	▽ (CL) Firm to very stiff brown, gray, and orange sandy CLAY	3	SPT 2	1-2-3 (5)					
5			SPT 3	4-6-9 (15)	35	18	17	56	17
	▼		SPT 4	7-10-11 (21)					
	(SP-SC) Medium dense brown, gray, and orange SAND with clay	7.5	SPT 5	8-11-12 (23)					
			SPT 6	9-10-14 (24)					
10	(SP) Medium dense pale gray and brown SAND	9.5							
	(CL/CH) Firm to stiff green and orange CLAY	12							
15			SPT 7	3-4-5 (9)					
20		20	SPT 8	2-3-4 (7)					
	Bottom of borehole at 20.0 feet.								



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Gainesville, FL 32608
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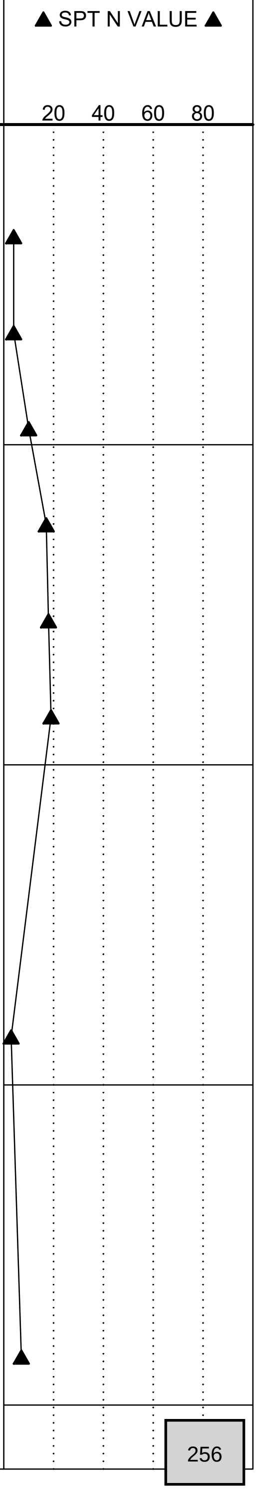
BORING NUMBER B-2

CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida
DATE STARTED 9/20/23 **COMPLETED** 9/20/23
GROUND ELEVATION
HOLE SIZE
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 6.1 ft
LOGGED BY WDI **CHECKED BY** AXL
▽ **ESTIMATED SEASONAL HIGH** 3.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0		(SP-SM) Very loose gray and brown SAND with silt								
				SPT 1	1-2-2 (4)					
			3							
		▽ (SM-SC) Very loose to medium dense gray, brown, and orange silty clayey SAND		SPT 2	1-2-2 (4)					
5				SPT 3	2-4-6 (10)					
		▼		SPT 4	7-9-8 (17)					
				SPT 5	7-8-10 (18)					
			8.5							
		(SP-SC) Very loose to medium dense pale gray and brown SAND with clay		SPT 6	7-9-10 (19)					
10										
		Weight-of-Rod from 13.5 to 14.5 ft bls.		SPT 7	0-0-3 (3)					
			14.5							
15		(CL/CH) Soft gray sandy CLAY								
			16.5							
		(CL/CH) Firm green and orange CLAY		SPT 8	3-3-4 (7)					
20			20							
		Bottom of borehole at 20.0 feet.								



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Engineering & Consulting, Inc.

GSE Engineering
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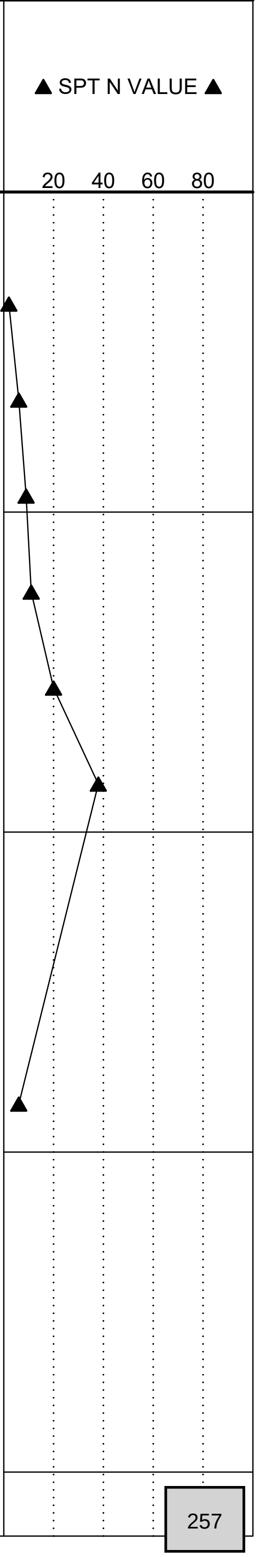
Gainesville, FL 32608
Telephone: 3523773233

BORING NUMBER B-3

CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida
DATE STARTED 9/20/23 **COMPLETED** 9/20/23
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 6.1 ft
LOGGED BY WDI **CHECKED BY** AXL
∇ **ESTIMATED SEASONAL HIGH** 3.5 ft
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SP-SM) Very loose gray and brown SAND with silt	2.5	SPT 1	1-1-1 (2)					
	(SP) Loose pale gray SAND ∇	4.5	SPT 2	1-2-4 (6)					
5	(SP-SC) Loose to gray and brown SAND with clay	6	SPT 3	2-4-5 (9)					
	▼ (SC/CL) Medium dense to dense gray, brown, and orange very clayey SAND	13.5	SPT 4	6-2-9 (11)					
			SPT 5	7-9-11 (20)					
10			SPT 6	14-16-22 (38)					
15	(CL) Firm gray sandy CLAY	16	SPT 7	2-3-3 (6)	41	15	26	62	23
20	(CL/CH) Green and orange CLAY	20							
	Bottom of borehole at 20.0 feet.								



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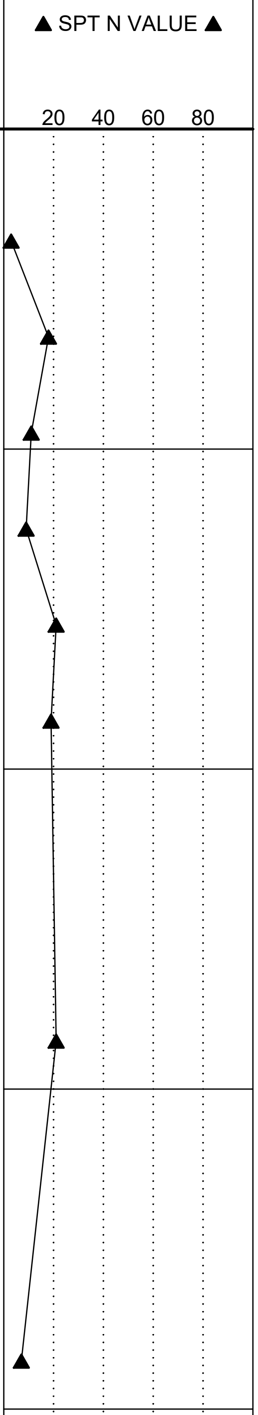
GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

BORING NUMBER B-4

CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida
DATE STARTED 9/20/23 **COMPLETED** 9/20/23
GROUND ELEVATION
HOLE SIZE
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 6.5 ft
LOGGED BY WDI **CHECKED BY** AXL
▽ **ESTIMATED SEASONAL HIGH** 3.5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0		(SP-SM) Very loose gray and brown SAND with silt								
				SPT 1	1-1-2 (3)					
		▽ (SP) Medium dense pale gray and brown SAND	3	SPT 2	4-7-11 (18)					
5				SPT 3	7-5-6 (11)					
		▼ (SM-SC) Loose to medium dense gray, brown, and orange silty SAND with clay	6	SPT 4	3-4-5 (9)					
				SPT 5	5-7-14 (21)				27	18
10		(SC) gray and brown clayey SAND	9	SPT 6	12-10-9 (19)					
15		(SP-SC) Medium dense gray, brown, and orange SAND with clay	13	SPT 7	4-9-12 (21)					
20		(CL/CH) Firm green and gray sandy CLAY	17	SPT 8	3-3-4 (7)					
		Bottom of borehole at 20.0 feet.	20							



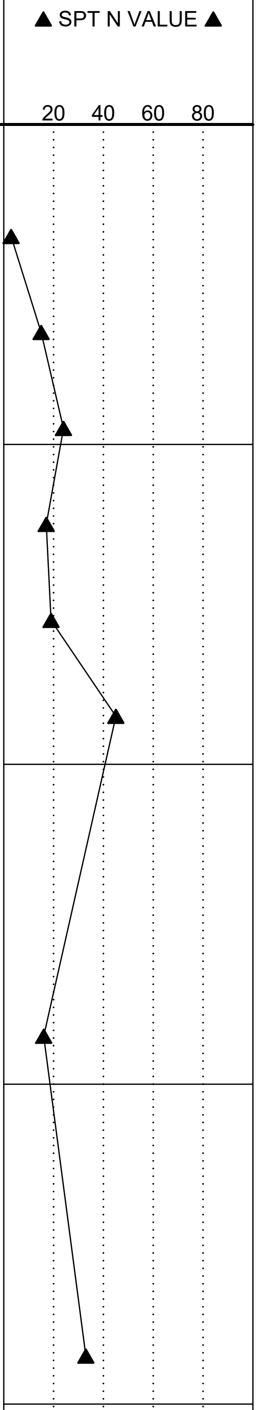
GSE Engineering & Consulting, Inc.

GSE Engineering
5590 SW 64th St
Gainesville, FL 32608
Telephone: 3523773233

BORING NUMBER B-5

CLIENT Concept Development, Inc.
PROJECT NAME Dollar General - Lake City SW Marvin Burnett
PROJECT NUMBER 16251
PROJECT LOCATION Lake City, Columbia County, Florida
DATE STARTED 9/20/23 **COMPLETED** 9/20/23
GROUND ELEVATION ______ **HOLE SIZE** ______
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Flight Auger
▼ **AT TIME OF DRILLING** 6.5 ft
LOGGED BY WDI **CHECKED BY** AXL
▽ **ESTIMATED SEASONAL HIGH** 3.5 ft
NOTES ______

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SP-SM) Very loose brown and gray SAND with silt	3	SPT 1	1-1-2 (3)					
	▽ (SP) Medium dense pale brown and pale gray SAND		SPT 2	4-7-8 (15)					
5			SPT 3	10-11-13 (24)					
	▼		SPT 4	10-8-9 (17)					
		8	SPT 5	7-8-11 (19)					
10	(SP-SC) Medium dense to dense brown and orange SAND with clay	10	SPT 6	17-21-24 (45)				11	17
15	(SP) Medium dense pale brown and gray SAND	17.5	SPT 7	5-7-9 (16)					
20	(CL/CH) Hard pale gray sandy CLAY	20	SPT 8	8-14-19 (33)					
	Bottom of borehole at 20.0 feet.								



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5.3 Laboratory Results

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF LABORATORY TEST RESULTS

Project Number: 16251

Project Name: Dollar General - Lake City SW Marvin Burnett

Boring Number	Depth (ft)	Soil Description	Natural Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Percent Passing No. 200 Sieve	Organic Content (%)	Hydraulic Conductivity (ft/day)	Unified Soil Classification
A-2	1-1.5	Dark brown and gray SAND with silt	8.7				11			SP-SM
A-4	3-3.5	Brown, gray, and orange very clayey SAND	18				34			SC/CL
B-1	4-5.5	Brown, gray, and orange sandy CLAY	17	35	18	17	56			CL
B-3	13.5-15	Gray sandy CLAY	23	41	15	26	62			CL
B-4	7-8.5	Gray, brown, and orange silty SAND with clay	18				27			SM-SC
B-5	8.5-10	Pale brown and gray SAND with clay	17				11			SP-SC
P-1	2-4	Gray and brown silty SAND	7.8				14		1.1	SM
P-3	0-2	Brown silty SAND	9.7				15		0.8	SM
P-5	3-5	Brown and gray clayey SAND	13				30		NF	SC

5.4 Key to Soil Classification

KEY TO SOIL CLASSIFICATION CHART

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests				SYMBOLS		GROUP NAME
				GRAPHIC	LETTER	
COARSE-GRAINED SOILS	Gravels	Clean Gravels	$Cu \geq 4$ and $1 \leq Cc \leq 3$	▨	**GW**	Well graded GRAVEL
More than 50% retained on No. 200 sieve	More than 50% of coarse fraction retained on No. 4 sieve	Less than 5% fines	$Cu < 4$ and/or $1 > Cc > 3$	▨	**GP**	Poorly graded GRAVEL
		Gravels with fines	Fines classify as ML or MH	▨	**GM**	Silty GRAVEL
		More than 12% fines	Fines classify as CL or CH	▨	**GC**	Clayey GRAVEL
	Sands	Clean Sands	$Cu \geq 6$ and $1 \leq Cc \leq 3$	▨	**SW**	Well graded SAND
	50% or more of coarse fraction passes No. 4 sieve	Less than 5% fines	$Cu < 6$ and/or $1 > Cc > 3$	▨	**SP**	Poorly graded SAND
		Sand with fines	Fines classify as ML or MH	▨	**SP-SM**	SAND with silt
		$5\% \leq$ fines $< 12\%$	Fines classify as CL or CH	▨	**SP-SC**	SAND with clay
		Sand with fines	Fines classify as ML or MH	▨	**SM**	Silty SAND
		$12\% \leq$ fines $< 30\%$	Fines classify as CL or CH	▨	**SC**	Clayey SAND
		Sand with fines	Fines classify as ML or MH	▨	**SM**	Very silty SAND
		30% fines or more	Fines classify as CL or CH	▨	**SC**	Very clayey SAND
FINE-GRAINED SOILS	Clays	inorganic	$50\% \leq$ fines $< 70\%$	▨	**CL/CH**	Sandy CLAY
50% or more passes the No. 200 sieve			$70\% \leq$ fines $< 85\%$	▨	**CL/CH**	CLAY with sand
			fines $\geq 85\%$	▨	**CL/CH**	CLAY
	Silts and Clays	inorganic	PI > 7 and plots on/above "A" line	▨	**CL**	Lean CLAY
	Liquid Limit less than 50		PI < 4 or plots below "A" line	▨	**ML**	SILT
		organic	$\frac{\text{Liquid Limit - oven dried}}{\text{Liquid Limit - not dried}} < 0.75$	▨	**OL**	Organic clay Organic silt
	Silts and Clays	inorganic	PI plots on or above "A" line	▨	**CH**	Fat CLAY
	Liquid Limit 50 or more		PI plots below "A" line	▨	**MH**	Elastic SILT
		organic	$\frac{\text{Liquid Limit - oven dried}}{\text{Liquid Limit - not dried}} < 0.75$	▨	**OH**	Organic clay Organic silt
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor			▨	**PT**	PEAT

CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

	No. OF BLOWS, N	RELATIVE DENSITY
	0 - 4	Very Loose
	5 - 10	Loose
SANDS:	11 - 30	Medium dense
	31 - 50	Dense
	OVER 50	Very Dense

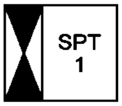
	No. OF BLOWS, N	RELATIVE DENSITY
	0 - 8	Very Soft
	9 - 18	Soft
LIMESTONE:	19 - 32	Moderately Hard
	33 - 50	Hard
	OVER 50	Very Hard

	No. OF BLOWS, N	CONSISTENCY
	0 - 2	Very Soft
SILTS	3 - 4	Soft
&	5 - 8	Firm
CLAYS:	9 - 15	Stiff
	16 - 30	Very Stiff
	31 - 50	Hard
	OVER 50	Very Hard

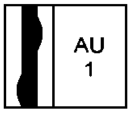
PARTICLE SIZE IDENTIFICATION

BOULDERS:		Greater than 300 mm
COBBLES:		75 mm to 300 mm
GRAVEL:	Coarse -	19.0 mm to 75 mm
	Fine -	4.75 mm to 19.0 mm
SANDS:	Coarse -	2.00 mm to 4.75 mm
	Medium -	0.425 mm to 2.00 mm
	Fine -	0.075 mm to 0.425 mm
SILTS & CLAYS:		Less than 0.075 mm

SAMPLE GRAPHIC TYPE LEGEND



Location of SPT Sample



Location of Auger Sample

LABORATORY TEST LEGEND

LL = Liquid Limit, %

PL = Plastic Limit, %

PI = Plasticity Index, %

% PASS - 200 = Percent Passing the No. 200 Sieve

MC = Moisture Content, %

ORG = Organic Content, %

k_h = Horizontal Hydraulic Conductivity, ft/da

6.0 LIMITATIONS

6.1 Warranty

This report has been prepared for our client for their exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

6.2 Auger and SPT Borings

The determination of soil type and conditions was performed from the ground surface to the maximum depth of the borings, only. Any changes in subsurface conditions that occur between or below the borings would not have been detected or reflected in this report.

Soil classifications that were made in the field are based upon identifiable textural changes, color changes, changes in composition or changes in resistance to penetration in the intervals from which the samples were collected. Abrupt changes in soil type, as reflected in boring logs and/or cross sections may not actually occur, but instead, be transitional.

Depth to the water table is based upon observations made during the performance of the auger and SPT borings. This depth is an estimate and does not reflect the annual variations that would be expected in this area due to fluctuations in rainfall and rates of evapotranspiration.

6.3 Site Figures

The measurements used for the preparation of the figures in this report were made using the provided site plan and by estimating distances from existing structures and site features. Figures in this report were not prepared by a licensed land surveyor and should not be interpreted as such.

6.4 Unanticipated Soil Conditions

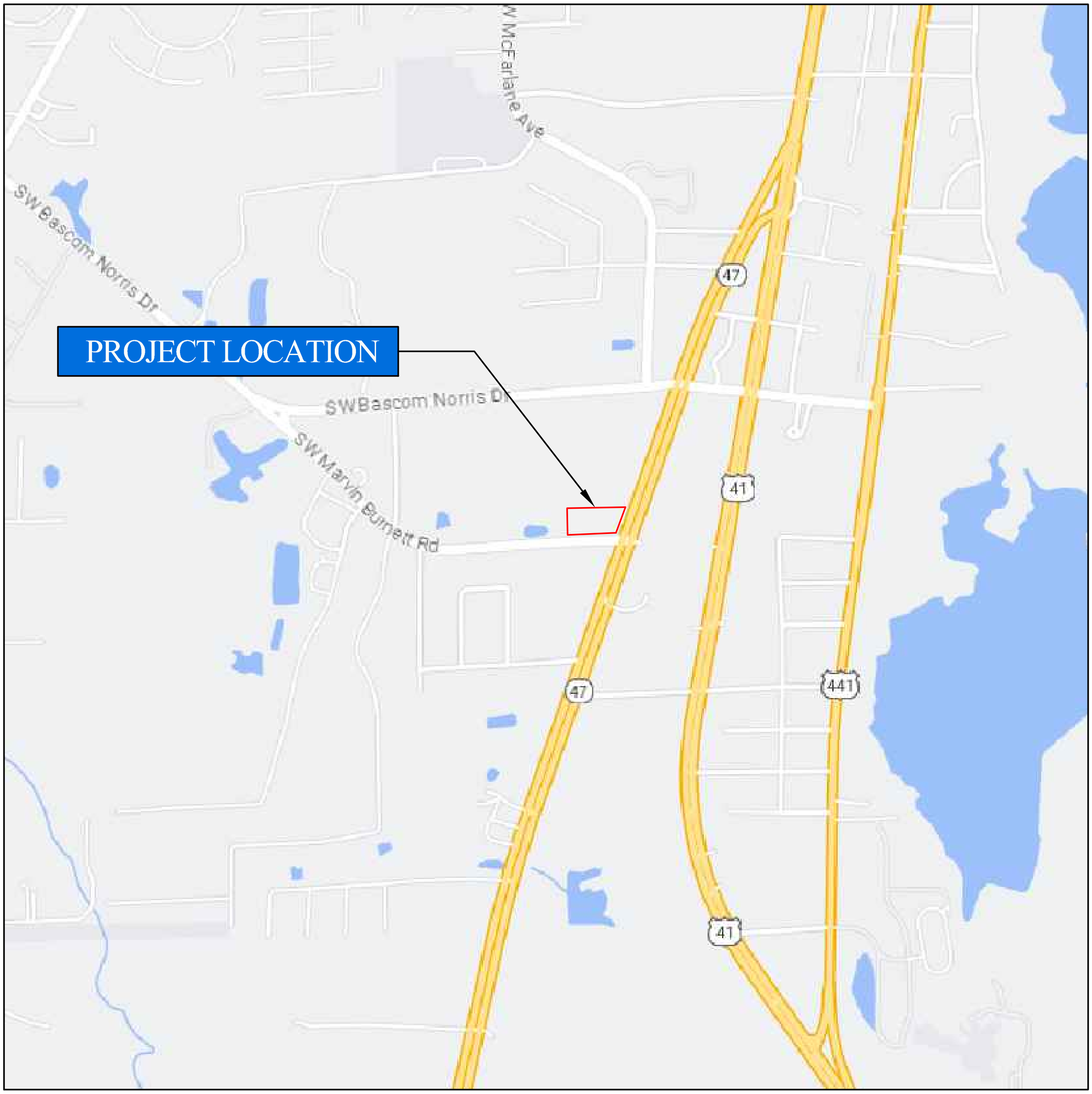
The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on Figure 2. This report does not reflect any variations that may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

6.5 Misinterpretation of Soil Engineering Report

GSE Engineering & Consulting, Inc. is responsible for the conclusions and opinions contained within this report based upon the data relating only to the specific project and location discussed herein. If others make the conclusions or recommendations based upon the data presented, those conclusions or recommendations are not the responsibility of GSE.

FIGURES



NOT TO SCALE

DOLLAR GENERAL - LAKE CITY
SW MARVIN BURNETT
LAKE CITY, COLUMBIA COUNTY, FLORIDA
GSE PROJECT NO. 16251

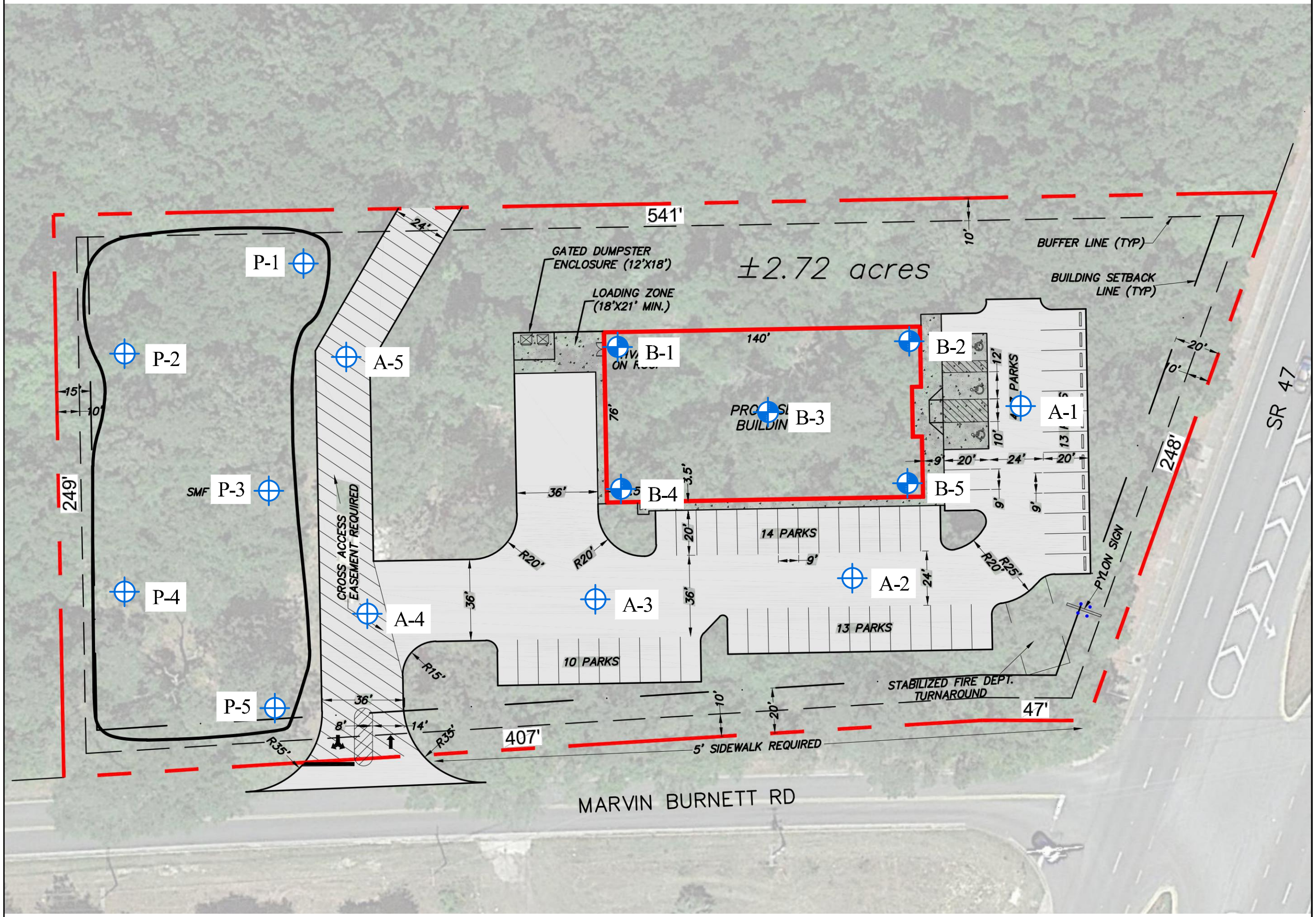
PROJECT SITE LOCATION MAP

DESIGNED BY : AXL
CHECKED BY : JEG
DRAWN BY : EEW

GSE
Engineering & Consulting, Inc.

FIGURE

1



LEGEND:

⊕	SPT BORING
⊕	AUGER BORING

NORTH

0 80'

SCALE: 1" = 80' APPROX.

DOLLAR GENERAL - LAKE CITY
SW MARVIN BURNETT
LAKE CITY, COLUMBIA COUNTY, FLORIDA
GSE PROJECT NO. 15396

SITE PLAN SHOWING APPROXIMATE LOCATIONS OF FIELD TESTS

DESIGNED BY : AXL
CHECKED BY : JEG
DRAWN BY : AXL

GSE
Engineering & Consulting, Inc.

FIGURE

2

DEPARTMENT OF GROWTH MANAGEMENT
205 North Marion Avenue
Lake City, Florida 32055
Telephone: (386) 719-5750
growthmanagement@lcfla.com

REVIEW REPORT TO PLANNING AND ZONING, BOARD OF ADJUSTMENT AND HISTORICAL COMMITTEES' BY STAFF

FOR SITE PLAN REVIEW, SPECIAL EXCEPTIONS, VARIANCES, COMPREHENSIVE PLAN AMENDMENTS/ ZONING AND CERTIFICATE OF APPROPRIATENESS

Date: 03/21/2024

Request Type: Site Plan Review (SPR) ☒ Special Exception (SE) ☐ Variances (V) ☐

Comprehensive Plan Amendment/Zoning (CPA/Z) ☐ Certificate of Appropriateness (COA) ☐

Project Number: SPR24-05

Project Name: Commercial Retail Store- Dollar General

Project Address: TBD

Project Parcel Number: 08127-005

Owner Name: Concept Companies

Owner Address: 1449 SW 74th Dr. Suite 200

Owner Contact Information: Telephone Number: 352-333-3233 Email:

Owner Agent Name: Randall Olney, P.E.

Owner Agent Address: 11801 Research Drive, Alaucha, FL 32615

Owner Agent Contact Information: Telephone: 352-331-1976 Email: randyo@chw-inc.com

The City of Lake City staff has reviewed the application and documents provided for the above request and have determined the following.

Growth Management – Building Department, Planning and Zoning, Code Enforcement, Permitting

Building Department: **Reviewed by:** DocuSigned by: 6A9220F9CF20485... **Date:** 3/22/2024

No comments at this time

Planning and Zoning: **Reviewed by:** DocuSigned by: Robert Angelo F0D1ED33B98E4BE... **Date:** 3/26/2024

The property is zoned Commercial Intensive. All permitted uses in Commercial General are permitted in Commercial Intensive per section 4.13.2. Retail stores are a permitted use per section 4.12.2.1.

Business License: **Reviewed by:** DocuSigned by: Marshall Sova E8B18D144D974CD... **Date:** 3/22/2024

Will need to apply for occupational license

Code Enforcement: Reviewed by: DocuSigned by: Marshall Sova E8B18D144D974CD... **Date:** 3/22/2024

No liens, codes or violations

Permitting: Reviewed by: DocuSigned by: Ann Jones F5E79CA4532C435... **Date:** 3/22/2024

not at this time

Utilities – Water, Sewer, Gas, Water Distribution/Collections, Customer Service

Water Department: Reviewed by: DocuSigned by: Mike Osborn 896E039544B74E3... **Date:** 3/22/2024

None at this time

Sewer Department: Reviewed by: DocuSigned by: Cody Pridgeon DBA01EF55AD249B... **Date:** 3/22/2024

None

Gas Department: Reviewed by: DocuSigned by: Steve Brown 8B57D0CE8F2F4B5... **Date:** 3/22/2024

Cannot comment wit no address.

Water Distribution/Collection: Reviewed by: DocuSigned by: Brian Scott F599EB6125784F8... **Date:** 4/2/2024

no comment at this time

Customer Service: Reviewed by: DocuSigned by: Shasta Pelham 6BD97A03165D4E0... **Date:** 4/9/2024

A tap application will need to be submitted in order to request city utilities. The utility fees will be calculated upon approval of the tap application.

Public Safety – Public Works, Fire Department, Police Department

Public Works: **Reviewed by:** DocuSigned by: Steve Brown 8B57D0CE8F2F4B5... **Date:** 3/22/2024

No comment.

Fire Department: **Reviewed by:** DocuSigned by: Joshua Welsinger 6AA3758BA88A46E... **Date:** 3/22/2024

I have no issues

Police Department: **Reviewed by:** DocuSigned by: Sue Tuell 665374359EAC4D8... **Date:** 3/22/2024

no concerns at this time

NOTE: Please provide separate pages for comments that will not fit in provided spaces and please label the pages for your department and for the project.

State and County- FDOT, Suwannee River Water Management, School Board, Columbia County

FDOT: Reviewed by:____________________________________ **Date:**____________

Suwannee River Water Management: Reviewed by: DocuSigned by: Garrett Spencer 650C0305882B42D... **Date:** 3/25/2024

The project will require an ERP Permit. It is recommended that the applicant schedule a pre-application meeting with SRWMD staff to go over the permitting requirements.

School Board: Reviewed by: DocuSigned by: keith Hatcher 96699F1916BC425... **Date:** 3/25/2024

No comments at this time.

County: Reviewed by: DocuSigned by: Chad Williams 35A47263EAB7416... **Date:** 4/9/2024

A driveway permit will be required. The County is currently in the process of permitting several developments west of this location along Bascom Norris Drive.   For that reason, we ask that the applicant and agencies pay careful attention to the traffic issue. This comment is provided by the County Engineer based only on the information contained in the application provided. This response does not constitute the engineer's professional opinion with respect to the project and does not constitute approval of any committee or board for Columbia County.

NOTE: Please provide separate pages for comments that will not fit in provided spaces and please label the pages for your department and for the project.

LAKE CITY GROWTH MANAGEMENT
STAFF ANALYSIS REPORT

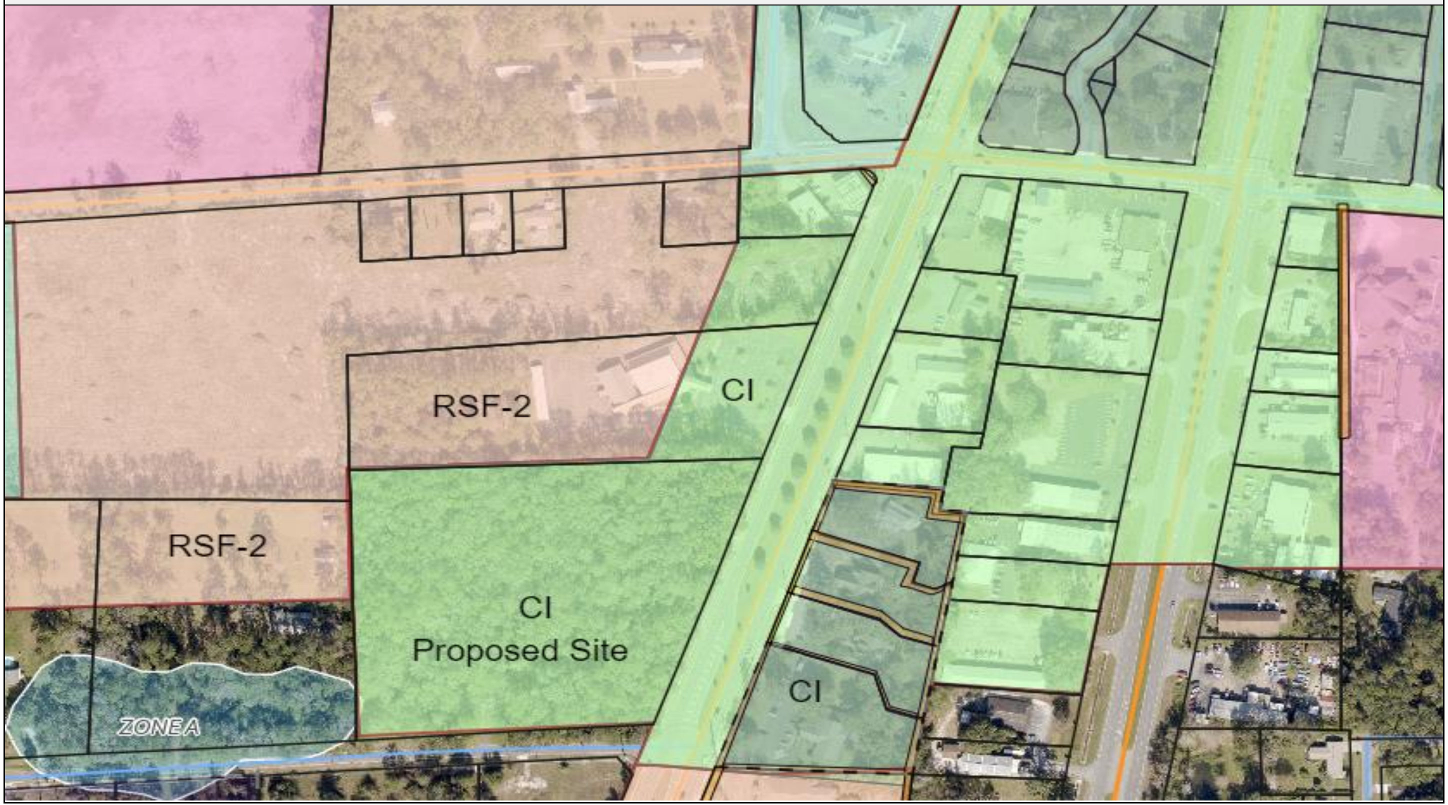
Project Information	
Project Name and Case No.	Dollar General site plan review
Applicant	Randall Olney, PE
Owner	Concept Companies
Requested Action	Site plan review for Dollar General, retail store, on parcel 08127-005
Hearing Date	05-14-2024
Staff Analysis/Determination	Sufficient for Review
Prepared By	Robert Angelo

Subject Property Information	
Size	+/- 2.70 Acres
Location	Corner of Marvin Burnett and Hwy 47
Parcel Number	08127-000
Future Land Use	Commercial
Proposed Future Land Use	Commercial
Current Zoning District	Commercial Intensive
Proposed Zoning	Commercial Intensive
Flood Zone-BFE	Flood Zone X and A Base Flood Elevation-N/A

Land Use Table

Direction	Future Land Use	Zoning	Existing Use	Comments
N	Residential Moderate	RSF-2	Residential	
E	Residential Moderate	RSF-2	Residential	
S	County		Vacant	County Jurisdiction
W	Commercial	CI	Medical Office	

Map of Location



Picture of Location

Summary of Request
Applicant has petitioned for a site plan review for the above parcels to build a retail store.


PUBLIC NOTICE


PUBLIC NOTICE

CITY OF LAKE CITY
NOTICE
LAND USE ACTION

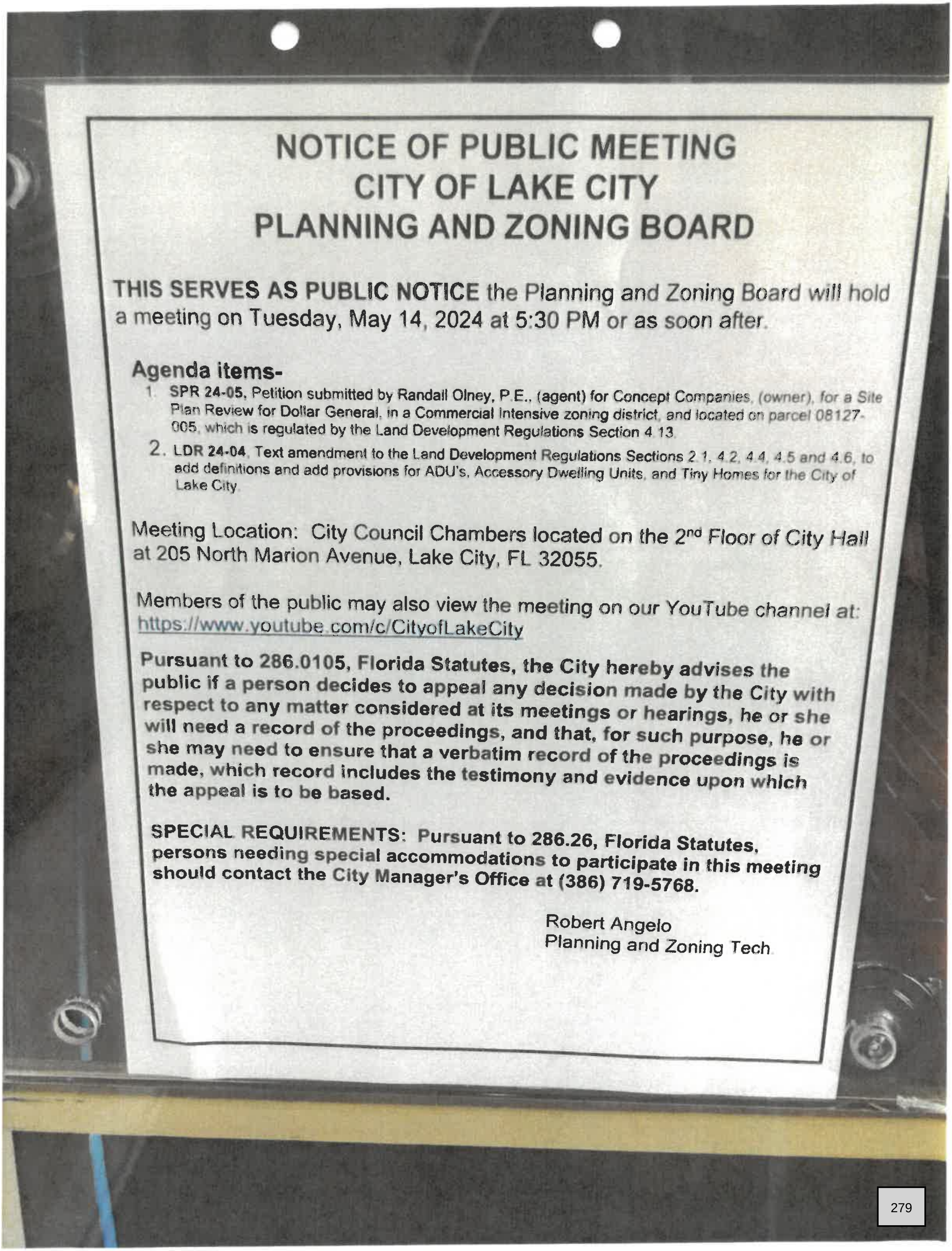
A PUBLIC HEARING IS SCHEDULED TO CONSIDER A REQUEST FOR:

SPR24.05, a petition by Randall Olney, P.E., as agent, to request a Site Plan Review approval be granted as provided for in Section 4.13 of the Land Development Regulations, to get approval on site plan for Dollar General for a property located in the Commercial Intensive zoning district, in accordance with the submittal of the petition dated March 21, 2024, to be located on parcels 08127-005	
WHEN:	May 14, 2024 5:30 p.m.
WHERE:	City Council Meeting Room, Second Floor, City Hall, located at 205 North Marion Avenue, Lake City, Florida. Members of the public may also view the meeting on our YouTube channel at: https://www.youtube.com/c/CityofLakeCity.

Copies of the site plan review application are available for public inspection by contacting the Office of Growth Management at growthmanagement@lcfla.com or by calling 386.719.5820.

At the aforementioned public hearing, all interested parties may be heard with respect to the Certificate of Appropriateness.

FOR MORE INFORMATION CONTACT
ROBERT ANGELO
PLANNING & ZONING TECHNICIAN
AT 386.719.5820



NOTICE OF PUBLIC MEETING
CITY OF LAKE CITY
PLANNING AND ZONING BOARD

THIS SERVES AS PUBLIC NOTICE the Planning and Zoning Board will hold a meeting on Tuesday, May 14, 2024 at 5:30 PM or as soon after.

Agenda items-

1. **SPR 24-05**, Petition submitted by Randall Olney, P.E., (agent) for Concept Companies, (owner), for a Site Plan Review for Dollar General, in a Commercial Intensive zoning district, and located on parcel 08127-005, which is regulated by the Land Development Regulations Section 4.13.
2. **LDR 24-04**, Text amendment to the Land Development Regulations Sections 2.1, 4.2, 4.4, 4.5 and 4.6, to add definitions and add provisions for ADU's, Accessory Dwelling Units, and Tiny Homes for the City of Lake City.

Meeting Location: City Council Chambers located on the 2nd Floor of City Hall at 205 North Marion Avenue, Lake City, FL 32055.

Members of the public may also view the meeting on our YouTube channel at: https://www.youtube.com/c/CityofLakeCity

Pursuant to 286.0105, Florida Statutes, the City hereby advises the public if a person decides to appeal any decision made by the City with respect to any matter considered at its meetings or hearings, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

SPECIAL REQUIREMENTS: Pursuant to 286.26, Florida Statutes, persons needing special accommodations to participate in this meeting should contact the City Manager's Office at (386) 719-5768.

Robert Angelo
Planning and Zoning Tech

NOTICE OF PUBLIC MEETING
CITY OF LAKE CITY
PLANNING AND ZONING BOARD

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Robert Angelo
Planning and Zoning Tech.

Angelo, Robert

From: LCR-Classifieds <classifieds@lakecityreporter.com>
Sent: Monday, April 29, 2024 11:20 AM
To: Angelo, Robert
Subject: 73990 73992 73991 RE: Non-Legal Ad for P&Z, BOA, and HPA for 05-14-2024
Attachments: 73991.pdf; 73992.pdf; 73990.pdf

Robert, all are scheduled to publish on May 2. Approval due by tomorrow please
P&Z: 3 col x 5.5 $272.25
Historic: 3 col x 4.5 $222.75
BOA: 3 col x 4 $198

Thank you much,
Kymberlee Harrison 386-754-0401
Support your local news source while reaching our community of loyal subscribers
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1086 SW Main Blvd. Ste 103, Lake City, FL 32055
PH 386-754-0401

Why Local Newsprint Advertising?

1 Newspaper readers are ENGAGED
2 Newspapers are viewed as TRUSTWORTHY

From: Angelo, Robert <AngeloR@lcfla.com>
Sent: Monday, April 29, 2024 8:57 AM
To: LCR-Classifieds <classifieds@lakecityreporter.com>
Subject: Non-Legal Ad for P&Z, BOA, and HPA for 05-14-2024

Kym

Please publish this ad in the body of the paper as a display ad in the **May 2, 2024** paper.

Thank You
Robert Angelo
City of Lake City
Growth Management
growthmanagement@lcfla.com
386-719-5820

NOTICE OF PUBLIC MEETING
CITY OF LAKE CITY
PLANNING AND ZONING BOARD

THIS SERVES AS PUBLIC NOTICE the Planning and Zoning Board will hold a meeting on Tuesday, May 14, 2024 at 5:30 PM or as soon after.

Agenda items-

1. **SPR 24-05,** Petition submitted by Randall Olney, P.E., (agent) for Concept Companies, (owner), for a Site Plan Review for Dollar General, in a Commercial Intensive zoning district, and located on parcel 08127-005, which is regulated by the Land Development Regulations Section 4.13.
2. **LDR 24-04**, Text amendment to the Land Development Regulations Sections 2.1, 4.2, 4.4, 4.5 and 4.6, to add definitions and add provisions for ADU's, Accessory Dwelling Units, and Tiny Homes for the City of Lake City.

Meeting Location: City Council Chambers located on the 2nd Floor of City Hall at 205 North Marion Avenue, Lake City, FL 32055.

Members of the public may also view the meeting on our YouTube channel at: https://www.youtube.com/c/CityofLakeCity

Pursuant to 286.0105, Florida Statutes, the City hereby advises the public if a person decides to appeal any decision made by the City with respect to any matter considered at its meetings or hearings, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

SPECIAL REQUIREMENTS: Pursuant to 286.26, Florida Statutes, persons needing special accommodations to participate in this meeting should contact the City Manager's Office at (386) 719-5768.

Robert Angelo
Planning and Zoning Tech.

CITY OF LAKE CITY
Florida's Gateway Est. 1859

April 22, 2024

To Whom it May Concern

On May 14, 2024 the Planning and Zoning Board will be having a meeting at 5:30pm at 205 N. Marion. At this meeting we will be hearing a petition submitted by Randall Olaney, PE, as agent, for Concept Companies, owner, for a site plan review, SPR24-05, for parcel 08127-005, The site plan is to build a retail store-Dollar General located within the Commercial Intensive (CI) zoning district.

If you have any questions or concerns please call 386-752-2031 ext. 820 or email growthmanagement@lcfla.com.

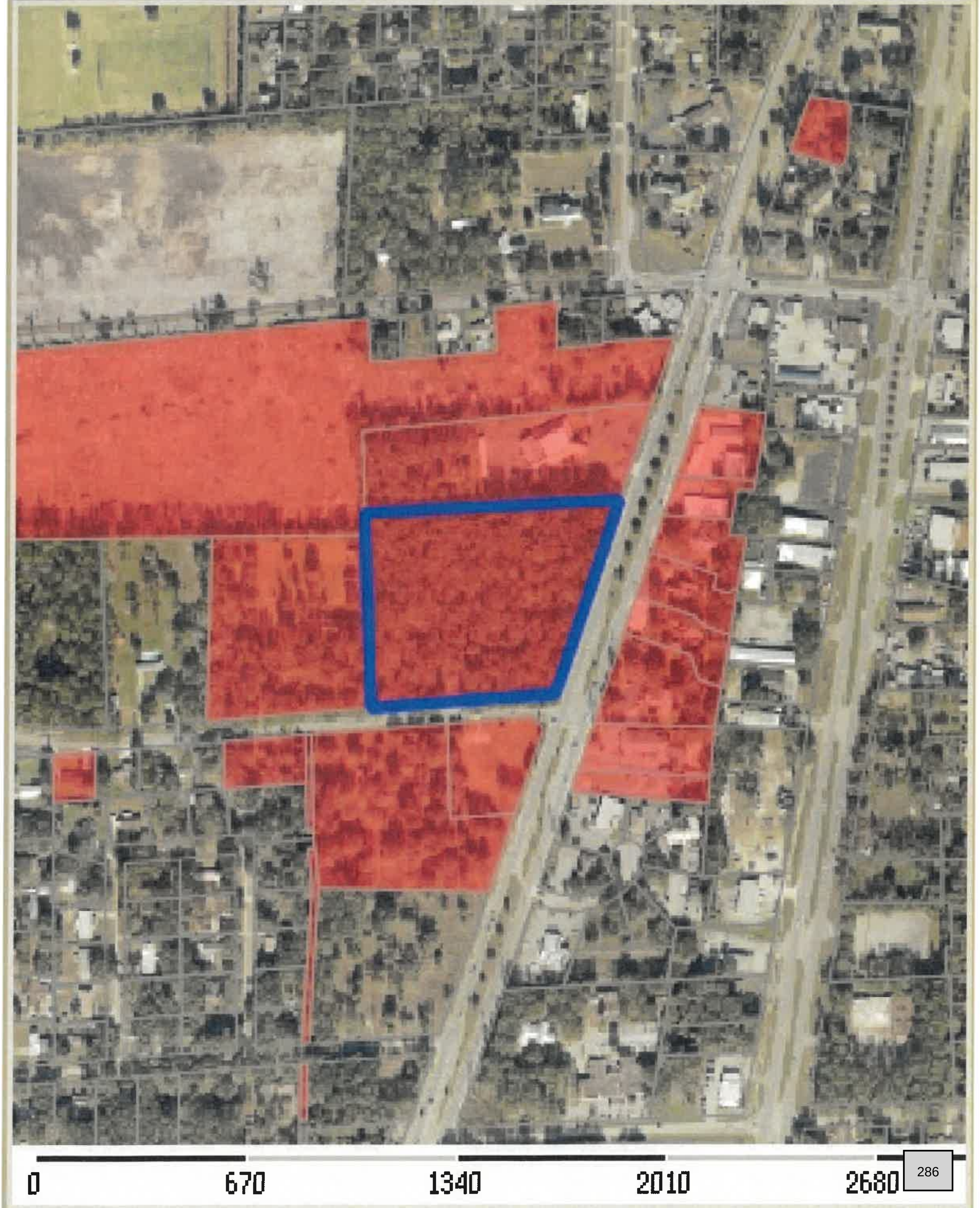
Robert Angelo

Planning and Zoning Tech
City of Lake City

Columbia County Property Appraiser - Sales Report

Name	Address1	Address2	Address3	City	State	ZIP
FRENVEY, INC	P O BOX 2095	.	LAKE CITY	FL	32056	
ST JOHNS LLC	13820 W NEWBERRY RD STE 100	.	NEWBERRY	FL	32669	
VANN SAMUEL P SR TRUST ETAL	131 W DUVAL STREET	.	LAKE CITY	FL	32055	
NFD DEVELOPERS LLC	P O BOX 2166	.	LAKE CITY	FL	32056	
GARR KENNETH	229 SW MARVIN BURNETT RD	.	LAKE CITY	FL	32024	
BAKER CHESTER	47 BURNT SWAMPP RD	.	EAST KINGSTON	NH	03827	
JAA INVESTMENT PROPERTIES, LLC	312 SW PILOTS WAY	.	LAKE CITY	FL	32024	
LAKE CITY CHURCH OF CHRIST INC	656 SW STATE RD 47	.	LAKE CITY	FL	32025	
KAMPMEYER ERVIN L LIVING TRUST	681 SW ST RD 47	.	LAKE CITY	FL	32025	
MARTIN CELIA S AS TRUSTEE	CELIA S MARTIN REV TRUST	973 SW STATE RD 47	LAKE CITY	FL	32025	
HAYDEN DONALD B	733 SW SR 47	.	LAKE CITY	FL	32025	
POLMERSKI LAVONNA B	423 NW CLUBVIEW CR	.	LAKE CITY	FL	32055	
CANCER CENTERS OF NORTH FLORIDA LLC	PO BOX 80610	.	INDIANAPOLIS	IN	46280	
CIVITAN REGIONAL BLOOD CENTER INC	D/B/A LIFESOUTH COMMUNITY BLOOD CENTERS, INC	4039 NEWBERRY RD	GAINESVILLE	FL	32607	
LAKE CITY, COLUMBIA COUNTY CHAMBER OF COMMERCE, INC	875 SW SR 47	.	LAKE CITY	FL	32025	

GIS Buffer



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FRENVEY, INC
PO BOX:2095
LAKE CITY, FL 32056

CERTIFIED MAIL

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11801 Research Dr
Alachua, FL. 32615

7022 3330 0001 1921 3117

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ST JOHNS LLC
13820 W NEWBERRY RD STE 100
NEWBERRY, FL 32669

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PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
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FRENVEY, INC
PO BOX 2095
LAKE CITY, FL 32056

9590 9402 8047 2349 1485 30

2. Article Number *(Transfer from service label)*

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☐ Agent
☐ Addressee

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3. Service Type
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1. Article Addressed to:

ST JOHNS LLC
13820 W NEWBERRY RD STE 100
NEWBERRY, FL 32669

9590 9402 8047 2349 1485 09

2. Article Number *(Transfer from service label)*

7022 3330 0001 1921 3117

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A. Signature

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☐ Agent
☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
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- ☐ Registered Mail™
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$\$\ 008.69^{0}$

APR 23 2024

VANN SAMUEL P SR TRUST ETAL
131 W DUVAL STREET
LAKE CITY, FL 32055

CHW
11801 Research Dr
Alachua, FL. 32615

CERTIFIED MAIL®

7022 3330 0001 1921 3131

FIRST-CLASS

US POSTAGE IMI PITNEY BOWES

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APR 23 2024

NFD DEVELOPERS LLC
PO BOX 2166
LAKE CITY, FL 32056

SENDER: *COMPLETE THIS SECTION*

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VANN SAMUEL P SR TRUST ETAL
131 W DUVAL STREET
LAKE CITY, FL 32055

9590 9402 8047 2349 1484 93

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A. Signature

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☐ Agent
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B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
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NFD DEVELOPERS LLC
PO BOX 2166
LAKE CITY, FL 32056

9590 9402 8047 2349 1484 86

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C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
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☑ Certified Mail®
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☐ Collect on Delivery Restricted Delivery
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GARR KENNETH
299 SW MARVIN BURNETT RD
LAKE CITY, FL 32024

CHW
11801 Research Dr
Alachua, FL. 32615

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US POSTAGE IMI PITNEY BOWES
ZIP 32615
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0001252164
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APR 23 2024

BAKER CHESTER
47 BURNT SWAMPP RD
EAST KINGSTON, NH 03827

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GARR KENNETH
299 SW MARVIN BURNETT RD
LAKE CITY, FL 32024

9590 9402 8047 2349 1484 79

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A. Signature

X ☐ Agent ☐ Addressee

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C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
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BAKER CHESTER
47 BURNT SWAMPP RD
EAST KINGSTON, NH 03827

9590 9402 8047 2349 1484 62

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A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
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- ☑ Certified Mail®
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- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
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ZIP 32615
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0001252164

$ 008.69⁰
APR 23 2024

JAA INVESTMENT PROPERTIES, LLC
312 SW PILOTS WAY
LAKE CITY, FL 32024

CHW
11801 Research Dr
Alachua, FL. 32615

CERTIFIED MAIL®

7022 3330 0001 1921 3179

FIRST-CLASS

US POSTAGE IMI PITNEY BOWES

ZIP 32615
02 7H
0001252164

$ 008.69⁰
APR 23 2024

LAKE CITY CHURCH OF CHRIST INC
656 SW STATE RD 47
LAKE CITY, FL 32025

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT
OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
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1. Article Addressed to:

JAA INVESTMENT PROPERTIES, LLC
312 SW PILOTS WAY
LAKE CITY, FL 32024

9590 9402 8047 2349 1484 55

2. Article Number *(Transfer from service label)*

7022 3330 0001 1921 3162

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
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PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT
OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

SENDER: *COMPLETE THIS SECTION*

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1. Article Addressed to:

LAKE CITY CHURCH OF CHRIST INC
656 SW STATE RD 47
LAKE CITY, FL 32025

9590 9402 8047 2349 1484 48

2. Article Number *(Transfer from service label)*

7022 3330 0001 1921 3179

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

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CHW
11801 Research Dr
Alachua, FL. 32615

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7022 3330 0001 1921 3186

FIRST-CLASS

US POSTAGE IMI PITNEY BOWES

ZIP 32615
02 7H
0001252164

$ 008.69⁰
APR 23 2024

KAMPMEYER ERVIN L LIVING TRUST
681 SW ST RD 47
LAKE CITY, FL 32025

CHW
11801 Research Dr
Alachua, FL. 32615

CERTIFIED MAIL®

7022 3330 0001 1921 3193

FIRST-CLASS

US POSTAGE IMI PITNEY BOWES

ZIP 32615
02 7H
0001252164

$ 008.69⁰
APR 23 2024

MARTIN CELIA S AS TRUSTEE
CELIA S MARVIN REV TRUST
973 SW STATE RD 47
LAKE CITY, FL 32025

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

KAMPMEYER ERVIN L LIVING TRUST
681 SW ST RD 47
LAKE CITY, FL 32025

9590 9402 8047 2349 1484 31

2. Article Number *(Transfer from service label)*

7022 3330 0001 1921 3186

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)

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☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

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SENDER: *COMPLETE THIS SECTION*

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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

MARTIN CELIA S AS TRUSTEE
CELIA S MARVIN REV TRUST
973 SW STATE RD 47
LAKE CITY, FL 32025

9590 9402 8047 2349 1484 24

2. Article Number *(Transfer from service label)*

7022 3330 0001 1921 3193

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)

☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053

Domestic Return Receipt

CHW
11801 Research Dr
Alachua, FL. 32615

CERTIFIED MAIL®

7022 3330 0001 1921 3209

FIRST-CLASS

US POSTAGE IMI PITNEY BOWES

ZIP 32615
02 7H
0001252164

\$ 008.69^{0}
APR 23 2024

HAYDEN DONALD B
733 SW SR 47
LAKE CITY, FL 32025

CHW
11801 Research Dr
Alachua, FL. 32615

CERTIFIED MAIL

7022 3330 0001 1921 3216

FIRST-CLASS

US POSTAGE IMI PITNEY BOWES

ZIP 32615
02 7H
0001252164

\$ 008.69^{0}
APR 23 2024

POLMERSKI LAVONNA B
423 NW CLUBVIEW CR
LAKE CITY, FL 32055

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT

SENDER: *COMPLETE THIS SECTION*

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

HAYDEN DONALD B.
733 SW SR 47
LAKE CITY, FL 32025

9590 9402 8047 2349 1484 17

2. Article Number *(Transfer from service label)*

7022 3330 0001 1921 3209

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
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☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053

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PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT

SENDER: *COMPLETE THIS SECTION*

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

POLMERSKI LAVONNA B
423 NW CLUBVIEW CR
LAKE CITY, FL 32055

9590 9402 8047 2349 1479 53

2. Article Number *(Transfer from service label)*

7022 3330 0001 1921 3216

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
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☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
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PS Form 3811, July 2020 PSN 7530-02-000-9053

Domestic Return Receipt

CHW
11801 Research Dr
Alachua, FL. 32615

CERTIFIED MAIL®

7022 3330 0001 1921 3223

FIRST-CLASS

US POSTAGE IMI PITNEY BOWES

ZIP 32615
02 7H
0001252164

$ 008.69⁰
APR 23 2024

LAKE CITY, COLUMBIA COUNTY
CHAMBER OF COMMERCE, INC
875 SW SR 47
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D/B/A LIFESOUTH COMMUNITY BLOOD
CENTERS, INC
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GAINESVILLE, FL 32607

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File Attachments for Item:

iii. LDR 24-04; Text amendment to the Land Development Regulations Sections 2.1, 4.2, 4.4, 4.5, and 4.6, more specifically adding definitions and provisions for Accessory Dwelling Units (ADU's) and Tiny Homes for the City of Lake City.

TEXT AMENDMENT LDR 24-04

AMENDING TEXT IN SECTIONS 2.1, 4.2, 4.4, 4.5 AND 4.6 OF THE LAND DEVELOPMENT REGULATIONS OF THE CITY OF LAKE CITY

LDR 24-04, AN APPLICATION BY DAVE YOUNG TO AMEND THE TEXT SECTIONS 2.1, 4.2, 4.4, 4.5, AND 4.6 OF THE LAND DEVELOPMENT REGULATIONS BY ADDING PROVISIONS FOR TINY HOMES AND ACCESSORY DWELLING UNITS

WORDS **BOLDED AND UNDERLINED** HAVE BEEN ADDED
WORDS ~~**BOLDED AND STRUCK THROUGH**~~ HAVE BEEN DELETED

ARTICLE TWO - DEFINITIONS

Accessory Dwelling Units (ADU). Accessory Dwelling Units (ADUs) are additional living quarters typically on single-family lots that are independent of the primary dwelling unit including a separate kitchen, bathroom, and sleeping area and are between 900 square feet and 1,100 square feet in size. All ADUs shall be permanently installed on a permanent foundation (concrete slab) or other approved foundation for the use of permanent Affordable Housing.

Infill. The allowance, by Special Exception, to place no more that two (2) tiny homes on lots that are deemed to be too small by the current Land Development Regulations to construct conventional residences upon for the use of permanent Affordable Housing.

Infill Subdivision. The allowance by Special Exception, to place two or more tiny homes, on permanent foundations, within certain zoning districts for permanent affordable housing. Each tiny home shall have a minimum of 400 square feet to 1,000 square feet of land space, depending on the square footage size of the tiny home.

***Tiny home (Stationary)*. A detached, single-family residential dwelling unit between 200 SF and 900 SF set on a permanent foundation that is the primary or accessory structure and shall meets all applicable Florida Building Code standards for the use of permanent Affordable Housing.**

1. **Tiny Home shall be site constructed and inspected by the local jurisdiction or manufactured in a plant with an approved Florida licensed third party inspection company, recorded on each unit, during the assembly process for compliance with the Florida Building Codes and the National Electric Code**
2. **Tiny Home shall be delivered on a trailer and set on a permanent foundation (concrete slab) designed by a licensed Florida Design Professional.**

***Tiny home (On Wheels for Permanent Installation)*. A detached, single-family residential dwelling unit between 200 SF and 900 SF constructed on a trailer frame and when permanently installed for Permanent Affordable Housing and becomes the primary or accessory structure and shall meet all applicable Florida Building Code standards.**

1. **Anchoring. Each Tiny Home shall be located on a stand permitting each unit to be sufficiently supported and anchored as in compliance with a Florida Licensed Design Professional's design. In addition, each Tiny Home shall have the wheels and axles removed, shall be placed as close to the ground as can be practically accomplished and shall have the tongue or hitch portion of the Tiny Home removed.**
2. **Skirting. Approved skirt or apron with required ventilation vents and**

which is continually and properly maintained by the owner of the Tiny Home shall surround each Tiny Home between the bottom of the unit and the ground.

***Tiny home (On Wheels for Portable Use)*. A unit between 200 SF and 900 SF constructed on a trailer frame designed for use as temporary location shall be determined to be a Recreational Vehicle, and as such shall only be allowed to be located within campgrounds when occupied. The running gear (wheels and axel(s)) and trailer hitch remain in place.**

ARTICLE FOUR – ZONING REGULATIONS

Section 4.2 SUPPLEMENTARY DISTRICT REGULATIONS

4.2.15.16 Off-Street Parking Requirements; For all zoning districts except C-CBD Commercial Central Business District;
Tiny Home and Accessory Dwelling Units- one (1) parking space for each

4.2.36 REQUIREMENTS FOR ACCESSORY DWELLING UNITS AND TINY HOMES

The cost of rental housing has increased steadily and the cost often exceeds an amount that is affordable to extremely-low-income, very-low-income, low-income, or moderate-income persons and has resulted in a critical shortage of affordable rentals in the City. This shortage of affordable rentals constitutes a threat to the health, safety, and welfare of the residents of the City. Therefore, the City finds that it serves an important public purpose to allow and encourage the permitting of Accessory Dwelling Units and Tiny Homes in single-family residential areas in order to increase the availability of affordable rentals for extremely-low-income, very-low-income, low-income, and moderate-income persons as defined in s.420.004(11), (12), (17), & (9).

An application for a building permit to construct or place an Accessory Dwelling Unit or Tiny Home Dwelling Unit shall include an affidavit provided by the City from the property owner which attests that the dwelling unit will be rented at an affordable rate to an extremely-low-income, very-low-income, low-income, or moderate-income person or persons. This affidavit shall be filed with the Columbia County Clerk of the Court as part of the Property Deed.

SECTION 4.4 “A” AGRICULTURAL

Section 4.4.5 SPECIAL EXCEPTIONS

29. Tiny Homes and Accessory Dwelling Units (ADU)

The living area square footage of Tiny Homes within the LDR land use district of Agricultural (A) shall be 200 square feet minimum to 900 square feet maximum, and Accessory Dwelling Units (ADU) shall be 900 square feet minimum to 1,100 square feet maximum. Tiny Homes and Accessory Dwelling Units shall comply with all code requirements for dwelling units and/or Tiny Homes and be complete with a bathroom, kitchen, sleeping area(s) and comply with all life safety and sanitary codes. Only tiny homes and ADU's on permanent foundations or approved foundations shall be allowed for the use of permanent Affordable Housing.

4.4.7 MINIMUM YARD REQUIREMENTS (depth of front and rear yard, width of side yard) (See Section 4.2 for right-of-way setback requirements.)

1. All permitted uses and structures (unless otherwise specified):

Tiny Homes and Accessory Dwelling Units:

Front 30 feet

Side 10 feet

Rear 10 feet

***Note: Separation from existing structures 10 feet**

SECTION 4.5 "RSF" RESIDENTIAL, SINGLE FAMILY

Section 4.4.5 SPECIAL EXCEPTIONS

14. Tiny Homes and Accessory Dwelling Units (ADU)

The living area square footage of Tiny Homes within the LDR land use district of Residential, Single Family (RSF) shall be 200 square feet minimum to 900 square feet maximum, and Accessory Dwelling Units (ADU) shall be 900 square feet minimum to 1,100 square feet maximum. Tiny Homes and Accessory Dwelling Units shall comply with all code requirements for dwelling units and/or Tiny Homes and be complete with a bathroom, kitchen, sleeping area(s) and comply with all life safety and sanitary codes. Only tiny homes and ADU's on permanent foundations or approved foundations shall be allowed for the use of permanent Affordable Housing.

4.5.7 MINIMUM YARD REQUIREMENTS (depth of front and rear yard, width of side yard) (See Section 4.2 for right-of-way setback requirements.)

3. Tiny Homes and Accessory Dwelling Units (for RSF-1, RSF-2 and RSF-3)

Front 30 feet

Side 10 feet

Rear 10 feet

***Note: Separation from existing structures 10 feet**

SECTION 4.6 “RSF/MH” RESIDENTIAL, (MIXED)SINGLE FAMILY/MOBILE HOME

Section 4.6.5 SPECIAL EXCEPTIONS

13. Tiny Homes and Accessory Dwelling Units (ADU)

The living area square footage of Tiny Homes within the LDR land use district of Residential, (Mixed) Single Family/Mobile Home (RSF/MH) shall be 200 square feet minimum to 900 square feet maximum, and Accessory Dwelling Units (ADU) shall be 900 square feet minimum to 1,100 square feet maximum. Tiny Homes and Accessory Dwelling Units shall comply with all code requirements for dwelling units and/or Tiny Homes and be complete with a bathroom, kitchen, sleeping area(s) and comply with all life safety and sanitary codes. Only tiny homes and ADU’s on permanent foundations or approved foundations shall be allowed for the use of permanent Affordable Housing.

4.6.7 MINIMUM YARD REQUIREMENTS (depth of front and rear yard, width of side yard) (See Section 4.2 for right-of-way setback requirements.)

5. Tiny Homes and Accessory Dwelling Units (for RSF/MH-1, RSF/MH-2 and RSF/MH-3)

Front 25 feet

Side 10 feet

Rear 10 feet

***Note: Separation from existing structures 10 feet**

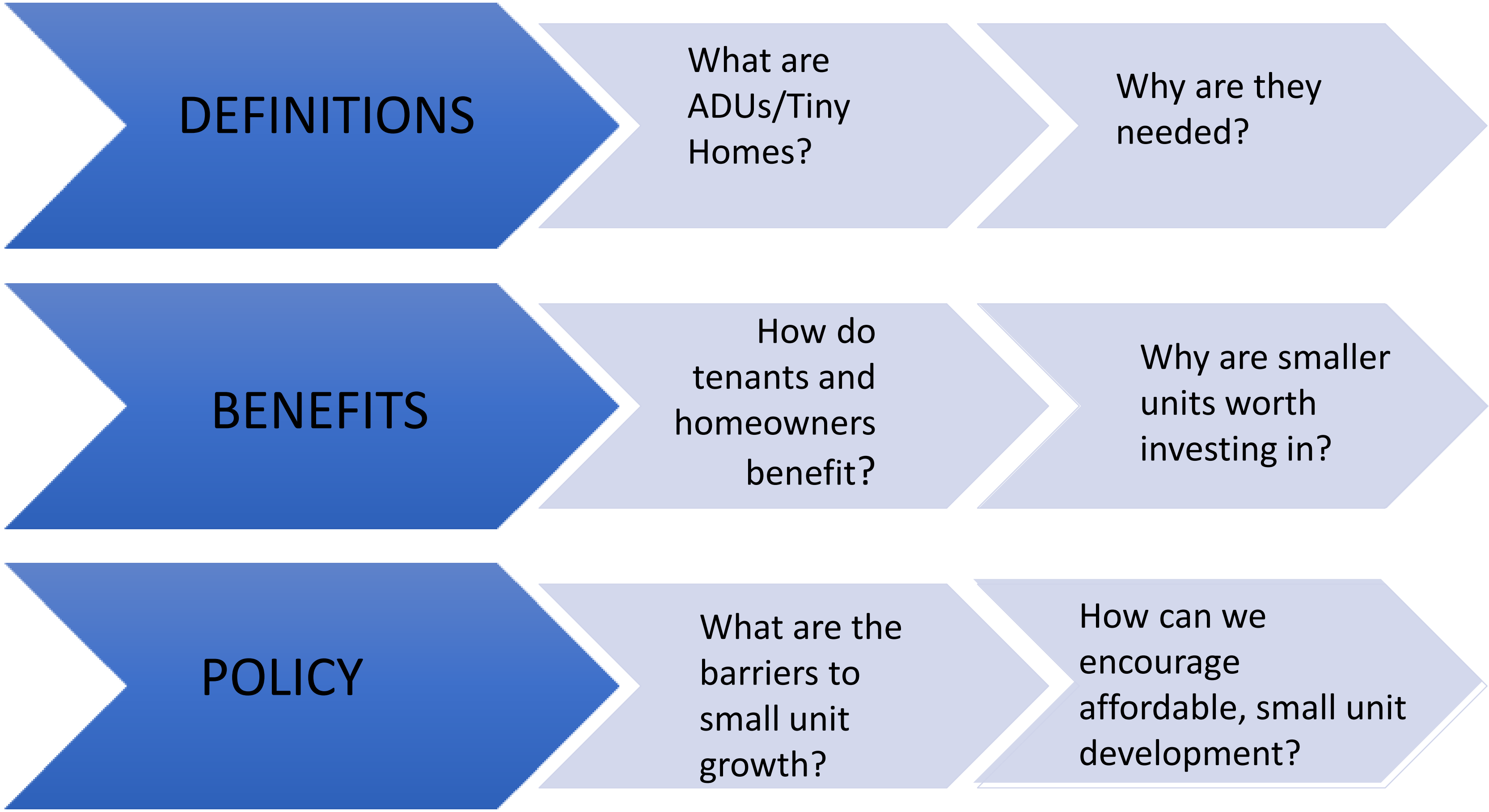
Accessory Dwelling Units and Tiny Homes

AFFORDABLE HOUSING INITIVE

by The City of Lake City

David C. Young, CBO

Director Growth Management



DEFINITIONS

What are ADUs/Tiny Homes?

Why are they needed?

BENEFITS

How do tenants and homeowners benefit?

Why are smaller units worth investing in?

POLICY

What are the barriers to small unit growth?

How can we encourage affordable, small unit development?

ACCESSORY DWELLING UNITS:
WHAT ARE THEY?

- Accessory Dwelling Units (ADUs) are additional living quarters typically on single-family lots that are independent of the primary dwelling unit
- Can be a freestanding home on the same lot as the primary unit
- Can be owner or tenant occupied
- AKA granny flats, garden cottage, accessory apartment, etc.
- Typically 900 square feet to 1,100 square feet in size

TINY HOMES: WHAT ARE THEY?

- Tiny homes are units 200 square feet to 900 square feet that can stand on a lot independently
- Can be an accessory unit, freestanding unit, and even on wheels

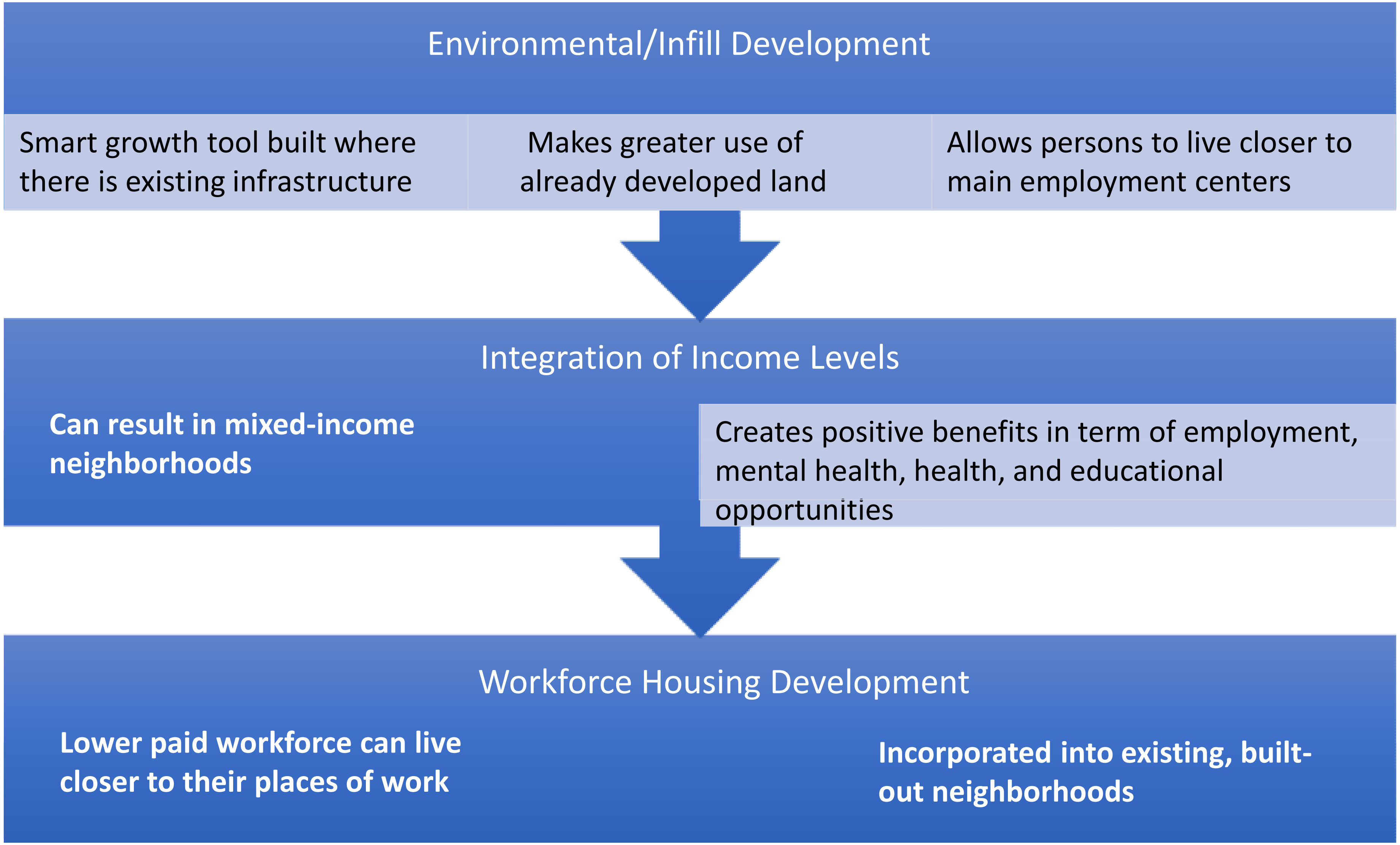
HOW DO ADUS AND TINY HOMES DIFFER?

ADUs	TINY HOMES
Accessory to a primary unit	Can be either accessory or freestanding
Typically 900 square feet to 1,100 square feet	Generally 200 square feet to 900 square feet in size
Not Mobile	Can be mobile

WHY ARE SMALLER UNITS, SUCH AS ADUS AND TINY HOMES, NEEDED?

- Around 64% of occupied units in Florida, or nearly 4.8 million units, are single-family homes
- ADUs allow more persons to live on these lots at an affordable price
- Between 1970 and 2012, the average number of persons per household declined from 3.1 to 2.6
- With smaller households, smaller housing types are in higher demand
- Over 1.94 million, or 26% of all Florida households, are cost-burdened
- Three-quarters of low-income renters are cost-burdened
- By 2030, there will be an estimated 3.5 million more people in Florida

THE VALUE OF ADUS AND TINY HOMES



Environmental/Infill Development

Smart growth tool built where there is existing infrastructure

Makes greater use of already developed land

Allows persons to live closer to main employment centers

Integration of Income Levels

Can result in mixed-income neighborhoods

Creates positive benefits in term of employment, mental health, health, and educational opportunities

Workforce Housing Development

Lower paid workforce can live closer to their places of work

Incorporated into existing, built-out neighborhoods

BARRIERS & SOLUTIONS TO ADU AND TINY HOME GROWTH

1. Euclidean Zoning & Single-Family District

- “Euclidean” zoning separates what are thought of as incompatible uses from being on nearby or the same lots
- Claim: ADUs are compatible with single-family homes
- **Solution:** Allow ADUs as a permissible use in single-family districts and use other land use mechanisms to regulate the character of development

2. Owner-Occupancy Restrictions

- Many jurisdictions in Florida currently require the homeowner to occupy the primary unit if ADU is utilized
- **Solution:** To provide flexibility, allow owners to occupy either the primary or ADU

BARRIERS & SOLUTIONS TO ADU AND TINY HOME GROWTH (CONTINUED)

3. Long-Term Rental Use Restrictions

- Some local gov'ts only allow ADUs for temporary guests, family members, caretakers, and in conjunction w/certain uses
- **Solution:** allow ADUs to be freely rented on the market

4. As-of-Right vs. Conditional Use

- The onerous, unpredictable, and costly nature of the conditional use process may discourage homeowners from constructing ADUs
- **Solution:** Allow ADUs as-of-right and establish transparent and predictable development requirements

5. Impact Fees

- ADUs and Tiny Homes that quality as **Affordable Housing** shall be exempt from all impact fees

BARRIERS & SOLUTIONS TO ADU AND TINY HOME GROWTH (CONTINUED)

6. Size, Density, & Other Structural Requirements

- Minimum lot size: reach a solution that allows the most possible lots to construct a lawful ADU
- Size: allow up to 900-1,100 sq. feet with additional size allowances
- Density: exempt ADUs from normal density calculations
- Setback: consider lessor lot line and other configurations that do not burden smaller lots

7. Parking Requirements

- Parking can be costly and a challenge from a planning perspective
- **Solution**: Form flexible standards that utilize on-street parking & different standards for different sizes

Housing in Lake City

Majority of construction is single family

- Reacting to demand
- Most Lake City single family housing does not fall into the Affordable Housing price range

Greatest need in Lake City

- Housing affordable to households earning $35,000 or less
- Housing type needed – Affordable type housing for ownership and rental

Modifications to the Land Development Regulations and the Comprehensive Plan

Lake City will have to modify the Land Development Regulations and the Comprehensive Plan to allow for ADUs and Tiny Homes:

- Allow for permanently placed AHUs with a minimum square footage of 900 square feet and a maximum square footage of 1,100 square feet
- Allow for permanently placed Tiny Homes with a minimum square footage of 200 square feet and a maximum square footage of 900 square feet
- When these AHUs and Tiny Homes qualify as Affordable Housing, no impact fees shall be charged per Florida Statute 163.31801(9)

Residential Uses – ADUs, Tiny Homes for Residences

- ADUs and Tiny Homes are permitted to be rented out long term only if placed or constructed as Affordable Housing. If not placed or constructed as Affordable Housing, the primary residence shall have a Homestead Exemption

- Maximum ADU or Tiny Home size shall not exceed 40% of the conditioned floor area of the primary residence unless a variance is approved.

- The ADU or Tiny Home shall be compatible architecturally with the primary residence and, if located within a Historical District, shall be compatible with the Historic District architecturally.

- The ADU or Tiny Home shall not be attached to the primary residence.

Pros of ADUs and Tiny Homes

1. **Extra Income**. With a full time tenant in your ADU or Tiny Home along with the primary residence, it’s a great source of income. And, if you sell, it will (hopefully) add value to your property and home

2. **Usable Property.** By placing no more than 2 Tiny Homes on a vacant property that is to small to build a conventional home, you will be utilizing property that would otherwise be vacant

3. **Create a Community**. By developing property for 3 or more Tiny Homes, you will be developing a community within a community

4. **Affordable Homes**. By placing or constructing ADUs or Tiny Homes, the ownership or renting costs will be less and will benefit the lower income earning citizens

Cons of ADUs and Tiny Homes

1. **Disruption of Daily Life**. As a landlord you do have to manage the rental space (repairs and maintenance)

2. **Loss of yard space**. With the addition of the ADU or Tiny Home and the extra vehicle to be parked

3. **Neighborhood**. The utilization of small vacant lots in a neighborhood to place or construct Tiny Homes may cause displeasure with the neighbors.

BENEFIT TO ALL

The greatest benefit with the addition of ADUs or Tiny Homes is that this will provide affordable housing for the veterans, lower income persons, the disabled and the elderly that reside within the City of Lake City.

These ADUs and Tiny Homes will have less energy costs to operate compared to conventional homes.

With the City of Lake City allowing the Tiny Homes to be placed or constructed on existing lots that are too small for conventional homes, the empty lots will now have residents, the lots being maintained, and the blight being removed from the neighborhood

QUESTIONS?

Accessory Dwelling Unit GUIDEBOOK

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PRODUCED BY:

FLORIDA HOUSING COALITION

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Table of Contents

Virtually every community in Florida is suffering from an affordable housing shortage. Of Florida's three million low-income households, over 1.94 million, or 26% of all Florida households, are cost-burdened; they spend more than 30% of their income on housing. Another 1.1 million households, or 15% of all Florida households, are severely cost burdened, spending more than 50% of their income on housing. Low-income renters are hit the hardest by the lack of affordable housing. A staggering three-quarters of these households are cost-burdened.[1] When households spend this much of their income on housing, they have little left for life's other necessities. They are typically unable to withstand a rent increase and may be one missed paycheck away from homelessness.

Intended Audience

As communities and local governments consider meeting the demand for affordable housing by tapping into the vast single-family housing stock to create accessory dwelling units (ADUs), this document will be a reference guide. Elected and appointed officials, government employees and affordable housing advocates will quickly understand the pros and cons of allowing and encouraging ADUs. They will be able to sort through the potential regulatory changes and incentives to be implemented.

- Local Government Planning Staff
- AHAC Members
- SHIP Administrators
- Local Government Administrators and Elected Officials
- Developers and Builders
- Affordable Housing Stakeholders

---

[1] Florida Housing Coalition, Home Matters for Florida Report 9 (2018).

Introduction

Every county and entitlement community in Florida receives SHIP funds. Most of those communities are required to have an Affordable Housing Advisory Committee (AHAC) to make recommendations for regulatory reform at least once every three years. The Florida Housing Coalition provides training and technical assistance to counties and municipalities to help with the implementation of regulatory reform and land use planning tools to produce and preserve affordable housing.

Florida Housing Coalition also developed a guidebook, *Affordable Housing Incentive Strategies: A Guidebook for Affordable Housing Advisory Committee Members and Local Government Staff*, that provides information for each of the 11 affordable housing incentives that AHACs must consider. Permitting accessory residential units in residentially zoned areas has been on the list of statutorily enumerated items found in Section 420.9076 (4)(e), Florida Statutes, since the passage of the William E. Sadowski Act in 1992. And yet we find that, by and large, ADUs are not permitted in most residentially zoned areas. Encouragingly, what we have found, is that local government planners and affordable housing advocates would like to include ADUs in their affordable housing toolkit but could use more information about how to do it. This guidebook, produced by the Florida Housing Coalition, with funding from the Florida Housing Finance Corporation's Catalyst Program, provides local government planners and affordable housing advocates with the "How To".

Historically, ADUs were commonly used to mitigate the shortage of affordable housing, providing smaller rental dwelling units ancillary or secondary to the principal residence. In the 1950s and 1960s with the rise of suburbs catering to nuclear families, ADUs fell out of favor. However, changing demographic trends showing continuing increases in smaller households, one-person households, elderly households, and households with disabled members are creating a surging interest in ADUs.

ADUs can provide a stable affordable housing option for those in vulnerable housing situations. Persons living in ADUs benefit financially as the lower rents allow them an affordable option for decent, safe housing. Additionally, those renting out the ADUs also benefit financially from the rental income stream which often provides the additional income owners, particularly those on a fixed income, need to make ends meet.

This guidebook addresses the challenges and benefits a community might face as it considers allowing the implementation of ADUs; it presents a range of alternatives to consider and evaluate. There is a compilation of best practices and a model ordinance. A community considering implementation of regulations allowing ADUs can find suggestions for how to manage public participation. Additionally, there is a template local governments can use to help homeowners who want to create an ADU.

Section Overview

The remaining sections of the guidebook are described below.

I What are ADUs? Florida Statutes (Section 163.31771(2)(a)) define ADUs as “an ancillary or secondary living unit that has a separate kitchen, bathroom, and sleeping area existing either within the same structure, or the same lot, as the primary dwelling unit.”

II ADUs provide an affordable housing alternative by tapping into Florida’s large stock of single-family homes. Changing demographics make ADUs an attractive alternative to the elderly, persons with disabilities, families in transition, and to others needing safe, decent housing.

III Most regulatory barriers to ADUs deal with local land use regulation. This section explores those barriers and provides practical solutions to get beyond them.

IV Local governments have the tools to fund and incentivize ADU development. Waiving impact fees and providing financial assistance can be the key to establishing ADUs.

V The increasing number of short-term vacation rentals through Airbnb and similar platforms can increase community concerns about the viability of long-term ADU rentals. While ADUs can be used as short-term rentals, through deed restrictions, local governments can require ADUs to be used as long-term rentals if the unit benefits from impact fee modifications or other financial assistance.

VI Proposals to allow ADUs in single-family residential zoning districts may bring out neighborhood opposition. Local governments can ease community concerns through educational campaigns and by addressing legitimate objections.

VII ADUs and Tiny Homes are alternative housing solutions. ADUs are always accessory to the primary unit. Tiny Homes can stand alone. As a result, different regulations apply.

VIII This section provides a best practices chart for a successful ADU program.

IX Local land use regulations must be devised to allow ADUs to flourish broadly as a smart growth tool. With the right local ADU ordinance, ADU construction may increase to the community's benefit. This section provides a Model Ordinance to encourage and facilitate ADU growth.

X Several local governments in Florida have model ordinances for ADU development. This section highlights several local ordinances with an analysis of each.

XI ADU development is of great interest to local governments, policymakers, and think-tanks across the country. Other works have been written highlighting best practices and describing the benefits of ADUs.

A Allowing ADUs is only half the equation; this appendix provides a template for local governments to design an ADU Manual for homeowners. With this tool, local governments can help homeowners navigate the development, design, and operation of an ADU rental.

I. What are ADUs?

Accessory dwelling units (ADUs) are additional living quarters typically on single-family lots that are independent of the primary dwelling unit. An ADU can be an apartment within a primary residence or it can be an attached or freestanding home on the same lot as the primary residence.[1]

Accessory dwelling units are commonly referred to as granny or mother-in law flats and are also sometimes referred to as accessory apartments, garage apartments, carriage houses, and backyard cottages. ADUs were a common feature of early 20th century development in America but their use dwindled with the onset of the single-family suburb. ADUs were rarely included as an eligible use in municipal codes regulating land use, zoning, and general land development standards.

Florida is one of only a few states to pass legislation that incentivizes local governments to create ADU permitting ordinances.[2] In 2004, the Florida Legislature passed Section 163.31771 of the Florida Statutes to "promote the use of accessory dwelling units as a tool to help local communities address deficits in the supply of affordable rental housing for very-low-, low-, and moderate-income residents."[3] In enacting this statute, the Legislature found that the median price of homes in Florida had increased steadily over the last decade at a greater rate of increase than the median income in many urban areas.[4] The Legislature also found that the cost of rental housing had increased steadily to the point that there was a "critical shortage of affordable rentals in many urban areas in the state."[5] While the statute does not require local governments to adopt ADU ordinances, it does promote ADUs as a tool for affordable housing development for very-low, low, and moderate-income persons.

HIGHLIGHTS

Florida Statutes (Section 163.31771(2)(a)) define ADUs as "an ancillary or secondary living unit that has a separate kitchen, bathroom, and sleeping area existing either within the same structure, or the same lot, as the primary dwelling unit."

In this section, you'll learn about:

- Characteristics of ADUs
- ADU Regulations

---

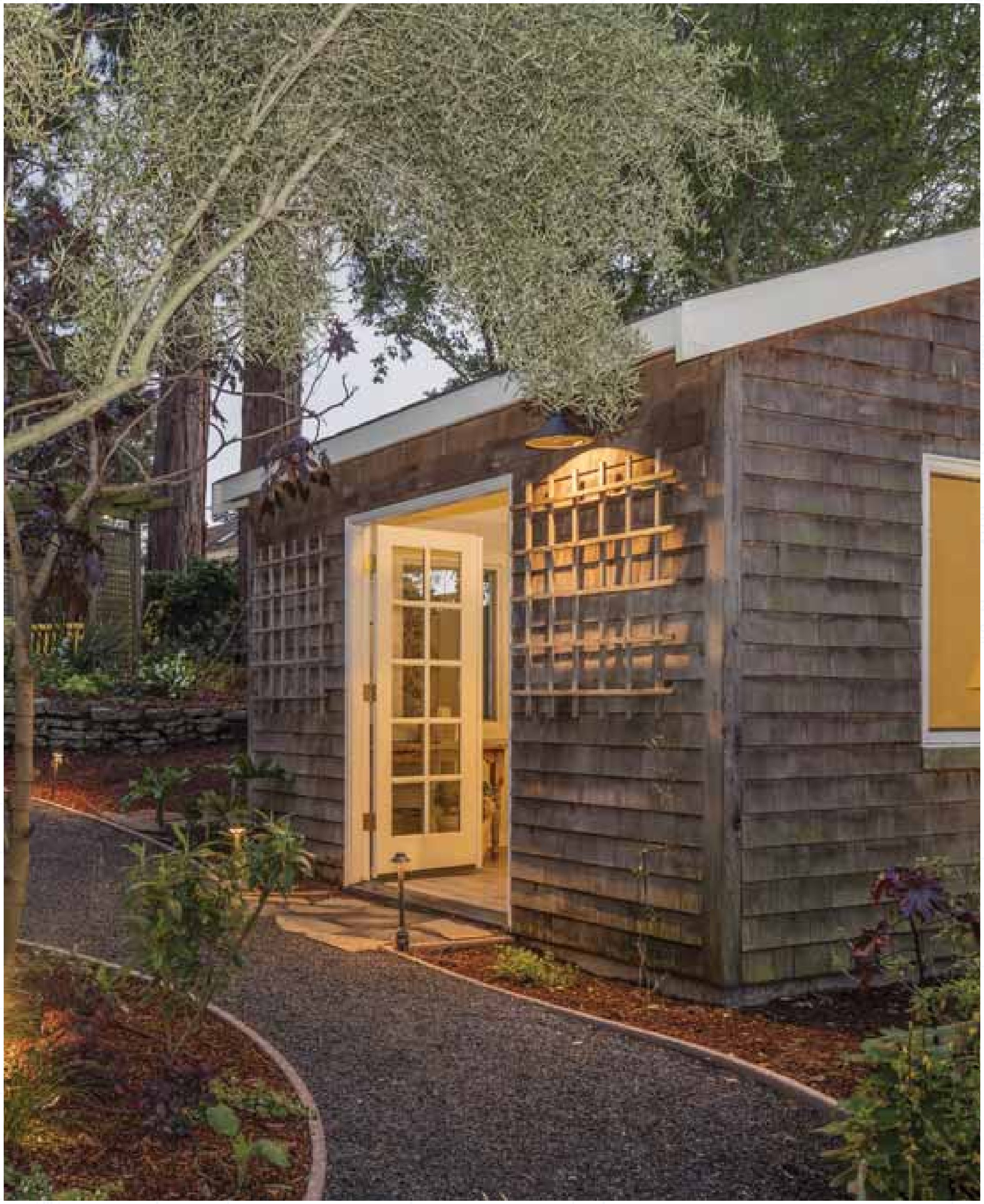
1 Jaimie Ross, Accessory Dwelling Units: A Smart Growth Tool for Providing Affordable Housing, Housing News Network Journal Vol. 32, No. 2 (July 2016).

2 Sarah A. Gottlieb, Florida's Accessory Dwelling Unit Laws: Mitigating Florida's Housing Woes Through State-Encouraged Expansion of ADU Permitting, 46 Stetson L. Rev. 627, 630 (2017).

3 Fla. Department of Community Affairs, Accessory Dwelling Units: Report to the Florida Legislature 6 (2007).

4 Fla. Stat. § 163.31771(1) (2018).

5 Id.



Characteristics

ADUs are smaller in size than the primary residence and are generally located toward the rear of the parcel. Typically, the owner lives in the primary residence, but unless restricted by the local government, the owner may choose to live in the smaller unit and rent out the primary residence. The ADU is ancillary and accessory to the primary unit and is often similar in appearance to the primary. An ADU is typically for one or two persons but may house more depending on its size.

Under Section 163.31771(2)(a) of the Florida Statutes, ADUs are defined as "an ancillary or secondary living unit that has a separate kitchen, bathroom, and sleeping area existing either within the same structure, or on the same lot, as the primary dwelling unit."[6]

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[6] Fla. Stat. § 163.31771(2)(a) (2018).

ADU Regulations

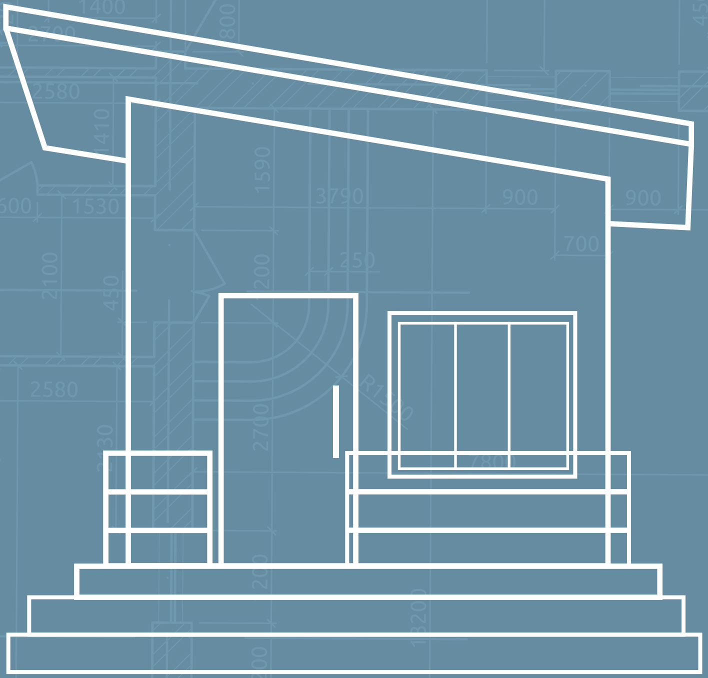
Regulation of ADUs is within the purview of zoning and land use planning. Local governments can allow ADUs while providing helpful regulations to ensure that ADUs enhance rather than detract from the character of a neighborhood. Some examples, described more in depth later, include the following:

Occupancy

An ADU is more useful to homeowners if occupancy is not restricted to family members or temporary, non-paying guests.

Construction

Allowing the construction of ADUs concurrently with new primary residences or as part of a subdivision or master planned community maximizes the efficient use of land without needing additional infrastructure.



Parking Requirements

A successful ADU ordinance balances congestion concerns and the concern that parking may be too burdensome for a homeowner due to cost and lot configuration.

Size, Setback, Minimum Lot Size, and Other Structural Requirements

These regulations can bring desired community aesthetics while also allowing the greatest number of lots to contain lawfully permitted ADUs.

II. The Value of Accessory Dwelling Units

In a nation dominated by single-family units, many people struggle to find suitable living arrangements.[7] As of 2015, 64% of occupied units in the state of Florida were single-family homes.[8] ADUs capitalize on the prominence of the single-family home by allowing more residents to live on single-family lots at an affordable price. Additionally, the small size of the ADU reflects the changing demographics and needs of those looking for housing. The number of people per household in the United States continues to decrease.[9] Between 1970 and 2012, the average number of people per household declined from 3.1 to 2.6. With smaller households, due to a variety of factors, smaller housing options are in higher demand. For those that are not looking for a large single-family home and yet want to live in a residential neighborhood, the ADU is a great option.

Accessory dwelling units are also beneficial for elderly and disabled populations that strive for continued independence. An elderly or disabled individual could remain in their home and use an ADU for their caregiver. ADUs can also provide for family flexibility. With an ADU, a young adult could continue to live with their parents, but in a separate unit, as he or she works towards economic independence. When developed close to employment centers, an ADU can reduce a person's reliance on transportation, providing additional benefits to society through environmental and energy cost savings. ADUs also promote mixed-income communities where lower-income households can find an affordable home in an area that may have greater employment and educational opportunities.

Affordability

Accessory dwelling units are a valuable affordable housing tool for low- and moderate-income individuals. Because they do not require additional land or major new infrastructure, ADUs are cheaper to build than the traditional single-family home. Further, the rental income from the ADU can subsidize the cost of the primary unit – making ADUs an affordable housing tool for both the renter and the homeowner. When both households are spending less of their income on housing, quality of life is improved, and more money is invested in the broader local economy.

HIGHLIGHTS

ADUs provide an affordable housing alternative by tapping into Florida's large stock of single-family homes. Changing demographics make ADUs an attractive alternative to the elderly, persons with disabilities, families in transition, and to others needing safe, decent housing.

In this section, you'll learn about:

- Affordability
- Care for the Elderly and Persons with Disabilities
- Family Flexibility
- Environment/Infill Development
- Integration of Income Levels
- Workforce Housing Development

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7 See Gottlieb, supra note 2, at 628-29; U.S. Census Bureau, Historical Census of Housing Tables (2011), https://www.census.gov/hhes/www/housing/census/historic/units.html.

8 Shimberg Center for Housing Studies, Overview of Housing in Florida 4 (2015), http://www.shimberg.ufl.edu/publications/tab2.pdf.

9 U.S. Census Bureau, America's Families and Living Arrangements: 2012 (2013), https://www.census.gov/prod/2013pubs/p20-570.pdf.

Care for the Elderly and Persons with Disabilities

An ADU can be utilized so that an elderly or disabled individual who wishes to remain in their home can stay in their house and have their caregiver reside in the ADU, or vice versa. Elderly and disabled individuals often struggle to live comfortably due to the traditional ways in which communities are planned.[10] For these folks, ADUs can provide an opportunity to live on the same lots as their parents or other caregivers.

ADUs can assist the elderly to "age in place."[11] ADUs are particularly well suited for lower-income elderly persons because in addition to receiving a source of income they may not otherwise receive, the elderly homeowner may obtain companionship and needed services from the tenant in the ADU. As the state's lower-income elderly population continues to increase, ADUs can be a vital tool for meeting the increased need for elderly care. Family members may also live in the ADU or primary unit to provide this care.

In 2000, AARP worked with the American Planning Association to develop a model state act and local ordinance as a resource for meeting the affordable needs of elder Americans. Both organizations have endorsed ADUs as a valuable tool for elderly Americans.[12]

Further, if an ADU is constructed for family members of at least 62 years of age, Section 193.703, Florida Statutes, provides that a county may provide for a reduction in the assessed value of homestead property after the new construction.[13] This section of the Florida Statutes implements section 4(f) of Article VII of the Florida Constitution.[14] This section was passed to encourage municipalities to provide tax incentives to homeowners who build living spaces for a parent or grandparent.[15] Thus, the Florida Statutes encourages ADUs as a housing alternative for the elderly.

Family Flexibility

ADUs can also provide for family flexibility. If a young adult is not financially able to move out and wants to maintain a semblance of independence, he or she can live in an ADU on the same lot as their parents – coming and going as they please and entertaining their own guests, while remaining tightly bound to their family.[16] Once the young adult moves out, the parents can then utilize the ADU as an affordable rental unit for other individuals. An ADU may also be used by older family members as a "granny flat." In this arrangement, a family can care for their elderly parents or grandparents who are now in close proximity. ADUs allow for family flexibility in that multiple family members can live on the same lot in separate units. A family member living in an ADU also reduces the competition for the scarce inventory of affordable rental apartments in the community.

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[10] Gottlieb, supra note 2, at 627 (citing Robin Paul Malloy, Land Use Law and Disability: Planning and Zoning for Accessible Communities 3-5 (2015)).

[11] AARP Livable Communities, Making Big Sense of Small Homes (Aug. 2015) https://www.aarp.org/livable-communities/network-age-friendly-communities/info-2015/domain-3-accessory-dwelling-units-portland-oregon.html.

[12] AARP Livable Communities, Creating Room for Accessory Dwelling Units (Nov. 2017), https://www.aarp.org/livable-communities/housing/info-2015/accessory-dwelling-units-model-ordinance.html.

[13] Fla. Stat. § 193.703 (2018).

[14] Id.

[15] Gottlieb, supra note 2, at 646.

[16] Jonathan Coppage, Accessory Dwelling Units: A Flexible Free-Market Housing Solution, R Street Policy Study No. 89 (Mar. 2017), http://www.rstreet.org/wp-content/uploads/2017/03/89.pdf.

Environment/Infill Development

For many communities, undeveloped land close to the city center is hard to come by. ADUs are a smart growth tool because they are typically infill units built where there is existing infrastructure, making greater use of the already developed land. When ADUs are built near employment centers, more people will have the opportunity to live closer to where they work – reducing transportation costs and the associated environmental impacts.

Additionally, as ADUs are smaller than single-family or even some multi-family units, their overall impact on the environment is also lessened. It takes less building material to construct an ADU and costs less in utilities for daily operation.

Integration of Income Levels

As the former Florida Department of Community Affairs, now known as, Department of Economic Opportunity, noted in its 2007 report to the Florida Legislature, ADUs can be integrated into a community resulting in the development of "mixed-income neighborhoods rather than enclaves of affordable housing."[17] Integrating lower-income families within mixed-income areas can create positive benefits in terms of employment, mental health, and educational opportunities.[18] With the creation of ADUs as infill development in single-family districts, lower-income households can enjoy a greater quality of life in areas of town which may have previously been closed off to them.

Workforce Housing Development

With ADUs, the lower paid workforce can live closer to their places of work. Rather than being forced to commute long distances for their jobs, people can live affordably within the community. Because ADUs do not require additional land, they can be incorporated into existing, built-out neighborhoods in parts of the community that are closer to employment centers. Proximity to employment can result in very substantial savings when it is possible for a two-person household to share one car and save the expense of owning a second car.

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[17] Fla. Department of Community Affairs, supra note 7, at 6.

[18] Diane K. Levy et al., Effects from Living in Mixed-Income Communities for Low-Income Families, Urban Inst. (Nov. 2010), https://www.urban.org/sites/default/files/publication/27116/412292-Effects-from-Living-in-Mixed-Income-Communities-for-Low-Income-Families.PDF.

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III. ADUs in Florida: Regulatory Barriers and Practical Solutions

This section describes some of the barriers to ADU development and offers solutions to overcome these barriers. Most of the barriers relate to local land development regulations. There may be aspects of a local government's land development regulations that are so restrictive that few permitted ADUs can be built.[19]

As of this writing, 16 of the 67 Florida counties did not address any accessory dwelling unit – a guest house, accessory apartment, ADU, cottage house, and other similar units -- in their land development codes. For the remainder of counties that did address some type of ADU, most of them had onerous use restrictions. Of the counties that mentioned a type of ADU, at least 25 of them explicitly bar their use for long-term rental purposes or for use by persons that are not an immediate family member or worker. Only 20 counties speak of ADUs as a tool for long-term rental housing. Virtually all counties, except for a few, require the owner to occupy the principal dwelling if the ADU is used. One county requires lot sizes to be above 15,000 square feet before allowing an ADU. Further, at least 12 counties explicitly do not allow ADUs to be built in single-family zoning districts. Several jurisdictions allow ADUs only as a conditional use. These types of barriers have the effect of restricting the ADU as a tool for affordable housing development.

Florida cities tend to have more flexible ADU ordinances than counties. Of the 15 most populous cities in Florida, 11 of them explicitly allow ADUs in single-family districts (one of these cities only allows ADUs on a conditional use basis). Although Florida cities allow ADUs more broadly, issues exist regarding minimum lot size, ADU size, parking, owner-occupancy, and other standards. ADU regulations should be as flexible and open as possible to give landowners the freedom to utilize their property as a site for affordable housing development. If restrictions are too burdensome, landowners will be deterred from building ADUs to the community's detriment.

HIGHLIGHTS

Most regulatory barriers to ADUs deal with local land regulations. This section explores those barriers and provides practical solutions to get beyond them.

This section will discuss and offer recommendations for:

- Euclidean Zoning & the Single-Family District
- Owner-Occupancy Restrictions
- Long-Term Rental Use Restrictions
- As-of-Right versus Conditional Use
- Size, Density, & Other Structural Requirements
- Utility Hookup Requirements

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[19] Kol Peterson, Backdoor Revolution 135 (Accessory Dwelling Strategies, LLC 2018).

Regulatory Barriers

Barrier:
Euclidean Zoning: premise of separation of incompatible uses by zoning restriction

Solution:
F.S. 163.1777: ADUs are compatible with single family residential uses. Allow ADUs in all single-family districts.

Barrier:
ADUs permitted but overly restricted as to become impractical or impossible

Solution:
Reduce minimum lot size and amend setback and other structural requirements to allow the most possible lots to contain ADUs

Barrier:
ADUs not included as an allowable use in land development codes

Solution:
Incorporate ADUs into land use regulations by adoption of ADU specific ordinance

Barrier:
Requirement for property owner to occupy the principal residence

Solution:
Allow property owner to occupy the ADU by right

Barrier: Prohibition of ADU for long-term rental

Solution: Allow ADUs to be rented on the long-term market

Barrier: Excessive minimum lot size requirements

Solution: Lower minimum lot size requirements

Barrier:
Residential land uses are based on density (dwelling units/acre). When ADUs are counted as a dwelling unit the parcel might be over density and the ADU may be disallowed.

Solution:
Exempt ADUs from density calculations

Barrier:
Parking requirements that may render development impractical

Solution:
Require off-street parking only if on-street parking is not available within a certain number of feet from the parcel. If off-street parking is required, utilize stacked parking (one car in front of the other) or other design solutions to allow parking in areas other than designated driveways.

Barrier:
Prohibition of non-family members from occupancy

Solution:
Allow ADUs to be rented on the long-term market to any tenant

Barrier:
ADUs permitted only as conditional use

Solution:
Allow ADUs as a permitted use

Barrier:
New construction ADUs are assessed an impact fee comparable to a multi-family dwelling unit.

Solution:
Waive or modify impact fees for ADUs

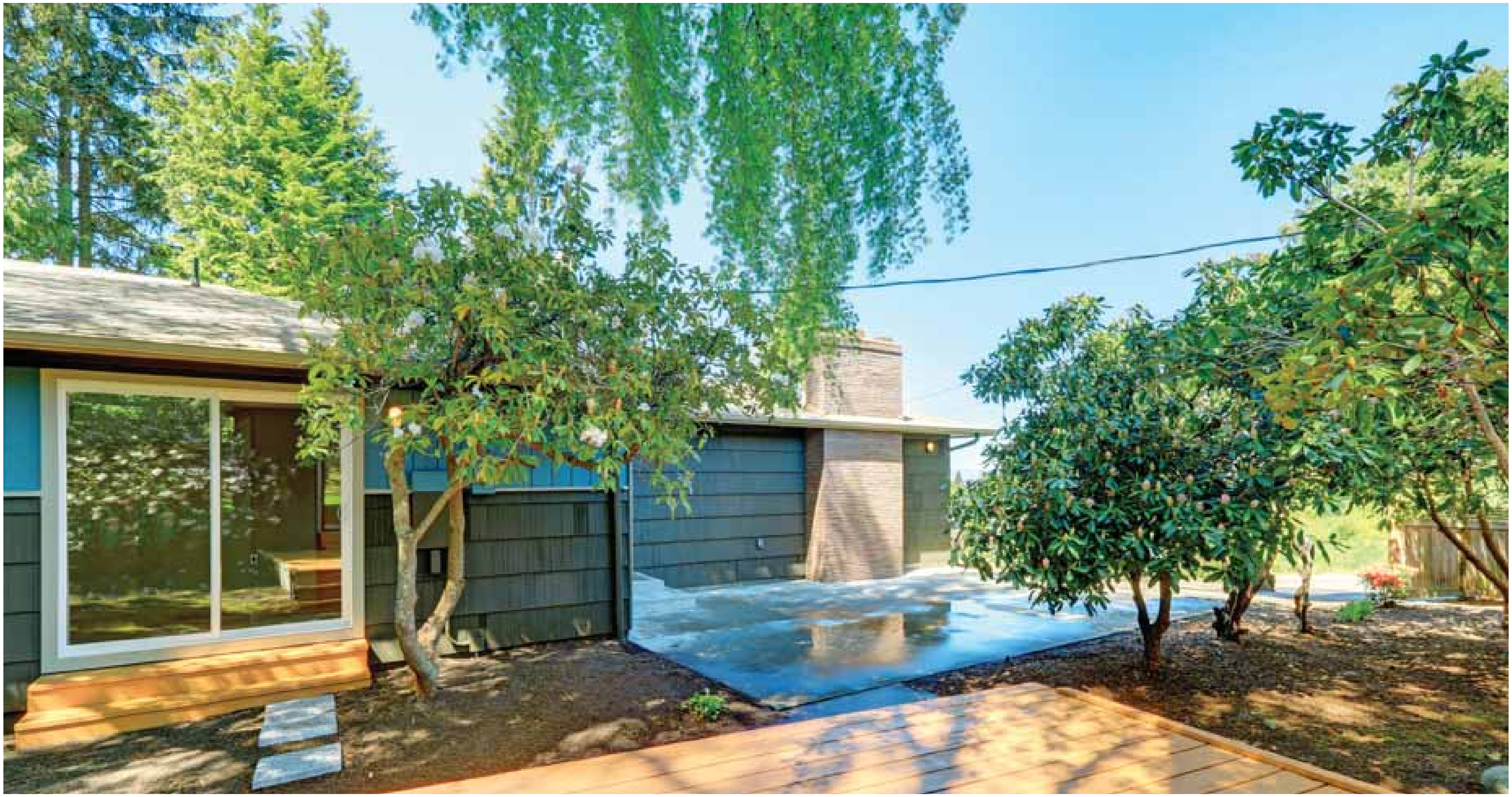
Market Type Barriers

Barrier: Perception that ADUs decrease property values

Solution: Educate residents that ADUs do not decrease property values and may increase these values.

Barrier: Vacation Rental concerns

Solution: Enter into agreements with homeowners that receive governmental incentives to rent ADUs on the long-term market



Euclidean Zoning and the Single Family District

Certain zoning and land use regulations can be detrimental obstacles to ADU development. Traditional "Euclidean" zoning separates what are thought of as incompatible land uses from being on nearby or the same lots.[20] For example, a local government may not consider a smaller, second housing unit to be compatible with a traditional single-family land use designation. This type of policy is a barrier to ADU development. As evidenced by the Florida Legislature[21], ADUs are compatible with single-family homes. Local governments should treat them as such.

A neighborhood zoned as Single Family Residential, for example, would generally allow only one single-family dwelling unit per lot. Historically, without explicit allowances for ADUs, if two or more residences are situated on a single lot, they would need to be in a more intensive residential zone, such as one that permits duplexes or multi-family housing. Today, some single-family zoning districts may permit an accessory dwelling unit but mandate that certain requirements are met or that special circumstances be shown to warrant the use.

Accessory dwelling units should be permitted in all single-family zone districts. As mentioned in the above section describing the need for ADUs, as of 2015, 64% of occupied units in the state of Florida were single-family homes. However, traditional single-family zoning procedures no longer fit the needs of the newer generations of our communities as more young people are looking for smaller, affordable places to live with access to opportunity.[22] These same zoning procedures restrict the needs of Florida's growing elderly population – a population that could use ADUs and other smaller units to help them age in place. ADUs capitalize on the dominance of the single-family home by providing an additional family or person's access to an affordable dwelling unit on the same lot – typically in areas of our communities that are closer to centers of opportunity. A regulatory atmosphere that increases the number of ADUs will bring a positive impact to Florida's housing stock and to our communities.[23]

Barring ADUs from single-family districts severely curtails their prevalence from the outset. If local governments are concerned about ADUs changing the character of the single-family district, they should consider reasonable minimum lot size, setback requirements, or other reasonable structural regulations rather than an outright ban. Allowing ADUs in single-family districts is a necessity if the benefits of ADUs are to be realized. As already noted, many households believe they need ADUs for economic or family reasons. If ADUs are not permitted, some households may erect them without pulling building permits and create potentially serious life and safety hazards for themselves and their neighbors. A local government that provides sensible ADU regulations is likely to be protecting the welfare of the community.

Recommendation

- Allow ADUs as a permissible use in all single-family districts.

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[20] Ross, supra note 1, at 2.

[21] Fla. Stat. § 163.31771 (2018).

[22] Gottlieb, supra note 2, at 633.

[23] See David Garcia, ADU Update: Early Lessons and Impacts of California's State and Local Policy Changes, UC Berkeley Terner Ctr. for Hous. Innovation (Dec. 2017).

Owner-Occupancy Restrictions

Much has been written about the dangers of a strict owner-occupancy requirement for accessory dwelling units. A strict policy may dis-incentivize ADU development and foreclose many of the benefits they provide.[24] Many jurisdictions in Florida currently require that the owner occupy the primary unit if an ADU is used on the property. Others require that the ADU only be used by family members or non-paying guests. Some, however, are more flexible and allow the owner to occupy either the primary unit or the ADU.

By allowing homeowners to live in the ADU and rent out the primary dwelling, local governments grant them the option to earn more income on the primary unit and gain additional flexibility in their living arrangements.

Some cities do not require owner-occupancy at all. Portland, Oregon is one of those cities. Just as local governments do not mandate that all homeowners be on the property of single-family homes that they rent out, Portland and others take the position that local government should not mandate that owners live on the property of ADUs that they rent.

Local governments and communities may fear that a lack of restriction on owner-occupancy requirements may cause neighboring owners of single-family homes to object to having renters in their neighborhood. Communities may perceive a threat to their property values if some lots have two houses where only one is used by the homeowner. However, the addition of a lawfully permitted ADU may increase a property's value – as there is an additional unit for the homeowner to rent out for income. There are also reasonable concerns that without the homeowner present in the primary unit, ADU development may cause unwanted nuisances.

Requiring an owner to be on site may discourage ADU development by negatively impacting that homeowner's flexibility to rent their property and ultimately sell their property. If there are strict owner-occupancy requirements, a homeowner may be forced to sell their entire property instead of having the option to separately rent out the units. If a homeowner is unsure of the return on their investment before building an ADU because of the possible effect of owner-occupancy requirements, they might not build an ADU at all.

Recommendations

- An owner-occupancy requirement should be flexible enough to encourage ADU creation. At a minimum, the owner should be allowed to occupy the ADU.
- Resolve community concerns through other land use controls and code enforcement mechanisms that are less onerous than owner-occupancy restrictions. Minimum lot sizes, setback requirements, and other land use controls can work to ensure that areas with ADUs are in keeping with the character of the community.

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[24] See, e.g., Peterson, supra note 19; Coppage, supra note 16, at 6.

Long Term Rental Use Restrictions

In our survey of Florida counties, of the counties that regulate accessory dwelling units in some fashion, at least 22 do not allow ADUs to be rented long-term. These counties only allow ADUs for temporary guests, family members, caretakers, laborers, and in conjunction with certain commercial, industrial, or agricultural uses. ADUs are explicitly allowed to be rented as long-term units in only 21 counties.

Recommendations:

- Allow accessory dwelling units to be rented to whomever the homeowner chooses to live in the ADU.
- Allow accessory dwelling units to be rented long-term.

As-of-Right vs. Conditional Use

Another barrier to ADU development occurs when ADUs are only allowed as a conditional use rather than "as-of-right." If an ADU is a conditional use, a public hearing is required, and the local government undergoes a discretionary review to determine if the ADU can be constructed in a particular area. While a required public hearing may be good for educating the public on the impacts of ADU development and for providing a forum for neighborhood input, the onerous, unpredictable, and costly nature of the conditional use process may discourage homeowners from constructing ADUs. When allowed as a permitted use, the development review process is more predictable, as requirements are established up-front.

In a typical conditional use process, the homeowner may spend thousands of dollars on application fees, designs, and other requirements, and may still not be approved to add an ADU. As it is, when ADUs are rented at market-rate value, it may take years for the homeowner to break even on their investment. With the additional time and monetary burden of the conditional use process, homeowners may be dissuaded from constructing ADUs entirely or choose to construct illegal ADUs.

Recommendations

- Allow ADUs as a permitted use in all single-family residential land use classifications.
- To encourage ADUs as a tool to increase the housing stock, establish transparent and predictable requirements as opposed to a conditional use process that may be too unpredictable.

Size, Density, and Other Structural Requirements

Minimum lot size, setbacks, and other structural requirements can be used to achieve a compromise with neighborhood concerns about ADU development. Each area of the state is different and providing a one-size-fits-all policy in this area will not be feasible.

1. Minimum Lot Size

There is one county in Florida that requires a parcel of land to be a minimum of 15,000 square feet for a homeowner to lawfully construct an ADU. This effectively bars ADU development on many single-family lots. Austin, Texas, for example, changed its code in 2015 to reduce the minimum lot size requirements from 7,000 square feet to 5,750 square feet. This increased the number of lots that could have an ADU by 8,900.[25]

Recommendations:

- Local governments should study the current single-family home lot sizes of their jurisdiction and taken with public input, reach a solution that satisfies residential concerns while also allowing ADUs to flourish broadly. Minimum lot size requirements should be constructed to allow the most possible lots to contain a lawful ADU.

2. Size

In determining the allowable size of an ADU, most local governments regulate by reference to the ADU being a set maximum percentage of square footage in comparison to the primary unit. Maxing the size limit of an ADU in relation to the primary unit may have the effect of restricting the use of ADUs on smaller single-family lots. For example, if a local government restricts the size of an ADU to no more than 25% of the principal and a principal unit is 1,750 square feet, the ADU could only be roughly 440 square feet in size. This would not be enough for a two-person household to occupy the ADU safely and comfortably.

From our study of ADU ordinances and of ADU advocates across the country, it is recommended that there be around 400 square feet of living space per person. Therefore, to target ADUs as a tool for long-term affordable rental housing, a maximum square footage requirement should be from 800-1200 square feet. For sizable lots that can contain a larger ADU, local governments should make allowances for a larger unit.

Recommendations:

- Use a set number of allowable square footage rather than a rule that mandates the ADU be a certain proportion of the primary unit.
- Allow ADUs up to 1,200 square feet with additional size allowances depending on lot size.

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[25] Tyler Whitson, Council Loosens Rules on Accessory Dwelling Units, Austin Monitor (Nov. 20, 2015), https://www.austinmonitor.com/stories/2015/11/council-loosens-rules-accessory-dwelling-units/.

3. Density

Residential land uses are based on density. If ADUs are counted in the density calculation, this may push the parcel over the density restrictions for a particular zone and disallow an otherwise lawful ADU from being built.

Recommendations:

- Exempt ADUs from density calculations.

4. Setback Requirements

Any restriction on physical locational density should be dictated by setback and minimum lot size requirements. Setback requirements are a tool local governments can use to forge a compromise between neighboring landowners that may be concerned about ADU development. As with other structural regulations, setback requirements should not be designed in a manner that discourages ADU development. If a setback requirement is too stringent, the homeowner may be forced to build a smaller ADU and miss out on the opportunity to use it as a long-term rental for a two-person household. Most counties in Florida simply require the ADU to satisfy the setback requirements of the principal dwelling. Some local governments have different setback rules depending on if the door of a detached unit faces a side street or other properties. These are reasonable offerings.

Recommendations

- For maximum flexibility in setback standards, consider zero-lot line configurations in which an ADU would be allowed up to, or very near to, the edge of property lines.
- To ensure smaller lots are not inadequately burdened by setback requirements, utilize variance procedures to amend certain setback rules.

Utility Hookup Requirements

Requiring an ADU to hookup to its own water, sewer, or other utility may be overly burdensome and deter lawful ADU development. Local governments can facilitate an application to attach to the primary unit’s utilities to save the homeowner thousands of dollars in costs.

Recommendations

- Allow the ADU to file an application to connect to the utilities of the primary residence.

Parking Requirements

Parking requirements can be particularly burdensome to ADU development and if too stringent, may serve to discourage the construction of ADUs. Parking spaces may be very costly for a homeowner and are a challenge from a planning perspective. For smaller lots, a requirement for additional parking could render an ADU impractical – as a lot may not have enough space for both an ADU and a parking spot. These spots can cost thousands of dollars to construct -- pushing the costs on to the renter and lowering the prospects for an ADU to be used as an affordable unit.

One local government in Florida does not require a parking space for ADUs that are 500 square feet or less. One county reduces parking requirements for multifamily developments that have units of 900 square foot or less. These are good compromises if residents are concerned with on-street parking congestion. California has a law stating that local governments may not impose parking requirements for an ADU if the ADU is located "within one-half mile of public transit," is "part of the existing primary residence or an existing accessory structure," or when "on-street parking permits are required but not offered to the occupant of " the ADU or if "a car share vehicle [is] located within one block" of the ADU.[26] Most county ordinances in Florida that mention parking requirements have a "one spot per ADU" requirement.

In all likelihood, ADUs will be dispersed throughout neighborhoods – they will not be centered on one particular street. Therefore, it is likely that on-street parking could satisfy the parking needs of an ADU without overly congesting the neighborhood and without burdening the homeowner with the costs of an additional parking space. Alternatively, design solutions might be considered to provide additional parking. For instance, stacked parking spaces (one in front of the other) or allowing parking in other areas of the parcel (not just the driveways) can be considered. If parking is a genuine issue, the local government should still avoid a "one spot per ADU" rule and consider requiring parking for locations where it may be impractical to park on the street. It is important to strike a balance between the cost burden placed on homeowners and genuine street congestion concerns.

Recommendations

- When devising parking requirements, study the impact that permitted ADUs have on the parking supply. A blanket "one spot per ADU" rule without an impact study may hinder ADU development. For example, require one off-street parking spot only if there is no available on-street parking within a certain number of feet from the parcel.
- If one parking space is generally required, consider exempting ADUs 500 square feet or less.
- After successful implementation of an ADU ordinance, continually monitor parking impacts to assess congestion concerns.

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[26] Cal. Gov't Code §§ 65852.2(d)(1)-(5).

IV. Funding and Incentivizing ADU Development

Local governments have the tools to assist in funding and incentivizing ADU development. This section provides some ideas about how local governments can help homeowners create ADUs. As discussed throughout this Guidebook, ADUs are an excellent tool to expand and diversify a community's housing stock. To increase their prevalence, communities should consider ways to incentivize ADU development.

Impact & Applicant Review Fees

The current standard practice in Florida for assessing impact fees on an ADU is to charge the unit as a multi-family unit. If a homeowner is required to pay the same impact fee for their ADU as a developer would pay for a multi-family unit of any size, the homeowner may be discouraged from ADU development. Further, if a homeowner is required to pay the same impact fee for a 500 square foot as an 800 square foot ADU, a homeowner may be inclined to construct the larger unit instead – deterring a smaller, lower-priced ADU from being built.

A solution offered by Hillsborough County, provides for a fixed "de minimus" impact fee of $100. If not used for long-term affordable housing and if the local government does not want to waive impact fees entirely, ADUs should be assessed by square-footage rather than by unit.[27] With an assessment by square-footage, a developer of a smaller ADU would pay less in impact fees than a developer of a larger ADU. Any waiver or reduction of impact fees can be paid for by the local government's affordable housing fund or other revenue sources.

Local governments can also streamline the review and permitting process to save itself administration costs and save the homeowner both time and money. By streamlining and removing certain development review processes, the cost of development should go down. For example, Leon County passed an ordinance in 2016 that eliminated several steps in the development review process which saved applicants a minimum of $1,697 in permitting fees.[28] Additionally, this Ordinance had the planned effect of reducing ADU approval time by more than 45%. Similar expedited permitting processes should be considered in every local government.

HIGHLIGHTS

Local governments have the tools to fund and incentivize ADU development. Waiving impact fees and providing financial assistance can be the key to establishing ADUs.

This section will offer insight on:

- Impact & Applicant Review Fees
- Financial Assistance
- Marketing the ADU Option to Homeowners

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[27] See Florida Housing Coalition, Affordable Housing Incentive Strategies: A Guidebook for Affordable Housing Advisory Committee Members and Local Government Staff, available at http://www.flhousing.org/wp-content/uploads/2012/03/AHAC-Guidebook-2017.pdf.

[28] Leon County, Florida Board of County Commissions Regular Meeting Minutes 360 (May 10, 2016), available at http://cvweb.clerk.leon.fl.us/finance/board_minutes/minutes/pdfs/20160510%20Official%20Minutes.pdf.

Recommendations

- Waive or otherwise modify impact fees for ADUs that are used for long-term affordable housing or charge a "de minimus" impact fee rate of $100.
- If not used for long-term affordable housing, assess impact fees.
- Another possible, but less desirable alternative, is to charge an ADU in the same impact fee category as a mobile home.
- Streamline and create transparent ADU development processes to the greatest extent possible to lower administration and development costs.

Financial Assistance

Homeowners who want to create an ADU may not have all the funds they need to build the unit. Through the SHIP program, local governments could explore the possibility of establishing an affordable housing strategy to provide a subsidy for ADUs for very-low, low-, or moderate-income households. The subsidy would be secured with a recorded lien on the rental property to ensure than an affordable rent is charged for a period of at least 15 years. Residents of the ADUs would be income certified yearly. Local governments should be able to loan funds to homeowners for the construction of ADUs if the homeowner utilizes the ADU for long-term affordable housing. A loan program for creating ADUs that has a long history of implementation is found in Santa Cruz, California.

To assist homeowners develop rental ADUs for persons at 80% or below the City's median household income, the City of Santa Cruz, California has an ADU loan program by which homeowners can receive loans of up to $100,000 at a 4 ½% interest rate for ADU construction.[29] The County of Santa Cruz, California allows for forgivable loans of up to $40,000 at a 3% interest rate.[30] To receive the financing at the City level, the homeowner must agree to keep the rental unit affordable to low-income tenants for a period of at least 15 years. At the County, the homeowner must enter into a deed restriction for a period of 20 years that keeps the ADU or main house at a cost affordable to low-income households. If the homeowner backs out, they must repay the full amount of the loan plus interest. With loan and deed restrictions and the threat of default, local governments can ensure that ADUs they assist financially are used for long-term affordable rental housing for low- to moderate-income persons.

Recommendations

- Develop a program which loans funds to homeowners who agree to keep their ADU affordable to lower-income tenants. These funds can be derived from the local government's affordable housing funds. Upon repayment, these funds can be recycled for the ADU program or used for other affordable housing purposes. Local governments can be creative in how to raise additional revenue for their affordable housing funds to help finance ADU development.

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[29] City of Santa Cruz, CA, Accessory Dwelling Units: Loan Program, http://www.cityofsantacruz.com/Home/ShowDocument?id=3700.

[30] County of Santa Cruz, CA, Accessory Dwelling Unit Forgivable Loan Program (Apr. 2018), available at http://sccoplanning.com/Portals/2/County/adu/Forgivable%20Loan%20Program.pdf.

Marketing the ADU Option to Homeowners

If a local government allows ADUs by right in all single-family zones or otherwise makes positive changes to facilitate the development of ADUs, the next critical step is to ensure that developers and homeowners are aware that they now have the option of building ADUs. An advertising campaign to educate the community about the benefits and the process for building ADUs is a key component for increasing the stock of ADUs.

Building an ADU may be one of the largest projects a homeowner undertakes on his or her property. Further, most homeowners may be unfamiliar with what it takes to build an ADU on their lot. Therefore, local governments could provide educational materials to ease the learning curve for homeowners interested in ADU development. This may include an easy-to-navigate checklist of the application development review process, development cost projections, zoning and land use regulations, and ADU design considerations.

The City of Santa Cruz, which proves to be a model for ADU regulation across the country, provides an ADU manual and a set of ADU design prototypes to encourage development.[31] The manual connects homeowners to local architects with ADU construction experience. These materials make it easier for homeowners to construct ADUs. The current design prototypes manual offers seven working drawings by local architects to be used as templates by homeowners. The ADU manual contains a step-by-step guide on how to plan, design, and obtain permits for an ADU. Appendix A of this Guidebook contains a template Manual for local governments to use to educate homeowners.

Recommendations

- Provide user-friendly brochures and information to homeowners on the benefits of ADUs and the rules and regulations that apply to ADUs.
- Provide education on what financial resources are available to assist in developing an ADU.
- Connect homeowners to local architects with ADU expertise.
- Provide education on how to manage an ADU including landlord tenant laws, leasing, and maintenance.

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[31] City of Santa Cruz, CA, ADU Prototype Architects, http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/programs/accessory-dwelling-unit-development-program/adu-prototype-architects.

V. Concerns Over ADUs as Short-Term Vacation Rentals & Student Housing

There are justifiable concerns about the use of ADUs as short-term vacation rentals. Some critics argue that the use of ADUs for Airbnb and other vacation rental platforms poses a serious threat to their beneficial use as long-term rental units, places for elderly housing, and family flexibility. The proliferation of short-term vacation rentals may negatively affect the supply of long-term affordable housing for residents of the community.

As of this writing in 2019, local governments may not create a new law, ordinance, or regulation prohibiting vacation rentals or regulating the duration or frequency thereof.[32] This statutory provision, however, does not apply to any local law, ordinance, or regulation adopted on or before June 1, 2011.[33] Thus, unless already placed in a local government's code before this grandfathered date, a local government may not prohibit ADUs as short-term vacation rentals through the zoning code. Local governments can, however, regulate short-term rentals through life safety and building codes.

For the past several Legislative sessions (including the 2019 Session), there have been bills to preempt local governments from regulating short-term rentals altogether.[34] Thus, local governments should be tuned in to how they may or may not regulate short-term vacation rentals.

Options for Local Governments to Regulate the Use of ADUs

One way to overcome the short-term vacation rental preemption, is by providing local government assistance that comes with a land use restriction agreement to ensure that ADUs are used for affordable housing. Land use restriction agreements, also known as deed restrictions, can be an important tool if the ADU is built using governmental assistance or through a modification of impact fees. For example, a local government could condition the reduction of impact fees on an ADU's use as a long-term affordable housing unit. In this scenario, if the ADU is used for short-term vacation rental, the homeowner will have violated the deed restriction and will have to repay the full cost of the impact fees, and perhaps suffer additional consequences imposed by the local government.

HIGHLIGHTS

The increasing number of short-term vacation rentals through Airbnb and similar platforms can increase community concerns about the viability of long-term ADU rentals. While ADUs can be used as short-term rentals, through deed restrictions, local governments can require an ADU to be used as a long-term rental if the unit benefits from impact fee modifications or other financial assistance.

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[32] Fla. Stat. § 509.032(7)(b) (2018).

[33] Id.

[34] Fla. HB 987 (2018), available at https://www.flsenate.gov/Session/Bill/2019/00987; Fla. SB 1400 (2018), available at https://www.flsenate.gov/Session/Bill/2018/01400.

If not done already, local governments should enter into tax agreements with Airbnb and other short-term vacation rental platforms to recover Tourist Development Tax revenue. Under current law, local governments can only use this tax revenue for authorized uses. Affordable housing is not an authorized use. If the Tourist Development Tax statute is amended to allow local governments to use this revenue for affordable housing, they can use the tax revenue from short-term vacation rentals towards affordable housing purposes.[35] These rentals are booming, and local governments should be allowed to use this new stream of revenue for affordable housing. For example, in 2017, Broward, Brevard, Hillsborough, and Polk County received $1.87 million, $419,000, $562,000, and $610,000 in tax revenue from Airbnb, respectively.[36] If local governments are concerned about the proliferation of ADUs as short-term vacation rentals (and in regards to affordable housing broadly), they should be able to use the tax revenue from vacation rentals for incentivizing affordable long-term ADUs in the form of loans, reduction of impact fees, and other costs associated with development. Legislation amending the Tourist Development Tax statute would allow local governments to address this issue.

Ultimately, although strict owner-occupancy requirements are not advisable if the ADU is used for affordable housing, strict requirements can be necessary if the ADU is used as a short-term vacation rental.

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[35] See Fla. Stat. § 125.0104 (2018). The legislation would amend this statute to allow local governments to use revenue from a Tourist Development Tax for affordable housing purposes.

[36] Florida Trend, Airbnb Releases 2017 Florida Tax Report (Feb. 13, 2018), http://www.floridatrend.com/article/23942/airbnb-releases-2017-florida-tax-report.

VI. How to Combat Potential Neighborhood Opposition

The construction of new accessory dwelling units in single-family districts may bring neighborhood or community resistance. The owners of single-family homes may object to having renters in their neighborhood; they may fear increased traffic and parking, or perceive a threat to their property value.[37] The Not in My Backyard (NIMBY) syndrome connotes objections made to stop the development of affordable or otherwise new housing for reasons such as fear and prejudice.[38] NIMBYism presents an obstacle to a successful ADU regulatory structure and can result in fewer affordable housing options at a time when Florida is in desperate need of more rental housing.

Education Campaign

The first thing the local government should do to ease neighborhood opposition toward ADU development is to educate the community about the benefits of ADUs. The more informed the public, local government staff, and elected officials are about the need for affordable rental housing and how ADUs can ease that need, the more leverage advocates will have to advance the development of ADUs.

The local government should be equipped with current data about its specific needs for affordable housing and how ADUs can be used to help community members. Here are some of the questions the local government should consider:

- How many residents are cost-burdened?
- How many cost-burdened residents are forced to live far away from the places they work?
- How many of these cost-burdened residents are essential members of the lower-paid workforce, such as home health aides?
- How much of the community is zoned single-family?
- If ADUs were allowed in all single-family districts, how many new affordable rental units would be possible?

Anecdotal information about the successes of existing ADUs as sources of affordable rental housing, elderly and disabled care, and/or workforce housing can support this message.

In shaping the message, it is important to demonstrate that ADU development may not be best for everyone;

HIGHLIGHTS

Proposals to allow ADUs in single-family residential zoning districts may bring out neighborhood opposition. Local governments can ease community concerns through educational campaigns and by addressing legitimate objections.

This section will offer some solutions such as:

- Education Campaign
- Garner Support from a Broad Range of Interests
- Address All Legitimate Opposition

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[37] Jaimie Ross, Avoiding and Overcoming Neighborhood Opposition to Affordable Rental Housing, Nat'l Low Income Hous. Coal. Advocates' Guide (2018), available at http://nlihc.org/sites/default/files/AG-2018/Ch02-S10_Avoiding-Opposition_2018.pdf.

[38] Id.

some people do not want to utilize their backyards for affordable rental housing. Some folks may only want to utilize their ADUs for family members, guests, or elderly housing and not have their ADUs on the public marketplace. Sensible ADU regulations would go a long way to help households help themselves to solve their own affordable housing problems by providing additional living quarters to family members. It is important to make clear that thousands of ADUs will not sprout up overnight from the successful implementation of an ADU ordinance.

The local government should share these points with the community and help residents understand that ADUs will not dramatically alter the landscape of existing neighborhoods. ADU development will be relatively slow, scattered throughout communities, and if a successful ordinance is implemented, local governments can assure their constituents that they will undergo a study to assess the strengths and weaknesses of ADU development.

The City of Boston, Massachusetts provides a good method by which to study ADU impacts. Several years ago, Boston began allowing what are called "micro-units" – units with a minimum size of 350 square feet -- in a limited area of the city. Simultaneously, the City teamed up with Harvard University's Rappaport Institute to study the impacts of the first batch of units.[39] Local governments in Florida might consider a similar type of study with University partners in Florida to measure the results of an ADU program.

Shape the Message

It is important to make clear that thousands of ADUs will not sprout up overnight from the successful implementation of an ADU ordinance.

- ADUs will not dramatically alter the landscape of existing neighborhoods
- ADU development will be relatively slow and scattered throughout communities
- Assure constituents that studies to assess the strengths and weaknesses of ADU development will be used to inform the decision-making process.

Garner Support from a Broad Range of Interests

Local governments should partner with local organizations that are interested in affordable housing development. They should look for members of the business community, clergy, social services agencies, and others who are outspoken about the need for affordable housing and form partnerships to support ADU development. The media can also be a crucial ally. Local governments should contact the media so the public can better understand ADUs and their development processes, their public purpose, and the population served.

With these allies, the local government will be in a better position to convince their community that ADUs are a beneficial housing tool. For instance, nurses and public safety workers can attest to the need for housing closer to the places in which they work – a need which ADUs in single-family districts can address. Elderly individuals can describe how an ADU may have helped them age in place. With allies from a broad range of interests, more connections between ADU development and community concerns can be voiced.

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[39] Casey Ross, Housing-Starved Cities Seek Relief in Micro-Apartments, Boston Globe (Mar. 26, 2013), https://www.bostonglobe.com/business/2013/03/25/micro-apartments-tight-squeeze-but-livable/vDRdMnChgdhCdFOrmupnyN/story.html.

Address All Legitimate Opposition

The key to overcoming community opposition to establishing a regulatory structure for ADUs is to address the community's legitimate concerns. The local government should be prepared to describe the numerous community benefits of ADUs and willingness to address legitimate concerns. For example, ADUs architectural and design compatibility with the neighborhood may be an issue. Local governments could include a modest and simple set of design guidelines to assure compatibility with the surroundings. For instance, the guidelines could deal with mass, scale, height, and site position of the ADUs to gain community support. Guidelines would make the overall design of the ADU more predictable and compatible with the principal structure and neighborhood.

Parking

Parking may be an issue a local government will need to address. Some community members may oppose ADU development specifically in terms of parking. However, requiring new parking may be too costly to homeowners looking to build an ADU. It is unlikely that 1) dozens of ADUs will sprout up overnight after implementation of a flexible code; and 2) even if they did sprout up overnight, it is unlikely they would all be located on the same block or in the immediate vicinity. As mentioned previously, the parking problem for ADUs in single-family areas can be solved through innovative design solutions. Local governments should be prepared to advocate for their methods.

The City of Orlando provides a potential compromise in this area. Orlando requires parking for ADUs 500 square feet or more but does not require parking to be built for ADUs less than 500 square feet. This solution was designed to encourage smaller units and in recognition of the complexity of building a new parking space on a parcel while meeting setback, maximum lot coverage, and other structural requirements.

Garner Support

Partner with local organizations interested in affordable housing such as:

- Business community,
- Clergy, and
- Social services agencies.

Contact the media to inform the public so that they can learn more about:

- How ADUs are developed,
- Their public purpose, and
- Populations served

VII. ADUs and Tiny Homes

Tiny homes are increasing in popularity; local governments may be asked how tiny homes and ADUs differ. ADUs and tiny homes have many similarities. Both are relatively small in size compared to traditional dwelling units, are flexible in where and how they are built, and cause relatively little impact on the environment and existing infrastructure. However, there are differences in the two housing types which require different rules and regulations from a zoning and land use standpoint.

Simply put, ADUs can be tiny homes and tiny homes can be ADUs. Yet, this is not always the case. Here are some main distinctions between the two housing types:

1. By Definition

By definition, ADUs are accessory to a primary unit and under the same ownership. An ADU cannot exist on a lot by itself. This contrasts with a tiny home which can stand on a lot independently. Because of this, local governments regulate the location, size, and structural requirements of tiny homes differently from ADUs.

A tiny home can be an ADU if built in the backyard of a single-family home and under the same ownership. An ADU can be considered a tiny home based the size of the unit. If a tiny home is built as a backyard unit, it will need to follow ADU regulations. Otherwise, local governments tend to regulate tiny homes separately.

2. Size

Tiny homes are generally smaller in size than the typical ADU. A tiny home is usually defined as a habitable structure of less than 500 square feet. This square footage definition depends on the jurisdiction. ADUs, by contrast, are typically up to 1,000 square feet or larger in some circumstances.

Thus, when local governments regulate stand-alone tiny homes without reference to a primary unit, they tend to max the size requirement at 400 or 500 square feet. If it is considered an accessory dwelling unit, the tiny home can be larger in size.

3. Mobility

One main distinction between the two housing types is that tiny homes can be built on wheels. Tiny homes on wheels (THOW) are typically allowed in areas zoned for mobile homes. If a tiny home is on wheels, it likely cannot be an ADU as local governments generally require ADUs to be on a foundation. THOWs will need to be registered with the Florida Department of Highway Safety and Motor Vehicles.

HIGHLIGHTS

ADUs and Tiny Homes are alternative housing solutions. ADUs are always accessory to the primary unit. Tiny homes can stand alone. As a result, different regulations apply.

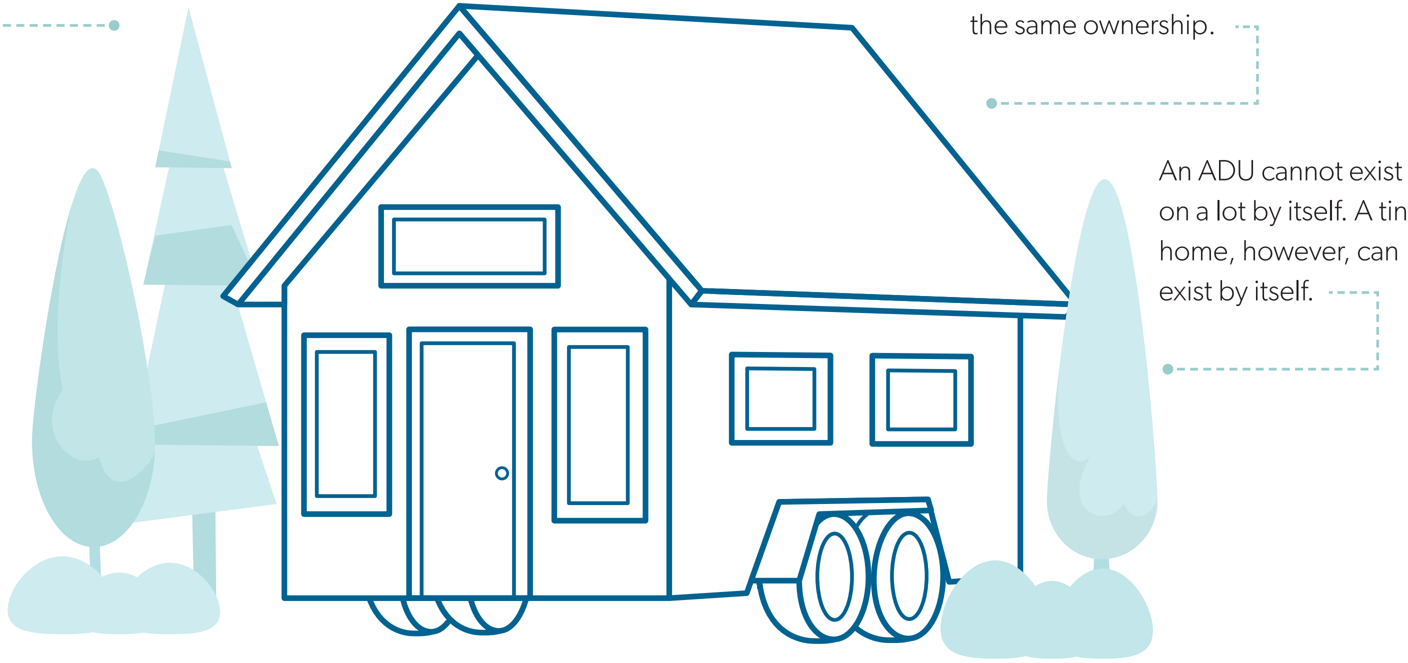
Tiny homes and ADUs differ by:

- Definition
- Size
- Mobility

If the tiny home is an on-site structure, it will be subject to the same zoning requirements as a single-family home, ADU, or clustered site, depending on the circumstances.

In sum, a tiny home can be an accessory dwelling unit and an ADU can be considered a tiny home. Different rules and regulations apply whether the tiny home is a backyard unit, whether it is a stand-alone unit, and whether it is on wheels. If a backyard unit, the tiny home will need to follow the relevant ADU regulations. If a tiny home is a stand-alone unit on a single-family site, multi-family cluster site, or on wheels within a mobile home park, different standards apply based on zoning districts and location.

A tiny home can be an accessory dwelling unit and an ADU can be considered a tiny home. However, different rules and regulations often apply.



Tiny homes are generally less than 500 square feet which is smaller than the typical ADU.

A tiny home can be an ADU if built in the backyard of a single-family home and under the same ownership.

Tiny homes can be built on wheels. and are typically allowed in areas zoned for mobile homes. Generally, ADUs are required to be on a foundation.

An ADU cannot exist on a lot by itself. A tiny home, however, can exist by itself.

VIII. Best Practices

Below you'll find best practices chart for a successful ADU program.

CATEGORY	BEST PRACTICES
Zoning	• Allow ADUs in all single-family districts as an accessory use • Owner must occupy either the primary or accessory dwelling unit • No rental restrictions • No parking requirement if there is on-street parking available • 375-1200 sq. feet with allowances for an increased maximum if lot a certain size • Must meet district setback requirements • Exempt from density calculations • Shall connect to existing utility connections
Development Review, Fees, & Incentives	• Waiver of impact fees if used as affordable rental; if not, "de minimis" impact fee of $100 or by square footage • Streamlined and transparent permitting process • ADU Loan Program for affordable rental construction w/funds from local housing trust or other revenue pool
Administration	• Monitoring system to study local ADU impact on parking, nuisances, property values, etc. • Homeowner & Community Education program

HIGHLIGHTS

This section provides a best practices chart for a successful ADU program, including:

- Zoning
- Development Review, Fees, & Incentives
- Administration

IX. Model Ordinance

This Model Ordinance combines our findings with the recommendations as provided in Section 163.31771 of the Florida Statutes. Certain requirements will depend on the unique nature of each community. This Model Ordinance contains the baseline of requirements to ensure an ADU-friendly regulatory structure. Local ordinances may contain greater or fewer requirements than what is provided here. At minimum, local governments should allow ADUs in all single-family districts and adhere to owner-occupancy flexibility regulations.

After creating an ADU regulatory structure, it is essential for the local government to have a system in place to track the total number and location of each permitted ADU. For an ADU system to work, the local government ought to continuously monitor the progression of the program.

The numbers provided here, especially in reference to lot size and size of the ADU overall, are reflective of what are considered best practices. Fundamentally, when devising an ADU ordinance, it is essential that local government regulations do not hinder the potential of ADUs as a source of affordable housing.

Accessory Dwelling Units

(a) **Purpose** — The intent and purpose of this section is to allow accessory dwelling units to be permitted in all single-family districts and other zone districts as __________ (City/County) finds necessary. It is also the intent and purpose of this section to create a regulatory framework that encourages the development of accessory dwelling units that are rented on the local housing market to members of the community. __________ (City/County) adopts the view of the Florida Legislature as stated in Section 163.31771 of the Florida Statutes pertaining to the need to encourage the permitting of accessory dwelling units in single-family residential areas in order to increase the availability of affordable rentals for extremely-low-income, very-low-income, low-income, or moderate-income persons.

(1) Accessory dwelling units are intended to provide additional housing that is incidental to a primary use. Accessory dwelling units are intended to be used as a necessary smart growth tool to increase the supply of affordable housing, elderly and disabled care units close to family members and caretakers, and/or workforce housing development. Accessory dwelling units are unique housing tools that provide for infill development with low environmental impacts that can connect to existing infrastructure.

HIGHLIGHTS

This section includes a Model Ordinance with baseline requirements to ensure an ADU-friendly regulatory structure.

(2) With surging housing costs and lack of affordable housing stock, accessory dwelling units capitalize on the prominence of the single-family home by providing an additional family or persons access to an affordable dwelling unit on the same lot – typically in areas of our community that are closer to areas of greater opportunity. Creating a regulatory atmosphere that encourages increasing the number of accessory dwelling units will have a positive impact on our community's housing shortage and on the property rights of homeowners.

(3) These standards are devised to ensure that the development of accessory dwelling units do not cause negative impacts on the character or stability of single-family neighborhoods.

(b) Definitions

(1) "Accessory dwelling unit" means an ancillary or secondary living unit that has a separate kitchen, bathroom, and sleeping area existing within the same structure, or on the same lot, as the primary dwelling unit. The accessory dwelling unit may be a separate and detached unit, an attached unit to the principal structure, a repurposed existing space within the principal structure, an apartment over a garage, or a similar structural form.

(2) "Affordable rental" means that monthly rent and utilities do not exceed 30 percent of that amount which represents the percentage of the median adjusted gross annual income for extremely-low-income, very-low-income, low-income, or moderate-income persons.

(3) "Lot requirements" means restrictions on lot size, setbacks, building coverage, and similar zoning requirements.

(4) "Short-term rental" means the rental of a primary or accessory unit for thirty days or less.

(c) Standards

(1) Accessory dwelling units are to be permitted as accessory uses to single-family homes in all residential districts and all other districts as ________ (City/County) deems necessary.

(2) Unless the accessory dwelling unit is used as a short-term rental, the owner must occupy either the principal or accessory dwelling unit.

    (A) If used as a short-term rental, the owner must occupy the primary unit.

(3) No more than one accessory dwelling unit shall be allowed on any residential lot or within any principal nonresidential structure.

(4) An accessory dwelling unit may be constructed with or after the construction of the primary unit.

(5) The establishment of a new accessory dwelling unit shall only be allowed if the lot area of the principal building is at least 5,000 square feet.

(6) The accessory dwelling unit shall be subordinate to the principal building as to location, height, square footage, and building coverage. The design of the accessory dwelling unit shall be uniform, compatible, or complementary in appearance to the primary residence.

(7) The floor area of the accessory dwelling unit shall be no less than 300 square feet and no greater than 1,200 square feet. A variance to increase this amount may be requested provided that the total building coverage does not exceed district standards.

(8) All accessory dwelling units shall meet the applicable zoning district setbacks. Total building coverage on the lot shall not exceed district standards. The accessory dwelling unit shall comply with the requirements of all applicable housing or buildings codes.

(9) No additional parking spaces are required if there is on-street parking available within ______ feet of the parcel. If there is no on-street parking available, one off-street space is required unless the ADU is 500 square feet or less.

(10) Accessory dwelling units are exempt from zone district density calculations.

(11) The accessory dwelling unit may connect to existing water, sewer, and other existing utility connections.

(d) Development Review Procedures

(1) Applications for accessory dwelling unit development shall be streamlined to the greatest extent possible.

(2) Applicants may seek a variance from all structural and lot requirements.

(e) Impact Fees

(1) If used for affordable rental, impact fees shall be waived. An application for a building permit to construct an affordable rental must include an affidavit from the applicant which attests that the unit will be rented at an affordable rate to an extremely-low-income, very-low-income, low-income or moderate-income person or persons. _________ (City/County) will enter into deed restrictions or other agreements as necessary to ensure that the ADU is used for affordable housing purposes.

(2) If not used for affordable rental or the application does not include an affidavit which attests to the accessory dwelling unit as an affordable rental, impact fees will be assessed at a “de minimis” impact fee of $100.

X. Examples of ADU Policies in Florida

Orlando

The City of Orlando recently adopted an ADU ordinance with a clear intent to promote the use of ADUs. The ordinance allows ADUs in all single-family districts, does not require parking if the ADU is 500 square feet or less, and does not have a strict owner-occupancy requirement. The staff report presented in support of the ordinance demonstrates the local government's understanding of ADUs as a tool for affordable housing and the need to create a regulatory atmosphere that encourages their use.[40] The staff report includes an excellent description of the benefits ADUs provide, a survey of comparative local governments and their ADU policies, and a comprehensive analysis of how the new ADU ordinance lessens the land-use restrictions on local governments.

Elements of the Ordinance[41]:

- Type of Use: Accessory
- Zone Districts Allowed: All residential districts as well as mixed use and office districts.
- Size: Maximum of 50% of the size of the principal unit and can be no larger than 1,000 square feet.
- Minimum Lot Size: Correlated with the size of the ADU and depends on the zoning district. Residential districts require a lot size of a minimum of 5,500 square feet for an ADU of up to 500 square feet and 8,250 square feet minimum for an ADU of up to 1,000 square feet.
- Parking: No required parking for ADUs of 500 square feet or less. One additional off-street parking space is required for ADUs above 500 square feet.
- Owner-Occupancy: Not explicit in the ordinance.

Pinellas County

Pinellas County's ordinance has an important element that is worth showcasing: ADUs are exempt from density calculations. This is a best practice as it allows more single-family lots to construct lawful ADUs. Further, Pinellas County allows the owner of the property to occupy either the primary unit or ADU. This flexibility in owner-occupancy is essential to a successful ADU Ordinance.

HIGHLIGHTS

This section provides examples of ADU policies.

Examples are from the following jurisdictions:

- City of Orlando
- Pinellas County
- Alachua County

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[40] City of Orlando, Staff Report to the Municipal Planning Board, LDC Amendment – Accessory Dwelling Units (ADUs) (May 15, 2018), available at http://www.cityoforlando.net/city-planning/wp-content/uploads/sites/27/2018/05/MPBStaffReport2018-05_LDC2018-10004.pdf.

[41] Orlando, Fla. Code of Ordinances CH 58, Part 3A (2018).

Elements of the Ordinance[42]:

- Type of Use: Accessory
- Zone Districts Allowed: All single-family districts and multi-family residential
- Density: ADUs are exempt from density calculations
- Size: Shall not exceed 750 square feet or 50% of the living area of the primary, whichever is less
- Owner-Occupancy: Owner must occupy either the primary unit or ADU

Alachua County

As with Pinellas County, Alachua County does not include the size of an ADU in gross residential density calculations and allows the homeowner to live in either the primary unit or ADU. The Alachua County ordinance is similar to Pinellas' in many respects and is also a model for local governments around the state. A change a county like Alachua could make is to consider zero-lot line configurations when establishing setback requirements. A relaxed setback requirement can encourage healthy ADU development on lots that may be otherwise unable to build a lawful ADU.

Elements of the Ordinance[43]:

- Type of Use: Accessory
- Zone Districts Allowed: Single-family districts and agricultural districts
- Density: ADUs are exempt from density calculations
- Size: Maximum of 50% of principal residence or 1,000 square feet, whichever is greater
- Setbacks: Must meet applicable zoning district setback requirements
- Owner-Occupancy: Owner must occupy either the primary unit or ADU

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[42] Pinellas County Land Development Code § 138-1 (2018).

[43] Alachua County Code § 404.24 (2018).

EXAMPLES OF ADU POLICIES IN FLORIDA

Elements of the Ordinance	City of Orlando	Pinellas County	Alachua County
Type of Use	**Accessory**	**Accessory**	**Accessory**
Zone Districts	All residential districts as well as mixed use and office districts.	All single-family districts and multi-family residential	Single-family districts and agricultural districts
Density	-	ADUs are exempt from density calculations	ADUs are exempt from density calculations
Size	Maximum of 50% of the size of the principal unit and can be no larger than 1,000 square feet	Shall not exceed 750 square feet or 50% of the living area of the primary, whichever is less	Maximum of 50% of principal residence or 1,000 square feet, whichever is greater
Minimum Lot Size	Correlated with the size of the ADU and depends on the zoning district. Residential districts require a lot size of a minimum of 5,500 square feet for an ADU of up to 500 square feet and 8,250 square feet minimum for an ADU of up to 1,000 square feet.	-	-
Parking	No required parking for ADUs of 500 square feet or less. One additional off-street parking space is required for ADUs above 500 square feet.	-	-
Setbacks	-	-	Must meet applicable zoning district setback requirements
Owner-Occupancy	Not explicit in the ordinance	Owner must occupy either the primary unit or ADU	Owner must occupy either the primary unit or ADU

XI. Other Resources for ADU Models

Santa Cruz, California Accessory Dwelling Unit Program

- Santa Cruz offers its residents assistance through loans, an ADU Manual, and ADU design prototypes.
    - http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/accessory-dwelling-units-adus

Family Housing Fund – Twin Cities ADU Guidebook for Homeowners

- Family Housing Fund is an affordable housing organization based in Minneapolis, Minnesota that has released ADU Guidebooks for Homeowners, ADU Developers, and Policy Leaders.
    - http://www.fhfund.org/adu/

Decatur, Georgia

- Decatur allows ADUs on all single-family lots and recognizes the use of ADUs as a tool to supply the "missing middle" of the housing stock.
    - http://www.decaturga.com/city-government/city-departments/planning-and-zoning-redesign/permits-and-zoning/accessory-dwelling-units

Urban Land Institute Study – Jumpstarting the Market for Accessory Dwelling Units: Lessons Learned from Portland, Seattle and Vancouver

- This study describes in detail how these three cities removed barriers to ADU development and the increase in construction that occurred.
    - http://ternercenter.berkeley.edu/uploads/ADU_report_4.18.pdf

NYU Furman Center – Responding to Changing Households: Regulatory Challenges for Micro-Units and Accessory Dwelling Units

- This work dives through several cities and their ADU regulations and discusses some barriers to ADU development.
    - http://furmancenter.org/files/NYUFurmanCenter_RespondingtoChangingHouseholds_2014_1.pdf

R Street Policy Study No. 89

- This study provides an introductory overview to ADU development, discusses ADU benefits and their barriers to full implementation.
    - http://www.rstreet.org/wp-content/uploads/2017/03/89.pdf

Department of Housing and Urban Development Accessory Dwelling Units: Case Study

- This 2008 study by HUD is outdated in some respects but does provide examples of how local governments have regulated ADUs around the country.
    - https://www.huduser.gov/portal/publications/adu.pdf

Appendix: ADU Manual for Homeowners

This document is intended to be a template for local governments to assist homeowners who may want to create an ADU.

Table of Contents

Chapter One: What are ADUs?

Introduction

Walking around your neighborhood, you may have seen windows and a door above a garage or a cottage sized home in the backyard of your neighbor's house. What you have seen is likely an accessory dwelling unit. Interested, you may be wondering how the unit was built, if it is lawful, and how you can build your own for your elderly relative, collegiate son or daughter, or as a rental unit.

Accessory dwelling units (ADUs) are additional living quarters typically on single-family lots that are independent of the primary dwelling unit. An ADU can be an apartment within a primary residence or it can be an attached or freestanding home on the same lot as the primary residence.

Accessory dwelling units were formerly referred to as granny or mother-in law flats and are also sometimes referred to as accessory apartments, garage apartments, carriage houses, and backyard cottages. ADUs were a common feature of early 20th century development in America but their use dwindled with the onset of single-family suburb. ADUs were rarely included as an eligible use in municipal codes regulating land use, zoning, and general land development regulations.

The tide is changing. Increasingly, local governments around the State of Florida see the benefits that ADUs provide and are changing their zoning codes to allow ADUs as a lawful use in single-family neighborhoods. CITY/COUNTY allows ADUs as-of-right in single-family neighborhoods. This Manual answers questions you may have about ADU development and how you can construct a lawful unit on your property.

What are the benefits of an ADU?

ADUs provide many benefits for the homeowner and the community. If rented on the long-term market (typically, with a minimum six-month lease), an ADU can provide a homeowner additional income to help pay down a mortgage, meet other expenses, or provide income for investment. Due to the relatively small size of the unit and because it does not require additional land or major new infrastructure, an ADU can be a valuable affordable housing tool for low- to moderate-income individuals. ADUs promote mixed-income communities where lower-income households can find an affordable home in an area that may have greater employment and educational opportunities.

If not rented, an ADU can provide numerous other benefits. ADUs can be used by elderly or disabled individuals that strive for continued independence. An elderly or disabled individual could remain in their home and use an ADU for their caregiver. ADUs can also provide for family flexibility. The ADU can be used as a "granny flat" for elderly members of a family to help them age-in-place near the comfort of the family unit. With an ADU, a young adult could continue to live with their parents, but in a separate unit, as he or she works towards economic independence.

Further, when developed close to employment centers, an ADU can reduce a person's reliance on transportation, providing additional benefits to society through environmental and energy cost savings.

Who can build an ADU in (CITY/COUNTY)?

This Section should contain the basics of your ADU ordinance. Include basic details about minimum lot size, zoning, maximum lot coverage, owner-occupancy, and setback requirements. Below is an example.

Any homeowner within CITY/COUNTY who has a lot that is DESCRIBE MINIMUM LOT SIZE REGULATION or more in an area that is zoned for single-family dwellings may be able to build an ADU. An ADU must meet setback, lot coverage, and other land use regulations as described in Chapter Two of this Manual. The homeowner must live in either the main house or the ADU and only one ADU per single-family lot is allowed. The ADU may be detached from the main dwelling or attached.

What do I need to know to build an ADU?

Building an ADU may be one of the largest projects a homeowner undertakes on their property. First, decide whether you want to utilize the ADU as a long-term rental unit or for family members or other guests. If you choose the former, be aware of the landlord-tenant legal obligations and financial implications of leasing an ADU. Then, assess your finances and utilize this Manual to see if your lot is suitable for ADU development. Be sure that developing an ADU on your lot will meet zoning standards. If unsure that ADU development is right for you, CITY/COUNTY can assist in making this decision.

Chapter Two: Navigating ADU Development

This Chapter should describe the zoning and design standards as described in the local government's ADU Ordinance. It should provide easy-to-read charts on what properties are eligible to build a lawful ADU.

CITY/COUNTY has developed zoning standards for ADUs. These standards were established with community input to allow ADUs on the most possible lots. The table below provides a summary of CITY/COUNTY standards for an ADU located in a single-family zone.

The Table can contain more zoning standards as the local government finds necessary.

Zoning Standard	Requirement for ADUs	Other Comments
Minimum Lot Size		
Side-yard Setback		
Front-yard Setback		
Rear-yard Setback		
ADU Size		
Parking		
Owner-Occupancy		
Maximum Lot Coverage		
Impact Fees		
Density Calculations		
Maximum Height		
ADU Entrance		

It is important to make sure that your lot can contain a lawful ADU. CITY/COUNTY can provide this guidance. You can also contact a local engineer to inspect your property for compatibility with these regulations. If you have further questions, please contact the RELEVANT DEPARTMENT at PHONE NUMBER/OTHER CONTACT INFORMATION to schedule an appointment to discuss the possibility of including an ADU on your property.

Local Government Assistance

This section should describe, in detail, any assistance that the local government offers for ADU development. It can include items such as an ADU loan program, impact fee reduction for long-term affordable units, technical assistance, and other financial assistance.

Chapter Three: Designing your ADU

Once I figure out the zoning standards for ADU development, what should I do next?

For this portion of the Manual, the local government should consider partnering with local architects and provide information on who has expertise in ADU development.

As with any construction or remodeling in CITY/COUNTY, appropriate building permits are required to develop an ADU. Chapter Four of this Manual provides information on how to navigate the permitting requirements. The permitting process will require drawings and models of your ADU. This Chapter discusses how to design your ADU.

Once you are sure that you can build a lawful ADU on your property, contact a local architect to begin designing the ADU. It will be beneficial to work with a qualified designer, builder, or engineer to make sure your project meets your needs as well as CITY/COUNTY permitting requirements. It is important to select professionals that are familiar with local development processes to ensure maximum ease of development. Local professionals can better anticipate the types of technical and regulatory issues you will need to address.

How should I begin designing the ADU?

First, it is important for your ADU to be a good fit with your home and the surrounding neighborhood. Consider talking to your neighbors to see how your ADU can best fit on your site and into your neighborhood. You should walk around your neighborhood and gather as much information as you can to make sure the ADU is compatible with the surrounding environment. Here are some good questions to consider before designing your ADU:

- What is the predominant height of homes in the neighborhood?
- How much space is there between homes?
- How many neighboring properties have accessory units in their backyard?
- Do these accessory units blend in with the surrounding buildings? Are they attached or detached?
- Is there one material or color that is predominately used for the homes on your block?
- Where do most of the homes have their garages? Are they detached or attached?
- What do the backyards in your neighborhood typically contain?
- How private are the backyards in the neighborhood? Does vegetation exist on the sides or rear of homes?

Answering these questions will help you design an ADU that can blend in with the neighborhood. Understanding this fit will allow the ADU to exist within the fabric of the existing community.

Privacy of Adjoining Properties. It is also important to understand the privacy aspects of building an ADU. Your neighbors may not want a dwelling in the backyard next to theirs that can potentially see into their home. You can resolve privacy issues with additional vegetation, careful planning, and communication with your neighbors. The orientation of an ADU can solve privacy issues. You may think about which way your unit faces and where the windows and doors are located.

Privacy for ADU residents. When designing your ADU, there is the opportunity to plan for which parts of the parcel will be used exclusively for the homeowner, the tenant, and for shared use. You will need to consider how tenants can access the ADU to limit passing by private rooms on route to the ADU. The location of parking and the ADU can also have a noise and physical impact on the primary unit and surrounding properties. You may want to be sure that tenants of the ADU need not walk near surrounding dwelling units on the way to the ADU.

Design Compatibility. You will also need to consider the architectural compatibility with your primary unit. The ADU should be similar in appearance to the primary unit to create an aesthetic and ownership connection between the main house and the ADU. You should also be careful in designing the ADU in a manner that restricts the view of the primary unit or neighboring units. A larger ADU, for example, may restrict visual and/or physical access to a lake or other natural spaces. At a fundamental level, it is important that the ADU blend into the surrounding neighborhood and not be cause for concern from a design and planning standpoint.

Fundamentally, you will need to decide:

- Where the ADU will be located your property
- The size of the ADU
- Which direction the ADU faces
- How to access the ADU with the least impact on surrounding properties
- How to minimize privacy concerns
- Design compatibility with the primary unit and surrounding neighborhood
- When you are going to schedule the work

All these decisions should be made with the underlying goal to design your ADU in a way that fits into the existing community. Work with your site engineer/architect or contact CITY/COUNTY for more information on designing your ADU.

How much will an ADU cost?

At this point in process, you will also need to figure out the financing and development costs for your ADU. If you plan to use the ADU as a long-term rental unit, you may want the rent to cover the cost of development while keeping the monthly rent low enough to be attractive to renters. If you are building the ADU for other reasons, such as to house a caregiver, you may weigh the costs and benefits of building the ADU in comparison to the costs and benefits of moving to an assisted living facility, for example.

First, you will need to consider the "hard costs" of ADU development. These costs are expenses directly related to the physical construction of the building. These costs cover the material and labor that will go into ADU development. The material hard costs include items such as cement, drywall, carpet, windows, and doors. Labor hard costs can include landscaping, site excavation, carpentry, and general building of the ADU.

To lower your hard costs, you have some control over your destiny. Rather than building a detached ADU, for example, you can save money converting your garage into an apartment or by building an attached ADU. You can also choose the materials that you use to build the ADU. If parking is not required and you are able to connect to existing utilities, you can save costs there as well. You can also decide to do part of the work yourself instead of hiring additional labor. Below is an example ADU budget provided by the City of Santa Cruz, California. This is only a sample of what tools you will be dealing with as the prices will likely be different based on material selection, your customization needs, and the current pricing of these supplies in Florida.

Topic		Total Dollars
Off Site Improvements	Water Service	$3,500
Foundation	Grading/Excavating/Backfill/Compaction Concrete & Rebar, Anchoring	$2,500 $7,500
Framing	Studs, joists, rafters, sheathing, beams, headers, connectors	$24,500
Plumbing	Rough Finish	$2,500 $900
Roofing	Asphalt shingle	$3,500
Doors	Interior, exterior, shower encl.	$3,500
Windows	Wood	$4,500
Finishes	Drywall Carpeting Resilient Flooring Countertops (laminate) Cabinets Ceramic Tile Painting (interior and exterior)	$3,250 $900 $800 $750 $1,200 $1,200 $5,000
Metalwork	Piperail Guardrails (Int.) Gutters, downspouts	$2,500 $1,000
Mechanical	Tankless Water Heater Gas Fired Wall Heaters Garbage Disposal	$750 $800 $200
Landscaping	Allowance	$500
Total Preliminary Estimation of Construction Cost		**$76,000**

Next, you will need to consider the "soft costs" of ADU development. These costs are expenses indirectly related to the construction of the ADU. These include development fees, planning costs, utility hook-up fees, and professional design and engineering services. If you work with a local engineer with experience with the local development process, these costs may be easy to calculate.

Other soft costs include the maintenance of the ADU. Be sure to consider ongoing repairs as a part of your cost calculation and decide on materials up-front that may bring less maintenance costs down the road.

How can I finance my ADU?

If you do not have enough cash on hand, traditional mortgage products are regularly used to construct ADUs. First, you could seek a Home Equity Line of Credit (HELOC) or a Home Equity Loan. Both of these products are essentially second mortgages backed by the equity you own in your home. A Home Equity Loan provides a fixed amount of cash on a fixed repayment schedule backed by the equity in your home. A HELOC is similar but is structured as revolving lines of credit, like a credit card, that has shorter repayment terms and only charges interest on the balance you have drawn. You can typically borrow up to 85% of the value of your home minus the amount you owe. This product typically has a 10-year draw period followed by a 20-year repayment period.

Similarly, you can seek cash-out refinancing. This method is similar to home equity financing except that it replaces your current mortgage, has a fixed interest rate over the life of the loan (instead of an adjustable interest rate) that is typically lower than a HELOC, has greater initial payments, and is typically more cumbersome to receive. This method allows you refinance your current mortgage for more than what you currently owe in order to receive a lump-sum of cash to build your ADU. An advantage to this option is you can set the loan term for thirty years, lowering the monthly payments by spreading the cost of the ADU over a longer period.

A construction loan can also be used. This loan can be utilized if you do not have sufficient equity based on your current home value. This type of loan looks at the improved value of the home rather than the current home value, allowing you to receive a greater loan if you lack necessary home equity. The closing costs and interest rates for a construction loan are typically higher than a standard refinance.

If the local government offers a loan program for ADUs used as long-term affordable housing units, include that information here. For instance, the local SHIP program could be used for a loan program for ADUs, and the additional benefit of using SHIP would be the assurance that the ADU would serve an income eligible renter (could not be used for tourist vacation rental) and would be monitored for compliance.

Contact your financial advisor, lender, or RELEVANT DEPARTMENT at PHONE NUMBER/OTHER CONTACT INFORMATION for more information on the best financing options for your ADU.

Chapter Four: Permitting and Building Your ADU

The Land Development Process

Once you have your ADU design and financing figured out as described in Chapter 3, you will need to begin navigating the local development process. Contact RELEVANT DEPARTMENT at PHONE NUMBER/ OTHER CONTACT INFORMATION for more information on starting the development process for your ADU.

In this section, include information on the local land development process with in-depth information on how a homeowner can navigate relevant procedures.

Building Your ADU

Once your permits are finalized, you can begin building your ADU! First, you will want to hire a licensed and insured residential building contractor. You should ask two or three contractors to bid on your ADU. All bids should be based on the same set of plans and specifications and with the same materials, appliances, windows, and similar tools. Discuss the bids in detail with each contractor and gather as much as you can about the success and reputation of each. It is important to choose a contractor that is perfect for you. Ask the contractor for local references to see if former clients were satisfied with the work.

Construction Contract

Once you have a contractor in place, make sure you have a written contract in place and do not sign anything unless you completely understand what you are signing. Consult with an attorney if possible. Be as specific as possible and be sure the terms of the contract are clear. The contract should include the total price, when payments will be made, and whether there is a cancellation penalty. Include all aspects of the work that you consider important, including complete cleanup, removal of debris and materials, and when the work shall be done.

After the contract is signed, be aware that modifications can be made with mutual agreement. Always use a signed "change order" if you add or delete work, substitute materials or equipment, or change the completion date. It is very important to have all modifications signed by both parties.

Inspections

This section should contain information on the local inspection process.

Chapter Five: Managing Your ADU

Renting your ADU

This section applies if you decide to rent your ADU. If you intend to rent your ADU, you will be a landlord and there are many items you will need to consider.

Choosing a tenant for your ADU may be the most important thing you do as a landlord. You will be choosing a person or household that will be living on your property. To ensure the right tenant, you can first establish a screening process to attract responsible and honest applicants. Choose criteria by which to judge applicants and apply the criteria consistently for all applicants. Here are some potential screening points:

- Require contact information for most recent landlords
- Require submittal of a complete application
- Run a credit and criminal background check
- Personal references

It is important to use a written rental application when selecting tenants. A good application gives you access to verifiable information. Contact a local rental housing association or legal counsel for copies of sample rental applications. There are many resources at your disposal in this context. Before potential tenants submit their application, it is a good time to distribute your tenant selection criteria as well as specific information about security deposits, vehicles, pet policy, maximum occupancy, and other issues related to the rental of the ADU. If the applicant rides a bicycle, consider providing a secure location for the bike.

After receiving applications, request a credit check on each tenant who will be signing the lease. Credit checks reveal information about installment and revolving credit lines, court records, collection accounts, judgments, liens, and may be used to determine whether you think an applicant has the ability to pay rent. You can also check with the applicant's previous landlords to determine whether the applicant will be a tenant who pays in a timely fashion and keeps the property in good order. If the applicant is local, you can also ask permission to visit their current residence to assess their housekeeping. In choosing your ADU tenant, be sure to use a process that is simple and fair. Follow all relevant civil rights laws which are designed to prevent discrimination based on issues that are unrelated to a person's qualifications to be a good tenant.

Once you have chosen the tenant, execute a written lease. First, decide how long the lease-term will be. If the lease term is for six months or less, you must remit Florida's 6% sales tax plus any applicable discretionary sales surtax. Lease terms of longer than six months are exempt from sales tax. The lease agreement is vital to forming the understanding between the two parties. Responsibilities should be comprehensive and as clear and concise as possible, and spell out all expectations and responsibilities of each party. Consult with an attorney when devising a lease agreement. Finally, consult with your insurance agent to make sure you have adequate coverage for your ADU.

Obligations as a Landlord

Being a landlord in Florida brings responsibilities. In exchange for receiving rent and the right to have the ADU returned to you undamaged at the end of the lease term, you must satisfy your duties as a landlord. If unsure of your obligations, consult with an attorney before renting your ADU.

As a landlord, you have the duty under Section 83.51 of the Florida Statutes to provide a home that is safe and meets applicable housing, building, and health codes. You must make reasonable repairs as necessary to make sure the structural components of the ADU are in good repair and capable of resisting normal forces and loads. This may include fixing broken pipes, windows, doors, and other items that impair the safety of the home. You must make sure the plumbing is in reasonable working condition and provide for functioning facilities for heat during winter, running water, and hot water. Florida law also proscribes affirmative disclosures you must make to your tenant.

It is also your duty to respect the tenant's rights as defined in Chapter 83 of the Florida Statutes and pursuant to the Lease. One of the most important tenant rights is the right of peaceful possession. You must not interfere with the tenant's leasehold without first consulting the tenant and providing reasonably timed notice. You have the right to protect your ADU through inspection, but you must give a reasonable notice of at least 12 hours. You may not show prospective buyers or tenants the ADU without notice to and with the agreement of the existing tenants.

Further, it is unlawful to increase or decrease services in a discriminatory manner or threaten to bring an action for possession in retaliation. Retaliation may be presumed if it occurs after a tenant has complained about housing conditions. It is also unlawful to lock the tenant out, shut off utilities, or remove tenant's property from the ADU.

A landlord must follow all lease terms in accordance with the termination of the lease. If there is no written rental agreement or if the lease does not state otherwise and unit is rented on a month-to-month basis, you must give at least 15 days- notice in writing to end the tenancy. A week-to-week rental period requires seven days- notice. The notice may be posted on the door of the ADU if the tenant is absent from the premises.

If the lease agreement is violated by the tenant, certain circumstances must be met before the tenant can be evicted. Section 83.20 of the Florida Statutes lists the causes for removal of tenants. If the tenant fails to pay rent or refuses to move out, you may evict the tenant, but only after you have taken the proper steps to commence an action for possession. These include notifying the tenant and if the tenant does not cure the violation within three days after receiving notice, the landlord may file for eviction. Other steps follow. Because these steps are so technical, you should consult with an attorney when engaging in the eviction process.

The purpose of this information is not to dissuade you from creating and renting an ADU, but rather to provide a full picture of the landlord obligations that come with renting any home or apartment.

Maintaining the ADU

The ADU must be maintained in accordance with housing, building, and health codes.

If your ADU is a rental unit, be sure to respond to any tenant complaints in a swift manner. Follow the lease terms as to maintenance of the ADU. Most leases will state a procedure for repairs and damages in the event of a breach of contract. Under Section 83.201 of the Florida Statutes, if the lease is silent on the procedure to be followed to effect repair or maintenance and the tenant places the obligation on the landlord, the tenant may withhold rent after notice to the landlord if the landlord fails to repair the unit. If the landlord does not fix the issue within 20 days, the tenant may withhold rent until the repair has been performed. Once the repair is completed, the tenant shall then pay the amounts of rent withheld. The lease may provide for a longer period of time for repair or maintenance.

Chapter Six: More Resources

In this section, include resources as the local government finds necessary to round out this educational material. This section should include a copy of the ADU ordinance and other applicable laws including, but not limited to, landlord-tenant laws and civil rights laws. This section may include local contractors, engineers, and architects that have expertise in ADU development as well as the contact information of all relevant departments of the local government. It may contain permit fees, a local ADU development checklist, other building codes, and other useful websites for homeowner education. If you would like assistance in developing your local government's Homeowner ADU Manual, please contact the Florida Housing Coalition.

Notes

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Accessory Dwelling Unit
GUIDEBOOK

AND OTHER VALUABLE RESOURCES UNDER THE PUBLICATIONS TAB
ON THE FLORIDA HOUSING COALITION'S WEBSITE AT:
FLhousing.org

FLORIDA
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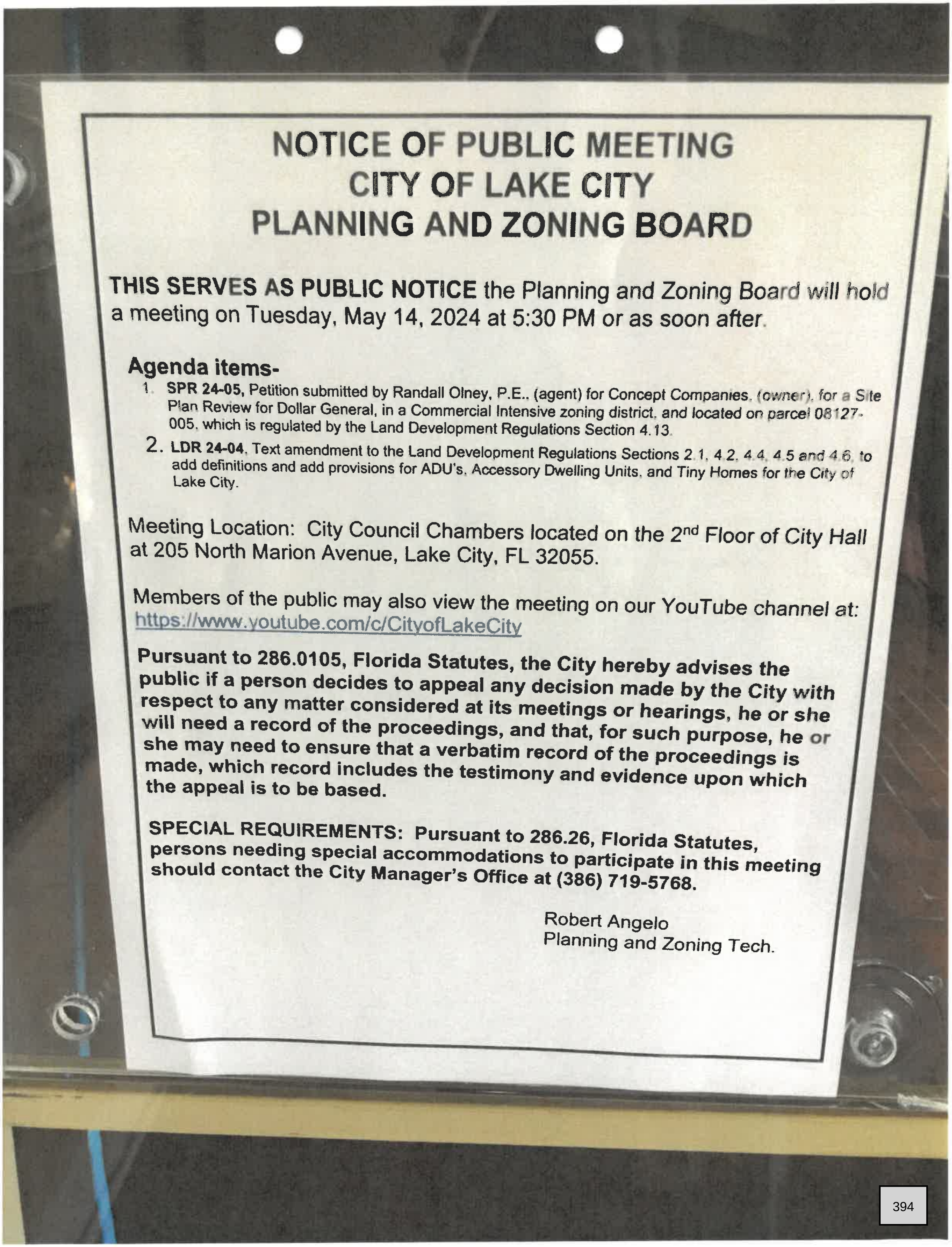
COALITION



NOTICE OF PUBLIC MEETING
CITY OF LAKE CITY
PLANNING AND ZONING BOARD

THIS SERVES AS PUBLIC NOTICE the Planning and Zoning Board will hold a meeting on Tuesday, May 14, 2024 at 5:30 PM or as soon after.

Agenda items-

1. **SPR 24-05,** Petition submitted by Randall Olney, P.E., (agent) for Concept Companies, (owner), for a Site Plan Review for Dollar General, in a Commercial Intensive zoning district, and located on parcel 08127-005, which is regulated by the Land Development Regulations Section 4.13.
2. **LDR 24-04**, Text amendment to the Land Development Regulations Sections 2.1, 4.2, 4.4, 4.5 and 4.6, to add definitions and add provisions for ADU's, Accessory Dwelling Units, and Tiny Homes for the City of Lake City.

Meeting Location: City Council Chambers located on the 2nd Floor of City Hall at 205 North Marion Avenue, Lake City, FL 32055.

Members of the public may also view the meeting on our YouTube channel at: https://www.youtube.com/c/CityofLakeCity

Pursuant to 286.0105, Florida Statutes, the City hereby advises the public if a person decides to appeal any decision made by the City with respect to any matter considered at its meetings or hearings, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

SPECIAL REQUIREMENTS: Pursuant to 286.26, Florida Statutes, persons needing special accommodations to participate in this meeting should contact the City Manager's Office at (386) 719-5768.

Robert Angelo
Planning and Zoning Tech.

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Pursuant to 286.0105, Florida Statutes, the City hereby advises the public if a person decides to appeal any decision made by the City with respect to any matter considered at its meetings or hearings, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

SPECIAL REQUIREMENTS: Pursuant to 286.26, Florida Statutes, persons needing special accommodations to participate in this meeting should contact the City Manager's Office at (386) 719-5768.

Robert Angelo
Planning and Zoning Tech.

Angelo, Robert

From: LCR-Classifieds <classifieds@lakecityreporter.com>
Sent: Monday, April 29, 2024 12:02 PM
To: Angelo, Robert
Subject: RE: 73990 73992 73991 RE: Non-Legal Ad for P&Z, BOA, and HPA for 05-14-2024

Confirmed

Thank you much,
Kymberlee Harrison 386-754-0401
Support your local news source while reaching our community of loyal subscribers
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1086 SW Main Blvd. Ste 103, Lake City, FL 32055
PH 386-754-0401

Why Local Newsprint Advertising?

1 Newspaper readers are ENGAGED
2 Newspapers are viewed as TRUSTWORTHY

From: Angelo, Robert <AngeloR@lcfla.com>
Sent: Monday, April 29, 2024 12:02 PM
To: LCR-Classifieds <classifieds@lakecityreporter.com>
Subject: RE: 73990 73992 73991 RE: Non-Legal Ad for P&Z, BOA, and HPA for 05-14-2024

Looks good.

Thank You
Robert Angelo
City of Lake City
Growth Management
growthmanagement@lcfla.com
386-719-5820

PLEASE NOTE: Florida has a very broad public records law. Most written communications to or from City officials regarding City business are public records available to the public and media upon request. Your email communications may be subject to public disclosure.

From: LCR-Classifieds <classifieds@lakecityreporter.com>
Sent: Monday, April 29, 2024 11:20 AM
To: Angelo, Robert <AngeloR@lcfla.com>
Subject: 73990 73992 73991 RE: Non-Legal Ad for P&Z, BOA, and HPA for 05-14-2024

Robert, all are scheduled to publish on May 2. Approval due by tomorrow please
P&Z: 3 col x 5.5 $272.25

Historic: 3 col x 4.5 $222.75
BOA: 3 col x 4 $198

Thank you much,
Kymberlee Harrison 386-754-0401
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Why Local Newsprint Advertising?

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From: Angelo, Robert <AngeloR@lcfla.com>
Sent: Monday, April 29, 2024 8:57 AM
To: LCR-Classifieds <classifieds@lakecityreporter.com>
Subject: Non-Legal Ad for P&Z, BOA, and HPA for 05-14-2024

Kym

Please publish this ad in the body of the paper as a display ad in the **May 2, 2024** paper.

Thank You
Robert Angelo
City of Lake City
Growth Management
growthmanagement@lcfla.com
386-719-5820

NOTICE OF PUBLIC MEETING
CITY OF LAKE CITY
PLANNING AND ZONING BOARD

THIS SERVES AS PUBLIC NOTICE the Planning and Zoning Board will hold a meeting on Tuesday, May 14, 2024 at 5:30 PM or as soon after.

Agenda items-

1. **SPR 24-05,** Petition submitted by Randall Olney, P.E., (agent) for Concept Companies, (owner), for a Site Plan Review for Dollar General, in a Commercial Intensive zoning district, and located on parcel 08127-005, which is regulated by the Land Development Regulations Section 4.13.
2. **LDR 24-04**, Text amendment to the Land Development Regulations Sections 2.1, 4.2, 4.4, 4.5 and 4.6, to add definitions and add provisions for ADU's, Accessory Dwelling Units, and Tiny Homes for the City of Lake City.

Meeting Location: City Council Chambers located on the 2nd Floor of City Hall at 205 North Marion Avenue, Lake City, FL 32055.

Members of the public may also view the meeting on our YouTube channel at: https://www.youtube.com/c/CityofLakeCity

Pursuant to 286.0105, Florida Statutes, the City hereby advises the public if a person decides to appeal any decision made by the City with respect to any matter considered at its meetings or hearings, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

SPECIAL REQUIREMENTS: Pursuant to 286.26, Florida Statutes, persons needing special accommodations to participate in this meeting should contact the City Manager's Office at (386) 719-5768.

Robert Angelo
Planning and Zoning Tech.

Angelo, Robert

From: LCR-Classifieds <classifieds@lakecityreporter.com>
Sent: Monday, April 29, 2024 10:59 AM
To: Angelo, Robert
Subject: RE: 813653 RE: Legal ad for LDR24-04

Confirmed

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PH 386-754-0401

Why Local Newsprint Advertising?

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From: Angelo, Robert <AngeloR@lcfla.com>
Sent: Monday, April 29, 2024 10:28 AM
To: LCR-Classifieds <classifieds@lakecityreporter.com>
Subject: RE: 813653 RE: Legal ad for LDR24-04

Looks good.

Thank You
Robert Angelo
City of Lake City
Growth Management
growthmanagement@lcfla.com
386-719-5820

From: LCR-Classifieds <classifieds@lakecityreporter.com>
Sent: Monday, April 29, 2024 9:19 AM
To: Angelo, Robert <AngeloR@lcfla.com>
Subject: 813653 RE: Legal ad for LDR24-04

Please see attached for approval

Thank you much,

Kymberlee Harrison 386-754-0401
Support your local news source while reaching our community of loyal subscribers
Serving:
COLUMBIA • SUWANNEE • HAMILTON • LAFAYETTE
1086 SW Main Blvd. Ste 103, Lake City, FL 32055
PH 386-754-0401

Why Local Newsprint Advertising?

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From: Angelo, Robert <AngeloR@lcfla.com>
Sent: Monday, April 29, 2024 8:53 AM
To: LCR-Classifieds <classifieds@lakecityreporter.com>
Subject: Legal ad for LDR24-04

Kym

Please publish in the legal section of the Lake City Reporter on **May 2, 2024.**

Thank You
Robert Angelo
City of Lake City
Growth Management
growthmanagement@lcfla.com
386-719-5820

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LAKE CITY REPORTER
1086 SW MAIN BLVD STE 103
PO BOX 1709
LAKE CITY FL 32056-1709
(386)752-1293

ORDER CONFIRMATION

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Salesperson: KYM HARRISON               Printed at 04/29/24 09:18 by kharr-cn
-----------------------------------------------------------------------------
Acct #: 45150                           Ad #: 813653        Status: New WHOLD

CITY OF LAKE CITY                       Start: 05/02/2024   Stop: 05/02/2024
ATTN: FINANCE                           Times Ord: 1        Times Run: ***
205 N MARION AVE                        STD 1.00 X 11.79  Words: 426
LAKE CITY FL 32055                      Total STD 11.79
                                        Class: 8000  LEGAL COLUMBIA CO
                                        Rate: LG            Cost: 194.54
                                        # Affidavits: 1
                                        Ad Descrpt: LDR24-04
Contact:  AP CHERYL 719-5794            Descr Cont: NOTICE OF PUBLIC HEARINGS
Phone:    (386)719-5804                 Given by: *
Fax#:                                   P.O. #:
Email:                                  Created:      kharr 04/29/24 09:16
Agency:                                 Last Changed: kharr 04/29/24 09:18
-----------------------------------------------------------------------------
PUB  ZONE  EDT TP RUN DATES
LCR  A      96 S 05/02
-----------------------------------------------------------------------------
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AUTHORIZATION

Under this agreement rates are subject to change with 30 days notice. In the event of a cancellation before schedule completion, I understand that the rate charged will be based upon the rate for the number of insertions used.

Name (print or type)

Name (signature)

(CONTINUED ON NEXT PAGE)

This ad has been reformatted for proofing purposes. Column breaks are not necessarily as they will appear in publication.

NOTICE OF PUBLIC HEARINGS CONCERNING AMENDMENTS TO THE CITY OF LAKE CITY LAND DEVELOPMENT REGULATIONS

BY THE PLANNING AND ZONING BOARD OF THE CITY OF LAKE CITY, FLORIDA, SERVING ALSO AS THE LOCAL PLANNING AGENCY OF THE CITY OF LAKE CITY, FLORIDA, NOTICE IS HEREBY GIVEN that, pursuant to Section 163.3161 through 163.3248, Florida Statutes, as amended, and the City of Lake City Land Development Regulations, as amended, objections, recommendations and comments concerning the amendments, as described below, will be heard by the Planning and Zoning Board of the City of Lake City, Florida, serving also as the Local Planning Agency of the City of Lake City, Florida, at public hearings on May 14, 2024 at 5:30 p.m., or as soon thereafter as the matters can be heard in the City Council Meeting Room, Second Floor, City Hall, located at 205 North Marion Avenue, Lake City, Florida and via communications media technology.

(1) LDR 24-04, Text amendment to the Land Development Regulations Sections 2.1, 4.2, 4.4.5, 4.5.5, and 4.6.5, to amend the text in section 2.1 adding a definitions for Accessory Dwelling Units (ADU), infill, infill subdivision, Tiny Homes (Stationary), Tiny Homes (On Wheels for Permanent Installation), Tiny Home (On Wheels for Portable Use), to amend section 4.2 adding section 4.2.36, entitled Requirements for Accessory Dwelling Units and Tiny Homes, and amending the text in sections 4.4.5, 4.5.5, and 4.6.5 adding text for ADUs and Tiny Homes.

Members of the public may also view the meeting on our YouTube channel at: https://www.youtube.com/c/CityofLakeCity.

Those attendees wishing to share a document must email the item to submissions@lcfla.com no later than noon on the day of the meeting.

Copies of the amendments are available for public inspection by contacting the Office of Growth Management at growthmanagement@lcfla.com or by calling 386.719.5746.

At the aforementioned public hearings, all interested parties may appear and be heard with respect to the amendments.

All persons are advised that if they decide to appeal any decision made at the above referenced public hearings, they will need a record of the proceedings, and that, for such purpose, they may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

Persons with disabilities requesting reasonable accommodations to participate in these proceedings should contact the Office of City Manager, 386.719.5768 at least 48 hours prior to the proceedings. If you are hearing or speech impaired, please contact the Florida Relay Service at 800.955.8770 (voice) or 800.955.8771 (TTY).

813653
May 2, 2024

NOTICE OF PUBLIC HEARINGS
CONCERNING AMENDMENTS TO THE
CITY OF LAKE CITY LAND DEVELOPMENT REGULATIONS

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