



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: Commercial
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 _____
 - 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@ctw-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 BEFORE THE 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)

[Handwritten Signature]

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*, 20*24*, by (name of person acknowledging).



[Handwritten Signature]

Signature of Notary

Trina Lemnah

Printed Name of Notary

Personally Known OR Produced Identification _____
Type of Identification Produced

CRS Lake City Marvin Burnett – Cover Letter

JOB NO. 22-0653



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

A handwritten signature in blue ink, appearing to read 'Randall Olney'.

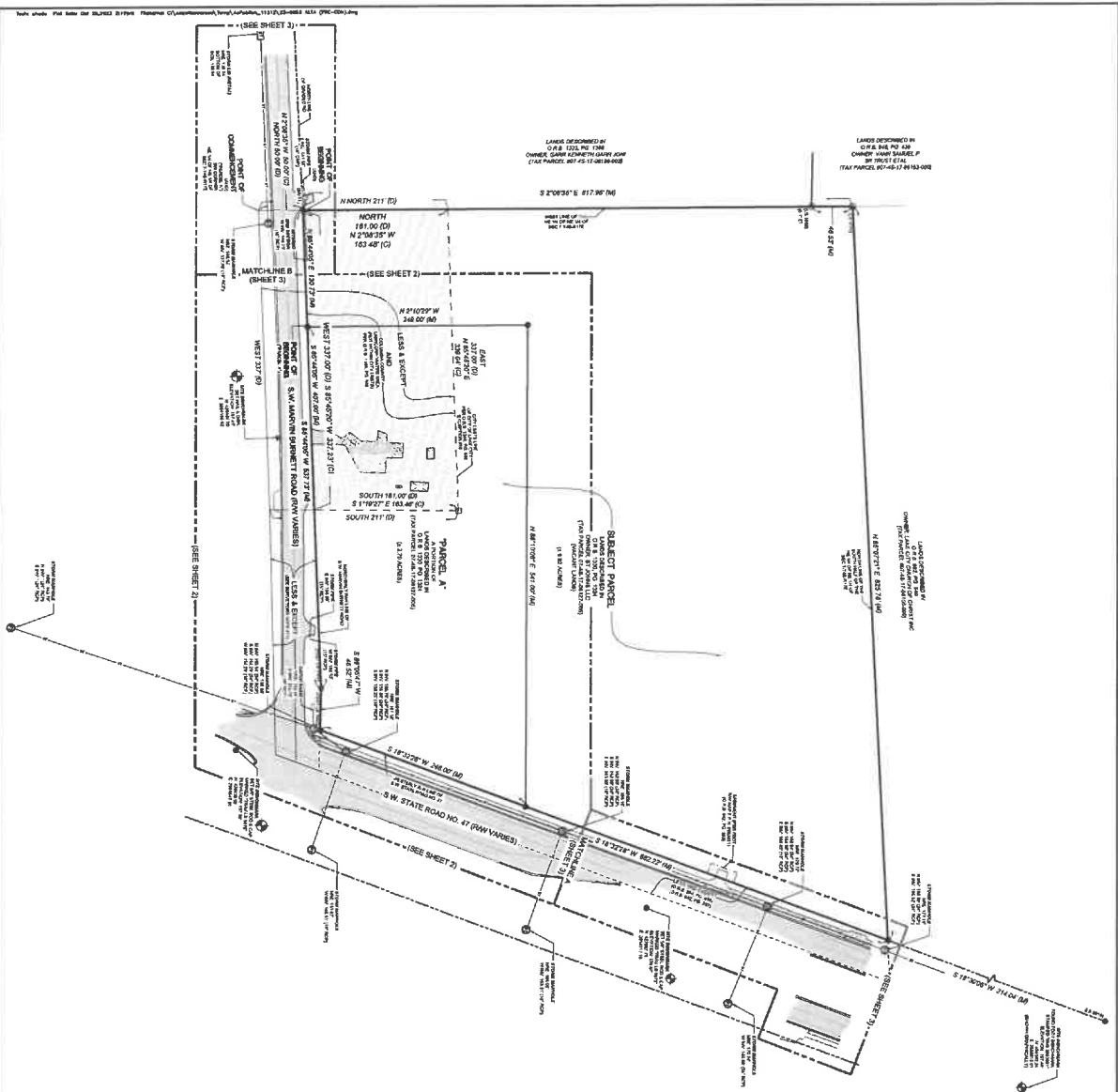
Randall Olney, PE
Director of Engineering, Land Development

CRS Lake City Marvin Burnett – Cover Letter

JOB NO. 22-0653



\\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

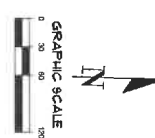


ALTAINPS LAND TITLE SURVEY

LOCATED IN THE NORTHEAST QUARTER (NE 1/4) OF SECTION 1, TOWNSHIP 4 SOUTH, RANGE 11 EAST, CITY OF LAKE CITY, COLUMBIA COUNTY, FLORIDA

DESCRIPTION: SUBJECT PARCEL IS 100' WIDE AND 100' DEEP, BEING THE NORTHEAST QUARTER (NE 1/4) OF SECTION 1, TOWNSHIP 4 SOUTH, RANGE 11 EAST, CITY OF LAKE CITY, COLUMBIA COUNTY, FLORIDA. THE SUBJECT PARCEL IS BOUND BY THE WEST LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE SIDEWALK AND THE EAST LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE DRIVEWAY. THE SUBJECT PARCEL IS BOUND BY THE NORTH LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE SIDEWALK AND THE SOUTH LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE DRIVEWAY. THE SUBJECT PARCEL IS BOUND BY THE WEST LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE SIDEWALK AND THE EAST LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE DRIVEWAY. THE SUBJECT PARCEL IS BOUND BY THE NORTH LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE SIDEWALK AND THE SOUTH LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE DRIVEWAY.

1. THE SUBJECT PARCEL IS 100' WIDE AND 100' DEEP, BEING THE NORTHEAST QUARTER (NE 1/4) OF SECTION 1, TOWNSHIP 4 SOUTH, RANGE 11 EAST, CITY OF LAKE CITY, COLUMBIA COUNTY, FLORIDA.
2. THE SUBJECT PARCEL IS BOUND BY THE WEST LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE SIDEWALK AND THE EAST LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE DRIVEWAY.
3. THE SUBJECT PARCEL IS BOUND BY THE NORTH LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE SIDEWALK AND THE SOUTH LINE OF THE 100' WIDE EASEMENT FOR 10' WIDE DRIVEWAY.
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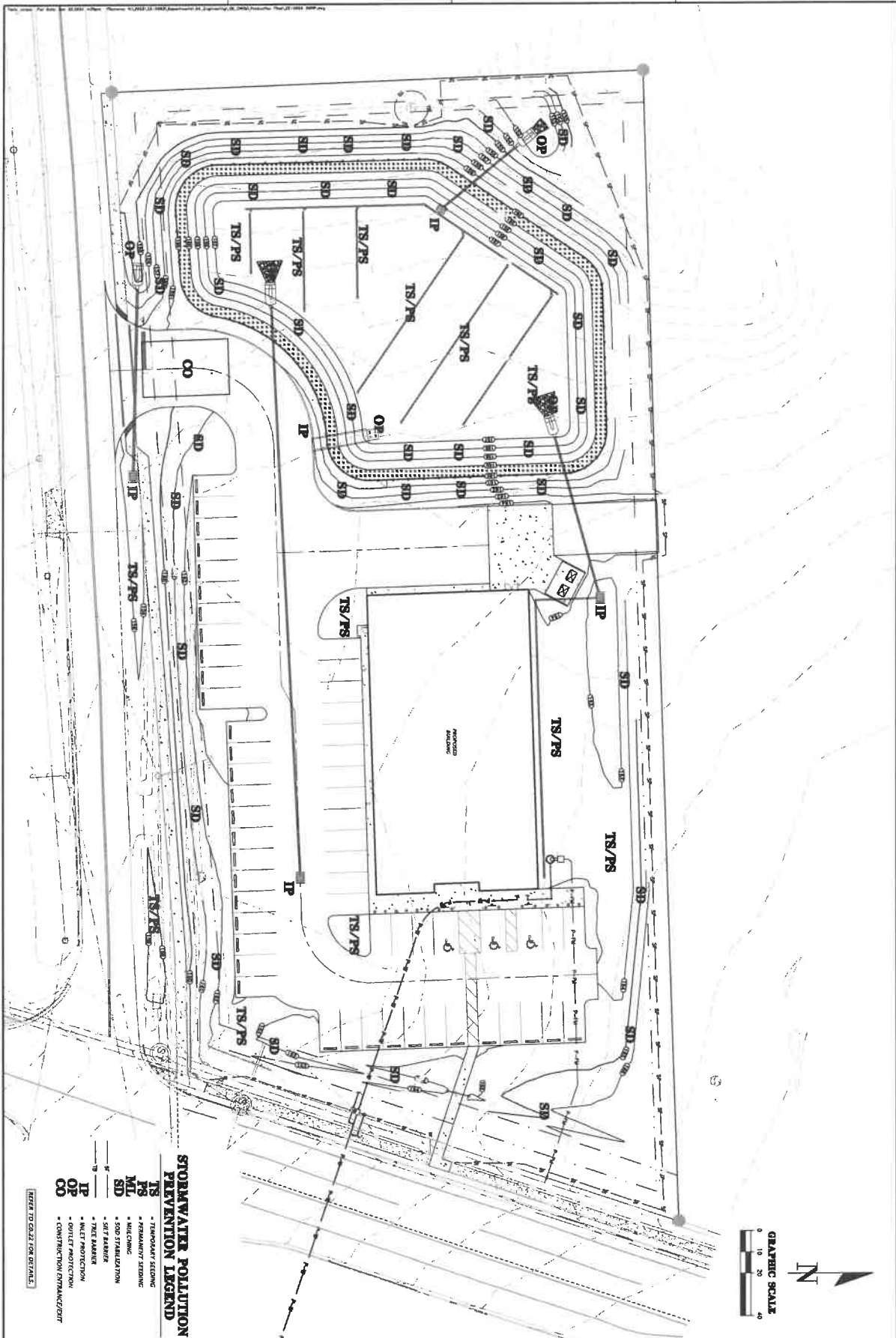
LEGEND:

- 1. 100' WIDE EASEMENT FOR 10' WIDE SIDEWALK
- 2. 100' WIDE EASEMENT FOR 10' WIDE DRIVEWAY
- 3. 10' WIDE SIDEWALK
- 4. 10' WIDE DRIVEWAY
- 5. 10' WIDE SIDEWALK AND 10' WIDE DRIVEWAY
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- 18. 10' WIDE SIDEWALK AND 10' WIDE DRIVEWAY
- 19. 10' WIDE SIDEWALK AND 10' WIDE DRIVEWAY
- 20. 10' WIDE SIDEWALK AND 10' WIDE DRIVEWAY

BOUNDARY CERTIFICATION:

TO WHOM THESE PRESENTS COME, I, CHAD A. COLSON, LICENSED SURVEYOR NO. 11207, DO HEREBY CERTIFY THAT I AM A LICENSED SURVEYOR IN THE STATE OF FLORIDA AND THAT I HAVE PERSONALLY CONDUCTED THIS SURVEY AND THAT THE INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DATE: 10/25/2023



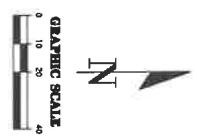
STORMWATER POLLUTION PREVENTION LEGEND

TS/PS - TREATMENT/STORAGE
 IP - INFILTRATION/STORAGE
 SD - STORAGE/DETENTION
 OP - OUTFLET PROTECTION
 CO - CONSTRUCTION EROSION CONTROL

TS - TREATMENT/STORAGE
 PS - POLYMER SAND FILTER
 MFL - MEDIA FLOW LAYER
 SD - STORAGE/DETENTION
 IP - INFILTRATION/STORAGE
 OP - OUTFLET PROTECTION
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* TREATMENT/STORAGE
 * INFILTRATION/STORAGE
 * POLYMER SAND FILTER
 * MEDIA FLOW LAYER
 * STORAGE/DETENTION
 * INFILTRATION/STORAGE
 * OUTFLET PROTECTION
 * CONSTRUCTION EROSION CONTROL

REFER TO C021 FOR DETAILS



C0.21

PROJECT NO. 23-0653
 DATE: 01/20/24
 SHEET NO. 01 OF 01

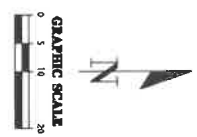
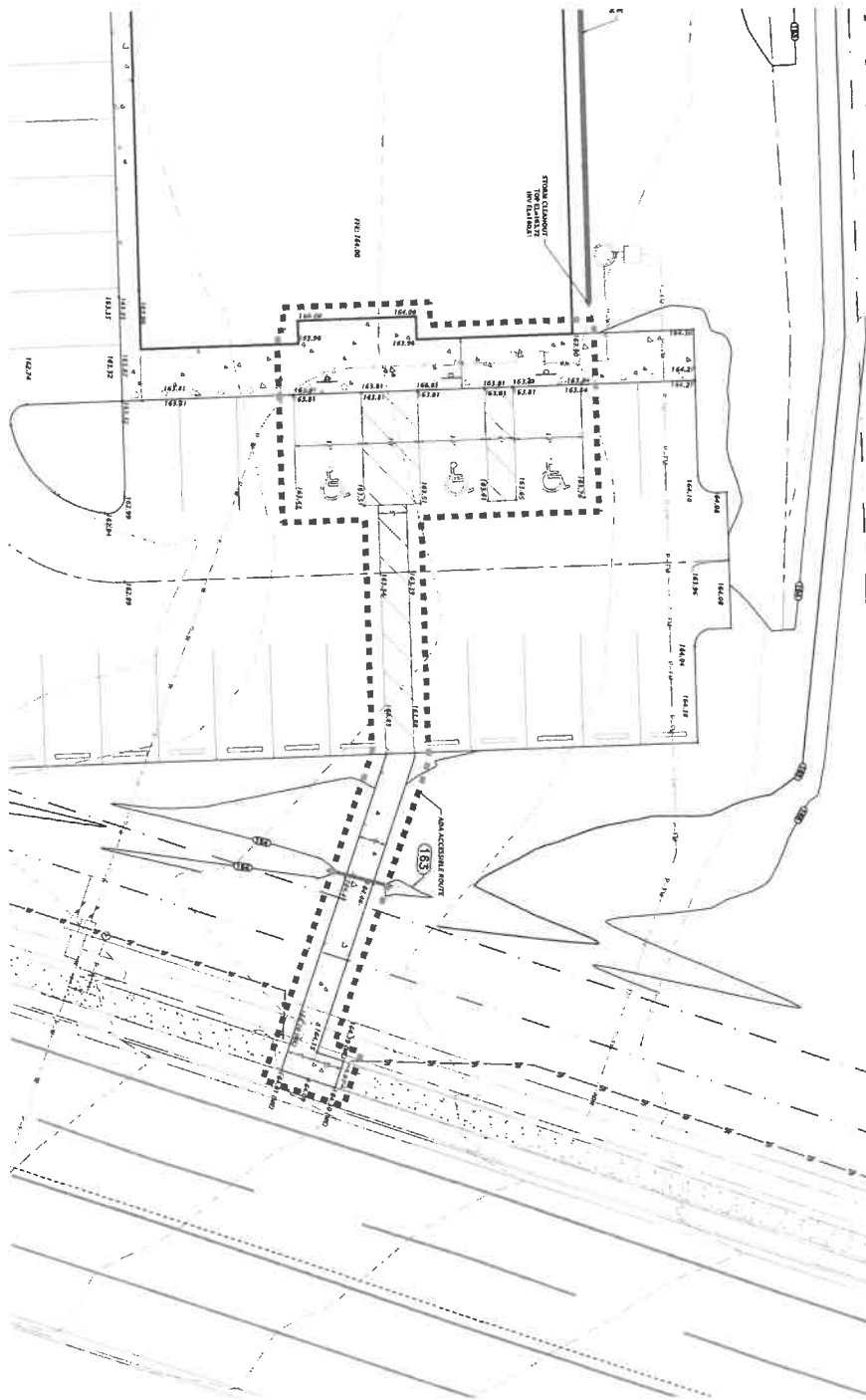
CLIENT: CONCEPT DEVELOPMENT, INC.
 PROJECT: COMMERCIAL RETAIL STORE
 ADDRESS: 01/20/24 CITY OF LAKE CITY, COLUMBIA COUNTY, FL01
 SHEET TITLE: STORMWATER POLLUTION PREVENTION PLAN

DESIGNER: CH2M HILL
 PROJECT NO.: 23-0653

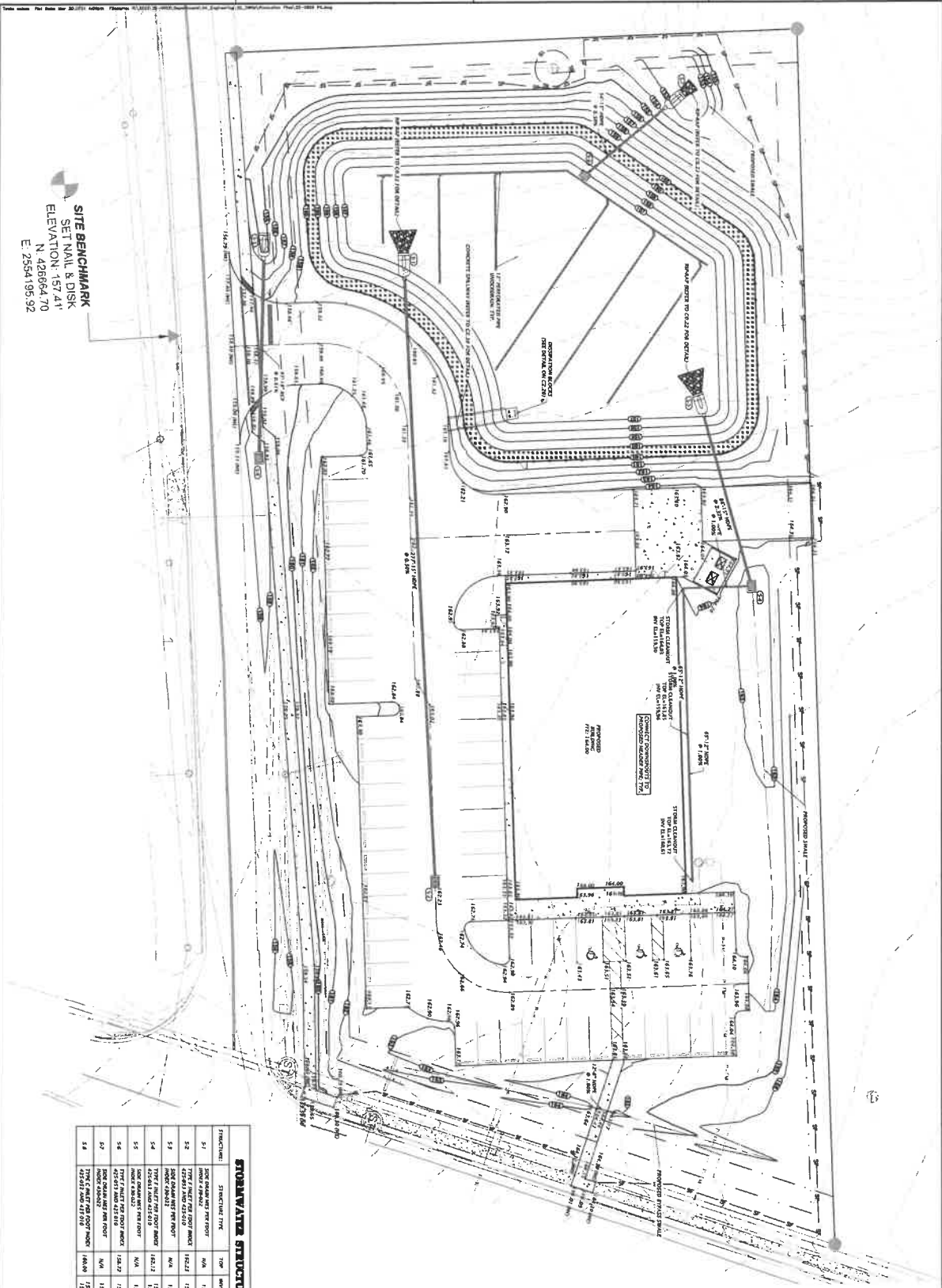
SCALE: 1"=50'
 NORTH ARROW: AS SHOWN
 DESIGNER'S SEAL: [Blank Seal Area]
 DATE: 01/20/24
 SHEET NO.: 01 OF 01

CH2M HILL
 Professional Corporation

1801 Research Drive
 Alachua, Florida 32616
 352.233.9779
 www.ch2m-hill.com
 est. 1995 FLORIDA
 CA-6078



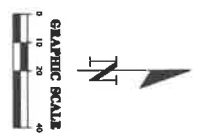
CHW PROFESSIONAL CONSULTANTS 11801 Research Drive Alachua, Florida 32601 (904) 324-8778 www.chw-inc.com INC. 1988 FLORIDA CA-5078	PROJECT: 23-0653 ACCESSIBILITY PLAN	CLIENT: CONCEPT DEVELOPMENT, INC. PROJECT: COMMERCIAL RETAIL STORE ADDRESS: 01210/214 CITY OF LAKE CITY, COLUMBIA COUNTY, FL07	DATE: 02/20/21 CITY OF LAKE CITY, COLUMBIA COUNTY, FL07	SHEET: 1 OF 107
	DESIGNER: G. WADZINSKI CHECKER: G. M. HERRIN APPROVED: B. DUNN, P.E. LICENSE NO.: 23-0653	TITLE: ACCESSIBILITY PLAN	PROJECT: COMMERCIAL RETAIL STORE ADDRESS: 01210/214 CITY OF LAKE CITY, COLUMBIA COUNTY, FL07	DATE: 02/20/21 CITY OF LAKE CITY, COLUMBIA COUNTY, FL07



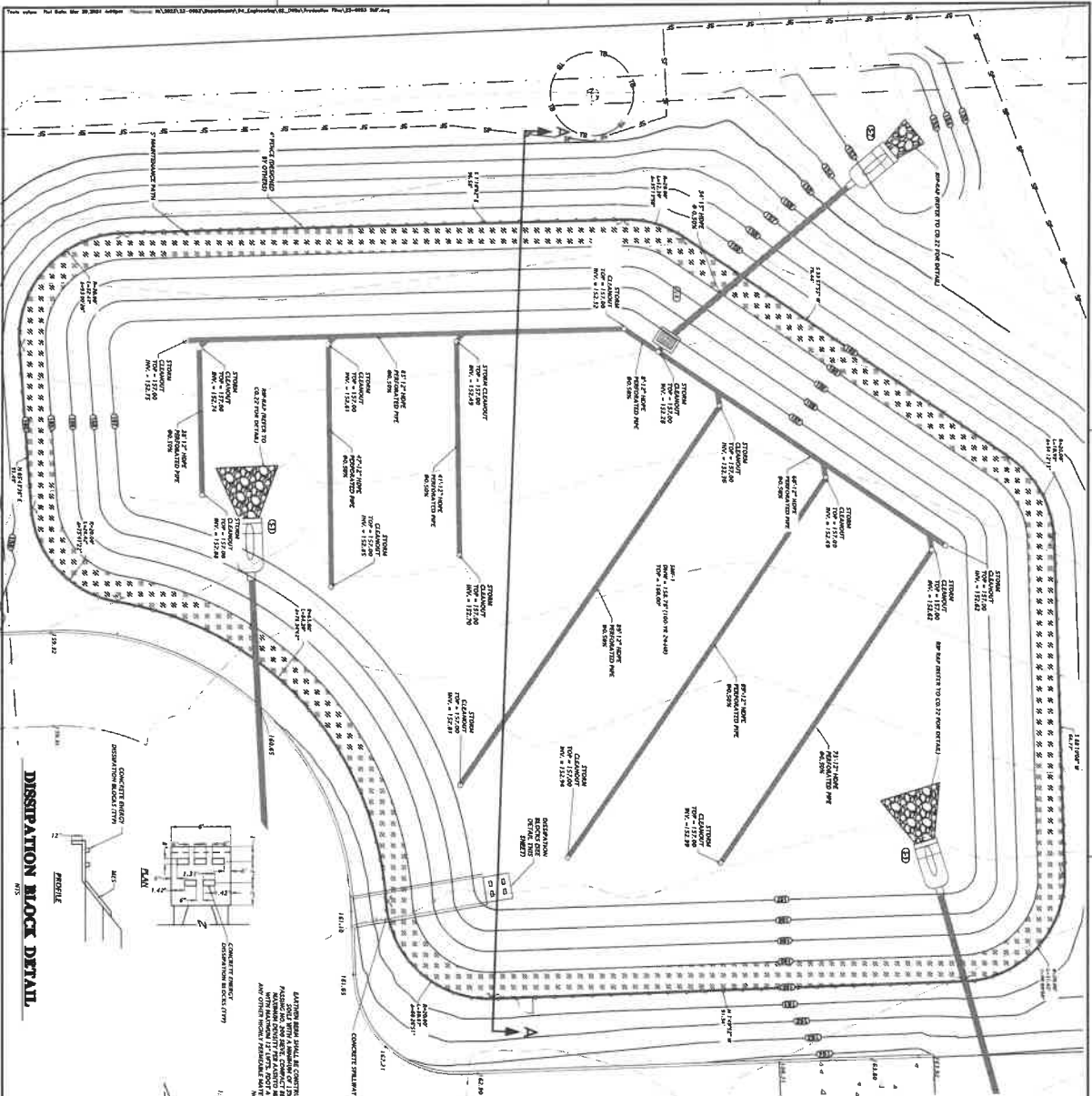
SITE BENCHMARK
 SET NAIL & DISK
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 E. 2584195.92

STORMWATER STRUCTURE TABLE

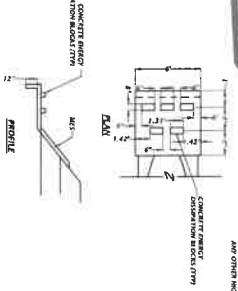
FUNCTION	STRUCTURE TYPE	TYPE	HEIGHT (FT)	NO.	NOTES
S1	30" DIAMETER PRECAST CONCRETE PIPE	MAN	15.00	1	15.00
S2	48" DIAMETER PRECAST CONCRETE PIPE	MAN	15.00	1	15.00
S3	60" DIAMETER PRECAST CONCRETE PIPE	MAN	15.00	1	15.00
S4	72" DIAMETER PRECAST CONCRETE PIPE	MAN	15.00	1	15.00
S5	90" DIAMETER PRECAST CONCRETE PIPE	MAN	15.00	1	15.00
S6	108" DIAMETER PRECAST CONCRETE PIPE	MAN	15.00	1	15.00
S7	120" DIAMETER PRECAST CONCRETE PIPE	MAN	15.00	1	15.00
S8	144" DIAMETER PRECAST CONCRETE PIPE	MAN	15.00	1	15.00



<p>CHW Professional Consultants</p> <p>1801 Research Drive Alachua, Florida 32009 352.325-9778 www.chw-inc.com</p> <p>EST. 1989 FLORIDA CA-8078</p>	<p>DATE: 11-20-07</p> <p>SCALE: 1"=20'</p> <p>DESIGNED BY: [Name]</p> <p>DRAWN BY: [Name]</p> <p>CHECKED BY: [Name]</p> <p>IN CHARGE: [Name]</p>	<p>PROJECT: COMMERCIAL RETAIL STORE</p> <p>CLIENT: CONCEPT DEVELOPMENT, INC.</p> <p>ADDRESS: 01/20 24 CITY OF LAKE CITY, COLUMBIA COUNTY, FL001</p> <p>DATE: 11-20-07</p> <p>PROJECT NO: 23-0653</p>	<p>PROJECT: COMMERCIAL RETAIL STORE</p> <p>CLIENT: CONCEPT DEVELOPMENT, INC.</p> <p>ADDRESS: 01/20 24 CITY OF LAKE CITY, COLUMBIA COUNTY, FL001</p> <p>DATE: 11-20-07</p> <p>PROJECT NO: 23-0653</p>
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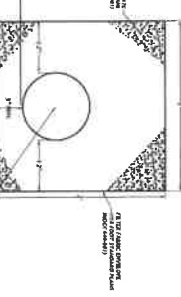


DISSIPATION HOOD DETAIL

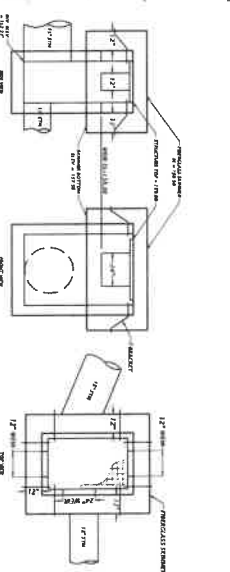


1. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
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 3. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
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UNDERDRAIN DETAIL



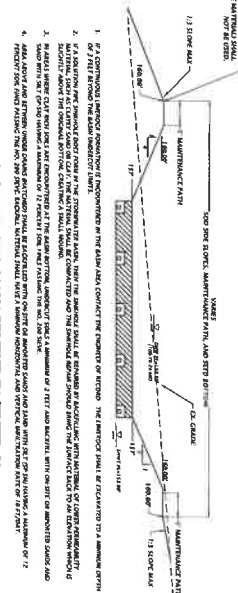
ROOF CURVE DETAIL



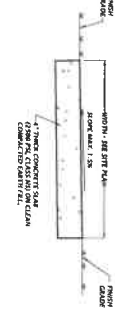
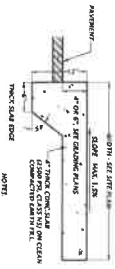
STRUCTURE	STRUCTURE TYPE	TOP	INVERT ELEV	CONC. THICKNESS	REINFORCING
S1	ROOF DRAIN	152.00	152.00	4"	NO. 4 @ 12" O.C.
S2	ROOF DRAIN	152.00	152.00	4"	NO. 4 @ 12" O.C.
S3	ROOF DRAIN	152.00	152.00	4"	NO. 4 @ 12" O.C.
S4	ROOF DRAIN	152.00	152.00	4"	NO. 4 @ 12" O.C.
S5	ROOF DRAIN	152.00	152.00	4"	NO. 4 @ 12" O.C.
S6	ROOF DRAIN	152.00	152.00	4"	NO. 4 @ 12" O.C.
S7	ROOF DRAIN	152.00	152.00	4"	NO. 4 @ 12" O.C.
S8	ROOF DRAIN	152.00	152.00	4"	NO. 4 @ 12" O.C.



STORMWATER MANAGEMENT FACILITY #1 CROSS SECTION A-A

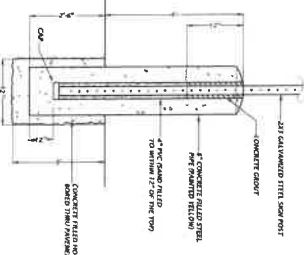
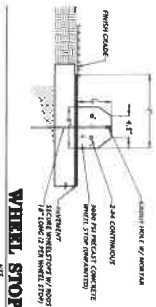


1. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
4. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.



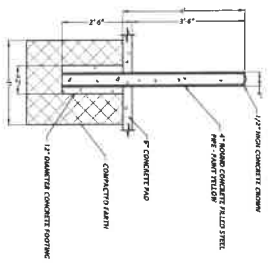
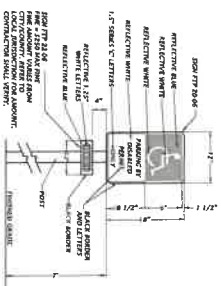
ADJACENT TO PAVEMENT
CONCRETE SIDEWALK DETAILS

HEAVY DUTY CONCRETE
N15

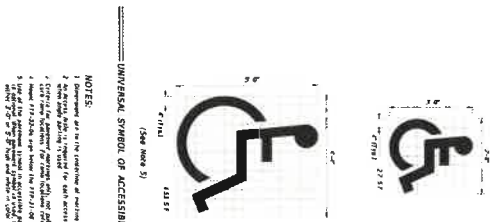
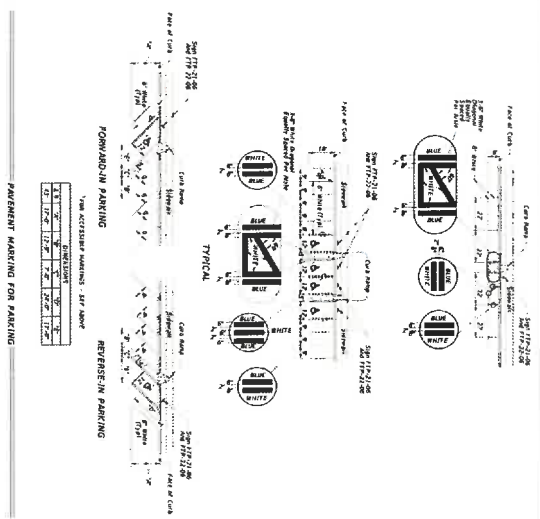
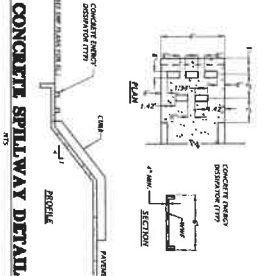


BOLLARD & ACCESSIBLE SIGN DETAIL
N15

ACCESSIBLE PARKING SIGN DETAIL
N15



ASPHALT PAVEMENT DETAILS
N15



- NOTES:**
- Dimension callouts in the location of existing.
 - Dimension callouts in the location of new.
 - Dimension callouts in the location of existing.
 - Dimension callouts in the location of new.
 - Dimension callouts in the location of existing.
 - Dimension callouts in the location of new.

DATE	BY	REVISED	DATE	BY
10/27/13	FR 2023.24		7/1/00	7/04/13
PROJECT		STANDARD PLANS	PAVEMENT MARKINGS	

seed/ mulch all disturbed areas NOT including 4:1 slopes

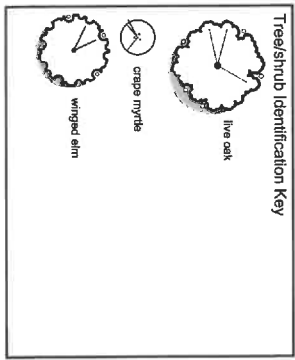
sod ALL 4:1 or greater slopes



Quantity	Abbr.	Botanical Name /	Size / Caliper	Spacing	Comments
5		<i>Quercus virginiana</i>	4HT	per plan	
5		<i>Ulmus alba</i>	4HT	per plan	
2		<i>Lagerstroemia indica</i> 'Natchez'	4HT	per plan	
Groundcovers					
2155SF		<i>Poa annua</i> 'Nuggets'	3" layer		
32894SF		<i>Paspalum notatum</i> 'Argentine'	3" layer		
39652SF		<i>Pennisetum</i> spp.	3" layer		
0	AJ	<i>T. radicans</i> 'Mantini'	1 GAL, full	20C	
0	PP	<i>Arachis glabrata</i> 'Ecoturf'	1G	20C	
0		<i>Pennisetum</i> spp.			

- General Notes**
- 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.
 - Any vegetation planted adjacent to a parking stall where it may interfere with a vehicle's 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.
 - Any proposed slope 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.
 - ALL proposed sod areas adjacent to edge of curtpavement shall be excavated so the sod does not impede water runoff into the pervious areas.
 - All revisions shall be submitted to Lake City for review and approval prior to installation.

Soil Testing
Soil testing and soil composition has not been tested. Contractor excavate 2' depth all material used in construction of parking lot and buildings under plant beds and of mill with suitable soil and amendments to support healthy growth.



LS-01

PLANS PREPARED BY
BRIAN DAVO BORTON
NO. LA000708

Brian D
Borton
2023.12.1
09:06:51

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

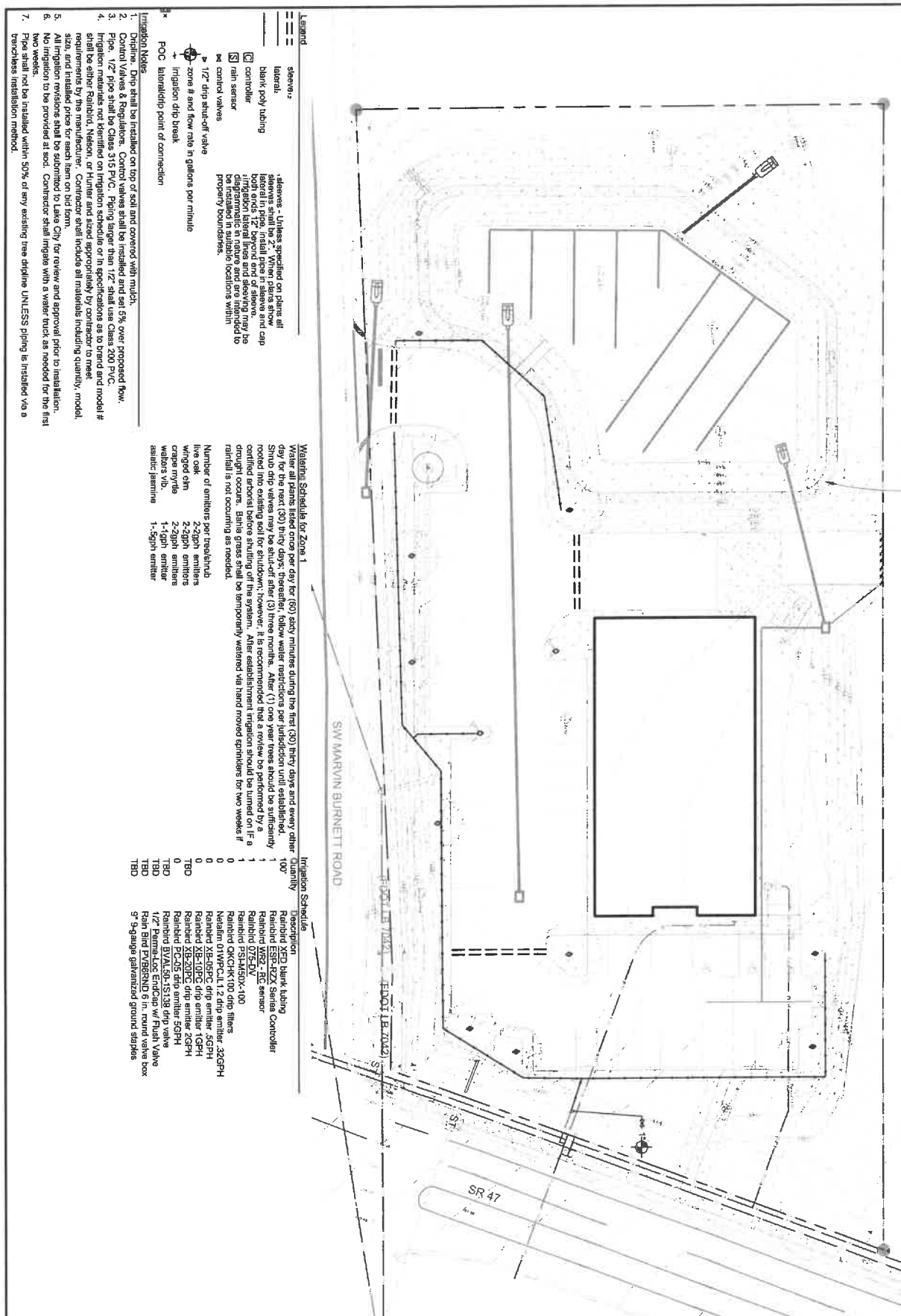
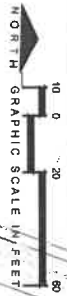
LANDSCAPE PLAN

COMMERCIAL RETAIL STORE - MARVIN BURNETT

PREPARED FOR
CONCEPT COMANIES

REVISIONS:

Barton Design, Inc.
32



Legend

- sleeves
- lateral
- blank poly tubing
- controller
- ⊠ rain sensor
- ⊠ control valves
- ⊠ 1/2" drip shut-off valve
- ⊠ zone # and flow rate in gallons per minute
- ⊠ irrigation drip break
- ⊠ FOC lateral/drip point of connection

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 watering restrictions per jurisdiction until established. Shrub drip valves may be shut-off after (3) three months. After (1) one year trees should be sufficiently established and watering may be discontinued. However, it is recommended that a review be performed by a contractor to determine if a watering schedule is still needed. If a drought occurs, Bains 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	
crrape myrtle	2-2gph emitters	
walters yew	1-1gph emitter	
eastern juniper	1-1gph emitter	

Irrigation Schedule

Description	Quantity
Rainbird X200 Blank Tubing	100'
Rainbird W82-362 Series Controller	1
Rainbird W82-362 Series Controller	1
Rainbird 075-6V	1
Rainbird PS14450X-100	0
Nelson O1WPC-1.12 drip filters	0
Rainbird Q1C4K-100 drip filters	0
Rainbird XE-05PC drip emitter .5GPH	0
Rainbird XE-10PC drip emitter 1.0GPH	0
Rainbird XE-20PC drip emitter 2.0GPH	0
Rainbird XE-40PC drip emitter 4.0GPH	0
Rainbird B74-36	TBD
Rainbird B74-36	TBD
1/2" Pexmate-Loc Emitters w/ Flush Valve	TBD
Rain Bird FV-988ND 6 in. round valve box	TBD
9" 9-gauge galvanized ground staples	TBD

PLANS PREPARED BY
LS-02

MEAN DAVID BORTON P.L.
NO. LA0697028

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

IRRIGATION PLAN

COMMERCIAL RETAIL STORE - MARVIN BURNETT
PREPARED FOR
CONCEPT COMPANIES

REVISIONS:

Marvin Burnett Inc.
10000 W. 10th Ave. Suite 100
Denver, CO 80202
303-751-1111

MEMORANDUM

CRS Marvin Burnett

23-0653



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
---	-----	------

Use 5/8" Meter with 1" RPZ Backflow Preventer

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 13:50:11-0400

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.



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,
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.

Digitally signed by Randall
Scott Olney
DN:
E=randol@chw-inc.com,
CN=Randall Scott Olney,
L=Jacksonville, ST=Florida, C=US
Date: 2024.03.21
13:51:50-0400

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

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 ft³
 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

Calculation for friction head loss:

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

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

Equivalent Length of Straight Pipe for Fittings

Fitting Type	Equivalent Length (ft)	x	Quantity	=	Subtotal (ft) Eq. Length of same diam. PVC	Subtotal (ft) Eq. Length of 2 in. PVC Pipe	$L_2 = L_1 \left(\frac{D_2}{D_1} \right)^{4.87}$
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)

System Performance Curve

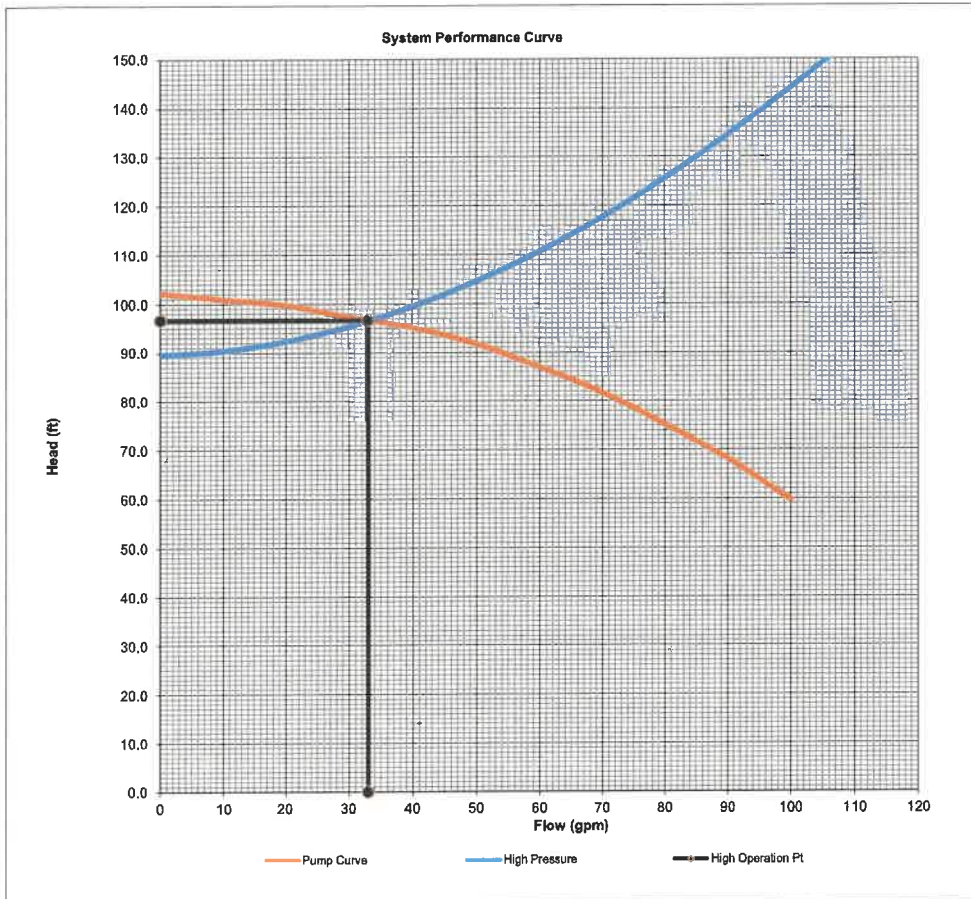
Flow (gpm)	Normal Operation (with tie-in pressure) Head (ft)
0	89.6
10	90.3
20	92.3
30	95.4
40	99.5
50	104.6
60	110.7
70	117.7
80	125.6
90	134.3
100	144.0
110	154.5
120	165.9
130	178.1
140	191.1
150	204.9
160	219.6
170	235.0
180	251.3
190	268.3
200	286.1
210	304.7
220	324.1
230	344.2
240	365.1
250	386.7
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

Pump Specifications:

Pump: Barnes	Imp Dia: 5	
Model: NGVH50N2	Power: 5	hp
Discharge Flange Dia: 2.5"	Electrical 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

Submersible Grinder Pumps

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
 Class H Varnish & Magnet Wire

Insulation..... Class H Varnish & Magnet Wire

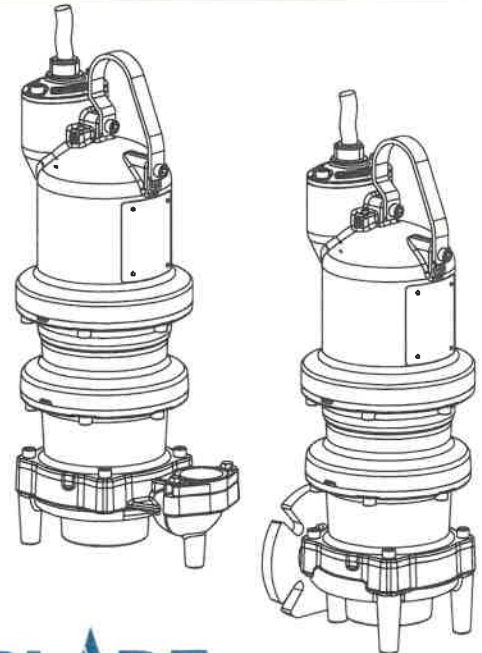
SINGLE PHASE..... Requires overload protection to be
 included in control panel. Requires start
 components to be included in panel.
 Provided with pump

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



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:

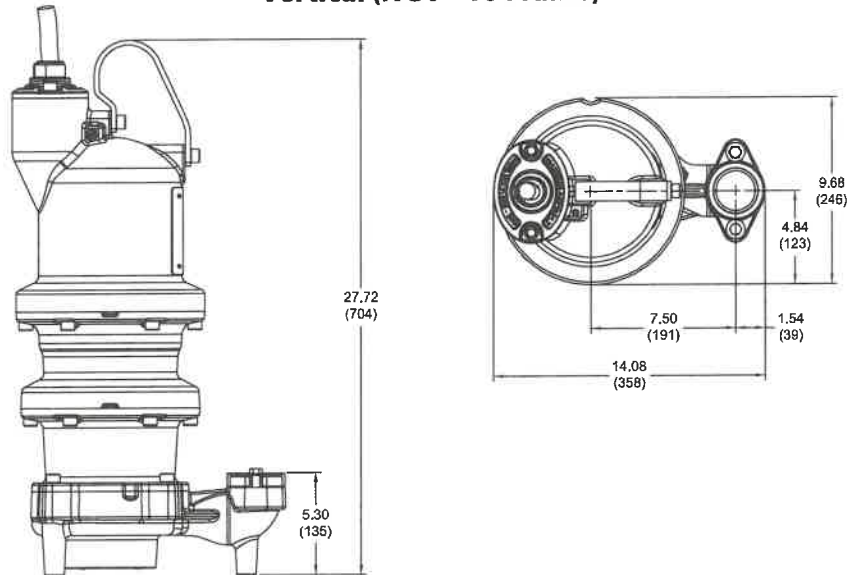
CANCER AND REPRODUCTIVE HARM -
WWW.P65WARNINGS.CA.GOV



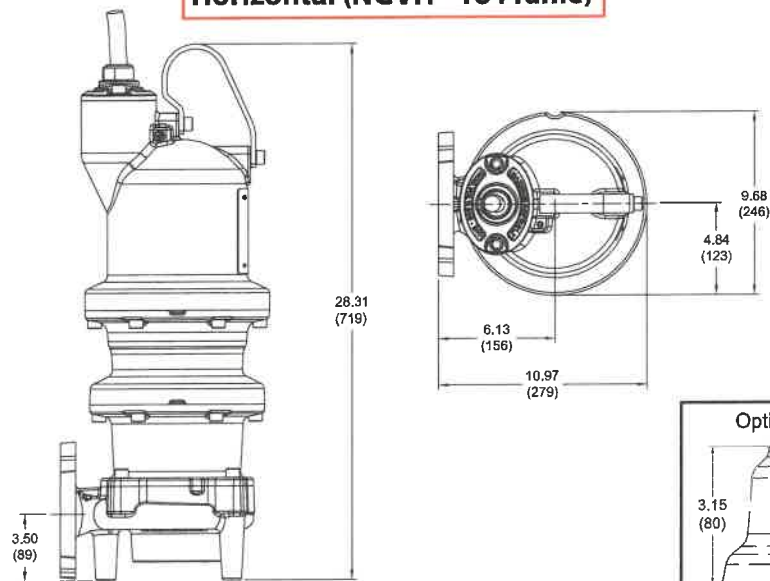
Submersible Grinder Pumps

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.
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				
			208					12.1		85.4				
NGVH30N2	141351N	3.0	230	3	60	3450	P	12.6	1.0	95.2	18	125496	12/4 - 18/4	.86 ± .02
			460					6.3		47.6				
			575				P	5.0		38.1				
NGVH3052	141353N	3.0	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				
			208					17.8		85.4				
NGVH50N2	141355N	5.0	230	3	60	3450	J	16.0	1.0	95.2	18	125496	12/4 - 18/4	.86 ± .02
			460					8.0		47.6				
			575				J	6.4		38.1				
NGVH5052	141357N	5.0	208	3	60	3450	J	28.0	1.0	173.9	18	125496	12/4 - 18/4	.86 ± .02
			230				M	28.2		201.0				
			460					14.1		100.5				
NGVH75N2	141358N	7.5	208	3	60	3450	M	11.3	1.0	80.4	18	125497	12/4 - 18/4	.86 ± .02
			230											
			460											
NGVH7552	141360N	7.5	575	3	60	3450	M		1.0		18	125497	12/4 - 18/4	.86 ± .02

BLADE NGVH Pump - Horizontal

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.

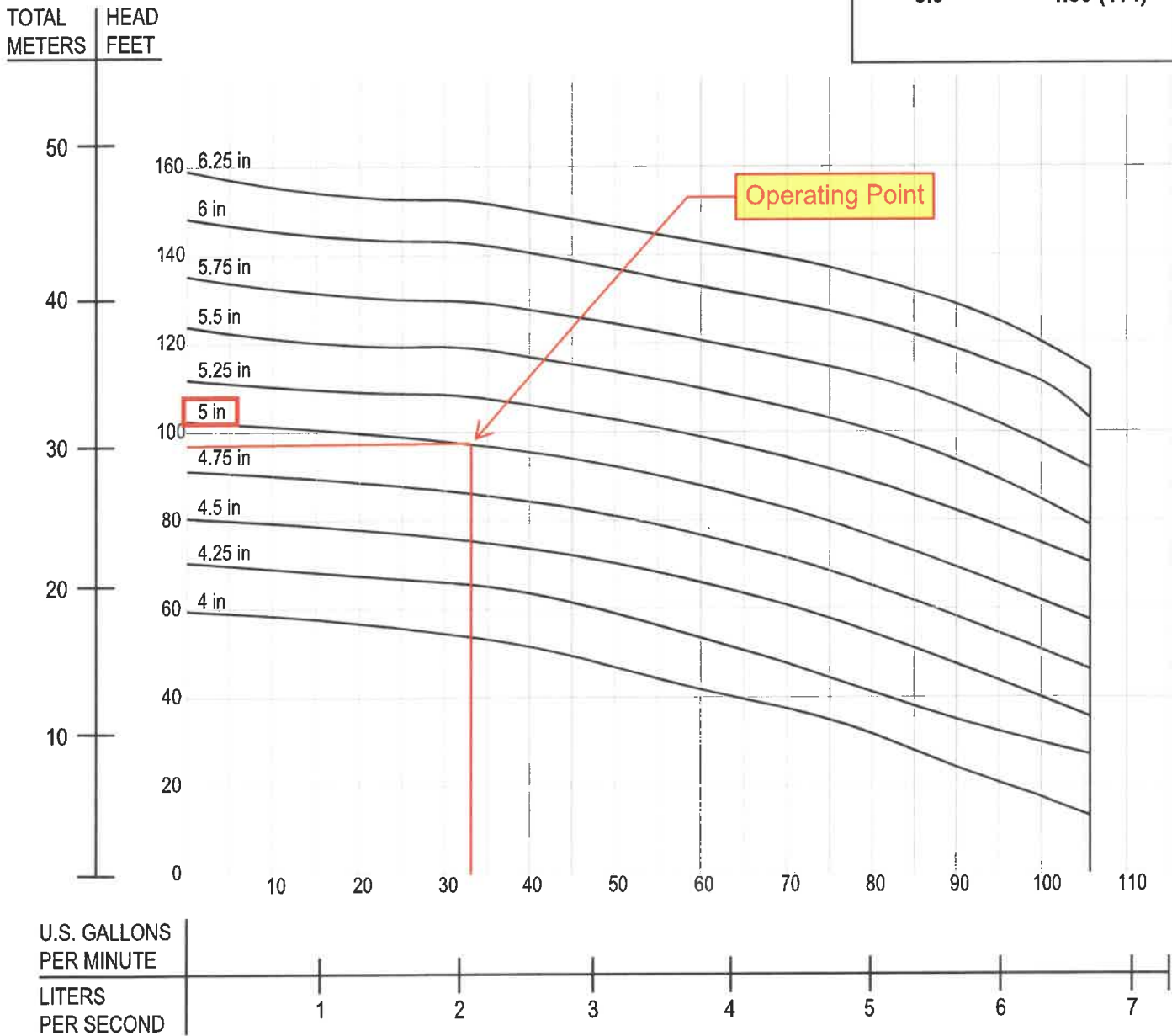
▲ Cord sold separately.

Single Phase pumps require start components to be included in panel. Provided with pump.

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

MEMORANDUM

CRS Marvin Burnett

23-0653



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.

Digitally signed by Randall Scott Olney
DN: E=Randall.Scott@chw-inc.com,
O=Randall Scott Olney,
L=Alachua, S=Florida, C=US
Date: 2024.03.21
13:51:12-0400

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: **AJ/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:			

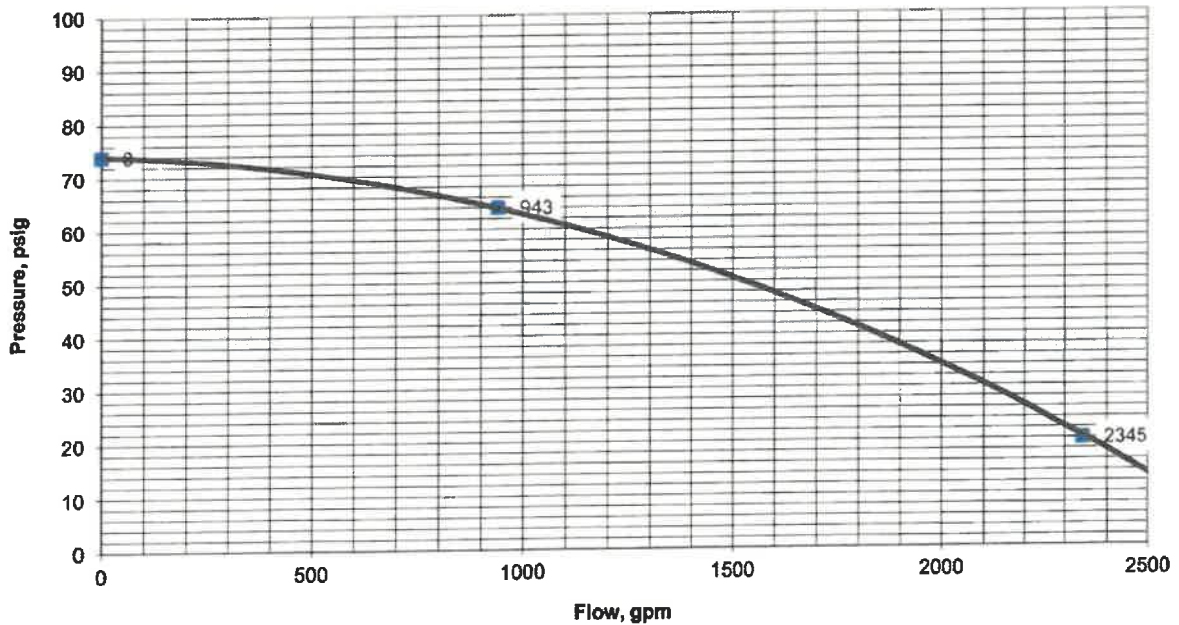


Table 18.4.5.1.2 Minimum Required Fire Flow and Flow Duration for Buildings

Fire Flow Area ft ² (x 0.0929 for m ²)					Fire Flow gpm ¹ (x 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	
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	
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	4
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.

¹Measured 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.).

Future Land Use Element

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 within 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)

N:\2023\23-0653\Departments\02_Planning\Reports\RPT 2301204 Comprehensive Plan Consistency - CRS Marvin Burnett.docx

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:

<u>FACILITY TYPE</u>	<u>LEVEL OF SERVICE STANDARD</u>
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:

<u>FACILITY TYPE</u>	<u>LEVEL OF SERVICE STANDARD</u>
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.

<u>FACILITY TYPE</u>	<u>LEVEL OF SERVICE STANDARD</u>
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



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 (ITE)	Variable KSF	Daily	AM Peak		PM Peak			
		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: $((12 \text{ lbs.} / 1,000 \text{ sq. ft./day} * [10,640 \text{ sq. ft.}]) * 365) / 2,000$

2. Formula used, pounds per day to tons per year: $((\text{lbs/day}) * 0.005) * 365$

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.



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



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.

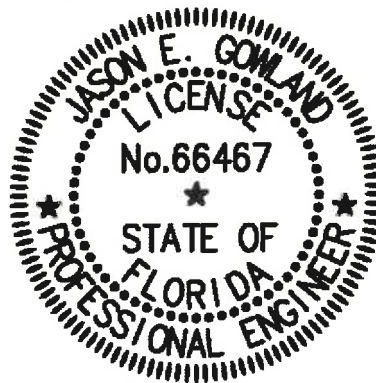
Presented herein are the findings and conclusions of our exploration, including the geotechnical parameters and recommendations to assist with building foundation, pavement, and stormwater management designs. This revision includes recommended soil parameters for stormwater management design with underdrains.

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.

Angelina X. Liu, E.I.
Staff Engineer



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.

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

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File (1)

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1. Project Site Location Map
2. Site Plan Showing Approximate Locations of Field Tests

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 feet¹ 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.

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 County². 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.*

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, interfluvial, 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 behavior³.

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.

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
 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-1**
 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 _____

DATE PERFORMED 9/20/2023 **BORING NUMBER A-2**
 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 _____

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

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm ²)	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm ²)	MATERIAL DESCRIPTION
0				(SP) Brown and gray SAND	0				(SP-SM) Dark brown and gray SAND with silt
1		AU 1			1		AU 1		%PASS-200 = 11 MC = 8.7
2		AU 2		(SP) Pale gray and brown SAND	2		AU 2		
3					3				(SP) Pale brown SAND
4					4				
5				Bottom of borehole at 5.0 feet.	5				Bottom of borehole at 5.0 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 A-3**

DATE PERFORMED 9/20/2023 **BORING NUMBER A-4**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

GROUND WATER LEVELS: LOGGED BY WDI

▽ AT TIME OF DRILLING NE CHECKED BY AXL

▽ AT TIME OF DRILLING NE CHECKED BY AXL

▽ ESTIMATED SEASONAL HIGH 3.5 ft

▽ ESTIMATED SEASONAL HIGH 3.0 ft

NOTES _____

NOTES _____

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DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm ²)	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm ²)	MATERIAL DESCRIPTION
0		AU 1		(SP-SM) Brown and gray SAND with silt	0		AU 1		(SP-SM) Brown and gray SAND with silt
1					1				
2		AU 2		(SP) Pale gray and brown SAND	2				(SC/CL) Brown, gray, and orange very clayey SAND
3					3		AU 2		▽ %PASS-200 = 34 MC = 18
4					4				
5				Bottom of borehole at 5.0 feet.	5				Bottom of borehole at 5.0 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 A-5**
 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				
2				
3			▽	
3.5				(SC) Brown and gray clayey SAND
4		AU 2		
5				Bottom of borehole at 5.0 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-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 _____

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 _____

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm ²)	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm ²)	MATERIAL DESCRIPTION
0.0				(SM) Gray and brown silty SAND	0.0		AU 1		(SP) Brown and gray SAND
2.5		AP 1		▽ %PASS-200 = 14 MC = 7.8 k _v = 1.1 ft/day	2.5				▽
4.0		AU 2		(SP) Brown and gray SAND with trace of clay	3.5		AU 2		(SC) Brown and orange clayey SAND
5.0				(SC/CL) Pale gray and brown very clayey SAND	5.0				
6.0				▽	6.0				
7.5		AU 3			7.5		AU 3		(SM-SC) Gray, brown, and orange silty clayey SAND
10.0					10.0				
12.5		AU 4		(CL/CH) Gray CLAY with sand	10.5		AU 4		(SP-SM) Pale gray and brown SAND with silt
13.5		AU 5		(SC) Brown and orange clayey SAND	12.5				
15.0				Bottom of borehole at 15.0 feet.	13.5		AU 5		(CL/CH) Pale gray and brown 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-3**
 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 _____

DATE PERFORMED 9/20/2023 **BORING NUMBER P-4**
 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/cm ²)	MATERIAL DESCRIPTION	DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm ²)	MATERIAL DESCRIPTION
0.0				(SM) Brown silty SAND	0.0				(SP-SM) Brown and gray SAND with silt
2.5		AP 1		▽ %PASS-200 = 15 MC = 9.7 k _h = 0.8 ft/day	2.0		AU 1		
2.5		AU 2		(SC) Brown, gray, and orange clayey SAND	2.5				▽
5.0					5.0		AU 2		(SC) Brown, gray, and orange clayey SAND
7.5				(SP-SM) Pale gray and pale brown SAND with silt	7.0				
7.5		AU 3		▽	7.5		AU 3		(SC/CL) Brown, gray, and orange very clayey SAND
10.0					10.0		AU 4		(SP-SM) Pale brown and pale gray SAND with silt
12.5		AU 4		(CL/CH) Green CLAY with sand	12.0				
12.5					12.5		AU 5		(CL/CH) Brown and gray CLAY with sand
15.0				Bottom of borehole at 15.0 feet.	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: LOGGED BY WDI
 ▽ AT TIME OF DRILLING 8.8 ft CHECKED BY AXL
 ▽ ESTIMATED SEASONAL HIGH 1.0 ft
 NOTES _____

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	CPT (kg/cm ²)	MATERIAL DESCRIPTION
0.0				(SC) Brown and gray clayey SAND
2.5				▽
5.0		AP 1		%PASS-200 = 30 MC = 13 k _v = NF
5.5				
7.5		AU 2		(SP-SM) Brown, gray, and orange SAND with silt
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				Bottom of borehole at 15.0 feet.

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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)	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, %	▲ SPT N VALUE ▲								
											20	40	60	80					
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																
				SPT 7	3-4-5 (9)														
15																			
				SPT 8	2-3-4 (7)														
20		Bottom of borehole at 20.0 feet.	20																

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

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, %	▲ SPT N VALUE ▲								
											20	40	60	80					
0		(SP-SM) Very loose gray and brown SAND with silt																	
			3	SPT 1	1-2-2 (4)														
		▼ (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)														
			8.5	SPT 5	7-8-10 (18)														
10		(SP-SC) Very loose to medium dense pale gray and brown SAND with clay		SPT 6	7-9-10 (19)														
		<i>Weight-of-Rod from 13.5 to 14.5 ft bls.</i>																	
15		(CL/CH) Soft gray sandy CLAY	14.5	SPT 7	0-0-3 (3)														
			16.5																
		(CL/CH) Firm green and orange CLAY																	
20				SPT 8	3-3-4 (7)														
		Bottom of borehole at 20.0 feet.	20																

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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, %	▲ SPT N VALUE ▲
0		(SP-SM) Very loose gray and brown SAND with silt									20 40 60 80
				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	
		(SC) gray and brown clayey SAND	9	SPT 6	12-10-9 (19)						
10											
		(SP-SC) Medium dense gray, brown, and orange SAND with clay	13	SPT 7	4-9-12 (21)						
15											
		(CL/CH) Firm green and gray sandy CLAY	17								
				SPT 8	3-3-4 (7)						
20		Bottom of borehole at 20.0 feet.	20								

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5.3 Laboratory Results



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 More than 50% retained on No. 200 sieve	Gravels	Clean Gravels	$Cu \geq 4$ and $1 \leq Cc \leq 3$		GW	Well graded GRAVEL
		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
		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% ≤ 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% ≤ 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 50% or more passes the No. 200 sieve	Clays	inorganic	$50\% \leq \text{fines} < 70\%$	
	$70\% \leq \text{fines} < 85\%$				CL/CH	CLAY with sand
	$\text{fines} \geq 85\%$				CL/CH	CLAY
Silts and Clays	inorganic		$PI > 7$ and plots on/above "A" line		CL	Lean CLAY
			$PI < 4$ or plots below "A" line		ML	SILT
Liquid Limit less than 50	organic		Liquid Limit - oven dried < 0.75		OL	Organic clay
			Liquid Limit - not dried		OL	Organic silt
Silts and Clays	inorganic		PI plots on or above "A" line		CH	Fat CLAY
			PI plots below "A" line		MH	Elastic SILT
Liquid Limit 50 or more	organic		Liquid Limit - oven dried < 0.75		OH	Organic clay
		Liquid Limit - not dried		OH	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		No. OF BLOWS, N	CONSISTENCY
SANDS:	0 - 4	Very Loose	SILTS & CLAYS:	0 - 2	Very Soft
	5 - 10	Loose		3 - 4	Soft
	11 - 30	Medium dense		5 - 8	Firm
	31 - 50	Dense		9 - 15	Stiff
	OVER 50	Very Dense		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

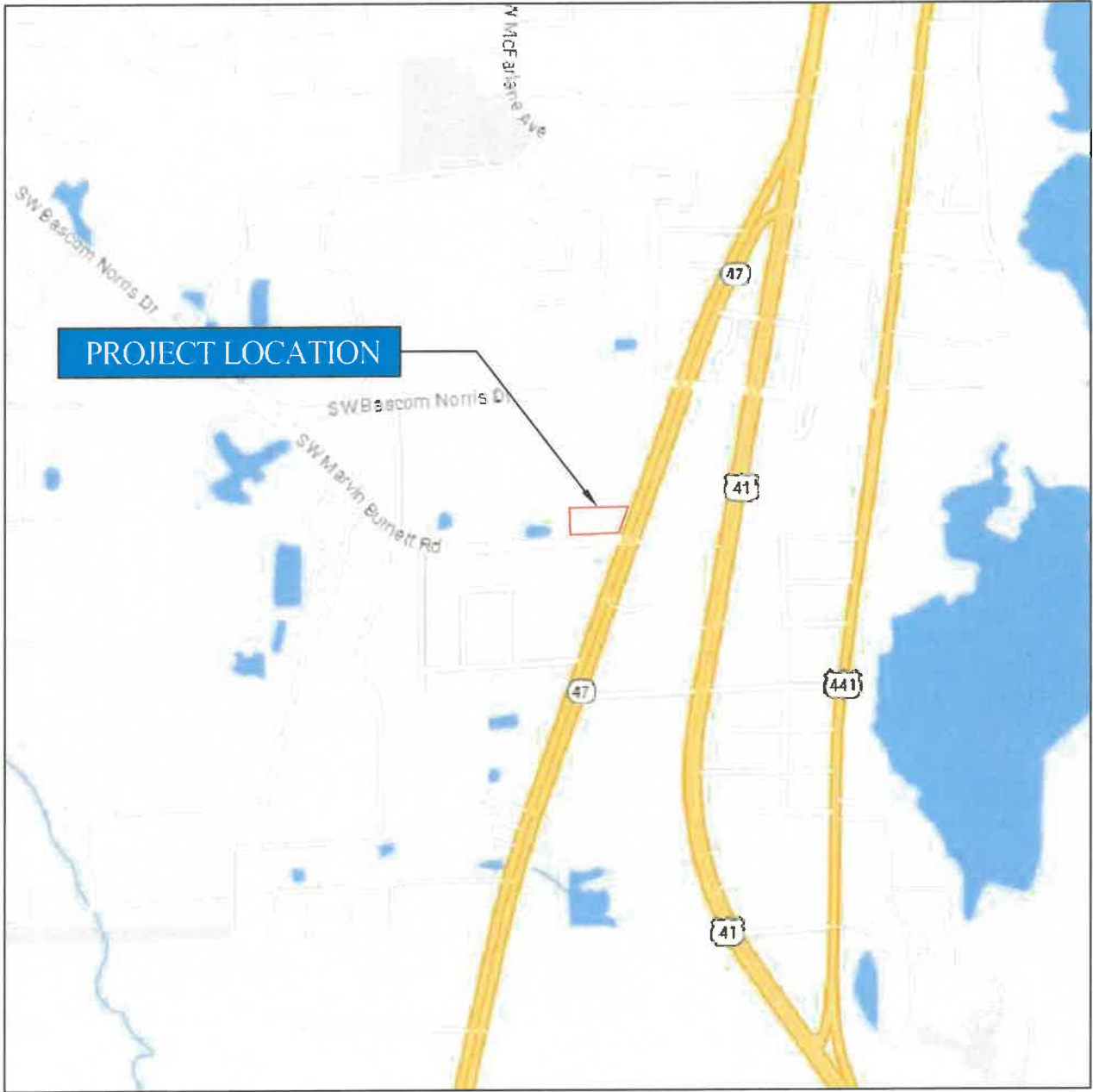
The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on Figure 2. This report does not reflect any variations that may occur between these borings.


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



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		FIGURE 1

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

Ynk DC, P. DeWitt Cason, Columbia County B:1037 P:1953

██████████
07-4S-██████████
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:

Joseph J. Sadusky
Print Name: Joseph J. Sadusky

William B. Martin
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

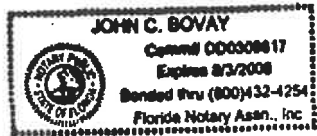
Two witnesses as to
William B. Martin, as Trustee of the
William B. Martin Trust, dated July 31, 1990

STATE OF FLORIDA
COUNTY OF ALACHUA

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

Personally Known ✓
Produced Identification _____
Type of Identification _____

John C. Bovay
Notary Public--State of Florida
Print Notary Name: _____
My Commission Number is: _____
My Commission Expires: _____





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

AGENT AUTHORIZATION FORM

I, Matthew Cason (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.

Owner Signature (Notarized) 12-15-2023 Date

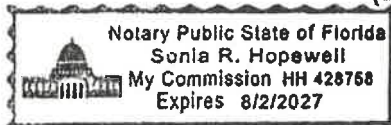
NOTARY INFORMATION:

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, 2023.

NOTARY'S SIGNATURE

(Seal/Stamp)





[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

02/12/2024 -- ANNUAL REPORT	View image in PDF format
02/08/2023 -- ANNUAL REPORT	View image in PDF format
02/23/2022 -- ANNUAL REPORT	View image in PDF format
01/24/2021 -- ANNUAL REPORT	View image in PDF format
01/18/2020 -- ANNUAL REPORT	View image in PDF format
03/10/2019 -- ANNUAL REPORT	View image in PDF format
01/14/2018 -- ANNUAL REPORT	View image in PDF format
01/14/2017 -- ANNUAL REPORT	View image in PDF format
03/02/2016 -- ANNUAL REPORT	View image in PDF format
01/25/2015 -- ANNUAL REPORT	View image in PDF format
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01/06/2012 -- ANNUAL REPORT	View image in PDF format
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01/19/2010 -- 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



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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

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04/18/2022 -- ANNUAL REPORT	View image in PDF format
04/02/2021 -- ANNUAL REPORT	View image in PDF format
06/09/2020 -- ANNUAL REPORT	View image in PDF format
02/13/2019 -- ANNUAL REPORT	View image in PDF format
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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

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		Property Address			
ST JOHNS LLC 13820 W NEWBERRY RD STE 100 NEWBERRY FL 32669		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