CHW
Professional Consultants

July 30, 2015

Kathy Winburn
Office of Planning and Zoning
City of Alachua
P.O. Box 9
Alachua, FL 32616

Re: City of Alachua Operations Center and Warehouse
Alachua, FL

Dear Ms. Winburn:

Please find the following items enclosed for review and approval of the above referenced project:

- One (1) Original and Twelve (12) Copies of the Site Plan Application;
- One (1) Original and Twelve (12) Copies of the Authorized Agent Affidavit;
- One (1) Set of labels for all property owners within 400 feet of the project site;
- One (1) Check #1231 in the amount of $200.00 for publishing/mailing notification fees;
- Thirteen (13) copies of the following:
  - Concurrency Impact Analysis;
  - Analysis of Consistency with the City of Alachua Comprehensive Plan;
  - Neighborhood Meeting Advertisement;
  - Neighborhood Meeting Notice;
  - Neighborhood Meeting Sign-In Sheet;
  - Neighborhood Meeting Summary;
  - Legal Description;
  - Special Warranty Deed;
  - Proof of 2014 Tax Payment;
  - Stormwater Report;
  - Geotechnical Site Exploration Report
- One (1) Set of Signed and Sealed Construction Plans; and
- One (1) CD of all PDFs.

The ±10.89 acre project site is located at the southern end of NW 104th Terrace on Alachua County tax parcel 05949-019-000 in Alachua, FL. The development intent is to construct a 7,500 square foot operations center and a 7,500 square foot warehouse area, along with associated parking, outdoor storage area, stormwater, utilities, and related site improvements.

We trust you will find this submittal package is sufficient for review and approval. Please feel free to contact me at (352) 519-5940 or at daniely@chw-inc.com should you have any questions or require any additional information to complete your review.

Sincerely,
CHW

Daniel Young, P.E., LEED A.P.
Senior Project Manager
L:\2015\15-0150\Engineering\City County\City\150730 Submittal 1\LTR 150730 City of Alachua Operations Center Cover Letter.docx

City of ALACHUA

THE GOOD LIFE COMMUNITY

FOR PLANNING USE ONLY
Case #:
Application Fee: $
Filing Date:
Acceptance Date:
Review Type: P&Z

Site Plan Application

Reference City of Alachua Land Development Regulations Article 2.4.9

A. PROJECT

1. Project Name: City of Alachua Operations Center and Warehouse
2. Address of Subject Property: Southern end of NW 104th Terrace in Alachua, FL
3. Parcel ID Number(s): 05949-019-000
4. Existing Use of Property: Vacant Industrial
5. Future Land Use Map Designation : Industrial
6. Zoning Designation: ILW
7. Acreage: 10.89

B. APPLICANT

1. Applicant's Status ☐ Owner (title holder) ☒ Agent
2. Name of Applicant(s) or Contact Person(s): Daniel H. Young, P.E. Title: Senior Project Manager

   Company (if applicable): CHW

   Mailing address: 132 NW 76th Drive

   City: Gainesville State: FL ZIP: 32607

   Telephone: (352) 519-5940 FAX: (352) 331-2476 e-mail: daniely@chw-inc.com
3. If the applicant is agent for the property owner*:

   Name of Owner (title holder): City of Alachua

   Mailing Address: P.O. Box 9

   City: Alachua State: FL ZIP: 32616

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

C. ADDITIONAL INFORMATION

1. Is there any additional contact for sale of, or options to purchase, the subject property? ☐ Yes ☒ No

   If yes, list names of all parties involved:

   If yes, is the contract/option contingent or absolute? ☐ Contingent ☐ Absolute

D. ATTACHMENTS

1. Site Plan including but not limited to:
   a. Name, location, owner, and designer of the proposed development.
   b. Zoning of the subject property.
   c. Vicinity map - indicating general location of the site and all abutting streets and properties.
   d. Complete legal description.
   e. Statement of Proposed Uses.
   f. Location of the site in relation to adjacent properties, including the means of ingress and egress to such properties and any screening or buffers along adjacent properties.
   g. Date, north arrow, and graphic scale (not to exceed one (1) inch equal to fifty (50) feet.)
   h. Area and dimensions of site.
   i. Location of all property lines, existing right-of-way approaches, sidewalks, curbs, and gutters.
   j. Access and points of connection to utilities (electric, potable water, sanitary sewer, gas, etc.)
   k. Location and dimensions of all existing and proposed parking areas and loading areas.
   l. Location, size, and design of proposed landscaped areas (including existing trees and required landscaped buffer areas) with detail illustrating compliance with Section 6.2.2 of the Land Development Regulations.

m. Location and size of any lakes, ponds, canals, or other waters and waterways.
n. Structures and major features – fully dimensioned – including setbacks, distances between structures, floor area, width of driveways, parking spaces, property or lot lines, and floor area ratio.
o. Location of waste receptacles and detail of waste receptacle screening.
p. For development consisting of a nonresidential use, except for single tenant retail sales and services uses greater than or equal to 20,000 square feet in area and except for use types within the industrial services, manufacturing and production, warehouse freight and movement, waste-related services, and wholesale sales use categories:
    i. Architectural plans and dimension plans which demonstrate compliance with the design standards for business uses as provided in Section 6.8.2 of the LDRs, including:
        (a) Calculation of glazing of the front façade.
        (b) Calculation of the area of ground floor façades subject to glazing.
        (c) Detail on the architectural plans and dimension plans depicting façade massing and/or alternatives to required façade massing.
        (d) Sufficient plan detail and calculations of each material utilized in each façade.
q. For development consisting of a nonresidential use where a single tenant is greater than or equal to 20,000 square feet in area:
    i. Architectural plans and dimension plans which demonstrate compliance with the design standards for single tenant retail sales and service uses greater than or equal to 20,000 square feet in area as provided in Section 6.8.3 of the LDRs, including:
        (a) Calculation of glazing of the façades facing streets, residential uses, and vacant residential/agricultural land.
        (b) Calculation of the area of ground floor façades subject to glazing.
        (c) If glazing alternatives are used, calculation of area of alternative materials used.
        (d) Detail on the architectural plans and dimension plans depicting façade massing and/or alternatives to required façade massing.
        (e) Color architectural plans depicting the color of all materials used in the façade.
r. For development consisting of one or more of the following: Multi-family residential; Hotel; or Mobile Home Park:
    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. Floor area of dwelling units.
    vi. Number of proposed parking spaces.
    vii. Street layout.
    viii. Layout of mobile home stands (for mobile home parks only).
    ix. City of Alachua Public School Student Generation Form.

Sheet Size: 24" X 36" with 3" left margin and ½" top, bottom, and right margins

2. Stormwater management plan - including the following:

    a. Existing contours at one (1) foot intervals based on U.S. Coastal and Geodetic Datum.
    b. Proposed finished floor elevation of each building site.
    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 surfacewater management Statement of proposed uses on the site plan

3. Fire Department Access and Water Supply: The design criteria shall be Chapter 18 of the Florida Fire Prevention Code. Plans must be on separate sealed sheets and must be prepared by a professional Fire engineer licensed in the State of Florida. Fire flow calculations must be provided for each newly constructed building. When required, fire flow calculations shall be 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. All calculations must be demonstrated and provided. All calculations and specifications must be on the plans and not on separate sheets. All fire protection plans are reviewed and approved by the Alachua County Fire Marshal.

4. Concurrency Impact Analysis showing the impact on public facilities, including potable water, sanitary sewer, transportation, solid waste, recreation, stormwater, and public schools in accordance with Article 2.4.14 of the Land Development Regulations.

5. Analysis of Consistency with the City of Alachua Comprehensive Plan (analysis must identify specific Goals, Objectives, and Policies and describe in detail how the application complies with the noted Goal, Objective, or Policy.)

For commercial project Applications:

a. In addition to submitting specific written information regarding your **commercial** development's compliance with the relevant Goals, Objectives, and Policies of the City of Alachua Comprehensive Plan, you must respond directly to the standards listed below. You should be specific in terms of how your commercial development will comply with these standards.

Policy 1.3.d Design and performance standards

The following criteria shall apply when evaluating commercial development proposals:

1. Integration of vehicular and non-vehicular access into the site and access management features of site in terms of driveway cuts and cross access between adjacent sites, including use of frontage roads and/or shared access;
2. Buffering from adjacent existing/potential uses;
3. Open space provisions and balance of proportion between gross floor area and site size;
4. Adequacy of pervious surface area in terms of drainage requirements;
5. Placement of signage;
6. Adequacy of site lighting and intrusiveness of lighting upon the surrounding area;
7. Safety of on-site circulation patterns (patron, employee and delivery vehicles), including parking layout and drive aisles, and points of conflict;
8. Landscaping, as it relates to the requirements of the Comprehensive Plan and Land Development Regulations;
9. Unique features and resources which may constrain site development, such as soils, existing vegetation and historic significance; and
10. Performance based zoning requirements, which may serve as a substitute for or accompany land development regulations in attaining acceptable site design.
11. Commercial uses shall be limited to an intensity of less than or equal to .50 floor area ratio for parcels 10 acres or greater, .50 floor area ratio for parcels less than 10 acres but 5 acres or greater, a .75 floor area ratio for parcels less than 5 acres but greater than 1 acre, and 1.0 floor area ratio to parcels 1 acre or less.

For industrial project Applications:

b. In addition to submitting specific written information regarding your **industrial** development's compliance with the relevant Goals, Objectives, and Policies of the City of Alachua Comprehensive Plan, you must respond directly to the standards listed below. You should be specific in terms of how your industrial development will comply with these standards.

Policy 1.5.d

The City shall develop performance standards for industrial uses in order to address the following:

1. Integration of vehicular and non-vehicular access into the site and access management features of site in terms of driveway cuts and cross access between adjacent sites, including use of frontage roads and/or shared access;
2. Buffering from adjacent existing/potential uses;
3. Open space provisions and balance of proportion between gross floor area and site size;
4. Adequacy of pervious surface area in terms of drainage requirements;
5. Placement of signage;
6. Adequacy of site lighting and intrusiveness of lighting upon the surrounding area;
7. Safety of on-site circulation patterns (patron, employee and delivery vehicles, trucks), including parking layout and drive aisles, and points of conflict;
8. Landscaping, as it relates to the requirements of the Comprehensive Plan and Land Development Regulations;
9. Unique features and resources which may constrain site development, such as soils, existing vegetation and historic significance; and
10. Performance based zoning requirements that may serve as a substitute for or accompany land development regulations in attaining acceptable site design.
11. Industrial uses shall be limited to an intensity of less than or equal to .50 floor area ratio for parcels 10 acres or greater, .50 floor area ratio for parcels less than 10 acres by 5 acres or greater, .75 floor area ratio for parcels less than 5 acres but greater than 1 acre, and 1.0 floor area ratio for parcels 1 acre or less.

6. *For Site Plans for Buildings Less than 80,000 Square Feet in Area:* One (1) set of labels for all property owners within 400 feet of the subject property boundaries – even if property within 400 feet falls outside of City limits (obtain from the Alachua County Property Appraiser's web site) – and all persons/organizations registered to receive notice of development applications.
   For Site Plans for Buildings Greater than or Equal to 80,000 Square Feet in Area: Two (2) sets of labels for all property owners within 400 feet of the subject property boundaries – even if property within 400 feet falls outside of City limits (obtain from the Alachua County Property Appraiser's web site) – and all persons/organizations registered to receive notice of development applications.

7. Neighborhood Meeting Materials, including:
   i. Copy of the required published notice (advertisement) – must be published a newspaper of general circulation, as defined in Article 10 of the City's Land Development Regulations
   ii. Copy of written notice (letter) sent to all property owners within 400 feet and to all persons/organizations registered with the City to receive notice, and mailing labels or list of those who received written notice
   iii. Written summary of meeting – must include (1) those in attendance; (2) a summary of the issues related to the development proposal discussed; (3) comments by those in attendance about the development proposal; and, (4) any other information deemed appropriate.

8. Legal description with tax parcel number, separate from all other documentation on 8.5" x 11" paper.

9. Proof of ownership (i.e., copy of deed.)

10. Proof of payment of taxes.

11. Environmental Resource Permit (or Letter of Exemption) from the Suwannee River Water Management District or Self-Certification for a Stormwater Management System in Uplands Serving Less than 10 Acres of Total Project Area and Less than 2 Acres of Impervious Surfaces from the Florida Department of Environmental Protection pursuant to Section 403.814(12), Florida Statutes.

12. If access is from a County Road, access management permit from Alachua County Public Works (or documentation providing evidence that a permit application has been submitted).

13. If access is from a State Road, access management permit from Florida Department of Transportation (or documentation providing evidence that a permit application has been submitted).

14. **Fee.** Please see fee schedule for fee determination. No application shall be accepted for processing until the required application fee is paid in full by the applicant. Any necessary technical review or additional reviews of the application beyond the initial engineering review fee will be billed to the applicant at the rate of the reviewing entity. The invoice shall be paid in full prior to any legislative and/or quasi-judicial action of any kind on the petition, appeal, or development application.

<u>All 14 attachments are required for a complete application.</u> A completeness review of the application will be conducted within five (5) business days of receipt. If the application is determined to be incomplete, the application will be returned to the applicant.

I/We certify and acknowledge that the information contained herein is true and correct to the best of my/our knowledge.

____________________ ____________________
Signature of Applicant Signature of Co-applicant

Daniel H. Young, P.E.
Typed or printed name and title of applicant Typed or printed name of co-applicant

State of Florida County of Alachua

The foregoing application is acknowledged before me this 30th day of July, 2015 by Daniel H. Young, who is/are personally known to me, or who has/have produced __________ as identification.

KELLY JONES BISHOP
MY COMMISSION # FF 167278
EXPIRES: February 4, 2019
Bonded Thru Notary Public Underwriters

Kelly Jones Bishop
Signature of Notary Public, State of Florida

RECORDED IN OFFICIAL RECORDS
INSTRUMENT # 2906766 4 PG(S)
February 02, 2015 12:56:21
Book 4328 Page 24
J. K. IRBY Clerk Of Circuit Court
ALACHUA COUNTY, Florida

Prepared By & Return To:
Darryl J. Tompkins, P.A.
P.O. Box 519
Alachua, Florida 32616

Doc Stamp-Deed: $2,275.00

Parcel #05949-019-000

SPECIAL WARRANTY DEED

THIS SPECIAL WARRANTY DEED, made and executed as of the 29th day of January, 2015 (the "**Effective Date**"), by AGT PARTNERS, LLC, a Florida limited liability company, whose post office address is Post Office Box 365, Lake Butler, Florida 32054 (hereinafter referred to as "**Grantor**"), to CITY OF ALACHUA, a municipality within Alachua County, Florida, whose address is Post Office Box 9, Alachua, Florida 32616 (hereinafter referred to as "**Grantee**").

WITNESSETH:

That Grantor, its successors and assigns, for and in consideration of the sum of Ten and No/100 Dollars ($10.00) and other good and valuable consideration, the receipt and sufficiency whereof are hereby acknowledged by Grantor, have granted, bargained, sold, aliened, remised, released, conveyed, and confirmed, and do hereby grant, bargain, sell, alien, remise, release, convey, and confirm, to Grantee, and Grantee's personal representatives, heirs, successors and assigns forever, the following described parcel of real property located in Alachua County, Florida, to-wit:

SEE EXHIBIT "A" ATTACHED HERETO AND INCORPORATED HEREIN BY REFERENCE (the "Real Property")

SUBJECT TO THE FOLLOWING:

A. Zoning restrictions, prohibitions and other requirements imposed by governmental authority;
B. Covenants and Restrictions of record;
C. Taxes for the year 2015 and subsequent years.

TOGETHER WITH all and singular the rights and appurtenances pertaining to the Real Property, together with every privilege, right, title, interest and estate, reversion, remainder, and easement thereto belonging or in anywise appertaining. Grantor will warrant and defend the property hereby conveyed against the lawful claims and demands of all persons claiming by, through, or under it, but against none other.

TO HAVE AND TO HOLD the same in fee simple forever.

IN WITNESS WHEREOF, Grantor has caused this Special Warranty Deed to be executed and delivered effective as of the Effective Date stated above.

Signed, Sealed and Delivered
In the Presence of:

Printed Name: DARRYL T. TOMPKINS

Printed Name: Sandra E. Howe

"GRANTOR"
AGT Partners, LLC, a Florida limited liability company

By:______________________________
Avery C. Roberts, Managing Member

STATE OF FLORIDA
COUNTY OF ALACHUA

___ The foregoing instrument was acknowledged before me this 29th day of January, 2015, by Avery C. Roberts as Managing Member of AGT Partners, LLC, a Florida limited liability company on behalf of the company. He is personally known to me or he has produced his Florida driver's license as identification.

Notary Public State of Florida
Sandra E Howe
My Commission FF 054525
Expires 11/15/2017

Printed Name: Sandra E. Howe
Notary Public
My Commission Expires: 11/15/2017

Acceptance of Special Warranty Deed between AGT Partners, LLC to City of Alachua.

At a meeting on the 28 day of July, 2014 the Alachua City Commissioners authorized the acceptance of this instrument of conveyance and authorized the Mayor to execute this acceptance.

Gib Coerper, Mayor

Executed on this 29 day of January, 2015.

Attest:

Traci L. Cain, City Manager/Clerk

Approved as to form

By: Marian B. Rush
City Attorney

EXHIBIT "A"

A PORTION OF FRACTIONAL SECTION 19 AND THE S.D. FERNANDEZ GRANT, TOWNSHIP 8 SOUTH, RANGE 19 EAST, ALACHUA COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHEAST CORNER OF THE S.E. 1/4 OF THE S.E. 1/4 OF SECTION 24, TOWNSHIP 8 SOUTH, RANGE 18 EAST FOR THE POINT OF BEGINNING AND RUN S. 89 DEG. 45 MIN. 36 SEC. E., ALONG THE NORTH LINE OF PARCEL "C" OF A CITY OF ALACHUA EASEMENT AS DESCRIBED IN EASEMENT RECORDED IN OFFICIAL RECORDS BOOK 1659, RAGE 2261 OF THE PUBLIC RECORDS OF ALACHUA COUNTY, FLORIDA, A DISTANCE OF 610.03 FEET TO THE SOUTHWEST CORNER OF THAT CERTAIN PARCEL OF LAND DESCRIBED IN WARRANTY DEED RECORDED IN OFFICIAL RECORDS BOOK 1813, PAGE 256 OF SAID PUBLIC RECORDS; THENCE RUN N. 00 DEG. 13 MIN. 45 SEC. E., ALONG THE WEST LINE OF SAID PARCEL OF LAND, A DISTANCE OF 377.91 FEET TO THE NORTHWEST CORNER OF SAID PARCEL OF LAND; THENCE RUN N. 89 DEG. 46 MIN. 15 SEC. W., A DISTANCE OF 60.00 FEET TO THE WEST RIGHT OF WAY LINE OF PROFESSIONAL DRIVE (A 60 FOOT PROPOSED RIGHT OF WAY); THENCE RUN NORTHERLY, ALONG SAID WEST RIGHT OF WAY LINE, WITH A CURVE CONCAVE EASTERLY, SAID CURVE HAVING A RADIUS OF 850.02 FEET AND A CENTRAL ANGLE OF 06 DEG. 32 MIN. 42 SEC., AN ARC DISTANCE OF 97.10 FEET TO THE POINT OF TANGENCY; THENCE RUN N. 06 DEG. 48 MIN. 58 SEC. E., ALONG SAID RIGHT OF WAY LINE, A DISTANCE OF 297.36 FEET; THENCE RUN N. 81 DEG. 10 MIN. 14 SEC. W., A DISTANCE OF 258.63 FEET; THENCE RUN S. 89 DEG. 24 MIN. 38 SEC. W., A DISTANCE OF 345.63 FEET TO THE WEST LINE OF THE AFOREMENTIONED FRACTIONAL SECTION 19; THENCE RUN S. 00 DEG. 35 MIN. 22 SEC. E., ALONG SAID WEST LINE, A DISTANCE OF 803.98 FEET TO THE POINT OF BEGINNING.

CHW
Professional Consultants

TEL: (352) 331-1976 132 NW 76th Drive, Gainesville, Florida 32607
TEL: (352) 414-4621 101 NE 1st Avenue, Ocala, Florida 34470
WWW.CHW-INC.COM

planning.surveying.engineering.construction.

MEMORANDUM

To: Neighbors of the southern end of NW 104th Terrace 15-0150

From: Craig Brashier, AICP

Date: Monday July 13, 2015

RE: Neighborhood Meeting Public Notice

A Neighborhood Meeting will be held to discuss a proposed site plan for a ±7,500 sq. ft. City of Alachua operations center and a ±7,500 sq. ft. warehouse on Alachua County Tax Parcel 05949-019-000. The site is generally located at the southern end of NW 104th Terrace. The ±11-acre site will also include the required parking, stormwater management facilities, and utility infrastructure. The existing Future Land Use designation is Industrial and the zoning district is Light and Warehouse Industrial (ILW).

Date: Monday July 27, 2015

Time: 5:30 p.m.

Place: Cleather Hathcock Community Center
15818 NW 140th Street
Alachua, Florida 32615

Contact: Craig Brashier, AICP
(352) 331-1976

This is not a public hearing. The purpose of the workshop is to inform neighboring property owners of the proposed development plan and to seek their comments. We look forward to seeing you at the workshop.

Directions to Workshop: From Alachua head southeast on Martin Luther King Boulevard toward Northwest 140th Street. Turn left onto Northwest 140th Street.

05964-005-000
PEPINE & PEPINE CO-TRUSTEES
6308 SW 37TH WAY
GAINESVILLE, FL 32608

05949-014-000
GEOLINE HOLDINGS LLC
13430 NW 104TH TER #A
ALACHUA, FL 32615-5608

05949-014-000
GEOLINE HOLDINGS LLC
13430 NW 104TH TER #A
ALACHUA, FL 32615-5608

05949-011-005
CITY OF ALACHUA
PO BOX 9
ALACHUA, FL 32616-0009

05949-011-006
CHAMBERS & WALLACE
1225 NW FRONTIER DR
LAKE CITY, FL 32055

05964-004-000
CHARLES PERRY PARTNERS INC
8200 NW 15TH PL
GAINESVILLE, FL 32606

05949-011-004
CITY OF ALACHUA
PO BOX 9
ALACHUA, FL 32616-0009

05949-006-000
CITY OF ALACHUA
PO BOX 9
ALACHUA, FL 32616-0009

05949-009-000
STATE OF FLORIDA IIF
%DEP-3900 COMMON WEALTH BLVD
TALLAHASSEE, FL 32399

05949-011-002
CHAMBERS & WALLACE
1225 NW FRONTIER DR
LAKE CITY, FL 32055

03957-000-000
LIABILITY LIMITED PARTNERSHIP
MCCALL FAMILY LIMITED
5045 WESTSHORE DR
NEW PORT RICHEY, FL 34652

03961-001-000
STATE OF FLA IIF
% DEP-3900 COMMONWEALTH BLVD
TALLAHASSEE, FL 32399

05949-004-000
ALACHUA INC CALVARY BAPTIST CHURCH OF
PO BOX 1227
ALACHUA, FL 32616-1227

Antoinetter Endelicato
5562 NW 93rd Avenue
Gainesville, Florida 32653

Dan Rhine
288 Turkey Creek
Alachua, Florida 32615

Bill Atwater
6017 NW 115th Place
Alachua, Florida 32615

Tom Gorman
9210 Nw 59th Avenue
Alachua, Florida 32653

Richard Gorman
5716 NW 93rd Avenue
Alachua, Florida 32653

Peggy Arnold
410 Turkey Creek
Alachua, Florida 32615

David Forest
23 Turkey Creek
Alachua, Florida 32615

John Tingue
333 Turkey Creek
Alachua, Florida 32615

President TCMOA
1000 Turkey Creek
Alachua, Florida 32615

Linda Dixon, AICP
Assistant Director Planning
Post Office Box 115050
Gainesville, Florida 32611

Craig Parenteau
FL Dept. of Environmental Protection
4801 Camp Ranch Road
Gainesville, Florida 32641

Laura Williams
12416 NW 148th Avenue
Alachua, Florida 32615

Jeannette Hinsdale
P.O. Box 1156
Alachua, Florida 32616

Lynn Coullias
7406 NW 126th Ave
Alachua, Florida 32615

Lynda Coon
7216 NW 126 Avenue
Alachua, Florida 32615

OBITUARIES

Funeral Notices

LARKIN, CARLA JEANNIE, 59

Lake Butler - Mrs. Carla Jeannie Larkin 59, of Lake Butler died Friday evening, July 10, 2015 at her home. She was born in Jacksonville, Florida. She moved to Raiford, Florida where she worked for the Union Correctional Institution until she retired in 1996. Jeannie met and married the love of her life, James Patrick Larkin, who was her partner and best friend for more than 30 years. Jeannie was a member of the First Baptist Church in Starke, Florida.

In addition to her husband, she is survived by the following: Two Daughters: Lori Black (Steve) of Tallahassee, Florida; Kelli Nicole Larkin-Brown (deceased); one son: James Patrick Larkin II (Jessica) of Bedford, Indiana; one brother: Carlton Faulk, Jr. (Nadine) of Lake Butler, Florida; four sisters: Martel Hunt of Jacksonville, Florida; Marion Pratt (Larry) of Jacksonville; Florida; Kim Faulk of Jacksonville, Florida; and Shannon Faulk of Jacksonville, Florida.

Jeannie was a proud and devoted grandmother of eight grandchildren who adored her. She was also a wonderful aunt to six nieces and nephews, and four great nieces and nephews.

Jeannie was preceded in death by her Grandparents, to whom she loved dearly. Effie Carter (deceased) and Maxie Carter (deceased).

Jeannie was a devoted wife and mother. She was very proud to be the twin sister of Carlton Faulk, Jr. She enjoyed spending time with her beloved pet Missy. She loved her family and friends, and she was will be truly missed by all who knew and loved her.

A funeral service with visitation will be held on Wednesday, July 15, 2015 at Archer Funeral Home in Lake Butler, Florida. All family and friends are invited to attend the visitation at 10:00 a.m. The funeral service will begin at 11:00 a.m. A burial service will be held following the funeral service at Sapp Cemetery in Raiford, Florida.

TANKERSLEY, PATSY EVELYN HAMILTON, 82

Alachua - Patsy Evelyn Hamilton Tankersley, 82 passed peacefully to be with her Heavenly Father Friday, July 10, 2015. She was born in Augusta, GA to J.D. Gordon & Laura Hamilton. Patsy was an avid reader, loved word puzzles, and traveling & the Miami Dolphins. She also enjoyed volunteering at Dudley Farm State Park and was a long time member of the First United Methodist Church of Alachua.

She is survived by her loving husband of 60 years Thomas Norman Tankersley of Alachua; daughter, Sharon Tankersley Taylor (Larry) of Morgantown, NC; son, B. Keith Tankersley of Newberry, FL; daughter, Dana Tankersley Derrick of Alachua, FL; Grandchildren, Wesley J. Taylor, Bradley T. Taylor, Collin L. Taylor & Peyton E. Taylor of Morganton, NC, Jesse G. Derrick, Craig D. Derrick & Erin E. Derrick of Topeka, KS and Matthew T. Tankersley (Alla) of Melrose, FL. Great granddaughter Bella E. Tankersley of Melrose, FL.; sister, Marion H. Amerson of Langley, SC; brothers, David Hamilton (Glenda) of Martinez, GA, Wayne Hamilton (Kay) of Evans, GA. Preceded in death by her parents and brother Johnny R. Hamilton.

The family will be having a gathering at Forest Meadows Funeral Home on Monday, July 13th from 7:00 pm - 9:00 pm all are welcome to come and share with the family. Patsy's celebration of life service will be Tuesday, July 14th at the First United Methodist Church of Alachua at 1:00 pm all are welcome to come and worship with the family. Donations in lieu of flowers can be made to the Florida United Methodist Children's Home, 51 Main St. Enterprise, FL 32725 or Haven Hospice 4200 NW 90th Blvd. Gainesville, FL 32606. Arrangements by Forest Meadows Funeral Home, 352-378-2528.

There are times when memories are so important.
We help you share them
gainesville.com/obits
Express your condolences
Visit the obituary section at gainesville.com/obits

Funeral Notices

RIDENOUR, RALPH WESLEY

Ralph Wesley Ridenour, or Wes as all of his friends knew him, died at home in Williston, Florida on June 24, 2015, surrounded by his loving family and friends.

Wes was born on May 27, 1943 in Lima, Ohio to Richard Wesley Ridenour and Ruth Patton Ridenour. He spent the first fifteen years of his life attending school and working before and after school on the family farm. He and his older brother Cloyd learned the value of hard work at an early age and became very adept at fixing everything that could go wrong except for computers. Wes maintained that work ethic his whole life and continued to work every day for two years while undergoing radiation and chemotherapy treatments for the cancer that eventually took his life.

In 1958 the Ridenour family moved to Sarasota, Florida and Wes graduated from Riverview High School in 1961 where he was captain of the football team and president of the Varsity Club. After high school he joined his brother in the family cabinet business in Sarasota where he met and married Karen MacFarland Ridenour on April 4th, 1970. An unfortunate encounter with a table saw convinced the young couple to move to Gainesville, Florida where Karen was in graduate school Wes attended the University of Florida for four years in the College of Architecture and Karen began her teaching career in Williston. In 1978 their first son, Todd was born and eventually was joined by another son, David, in 1984.

In 2004, friends convinced Karen and Wes to move to Williston where they built a house on 13 wooded acres that reminded Wes of the farm where he was raised. He was excited at the opportunity to fill his new house with cabinets lovingly made for each room and was content to roam the woods with his tyro dogs, Abby and Charli.

Wes is survived by his mother, Ruth Feather; his loving wife of forty five years, Karen; his two sons, Todd and David; his brother, Cloyd Ridenour and his wife Kay as well as two grandsons, Andrew and Corey Ridenour. He was preceded in death by his father, Richard (Dick) Ridenour.

Wes was a wonderfully kind and talented man who could build or fix anything and loved nothing more than spending time at home with his family or friends and a good book.

A memorial service is scheduled for Wednesday July 15th at 2:00 PM at the Whitehurst chapel of the First United Methodist Church in Williston with Pastor Joseph E. Smith officiating. Family and friends are invited to attend a reception at the church fellowship hall immediately after the service. In lieu of flowers, please send donations to Haven Hospice at 4200 NW 90th Blvd. Gainesville, Florida 32606. Condolences can be sent to www.gainesville.com/obits. The family would like to thank Dr. Priyah Gopalan, his wonderful doctor at Shands Hospital; Nicole Barron, his Hospice nurse as well as the dedicated staff at the hospice care center in Gainesville; and his best friends, Larry and Sylvia Edmundson, for their kindness and compassion.

Give the family a personal message of condolence by posting to our guest books online.
PLEASE VISIT
gainesville.com/obits
Serving Our Community Matters

ON THE RECORD

Gainesville.com FOR REAL ESTATE TRANSACTIONS & MORE GO TO WWW.GAINESVILLE.COM

BANKRUPTCIES

Bankruptcies filed in Gainesville in U.S. District Court, Northern District of Florida, from June 28-July 4:

- Carolyn Katrina Moore (Trenton)
- Victor Severino Fernandez and Yaimi Beatriz Perez De Fernandez (Gainesville)
- Chere Anne Nicole Ray (Mayo)
- Vanessa Ann Sucar (Gainesville)
- Erik Paul Jensen (Gainesville)
- David Wayne Buchanan (Hawthorne)
- Wesley Owen Pollock and Patricia Ann Pollock (Gainesville)
- Aida Garcia Elliott (Gainesville)
- Rodolfo Antonio Molina and Susan Triana (Gainesville)
- Stuart Charles Fox III and Melissa Kay Fox (Gainesville)
- Glory Produce Inc. (Gainesville)
- Harland John Downey and Tammy Lynn Downey (Bronson)
- Glenda Sue Kiernan and John Kiernan (Alachua)

BANKRUPTCIES

Area bankruptcies filed in Jacksonville in U.S. District Court, Middle District of Florida, from June 7-13:

- Chris A. Sievers (Lake City)
- Frederick Paul Helms (White Springs)
- Shawn Thomas Anderson (Lake City)
- James Harrell and Jane Harrell (Lake City)
- Marley K. Tarlton (Lake City)
- Ernest Edward Skelton and Janet B. Skelton (Lake City)
- Raymond D. Camp and Sharon L. Camp (Yankeetown)
- Evelyn H. Fowler (Green Cove Springs)
- John W. Villeneuve IV (Palatka)
- Audrey D. Washington (Green Cove Springs)

MARRIAGES

Alachua County Clerk of Court marriage records from June 14-20:

- Michel, Michael and Rosenau, Julie Nicole
- Bonham, Sondra Clarice and Brown, Moena Irene
- Moats, Tara Leanne and Richardson, Dania Teresa Roche
- Moya, Jaime Javier Cruz and Sanchez, Luisa Fernanda Malaver
- Ellis, Matthew Stewart and Kieffer, Larkin Whittemore
- Szabo, Jarrett Tyler and Jerrels, Madison Leigh
- Boyer, Ernest Doyle IV and Lewis, Dawn Marie Bumgarner
- Bradley, Kiara Marik and Styles, Elaine Patrice Renea
- Goston, John Glenn and Day, Stephanie Camillia
- Sheriff, Ernest Otwell III and Jean, Sarah Branan
- Low, David Gow and Kunz, Katherine Ann
- Marmol, Oswaldo Enrique Reina and Fernandez, Maria Fabiana Reigadas
- Carroll, Katherine Lee and Provost, Nicole
- Manahan, Craig Chiu and Morris, Lillian Rebecca
- Glaros, Stephen Zachery and Cardona, Syra Monique Rosario
- Pittman, Adam Louis and Nelson, Sandra M.
- Johnson, Micah Tavis and Harrington, Jennifer Lynne Congden
- Bustillo, Michael J. and Carr, Natalie Joan
- Jernigan, Jeffery Lee and Chappel, Brenda Sue
- Damato, Mary Ester and Tidwell, Robin Gant
- Randall, Glenn Jerome and Chisholm, Shirley Pew
- Walthall, Eric Allen and Bennett, Victoria Jade
- Goodwin, Treavor Thomas and Scurrah, Brittany Nicole
- Cruz, Miriam and Scharlau, Lisa Ann Rangel
- Layton, Joseph Earl and Stillwell, Jerilynn R. Weiner
- Price, Daniel Ray II and Beesley, Andrea Michelle
- Gellert, John III and Sud, Crystal Ann
- Johnston, John Bradley and Cowart, Ashley Diann
- Tapia, Roberto Chauca and Ferreira, Andrea Cabral Leal
- Larkins, Eddie Lee Jr. and Nance, Lorie Marie
- Watts, James Carlton and McFadden, Cheryl Lynn
- Mozo, Jesus Francisco Bravo and Dalessio, Christine Marie
- Gates, Glennous Cavinitti and Cox, Ashley Patrice
- Workman, Todd Samuel and Barfield, Dora Lynn Nooney
- Hudson, Joshua Glenn and Davis, Adrianne Rose Strack
- Azur, Joshua Lee and Hough, Hannah Jane
- Reoma, Junewai Lee and Bowen, Lauren Nicol
- Tunalilar, Ozcan and Henderson, Kelsey Sarah
- Wiltse, Philip Andrew and Temple, Terry Lynn Odom
- Salazar, Michael Roger and Byrd, Alice Williams
- Shuler, William Thomas Jr. and McDuffie, Linda L.
- Huff, Michael Warren and Bearden, Judie Rae
- Arellano, Sergio Morales and Granados, Veronica
- Christ, Michael Robert and Ruettiman, Laura Jean
- Castora, Andrew Philip and Dobosiewicz, Angela Christine

STATE

Florida leads states for refugee resettlement

TAMPA — Federal government statistics show Florida draws more refugees than any other state.

Since 2013, a total of 43,184 refugees resettled in Florida, a number that dwarfs second-place California, which had 16,714.

Cubans represented the largest number of refugees in the state, with 2,177 last year, but others came from across the Caribbean and the Americas, as well as the Middle East and Africa.

Refugees are defined as people forced to flee their home country because of persecution or fear of persecution.

The Tampa Tribune reports that about 70,000 refugees are admitted across the United States each year.

Fla. Supreme Court denies Bar dues hike for legal aid

TALLAHASSEE — Lawyers pushing for more money for legal aid to the poor will have to look elsewhere after the Florida Supreme Court rejected a proposed dues increase for Florida Bar members.

The justices ruled last week that a more comprehensive solution is needed for legal aid funding woes. A coalition of attorneys had proposed a Bar dues increase of $100 to help fund the program.

The dues are currently $265 a year and have held steady for 20 years.

Gov. Rick Scott this year vetoed a small funding increase for legal aid in this year's state budget.

Three Supreme Court justices dissented, contending it was wrong to deny attorneys a chance to solve at least some of the legal aid funding problems through the relatively small dues increase.

Bethune-Cookman elects philanthropist to board

ORLANDO — Bethune-Cookman University has elected one of its biggest philanthropists as its new chairman of the board.

Joe Petrock was elected by the 36-member board of trustees this week. He has worked in various capacities with BCU for more than 30 years, and has been a board member since 2004.

Petrock and his wife, Barbara, also previously gave a $1 million donation to BCU's College of Health and Sciences. Petrock received an honorary doctorate from the school in 2014.

— Compiled from The Associated Press

Obituary Information

All obituaries are paid notices and are placed by the funeral home or crematorium handling the arrangements as a service to the family.

For more information: 337-0304 or 374-5017
obits@gvillesun.com
fax: (352) 338-3131

FIND A CAR
The Gainesville Sun
CLASSIFIED

PUBLIC NOTICE

A Neighborhood Meeting will be held to discuss a proposed site plan for a ±7,500 sq. ft. City of Alachua operations center and a ±7,500 sq. ft. warehouse on Alachua County Tax Parcel 05949-019-000. The site is generally located at the southern end of NW 104th Terrace. The ±11-acre site will also include the required parking, stormwater management facilities, and utility infrastructure. The existing Future Land Use designation is Industrial and the zoning district is Light and Warehouse Industrial (ILW).

The meeting's purpose is to inform neighboring property owners of the proposed development plan and to seek their comments.

The meeting is Monday, July 27, at 5:30 p.m. in the Cleather Hathcock Community Center, 15818 NW 140th Street, Alachua, FL 32615.

Contact:
Craig Brashier, AICP

Phone Number:
(352) 331-1976

CHW Professional Consultants

POLICE REPORT

Crimes reported in Gainesville from July 4 to July 9

- For a map of reported crimes in Gainesville and mugshots of people booked in Alachua County's jail, go to **www.mugshotsgainesville.com**

ROBBERY

JULY 4
5700 NW 23rd St., 11:10 p.m.
JULY 6
1411 NE 14th St., 7 p.m.

BURGLARY TO CONVEYANCE

JULY 5
200 NE First St., 1 a.m.
1936 NW 31st Ave., 2 a.m.
401 NW 35th St., 11 p.m.
JULY 6
100 NW Third Ave., 6 p.m.
JULY 8
303 NW 36th Terrace, 7 p.m.

BURGLARY TO RESIDENCE

JULY 3
4209 NW 29th Terrace, 1 p.m.
1845 SW 49th Terrace, 2 p.m.
382 SW 62nd Blvd., 8 p.m.
JULY 5
3225 NW 27th St., 6 p.m.
3232 SW 42nd Place, 7:15 p.m.
JULY 6
6519 W. Newberry Road, 6:15 p.m.
JULY 7
3101 NE 15th St., midnight
920 SW First Ave., 1 a.m.
1009 NW 36th Road, 7:45 a.m.
JULY 9
2511 SW 35th Place, 6 p.m.

BURGLARY TO BUSINESS

JULY 5
1730 W. University Ave., 1:49 a.m.
3524 SW Archer Road, 1:57 a.m.
2014 NE 23rd Ave., 11 p.m.
JULY 6
5001 NW 34th St., 12:44 a.m.
4100 NW 16th Blvd., 6:01 a.m.

GAINESVILLE MAGAZINE

City of ALACHUA

THE GOOD LIFE COMMUNITY

Authorized Agent Affidavit

A. PROPERTY INFORMATION

Address of Subject Property: Southern end of NW 104th Terrace in Alachua, FL

Parcel ID Number(s): 05949-019-000

Acreage: 10.89

B. PERSON PROVIDING AGENT AUTHORIZATION

Name: Adam Boukari Title: Assistant City Manager

Company (if applicable): City of Alachua

Mailing Address: P.O. Box 9

City: Alachua State: FL ZIP: 32616

Telephone: (386) 418-6100 FAX: (386) 418-6175 e-mail: aboukari@cityofalachua.org

C. AUTHORIZED AGENT

Name: Daniel H. Young, P.E. Title: Senior Project Manager

Company (if applicable): CHW

Mailing address: 132 NW 76th Drive

City: Gainesville State: FL ZIP: 32607

Telephone: (352) 519-5940 FAX: (352) 331-2476 e-mail: daniely@chw-inc.com

D. REQUESTED ACTION:

Authorization to apply for and obtain permits for the City of Alachua Operations Center and Warehouse.

I hereby certify that I am the property owner of record, or I have received authorization from the property owner of record to file an application for a development permit related to the property identified above. I authorize the agent listed above to act on my behalf for purposes of this application.

Signature of Applicant

Signature of Co-applicant

Adam Boukari, Assistant City Manager

Typed or printed name and title of applicant

Typed or printed name of co-applicant

State of Florida County of Alachua

The foregoing application is acknowledged before me this 28 day of July, 2015 by ______________

______________, who is/are personally known to me, or who has/have produced ______________ as identification.

LISA FREEMAN
MY COMMISSION # FF 131327
EXPIRES: June 10, 2018
Bonded Thru Budget Notary Services

Signature of Notary Public, State of Florida

CITY OF ALACHUA OERATONS CENTER AND WAREHOUSE
SITE PLAN APPLICATION
NEIGHBORHOOD WORKSHOP
JULY 27, 2015, AT 5:30 PM
CLEATHER HATHCOCK COMMUNITY CENTER

Recorded and transcribed by CHW staff.

<u>Attendees:</u>
Ronald Chamber – Citizen / Adjacent Property Owner
Craig Brashier, AICP - CHW

CHW delivered a presentation that explained the details of the proposed site plan application including the proposed layout, building elevations, and building floor plans. One (1) adjacent property owner, Mr. Chamber, attended the workshop. Mr. Chamber also owns additional property in the Alachua Professional Center. The following bullet points highlight the main points of the presentation and the discussion items following the presentation.

- The presentation explained that the proposed operations center and warehouse uses are consistent with the Industrial Future Land Use designation and ILW Zoning district.
- The proposed development includes a ±7,800 sq. ft. administration building with offices for City Stormwater, Public Works, Water Collections & Distributions offices, and employee locker rooms / showers. The site also includes a ±10,000 sq. ft. warehouse with shop areas, storage areas, and a loading dock
- Mr. Chamber asked whether or not the site was within a wellfield protection zone. Mr. Chamber stated that he thought the city's adjacent site to the east was a future well site.
    - According to the City's current Comprehensive Plan, there are only two (2) wellfield protection zones in the City of Alachua: Downtown and Turkey Creek. Neither of these wellfield protection zones are adjacent to the project site.
- Mr. Chamber asked whether or not improvements will be made to the entrance on U.S. 441.
    - No improvements are required or proposed to the entrance on U.S. 441 as part of this site plan application.
-
- Mr. Chamber asked how stormwater will be handled.
    - Stormwater will be directed to the City owned basin adjacent to the north of the project site. The basin will be deepened and/or expanded to handle the additional volume from the project site.
- CHW informed that attendees that the City of Alachua would also mail out notifications prior to any scheduled public hearing regarding this application.
- The meeting adjourned at 6:00 p.m.

CHW
Professional Consultants

TEL: (352) 331-1976 132 NW 76th Drive, Gainesville, Florida 32607
TEL: (352) 414-4621 101 NE 1st Avenue, Ocala, Florida 34470
WWW.CHW-INC.COM

planning.surveying.engineering.construction.

SIGN-IN SHEET

Event: Neighborhood Meeting
Date/Time: July 27, 2015 at 5:30 pm
Place: Cleather Hatchcock Community Center
Re: City of Alachua Operations Center and Warehouse

No.	Print Name	Street Address	Signature
1	Ronald C Chamber	1225 NW Frontier Dr	R Chamb
2			
3			
4			
5			
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11			
12			

Legal Description for Alachua County Tax Parcel 05949-019-000

DESCRIPTION: (AS FURNISHED)

A PORTION OF FRACTIONAL SECTION 19 AND THE S.D. FERNANDEZ GRANT, TOWNSHIP 8 SOUTH, RANGE 19 EAST, ALACHUA COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHEAST CORNER OF THE S.E. 1/4 OF THE S.E. 1/4 OF SECTION 24, TOWNSHIP 8 SOUTH, RANGE 18 EAST FOR THE POINT OF BEGINNING AND RUN S. 89 DEG. 45 MIN. 36 SEC. E., ALONG THE NORTH LINE OF PARCEL "C" OF A CITY OF ALACHUA EASEMENT AS DESCRIBED IN EASEMENT RECORDED IN OFFICIAL RECORDS BOOK 1659, RAGE 2261 OF THE PUBLIC RECORDS OF ALACHUA COUNTY, FLORIDA, A DISTANCE OF 610.03 FEET TO THE SOUTHWEST CORNER OF THAT CERTAIN PARCEL OF LAND DESCRIBED IN WARRANTY DEED RECORDED IN OFFICIAL RECORDS BOOK 1813, PAGE 256 OF SAID PUBLIC RECORDS; THENCE RUN N. 00 DEG. 13 MIN. 45 SEC. E., ALONG THE WEST LINE OF SAID PARCEL OF LAND, A DISTANCE OF 377.91 FEET TO THE NORTHWEST CORNER OF SAID PARCEL OF LAND; THENCE RUN N. 89 DEG. 46 MIN. 15 SEC. W., A DISTANCE OF 60.00 FEET TO THE WEST RIGHT OF WAY LINE OF PROFESSIONAL DRIVE (A 60 FOOT PROPOSED RIGHT OF WAY); THENCE RUN NORTHERLY, ALONG SAID WEST RIGHT OF WAY LINE, WITH A CURVE CONCAVE EASTERLY, SAID CURVE HAVING A RADIUS OF 850.02 FEET AND A CENTRAL ANGLE OF 06 DEG. 32 MIN. 42 SEC., AN ARC DISTANCE OF 97.10 FEET TO THE POINT OF TANGENCY; THENCE RUN N. 06 DEG. 48 MIN. 58 SEC. E., ALONG SAID RIGHT OF WAY LINE, A DISTANCE OF 297.36 FEET; THENCE RUN N. 81 DEG. 10 MIN. 14 SEC. W., A DISTANCE OF 258.63 FEET; THENCE RUN S. 89 DEG. 24 MIN. 38 SEC. W., A DISTANCE OF 345.63 FEET TO THE WEST LINE OF THE AFOREMENTIONED FRACTIONAL SECTION 19; THENCE RUN S. 00 DEG. 35 MIN. 22 SEC. E., ALONG SAID WEST LINE, A DISTANCE OF 803.98 FEET TO THE POINT OF BEGINNING.

Consistency with the Comprehensive Plan

The following identifies how this application is consistent with the City's Comprehensive Plan. Language from the comprehensive plan is provided in normal font, and the consistency statements are provided in **bold** font.

FUTURE LAND USE ELEMENT (FLUE)

Objective 1.5: Industrial

The City of Alachua shall establish one industrial district: Industrial. This district shall provide a broad range of clean industry, warehousing, research, and technology industries, to provide a variety of job opportunities to the citizens of Alachua and the North Central Florida Region.

Response: The proposed use is a 8,003 square foot operations center and a 9,902 square foot warehouse. These uses are consistent with the allowed uses within the Industrial Future Land Use district.

Policy 1.5.d: The City shall develop performance standards for industrial uses in order to address the following:

1. Integration of vehicular and non-vehicular access into the site and access management features of site in terms of driveway cuts and cross access between adjacent sites, including use of frontage roads and/or shared access;

Response: There are no existing sidewalks within the Alachua Professional Center or along US 441. As an industrial and manufacturing district, there is very little pedestrian activity and as such there is no need to construct a sidewalk for pedestrian access. Vehicular access to the site is provided via NW 104th Terrace, which extends to a major arterial, US Highway 441.

2. Buffering from adjacent existing/potential uses;

Response: As shown in the Landscape Plans, a 15-foot type "D" buffer is provided along the western and southern boundaries. A 7.5-foot type "B" buffer is provided along the northern and eastern boundaries.

3. Open space provisions and balance of proportion between gross floor area and site size;

Response: City of Alachua LDR §6.7.3(A) states that the minimum open space set-aside shall be 10% of the development site. As

shown on the Landscape Site Plans, calculations for this site have been made for 30% of the site devoted to open space.

4. Adequacy of pervious surface area in terms of drainage requirements;

Response: ***A stormwater report has been submitted indicating that the modified stormwater management facility has the capacity to accept runoff from the impervious surface of the entire site.***

5. Placement of signage;

Response: ***The on-site sign located on the southern side of the entrance driveway is shown on the Master Site Plan. The sign will be consistent with City of Alachua's LDR §6.5 Signage requirements.***

6. Adequacy of site lighting and potential impacts of lighting upon the surrounding area. Lighting should be designed to minimize impacts and preserve the ambiance and quality of the nighttime sky by reducing light trespass and light pollution on adjacent properties by utilizing lighting at an appropriate intensity, direction and times to ensure light is not overused or impacting areas where it is not intended;

Response: ***The Photometric Site Plan shows the locations of all lights. Light placement will not adversely affect surrounding properties and are specifically directed toward building entrances.***

7. Safety of on-site circulation patterns (patron, employee and delivery vehicles, trucks), including parking layout and drive aisles, and points of conflict;

Response: ***As detailed on the Master Site Plan, the parking area is primarily located to the front of the proposed development. Pedestrian circulation is clearly marked and is arranged such that the majority of vehicle traffic is out of the way of pedestrian walkways.***

8. Landscaping, as it relates to the requirements of the Comprehensive Plan and Land Development Regulations;

Response: ***Per Comprehensive Plan policy 2.4.1, minimum landscaped area shall be 30% of the development site. The proposed Landscape Plan designates 81.6% landscaped area. As previously mentioned, perimeter buffers and canopy tree requirements have been met as shown on the Landscape Site Plan, as well as parking landscape requirements.***

9. Unique features and resources which may constrain site development, such as soils, existing vegetation and historic significance; and

Response: ***Site topography is addressed by design. There are no wetlands on-site, nor are there any elements of historic significance present on-site.***

10. Performance based zoning requirements that may serve as a substitute for or accompany land development regulations in attaining acceptable site design

Response: ***There is no performance based zoning being proposed for this site.***

11. Industrial uses shall be limited to an intensity of less than or equal to .50 floor area ratio for parcels 10 acres or greater, .50 floor area ratio for parcels less than 10 acres by 5 acres or greater, .75 floor area ratio for parcels less than 5 acres but greater than 1 acre, and 1.0 floor area ratio for parcels 1 acre or less.

Response: The site's proposed floor area is 17,905 square feet. The size of the parcel is 11 acres. As such, the .50 floor area ratio requirement is met. All other design standards addressed within 1-10 of this subsection will also be met.

TRANSPORTATION ELEMENT (TE)

Objective 1.1: Level of Service: The City shall establish a safe, convenient and efficient level of service standard for all motorized and non-motorized transportation systems.

Response: The proposed operations center and warehouse will not result in a degradation of transportation Level of Service (LOS) standards. The proposed development will result in 573 AADT and 90 PM Peak trips. Per LDR section 2.4.14(H)(2)(b)(i), affected roadway segments are those that fall within one-half (½) mile of the parcel's boundaries. This includes one (1) segment of US 441.

According to the most recent Development Monitoring Report made available by City staff, there is more than enough capacity on the affected roadway segment to handle the minor increase in AADT created by the proposed application. Therefore, after build-out of the proposed development, there will continue to be a substantial surplus of available trips.

COMMUNITY FACILITIES AND NATURAL GROUNDWATER RECHARGE ELEMENT (CFNGAR)

Policy 1.1.d: The City hereby establishes the following Level of Service standards for sanitary sewer facilities:

b. Quantity: System-wide wastewater collection and treatment will be sufficient to provide a minimum of 250 gallons per day per equivalent residential unit (ERU) on an average annual basis.

Response: The proposed development will allow a net increase of 17,905 square feet of non-residential uses. This results in an increased demand of 2,685 gallons per day on the City's sanitary sewer system. Currently, there is a residual capacity of 802,095 gallons per day.

Objective 4.1: Achieve and maintain acceptable levels of service for potable water quantity and quality.

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

2. Quantity: System-wide potable water distribution and treatment will be sufficient to provide a minimum of 275 gallons per day per equivalent residential unit (ERU) on an average annual basis.

Response: The proposed development will allow a net increase of 17,905 square feet of non-residential uses. This results in an increased demand of 2,685 gallons per day on the City's sanitary sewer system. Currently, there is a residual capacity of 1,058,655 gallons per day.

Objective 2.1: Continue to ensure satisfactory and economical solid waste service for all City residents, with an emphasis on reuse and recycling.

Policy 2.1.a: The City hereby establishes the following level of service standards for solid waste disposal facilities:

FACILITY TYPE	LEVEL OF SERVICE STANDARD
Solid Waste Landfill	.73 tons per capita per year

Response: The proposed development will allow a net increase of 17,905 square feet of non-residential uses, resulting in an increased demand of 39.21 tons per year on the City's solid waste system. Currently, there is a 50-year build-out capacity for the solid waste disposal facility.

L:\2015\15-0150\Planning\Reports\Public Facilities Analysis.docx

Concurrency Impact Analysis

The Concurrency Impact Analysis calculations have been performed for the proposed 8,003 square foot operations center and for the 9,902 square foot warehouse. Public facility capacities are based on the July 2015 Monitoring Report supplied by the City's Planning and Zoning staff. The proposed non-residential FLU designations will not impact schools or recreation facilities.

Trip generation calculations are provided in Table 1A.

Table 1A: Trip Generation Calculations

ITE Land Use[1]	Units (1,000 s.f.)	Daily		Peak Hour	
		Rate*	Trips	Rate*	Trips
Government office building (ITE 730)	8.0	68.93	551	11.03	88
Warehouse (ITE 150)	9.9	3.56	35	0.45	4
Total			**586**	**-**	**92**

Source: ITE Trip Generation Manual, 9th Ed.

Table 1B below identifies the roadway segments within ½ mile of the subject parcels. Pursuant to the LDRs, for developments generating less than 1,000 AADT, a one-half mile radius defines the affected roadway envelope.

Table 1B: Impacted Roadway Segments

Segment Description	Comp Plan MSV*	Existing Traffic*	Reserved Trips*	Available Capacity*
US 441 (From NW 126th Ave to SR 235)	35,500 AADT 3,200 PHr	17,495 AADT 1,662 PHr	1,412 AADT 134 PHr	16,593 AADT 1,404 PHr

Source: City of Alachua May 2015 Development Monitoring Report.

Table 1C: Roadway Capacity

Segment Description	Available Capacity	Additional Trips	Residual Capacity
US 441 (From NW 126th Ave to SR 235)	16,634 AADT 1,415 PHr	586 AADT 92 PM	16,048 AADT 1,323 PHr

100% of the trips will impact the section of US 441 from NW 126th Ave. to SR 235.

Conclusion: As evident by the available capacities identified in Tables 1B and 1C, the trips generated by the operations center and warehouse will not exceed the adopted LOS standards. Capacity exists to handle the additional trips resulting from the proposed operations center and warehouse.

Table 2: Potable Water Impact

System Category	Gallons per day
Current Permitted Capacity*	2,300,000
Less Actual Potable Water Flow*	1,131,000
Reserved Capacity*	109,355
Residual Capacity*	1,058,655
Residual Capacity with operations center and warehouse 17,905 s.f. x 0.15 Gal/s.f.** = 2,685 gpd	1,055,970
Percentage of Permitted Design Capacity Utilized	54.09%

**Source: City of Alachua July 2015 Development Monitoring Report.*
***Source: Ch. 64E-6.008, F.A.C.*

Conclusion: The demand generated by the proposed operations center and warehouse will not exceed the adopted LOS standards. Capacity exists to handle the additional demand resulting from the proposed operations center and warehouse.

Table 3: Sanitary Sewer Impact

System Category	Gallons per day
Current Permitted Capacity*	1,500,000
Less Actual Treatment Plant Flows*	627,000
Reserved Capacity*	70,905
Residual Capacity*	802,095
Residual Capacity with operations center and warehouse 17,905 s.f. x 0.15 Gal/s.f.** = 2,685 gpd	799,230
Percentage of Permitted Design Capacity Utilized	46.72%

**Source: City of Alachua July 2015 Development Monitoring Report*
***Source: Ch. 64E-6.008, F.A.C.*

Conclusion: The demand generated by the proposed operations center and warehouse will not exceed the adopted LOS standards. Capacity exists to handle the additional demand resulting from the proposed operations center and warehouse.

Table 4: Solid Waste Impact

System Category	Tons per year
((12 lbs. / 1000 sq. ft. per day x 17,905 s.f.) x 365)/2,000*	39.21
Existing Demand	6,919.67
Reserved Capacity	806.41
Total average solid waste disposal for the facility[2]	50-Year Capacity

**Source: Sincero and Sincero: Environmental Engineering: A Design Approach, Prentice Hall, NJ, 1996*

Conclusion: The demand generated by the proposed operations center and warehouse will not exceed the adopted LOS standards. Capacity exists to handle the additional demand resulting from the proposed operations center and warehouse.

GSE Engineering & Consulting, Inc.

**SUMMARY REPORT OF A
GEOTECHNICAL SITE EXPLORATION**

ALACHUA OPERATIONS CENTER

ALACHUA, ALACHUA COUNTY, FLORIDA

GSE PROJECT No. 12489

Prepared For:

WALKER ARCHITECTS

JULY 2015

Certificate of Authorization No. 27430

GSE Engineering & Consulting, Inc.

July 28, 2015

Mr. Joe Walker
Walker Architects, Inc.
4055 NW 43rd Street, Suite 28
Gainesville, FL 32606

Subject: Summary Report of a Geotechnical Site Exploration
Alachua Operations Center
Alachua, Alachua County, Florida
GSE Project No. 12489

Dear Mr. Walker:

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, stormwater management, and pavement designs.

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.

Corey A. Dunlap, P.E.
Project Engineer
Florida Registration No. 77678

Kenneth L. Hill, P.E.
Principal Engineer
Florida Registration No. 40146

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1.0 INTRODUCTION

1.1 General

GSE Engineering & Consulting, Inc. (GSE) has completed this geotechnical exploration for the proposed Alachua Operations Center located in Alachua, Alachua County, Florida. This exploration was performed in accordance with GSE Proposal No. 2015-156 dated May 28, 2015. Mr. Joe Walker with Walker Architects, Inc. authorized our services through an email correspondence dated July 16, 2015.

1.2 Project Description

The site is located along the west side of NW 104th Terrace at its southern termination. The City of Alachua plans to develop this site into an operations center. Mr. Joe Walker initially provided information about this project. Since those initial discussions, the site plan has changed dramatically. GSE was provided the 30% Construction Documents dated July 15, 2015 as well as the *Structural Criteria for Geotechnical Subsurface Investigation* from the project structural engineer.

The project will consist of two buildings, an Operations Administration Building and a Warehouse. The structures will be single-story concrete construction. The structural loads are expected to be approximately 40 kips for columns and 4 kips per foot for bearing walls. The ground surface slopes moderately down toward the west from the east with elevations near the proposed building locations ranging between 139 and 151 feet. The western sides of the buildings will be filled to raise finished floor elevations. The finished floor elevation of the eastern building is proposed to be set at 151.5 feet and the finished floor elevation of the western building is proposed to be set at 146.4 feet. A sidewalk will connect the two buildings, and stem wall/retaining wall is proposed for the west side of the sidewalk to help transition the site grades.

Driveways and parking lots will surround the structures. A materials storage yard will be located south of the buildings. This area will also be used for future buildings.

The preliminary site grading provided by CHW indicates the site will be filled to be relatively level, with a gentle slope down to the west to provide drainage to the storm water inlets. The preliminary site grades suggest up to 4 feet of fill will be placed beneath the western portion of the eastern building, 2 to 7 feet of fill will be placed beneath the western building, and up to 15 feet of fill will be placed in the materials storage yard to raise and level the site.

The majority of the stormwater management is proposed to be provided by an existing basin located north of the site. This basin is approximately 8 feet deep at the southern edge, but only about 2 feet deep at the northern edge where a soil berm was constructed to hold collected stormwater. We understand the basin is proposed to be excavated another 2+ feet to create enough storage for the planned development. As a second option, we understand that an on-site stormwater management basin could be constructed along the western property border.

A recent aerial photograph of the site was obtained. The 30% Construction Documents and the 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. Our exploration consisted of performing eight (8) Standard Penetration Test (SPT) borings to depths of 20 feet below land surface (bls) in the area of the proposed buildings, two (2) auger borings to depths of 15 feet bls in the area of the potential on-site stormwater basin, three (3) auger borings to depths of 15 to 30 feet bls in the area of the existing stormwater basin, and seven (7) auger borings to depths of 5 feet bls in the area of the driveways and parking lots.

The soil borings were performed at the approximate locations as shown on Figures 2 and 3. 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 July 21 and 22, 2015.

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 flight auger 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. Then the sampler was 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 fifteen (15) percent soil fines passing the No. 200 sieve determinations, fifteen (15) natural moisture content determinations, five (5) Atterberg Limits tests, four (4) constant head hydraulic conductivity tests, and one (1) Limerock Bearing Ratio (LBR) test. 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

Messrs. Corey A. Dunlap, P.E. and Stanley E. Henderson, E.I. with GSE visited the site on July 21, 2015 to observe the site conditions and mark the boring locations.

The majority of the site is open and covered with unmaintained grass, weeds, and underbrush. A few areas on the southern portion of the site contain large hardwood and pine trees with thick underbrush. A soil mound is located on the southeast portion of the site. It is unclear why the soil mound is present.

The existing stormwater management facility located north of the site is approximately 8 feet deep on the south end, but only about 2 feet deep on the north end. It appears as though a soil berm was created along the northern end to hold the collected stormwater. The basin is covered in pine trees. We understand the plan is to harvest the pine trees in order to excavate the basin deeper.

The topography at the site is moderately sloping down toward the west from the east. The topography survey within the 30% Construction Documents indicates the ground surface at the site generally ranges between 122 and 160 feet. The ground surface elevations across the proposed building areas fall from 151 feet on the east side to 139 feet on the west side.

3.2 Subsurface Conditions

The locations of the auger and SPT borings are provided on Figures 2 and 3. 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 in the area of the proposed driveways and parking lots (A-1 through A-7) generally encountered consistent soil conditions. The borings mostly penetrated silty and clayey sand (SM, SC) from ground surface to the explored depths of 5 feet bls. Various amounts of cemented sand boulders, traces of limestone, and lenses of clay were encountered in the soil profiles. The exception to this typical soil profile was encountered in auger boring A-6 which penetrated a stratum of very clayey sand (SC) from 3 to 5 feet bls.

The auger borings located in the potential on-site stormwater management facility (P-1 & P-2) generally encountered consistent soil conditions that comprise of silty sand (SM) from ground surface to the explored depth of 15 feet bls.

The auger borings located in the existing stormwater management facility north of the site (P-3, P-4 & P-5) encountered somewhat consistent soil conditions. Auger borings P-3 and P-4 penetrated 8 to 13.5 feet of silty sand (SM) underlain by clayey to very clayey sand and sandy clay to clay (SC, CL/CH) to the explored depths of 15 and 30 feet bls. Auger boring P-5 initially penetrated 3 feet of clayey sand (SC) underlain by a 1.5 feet thick stratum of clay with sand (CL/CH). These surficial soils were underlain by silty sand with clay (SM-SC) to a depth of 13.5 feet bls where a 2.5 feet thick stratum of very clayey sand (SC) was then encountered. The limestone formation was then penetrated from 16 feet to the explored depth of 30 feet bls.

The SPT borings located in the area of the proposed buildings (B-1 through B-8) indicate the subsurface conditions are relatively consistent. Overall, the borings generally encountered 5 to 8 feet of silty and clayey sand (SM, SC, SM-SC) with various amounts of cemented sand boulders and trace limestone. These surficial soils are generally underlain by clayey to very clayey sand with lenses of clay (SC) and sandy clay to clay (CL/CH, CH) to the explored depths of 20 feet bls.

The upper sandier soils (SM, SC, SM-SC) are generally in very loose to medium dense conditions with N-values ranging between 2 and 13 blows per foot. The deeper clay-rich soils (SC, CL/CH, CH) are generally in medium dense to dense and firm to stiff conditions with N-values ranging between 6 and 38 blows per foot.

The exception to the above described soil profile beneath the proposed buildings occurred in SPT boring B-4. This boring initially penetrated 8.5 feet of very loose silty sand with an abundant amount of decaying wood debris (SM/PT). Weight-of-hammer events were encountered in this material from depths of about 1.5 to 8.5 feet bls. Medium dense and firm to stiff clayey sand and clay (SC, CH) was then encountered to the explored depth of 20 feet bls. The subsurface conditions encountered in this boring suggest that it was located in a relic tree stump or pine tree tap root.

Groundwater was not encountered in the boreholes at the time of the drilling operations.

Indications of karst activity, sinkholes, and caverns were not encountered by the soil borings within the explored depths. However, this exploration was not intended to screen the site for sinkhole activity. Karst activity could be present at depths that were not explored by the soil borings.

3.3 Review of Published Data

The proposed construction site is mapped as two soil series by the Soil Conservation Service (SCS) Soil Survey for Alachua County[1]. The southeast portion of the site is mapped as Norfolk loamy fine sand, 5 to 8 percent slopes and the remainder of the site is mapped as Arredondo fine sand, 5 to 8 percent slopes. The existing basin located north of the site is also mapped as two soil series by the Soil Conservation Service (SCS) Soil Survey for Alachua County. The north half of the basin is mapped as Arredondo fine sand, 0 to 5 percent slopes while the south half of the site is mapped as Arredondo fine sand, 5 to 8 percent slopes. The following soil descriptions are from the Soil Survey.

Arredondo fine sand, 0 to 5 percent slopes – This nearly level to gently sloping, well-drained soil is in both small and large areas of uplands. Slopes are smooth to convex. The areas are irregular in shape and range from about 10 to 160 acres in size.

Typically, the surface layer is dark grayish brown fine sand about 8 inches thick. The subsurface layer is fine sand to a depth of 49 inches. The upper 23 inches is yellowish brown, and the lower 18 inches is brownish yellow. The subsoil extends to a depth of 86 inches or more. The upper 5 inches is yellowish brown loamy sand; the next 10 inches is yellowish brown sandy clay loam, and the lower 22 inches is dark yellowish brown sandy clay and sandy clay loam.

[1] Soil Survey of Alachua County, Florida. Soil Conservation Service, U.S. Department of Agriculture.

Included with this soil in mapping are small depressional areas of soils that have a very dark gray or black surface layer 8 to 24 inches thick. This layer overlies gray sandy material. These areas are shown by wet spot symbols. Also included are small areas of Fort Meade, Gainesville, Kendrick, and Millhopper soils. A few areas of this soil include Arredondo soils that have 5 to 8 percent slopes. Some areas of this soil in the western part of the county have small spots of strongly acid to medium acid soil material 40 to 70 inches deep to calcareous limestone. Limestone boulders, fragments of limestone, and sinkholes are in some areas of this soil, mainly in the limestone plain sections of the western part of the county. Most of these boulders are siliceous. The sinkholes and the boulders are shown by appropriate map symbols. Total included areas are about 15 percent.

In this Arredondo soil, the available water capacity is low in the sandy surface and subsurface layers and low to medium in the loamy subsoil. Permeability is rapid in the surface and subsurface layers and moderately slow to moderate in the loamy subsoil. Natural fertility is low in the sandy surface and subsurface layers and medium in the finer textured subsoil. Organic matter content is low. The water table in this soil is at a depth of more than 72 inches. Surface runoff is slow.

Arredondo fine sand, 5 to 8 percent slopes - This sloping, well-drained soil is in small areas on sharp breaking slopes and in relatively large areas on long slopes of the uplands. The areas vary from about 5 to 40 acres.

Typically, the surface layer is dark grayish brown fine sand about 5 inches thick. The subsurface layer is yellowish brown fine sand to a depth of 65 inches. The yellowish brown subsoil extends to a depth of 88 inches or more. The upper 6 inches is sandy loam, and the lower 17 inches is sandy clay loam.

Included with this soil in mapping are small areas of Gainesville, Kendrick, and Millhopper soils. In a few mapped areas are small depressions where the soils have a black surface layer 8 to 24 inches thick over a yellowish brown to grayish brown sandy or loamy subsurface layer and subsoil. A few areas include Arredondo soils that have slopes of 0 to 5 percent or 8 to 12 percent. Siliceous limestone boulders and sinkholes are in some places and are shown by the appropriate map symbol. Total included areas are about 20 percent.

In this Arredondo soil, the available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the sandy surface and subsurface layers and moderately slow in the loamy subsoil. Natural fertility is low in the sandy upper 65 inches and medium in the finer textured layers below. Organic matter content is low. The water table is more than 72 inches below the surface. Surface runoff is slow.

Norfolk loamy fine sand, 5 to 8 percent slopes – This sloping, well-drained soil is in irregularly shaped areas on small, sharp breaking slopes and in irregularly shaped and elongated areas on the long hillsides of the rolling uplands. These areas range from 8 to 35 acres.

Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsurface layer is light yellowish brown loamy sand about 5 inches thick. The subsoil extends to a depth of 75 inches or more. The upper 35 inches is yellowish brown sandy clay loam; the next 16 inches is yellowish brown, mottled sandy clay loam; and the lower 13 inches is mottled, yellowish brown and gray sandy clay.

Included with this soil in mapping are small areas of Kendrick, Lochloosa, and Bivans soils. Also included are small areas of soils that have a yellowish brown, clayey subsoil at a depth of less than 20 inches and have gray mottles within 30 inches of the surface. In a few small areas, the subsoil extends to a depth of less than 60 inches. Also included are small areas of soils that are similar to Norfolk soils but have more than 5 percent, by volume, nodules and fragments of ironstone. Limestone boulders and sinkholes are included in some areas and are shown by appropriate symbols. Total included areas are about 20 percent.

This Norfolk soil has a water table that is at a depth of 48 to 72 inches for 1 to 2 months during most years. Wetness is caused by hillside seepage. Surface runoff is rapid. The available moisture capacity is low in the sandy surface and subsurface layers and medium to high in the loamy and clayey subsoil. Permeability is rapid in the surface and subsurface layers. It is moderately slow in the upper part of the subsoil and very slow to slow in the lower part. Natural fertility is low in the sandy surface and subsurface layers and medium in the underlying subsoil. Organic matter content is low to moderately low.

The majority of the soils encountered in the test borings are more consistent with the Norfolk soil series rather than the Arredondo soil series.

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, hydraulic conductivity, and LBR. Samples selected for laboratory testing were collected at depths ranging from near ground 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 of silty sand, silty sand with clay, clayey sand, very clayey sand, sandy clay, clay with sand, and clay. The tested silty and clayey sand soils (SM, SC, SM-SC) contain approximately 14 to 26 percent soil fines passing the No. 200 sieve with natural moisture contents of about 10 to 17 percent. The tested very clayey sand (SC) contains approximately 34 to 38 percent soil fines passing the No. 200 sieve with natural moisture contents of about 19 to 22 percent.

The tested sandy clay (CL/CH, CH) contains approximately 51 to 62 percent soil fines passing the No. 200 sieve with natural moisture contents of about 25 to 33 percent. The Atterberg Limits tests indicate the tested sandy clay has Liquid Limit (LL) values of 81 to 82, Plastic Limit (PL) values of 18 to 26, and Plasticity Index (PI) values of 33 to 56. These values correspond to materials with marginal (50 > LL > 60 and 25 > PI > 35) to high (LL > 60 and PI > 35) potential for expansive behavior[2].

The tested clay with sand and clay (CH) soils contain approximately 78 to 97 percent soil fines passing the No. 200 sieve. The Atterberg Limits tests indicate these soils have LL values of 101 to 132, PL values of 23 to 29, and PI values of 78 to 103. These values correspond to materials with high (LL > 60 and PI > 35) potential for expansive behavior.

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

The constant head hydraulic conductivity test results indicate the silty sand (SM) soils have hydraulic conductivity values ranging between 0.2 and 2.4 feet per day. Tests were not conducted on the deeper clay-rich soils due to the limitations of the test method on soils having moderate to high fines content, but these soils are expected to be confining.

The LBR test indicates the tested surficial silty sand with cemented sand boulders (SM) has a maximum dry density of 116.9 pcf, an optimum moisture content of 11.5 percent, and a LBR value of 121.

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 and site grading designs 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.

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 not encountered in the borings at the time of our exploration. A seasonal high groundwater table is not expected to be present within the explored depths in this portion of Alachua County. However, you should expect groundwater to temporarily perch on top of the clay-rich soils after periods of intense or sustained seasonal rainfall. The estimated depths of the perched groundwater are shown on the individual boring logs.

4.3 Building Foundations

The soil borings near the proposed building footprint indicate the soils at the site are relatively consistent. Overall, the borings generally encountered 5 to 8 feet of silty and clayey sand with various amounts of cemented sand boulders and trace limestone. These surficial soils are generally underlain by clayey to very clayey sand with lenses of clay and sandy clay to clay to the explored depths of 20 feet bls. A more continuous and shallow stratum of clay-rich soils was encountered in the southernmost SPT borings. This clay was encountered at a depth of 2.5 feet below land surface at the southeast corner of the eastern building (SPT boring B-8).

The exception to the above described soil profile was encountered in SPT boring B-4. This boring encountered silty sand with an abundant amount of wood debris to a depth of 8.5 feet bls underlain by clayey sand with lenses of clay and clay soils. Weight-of-hammer events were encountered in the near-surface soils from a depth of about 1.5 to 8.5 feet bls. The presence of the wood debris and weight-of-hammer events suggest this boring was performed in a relic tree stump. However, we recommend this area be explored with test pits during the site preparation phase of construction to determine whether undercutting organic-rich soils in this area will be required. Our recommendations for additional explorations are further discussed in Section 4.4.

The laboratory tests indicate the majority of the tested clay-rich soils have high potential for expansive behavior, and some of the near-surface clay-rich soils have a marginal potential for expansive behavior. These soils were encountered within a depth range expected to be subject to seasonal variations in moisture that can result in differential foundation movement. However, it is our understanding the majority of the building areas will be filled so that the finished floor elevations will be set about 1 to 2 feet higher than the existing ground surface elevations along the east sides of the proposed buildings. Considering at least 6 feet of separation is likely to be present between the foundation bottoms and the top of the expansive soils, it is our opinion that alternate foundation designs and mass undercutting operations are not warranted for this project. Some undercutting of expansive clay is expected at the southeastern portion of the eastern building in the vicinity of boring B-8 where clay was encountered at shallow depths. Our undercutting recommendations are further discussed in Section 4.7.4.

However, the provided information is only preliminary. Should site grading plans be changed such that foundation bottoms start to approach within 6 feet of the expansive clay-rich soils, we recommend the Geotechnical Engineer be retained so that the site preparation techniques can be altered and recommendations to undercut and replace the expansive soils be prepared. Additionally, during the site preparation phase of construction, expansive clay-rich soils that are identified near-surface should be undercut and replaced. These soils should be undercut to a minimum depth of 6 feet beneath the foundation bottom elevation. The undercut trenches should be backfilled with on-site soils containing between 15 and 30 percent soil fines passing the No. 200 sieve. The intent of filling the undercut trenches with a silty or clayey material is so a “bowl” of sandy soils is not created that could lead to expansion of the surrounding clay-rich soils. The backfill material should be compacted to a minimum of 98 percent of the Standard Proctor maximum dry density (ASTM D698).

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. The upper 12 inches of the bearing surface should be compacted to 95 percent of the Modified Proctor maximum dry density (ASTM D1557). If clayey or silty sand material (SM, SC) is present at the bearing surface, these soils should be compacted to 98 percent of the Standard Proctor maximum dry density (ASTM D698).

Considering the site will mostly be filled with sandy 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 Additional Explorations

SPT boring B-4 was apparently performed in a relic tree stump. The boring encountered wood debris and weight-of-hammer conditions in the upper 8.5 feet bls. These conditions are expected to be isolated to this location. However, we recommend additional explorations be performed on this portion of the site. The additional explorations should consist of a test pit program conducted during the site preparation phase of construction. The test pits should be performed before the site is filled to the design grades. SPT boring B-4 was performed at the following GPS Coordinate: Latitude - 29° 46.537' N & Longitude - 82° 27.521' W. We recommend the test pit program begin at this location and extend outward from this location until the organic debris is not encountered.

We recommend the test pit program be conducted under the observation of the Geotechnical Engineer or his/her representative. The Geotechnical Engineer should be consulted to determine whether any undercutting of organic debris is required.

4.5 Retaining Walls

Stem walls and retaining walls will likely be constructed as part of this project. We recommend the following soil properties be used in the stem wall and retaining wall designs:

Clean Sand Fill

Unit Weight (γ) = 100 pcf
Submerged Unit Weight (γ_{sub}) = 50 pcf
Internal Friction Angle (ϕ) = 30°
Coefficient of Active Earth Pressure (K_a) = 0.333
Coefficient of Passive Earth Pressure (K_p) = 3.0
Coefficient of At-Rest Earth Pressure (K_o) = 0.5

Native Silty and Clayey Sand

Unit Weight (γ) = 115 pcf
Submerged Unit Weight (γ_{sub}) = 65 pcf
Internal Friction Angle (ϕ) = 34°
Coefficient of Active Earth Pressure (K_a) = 0.283
Coefficient of Passive Earth Pressure (K_p) = 3.537
Coefficient of At-Rest Earth Pressure (K_o) = 0.441

A friction coefficient of 0.5 can be used for calculating sliding resistance of the retaining wall foundation base.

4.6 Pavements

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.

Expansive soils are not expected to be located within 24 inches of the base course unless the site is “cut” to establish final grades. We have not been provided a final grading plan and therefore we cannot assist in determining whether undercutting will be required. However, if site grades are set such that expansive soils will be within 24 inches of the base course, we recommend these soils be undercut and replaced with non-expansive soils. In areas where undercutting is necessary, underdrains should be used to evacuate perched groundwater that will likely develop as a result of the undercutting.

4.6.1 Stabilized Subgrade

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 on-site material, 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. Our testing of the on-site near surface soils suggests the silty sand with cemented sand has an LBR value of 121. 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).

4.6.2 Base Course

The base course should consist of crushed limerock having a LBR of at least 100. Limerock should be obtained from a FDOT approved source, and should meet FDOT gradation requirements. The base course thickness should be a minimum of 6 inches in automobile parking areas and 8 inches in driveways. The base course should be compacted to at least 98 percent of the Modified Proctor maximum dry density (ASTM D1557).

4.6.3 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 at least 1.5 inches. For driveways, the thickness should be at least 2.0 inches and consist of an SP-12.5 mix. The asphalt should be compacted to at least 95 percent of the mix design density.

4.7 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.

4.7.1 Stripping

Strip the construction limits and 10 feet beyond the perimeter of all grass, roots, topsoil, pavement, 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.

4.7.2 Dewatering

Temporary dewatering should not be necessary at this site. However, 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.

4.7.3 Proof-Rolling

Excavate the site to the design grades. 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.

4.7.4 Clay Undercutting and Replacement

Clay-rich soils having a high potential for expansive behavior were encountered at shallow depths at boring location B-8 at the southeast corner of the eastern building. This portion of the building will be constructed near the existing grades, and it is anticipated the foundation elevation will be on or just above the clay soils. We recommend a minimum 6 feet separation between the foundation bottoms and the expansive soils. To accomplish this, we recommend the foundation lines be undercut to remove the expansive clay and replaced with a low permeability, non-expansive material.

We recommend the undercut be a minimum of 6 feet wide or wide enough to accommodate heavy compaction equipment. The undercut should be excavated to a depth that provides a minimum 6 separation between the expansive clays and the foundation bottoms.

We recommend the undercut be backfilled with a low permeability fill, such as clayey sand or crushed limerock base material. Clayey sand material should have a minimum of 15 percent passing the No. 200 sieve, and a maximum of 30 percent passing the No. 200 sieve. On-site clayey sands excavated from other portions of the site should be suitable for this purpose. Clayey sand backfill should be placed in maximum 6-inch loose lifts that are compacted to 98 percent of the Standard Proctor maximum dry density (ASTM D698). Crushed limerock base course material should be compacted to a minimum of 98 percent of the Modified Proctor maximum dry density (ASTM D1557). We recommend the undercutting begin at the southeast corner of the eastern building and extend to the north and west along the foundation lines until expansive clays within a depth of 6 feet below the foundation bottom are removed.

It is possible that undercutting will be necessary in other areas of the site. Exploratory test pits or additional auger borings should be performed in building areas where the finished grades are near the existing grades to determine if other areas of undercutting are necessary.

4.7.5 Proof Compaction

Silty and clayey sand soils are expected to be encountered at the ground surface. These materials 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 silty and clayey sand, the excavation should be performed in a manner that reduces soil disturbance. Silty and 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).

4.7.6 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 imported 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. On-site silty and clayey sand soils that will be used as structural fill should be placed in maximum 12-inch loose lifts and compacted to at least 98 percent of the Standard Proctor maximum dry density (ASTM D698).

When placing fill on the site, we recommend the natural slope of the native soils remain so that the subsurface drainage is undisturbed. It is imperative that perched groundwater be able to discharge down the slope toward the west so that it does not become a potential source of hydration for the expansive soils.

4.7.7 Testing

Perform compaction testing in the subgrade and fill. One test should be performed every 50 linear feet of continuous footing and every other column footing, per foot depth of fill or native material. Perform a compaction test 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 1 foot, at the frequencies stated above.

4.8 Stormwater Management

The soil conditions at the stormwater management facilities are somewhat consistent. The borings performed beneath the potential on-site stormwater basin encountered 15 feet of silty sand. The borings performed within the existing stormwater basin encountered 8 to 13.5 feet of silty sand, clayey sand, and silty clayey sand underlain by clayey to very clayey sand and sandy clay to clay to the explored depths. Auger boring P-5 encountered limestone from 16 feet to the explored depth of 30 feet bls.

The water table was not encountered in the auger borings at the time of our exploration. We anticipate the seasonal high groundwater table to be perched on the clay-rich soils at varying depths. The estimated perched seasonal high water table depths are shown on the individual boring logs.

The laboratory permeability tests indicate the tested silty sand (SM) soils have hydraulic conductivity values ranging between 0.2 and 2.4 feet per day. The underlying clay-rich soils are expected to be confining.

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.

Existing Stormwater Management Facility

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to 13 feet beneath existing basin bottom.
2. Unsaturated vertical infiltration rate of 1 foot per day.
3. Horizontal hydraulic conductivity equal to 1 foot per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 13 feet beneath existing basin bottom.

Potential On-Site Stormwater Management Facility

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to 15 feet beneath existing grade.
2. Unsaturated vertical infiltration rate of 1 foot per day.
3. Horizontal hydraulic conductivity equal to 1 foot per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 15 feet beneath existing grade.

Silty and clayey soils are expected to be present at the basin bottoms. Therefore, we recommend the basin bottoms be undercut a minimum of 2 feet and backfilled with the imported clean sand having a maximum of 10 percent soil fines passing the No. 200 sieve. 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 deeper deposits of sand. This sand blanket will also reduce the potential for 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 majority of the soils that will be excavated from this site are expected to be the surficial silty and clayey sand (SM, SC) soils. These soils are considered suitable for use as structural fill so long as they do not contain any deleterious materials. However, these soils are a less desirable source of fill because they are more moisture sensitive and more difficult to work and compact. If you wish to use the on-site silty and clayey sand soils we recommend they contain less than 30 percent soil fines (Passing the No. 200 sieve) with a Plasticity Index less than 10 and Liquid Limit less than 40. Mixing of soils with higher fines content with those with less fines content may increase their overall workability.

The deeper very clayey sand (SC) and sandy clay to clay (CH) soils containing greater than 30 percent fines are not considered a suitable source of structural fill.

4.10 Surface Water Control and Landscaping

Roof gutters should be considered to divert runoff away from the building. 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. The gutter downspouts should discharge a minimum of 10 feet from the structure. 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 existing and planted 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. Consideration should also be given to using landscaping that has a low water demand, so that excessive irrigation is not conducted around the structures.

If excavations for underground utilities encounter the clay-rich soils, the excavations should be made such that they do not trap water (i.e. “swimming pool” or “bowl” effect). Sloping the excavations, installing underdrains, or extending the excavation to a more pervious area can achieve this. Allowing surface water to become trapped within utility trenches or other excavations (including footings) serves as a potential water source for the clay, which can result in shrink swell of these soils. Furthermore, during construction, surface water within the building areas must be controlled such that the water does not become trapped and represent a source of water for the underlying clay-rich soils. Mismanagement of the surface water during construction within the building footprint could result in subsequent post-construction slab movement.

The above recommendations are intended to maintain relatively consistent moisture contents within the clay-rich expansive soils encountered by the borings. The importance of proper surface water control and landscaping placement cannot be overemphasized in accomplishing this objective.

5.0 FIELD DATA

5.1 Auger Boring Logs

GSE Engineering & Consulting, Inc.
5590 SW 64 th Street
Gainesville, Fl 32608
Telephone: 352-377-3233

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 7/21/2015 **BORING NUMBER A-1**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
AT TIME OF DRILLING NE CHECKED BY CAD
ESTIMATED SEASONAL HIGH > 5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0		AU 1	(SM) Brown silty SAND
1.0		AU 2	(SC) Brown and orange clayey SAND with cemented sand
2.0		AU 3	(SC) Brown and orange clayey SAND with lenses of clay and trace limestone
5.0			Bottom of borehole at 5.0 feet.

DATE PERFORMED 7/21/2015 **BORING NUMBER A-2**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
AT TIME OF DRILLING NE CHECKED BY CAD
ESTIMATED SEASONAL HIGH > 5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0		AU 1	(SM) Brown silty SAND with cemented sand
5.0			Bottom of borehole at 5.0 feet.

(Continued Next Page)

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5590 SW 64 th Street
Gainesville, Fl 32608
Telephone: 352-377-3233

CLIENT Walker Architects, Inc. **PROJECT NAME** Alachua Operations Center
PROJECT NUMBER 12489 **PROJECT LOCATION** Alachua, Alachua County, Florida

BORING NUMBER A-3

DATE PERFORMED 7/21/2015
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
AT TIME OF DRILLING NE
ESTIMATED SEASONAL HIGH > 5 ft
NOTES
LOGGED BY WDI
CHECKED BY CAD

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	
0.0		AU 1	(SM) Dark brown silty SAND	1.0
		AU 2	(SM) Brown silty SAND	2.5
2.5		AU 3	(SM) Brown and orange silty SAND with cemented sand	5.0
5.0			Bottom of borehole at 5.0 feet.	

BORING NUMBER A-4

DATE PERFORMED 7/21/2015
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
AT TIME OF DRILLING NE
ESTIMATED SEASONAL HIGH > 5 ft
NOTES
LOGGED BY WDI
CHECKED BY CAD

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	
0.0		AU 1	(SM) Dark brown silty SAND	1.0
		AU 2	(SM) Brown silty SAND with cemented sand	5.0
2.5				
5.0			Bottom of borehole at 5.0 feet.	

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5590 SW 64 th Street
Gainesville, Fl 32608
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CLIENT Walker Architects, Inc. **PROJECT NAME** Alachua Operations Center

PROJECT NUMBER 12489 **PROJECT LOCATION** Alachua, Alachua County, Florida

DATE PERFORMED 7/21/2015 **BORING NUMBER A-5**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
AT TIME OF DRILLING NE CHECKED BY CAD
ESTIMATED SEASONAL HIGH > 5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0		AU 1	(SM) Brown silty SAND with cemented sand
2.5			
5.0			5.0
			Bottom of borehole at 5.0 feet.

DATE PERFORMED 7/21/2015 **BORING NUMBER A-6**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
AT TIME OF DRILLING NE CHECKED BY CAD
ESTIMATED SEASONAL HIGH 2.5 ft, perched
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0		AU 1	(SM) Dark brown silty SAND
			1.0
		AU 2	(SM) Brown and orange silty SAND with cemented sand
2.5			2.5
		AU 3	(SC) Brown and gray clayey SAND with cemented sand and lenses of clay
			3.0
		AU 4	(SC) Pale gray very clayey SAND
5.0			5.0
			Bottom of borehole at 5.0 feet.

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Gainesville, Fl 32608
Telephone: 352-377-3233

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 7/21/2015 **BORING NUMBER A-7**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
AT TIME OF DRILLING NE
CHECKED BY CAD
ESTIMATED SEASONAL HIGH > 5 ft
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0		AU 1	(SM) Brown silty SAND with cemented sand
2.0		AU 2	(SC) Brown and orange clayey SAND with cemented sand and trace limestone
2.5			
5.0			5.0
			Bottom of borehole at 5.0 feet.

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GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

CLIENT Walker Architects, Inc. **PROJECT NAME** Alachua Operations Center

PROJECT NUMBER 12489 **PROJECT LOCATION** Alachua, Alachua County, Florida

BORING NUMBER P-1

DATE PERFORMED 7/21/2015

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

AT TIME OF DRILLING NE CHECKED BY CAD

ESTIMATED SEASONAL HIGH > 15 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0			(SM) Dark brown silty SAND
		AU 1	
		AU 2	% PASS -200 = 19 MC = 11
		AU 3 PS	% PASS -200 = 20 MC = 12 k_{hyd} = 2.4 ft/day
15			15.0
			Bottom of borehole at 15.0 feet.

BORING NUMBER P-2

DATE PERFORMED 7/21/2015

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

AT TIME OF DRILLING NE CHECKED BY CAD

ESTIMATED SEASONAL HIGH > 15 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0			(SM) Dark brown silty SAND
		AU 1	
		AU 2	
			12.0
			(SM) Brown silty SAND
		AU 3 PS	% PASS -200 = 14 MC = 11 k_{hyd} = 0.3 ft/day
15			15.0
			Bottom of borehole at 15.0 feet.

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5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida

BORING NUMBER P-3

DATE PERFORMED 7/21/2015
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
CHECKED BY CAD
AT TIME OF DRILLING NE
ESTIMATED SEASONAL HIGH 16.5 ft, perched
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0 – 13.5	SM	AU 1; AU 2 PS	(SM) Dark brown silty SAND *% PASS -200 = 20* *MC = 10* *k_{hyd} = 1.2 ft/day*
13.5 – 17.5	SC	AU 3	(SC) Brown very clayey SAND *% PASS -200 = 38* *MC = 19*
17.5 – 30.0	CL/CH	AU 4; AU 5; AU 6; AU 7	(CL/CH) Pale gray CLAY with trace limestone

Bottom of borehole at 30.0 feet.

BORING NUMBER P-4

DATE PERFORMED 7/21/2015
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
CHECKED BY CAD
AT TIME OF DRILLING NE
ESTIMATED SEASONAL HIGH 8.0 ft, perched
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0 – 5.0	SM	AU 1; AU 2	(SM) Dark brown silty SAND
5.0 – 8.0	SM	AU 3 PS	(SM) Brown silty SAND with trace limestone *% PASS -200 = 23* *MC = 13* *k_{hyd} = 0.2 ft/day*
8.0 – 10.0	SC	AU 4	(SC) Brown and gray very clayey SAND with trace limestone
10.0 – 13.0	CL/CH	AU 5	(CL/CH) Gray and orange sandy CLAY
13.0 – 15.0	CL/CH	AU 6	(CL/CH) Pale gray CLAY

Bottom of borehole at 15.0 feet.

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5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 7/21/2015 **BORING NUMBER P-5**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS: LOGGED BY WDI
AT TIME OF DRILLING NE CHECKED BY CAD
ESTIMATED SEASONAL HIGH 13.0 ft, perched
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	
0		AU 1	(SC) Pale gray clayey SAND	3.0
		AU 2	(CL/CH) Gray CLAY with sand	4.5
5		AU 3	(SM-SC) Pale gray silty SAND with clay *% PASS -200 = 20* *MC = 12*	
		AU PS		
10		AU 4	*% PASS -200 = 18* *MC = 12*	13.5
15		AU 5	(SC) Pale gray very clayey SAND with lenses of green clay	16.0
20		AU 6	LIMESTONE	
25		AU 7		
30		AU 8		30.0

Bottom of borehole at 30.0 feet.

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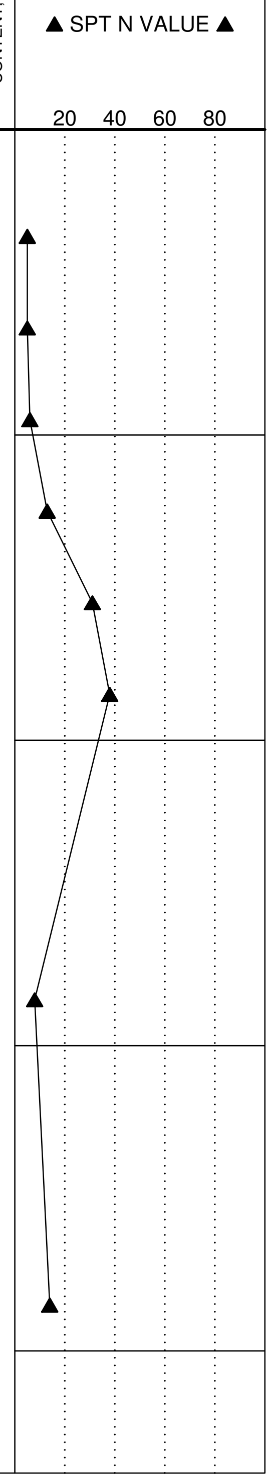
5.2 Standard Penetration Test Soil Boring Logs

BORING NUMBER B-1

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

CLIENT	Walker Architects, Inc.	**PROJECT NAME**	Alachua Operations Center
PROJECT NUMBER	12489	**PROJECT LOCATION**	Alachua, Alachua County, Florida
DATE STARTED 7/22/15	**COMPLETED** 7/22/15	**GROUND ELEVATION**	**HOLE SIZE**
DRILLING CONTRACTOR	Whitaker Drilling, Inc.	**GROUND WATER LEVELS:**	
DRILLING METHOD	SPT Flight Auger	▼ **AT TIME OF DRILLING**	NE
LOGGED BY WDI	**CHECKED BY** CAD	▽ **ESTIMATED SEASONAL HIGH**	5.0 ft, perched
NOTES			

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SM) Loose dark brown silty SAND with cemented sand	2.5	SPT 1	2-2-3 (5)					
	(SC) Loose gray clayey SAND with trace limestone	4	SPT 2	3-2-3 (5)					
5	(SM-SC) Loose pale gray silty clayey SAND ▽	6	SPT 3	2-2-4 (6)					
	(CL/CH) Stiff gray sandy CLAY	7	SPT 4	3-5-8 (13)	51	18	33	51	28
	(SC) Dense pale gray and orange clayey SAND		SPT 5	10-18-13 (31)					
10		11	SPT 6	20-22-16 (38)				26	17
15	(CH) Firm to stiff gray CLAY		SPT 7	3-3-5 (8)					
20		20	SPT 8	5-6-8 (14)					
	Bottom of borehole at 20.0 feet.								



GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-2

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
▼ **AT TIME OF DRILLING** NE
LOGGED BY WDI **CHECKED BY** CAD
▽ **ESTIMATED SEASONAL HIGH** 5.0 ft, perched
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		(SM) Loose brown silty SAND with cemented sand		SPT 1	1-2-2 (4)						4
			4	SPT 2	2-3-3 (6)						6
5		(SM-SC) Loose gray silty clayey SAND ▽	5.5	SPT 3	2-4-4 (8)						8
		(CL/CH) Stiff pale gray sandy CLAY	7	SPT 4	5-5-6 (11)						11
		(SC) Medium dense pale gray clayey SAND		SPT 5	8-9-12 (21)						21
10			10	SPT 6	13-14-13 (27)						27
15		(CH) Stiff gray CLAY		SPT 7	3-4-5 (9)						9
20			20	SPT 8	7-7-7 (14)						14

Bottom of borehole at 20.0 feet.

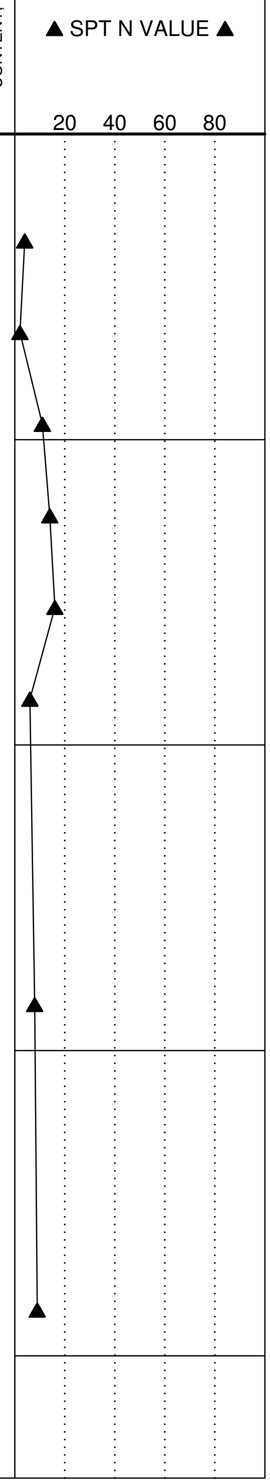
GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-3

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 4.5 ft, perched
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SC) Loose brown clayey SAND with cemented sand	3	SPT 1	2-2-2 (4)					
	(SM-SC) Very loose brown and gray silty clayey SAND	4.5	SPT 2	2-1-1 (2)					
5	(SC) Medium dense pale gray clayey SAND with lenses of clay and cemented sand	5	SPT 3	4-4-7 (11)					
	(CL/CH) Stiff pale gray sandy CLAY	7	SPT 4	7-7-7 (14)					
	(SC) Medium dense pale gray very clayey SAND	9	SPT 5	9-8-8 (16)	40	19	21	34	22
10	(CH) Firm to stiff green and orange CLAY		SPT 6	2-3-3 (6)					
15			SPT 7	2-3-5 (8)					
20		20	SPT 8	2-3-6 (9)					

Bottom of borehole at 20.0 feet.



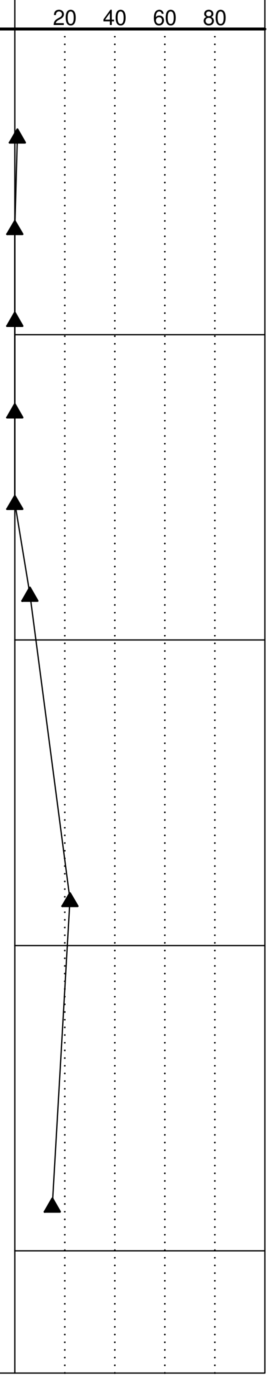
GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-4

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION ______ **HOLE SIZE** ______
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 7.0 ft, perched
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SM/PT) Very loose dark gray silty SAND with abundant wood debris								
	Weight-of-hammer from 1.5 to 2 feet bls		SPT 1	1-0-1 (1)					
	Weight-of-hammer from 2.5 to 8.5 feet bls		SPT 2	0-0-0 (0)					
5			SPT 3	0-0-0 (0)					
			SPT 4	0-0-0 (0)					
			SPT 5	0-0-0 (0)					
	(CH) Firm gray and orange CLAY	8.5	SPT 6	4-3-3 (6)					
10									
	(SC) Medium dense pale gray clayey SAND with lenses of gray clay	12							
15			SPT 7	2-8-14 (22)					
	(CH) Stiff green CLAY	19	SPT 8	3-7-8 (15)					
20	Bottom of borehole at 20.0 feet.	20							

▲ SPT N VALUE ▲



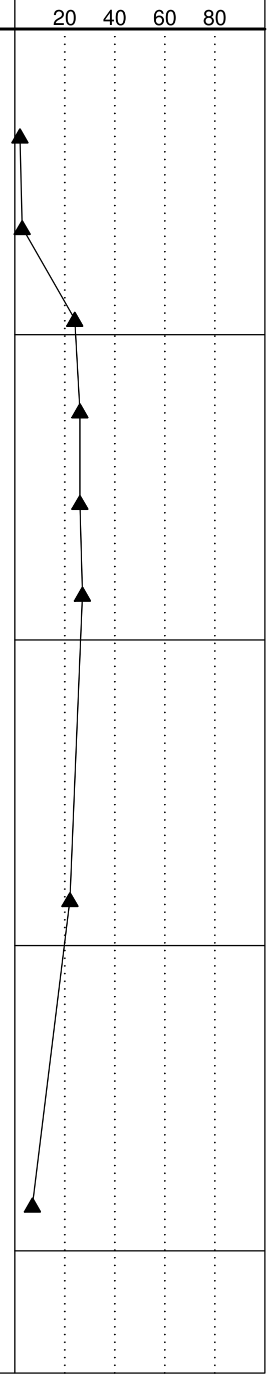
GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-5

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 5.0 ft, perched
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0		(SM) Very loose brown silty SAND								
				SPT 1	1-1-1 (2)					
				SPT 2	1-1-2 (3)					
5		(SM) Very loose to medium dense brown silty SAND with cemented sand	4.5	SPT 3	4-11-13 (24)					
		(CH) Very stiff gray sandy CLAY with cemented sand	6	SPT 4	11-11-15 (26)					
				SPT 5	11-13-13 (26)	82	26	56	57	33
10		(SC) Medium dense pale gray clayey SAND	8.5	SPT 6	14-14-13 (27)					
15				SPT 7	7-10-12 (22)					
		(CH) Firm gray and orange sandy CLAY	17							
20			20	SPT 8	2-3-4 (7)					
		Bottom of borehole at 20.0 feet.								

▲ SPT N VALUE ▲



SPT BORINGS - GINT STD US.GDT - 7/27/15 16:03 - P:\GENERAL\PROJECTS\12489 ALACHUA OPERATIONS CENTER\12489 BORINGS\12489 BORINGS.GPJ

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

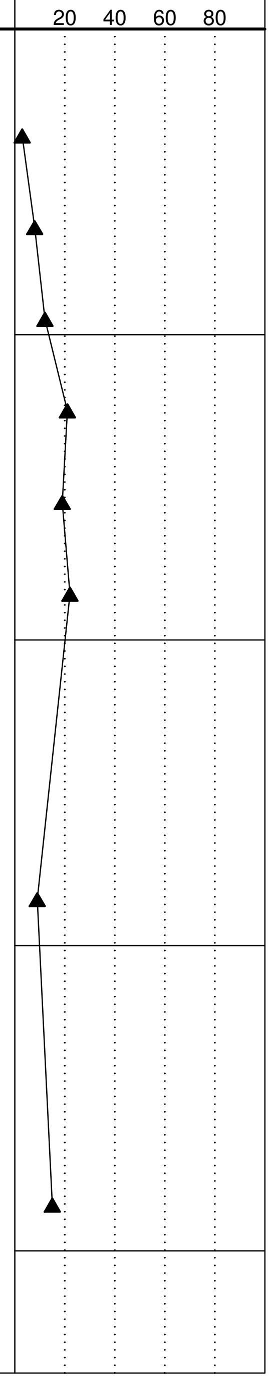
BORING NUMBER B-6

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 5.0 ft, perched
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SM) Very loose browk silty SAND	2.5	SPT 1	1-1-2 (3)					
	(SC) Loose to medium dense gray clayey SAND with cemented sand	6	SPT 2	2-3-5 (8)					
5			SPT 3	5-5-7 (12)					
	(CH) Very stiff green and orange CLAY with cemented sand	7	SPT 4	12-11-10 (21)					
	(CH) Stiff to very stiff green and orange CLAY		SPT 5	11-11-8 (19)	132	29	103	97	53
10			SPT 6	13-12-10 (22)					
15			SPT 7	3-4-5 (9)					
20		20	SPT 8	4-5-10 (15)					

Bottom of borehole at 20.0 feet.

▲ SPT N VALUE ▲



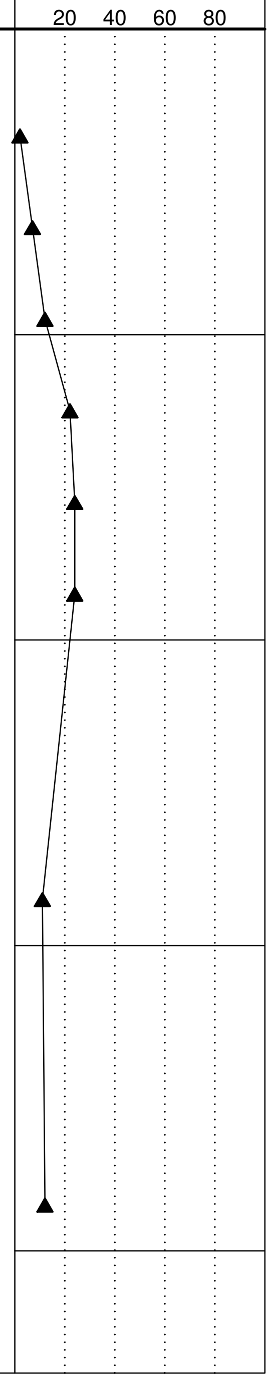
GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-7

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 5.0 ft, perched
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SM) Very loose brown silty SAND		SPT 1	1-1-1 (2)					
	(SC) Loose to medium dense gray clayey SAND with cemented sand	2.5	SPT 2	3-3-4 (7)					
5			SPT 3	4-5-7 (12)					
	(CH) Very stiff to stiff green and orange CLAY with sand	6	SPT 4	9-11-11 (22)	101	23	78	78	35
			SPT 5	11-12-12 (24)					
10			SPT 6	12-13-11 (24)					
15			SPT 7	3-4-7 (11)					
20		20	SPT 8	5-6-6 (12)					
	Bottom of borehole at 20.0 feet.								

▲ SPT N VALUE ▲

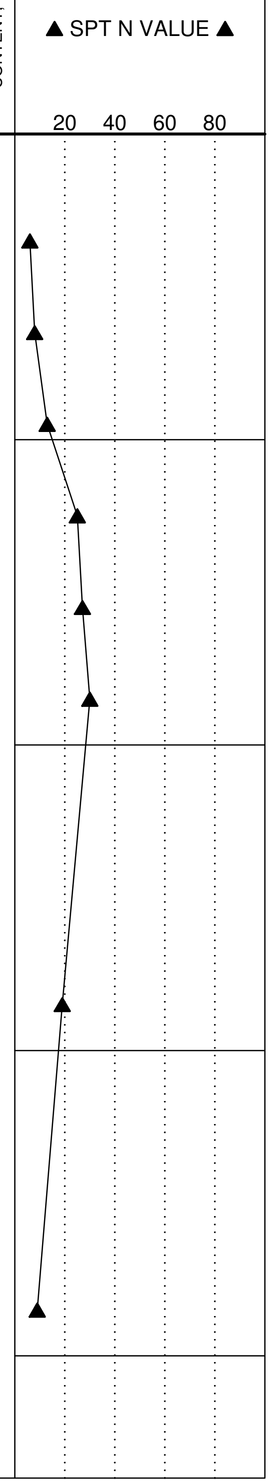


BORING NUMBER B-8

GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 4.5 ft, perched
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SM) Loose brown silty SAND with cemented sand								
		2.5	SPT 1	2-3-3 (6)					
	(CL/CH) Firm brown and orange sandy CLAY		SPT 2	3-4-4 (8)				62	25
		4.5							
5	(SC) Medium dense pale gray clayey SAND with cemented sand		SPT 3	4-6-7 (13)					
		6							
	(SC) Medium dense light brown and pale gray clayey SAND with lenses of clay	7	SPT 4	10-12-13 (25)					
	(CH) Very stiff pale gray to green sandy CLAY		SPT 5	15-13-14 (27)					
10			SPT 6	14-15-15 (30)					
15			SPT 7	12-10-9 (19)					
		16							
	(CH) Stiff green and orange CLAY								
20		20	SPT 8	3-4-5 (9)					
	Bottom of borehole at 20.0 feet.								



5.3 Laboratory Results

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF LABORATORY TEST RESULTS

Project Number: 12489

Project Name: Alachua Operations Center

Boring Number	Sample Depth (ft)	Soil Description	Natural Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Percent Passing No. 200 Sieve	Hydraulic Conductivity (ft/day)	Unified Soil Classification
P-1	7 - 7.5	Dark brown silty SAND	11				19		SM
P-1	13 - 15	Dark brown silty SAND	12				20	2.4	SM
P-2	13 - 15	Brown silty SAND	11				14	0.3	SM
P-3	8 - 10	Dark brown silty SAND	10				20	1.2	SM
P-3	13.5 - 14	Brown very clayey SAND	19				38		SC
P-4	5 - 7	Brown silty SAND with trace limestone	13				23	0.2	SM
P-5	4.5 - 5	Pale gray silty SAND with clay	12				20		SM-SC
P-5	10 - 10.5	Pale gray silty SAND with clay	12				18		SM-SC
B-1	6 - 7	Gray sandy CLAY	28	51	18	33	51		CL/CH
B-1	8.5 - 10	Pale gray and orange clayey SAND	17				26		SC
B-3	7 - 8.5	Pale gray very clayey SAND	22	40	19	21	34		SC

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF LABORATORY TEST RESULTS

Project Number: 12489

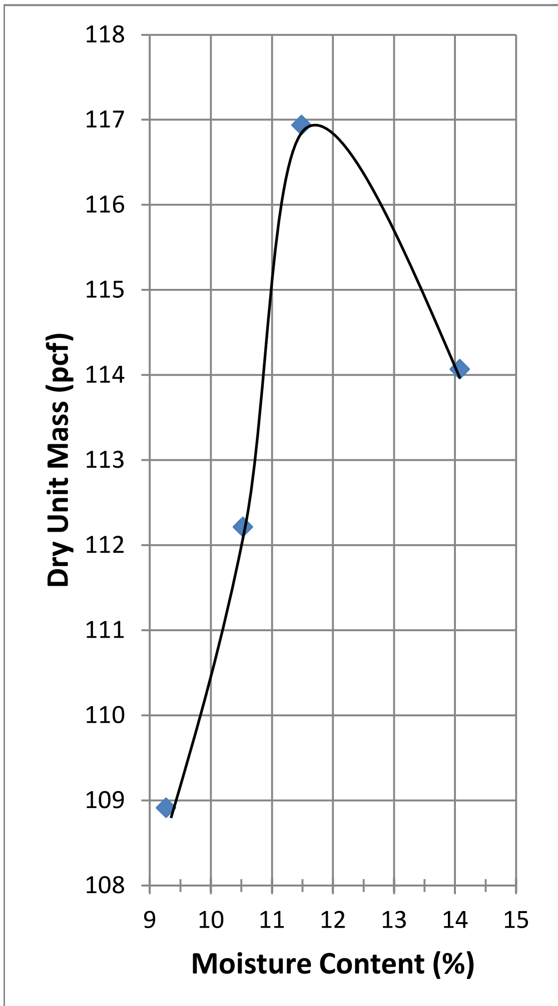
Project Name: Alachua Operations Center

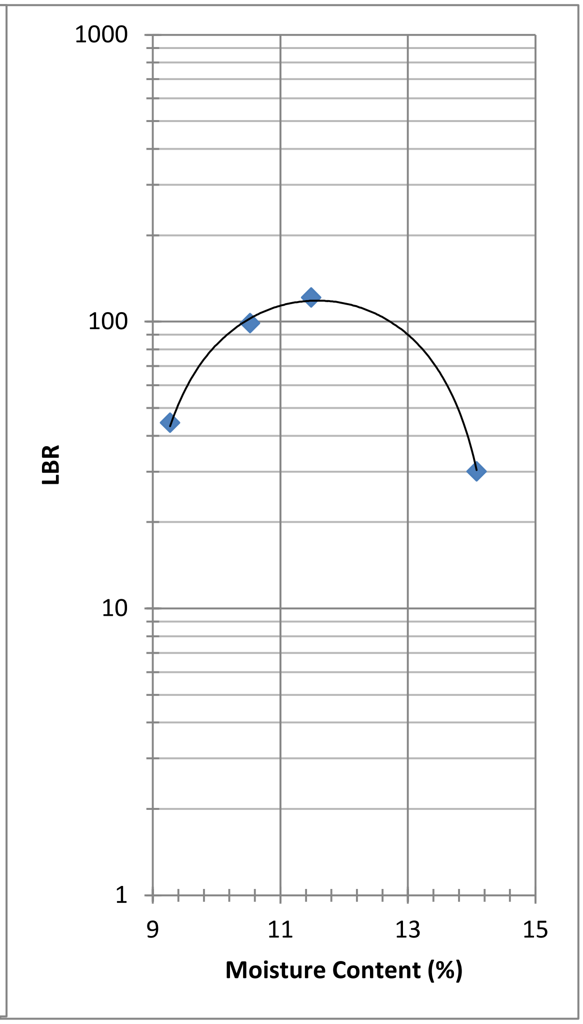
Boring Number	Sample Depth (ft)	Soil Description	Natural Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Percent Passing No. 200 Sieve	Hydraulic Conductivity (ft/day)	Unified Soil Classification
B-5	7 - 8.5	Gray sandy CLAY with cemented sand	33	82	26	56	57		CH
B-6	7 - 8.5	Green and orange CLAY	53	132	29	103	97		CH
B-7	6 - 7	Green and orange CLAY with sand	35	101	23	78	78		CH
B-8	2.5 - 4	Brown and orange sandy CLAY	25				62		CL/CH

GSE Engineering & Consulting, Inc.

5590 SW 64th Street, Suite B
Gainesville, FL 32608
Phone: (352) 377 - 3233
Fax: (352) 377 - 0335

Project Name:	Alachua Operations Center
GSE Project No.	12489
Project Location:	Alachua County, Florida
Contractor:	
Date:	7/27/2015





PROCTOR DATA

Modified Proctor (ASTM D-1557)	**X**
Standard Proctor (ASTM D-698)	
Maximum Dry Density (pcf)	**116.9**
Optimum Moisture Content (%)	**11.5**
LBR	**121**
Percent Passing No. 200 Sieve (%)	**NT**
Liquid Limit:	**NT**
Plastic Limit:	**NT**
Plasticity Index:	**NT**

*NT: Not Tested
*NP: Non-Plastic

Sample Description:	Brown Clayey Sand - Proctor 1, LBR 1
Sample Location:	A-1
Proposed Use:	Subgrade
Sampled By:	C. Dunlap
Sample Date:	7/21/2015
Tested By:	C. Senter, S. Henderson
Test Date:	7/23/2015 - 7/27/2015

5.4 Key to Soil Classification

KEY TO SOIL CLASSIFICATION CHART

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

CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

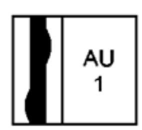
	No. OF BLOWS, N	RELATIVE DENSITY
SANDS:	0 - 4	Very Loose
	5 - 10	Loose
	11 - 30	Medium dense
	31 - 50	Dense
	OVER 50	Very Dense

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

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

SAMPLE GRAPHIC TYPE LEGEND

Location of SPT Sample



Location of Auger Sample

PARTICLE SIZE IDENTIFICATION

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

LABORATORY TEST LEGEND

LL	=	Liquid Limit, %
PL	=	Plastic Limit, %
PI	=	Plasticity Index, %
% PASS - 200	=	Percent Passing the No. 200 Sieve
MC	=	Moisture Content, %
ORG	=	Organic Content, %
k_v	=	Vertical Permeability, ft/day

6.0 LIMITATIONS

6.1 Warranty

This report has been prepared for our client for his 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 plans and by estimating distances from existing structures and site features. Figures in this report were not prepared by a licensed land surveyor and should not be interpreted as such.

6.4 Unanticipated Soil Conditions

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

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

6.5 Misinterpretation of Soil Engineering Report

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

FIGURES

NORTH

NOT TO SCALE

ALACHUA OPERATIONS CENTER
ALACHUA, ALACHUA COUNTY, FLORIDA
GSE PROJECT No. 12489

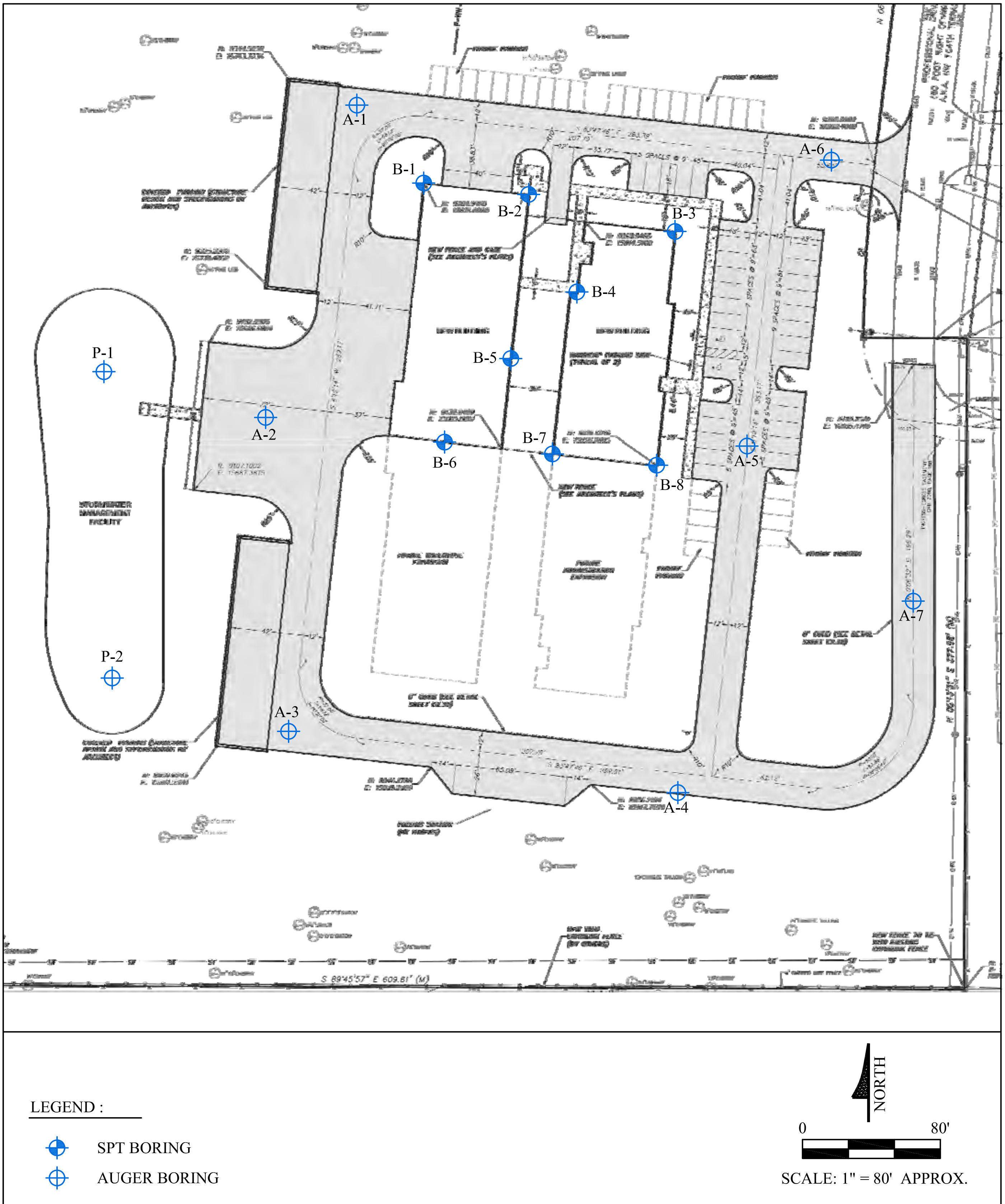
PROJECT SITE LOCATION MAP

DESIGNED BY : CAD
CHECKED BY : KLH
DRAWN BY : JSF

GSE Engineering & Consulting, Inc.

FIGURE

1



ALACHUA OPERATIONS CENTER
ALACHUA, ALACHUA COUNTY, FLORIDA
GSE PROJECT No. 12489

SITE PLAN SHOWING APPROXIMATE LOCATIONS OF FIELD TESTS

DESIGNED BY : CAD
CHECKED BY : KLH
DRAWN BY : JSF

GSE Engineering & Consulting, Inc.

FIGURE 2

LEGEND :

AUGER BORING

NORTH

0 80'

SCALE: 1" = 80' APPROX.

ALACHUA OPERATIONS CENTER
ALACHUA, ALACHUA COUNTY, FLORIDA
GSE PROJECT No. 12489

AERIAL PHOTOGRAPH SHOWING APPROXIMATE LOCATIONS OF FIELD TESTS

DESIGNED BY : CAD
CHECKED BY : KLH
DRAWN BY : JSF

GSE Engineering & Consulting, Inc.

FIGURE 3

CHW

Professional Consultants

November 4, 2015

Adam Hall, AICP
City of Alachua
Post Office Box 9
Alachua, Florida 32616-0009

RE: City of Alachua Operations Center and Warehouse
Alachua, Florida

Dear Adam:

Please find eight (8) copies of the following items enclosed for review and approval of the above-referenced project:

- Revised concurrency analysis and comprehensive plan analysis;
- Covered Parking Elevations (included in the plan set);
- Wall Mounted Light Fixture Cut Sheets;
- Stormwater Management System Report;
- Development Plans; and
- CD with all above documents.

We submit these items along with this letter as a means to address your comments from the Development Review Team Summary completed on October 15, 2015 with our responses in bold below.

A. *General*
   1. Inconsistent square footages found in concurrency analysis and comprehensive plan analysis. Square footages should be consistent throughout application.
      - **The inconsistencies of the building square footages have been revised accordingly. Please refer to the revised concurrency analysis and comprehensive plan analysis.**

B. *Landscaping Requirements*
   1. Sheet L-101 – Site Landscaping Calculations Table – Code referenced should be 6.2.2 (D)(1)(b)
      - **The code reference of the calculations table has been revised.**

   2. Sheet L-101- Site Landscaping Calculations Table – Building Facades should be broken down by each façade to ensure correct number of additional trees are in appropriate areas.
      - **The Building Façade Calculations has been revised to indicate number of trees per side of building. Note that during previous discussions with Staff, it was acceptable to locate trees further from building edges in order to**

avoid planting in areas proposed for future expansion/phases. It was also acceptable to show trees on the other side of drive aisles that were directly adjacent to building edges.

C. *Photometric Requirements*

1. Section 6.4.4 (E), LDRs, states that the maximum ratio between highest and lowest levels is 10:1. Lighting plan appears to exceed that ratio.
   - **The maximum ratio between the highest and lowest light levels has been revised accordingly. Refer to E102 for details.**

2. Architectural elevation will be required for covering parking structures to ensure lighting fixture design meets the land development regulations (specifically Section 6.4.6 (A)).
   - **Architectural elevations for the covered parking structure are included. Lighting fixtures meet the LDRs. Refer to sheet A110.3 and E102 for details.**

3. Detail of proposed wall sconces and any other wall mounted light fixtures required.
   - **Please find the enclosed wall sconces and wall mounted light fixtures cut sheets.**

D. *Public Services*

Comments from Marcus Collins, Public Services Director, in Memo dated October 12, 2015.

1. Electric

- City of Alachua will provide transformer size: 500 KVA – (12,470 GRD Y/7200: 480 GRD Y/277) Stock #1659
  - **Acknowledged.**

- Engineer of record confirm step-down transformer design. (References made to 480 delta on electric schedule).
  - **Acknowledged. Note the delta refer to the transformer winding configuration.**

- Invoice the City of Alachua for: Transformer and Pad, Primary Conductors, Conduit, and Meter Assembly.
  - **Acknowledged.**

2. Water

- 6" F2 fire line meter is not required
  - **The fire line meter and backflow assembly has been removed and replaced with a double detector check valve assembly. Refer to revised C2.31 and C3.10 for details.**

- Change all 2 ½" and 3" pipe, fittings, and valves to 2" (use resilient seat gate valves).
  - **Per email conversations with Mr. Dillard, this comment is to be removed.**

3. Wastewater

- No Comments
  - **Acknowledged.**

E. _Stormwater/Engineering Comments_

Comments from eda, inc., in letter dated October 13, 2015.

1. Previous Comment #4: According to the SRWMD, Part V (Best Management Practices) in the Applicant's Handbook, Vol. 2, Sec. 5.1.2 (Criteria), "the retention pond shall have a freeboard of 1 foot above the maximum stage in order to function properly during storms greater than the design storm."
   - **The revised stormwater design provides more than 1 foot of freeboard in all required storm events. Please refer to the Stormwater Management System Report.**

2. Previous Comment #11: As indicated in Comment #4 above, the retention pond shall have a freeboard of 1 foot above the maximum stage in order to function properly during storm events greater than the design storm. Also, if the VVRS system was not included in the PONDS routing simulation, you might be discharging more than the required pre/post conditions for peak and volume per SRWMD standards. We have not received the revised Stormwater Report, therefore can't confirm that is the case at this time.
   - **The revised stormwater design has been revised to account for an underdrain in lieu of a VVRS system. Modeling has accounted for the underdrain discharge and provides the required pre/post discharge for rate and volume. Please refer to the Stormwater Management System Report.**

3. Previous Comment #15: Sheet C2.10 and/or C2.20 does not show length, size, material and slope between structure S-2 and S-1.
   - **The pipe data between S-2 and S-1 has been added. Refer to C2.10 and C2.20 for details. Note an additional manhole has been added.**

4. Please note that we have not yet received stormwater report and are therefore unable to provide any additional review at this time.
   - **Please refer to the attached stormwater management system report. Note SRWMD has recommended approval of the ERP for this project at this time but the permit is in the process of issued. Once a copy of the permit is obtained a copy will be provided to the City.**

We trust you will find this package is sufficient for review and approval. Please feel free to contact me at (352) 519-5940 or at danielv@chw-inc.com should you have any questions or require any additional information to complete your review.

Sincerely,
CHW

Daniel Young, P.E., LEED A.P.
Senior Project Manager

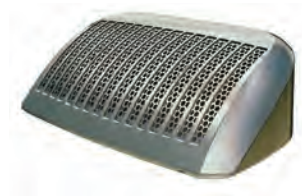
L:\2015\15-0150\Engineering\City County\City\151020 Comments #2\LTR 151021 CoA Operations Center Comment Response Letter.docx

Job:
Type:
Notes:

120 LINE LED

121 LED Performance Sconce - Generation 2

The Philips Gardco 121 LED Performance Sconce provides an energy efficient, architecturally pleasing solution for wall mount applications. The sloped surface ribs of the die cast aluminum housing create a distinctly unique aesthetic element, and perform important functions in the Philips Gardco thermal management system. 121 Generation 2 luminaires feature high performance Class 1 LED systems. The high performance LED optical systems produce full cutoff performance, minimizing glare and light trespass. Philips Gardco's LED technology provides maximized light output and maximum energy savings.



PREFIX	OPTICAL SYSTEM	LED WATTAGE	LED SELECTION	VOLTAGE	FINISH	OPTIONS
121	MT	50LA	NW	UNIV		

Enter the order code into the appropriate box above. Note: Philips Gardco reserves the right to refuse a configuration. Not all combinations and configurations are valid. Refer to notes below for exclusions and limitations. For questions or concerns, please consult the factory.

PREFIX

121 121 LED Performance Sconce - Constant Wattage / Full Light Output
121-MR 121 LED Performance Sconce - Motion Response
121-DIM 121 LED Performance Sconce - 0 - 10V Dimming
121-APD 121 LED Performance Sconce - Automatic Profile Dimming

121-DCC 121 LED Performance Sconce - Dual Circuit Control

OPTICAL SYSTEM

2 Type 2
3 Type 3
4 Type 4
MT Medium Throw

All optical systems are supplied with a clear glass lens standard. A Diffuse Lens (DL) option is available, See ***OPTIONS*** *on Page 2.*

LED WATTAGE AND LUMEN VALUES

Single LED Array Wattages, Available in 121, 121-MR, 121-DIM and 121-APD Only

Ordering Code	Average System Watts[1]	LED Current (mA)	LED Quantity - Single LED Array	LED Selection	Luminaire Initial Absolute Lumens[2]			
					TYPE 2	TYPE 3	TYPE 4	MT
18LA	18	350	16	NW	1,673	1,707	1,609	2,022
26LA	26	530	16	NW	2,442	2,485	2,345	2,927
35LA-700	36	700	16	NW	3,102	3,139	2,972	3,650
35LA-350	35	350	32	NW	3,664	3,736	3,523	4,425
50LA	52	530	32	NW	5,587	5,685	5,365	6,697
75LA	72	700	32	NW	6,199	6,538	6,296	7,289

Dual LED Array Wattages, Available in 121-DCC Only

Ordering Code	Average System Watts[1]	LED Current (mA)	LED Quantity - Dual LED Arrays		LED Selection	Luminaire Initial Absolute Lumens[2]			
			Per LED Array	Total LEDs		TYPE 2	TYPE 3	TYPE 4	MT
35LA-2	35	350	16	32	NW	3664	3,736	3,523	4,425
50LA-2	52	530	16	32	NW	5587	5,685	5,365	6,697
75LA-2	72	700	16	32	NW	6199	6,538	6,296	7,289

1. *Wattage may vary by +/- 8% due to LED manufacturer forward volt specification and ambient temperature. Wattage shown is average for 120V through 277V input. Actual wattage may vary by an additional +/- 10% due to actual input voltage.*
2. *Values shown are for luminaires without the DL option. Tests are in process for configurations not shown. "(s)" following the value indicates that values are scaled from tests on similar, but not identical luminaire configurations. Contact Gardco.applications@ philips.com if any approximate estimates are required for design purposes. Lumen values based on tests performed in compliance with IESNA LM-79.*

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GARDCO

121 LED Performance Sconce - Generation 2

LED SELECTION

CW	Cool White - 5700°K - 75 CRI Nominal
NW	Neutral White - 4000°K - 70 CRI Nominal
WW	Warm White - 3000°K - 80 CRI Nominal

VOLTAGE

120	
208	
240	
277	
UNIV	Accepts 120V through 277V input, 50hz to 60hz.
347	347V - Requires Extended Back Box, which is provided standard. Requires and includes auxilliary transformer mounted in Extended Back Box.

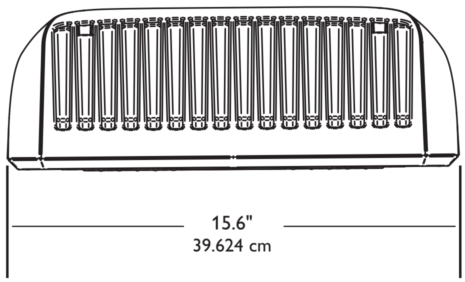
FINISH

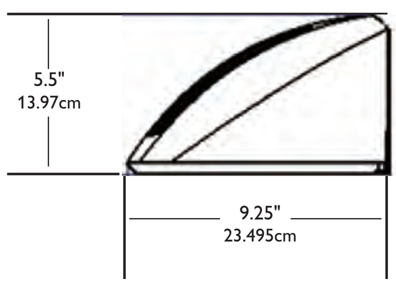
BRP	Bronze Paint
BLP	Black Paint
WP	White Paint
NP	Natural Aluminum Paint
BGP	Beige Paint
OC	Optional Color Paint *Specify Optional Color or RAL ex: OC-LGP or OC-RAL7024.*
SC	Special Paint *Specify. Must supply color chip.*

OPTIONS

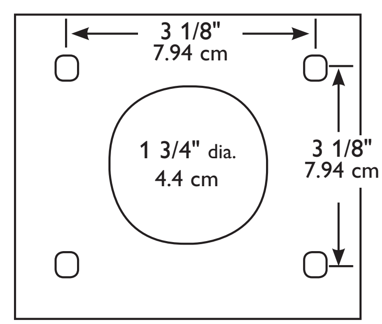
F	Fusing *(Provide specific inpout voltage)*
DL	Solite Diffusing Glass Lens *(Reduces performance significantly.)*
PCB	Button Type Photocontrol *(Provide specific inpout voltage)*
WS	Wall Mounted Box for Surface Conduit *(Rear entry permitted.)*
EBB	Extended Back Box *(Provided standard with 347V luminaires.)*

DIMENSIONS





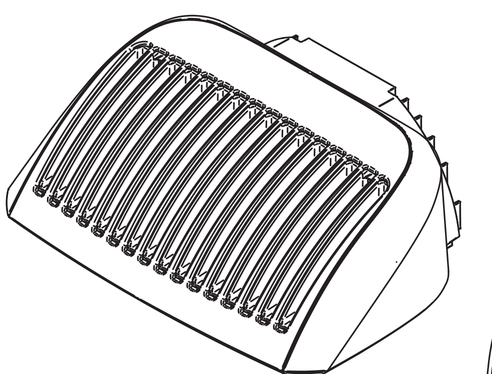
Mounting Plate

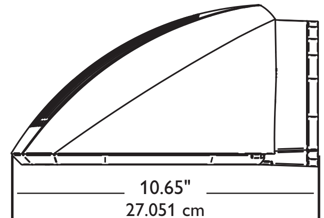


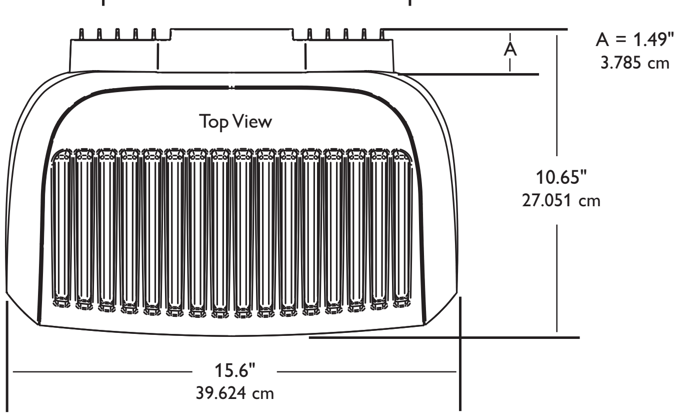
Mounting Bolt Pattern

Note: Mounting plate center is located in the center of the luminaire width and 2.38" (6.03cm) above the luminaire bottom (lens down position). Splices must be made in the J-box (by others). Mounting plate must be secured by max. 5/16" (.79cm) diameter bolts (by others) structurally to the wall.

With Extended Back Box (EBB) Option







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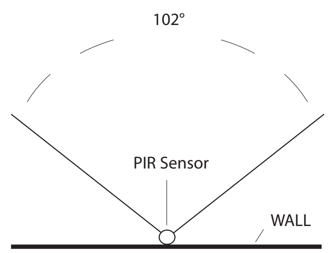
LUMINAIRE CONFIGURATION INFORMATION

121-CWL: 121 LED sconce providing constant wattage and constant light output when power to the luminaire is energized.

121-MR: 121 LED sconce including a passive infrared (PIR) motion sensor capable of detecting motion within 30 feet of the 121 LED Sconce. The PIR sensor is mounted in the center of the luminaire, near the wall edge of the door frame, approximately 1.5" forward from the wall, and is less than .75" in diameter. When no motion is detected for 5 minutes, the Motion Response system reduces the wattage by 75%, to 25% of the normal constant wattage, reducing the light level accordingly. When motion is detected by the PIR, the luminaire returns to full wattage and full light output. The PIR sensor is capable of motion detection across a total angle of 102° from the center of the sensor (51° to either side of center.) The sensor may be adjusted directionally to maximize detection of motion to one side of the luminaire if desired based on site traffic patterns. PIR sensor provided is the Panasonic EKMB1203112. If the PIR sensor fails, the luminaire will operate in default-high mode. Motion sensors utilized consume 0.0 watts in the off state.

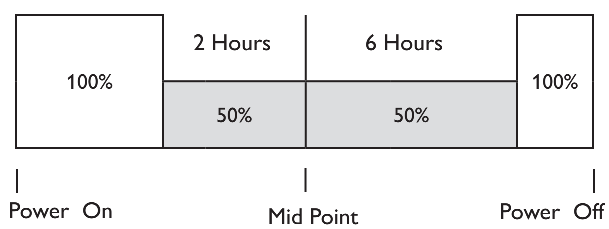
Sensor Coverage Pattern



121-DIM: 121 LED sconce provided with 0 -10V dimming for connection to a control system provided by others.

121-APD: Philips Gardco performance LED sconces with Automatic Profile Dimming are provided with the Philips DynaDimmer included. The DynaDimmer is factory programmed to go to 50% power, 50% light output two (2) hours prior to night time mid-point and remain at 50% for six (6) hours after night time mid-point. Mid-point is continuously calculated by the DynaDimmer based on the average mid-point of the last two full night cycles. Short duration cycles, and power interruptions are ignored and do not affect the determination of mid-point.

APD Dimming Profile



121-DCC: 121 LED sconce provided with dual circuiting, and dual arrays, permitting separate switching of each led array. Available in LED wattages shown on Page 1 only.

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121 LED Performance Sconce - Generation 2

SPECIFICATIONS

GENERAL: Each Philips Gardco 121 luminaire is a wall mounted full cutoff luminaire with integrated lensed LEDs mounted in a fixed array. Internal components are totally enclosed in a rain-tight, dust-tight and corrosion resistant housing. The housing, back plate and door frame are die cast aluminum. A choice of four (4) optical systems is available. Luminaires are suitable for wet locations, mounted in the normal downlight position.

HOUSING: The single-piece stylized housing is die cast aluminum. A memory retentive gasket seals the housing with the door frame to exclude moisture, dust, insects and pollutants from the luminaire. A black, die cast ribbed backplate is included.

IP RATING: Luminaires are rated IP66.

DOOR FRAME: A single-piece die cast aluminum door frame integrates to the housing form. The door frame is hinged closed and secured to the housing with two (2) captive stainless steel fasteners.

OPTICAL SYSTEMS: Philips Gardco 121 Generation 2 LED luminaires utilize lensed LED arrays set to achieve IES Type II, Type III, and Type IV distributions, as well as a Medium Throw distribution. Individual LED arrays are replaceable. Luminaires feature high performance Class 1 LED systems. Luminaires are supplied standard with a clear glass lens.

ELECTRICAL: Luminaires are equipped with an LED driver that accepts 120V through 277V, 50hz to 60hz, input. Driver output is either 350 mA, 530 mA or 700 mA, based on the LED wattage selected. Component-to-component wiring within the luminaire will carry no more than 80% of rated current and is listed by UL for use at 600 VAC at 302°F/150°C or higher. Plug disconnects are listed by UL for use at 600 VAC, 15A or higher. Power factor is not less than 90%. Luminaires consume 0.0 watts in the off state. Surge protector standard. 10KA per AN SI/IEEE C62.41.2.

LED THERMAL MANAGEMENT: The 121 design provides deep integral thermal radiation fins cast into the upper housing to assist in the thermal management so critical to long LED system life. Metallic screens are placed over the fins and integrated to the housing to prevent the buildup of dust, dirt and contaminants, while permitting required air flow for cooling

LED PERFORMANCE:

PREDICTED LUMEN DEPRECIATION DATA[4]

Ambient Temperature °C	Driver mA	L_{70} Hours[5]
25 °C	350 mA	180,000
	530 mA	150,000
	700 mA	120,000
40 °C	350 mA	170,000
	530 mA	130,000
	700 mA	100,000

4. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.

5. L_{70} is the predicted time when LED performance depreciates to 70% of initial lumen output.

FINISH: Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. Standard colors include bronze (BRP), black (BLP), white (WP), natural aluminum (NP) and beige (BGP). Consult factory for specifications on custom colors.

LABELS: All luminaires bear either UL or CUL (where applicable) Wet Location labels.

WARRANTY: Philips Gardco luminaires feature a 5 year limited warranty. Philips Gardco LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays and LED drivers. See Warranty Information on www.sitelighting.com for complete details and exclusions.

FULL CUTOFF PERFORMANCE: Full cutoff performance means a luminaire distribution where zero candela intensity occurs at an angle at or above 90° above nadir . Additionally, the candela per 1000 lamp lumens does not numerically exceed 100 (10 percent) at a vertical angle of 80° above nadir. This applies to all lateral angles around the luminaire.

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STORMWATER MANAGEMENT SYSTEM REPORT FOR

City of Alachua Operations Center
Alachua, Florida

Submitted to:
Suwannee River Water Management District
City of Alachua Public Works

Prepared for:
City of Alachua
P.O. Box 9
Alachua, FL 32616

July 30, 2015
Revised: October 21, 2015

15-0150

Engineer's Certification Statement

I hereby certify that the design of the stormwater management systems for the project known as City of Alachua Operations Center has been designed substantially in accordance with the City of Alachua and Suwannee River Water Management District.

DANIEL H. YOUNG
LICENSE
No 70780
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Daniel Young, FL PE No. 70780

11/3/15
Date

Contents **Page**

Introduction

The City of Alachua Operations Center and Warehouse project proposes the construction of an ±8,003 sf Operations Administration Building and a ±9,902 sf Warehouse area, along with associated parking, outdoor storage area, stormwater, utility infrastructure, and related improvements, on a ±10.90 acre site located at the southern termination of NW 104th Terrace, Alachua, Florida.

The project is located on tax parcel #05949-019-000, according to the Alachua County Property Appraiser's website. Figure 1 provides a Location Map and Figure 2 depicts the site on a portion of the Alachua USGS quadrangle map. It is located in Section 19, Township 8 South, Range 19 East.

This site was previously permitted as a portion of Wallace Construction Office Park under SRWMD Permit 4-95-00127, issued 08/09/1995. The associated stormwater management facility (SMF-1) was constructed on the adjacent property north of the project site (tax parcel #05949-011-005). Both the project site and the SMF-1 parcel are owned by the City of Alachua. The permit allowed for construction and operation of a surface water management system serving 11.0 acres of impervious area on a total project area of 27.0 acres. However, only the road has been built (NW 104th Terrace) – no impervious area on the parcels draining to SMF-1 has been constructed to date.

SMF-1 is a dry retention system. When permitted, SMF-1 was designed up to the 100 year - 24 hour storm event. The current project seeks to modify SMF-1 to provide additional volume per today's requirements of designing for the 100 year - 72 hour, 100 year - 168 hour, and 100 year - 240 hour storm events. Additionally, SMF-1 will be modified in order to sufficiently handle runoff from the additional impervious area of the project site.

Refer to the accompanying engineering plans for details about the proposed construction in regards to this project.

Design Criteria

The design criteria for the proposed Stormwater Management Facility are based upon the criteria set forth by the City of Alachua (CoA) and Suwannee River Water Management District (SRWMD) for dry retention system design in a closed watershed. The criteria met by this report are as follows:

1. Provide Water Quality Treatment Volume (WQTV) – If the project area falls within a stream, coastal, or open-lake watershed and the discharge is to any class of surface water other than an Outstanding Florida Water, the minimum stormwater treatment volume shall be runoff from the first 1.0 inch of rainfall from the design storm. WQTV must be recovered within 72 hours (SRWMD).

2. Provide Discharge Rate and Volume Attenuation – Attenuate the post-development peak discharge rate and volume to be less than the pre-development peak discharge rates and volumes (CoA) for the 100 year - 1 hour, 100 year - 2 hour, 100 year - 4 hour, 100 year - 8 hour, 100 year - 24 hour storm, 100 year - 72 hour storm, 100 year - 168 hour storm, and 100 year - 240 hour storm events (SRWMD).

3. Provide Volume Recovery – Retention systems must recover one-half of the total volume available within 7 days following the end of the design storm event and the total volume available must be recovered within 30 days following the end of the storm event. Alternatively, if recovery requirements cannot be met, back to back storms can be routed through the system (SRWMD).

4. Freeboard – Retention ponds shall have a freeboard of 1 foot above the maximum stage in order to function properly during storms greater than the design storm (SRWMD).

The City of Alachua and the SRWMD require that best management practices be employed to control erosion, sedimentation and an operation and maintenance entity be established.

Site Characteristics

Physical characteristics of the site are described in the following sections. Additional details are provided in the accompanying Engineering plans.

Site Topography

Currently, the site of proposed City of Alachua Operations Center and Warehouse is an undeveloped field with trees scattered throughout the site. The topography of the site slopes generally between 7% and 8% from southeast to northwest. Based on the USGS Quadrangle map the regional topography slopes down from the southeast towards the northwest.

Pre-Development Drainage

The pre-development analysis assumes the conditions prior to permitting/constructing the Wallace Construction Office Park. For calculations, pre-development drainage on the site is delineated into one watershed, Pre-Development Watershed #1. Runoff from Pre-Development Watershed #1 consists of sheet flow and shallow concentrated flow conveying from southeast to northwest across the site, ultimately discharging to the adjacent property to the west/northwest. To be consistent in the pre/post runoff comparison, the area of Pre-Development Watershed #1 used in calculations is assumed to be the ±15.02 ac. that is also within the area of Post-Development Watershed #1. Portions of the property that do not drain to the SMF in post-development are excluded from the pre-development watershed. Also, the portion of the site that drains to the southwest is not included in the pre-development analysis. Refer to Figure 6 for information on the pre-development drainage patterns.

Post-Development Drainage

The drainage characteristics in the post-development condition generally follow the same pattern as the pre-development condition. The site has been delineated into one watershed, Post-Development Watershed #1. Post-Development Watershed #1 is comprised of ±15.79 ac. which includes the proposed Operations Administration Building, Warehouse area, associated parking, outdoor storage area, stormwater, utility infrastructure, and related on-site improvements. The watershed also includes SMF-1, a portion of NW 104th Terrace, and adjacent parcels to the east, all which are part of the previously permitted drainage area. Post-Development Watershed #1 assumes 70% of the area of the parcels to the east is impervious area, a majority of which is currently undeveloped, but is permitted to be impervious area and drain to SMF-1 (SRWMD Permit 4-95-00127).

The existing SMF-1 is located adjacent to the northwest corner of the site and was designed as a dry retention facility. The top of bank is at approximately EL. 109.0’ with the existing bottom of pond at EL. 107.0’, providing a total storage volume of ±3.4 ac.-ft.

The proposed design of SMF-1 has been expanded from the original footprint and is designed as a dry retention facility with 4:1 side slopes. Modifications include deepening SMF-1 as well as expanding the sides and constructing a wider berm and new outfall. The proposed top of bank is set at EL. 110.0’ with the bottom of pond at EL. 103.0’ and a total storage volume of ±13.63 ac.-ft. In large storm events, SMF-1 will discharge northwest via a 2.75” orifice at EL. 106.6. Additionally, the top of the outfall structure is a 24”x37” open grate set at El. 108.8. Due to low soil infiltration rates an underdrain was designed for SMF-1. The primary outfall will discharge to an onsite spreader swale located northwest of SMF-1 and the underdrain will discharge to an existing ditch along the western property line. Both outfalls ultimately discharge offsite to the adjacent property to the northwest.

Refer to the accompanying engineering plans for details about the proposed stormwater management system.

Soils Information

The National Resource Conservation Service (NRCS) Soil Survey for Alachua County describes the near surface soil profile as *Arrendondo fine sand (0 to 5 percent slopes)* with a hydrologic soil group rating of ‘A’, *Arrendondo fine sand (5 to 8 percent slopes)* with a hydrologic soil group rating of ‘A’, *Fort Meade fine sand (0 to 5 percent slopes)* with hydrologic soil group rating of ‘A’, *Gainesville sand (0 to 5 percent slopes)* with a hydrologic soil group rating of ‘A’, and as *Norfolk loamy fine sand (5 to 8 percent slopes)* with a hydrologic soil group rating of ‘B’. Refer to Figure 4 for the NRCS Soils Map.

A site specific soils investigation was conducted by GSE Engineering & Consulting, Inc. in July 2015. Based on the Summary Report of Geotechnical Site Exploration, the following design parameters were determined and applied for the stormwater management facility calculations. Refer to Appendix C for further details.

- Natural Ground Elevation: ±107.4 feet (Average ground elevation within the limits of SMF-1)
- Base elevation of effective or mobilized aquifer (confining layer): 13 feet bls (107.4 ft. – 13 ft. = 94.4 ft.)
- Average seasonal high groundwater table elevation: 13 feet bls (107.4 ft. – 13 ft. = 94.4 ft.)
- Unsaturated vertical infiltration rate: 1 feet per day (0.5 feet per day used in calculations)
- Horizontal hydraulic conductivity: 1 feet per day (0.5 feet per day used in calculations)
- Specific yield (fillable porosity): 20%

A safety factor of 2 was applied to the infiltration rate and hydraulic conductivity values.

Drainage Analysis

The proposed SMF-1 was designed to provide attenuation of the discharge rates and volumes for the 100 year - 1 hour, 100 year - 2 hour, 100 year - 4 hour, 100 year - 8 hour, 100 year - 24 hour storm, 100 year - 72 hour storm, 100 year - 168 hour storm, and 100 year - 240 hour storm events. Additionally, the proposed SMF-1 was designed to recover one-half of the total volume available 7 days following the end of the design storm event. Due to low infiltration rates, the total volume is not available within 30 days following the end of some design storm events. Therefore, a second design storm was routed through the system, using the pond stage at 30 days after the first storm as the initial stage for the second storm.

Appendix A contains details and calculations as well as a section for routing results, recovery analysis, hydraulic calculations, and general drainage calculations.

Analysis Methodology

The drainage analysis was conducted using the computer program ICPR (v3.10, Service Pack 11) to generate runoff hydrographs and route the runoff hydrographs through the proposed stormwater system with a groundwater mounding analysis. The required storm events were analyzed using SRWMD rainfall amounts for Alachua County (FDOT Zone 5) and FDOT distributions for the pre-development and post-development watersheds.

Calculations were completed to determine the runoff rates and volumes for the pre-development conditions. Calculations for Post-Development Watershed #1 (SMF-1) were completed to demonstrate that the required water quality treatment volume, discharge rate and volume attenuation, and storm event recovery were met. Also, the routing results were analyzed to ensure that the peak stage of each storm event did not exceed the top of facility.

Unit Hydrograph Parameters

Unit hydrograph parameters required for the drainage analysis include run-off curve number (CN), time of concentration (Tc), and drainage area.

Values used in the Analysis are summarized as follows:

<u>Pre-Development Watershed #1:</u>

Watershed Area[1] =	15.02 ac.
Pasture Area (Good, Type 'A' Soil) =	10.94 ac.
Pasture Area (Good, Type 'B' Soil) =	4.08 ac.

CN = 45
Tc = 13 min.[2]

<u>Post-Development Watershed #1 (SMF-1):</u>

Watershed Area =	15.79 ac.
Impervious Area (Permitted 70% on Lots) =	3.29 ac.
Impervious Area (Existing Road) =	0.47 ac.
Impervious Area (Proposed Onsite) =	1.43 ac.
Impervious Area (Proposed Offsite) =	0.02 ac.
Stormwater Management Facility =	2.22 ac.
Open Area (Good, Type 'A' Soil) =	6.72 ac.
Open Area (Good, Type 'B' Soil) =	1.65 ac.

CN = 69
Tc = 10 min.[3]

1) For consistence in pre/post comparison, the pre-development watershed area used in calculations was limited to the post-development watershed area (minus portions that discharge to a different location in the pre-development condition).
2) The time of concentration was calculated using the TR-55 method.
3) The time of concentration was assumed to be 10 minutes.

Pond Storage

Stage-storage values for the proposed SMF-1 are provided in Appendix A.

Water Quality Treatment Volume (WQTV)

Per SRWMD, the required water quality treatment volume (WQTV) required for a dry retention system is 1.0 inch of rainfall over the entire drainage area. The required WQTV for proposed SMF-1 is ±32,077 cf.

ICPR was used to calculate recovery of the WQTV. The WQTV information and routing results are summarized below in Table 1.

Table 1: Post Development Watershed #1 Water Quality Treatment

Post-Development Watershed	Required Treatment Volume (cf)	Treatment Volume Recovery Time	Peak Elevation at WQTV (ft)
(SMF–1)	32,077	< 19.6 hours	103.45

Run-off and Facility Routing Results

The routing results for SMF-1 are summarized below in Table 2 and 3 which includes peak stages, discharge rates and volumes, time to half volume available and time to full volume available for the analyzed storm events.

In all cases, total post-development discharge rates and volumes did not exceed pre-development conditions. A foot of freeboard is maintained above the peak stage in all storm events. SMF-1 fully recovers within 30 days following the 100 year – 1 hour, 2 hour, 4 hour, and 8 hour storm events. Therefore, a second storm event was routed through the system. The results are summarized below in Table 4. Detailed results can be found in Appendix A.

Table 2: Post-Development Watershed #1 (SMF-1) Routing Results – Peak Stage and Discharge

Storm Event	Peak Stage (ft.)	Free-board (ft.)	Discharge Rates (c.f.s.)			Discharge Volumes (cf)		
			Pre	Post	Change	Pre	Post	Change
100YR-1HR	104.20	5.80	9.03	0.05	-8.98	14,658	8,364	-6,294
100YR-2HR	104.73	5.27	8.02	0.06	-7.96	31,324	13,199	-18,125
100YR-4HR	105.33	4.67	11.05	0.07	-10.98	55,032	33,411	-21,621
100YR-8HR	106.13	3.87	14.79	0.09	-14.70	94,513	77,493	-17,020
100YR-24HR	107.55	2.45	6.25	0.29	-5.96	193,498	175,024	-18,474
100YR-72HR	108.05	1.95	6.63	0.35	-6.28	286,382	236,836	-49,546
100YR-168HR	108.71	1.29	5.41	0.41	-5.00	388,767	352,923	-35,844
100YR-240HR	108.87	1.13	6.98	1.07	-5.91	475,122	456,204	-18,918

Table 3: Post-Development Watershed #1 (SMF-1) Routing Results - Recovery

Storm Event	Time to ½ Volume Available (Days After Storm)	Time to Full Recovery (Days After Storm)
100YR-1HR	< 1.0	< 2.2
100YR-2HR	< 1.0	< 3.1
100YR-4HR	< 1.0	< 9.0
100YR-8HR	< 1.0	< 19.0
100YR-24HR	< 1.0	> 30.0
100YR-72HR	< 1.8	> 30.0
100YR-168HR	< 5.8	> 30.0
100YR-240HR	< 6.2	> 30.0

Table 4: Post-Development Watershed #1 (SMF-1) Routing Results – Second Storm Event, 30 Days After First

Storm Event	Peak Stage (ft.)	Free-board (ft.)	Discharge Rates (c.f.s.)			Discharge Volumes (cf)		
			Pre	Post	Change	Pre	Post	Change
100YR-24HR	107.71	2.29	6.25	0.31	-5.94	193,498	185,914	-7,584
100YR-72HR	108.52	1.48	6.63	0.39	-6.24	286,382	279,002	-7,380
100YR-168HR	109.07	0.93	5.41	5.00	-0.41	388,767	443,397	54,630
100YR-240HR	108.91	1.09	6.98	1.65	-5.33	475,122	552,210	77,088

Summary and Conclusions

The proposed drainage systems meet City of Alachua and SRWMD criteria for stormwater management facilities as follows:

1. Provide Water Quality Treatment Volume (WQTV) – SMF-1 has been designed to retain the runoff from the first 1.0 inches of rainfall from the design storm and recover the WQTV within 72 hours (SRWMD).

2. Provide Discharge Rate and Volume Attenuation –SMF-1 has been designed so that post-development discharge rates and volumes do not exceed the pre-development discharge rates and volumes (CoA) for the 100 year - 1 hour, 100 year - 2 hour, 100 year - 4 hour, 100 year - 8 hour, 100 year - 24 hour storm, 100 year - 72 hour storm, 100 year - 168 hour storm, and 100 year - 240 hour storm events (SRWMD).

3. Provide Volume Recovery –SMF-1 has been designed so that one-half of the total volume is available within 7 days following the end of all design storm events and the total volume available is recovered within 30 days following the end of the 100 year - 1 hour, 2 hour, 4 hour, and 8 hour storm events. For the four storm events in which SMF-1 is not able to fully recover within 30 days, a second storm was routed to model "back to back" storm events. SMF-1 has been designed with capacity to hold these second design storm events without overtopping (SRWMD).

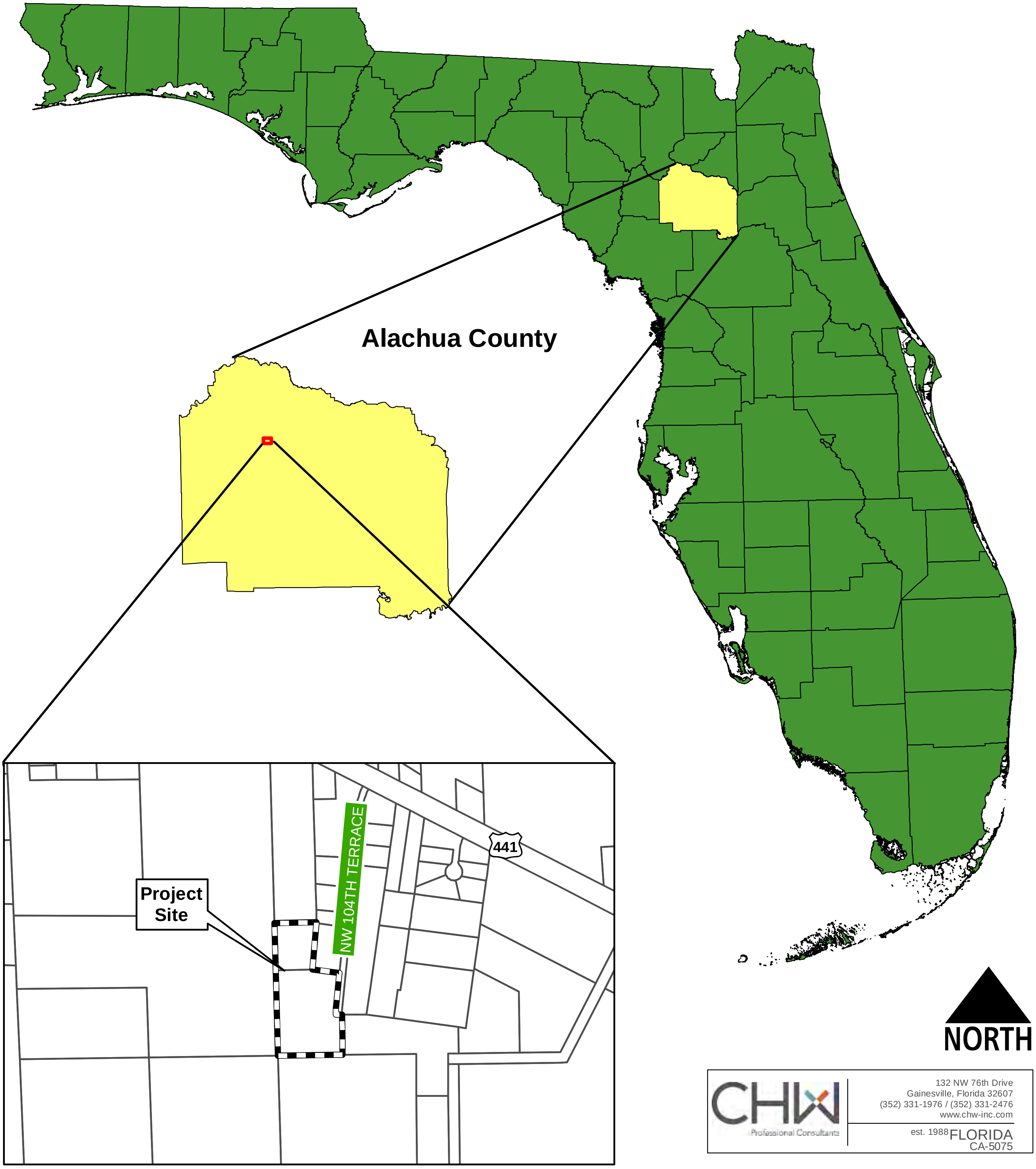
4. Freeboard – SMF-1 has been designed to have 1 foot of freeboard above the maximum stage for all design storm events (SRWMD).

Based on the information provided, the project is eligible for approval by the City of Alachua and SRWMD.

Figure 1

Project Location Map

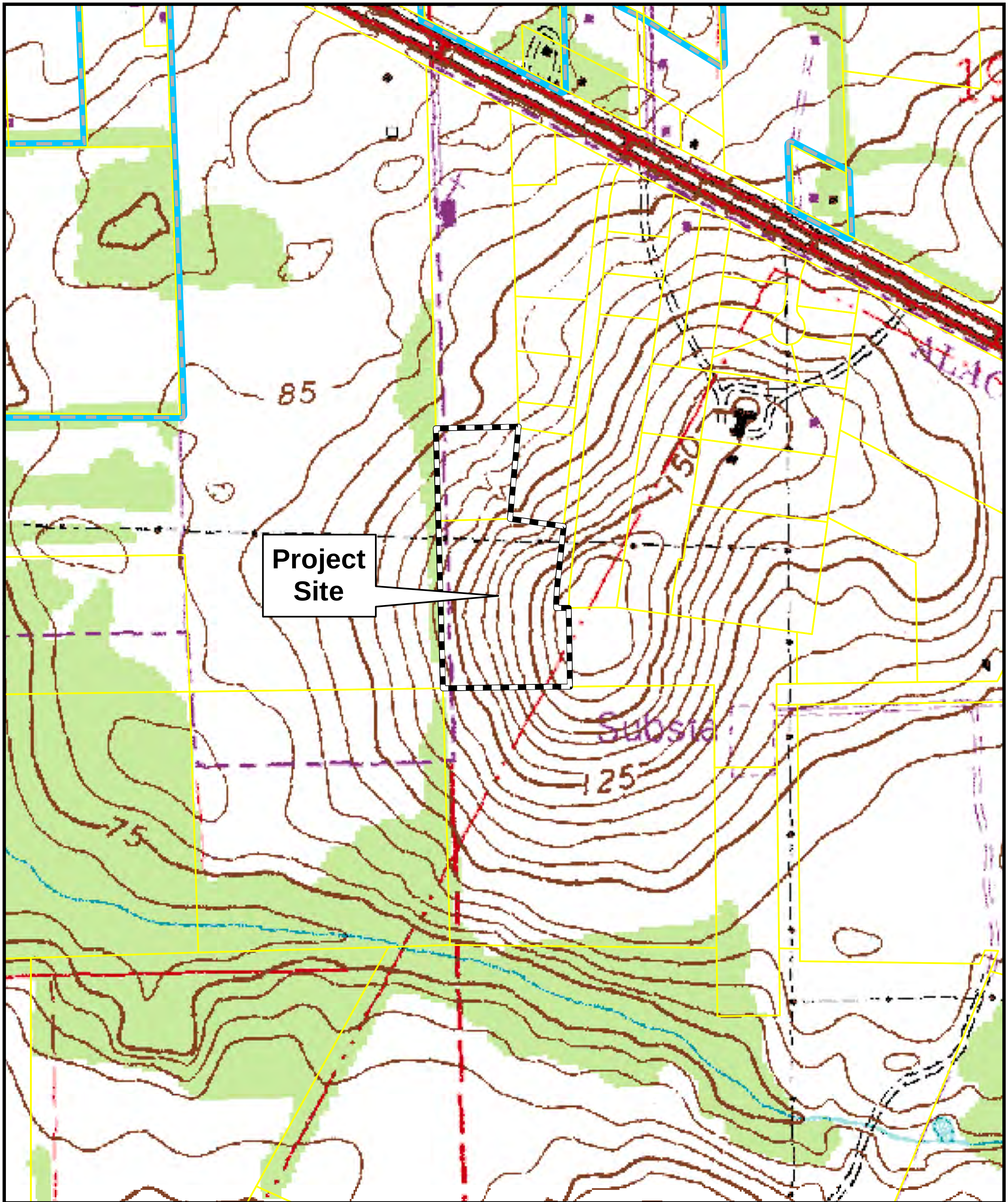
Project Location Map
City of Alachua
Operations Center & Warehouse



Document Path: L:\2015\15-0150\Engineering\GIS\MXDs\Location.mxd Prepared by Employee 415 Date: 9/29/2015

Figure 2

Quadrangle Map



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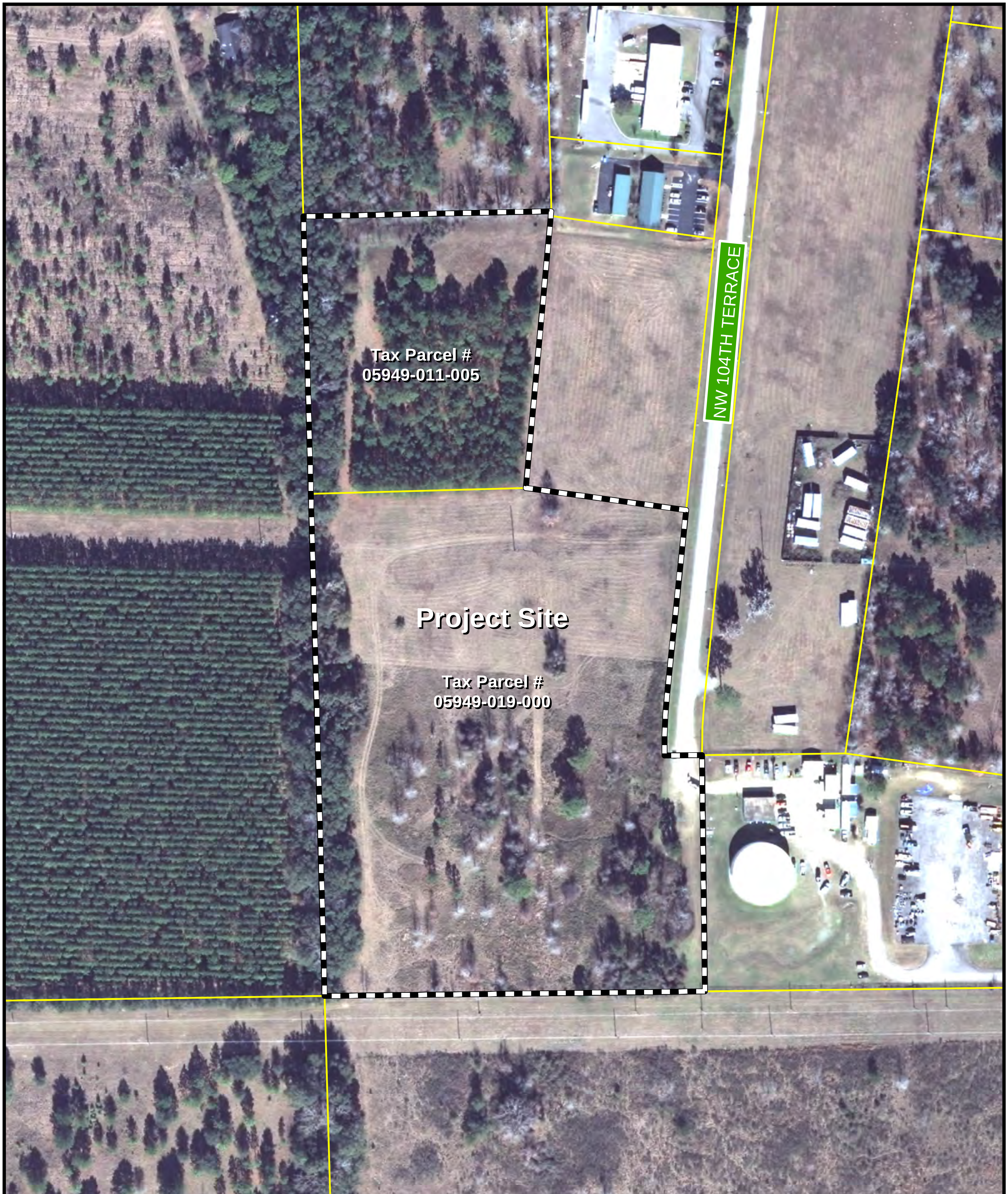
City of Alachua
Operations Center & Warehouse
USGS Quad Map

0 300 600
Feet

NORTH

Figure 3

Aerial Map



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City of Alachua
Operations Center & Warehouse
Aerial Map

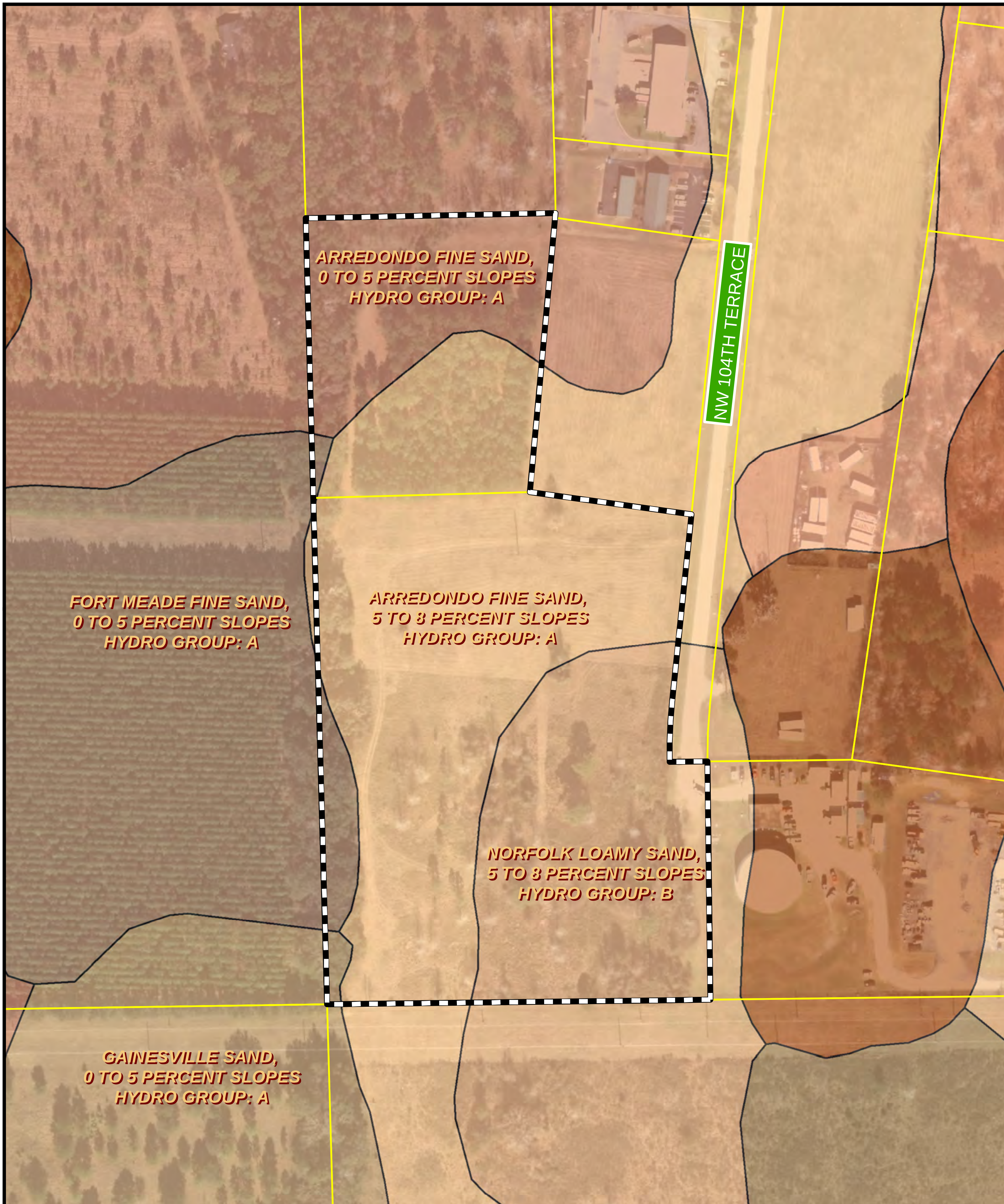
0 100 200
Feet

NORTH

Document Path: L:\2015\15-0150\Engineering\GIS\MXDs\Aerial.mxd Prepared by Employee 415 Date: 9/29/2015 For informational purposes only

Figure 4

NRCS Soils Map

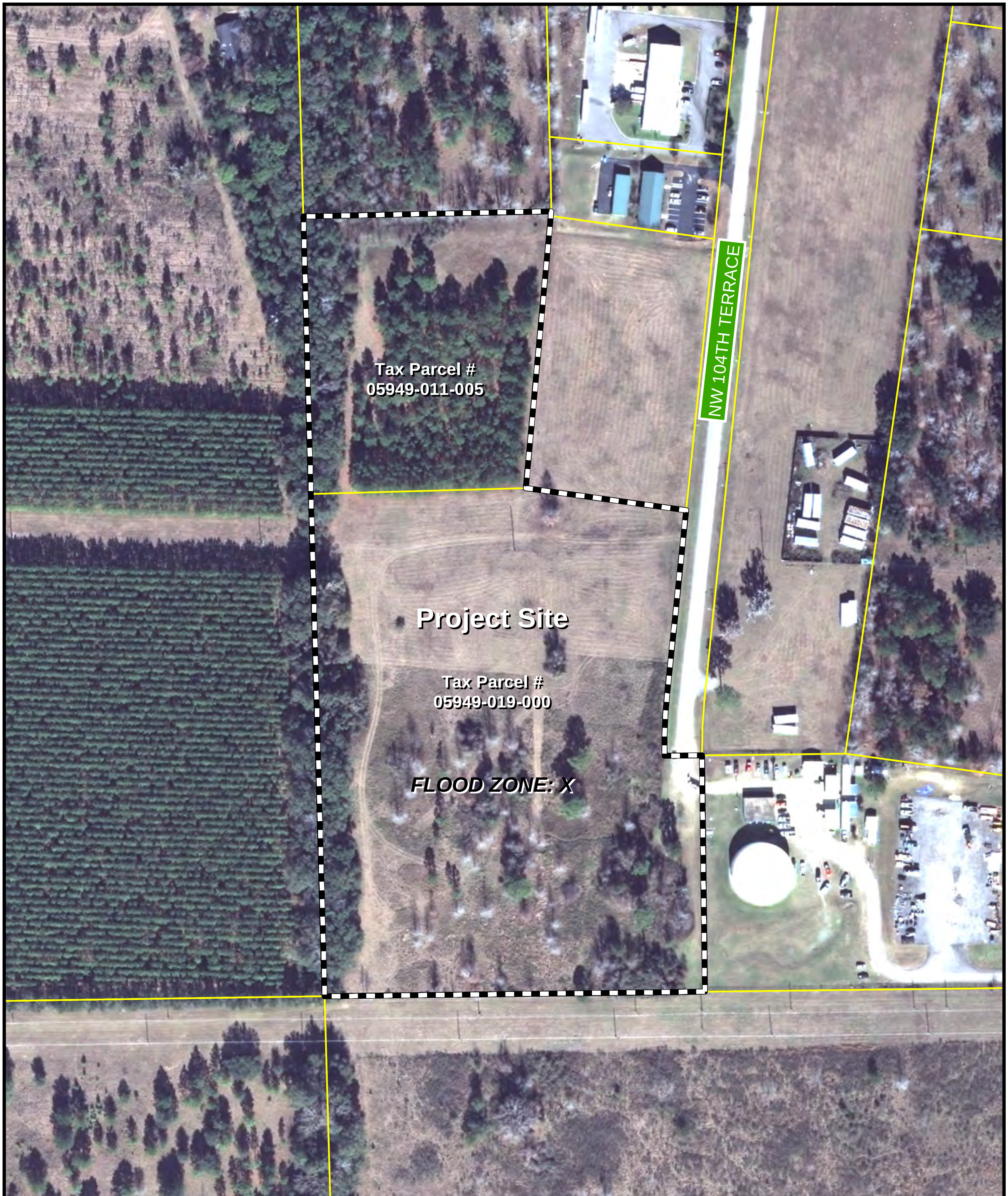


CHW Professional Consultants 132 NW 76th Drive Gainesville, Florida 32607 (352) 331-1976 / (352) 331-2476 www.chw-inc.com est. 1988 FLORIDA CA-5075	**City of Alachua** **Operations Center & Warehouse** **NRCS Soils Map**	0 100 200 Feet	NORTH

Document Path: L:\2015\15-0150\Engineering\GIS\MXDs\Soils.mxd Prepared by Employee 415 Date: 9/29/2015 For informational purposes only

Figure 5

FEMA Map



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City of Alachua
Operations Center & Warehouse
FEMA Flood Map

0 100 200
Feet

NORTH

Document Path: L:\2015\15-0150\Engineering\GIS\MXDs\FEMA.mxd Prepared by Employee 415 Date: 9/29/2015 For informational purposes only

Figure 6

Pre Development Drainage Map

LEGEND

PRE-DEVELOPMENT WATERSHED:

POST-DEVELOPMENT WATERSHED:

DRAINAGE DIVIDE

PRE-DEVELOPMENT DRAINAGE FLOW PATTERNS:

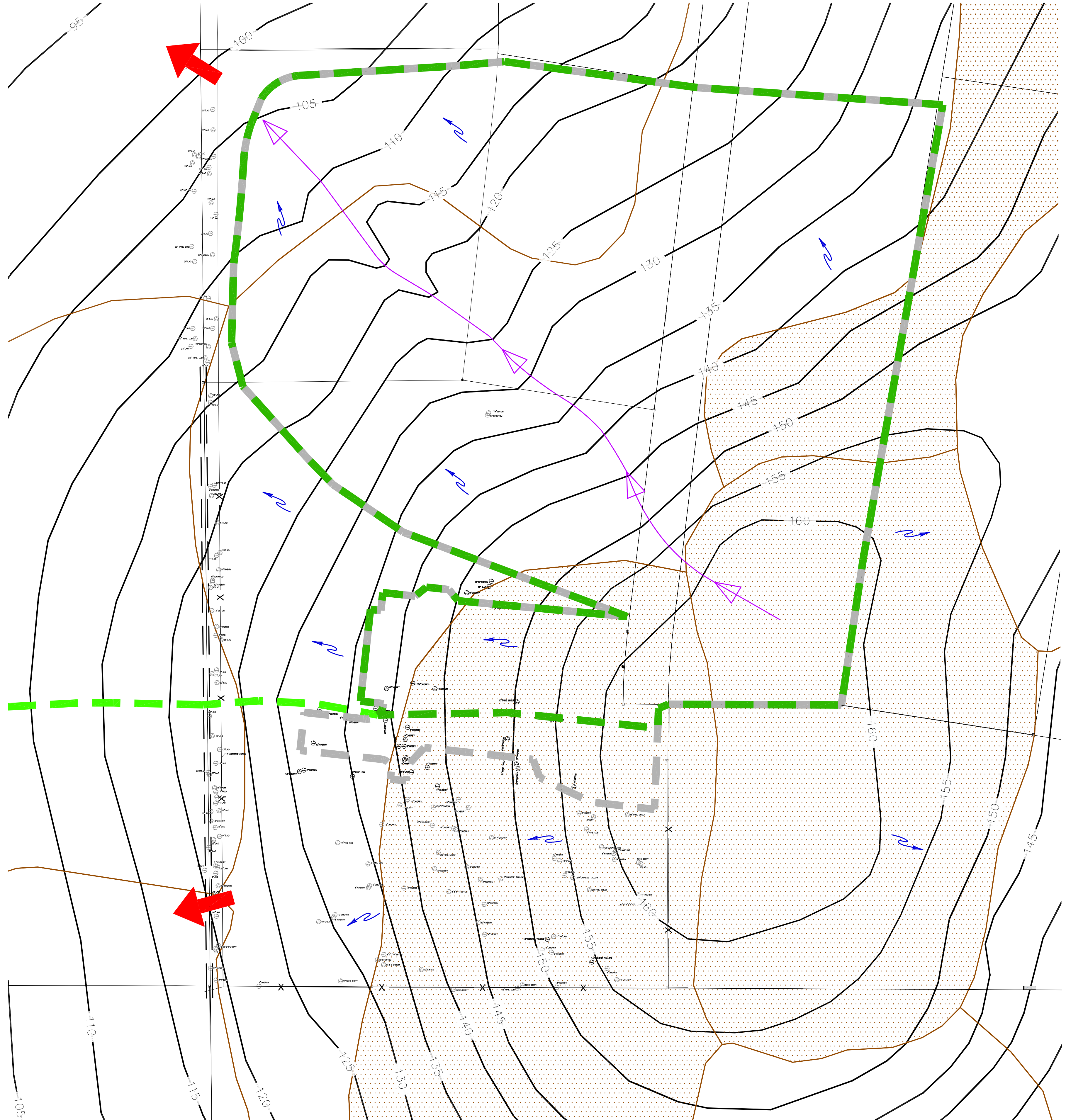
PRE-DEVELOPMENT TIME OF CONCENTRATION

PRE-DEVELOPMENT DISCHARGE POINT:

FOR CONSISTENCY IN PRE- VS POST-DEVELOPMENT DRAINAGE COMPARISON, ONLY THE PORTION OF THE PRE-DEVELOPMENT WATERSHED THAT IS CONTAINED WITHIN THE POST-DEVELOPMENT WATERSHED IS INCLUDED IN PRE-DEVELOPMENT CALCULATIONS (AS SHOWN).

TYPE 'B' SOILS

NOTE: ALL SOILS ARE TYPE 'A' UNLESS OTHERWISE NOTED



N

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SCALE: 1"=150'

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING 0 1/2" 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

CONSTRUCTION/BID REVISIONS:

SUBMITTALS:

CLIENT: CITY OF ALACHUA

PROJECT: CITY OF ALACHUA OPERATIONS CENTER AND WAREHOUSE

SHEET TITLE: PRE-DEVELOPMENT DRAINAGE MAP

TECHNICIAN:

DESIGNER: SEW

QUALITY CONTROL: DHY

PROJECT NUMBER: 15-0150

SHEET NO.: 1

Figure 7

Post Development Drainage Map

LEGEND

POST–DEVELOPMENT WATERSHED:

POST–DEVELOPMENT DISCHARGE POINT:

PERMITTED AREA FOR 70% IMPERVIOUS ON EXISTING LOTS: 3.29 AC. (IMPERVIOUS)

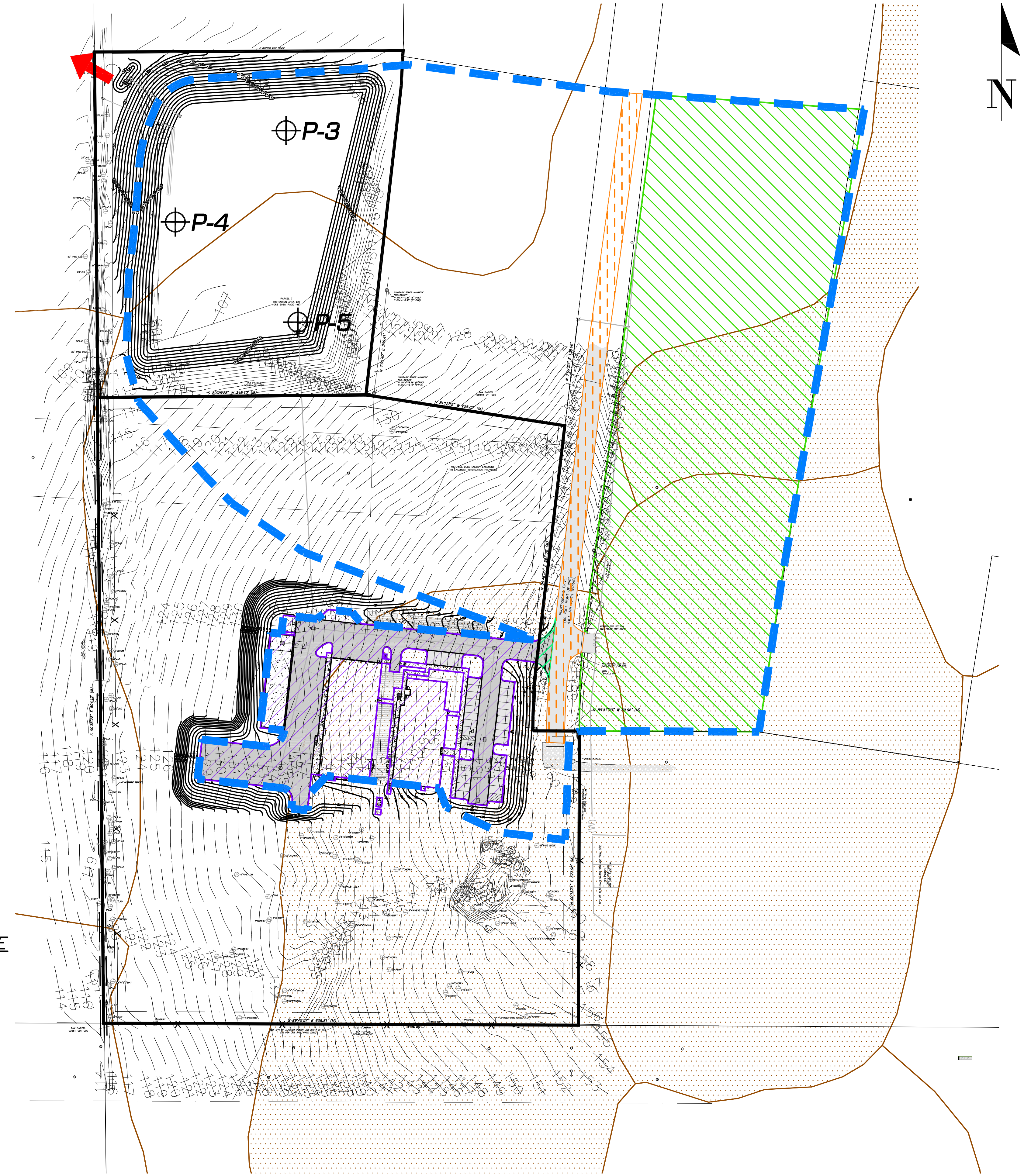
EXISTING ROAD IMPERVIOUS AREA: 0.47 AC.

PROPOSED ONSITE IMPERVIOUS AREA: 1.43 AC.

PROPOSED OFFSITE IMPERVIOUS AREA: 0.02 AC.

TYPE 'B' SOILS

NOTE: ALL SOILS ARE TYPE 'A' UNLESS OTHERWISE NOTED



SITE SOIL PARAMETERS

	SMF–1
AVERAGE GROUND ELEV:	107.4'
AVERAGE WATER TABLE ELEV:	94.4'
BASE OF AQUIFER ELEV:	94.4'

INFILTRATION RATES
- HORIZONTAL(Kh): 1 FT/DAY
- VERTICAL (Kv): 1 FT/DAY
- POROSITY: 20%

STORMWATER DESIGN PERFORMANCE

	SMF–1
TOP OF BANK ELEV:	110.0'
BOTTOM ELEV:	103.0'

DESIGN STORM	PS
100–YR/240–HR	108.87'
100–YR/24–HR	107.55'

PS = PEAK STAGE (FT)

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SCALE: 1"=150'

VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING 0 1/2" 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

CONSTRUCTION/BID REVISIONS:

SUBMITTALS:

CLIENT: CITY OF ALACHUA

PROJECT: CITY OF ALACHUA OPERATIONS CENTER AND WAREHOUSE

SHEET TITLE: POST–DEVELOPMENT DRAINAGE MAP

TECHNICIAN:

DESIGNER: SEW

QUALITY CONTROL: DHY

PROJECT NUMBER: 15–0150

SHEET NO.: 1

Appendix A

Drainage Calculations and
Computer Model Output

Project Number: 15-0150
Project Name: City of Alachua Operations Center
Calculated by: SEW
Checked by: DHY
Date: 10/20/2015

CURVE NUMBER CALCULATIONS

Pre-Development Watershed #1:

Total Area:	654,074	s.f.	15.02	ac.	CN	CN * Area
Impervious Area (Existing)	0	s.f.	0.00	ac.	98	0.0
Pasture Area (Good, Type 'A' Soil):	476,486	s.f.	10.94	ac.	39	426.6
Pasture Area (Good, Type 'B' Soil):	177,588	s.f.	4.08	ac.	61	248.7

Pasture, grassland, or rang-continuous forage for grazing:

	A	B	C	D
Poor	68	79	86	89
Fair	49	69	79	84
Good	39	61	74	80

Composite CN: **45**

Time of Concentration: 13 minutes
(Time calculated using TR-55 method methodology)

Post-Development Watershed #1 (SMF-1):

Total Area:	687,757	s.f.	15.79	ac.	CN	CN * Area
Impervious Area (Permitted 70% on Lots):	143,203	s.f.	3.29	ac.	98	322.2
Impervious Area (Existing Road):	20,628	s.f.	0.47	ac.	98	46.4
Impervious Area (Proposed Onsite):	62,161	s.f.	1.43	ac.	98	139.8
Impervious Area (Proposed Offsite):	838	s.f.	0.02	ac.	98	1.9
Stormwater Management Facility:	96,555	s.f.	2.22	ac.	100	221.7
Open Area (Good, Type 'A' Soil):	292,623	s.f.	6.72	ac.	39	262.0
Open Area (Good, Type 'B' Soil):	71,749	s.f.	1.65	ac.	61	100.5

Open Area:

	A	B	C	D
Poor	68	79	86	89
Fair	49	69	79	84
Good	39	61	74	80

Impervious areas
Paved parking lots, roofs, driveways, etc. (excluding R/W):

A	B	C	D
98	98	98	98

Composite CN: **69**

Time of Concentration: 10 minutes
(Time assumed to be 10 minutes)
Note: The stormwater management area was considered to have an CN value of 100

WQTV CALCULATIONS

SMF-1 (Dry Retention):

SRWMD
Minimum treatment volume shall be the runoff from the first 1.0 inches of rainfall from the design storm

Q = C*i*A
C= 0.56
i (inches)= 1.0
A (ac.)= 15.79
Q (cf) = 32,077

Runoff Coefficient Calculation

	Area (ac.)	Coeff. C	C x A
Impervious Area	5.21	0.95	4.95
Open Space Area	8.36	0.20	1.67
Pond Area	2.22	1.00	2.22
Total	*15.79*		*8.84*
		C =	0.56

Professional Consultants

Project Number: 15-0150
Project Name: City of Alachua Operations Center
Calculated by: SEW
Checked by: DHY
Date: 10/20/2015

Tc CALCULATIONS:

	SHEET FLOW					SHALLOW CONCENTRATED FLOW					CHANNEL / PIPE FLOW							
WATERSHED	Manning's n (--)	Flow Length L (ft)	2-Year 24-Hour Rain, P2 (in)	Land Slope s (ft/ft)	Tt1 (hr)	Paved or Unpvd. (P or U)	Flow Length L (ft)	Water-course Slope, s (ft/ft)	Avg. Velocity V (ft/s)	Tt2 (hr)	Cross-Section Area, a (ft^2)	Wetted Perim. Pw (ft)	Hydraulic Radius r (ft)	Pipe Slope s (ft/ft)	Manning n (--)	Avg. Velocity V (ft/s)	Flow Length L (ft)	Tt3 (hr)
PRE-1	0.24	100	4.5	0.034	**0.16**	U	849	0.061	3.90	**0.06**	-	-	-	-	-	-	-	**-**

TOTAL TIME OF CONCENTRATION		
ID #	Tc (hr)	Tc (min)
PRE-1	0.22	**13**

TIME OF CONCENTRATION VALUES DETERMINED USING TR-55 METHODOLOGY.

SHEET FLOW:

$$Tt = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}s^{0.4}}$$

SHALLOW CONCENTRATED FLOW:

1. For slopes < 0.005 ft/ft

Unpaved $V=16.1345\ s^{0.5}$

Paved $V=20.3282\ s^{0.5}$

2. For slopes > 0.005 ft/ft

Velocity per Figure 3-1, TR-55

$$Tt = \frac{L}{3600\ V}$$

CHANNEL/PIPE FLOW:

$$V = \frac{1.49 r^{2/3} s^{1/2}}{n}$$

$$Tt = \frac{L}{3600\ V}$$

STAGE-STORAGE CALCULATIONS:

Post-Development SMF-1: Dry Retention Pond					
ELEV. (FT)	**AREA (SF)**	**AREA (AC)**	**VOLUME (CF)**	**VOLUME (AC-FT)**	
103.00	68,961	1.583	0	0.000	<-- Bottom of Pond
104.00	73,296	1.683	71,129	1.633	
105.00	77,741	1.785	146,647	3.367	
106.00	82,290	1.889	226,663	5.203	
107.00	86,942	1.996	311,279	7.146	
108.00	91,697	2.105	400,598	9.196	
109.00	96,555	2.217	494,724	11.357	
110.00	101,515	2.330	593,759	13.631	<-- Top of Pond

Equivalent Length/Width:

Volume =	593,759	c.f.			
Area =	101,515	s.f.	Length =	**428**	**ft.**
Perimeter =	1,252	ft.	Width =	**198**	**ft.**
Depth=	7.0	ft.			

Professional Consultants

Project Number: 15-0150
Project Name: City of Alachua Operations Center
Calculated by: SEW
Checked by: DHY
Date: 11/3/2015

Project No. 15-0150 CoA Operations Center - Pipe Sizing Calculations

Structure No.		Invert Elev.		Length	Slope	Dia.		i	A	Q (cfs) Actual		Q Allowed	Pipe A	V - Full Flow	Pipe R	Minor Loss	Minor Loss	Loss	HGL		ToG/	F.B.
From	To	U.S.	D.S.	(ft)	(ft/foot)	(in)	C	(in/hr)	(ac)	Inc	Cumul	(cfs)	(sq-ft)	(fps)	(ft)	Coeff.	(ft)	(ft)	U.S.	D.S.	EoP	(in)
S-6	S-5	143.14	141.18	79	0.0250	15.0	0.86	6.10	0.12	0.64	0.64	6.63	1.23	5.41	0.31	0.50	0.002	0.018	114.32	114.30	149.54	422.60
S-5	S-4	141.18	138.22	119	0.0250	15.0	0.87	6.10	0.25	1.31	1.95	6.64	1.23	5.41	0.31	0.50	0.020	0.253	114.30	114.03	149.78	425.72
S-4	S-3	138.22	134.75	230	0.0151	15.0	0.95	6.10	0.03	0.16	2.10	5.16	1.23	4.20	0.31	1.00	0.046	0.573	114.03	113.41	153.25	470.63
S-11	S-10	143.02	139.40	85	0.0426	12.0	0.8	6.10	0.22	1.08	1.08	4.78	0.79	6.08	0.25	0.50	0.015	0.184	113.94	113.75	145.50	378.68
S-10	S-3*	139.40	136.19	64	0.0502	12.0	0.8	6.10	0.11	0.51	1.59	5.19	0.79	6.60	0.25	0.50	0.032	0.301	113.75	113.41	145.75	384.06
S-12	S-3*	143.00	137.56	66	0.0824	12.0	0.5	6.10	0.05	0.15	0.15	6.65	0.79	8.47	0.25	0.50	0.000	0.003	113.41	113.41	150.50	445.02
S-8	S-7	134.74	134.19	102	0.0054	15.0	1.0	6.10	0.13	0.73	0.73	3.08	1.23	2.51	0.31	0.50	0.003	0.031	114.44	114.41	138.25	285.68
S-7	S-3	134.19	133.18	183	0.0055	15.0	1.0	6.10	0.39	2.25	2.99	3.12	1.23	2.54	0.31	0.85	0.078	0.920	114.41	113.41	141.36	323.40
S-3	S-2	133.18	113.22	377	0.0529	15.0	0.8	6.10	0.11	0.51	3.19	9.66	1.23	7.87	0.31	1.00	0.105	2.166	113.41	111.14	144.90	377.86
S-2	S-1	113.22	103.00	377	0.0271	15.0	-	6.10	-	-	3.19	6.91	1.23	5.63	0.31	1.00	0.105	2.166	111.14	108.87	125.50	172.31

* Denotes invert is along pipe with actual structure downstream from connection point.

Notes

1. ToG = Top of Grate/EoP = Edge of Pavement
2. FB= Free Board, CC = Concrete Collar
3. Rainfall intensity is based on the FDOT Zone 5 Rainfall Intensity-Duration-Frequency curve for the 3 YEAR - 10 MIN storm event (6.1 inches/hr)
4. The tailwater condition was set at the peak stage for 100 YR -240HR storm event per SRWMD (EL. 108.87)

Section 1

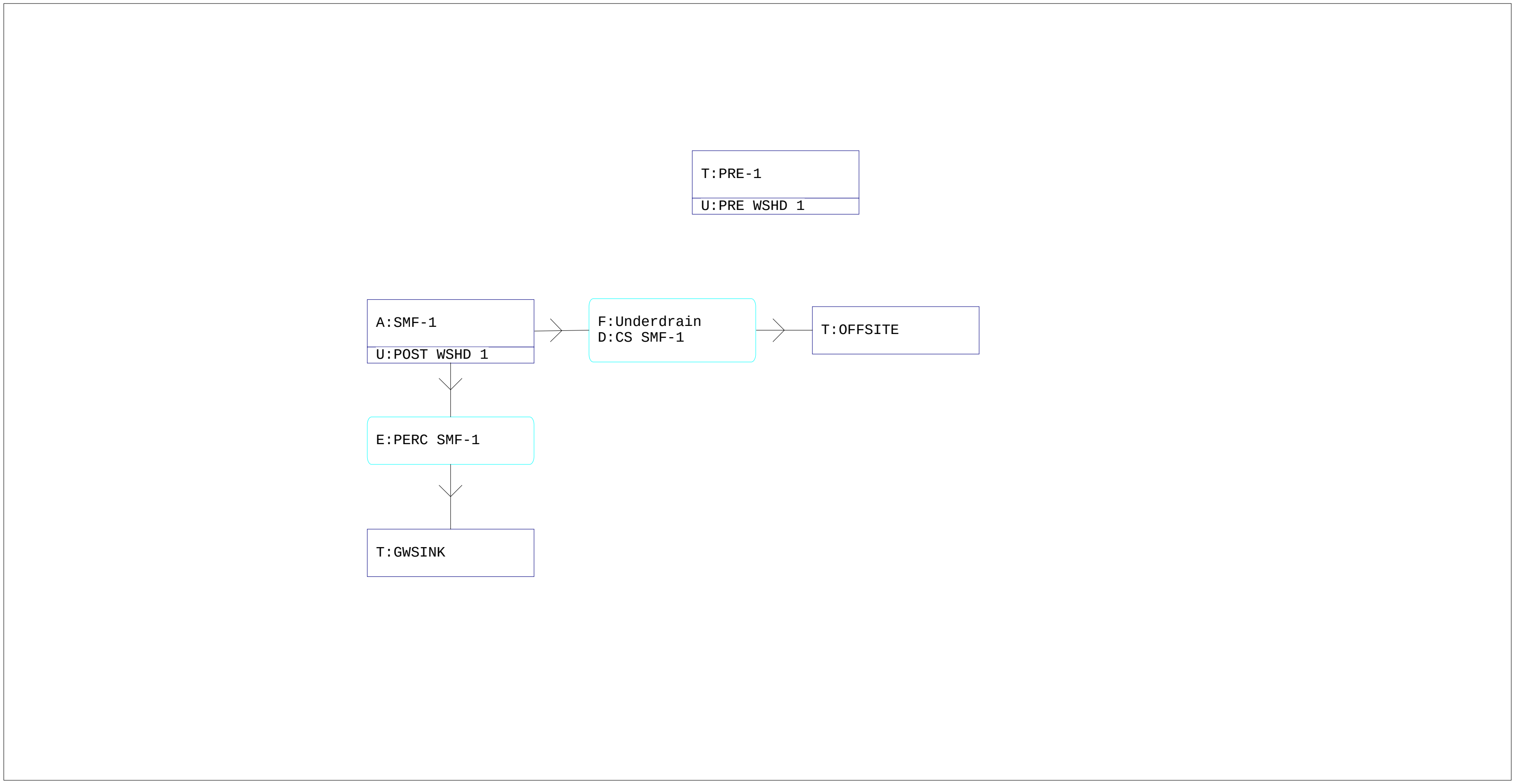
Pre- and Post-Development Results

Project: 15-0150 City of Alachua Operations Center
Node Network Diagram
Designed by: SEW
Checked by: DHY
10/19/15

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



Project: 15-0150 City of Alachua Operations Center
Input Report
Designed by: SEW
Checked by: DHY
10/19/15

```
==========================================================================================
==== Basins ==============================================================================
==========================================================================================

         Name: POST WSHD 1              Node: SMF-1                Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                    Peaking Factor: 484.0
          Rainfall File:                     Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 10.00
               Area(ac): 15.790                  Time Shift(hrs): 0.00
           Curve Number: 69.00              Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


----------------------------------------------------------------------------------------------------
         Name: PRE WSHD 1               Node: PRE-1                Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                    Peaking Factor: 323.0
          Rainfall File:                     Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 13.00
               Area(ac): 15.020                  Time Shift(hrs): 0.00
           Curve Number: 45.00              Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


==========================================================================================
==== Nodes ===============================================================================
==========================================================================================

      Name: GWSINK              Base Flow(cfs): 0.000          Init Stage(ft): 94.400
     Group: BASE                                               Warn Stage(ft): 95.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          94.400
        9999.00          94.400

------------------------------------------------------------------------------------------
      Name: OFFSITE             Base Flow(cfs): 0.000          Init Stage(ft): 98.000
     Group: BASE                                               Warn Stage(ft): 99.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          98.000
        9999.00          98.000

------------------------------------------------------------------------------------------
      Name: PRE-1               Base Flow(cfs): 0.000          Init Stage(ft): 0.000
     Group: BASE                                               Warn Stage(ft): 0.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00           0.000
        9999.00           0.000

------------------------------------------------------------------------------------------
      Name: SMF-1               Base Flow(cfs): 0.000          Init Stage(ft): 103.000
     Group: BASE                                               Warn Stage(ft): 109.000
      Type: Stage/Area
```

```
      Stage(ft)        Area(ac)
--------------- ---------------
        103.000          1.5830
        104.000          1.6830
        105.000          1.7850
        106.000          1.8890
        107.000          1.9960
        108.000          2.1050
        109.000          2.2170
        110.000          2.3300

==========================================================================================
==== Drop Structures =====================================================================
==========================================================================================

         Name: CS SMF-1            From Node: SMF-1             Length(ft): 45.00
        Group: BASE                  To Node: OFFSITE                Count: 1

               UPSTREAM       DOWNSTREAM                 Friction Equation: Average Conveyance
     Geometry: Circular       Circular                  Solution Algorithm: Most Restrictive
     Span(in): 15.00          15.00                                   Flow: Both
     Rise(in): 15.00          15.00                     Entrance Loss Coef: 0.200
   Invert(ft): 98.450         98.000                        Exit Loss Coef: 0.500
  Manning's N: 0.012000       0.012000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                         Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope


*** Weir 1 of 2 for Drop Structure CS SMF-1 ***
                                                                                 TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Vertical: Mavis           Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Circular              Orifice Disc Coef: 0.600

               Span(in): 2.75                        Invert(ft): 106.600
               Rise(in): 2.75                  Control Elev(ft): 106.600

*** Weir 2 of 2 for Drop Structure CS SMF-1 ***
                                                                                 TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Horizontal                Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Rectangular           Orifice Disc Coef: 0.600

               Span(in): 24.00                       Invert(ft): 108.800
               Rise(in): 37.00                 Control Elev(ft): 108.800


==========================================================================================
==== Percolation Links ===================================================================
==========================================================================================

         Name: PERC SMF-1          From Node: SMF-1                   Flow: Both
        Group: BASE                  To Node: GWSINK                 Count: 1

         Surface Area Option: Vary based on Stage/Area Table
   Vertical Flow Termination: Horizontal Flow Algorithm
       Aquifer Base Elev(ft): 94.400                        Perimeter 1(ft): 1227.000
        Water Table Elev(ft): 94.400                        Perimeter 2(ft): 1542.000
 *****************************0.000                         Perimeter 3(ft): 4369.000
  Horiz Conductivity(ft/day): 0.500                     Distance 1 to 2(ft): 50.000
   Vert Conductivity(ft/day): 0.500                     Distance 2 to 3(ft): 450.000
```

```
     Effective Porosity(dec): 0.200                    Num Cells 1 to 2: 10
            Suction Head(in): 12.400                   Num Cells 2 to 3: 45
         Layer Thickness(ft): 8.600
```

```
==========================================================================================
==== Filters =============================================================================
==========================================================================================

         Name: Underdrain          From Node: SMF-1                  Flow: Both
        Group: BASE                  To Node: OFFSITE               Count: 1

                      Sloped: No
             Filter Elev(ft): 103.000                   Pipe Inv Elev(ft): 99.000
            Filter Width(ft): 4.000                     Pipe Diameter(in): 12.000
           Filter Length(ft): 85.000                  X Grav Thkness(in): 12.000
 Filter Permeability(ft/day): 10.000                  Y Grav Thkness(in): 12.000
```

```
==========================================================================================
==== Hydrology Simulations ===============================================================
==========================================================================================

         Name: 100Y_001HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_001HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 1.00
          Rainfall File: Fdot-1
    Rainfall Amount(in): 4.40

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

----------------------------------------------------------------------------------------------------
         Name: 100Y_002HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_002HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 2.00
          Rainfall File: Fdot-2
    Rainfall Amount(in): 5.40

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

----------------------------------------------------------------------------------------------------
         Name: 100Y_004HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_004HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 4.00
          Rainfall File: Fdot-4
    Rainfall Amount(in): 6.50

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

----------------------------------------------------------------------------------------------------
         Name: 100Y_008HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_008HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 8.00
          Rainfall File: Fdot-8
    Rainfall Amount(in): 8.00
```

```
Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

----------------------------------------------------------------------------------------------------
         Name: 100Y_024HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_024HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Fdot-24
    Rainfall Amount(in): 11.04

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

----------------------------------------------------------------------------------------------------
         Name: 100Y_072HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_072HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Fdot-72
    Rainfall Amount(in): 13.50

Time(hrs)       Print Inc(min)
--------------- ---------------
80.000          5.00

----------------------------------------------------------------------------------------------------
         Name: 100Y_168HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_168HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 168.00
          Rainfall File: Fdot-168
    Rainfall Amount(in): 16.00

Time(hrs)       Print Inc(min)
--------------- ---------------
180.000         5.00

----------------------------------------------------------------------------------------------------
         Name: 100Y_240HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_240HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 240.00
          Rainfall File: Fdot-240
    Rainfall Amount(in): 18.00

Time(hrs)       Print Inc(min)
--------------- ---------------
260.000         5.00

==========================================================================================
==== Routing Simulations =================================================================
==========================================================================================

         Name: 100YR_001H          Hydrology Sim: 100Y_001HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_001H.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                     Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                     End Time(hrs): 721.00
     Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
        Boundary Stages:                          Boundary Flows:
```

```
Time(hrs)       Print Inc(min)
--------------- ---------------
2.000           5.000
24.000          15.000
169.000         60.000
721.000         1440.000

Group           Run
--------------- -----
BASE            Yes


----------------------------------------------------------------------------------------------------
         Name: 100YR_002H          Hydrology Sim: 100Y_002HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_002H.I32

      Execute: Yes         Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 722.00
     Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.000
170.000         60.000
722.000         1440.000

Group           Run
--------------- -----
BASE            Yes


----------------------------------------------------------------------------------------------------
         Name: 100YR_004H          Hydrology Sim: 100Y_004HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_004H.I32

      Execute: Yes         Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 724.00
     Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.000
172.000         60.000
724.000         1440.000

Group           Run
--------------- -----
BASE            Yes


----------------------------------------------------------------------------------------------------
         Name: 100YR_008H          Hydrology Sim: 100Y_008HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_008H.I32

      Execute: Yes         Restart: No           Patch: No
  Alternative: No
```

```
       Max Delta Z(ft): 1.00                     Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
       Start Time(hrs): 0.000                     End Time(hrs): 728.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
       Boundary Stages:                          Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.000
176.000         60.000
728.000         1440.000

Group           Run
--------------- -----
BASE            Yes


----------------------------------------------------------------------------------------------------
        Name: 100YR_024H          Hydrology Sim: 100Y_024HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_024H.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

       Max Delta Z(ft): 1.00                     Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
       Start Time(hrs): 0.000                     End Time(hrs): 744.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
       Boundary Stages:                          Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          15.000
192.000         60.000
744.000         1440.000

Group           Run
--------------- -----
BASE            Yes


----------------------------------------------------------------------------------------------------
        Name: 100YR_072H          Hydrology Sim: 100Y_072HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_072H.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

       Max Delta Z(ft): 1.00                     Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
       Start Time(hrs): 0.000                     End Time(hrs): 792.00
     Min Calc Time(sec): 0.5000              Max Calc Time(sec): 60.0000
       Boundary Stages:                          Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
80.000          15.000
248.000         60.000
792.000         1440.000

Group           Run
--------------- -----
BASE            Yes


----------------------------------------------------------------------------------------------------
        Name: 100YR_168H          Hydrology Sim: 100Y_168HR
```

```
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_168H.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                   Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                   End Time(hrs): 888.00
     Min Calc Time(sec): 0.5000             Max Calc Time(sec): 60.0000
        Boundary Stages:                        Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
172.000         15.000
336.000         60.000
888.000         1440.000

Group           Run
--------------- -----
BASE            Yes


----------------------------------------------------------------------------------------------------
         Name: 100YR_240H          Hydrology Sim: 100Y_240HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_240H.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                   Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                   End Time(hrs): 960.00
     Min Calc Time(sec): 0.5000             Max Calc Time(sec): 60.0000
        Boundary Stages:                        Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
240.000         15.000
408.000         60.000
960.000         1440.000

Group           Run
--------------- -----
BASE            Yes
```

Project: 15-0150 City of Alachua Operations Center
Basin Max Report
Designed by: SEW
Checked by: DHY
10/19/15

Pre-Development Peak Discharge Rate

Pre-Development Peak Discharge Volume

Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
100Y_001HR	PRE WSHD 1	BASE	0.84	9.03	0.269	14658
100Y_002HR	PRE WSHD 1	BASE	1.07	8.02	0.575	31324
100Y_004HR	PRE WSHD 1	BASE	2.57	11.05	1.009	55032
100Y_008HR	PRE WSHD 1	BASE	4.04	14.79	1.733	94513
100Y_024HR	PRE WSHD 1	BASE	12.02	6.25	3.549	193498
100Y_072HR	PRE WSHD 1	BASE	60.00	6.63	5.253	286382
100Y_168HR	PRE WSHD 1	BASE	159.98	5.41	7.130	388767
100Y_240HR	PRE WSHD 1	BASE	183.99	6.98	8.714	475122

Post-Development Peak Discharge Rate

Project: 15-0150 City of Alachua Operations Center
Node Max Report
Designed by: SEW
Checked by: DHY
10/19/15

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
OFFSITE	BASE	100YR_001H	0.00	98.00	99.00	0.0000	0	1.22	0.05	0.00	0.00
OFFSITE	BASE	100YR_002H	0.00	98.00	99.00	0.0000	0	2.25	0.06	0.00	0.00
OFFSITE	BASE	100YR_004H	0.00	98.00	99.00	0.0000	0	4.21	0.07	0.00	0.00
OFFSITE	BASE	100YR_008H	0.00	98.00	99.00	0.0000	0	8.21	0.09	0.00	0.00
OFFSITE	BASE	100YR_024H	0.00	98.00	99.00	0.0000	0	24.11	0.29	0.00	0.00
OFFSITE	BASE	100YR_072H	0.00	98.00	99.00	0.0000	0	72.01	0.35	0.00	0.00
OFFSITE	BASE	100YR_168H	0.00	98.00	99.00	0.0000	0	168.13	0.41	0.00	0.00
OFFSITE	BASE	100YR_240H	0.00	98.00	99.00	0.0000	0	216.00	1.07	0.00	0.00

Post-Development
Peak Discharge
Volume

Project: 15-0150 City of Alachua Operations Center
Node Time Series Report
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_001H	OFFSITE	BASE	721.01	98.00	99.00	0	0.00	0.00	0.192	0.000
100YR_002H	OFFSITE	BASE	722.01	98.00	99.00	0	0.00	0.00	0.303	0.000
100YR_004H	OFFSITE	BASE	700.26	98.00	99.00	0	0.00	0.00	0.767	0.000
100YR_004H	OFFSITE	BASE	724.00	98.00	99.00	0	0.00	0.00	0.767	0.000
100YR_008H	OFFSITE	BASE	704.26	98.00	99.00	0	0.00	0.00	1.779	0.000
100YR_008H	OFFSITE	BASE	728.01	98.00	99.00	0	0.00	0.00	1.779	0.000
100YR_024H	OFFSITE	BASE	720.26	98.00	99.00	0	0.04	0.00	3.941	0.000
100YR_024H	OFFSITE	BASE	744.01	98.00	99.00	0	0.04	0.00	4.018	0.000
100YR_072H	OFFSITE	BASE	704.26	98.00	99.00	0	0.05	0.00	5.063	0.000
100YR_072H	OFFSITE	BASE	728.26	98.00	99.00	0	0.05	0.00	5.168	0.000
100YR_072H	OFFSITE	BASE	752.26	98.00	99.00	0	0.05	0.00	5.272	0.000
100YR_072H	OFFSITE	BASE	776.26	98.00	99.00	0	0.05	0.00	5.372	0.000
100YR_072H	OFFSITE	BASE	792.00	98.00	99.00	0	0.05	0.00	5.437	0.000
100YR_168H	OFFSITE	BASE	720.27	98.00	99.00	0	0.07	0.00	7.239	0.000
100YR_168H	OFFSITE	BASE	744.27	98.00	99.00	0	0.07	0.00	7.370	0.000
100YR_168H	OFFSITE	BASE	768.27	98.00	99.00	0	0.06	0.00	7.499	0.000
100YR_168H	OFFSITE	BASE	792.27	98.00	99.00	0	0.06	0.00	7.625	0.000
100YR_168H	OFFSITE	BASE	816.27	98.00	99.00	0	0.06	0.00	7.749	0.000
100YR_168H	OFFSITE	BASE	840.27	98.00	99.00	0	0.06	0.00	7.869	0.000
100YR_168H	OFFSITE	BASE	864.27	98.00	99.00	0	0.06	0.00	7.987	0.000
100YR_168H	OFFSITE	BASE	888.01	98.00	99.00	0	0.06	0.00	8.102	0.000
100YR_240H	OFFSITE	BASE	720.25	98.00	99.00	0	0.07	0.00	9.174	0.000
100YR_240H	OFFSITE	BASE	744.25	98.00	99.00	0	0.07	0.00	9.317	0.000
100YR_240H	OFFSITE	BASE	768.25	98.00	99.00	0	0.07	0.00	9.457	0.000
100YR_240H	OFFSITE	BASE	792.25	98.00	99.00	0	0.07	0.00	9.593	0.000
100YR_240H	OFFSITE	BASE	816.25	98.00	99.00	0	0.07	0.00	9.728	0.000
100YR_240H	OFFSITE	BASE	840.25	98.00	99.00	0	0.07	0.00	9.859	0.000
100YR_240H	OFFSITE	BASE	864.25	98.00	99.00	0	0.06	0.00	9.987	0.000
100YR_240H	OFFSITE	BASE	888.25	98.00	99.00	0	0.06	0.00	10.113	0.000
100YR_240H	OFFSITE	BASE	912.25	98.00	99.00	0	0.06	0.00	10.236	0.000
100YR_240H	OFFSITE	BASE	936.25	98.00	99.00	0	0.06	0.00	10.356	0.000
100YR_240H	OFFSITE	BASE	960.01	98.00	99.00	0	0.06	0.00	10.473	0.000

Project: 15-0150 City of Alachua Operations Center
Node Max Series Report
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development Peak Stage

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
SMF-1	BASE	100YR_001H	1.22	104.20	109.00	0.0050	74221	0.67	62.99	1.22	0.48
SMF-1	BASE	100YR_002H	2.25	104.73	109.00	0.0050	76538	0.83	56.13	2.25	0.51
SMF-1	BASE	100YR_004H	4.21	105.33	109.00	0.0050	79231	2.00	30.99	4.21	0.53
SMF-1	BASE	100YR_008H	8.21	106.13	109.00	0.0050	82885	4.00	39.30	8.21	0.57
SMF-1	BASE	100YR_024H	24.11	107.55	109.00	0.0050	89577	12.00	13.54	24.11	0.81
SMF-1	BASE	100YR_072H	72.01	108.05	109.00	0.0050	91936	59.99	9.64	72.01	0.88
SMF-1	BASE	100YR_168H	168.13	108.71	109.00	0.0047	95168	159.92	7.05	160.23	0.53
SMF-1	BASE	100YR_240H	216.00	108.87	109.00	0.0050	95954	183.91	9.24	216.00	1.15

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_001H	SMF-1	BASE	20.35	103.76	109.00	72268	0.00	0.46	2.018	0.785
100YR_001H	SMF-1	BASE	20.60	103.75	109.00	72243	0.00	0.46	2.018	0.794
100YR_001H	SMF-1	BASE	20.85	103.75	109.00	72217	0.00	0.46	2.018	0.804
100YR_001H	SMF-1	BASE	21.10	103.74	109.00	72192	0.00	0.46	2.018	0.813
100YR_001H	SMF-1	BASE	21.35	103.74	109.00	72167	0.00	0.46	2.018	0.823
100YR_001H	SMF-1	BASE	21.60	103.73	109.00	72142	0.00	0.46	2.018	0.832
100YR_001H	SMF-1	BASE	21.85	103.73	109.00	72117	0.00	0.46	2.018	0.842
100YR_001H	SMF-1	BASE	22.10	103.72	109.00	72092	0.00	0.46	2.018	0.852
100YR_001H	SMF-1	BASE	22.35	103.71	109.00	72066	0.00	0.46	2.018	0.861
100YR_001H	SMF-1	BASE	22.60	103.71	109.00	72041	0.00	0.46	2.018	0.871
100YR_001H	SMF-1	BASE	22.85	103.70	109.00	72016	0.00	0.46	2.018	0.880
100YR_001H	SMF-1	BASE	23.10	103.70	109.00	71991	0.00	0.46	2.018	0.890
100YR_001H	SMF-1	BASE	23.35	103.69	109.00	71966	0.00	0.46	2.018	0.899
100YR_001H	SMF-1	BASE	23.60	103.69	109.00	71941	0.00	0.46	2.018	0.909
100YR_001H	SMF-1	BASE	23.85	103.68	109.00	71915	0.00	0.46	2.018	0.918
100YR_001H	SMF-1	BASE	24.10	103.67	109.00	71890	0.00	0.46	2.018	0.928
100YR_001H	SMF-1	BASE	25.10	103.65	109.00	71790	0.00	0.46	2.018	0.966
100YR_001H	SMF-1	BASE	26.10	103.63	109.00	71689	0.00	0.46	2.018	1.004
100YR_001H	SMF-1	BASE	27.10	103.60	109.00	71589	0.00	0.46	2.018	1.042
100YR_001H	SMF-1	BASE	28.10	103.58	109.00	71489	0.00	0.46	2.018	1.080
100YR_001H	SMF-1	BASE	29.10	103.56	109.00	71389	0.00	0.46	2.018	1.117
100YR_001H	SMF-1	BASE	30.10	103.54	109.00	71288	0.00	0.46	2.018	1.155
100YR_001H	SMF-1	BASE	31.10	103.51	109.00	71188	0.00	0.45	2.018	1.193
100YR_001H	SMF-1	BASE	32.10	103.49	109.00	71088	0.00	0.45	2.018	1.230
100YR_001H	SMF-1	BASE	33.10	103.47	109.00	70988	0.00	0.45	2.018	1.268
100YR_001H	SMF-1	BASE	34.10	103.44	109.00	70889	0.00	0.45	2.018	1.305
100YR_001H	SMF-1	BASE	35.10	103.42	109.00	70789	0.00	0.45	2.018	1.342
100YR_001H	SMF-1	BASE	36.10	103.40	109.00	70689	0.00	0.45	2.018	1.379
100YR_001H	SMF-1	BASE	37.10	103.38	109.00	70589	0.00	0.45	2.018	1.416
100YR_001H	SMF-1	BASE	38.10	103.35	109.00	70490	0.00	0.45	2.018	1.453
100YR_001H	SMF-1	BASE	39.10	103.33	109.00	70390	0.00	0.45	2.018	1.490
100YR_001H	SMF-1	BASE	40.10	103.31	109.00	70291	0.00	0.45	2.018	1.527
100YR_001H	SMF-1	BASE	41.10	103.28	109.00	70192	0.00	0.44	2.018	1.564
100YR_001H	SMF-1	BASE	42.10	103.26	109.00	70092	0.00	0.44	2.018	1.601
100YR_001H	SMF-1	BASE	43.10	103.24	109.00	69993	0.00	0.44	2.018	1.637
100YR_001H	SMF-1	BASE	44.10	103.22	109.00	69894	0.00	0.44	2.018	1.674
100YR_001H	SMF-1	BASE	45.10	103.19	109.00	69795	0.00	0.44	2.018	1.710
100YR_001H	SMF-1	BASE	46.10	103.17	109.00	69696	0.00	0.44	2.018	1.747
100YR_001H	SMF-1	BASE	47.10	103.15	109.00	69597	0.00	0.44	2.018	1.783
100YR_001H	SMF-1	BASE	48.10	103.12	109.00	69498	0.00	0.44	2.018	1.819
100YR_001H	SMF-1	BASE	49.10	103.10	109.00	69399	0.00	0.44	2.018	1.855
100YR_001H	SMF-1	BASE	50.10	103.08	109.00	69301	0.00	0.44	2.018	1.891
100YR_001H	SMF-1	BASE	51.10	103.06	109.00	69202	0.00	0.43	2.018	1.927
100YR_001H	SMF-1	BASE	52.10	103.03	109.00	69104	0.00	0.43	2.018	1.963
100YR_001H	SMF-1	BASE	53.10	103.01	109.00	69005	0.00	0.43	2.018	1.999
100YR_001H	SMF-1	BASE	54.10	103.00	109.00	68955	0.00	0.00	2.018	2.017
100YR_001H	SMF-1	BASE	55.10	103.00	109.00	68955	0.00	0.00	2.018	2.017
100YR_001H	SMF-1	BASE	56.10	103.00	109.00	68955	0.00	0.00	2.018	2.017
100YR_001H	SMF-1	BASE	57.10	103.00	109.00	68955	0.00	0.00	2.018	2.017

Full Volume Recovery

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_002H	SMF-1	BASE	36.25	103.93	109.00	72997	0.00	0.47	2.929	1.447
100YR_002H	SMF-1	BASE	37.25	103.90	109.00	72896	0.00	0.47	2.929	1.486
100YR_002H	SMF-1	BASE	38.25	103.88	109.00	72795	0.00	0.47	2.929	1.525
100YR_002H	SMF-1	BASE	39.25	103.86	109.00	72694	0.00	0.47	2.929	1.564
100YR_002H	SMF-1	BASE	40.25	103.83	109.00	72593	0.00	0.47	2.929	1.602
100YR_002H	SMF-1	BASE	41.25	103.81	109.00	72492	0.00	0.47	2.929	1.641
100YR_002H	SMF-1	BASE	42.25	103.79	109.00	72391	0.00	0.47	2.929	1.679
100YR_002H	SMF-1	BASE	43.25	103.77	109.00	72290	0.00	0.46	2.929	1.718
100YR_002H	SMF-1	BASE	44.25	103.74	109.00	72189	0.00	0.46	2.929	1.756
100YR_002H	SMF-1	BASE	45.25	103.72	109.00	72088	0.00	0.46	2.929	1.794
100YR_002H	SMF-1	BASE	46.25	103.70	109.00	71988	0.00	0.46	2.929	1.833
100YR_002H	SMF-1	BASE	47.25	103.67	109.00	71887	0.00	0.46	2.929	1.871
100YR_002H	SMF-1	BASE	48.25	103.65	109.00	71787	0.00	0.46	2.929	1.909
100YR_002H	SMF-1	BASE	49.25	103.63	109.00	71686	0.00	0.46	2.929	1.947
100YR_002H	SMF-1	BASE	50.25	103.60	109.00	71586	0.00	0.46	2.929	1.985
100YR_002H	SMF-1	BASE	51.25	103.58	109.00	71486	0.00	0.46	2.929	2.023
100YR_002H	SMF-1	BASE	52.25	103.56	109.00	71385	0.00	0.46	2.929	2.060
100YR_002H	SMF-1	BASE	53.25	103.53	109.00	71285	0.00	0.46	2.929	2.098
100YR_002H	SMF-1	BASE	54.25	103.51	109.00	71185	0.00	0.45	2.929	2.135
100YR_002H	SMF-1	BASE	55.25	103.49	109.00	71085	0.00	0.45	2.929	2.173
100YR_002H	SMF-1	BASE	56.25	103.47	109.00	70985	0.00	0.45	2.929	2.210
100YR_002H	SMF-1	BASE	57.25	103.44	109.00	70885	0.00	0.45	2.929	2.248
100YR_002H	SMF-1	BASE	58.25	103.42	109.00	70786	0.00	0.45	2.929	2.285
100YR_002H	SMF-1	BASE	59.25	103.40	109.00	70686	0.00	0.45	2.929	2.322
100YR_002H	SMF-1	BASE	60.25	103.37	109.00	70586	0.00	0.45	2.929	2.359
100YR_002H	SMF-1	BASE	61.25	103.35	109.00	70487	0.00	0.45	2.929	2.396
100YR_002H	SMF-1	BASE	62.25	103.33	109.00	70387	0.00	0.45	2.929	2.433
100YR_002H	SMF-1	BASE	63.25	103.31	109.00	70288	0.00	0.45	2.929	2.470
100YR_002H	SMF-1	BASE	64.25	103.28	109.00	70188	0.00	0.44	2.929	2.507
100YR_002H	SMF-1	BASE	65.25	103.26	109.00	70089	0.00	0.44	2.929	2.543
100YR_002H	SMF-1	BASE	66.25	103.24	109.00	69990	0.00	0.44	2.929	2.580
100YR_002H	SMF-1	BASE	67.25	103.21	109.00	69891	0.00	0.44	2.929	2.617
100YR_002H	SMF-1	BASE	68.25	103.19	109.00	69792	0.00	0.44	2.929	2.653
100YR_002H	SMF-1	BASE	69.25	103.17	109.00	69693	0.00	0.44	2.929	2.689
100YR_002H	SMF-1	BASE	70.25	103.15	109.00	69594	0.00	0.44	2.929	2.726
100YR_002H	SMF-1	BASE	71.25	103.12	109.00	69495	0.00	0.44	2.929	2.762
100YR_002H	SMF-1	BASE	72.25	103.10	109.00	69396	0.00	0.44	2.929	2.798
100YR_002H	SMF-1	BASE	73.25	103.08	109.00	69298	0.00	0.44	2.929	2.834
100YR_002H	SMF-1	BASE	74.25	103.06	109.00	69199	0.00	0.43	2.929	2.870
100YR_002H	SMF-1	BASE	75.25	103.03	109.00	69100	0.00	0.43	2.929	2.906
100YR_002H	SMF-1	BASE	76.25	103.01	109.00	69002	0.00	0.43	2.929	2.942
100YR_002H	SMF-1	BASE	77.25	103.00	109.00	68955	0.00	0.00	2.929	2.960
100YR_002H	SMF-1	BASE	78.25	103.00	109.00	68955	0.00	0.00	2.929	2.960
100YR_002H	SMF-1	BASE	79.25	103.00	109.00	68955	0.00	0.00	2.929	2.960
100YR_002H	SMF-1	BASE	80.25	103.00	109.00	68955	0.00	0.00	2.929	2.960
100YR_002H	SMF-1	BASE	81.25	103.00	109.00	68955	0.00	0.00	2.929	2.960
100YR_002H	SMF-1	BASE	82.25	103.00	109.00	68955	0.00	0.00	2.929	2.960
100YR_002H	SMF-1	BASE	83.25	103.00	109.00	68955	0.00	0.00	2.929	2.960
100YR_002H	SMF-1	BASE	84.25	103.00	109.00	68955	0.00	0.00	2.929	2.960

Full Volume Recovery

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_004H	SMF-1	BASE	160.26	103.13	109.00	69504	0.00	0.07	4.118	3.886
100YR_004H	SMF-1	BASE	161.26	103.12	109.00	69489	0.00	0.07	4.118	3.892
100YR_004H	SMF-1	BASE	162.26	103.12	109.00	69475	0.00	0.07	4.118	3.897
100YR_004H	SMF-1	BASE	163.26	103.12	109.00	69460	0.00	0.06	4.118	3.903
100YR_004H	SMF-1	BASE	164.26	103.11	109.00	69445	0.00	0.06	4.118	3.908
100YR_004H	SMF-1	BASE	165.26	103.11	109.00	69431	0.00	0.06	4.118	3.913
100YR_004H	SMF-1	BASE	166.26	103.11	109.00	69416	0.00	0.06	4.118	3.919
100YR_004H	SMF-1	BASE	167.26	103.10	109.00	69402	0.00	0.06	4.118	3.924
100YR_004H	SMF-1	BASE	168.26	103.10	109.00	69388	0.00	0.06	4.118	3.929
100YR_004H	SMF-1	BASE	169.26	103.10	109.00	69373	0.00	0.06	4.118	3.934
100YR_004H	SMF-1	BASE	170.26	103.09	109.00	69359	0.00	0.06	4.118	3.940
100YR_004H	SMF-1	BASE	171.26	103.09	109.00	69345	0.00	0.06	4.118	3.945
100YR_004H	SMF-1	BASE	172.26	103.09	109.00	69331	0.00	0.06	4.118	3.950
100YR_004H	SMF-1	BASE	196.26	103.01	109.00	69004	0.00	0.06	4.118	4.069
100YR_004H	SMF-1	BASE	220.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	244.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	268.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	292.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	316.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	340.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	364.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	388.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	412.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	436.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	460.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	484.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	508.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	532.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	556.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	580.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	604.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	628.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	652.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	676.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	700.26	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_004H	SMF-1	BASE	724.00	103.00	109.00	68955	0.00	0.00	4.118	4.126
100YR_008H	SMF-1	BASE	0.00	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_008H	SMF-1	BASE	0.26	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_008H	SMF-1	BASE	0.50	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_008H	SMF-1	BASE	0.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_008H	SMF-1	BASE	1.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_008H	SMF-1	BASE	1.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_008H	SMF-1	BASE	1.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_008H	SMF-1	BASE	1.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_008H	SMF-1	BASE	2.02	103.00	109.00	68956	0.34	0.32	0.004	0.003
100YR_008H	SMF-1	BASE	2.27	103.01	109.00	69003	2.31	0.43	0.031	0.011
100YR_008H	SMF-1	BASE	2.52	103.05	109.00	69166	4.23	0.43	0.099	0.020
100YR_008H	SMF-1	BASE	2.77	103.11	109.00	69427	5.84	0.44	0.203	0.029

Full Volume Recovery

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_008H	SMF-1	BASE	368.26	103.22	109.00	69921	0.00	0.05	5.743	5.360
100YR_008H	SMF-1	BASE	392.26	103.16	109.00	69647	0.00	0.05	5.743	5.461
100YR_008H	SMF-1	BASE	416.26	103.10	109.00	69382	0.00	0.05	5.743	5.558
100YR_008H	SMF-1	BASE	440.26	103.04	109.00	69125	0.00	0.05	5.743	5.652
100YR_008H	SMF-1	BASE	464.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	488.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	512.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	536.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	560.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	584.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	608.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	632.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	656.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	680.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	704.26	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_008H	SMF-1	BASE	728.01	103.00	109.00	68955	0.00	0.00	5.743	5.698
100YR_024H	SMF-1	BASE	0.00	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	0.26	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	0.50	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	0.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	1.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	1.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	1.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	1.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	2.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	2.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	2.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	2.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	3.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	3.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	3.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	3.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_024H	SMF-1	BASE	4.02	103.00	109.00	68956	0.13	0.13	0.001	0.001
100YR_024H	SMF-1	BASE	4.27	103.00	109.00	68956	0.31	0.31	0.006	0.006
100YR_024H	SMF-1	BASE	4.52	103.00	109.00	68957	0.49	0.43	0.014	0.014
100YR_024H	SMF-1	BASE	4.77	103.00	109.00	68964	0.65	0.43	0.026	0.023
100YR_024H	SMF-1	BASE	5.02	103.01	109.00	68981	0.82	0.43	0.041	0.031
100YR_024H	SMF-1	BASE	5.27	103.01	109.00	69017	1.29	0.43	0.063	0.040
100YR_024H	SMF-1	BASE	5.52	103.03	109.00	69073	1.55	0.43	0.092	0.049
100YR_024H	SMF-1	BASE	5.77	103.04	109.00	69143	1.78	0.43	0.127	0.058
100YR_024H	SMF-1	BASE	6.02	103.06	109.00	69225	1.99	0.44	0.165	0.067
100YR_024H	SMF-1	BASE	6.27	103.08	109.00	69319	2.19	0.44	0.209	0.076
100YR_024H	SMF-1	BASE	6.52	103.11	109.00	69424	2.39	0.44	0.256	0.085
100YR_024H	SMF-1	BASE	6.77	103.13	109.00	69539	2.56	0.44	0.307	0.094
100YR_024H	SMF-1	BASE	7.02	103.16	109.00	69663	2.73	0.44	0.362	0.103
100YR_024H	SMF-1	BASE	7.27	103.19	109.00	69797	2.90	0.44	0.420	0.113
100YR_024H	SMF-1	BASE	7.52	103.23	109.00	69939	3.05	0.44	0.482	0.122
100YR_024H	SMF-1	BASE	7.77	103.26	109.00	70089	3.20	0.44	0.546	0.131

Full Volume Recovery

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_024H	SMF-1	BASE	39.26	107.08	109.00	87333	0.00	0.73	9.243	1.926
100YR_024H	SMF-1	BASE	40.26	107.05	109.00	87191	0.00	0.72	9.243	1.986
100YR_024H	SMF-1	BASE	41.26	107.02	109.00	87050	0.00	0.71	9.243	2.046
100YR_024H	SMF-1	BASE	42.26	106.99	109.00	86911	0.00	0.71	9.243	2.104
100YR_024H	SMF-1	BASE	43.26	106.96	109.00	86774	0.00	0.70	9.243	2.163
100YR_024H	SMF-1	BASE	44.26	106.93	109.00	86639	0.00	0.69	9.243	2.220
100YR_024H	SMF-1	BASE	45.26	106.91	109.00	86506	0.00	0.69	9.243	2.277
100YR_024H	SMF-1	BASE	46.26	106.88	109.00	86373	0.00	0.68	9.243	2.334
100YR_024H	SMF-1	BASE	47.26	106.85	109.00	86242	0.00	0.67	9.243	2.389
100YR_024H	SMF-1	BASE	48.26	106.82	109.00	86114	0.00	0.65	9.243	2.444
100YR_024H	SMF-1	BASE	49.26	106.79	109.00	85987	0.00	0.64	9.243	2.497
100YR_024H	SMF-1	BASE	50.26	106.77	109.00	85863	0.00	0.63	9.243	2.550
100YR_024H	SMF-1	BASE	51.26	106.74	109.00	85740	0.00	0.62	9.243	2.602
100YR_024H	SMF-1	BASE	52.26	106.72	109.00	85619	0.00	0.61	9.243	2.653
100YR_024H	SMF-1	BASE	53.26	106.69	109.00	85500	0.00	0.60	9.243	2.703
100YR_024H	SMF-1	BASE	54.26	106.66	109.00	85382	0.00	0.60	9.243	2.753
100YR_024H	SMF-1	BASE	55.26	106.64	109.00	85266	0.00	0.59	9.243	2.802
100YR_024H	SMF-1	BASE	56.26	106.61	109.00	85150	0.00	0.59	9.243	2.850
100YR_024H	SMF-1	BASE	57.26	106.59	109.00	85034	0.00	0.59	9.243	2.899
100YR_024H	SMF-1	BASE	58.26	106.57	109.00	84919	0.00	0.58	9.243	2.947
100YR_024H	SMF-1	BASE	59.26	106.54	109.00	84803	0.00	0.58	9.243	2.996
100YR_024H	SMF-1	BASE	60.26	106.52	109.00	84688	0.00	0.58	9.243	3.044
100YR_024H	SMF-1	BASE	61.26	106.49	109.00	84572	0.00	0.58	9.243	3.092
100YR_024H	SMF-1	BASE	62.26	106.47	109.00	84457	0.00	0.58	9.243	3.140
100YR_024H	SMF-1	BASE	63.26	106.44	109.00	84341	0.00	0.58	9.243	3.188
100YR_024H	SMF-1	BASE	64.26	106.42	109.00	84226	0.00	0.58	9.243	3.236
100YR_024H	SMF-1	BASE	65.26	106.39	109.00	84111	0.00	0.58	9.243	3.283
100YR_024H	SMF-1	BASE	66.26	106.37	109.00	83996	0.00	0.58	9.243	3.331
100YR_024H	SMF-1	BASE	67.26	106.34	109.00	83881	0.00	0.58	9.243	3.379
100YR_024H	SMF-1	BASE	68.26	106.32	109.00	83766	0.00	0.57	9.243	3.426
100YR_024H	SMF-1	BASE	69.26	106.29	109.00	83651	0.00	0.57	9.243	3.474
100YR_024H	SMF-1	BASE	70.26	106.27	109.00	83536	0.00	0.57	9.243	3.521
100YR_024H	SMF-1	BASE	71.26	106.24	109.00	83421	0.00	0.57	9.243	3.568
100YR_024H	SMF-1	BASE	72.26	106.22	109.00	83306	0.00	0.57	9.243	3.615
100YR_024H	SMF-1	BASE	73.26	106.19	109.00	83192	0.00	0.57	9.243	3.662
100YR_024H	SMF-1	BASE	74.26	106.17	109.00	83077	0.00	0.57	9.243	3.709
100YR_024H	SMF-1	BASE	75.26	106.15	109.00	82962	0.00	0.57	9.243	3.756
100YR_024H	SMF-1	BASE	76.26	106.12	109.00	82848	0.00	0.57	9.243	3.803
100YR_024H	SMF-1	BASE	77.26	106.10	109.00	82733	0.00	0.56	9.243	3.849
100YR_024H	SMF-1	BASE	78.26	106.07	109.00	82619	0.00	0.56	9.243	3.896
100YR_024H	SMF-1	BASE	79.26	106.05	109.00	82505	0.00	0.56	9.243	3.943
100YR_024H	SMF-1	BASE	80.26	106.02	109.00	82390	0.00	0.56	9.243	3.989
100YR_024H	SMF-1	BASE	81.26	106.00	109.00	82276	0.00	0.56	9.243	4.035
100YR_024H	SMF-1	BASE	82.26	105.97	109.00	82165	0.00	0.56	9.243	4.082
100YR_024H	SMF-1	BASE	83.26	105.95	109.00	82054	0.00	0.56	9.243	4.128
100YR_024H	SMF-1	BASE	84.26	105.92	109.00	81944	0.00	0.56	9.243	4.174
100YR_024H	SMF-1	BASE	85.26	105.90	109.00	81833	0.00	0.56	9.243	4.220
100YR_024H	SMF-1	BASE	86.26	105.88	109.00	81722	0.00	0.55	9.243	4.266
100YR_024H	SMF-1	BASE	87.26	105.85	109.00	81628	0.00	0.43	9.243	4.306

1/2 Volume Recovery

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_024H	SMF-1	BASE	186.26	105.17	109.00	78541	0.00	0.11	9.243	5.559
100YR_024H	SMF-1	BASE	187.26	105.17	109.00	78519	0.00	0.11	9.243	5.568
100YR_024H	SMF-1	BASE	188.26	105.16	109.00	78497	0.00	0.11	9.243	5.577
100YR_024H	SMF-1	BASE	189.26	105.16	109.00	78475	0.00	0.10	9.243	5.585
100YR_024H	SMF-1	BASE	190.26	105.15	109.00	78453	0.00	0.10	9.243	5.594
100YR_024H	SMF-1	BASE	191.26	105.15	109.00	78432	0.00	0.10	9.243	5.602
100YR_024H	SMF-1	BASE	192.26	105.14	109.00	78410	0.00	0.10	9.243	5.611
100YR_024H	SMF-1	BASE	216.26	105.03	109.00	77905	0.00	0.10	9.243	5.811
100YR_024H	SMF-1	BASE	240.26	104.93	109.00	77432	0.00	0.09	9.243	6.000
100YR_024H	SMF-1	BASE	264.26	104.83	109.00	76981	0.00	0.09	9.243	6.180
100YR_024H	SMF-1	BASE	288.26	104.73	109.00	76548	0.00	0.08	9.243	6.352
100YR_024H	SMF-1	BASE	312.26	104.63	109.00	76130	0.00	0.08	9.243	6.517
100YR_024H	SMF-1	BASE	336.26	104.54	109.00	75726	0.00	0.08	9.243	6.676
100YR_024H	SMF-1	BASE	360.26	104.46	109.00	75334	0.00	0.08	9.243	6.828
100YR_024H	SMF-1	BASE	384.26	104.37	109.00	74954	0.00	0.07	9.243	6.976
100YR_024H	SMF-1	BASE	408.26	104.29	109.00	74585	0.00	0.07	9.243	7.119
100YR_024H	SMF-1	BASE	432.26	104.21	109.00	74226	0.00	0.07	9.243	7.257
100YR_024H	SMF-1	BASE	456.26	104.13	109.00	73876	0.00	0.07	9.243	7.391
100YR_024H	SMF-1	BASE	480.26	104.05	109.00	73536	0.00	0.06	9.243	7.520
100YR_024H	SMF-1	BASE	504.26	103.98	109.00	73206	0.00	0.06	9.243	7.646
100YR_024H	SMF-1	BASE	528.26	103.90	109.00	72889	0.00	0.06	9.243	7.768
100YR_024H	SMF-1	BASE	552.26	103.83	109.00	72579	0.00	0.06	9.243	7.887
100YR_024H	SMF-1	BASE	576.26	103.76	109.00	72278	0.00	0.06	9.243	8.002
100YR_024H	SMF-1	BASE	600.26	103.70	109.00	71983	0.00	0.06	9.243	8.114
100YR_024H	SMF-1	BASE	624.26	103.63	109.00	71695	0.00	0.05	9.243	8.223
100YR_024H	SMF-1	BASE	648.26	103.56	109.00	71415	0.00	0.05	9.243	8.329
100YR_024H	SMF-1	BASE	672.26	103.50	109.00	71140	0.00	0.05	9.243	8.432
100YR_024H	SMF-1	BASE	696.26	103.44	109.00	70873	0.00	0.05	9.243	8.532
100YR_024H	SMF-1	BASE	720.26	103.38	109.00	70611	0.00	0.05	9.243	8.630
100YR_024H	SMF-1	BASE	744.01	103.32	109.00	70358	0.00	0.05	9.243	8.723
100YR_072H	SMF-1	BASE	0.00	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	0.26	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	0.50	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	0.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	1.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	1.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	1.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	1.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	2.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	2.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	2.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	2.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	3.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	3.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	3.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	3.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	4.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_072H	SMF-1	BASE	4.27	103.00	109.00	68955	0.00	0.00	0.000	0.000

30 days following the end of the storm event

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_072H	SMF-1	BASE	78.01	107.85	109.00	90978	0.00	0.85	12.214	3.327
100YR_072H	SMF-1	BASE	78.26	107.84	109.00	90938	0.00	0.85	12.214	3.344
100YR_072H	SMF-1	BASE	78.51	107.83	109.00	90898	0.00	0.85	12.214	3.362
100YR_072H	SMF-1	BASE	78.76	107.82	109.00	90858	0.00	0.85	12.214	3.379
100YR_072H	SMF-1	BASE	79.01	107.82	109.00	90818	0.00	0.85	12.214	3.397
100YR_072H	SMF-1	BASE	79.26	107.81	109.00	90778	0.00	0.85	12.214	3.415
100YR_072H	SMF-1	BASE	79.51	107.80	109.00	90738	0.00	0.85	12.214	3.432
100YR_072H	SMF-1	BASE	79.76	107.79	109.00	90698	0.00	0.84	12.214	3.449
100YR_072H	SMF-1	BASE	80.01	107.78	109.00	90659	0.00	0.84	12.214	3.467
100YR_072H	SMF-1	BASE	80.26	107.77	109.00	90619	0.00	0.84	12.214	3.484
100YR_072H	SMF-1	BASE	81.26	107.74	109.00	90460	0.00	0.84	12.214	3.554
100YR_072H	SMF-1	BASE	82.26	107.71	109.00	90302	0.00	0.83	12.214	3.623
100YR_072H	SMF-1	BASE	83.26	107.67	109.00	90145	0.00	0.83	12.214	3.691
100YR_072H	SMF-1	BASE	84.26	107.64	109.00	89988	0.00	0.82	12.214	3.760
100YR_072H	SMF-1	BASE	85.26	107.61	109.00	89832	0.00	0.82	12.214	3.827
100YR_072H	SMF-1	BASE	86.26	107.58	109.00	89677	0.00	0.81	12.214	3.895
100YR_072H	SMF-1	BASE	87.26	107.54	109.00	89522	0.00	0.81	12.214	3.962
100YR_072H	SMF-1	BASE	88.26	107.51	109.00	89368	0.00	0.80	12.214	4.029
100YR_072H	SMF-1	BASE	89.26	107.48	109.00	89215	0.00	0.80	12.214	4.095
100YR_072H	SMF-1	BASE	90.26	107.45	109.00	89062	0.00	0.79	12.214	4.160
100YR_072H	SMF-1	BASE	91.26	107.41	109.00	88910	0.00	0.79	12.214	4.226
100YR_072H	SMF-1	BASE	92.26	107.38	109.00	88759	0.00	0.78	12.214	4.291
100YR_072H	SMF-1	BASE	93.26	107.35	109.00	88609	0.00	0.78	12.214	4.355
100YR_072H	SMF-1	BASE	94.26	107.32	109.00	88459	0.00	0.77	12.214	4.419
100YR_072H	SMF-1	BASE	95.26	107.29	109.00	88310	0.00	0.77	12.214	4.483
100YR_072H	SMF-1	BASE	96.26	107.26	109.00	88162	0.00	0.76	12.214	4.546
100YR_072H	SMF-1	BASE	97.26	107.23	109.00	88015	0.00	0.76	12.214	4.609
100YR_072H	SMF-1	BASE	98.26	107.19	109.00	87869	0.00	0.75	12.214	4.671
100YR_072H	SMF-1	BASE	99.26	107.16	109.00	87723	0.00	0.74	12.214	4.733
100YR_072H	SMF-1	BASE	100.26	107.13	109.00	87579	0.00	0.74	12.214	4.794
100YR_072H	SMF-1	BASE	101.26	107.10	109.00	87435	0.00	0.73	12.214	4.855
100YR_072H	SMF-1	BASE	102.26	107.07	109.00	87295	0.00	0.66	12.214	4.912
100YR_072H	SMF-1	BASE	103.26	107.05	109.00	87170	0.00	0.61	12.214	4.965
100YR_072H	SMF-1	BASE	104.26	107.02	109.00	87054	0.00	0.57	12.214	5.014
100YR_072H	SMF-1	BASE	105.26	107.00	109.00	86946	0.00	0.53	12.214	5.059
100YR_072H	SMF-1	BASE	106.26	106.98	109.00	86848	0.00	0.49	12.214	5.102
100YR_072H	SMF-1	BASE	107.26	106.96	109.00	86755	0.00	0.46	12.214	5.141
100YR_072H	SMF-1	BASE	108.26	106.94	109.00	86668	0.00	0.44	12.214	5.178
100YR_072H	SMF-1	BASE	109.26	106.92	109.00	86586	0.00	0.41	12.214	5.214
100YR_072H	SMF-1	BASE	110.26	106.91	109.00	86508	0.00	0.39	12.214	5.247
100YR_072H	SMF-1	BASE	111.26	106.89	109.00	86434	0.00	0.37	12.214	5.278
100YR_072H	SMF-1	BASE	112.26	106.88	109.00	86363	0.00	0.36	12.214	5.308
100YR_072H	SMF-1	BASE	113.26	106.86	109.00	86296	0.00	0.34	12.214	5.337
100YR_072H	SMF-1	BASE	114.26	106.85	109.00	86232	0.00	0.32	12.214	5.364
100YR_072H	SMF-1	BASE	115.26	106.83	109.00	86170	0.00	0.31	12.214	5.390
100YR_072H	SMF-1	BASE	116.26	106.82	109.00	86111	0.00	0.30	12.214	5.415
100YR_072H	SMF-1	BASE	117.26	106.81	109.00	86054	0.00	0.29	12.214	5.440
100YR_072H	SMF-1	BASE	118.26	106.80	109.00	85999	0.00	0.28	12.214	5.463
100YR_072H	SMF-1	BASE	119.26	106.79	109.00	85946	0.00	0.27	12.214	5.485

1/2 Volume Recovery

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_072H	SMF-1	BASE	704.26	104.21	109.00	74225	0.00	0.06	12.214	10.226
100YR_072H	SMF-1	BASE	728.26	104.13	109.00	73899	0.00	0.06	12.214	10.350
100YR_072H	SMF-1	BASE	752.26	104.06	109.00	73581	0.00	0.06	12.214	10.472
100YR_072H	SMF-1	BASE	776.26	103.99	109.00	73270	0.00	0.06	12.214	10.590
100YR_072H	SMF-1	BASE	792.00	103.95	109.00	73073	0.00	0.06	12.214	10.666
100YR_168H	SMF-1	BASE	0.00	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	0.26	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	0.50	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	0.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	1.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	1.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	1.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	1.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	2.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	2.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	2.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	2.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	3.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	3.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	3.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	3.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	4.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	4.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	4.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	4.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	5.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	5.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	5.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	5.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	6.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	6.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	6.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	6.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	7.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	7.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	7.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	7.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	8.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	8.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	8.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	8.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	9.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	9.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	9.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	9.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	10.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	10.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_168H	SMF-1	BASE	10.52	103.00	109.00	68955	0.00	0.00	0.000	0.000

30 days following the end of the storm event

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_168H	SMF-1	BASE	261.27	107.28	109.00	88294	0.00	0.29	15.297	7.576
100YR_168H	SMF-1	BASE	262.27	107.27	109.00	88237	0.00	0.29	15.297	7.600
100YR_168H	SMF-1	BASE	263.27	107.26	109.00	88182	0.00	0.29	15.297	7.624
100YR_168H	SMF-1	BASE	264.27	107.25	109.00	88126	0.00	0.29	15.297	7.647
100YR_168H	SMF-1	BASE	265.27	107.24	109.00	88071	0.00	0.28	15.297	7.671
100YR_168H	SMF-1	BASE	266.27	107.23	109.00	88016	0.00	0.28	15.297	7.694
100YR_168H	SMF-1	BASE	267.27	107.21	109.00	87962	0.00	0.28	15.297	7.717
100YR_168H	SMF-1	BASE	268.27	107.20	109.00	87908	0.00	0.28	15.297	7.740
100YR_168H	SMF-1	BASE	269.27	107.19	109.00	87854	0.00	0.28	15.297	7.763
100YR_168H	SMF-1	BASE	270.27	107.18	109.00	87800	0.00	0.27	15.297	7.786
100YR_168H	SMF-1	BASE	271.27	107.17	109.00	87747	0.00	0.27	15.297	7.808
100YR_168H	SMF-1	BASE	272.27	107.16	109.00	87695	0.00	0.27	15.297	7.831
100YR_168H	SMF-1	BASE	273.27	107.15	109.00	87642	0.00	0.27	15.297	7.853
100YR_168H	SMF-1	BASE	274.27	107.14	109.00	87591	0.00	0.27	15.297	7.875
100YR_168H	SMF-1	BASE	275.27	107.12	109.00	87539	0.00	0.26	15.297	7.897
100YR_168H	SMF-1	BASE	276.27	107.11	109.00	87488	0.00	0.26	15.297	7.918
100YR_168H	SMF-1	BASE	277.27	107.10	109.00	87437	0.00	0.26	15.297	7.940
100YR_168H	SMF-1	BASE	278.27	107.09	109.00	87387	0.00	0.26	15.297	7.961
100YR_168H	SMF-1	BASE	279.27	107.08	109.00	87336	0.00	0.25	15.297	7.982
100YR_168H	SMF-1	BASE	280.27	107.07	109.00	87287	0.00	0.25	15.297	8.003
100YR_168H	SMF-1	BASE	281.27	107.06	109.00	87237	0.00	0.25	15.297	8.024
100YR_168H	SMF-1	BASE	282.27	107.05	109.00	87189	0.00	0.25	15.297	8.045
100YR_168H	SMF-1	BASE	283.27	107.04	109.00	87140	0.00	0.25	15.297	8.065
100YR_168H	SMF-1	BASE	284.27	107.03	109.00	87092	0.00	0.24	15.297	8.086
100YR_168H	SMF-1	BASE	285.27	107.02	109.00	87044	0.00	0.24	15.297	8.106
100YR_168H	SMF-1	BASE	286.27	107.01	109.00	86997	0.00	0.24	15.297	8.126
100YR_168H	SMF-1	BASE	287.27	107.00	109.00	86950	0.00	0.24	15.297	8.145
100YR_168H	SMF-1	BASE	288.27	106.99	109.00	86904	0.00	0.24	15.297	8.165
100YR_168H	SMF-1	BASE	289.27	106.98	109.00	86859	0.00	0.23	15.297	8.184
100YR_168H	SMF-1	BASE	290.27	106.97	109.00	86814	0.00	0.23	15.297	8.204
100YR_168H	SMF-1	BASE	291.27	106.96	109.00	86769	0.00	0.23	15.297	8.223
100YR_168H	SMF-1	BASE	292.27	106.95	109.00	86725	0.00	0.23	15.297	8.241
100YR_168H	SMF-1	BASE	293.27	106.94	109.00	86681	0.00	0.22	15.297	8.260
100YR_168H	SMF-1	BASE	294.27	106.93	109.00	86638	0.00	0.22	15.297	8.279
100YR_168H	SMF-1	BASE	295.27	106.92	109.00	86595	0.00	0.22	15.297	8.297
100YR_168H	SMF-1	BASE	296.27	106.92	109.00	86552	0.00	0.22	15.297	8.315
100YR_168H	SMF-1	BASE	297.27	106.91	109.00	86510	0.00	0.22	15.297	8.333
100YR_168H	SMF-1	BASE	298.27	106.90	109.00	86469	0.00	0.21	15.297	8.351
100YR_168H	SMF-1	BASE	299.27	106.89	109.00	86428	0.00	0.21	15.297	8.368
100YR_168H	SMF-1	BASE	300.27	106.88	109.00	86387	0.00	0.21	15.297	8.386
100YR_168H	SMF-1	BASE	301.27	106.87	109.00	86346	0.00	0.21	15.297	8.403
100YR_168H	SMF-1	BASE	302.27	106.86	109.00	86307	0.00	0.20	15.297	8.420
100YR_168H	SMF-1	BASE	303.27	106.85	109.00	86268	0.00	0.20	15.297	8.436
100YR_168H	SMF-1	BASE	304.27	106.85	109.00	86230	0.00	0.19	15.297	8.452
100YR_168H	SMF-1	BASE	305.27	106.84	109.00	86192	0.00	0.19	15.297	8.468
100YR_168H	SMF-1	BASE	306.27	106.83	109.00	86156	0.00	0.19	15.297	8.484
100YR_168H	SMF-1	BASE	307.27	106.82	109.00	86120	0.00	0.18	15.297	8.499
100YR_168H	SMF-1	BASE	308.27	106.82	109.00	86084	0.00	0.18	15.297	8.514
100YR_168H	SMF-1	BASE	309.27	106.81	109.00	86048	0.00	0.18	15.297	8.529

1/2 Volume Recovery

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_168H	SMF-1	BASE	888.01	104.43	109.00	75239	0.00	0.07	15.297	12.923
100YR_240H	SMF-1	BASE	0.00	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	0.26	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	0.50	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	0.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	1.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	1.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	1.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	1.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	2.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	2.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	2.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	2.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	3.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	3.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	3.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	3.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	4.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	4.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	4.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	4.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	5.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	5.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	5.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	5.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	6.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	6.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	6.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	6.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	7.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	7.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	7.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	7.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	8.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	8.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	8.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	8.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	9.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	9.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	9.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	9.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	10.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	10.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	10.52	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	10.77	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	11.02	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	11.27	103.00	109.00	68955	0.00	0.00	0.000	0.000
100YR_240H	SMF-1	BASE	11.52	103.00	109.00	68955	0.00	0.00	0.000	0.000

30 days following the end of the storm event

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_240H	SMF-1	BASE	355.25	107.14	109.00	87606	0.00	0.26	17.797	10.373
100YR_240H	SMF-1	BASE	356.25	107.13	109.00	87555	0.00	0.26	17.797	10.395
100YR_240H	SMF-1	BASE	357.25	107.12	109.00	87506	0.00	0.25	17.797	10.416
100YR_240H	SMF-1	BASE	358.25	107.11	109.00	87456	0.00	0.25	17.797	10.437
100YR_240H	SMF-1	BASE	359.25	107.10	109.00	87407	0.00	0.25	17.797	10.458
100YR_240H	SMF-1	BASE	360.25	107.09	109.00	87358	0.00	0.25	17.797	10.478
100YR_240H	SMF-1	BASE	361.25	107.08	109.00	87310	0.00	0.25	17.797	10.499
100YR_240H	SMF-1	BASE	362.25	107.07	109.00	87261	0.00	0.24	17.797	10.519
100YR_240H	SMF-1	BASE	363.25	107.06	109.00	87214	0.00	0.24	17.797	10.539
100YR_240H	SMF-1	BASE	364.25	107.05	109.00	87166	0.00	0.24	17.797	10.559
100YR_240H	SMF-1	BASE	365.25	107.04	109.00	87119	0.00	0.24	17.797	10.579
100YR_240H	SMF-1	BASE	366.25	107.03	109.00	87073	0.00	0.24	17.797	10.598
100YR_240H	SMF-1	BASE	367.25	107.02	109.00	87026	0.00	0.23	17.797	10.618
100YR_240H	SMF-1	BASE	368.25	107.01	109.00	86980	0.00	0.23	17.797	10.637
100YR_240H	SMF-1	BASE	369.25	107.00	109.00	86935	0.00	0.23	17.797	10.656
100YR_240H	SMF-1	BASE	370.25	106.99	109.00	86891	0.00	0.23	17.797	10.675
100YR_240H	SMF-1	BASE	371.25	106.98	109.00	86847	0.00	0.23	17.797	10.694
100YR_240H	SMF-1	BASE	372.25	106.97	109.00	86803	0.00	0.22	17.797	10.713
100YR_240H	SMF-1	BASE	373.25	106.96	109.00	86760	0.00	0.22	17.797	10.731
100YR_240H	SMF-1	BASE	374.25	106.95	109.00	86717	0.00	0.22	17.797	10.750
100YR_240H	SMF-1	BASE	375.25	106.94	109.00	86675	0.00	0.22	17.797	10.768
100YR_240H	SMF-1	BASE	376.25	106.93	109.00	86633	0.00	0.22	17.797	10.786
100YR_240H	SMF-1	BASE	377.25	106.92	109.00	86591	0.00	0.21	17.797	10.804
100YR_240H	SMF-1	BASE	378.25	106.92	109.00	86550	0.00	0.21	17.797	10.821
100YR_240H	SMF-1	BASE	379.25	106.91	109.00	86509	0.00	0.21	17.797	10.839
100YR_240H	SMF-1	BASE	380.25	106.90	109.00	86468	0.00	0.21	17.797	10.856
100YR_240H	SMF-1	BASE	381.25	106.89	109.00	86428	0.00	0.21	17.797	10.873
100YR_240H	SMF-1	BASE	382.25	106.88	109.00	86389	0.00	0.20	17.797	10.890
100YR_240H	SMF-1	BASE	383.25	106.87	109.00	86350	0.00	0.20	17.797	10.906
100YR_240H	SMF-1	BASE	384.25	106.86	109.00	86311	0.00	0.20	17.797	10.923
100YR_240H	SMF-1	BASE	385.25	106.86	109.00	86273	0.00	0.19	17.797	10.939
100YR_240H	SMF-1	BASE	386.25	106.85	109.00	86236	0.00	0.19	17.797	10.955
100YR_240H	SMF-1	BASE	387.25	106.84	109.00	86200	0.00	0.19	17.797	10.970
100YR_240H	SMF-1	BASE	388.25	106.83	109.00	86164	0.00	0.18	17.797	10.985
100YR_240H	SMF-1	BASE	389.25	106.82	109.00	86129	0.00	0.18	17.797	11.000
100YR_240H	SMF-1	BASE	390.25	106.82	109.00	86094	0.00	0.18	17.797	11.015
100YR_240H	SMF-1	BASE	391.25	106.81	109.00	86059	0.00	0.18	17.797	11.029
100YR_240H	SMF-1	BASE	392.25	106.80	109.00	86026	0.00	0.17	17.797	11.044
100YR_240H	SMF-1	BASE	393.25	106.80	109.00	85992	0.00	0.17	17.797	11.058
100YR_240H	SMF-1	BASE	394.25	106.79	109.00	85959	0.00	0.17	17.797	11.072
100YR_240H	SMF-1	BASE	395.25	106.78	109.00	85927	0.00	0.16	17.797	11.086
100YR_240H	SMF-1	BASE	396.25	106.77	109.00	85895	0.00	0.16	17.797	11.099
100YR_240H	SMF-1	BASE	397.25	106.77	109.00	85864	0.00	0.16	17.797	11.112
100YR_240H	SMF-1	BASE	398.25	106.76	109.00	85833	0.00	0.16	17.797	11.125
100YR_240H	SMF-1	BASE	399.25	106.75	109.00	85803	0.00	0.15	17.797	11.138
100YR_240H	SMF-1	BASE	400.25	106.75	109.00	85773	0.00	0.15	17.797	11.151
100YR_240H	SMF-1	BASE	401.25	106.74	109.00	85744	0.00	0.15	17.797	11.163
100YR_240H	SMF-1	BASE	402.25	106.74	109.00	85715	0.00	0.15	17.797	11.175
100YR_240H	SMF-1	BASE	403.25	106.73	109.00	85687	0.00	0.14	17.797	11.187

1/2 Volume Recovery

Project: 15-0150 City of Alachua Operations Center
Node Time Series: Recovery
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_240H	SMF-1	BASE	404.25	106.72	109.00	85659	0.00	0.14	17.797	11.199
100YR_240H	SMF-1	BASE	405.25	106.72	109.00	85631	0.00	0.14	17.797	11.210
100YR_240H	SMF-1	BASE	406.25	106.71	109.00	85604	0.00	0.14	17.797	11.222
100YR_240H	SMF-1	BASE	407.25	106.71	109.00	85578	0.00	0.14	17.797	11.233
100YR_240H	SMF-1	BASE	408.25	106.70	109.00	85551	0.00	0.13	17.797	11.244
100YR_240H	SMF-1	BASE	432.25	106.58	109.00	84983	0.00	0.11	17.797	11.490
100YR_240H	SMF-1	BASE	456.25	106.46	109.00	84445	0.00	0.11	17.797	11.715
100YR_240H	SMF-1	BASE	480.25	106.35	109.00	83918	0.00	0.11	17.797	11.933
100YR_240H	SMF-1	BASE	504.25	106.24	109.00	83402	0.00	0.11	17.797	12.146
100YR_240H	SMF-1	BASE	528.25	106.13	109.00	82897	0.00	0.10	17.797	12.353
100YR_240H	SMF-1	BASE	552.25	106.03	109.00	82401	0.00	0.10	17.797	12.554
100YR_240H	SMF-1	BASE	576.25	105.92	109.00	81926	0.00	0.10	17.797	12.751
100YR_240H	SMF-1	BASE	600.25	105.82	109.00	81464	0.00	0.10	17.797	12.942
100YR_240H	SMF-1	BASE	624.25	105.72	109.00	81010	0.00	0.09	17.797	13.129
100YR_240H	SMF-1	BASE	648.25	105.62	109.00	80566	0.00	0.09	17.797	13.311
100YR_240H	SMF-1	BASE	672.25	105.52	109.00	80130	0.00	0.09	17.797	13.489
100YR_240H	SMF-1	BASE	696.25	105.43	109.00	79702	0.00	0.09	17.797	13.662
100YR_240H	SMF-1	BASE	720.25	105.34	109.00	79283	0.00	0.08	17.797	13.831
100YR_240H	SMF-1	BASE	744.25	105.25	109.00	78871	0.00	0.08	17.797	13.996
100YR_240H	SMF-1	BASE	768.25	105.16	109.00	78467	0.00	0.08	17.797	14.157
100YR_240H	SMF-1	BASE	792.25	105.07	109.00	78071	0.00	0.08	17.797	14.314
100YR_240H	SMF-1	BASE	816.25	104.98	109.00	77684	0.00	0.08	17.797	14.467
100YR_240H	SMF-1	BASE	840.25	104.90	109.00	77310	0.00	0.07	17.797	14.617
100YR_240H	SMF-1	BASE	864.25	104.82	109.00	76942	0.00	0.07	17.797	14.763
100YR_240H	SMF-1	BASE	888.25	104.74	109.00	76582	0.00	0.07	17.797	14.906
100YR_240H	SMF-1	BASE	912.25	104.66	109.00	76229	0.00	0.07	17.797	15.046
100YR_240H	SMF-1	BASE	936.25	104.58	109.00	75882	0.00	0.07	17.797	15.182
100YR_240H	SMF-1	BASE	960.01	104.50	109.00	75545	0.00	0.07	17.797	15.314

30 days following the end of the storm event

Section 2

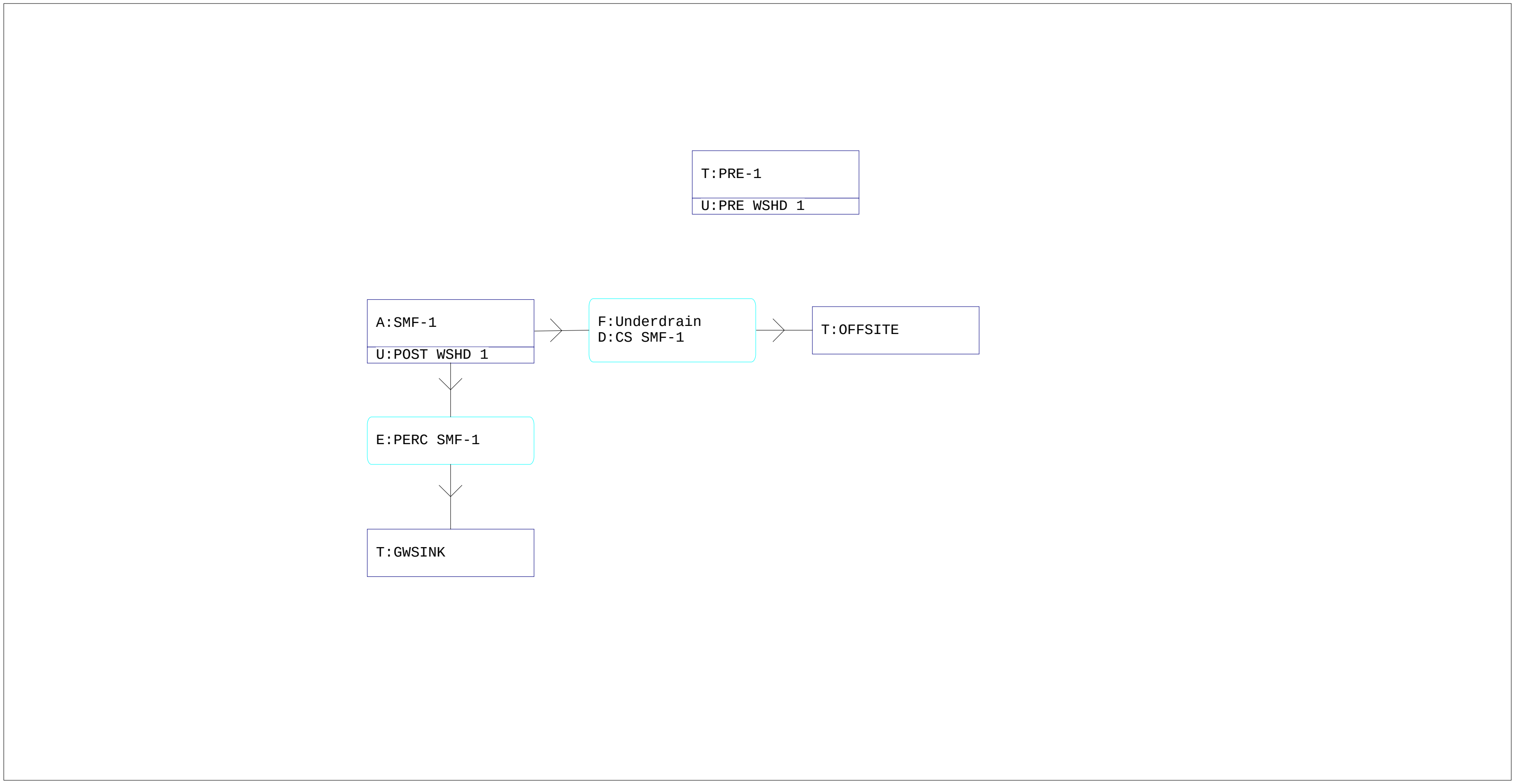
WQTV Results

Project: 15-0150 City of Alachua Operations Center
Node Network Diagram
Designed by: SEW
Checked by: DHY
10/19/15

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



Project: 15-0150 City of Alachua Operations Center
Input Report: WQTV
Designed by: SEW
Checked by: DHY
10/19/15

```
==========================================================================================
==== Basins ==============================================================================
==========================================================================================

         Name: POST WSHD 1              Node: SMF-1                   Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                   Peaking Factor: 484.0
          Rainfall File:                    Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                Time of Conc(min): 10.00
               Area(ac): 15.790                 Time Shift(hrs): 0.00
           Curve Number: 69.00             Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


==========================================================================================
==== Nodes ===============================================================================
==========================================================================================

      Name: GWSINK              Base Flow(cfs): 0.000          Init Stage(ft): 94.400
     Group: BASE                                               Warn Stage(ft): 95.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          94.400
        9999.00          94.400

------------------------------------------------------------------------------------------
      Name: OFFSITE             Base Flow(cfs): 0.000          Init Stage(ft): 98.000
     Group: BASE                                               Warn Stage(ft): 99.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          98.000
        9999.00          98.000

------------------------------------------------------------------------------------------
      Name: SMF-1               Base Flow(cfs): 0.000          Init Stage(ft): 103.450
     Group: BASE                                               Warn Stage(ft): 109.000
      Type: Stage/Area

Initial stage is set at the peak stage for WQTV, slug loading the model

      Stage(ft)        Area(ac)
--------------- ---------------
        103.000          1.5830
        104.000          1.6830
        105.000          1.7850
        106.000          1.8890
        107.000          1.9960
        108.000          2.1050
        109.000          2.2170
        110.000          2.3300

==========================================================================================
==== Drop Structures =====================================================================
==========================================================================================

         Name: CS SMF-1            From Node: SMF-1              Length(ft): 45.00
        Group: BASE                  To Node: OFFSITE                 Count: 1

               UPSTREAM       DOWNSTREAM               Friction Equation: Average Conveyance
     Geometry: Circular       Circular               Solution Algorithm: Most Restrictive
     Span(in): 15.00          15.00                                Flow: Both
     Rise(in): 15.00          15.00                  Entrance Loss Coef: 0.200
```

```
   Invert(ft): 98.450        98.000                        Exit Loss Coef: 0.500
  Manning's N: 0.012000      0.012000                    Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000         0.000                        Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000         0.000                          Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope


*** Weir 1 of 2 for Drop Structure CS SMF-1 ***
                                                                                 TABLE
                  Count: 1                        Bottom Clip(in): 0.000
                   Type: Vertical: Mavis             Top Clip(in): 0.000
                   Flow: Both                      Weir Disc Coef: 3.200
               Geometry: Circular                Orifice Disc Coef: 0.600

               Span(in): 2.75                         Invert(ft): 106.600
               Rise(in): 2.75                   Control Elev(ft): 106.600

*** Weir 2 of 2 for Drop Structure CS SMF-1 ***
                                                                                 TABLE
                  Count: 1                        Bottom Clip(in): 0.000
                   Type: Horizontal                  Top Clip(in): 0.000
                   Flow: Both                      Weir Disc Coef: 3.200
               Geometry: Rectangular             Orifice Disc Coef: 0.600

               Span(in): 24.00                        Invert(ft): 108.800
               Rise(in): 37.00                  Control Elev(ft): 108.800


==========================================================================================
==== Percolation Links ===================================================================
==========================================================================================

         Name: PERC SMF-1          From Node: SMF-1                  Flow: Both
        Group: BASE                  To Node: GWSINK                Count: 1

         Surface Area Option: Vary based on Stage/Area Table
   Vertical Flow Termination: Horizontal Flow Algorithm
       Aquifer Base Elev(ft): 94.400                      Perimeter 1(ft): 1227.000
        Water Table Elev(ft): 94.400                      Perimeter 2(ft): 1542.000
 *****************************0.000                       Perimeter 3(ft): 4369.000
  Horiz Conductivity(ft/day): 0.500                   Distance 1 to 2(ft): 50.000
   Vert Conductivity(ft/day): 0.500                   Distance 2 to 3(ft): 450.000
     Effective Porosity(dec): 0.200                      Num Cells 1 to 2: 10
            Suction Head(in): 12.400                     Num Cells 2 to 3: 45
         Layer Thickness(ft): 8.600



==========================================================================================
==== Filters =============================================================================
==========================================================================================

         Name: Underdrain          From Node: SMF-1                  Flow: Both
        Group: BASE                  To Node: OFFSITE               Count: 1

                      Sloped: No
             Filter Elev(ft): 103.000                   Pipe Inv Elev(ft): 99.000
            Filter Width(ft): 4.000                     Pipe Diameter(in): 12.000
           Filter Length(ft): 85.000                   X Grav Thkness(in): 12.000
 Filter Permeability(ft/day): 10.000                   Y Grav Thkness(in): 12.000



==========================================================================================
==== Hydrology Simulations ===============================================================
```

```
==========================================================================================

         Name: WQTV
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\WQTV.R32

      Override Defaults: Yes
    Storm Duration(hrs): 1.00
          Rainfall File: Fdot-1
    Rainfall Amount(in): 0.01

Time(hrs)       Print Inc(min)
--------------- ---------------
1.000           5.00

==========================================================================================
==== Routing Simulations =================================================================
==========================================================================================

         Name: WQTV                Hydrology Sim: WQTV
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\WQTV.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                     Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                     End Time(hrs): 72.00
      Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
        Boundary Stages:                          Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
36.000          5.000
72.000          15.000

Group           Run
--------------- -----
BASE            Yes
```

Project: 15-0150 City of Alachua Operations Center
Node Time Series
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
WQTV	SMF-1	BASE	16.35	103.08	109.00	69293	0.00	0.44	0.000	0.598
WQTV	SMF-1	BASE	16.43	103.08	109.00	69285	0.00	0.44	0.000	0.601
WQTV	SMF-1	BASE	16.52	103.07	109.00	69277	0.00	0.44	0.000	0.604
WQTV	SMF-1	BASE	16.60	103.07	109.00	69269	0.00	0.44	0.000	0.607
WQTV	SMF-1	BASE	16.68	103.07	109.00	69261	0.00	0.44	0.000	0.610
WQTV	SMF-1	BASE	16.77	103.07	109.00	69252	0.00	0.44	0.000	0.613
WQTV	SMF-1	BASE	16.85	103.07	109.00	69244	0.00	0.44	0.000	0.616
WQTV	SMF-1	BASE	16.93	103.06	109.00	69236	0.00	0.44	0.000	0.619
WQTV	SMF-1	BASE	17.02	103.06	109.00	69228	0.00	0.44	0.000	0.622
WQTV	SMF-1	BASE	17.10	103.06	109.00	69219	0.00	0.44	0.000	0.625
WQTV	SMF-1	BASE	17.18	103.06	109.00	69211	0.00	0.44	0.000	0.628
WQTV	SMF-1	BASE	17.27	103.06	109.00	69203	0.00	0.43	0.000	0.631
WQTV	SMF-1	BASE	17.35	103.05	109.00	69195	0.00	0.43	0.000	0.634
WQTV	SMF-1	BASE	17.43	103.05	109.00	69187	0.00	0.43	0.000	0.637
WQTV	SMF-1	BASE	17.52	103.05	109.00	69178	0.00	0.43	0.000	0.640
WQTV	SMF-1	BASE	17.60	103.05	109.00	69170	0.00	0.43	0.000	0.643
WQTV	SMF-1	BASE	17.68	103.05	109.00	69162	0.00	0.43	0.000	0.646
WQTV	SMF-1	BASE	17.77	103.05	109.00	69154	0.00	0.43	0.000	0.649
WQTV	SMF-1	BASE	17.85	103.04	109.00	69146	0.00	0.43	0.000	0.652
WQTV	SMF-1	BASE	17.93	103.04	109.00	69137	0.00	0.43	0.000	0.655
WQTV	SMF-1	BASE	18.02	103.04	109.00	69129	0.00	0.43	0.000	0.658
WQTV	SMF-1	BASE	18.10	103.04	109.00	69121	0.00	0.43	0.000	0.661
WQTV	SMF-1	BASE	18.18	103.04	109.00	69113	0.00	0.43	0.000	0.664
WQTV	SMF-1	BASE	18.27	103.03	109.00	69105	0.00	0.43	0.000	0.667
WQTV	SMF-1	BASE	18.35	103.03	109.00	69096	0.00	0.43	0.000	0.670
WQTV	SMF-1	BASE	18.43	103.03	109.00	69088	0.00	0.43	0.000	0.673
WQTV	SMF-1	BASE	18.52	103.03	109.00	69080	0.00	0.43	0.000	0.676
WQTV	SMF-1	BASE	18.60	103.03	109.00	69072	0.00	0.43	0.000	0.679
WQTV	SMF-1	BASE	18.68	103.02	109.00	69063	0.00	0.43	0.000	0.682
WQTV	SMF-1	BASE	18.77	103.02	109.00	69055	0.00	0.43	0.000	0.685
WQTV	SMF-1	BASE	18.85	103.02	109.00	69047	0.00	0.43	0.000	0.688
WQTV	SMF-1	BASE	18.93	103.02	109.00	69039	0.00	0.43	0.000	0.691
WQTV	SMF-1	BASE	19.02	103.02	109.00	69031	0.00	0.43	0.000	0.694
WQTV	SMF-1	BASE	19.10	103.02	109.00	69022	0.00	0.43	0.000	0.697
WQTV	SMF-1	BASE	19.18	103.01	109.00	69014	0.00	0.43	0.000	0.700
WQTV	SMF-1	BASE	19.27	103.01	109.00	69006	0.00	0.43	0.000	0.703
WQTV	SMF-1	BASE	19.35	103.01	109.00	68998	0.00	0.43	0.000	0.706
WQTV	SMF-1	BASE	19.43	103.01	109.00	68990	0.00	0.43	0.000	0.709
WQTV	SMF-1	BASE	19.52	103.01	109.00	68981	0.00	0.43	0.000	0.712
WQTV	SMF-1	BASE	19.60	103.00	109.00	68973	0.00	0.43	0.000	0.715
WQTV	SMF-1	BASE	19.68	103.00	109.00	68965	0.00	0.43	0.000	0.718
WQTV	SMF-1	BASE	19.77	103.00	109.00	68957	0.00	0.43	0.000	0.721
WQTV	SMF-1	BASE	19.85	103.00	109.00	68955	0.00	0.00	0.000	0.722
WQTV	SMF-1	BASE	19.93	103.00	109.00	68955	0.00	0.00	0.000	0.722
WQTV	SMF-1	BASE	20.02	103.00	109.00	68955	0.00	0.00	0.000	0.722
WQTV	SMF-1	BASE	20.10	103.00	109.00	68955	0.00	0.00	0.000	0.722
WQTV	SMF-1	BASE	20.18	103.00	109.00	68955	0.00	0.00	0.000	0.722
WQTV	SMF-1	BASE	20.27	103.00	109.00	68955	0.00	0.00	0.000	0.722
WQTV	SMF-1	BASE	20.35	103.00	109.00	68955	0.00	0.00	0.000	0.722

Full Volume Recovery

Section 3

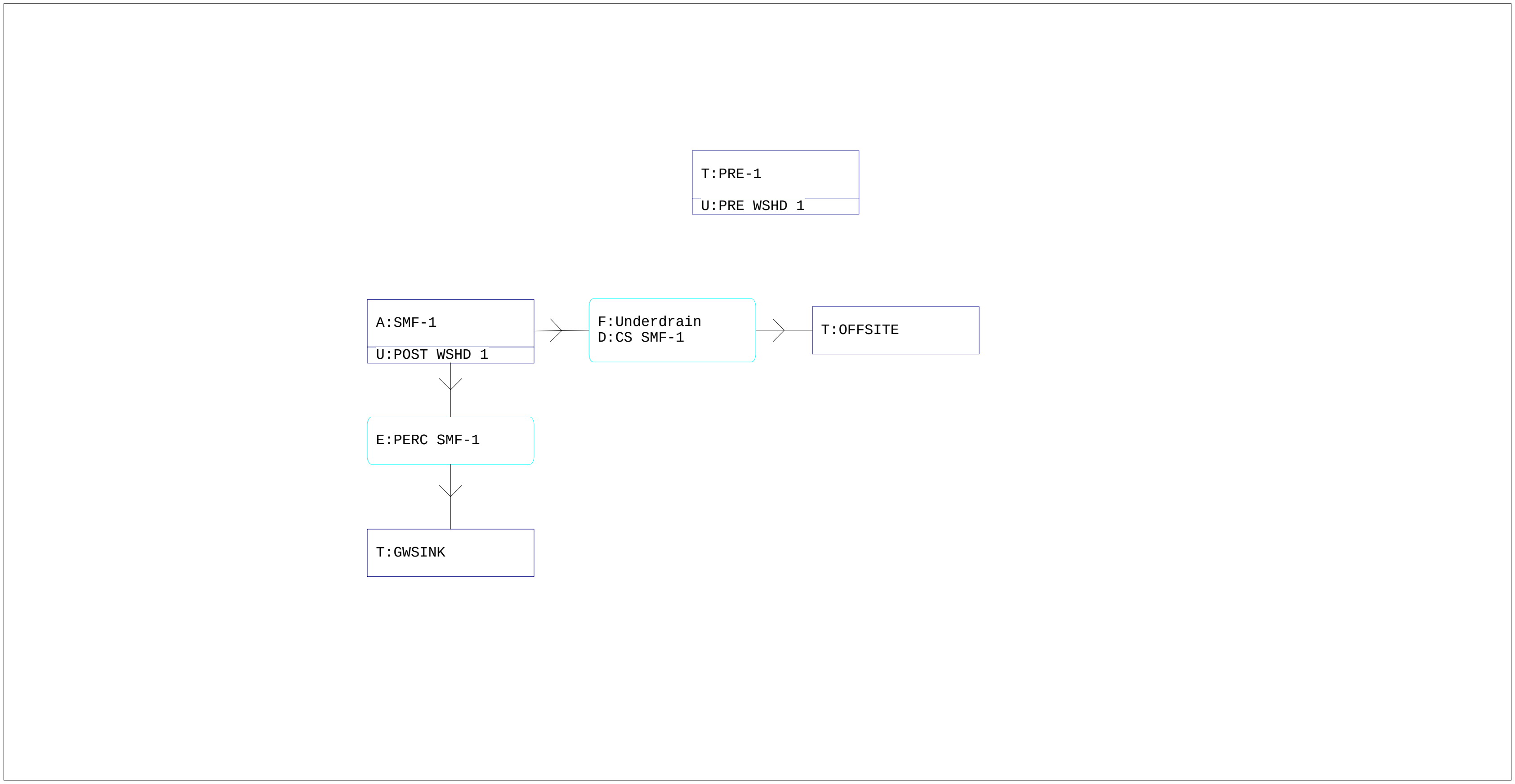
Post-Development Second Storm Event, 30 days after first:
100 year-24 hour

Project: 15-0150 City of Alachua Operations Center
Node Network Diagram
Designed by: SEW
Checked by: DHY
10/19/15

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Input Report
Designed by: SEW
Checked by: DHY
10/19/15

```
=========================================================================================
==== Basins =============================================================================
=========================================================================================

         Name: POST WSHD 1              Node: SMF-1                   Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                  Peaking Factor: 484.0
          Rainfall File:                   Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000               Time of Conc(min): 10.00
               Area(ac): 15.790                Time Shift(hrs): 0.00
           Curve Number: 69.00             Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


----------------------------------------------------------------------------------------------------
         Name: PRE WSHD 1               Node: PRE-1                   Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                   Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000               Time of Conc(min): 13.00
               Area(ac): 15.020                Time Shift(hrs): 0.00
           Curve Number: 45.00             Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


=========================================================================================
==== Nodes ==============================================================================
=========================================================================================

      Name: GWSINK              Base Flow(cfs): 0.000          Init Stage(ft): 94.400
     Group: BASE                                               Warn Stage(ft): 95.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          94.400
        9999.00          94.400

-----------------------------------------------------------------------------------------
      Name: OFFSITE             Base Flow(cfs): 0.000          Init Stage(ft): 98.000
     Group: BASE                                               Warn Stage(ft): 99.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          98.000
        9999.00          98.000

-----------------------------------------------------------------------------------------
      Name: PRE-1               Base Flow(cfs): 0.000          Init Stage(ft): 0.000
     Group: BASE                                               Warn Stage(ft): 0.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00           0.000
        9999.00           0.000

-----------------------------------------------------------------------------------------
      Name: SMF-1               Base Flow(cfs): 0.000          Init Stage(ft): 103.320
     Group: BASE                                               Warn Stage(ft): 109.000
```

```
      Type: Stage/Area

**Initial stage is set at pond stage @ 30 days after the first storm

      Stage(ft)        Area(ac)
--------------- ---------------
        103.000         1.5830
        104.000         1.6830
        105.000         1.7850
        106.000         1.8890
        107.000         1.9960
        108.000         2.1050
        109.000         2.2170
        110.000         2.3300

==========================================================================================
==== Drop Structures =====================================================================
==========================================================================================

         Name: CS SMF-1           From Node: SMF-1            Length(ft): 45.00
        Group: BASE                 To Node: OFFSITE               Count: 1

               UPSTREAM       DOWNSTREAM               Friction Equation: Average Conveyance
     Geometry: Circular       Circular                Solution Algorithm: Most Restrictive
     Span(in): 15.00          15.00                                 Flow: Both
     Rise(in): 15.00          15.00                   Entrance Loss Coef: 0.200
   Invert(ft): 98.450         98.000                      Exit Loss Coef: 0.500
  Manning's N: 0.012000       0.012000                  Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                      Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                        Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope


*** Weir 1 of 2 for Drop Structure CS SMF-1 ***
                                                                                     TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Vertical: Mavis           Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Circular              Orifice Disc Coef: 0.600

               Span(in): 2.75                        Invert(ft): 106.600
               Rise(in): 2.75                  Control Elev(ft): 106.600

*** Weir 2 of 2 for Drop Structure CS SMF-1 ***
                                                                                     TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Horizontal                Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Rectangular           Orifice Disc Coef: 0.600

               Span(in): 24.00                       Invert(ft): 108.800
               Rise(in): 37.00                 Control Elev(ft): 108.800


==========================================================================================
==== Percolation Links ===================================================================
==========================================================================================

         Name: PERC SMF-1         From Node: SMF-1                  Flow: Both
        Group: BASE                 To Node: GWSINK                Count: 1

         Surface Area Option: Vary based on Stage/Area Table
   Vertical Flow Termination: Horizontal Flow Algorithm
       Aquifer Base Elev(ft): 94.400                    Perimeter 1(ft): 1227.000
        Water Table Elev(ft): 94.400                    Perimeter 2(ft): 1542.000
 ****************************0.000                      Perimeter 3(ft): 4369.000
```

```
  Horiz Conductivity(ft/day): 0.500                    Distance 1 to 2(ft): 50.000
   Vert Conductivity(ft/day): 0.500                    Distance 2 to 3(ft): 450.000
     Effective Porosity(dec): 0.200                       Num Cells 1 to 2: 10
            Suction Head(in): 12.400                      Num Cells 2 to 3: 45
         Layer Thickness(ft): 8.600
```

```
==========================================================================================
==== Filters =============================================================================
==========================================================================================

         Name: Underdrain          From Node: SMF-1                  Flow: Both
        Group: BASE                  To Node: OFFSITE               Count: 1

                      Sloped: No
             Filter Elev(ft): 103.000                     Pipe Inv Elev(ft): 99.000
            Filter Width(ft): 4.000                       Pipe Diameter(in): 12.000
           Filter Length(ft): 85.000                     X Grav Thkness(in): 12.000
 Filter Permeability(ft/day): 10.000                     Y Grav Thkness(in): 12.000
```

```
==========================================================================================
==== Hydrology Simulations ===============================================================
==========================================================================================

         Name: 100Y_024HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_024HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Fdot-24
    Rainfall Amount(in): 11.04

Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          5.00

==========================================================================================
==== Routing Simulations =================================================================
==========================================================================================

         Name: 100YR_024H2         Hydrology Sim: 100Y_024HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_024H2.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                     Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                     End Time(hrs): 744.00
     Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
        Boundary Stages:                          Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          15.000
192.000         60.000
744.000         1440.000

Group           Run
--------------- -----
BASE            Yes
```

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Max Report: Peak Discharge Rate
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development Peak Discharge Rate

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
OFFSITE	BASE	100YR_024H2	0.00	98.00	99.00	0.0000	0	24.12	0.31	0.00	0.00

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Time Series Report: Peak Discharge Volume
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development Peak Discharge Volume

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_024H2	OFFSITE	BASE	720.25	98.00	99.00	0	0.04	0.00	4.187	0.000
100YR_024H2	OFFSITE	BASE	744.01	98.00	99.00	0	0.04	0.00	4.268	0.000

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Max Report: Peak Stage
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development Peak Stage

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
SMF-1	BASE	100YR_024H2	24.12	107.71	109.00	0.0050	90336	12.00	13.54	24.12	0.83

Section 4

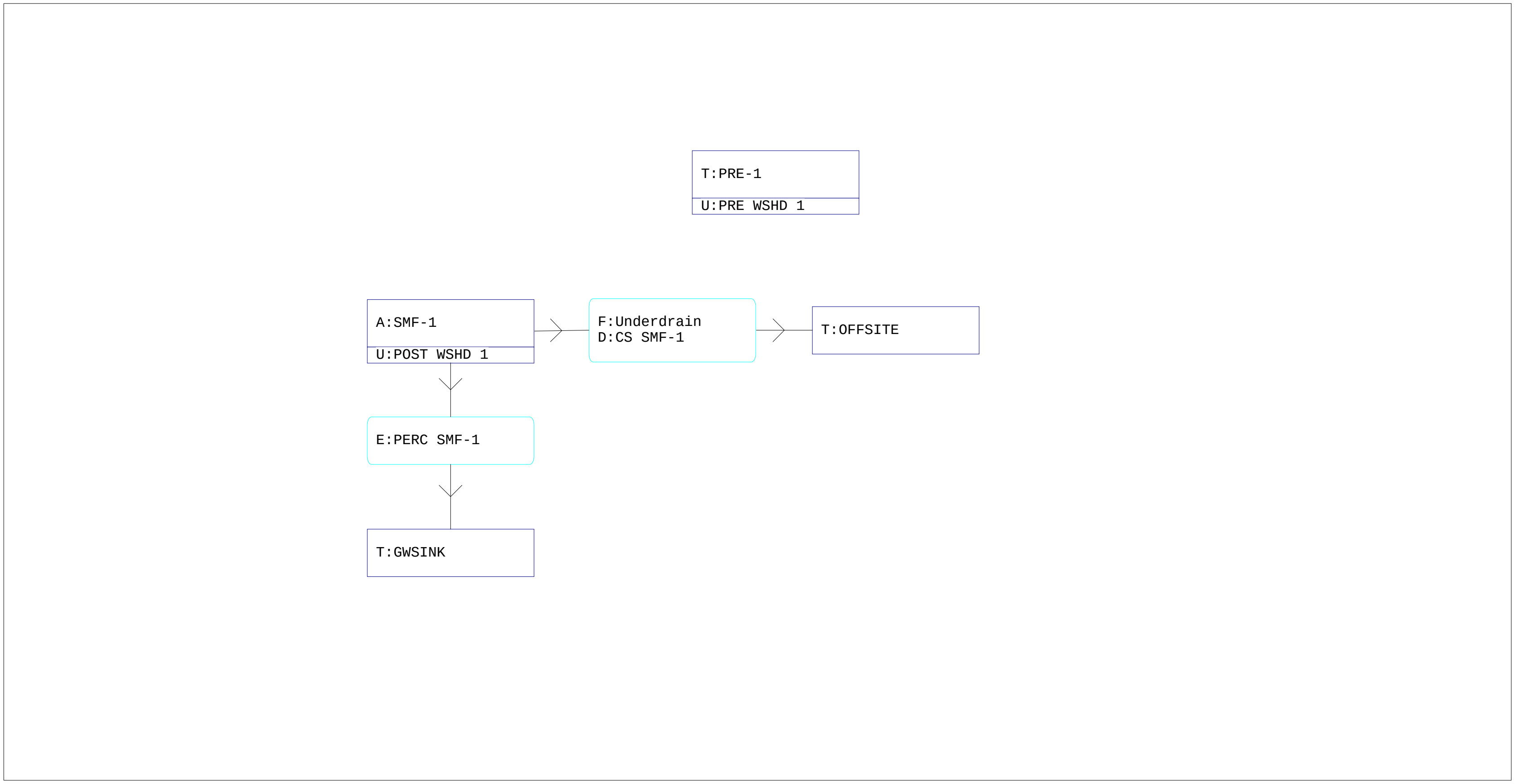
Post-Development Second Storm Event, 30 days after first:
100 year-72 hour

Project: 15-0150 City of Alachua Operations Center
Node Network Diagram
Designed by: SEW
Checked by: DHY
10/19/15

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



```
Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Input Report
Designed by: SEW
Checked by: DHY
10/19/15
```

```
==========================================================================================
==== Basins ==============================================================================
==========================================================================================

         Name: POST WSHD 1              Node: SMF-1                 Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                    Peaking Factor: 484.0
          Rainfall File:                     Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 10.00
               Area(ac): 15.790                  Time Shift(hrs): 0.00
           Curve Number: 69.00               Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


----------------------------------------------------------------------------------------------------
         Name: PRE WSHD 1               Node: PRE-1                 Status: Onsite
        Group: BASE                     Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                    Peaking Factor: 323.0
          Rainfall File:                     Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 13.00
               Area(ac): 15.020                  Time Shift(hrs): 0.00
           Curve Number: 45.00               Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


==========================================================================================
==== Nodes ===============================================================================
==========================================================================================

      Name: GWSINK              Base Flow(cfs): 0.000          Init Stage(ft): 94.400
     Group: BASE                                               Warn Stage(ft): 95.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          94.400
        9999.00          94.400

------------------------------------------------------------------------------------------
      Name: OFFSITE             Base Flow(cfs): 0.000          Init Stage(ft): 98.000
     Group: BASE                                               Warn Stage(ft): 99.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          98.000
        9999.00          98.000

------------------------------------------------------------------------------------------
      Name: PRE-1               Base Flow(cfs): 0.000          Init Stage(ft): 0.000
     Group: BASE                                               Warn Stage(ft): 0.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00           0.000
        9999.00           0.000

------------------------------------------------------------------------------------------
      Name: SMF-1               Base Flow(cfs): 0.000          Init Stage(ft): 103.950
     Group: BASE                                               Warn Stage(ft): 109.000
```

```
      Type: Stage/Area

**Initial stage is set at pond stage @ 30 days after the first storm

      Stage(ft)        Area(ac)
--------------- ---------------
        103.000         1.5830
        104.000         1.6830
        105.000         1.7850
        106.000         1.8890
        107.000         1.9960
        108.000         2.1050
        109.000         2.2170
        110.000         2.3300

==========================================================================================
==== Drop Structures =====================================================================
==========================================================================================

         Name: CS SMF-1            From Node: SMF-1             Length(ft): 45.00
        Group: BASE                  To Node: OFFSITE                Count: 1

              UPSTREAM       DOWNSTREAM                 Friction Equation: Average Conveyance
     Geometry: Circular      Circular                  Solution Algorithm: Most Restrictive
     Span(in): 15.00         15.00                                   Flow: Both
     Rise(in): 15.00         15.00                     Entrance Loss Coef: 0.200
   Invert(ft): 98.450        98.000                        Exit Loss Coef: 0.500
  Manning's N: 0.012000      0.012000                    Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000         0.000                        Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000         0.000                          Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope



*** Weir 1 of 2 for Drop Structure CS SMF-1 ***
                                                                                   TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Vertical: Mavis           Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Circular              Orifice Disc Coef: 0.600

               Span(in): 2.75                        Invert(ft): 106.600
               Rise(in): 2.75                  Control Elev(ft): 106.600

*** Weir 2 of 2 for Drop Structure CS SMF-1 ***
                                                                                   TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Horizontal                Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Rectangular           Orifice Disc Coef: 0.600

               Span(in): 24.00                       Invert(ft): 108.800
               Rise(in): 37.00                 Control Elev(ft): 108.800


==========================================================================================
==== Percolation Links ===================================================================
==========================================================================================

         Name: PERC SMF-1          From Node: SMF-1                   Flow: Both
        Group: BASE                  To Node: GWSINK                 Count: 1

         Surface Area Option: Vary based on Stage/Area Table
   Vertical Flow Termination: Horizontal Flow Algorithm
       Aquifer Base Elev(ft): 94.400                         Perimeter 1(ft): 1227.000
        Water Table Elev(ft): 94.400                         Perimeter 2(ft): 1542.000
 ****************************0.000                           Perimeter 3(ft): 4369.000
```

```
  Horiz Conductivity(ft/day): 0.500                    Distance 1 to 2(ft): 50.000
   Vert Conductivity(ft/day): 0.500                    Distance 2 to 3(ft): 450.000
     Effective Porosity(dec): 0.200                       Num Cells 1 to 2: 10
            Suction Head(in): 12.400                      Num Cells 2 to 3: 45
         Layer Thickness(ft): 8.600
```

```
==========================================================================================
==== Filters =============================================================================
==========================================================================================

         Name: Underdrain          From Node: SMF-1                   Flow: Both
        Group: BASE                  To Node: OFFSITE                Count: 1

                      Sloped: No
             Filter Elev(ft): 103.000                     Pipe Inv Elev(ft): 99.000
            Filter Width(ft): 4.000                       Pipe Diameter(in): 12.000
           Filter Length(ft): 85.000                     X Grav Thkness(in): 12.000
 Filter Permeability(ft/day): 10.000                     Y Grav Thkness(in): 12.000
```

```
==========================================================================================
==== Hydrology Simulations ===============================================================
==========================================================================================

         Name: 100Y_072HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_072HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Fdot-72
    Rainfall Amount(in): 13.50

Time(hrs)       Print Inc(min)
--------------- ---------------
80.000          5.00
```

```
==========================================================================================
==== Routing Simulations =================================================================
==========================================================================================

         Name: 100YR_072H2         Hydrology Sim: 100Y_072HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_072H2.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                     Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                     End Time(hrs): 792.00
     Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
        Boundary Stages:                          Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
80.000          15.000
248.000         60.000
792.000         1440.000

Group           Run
--------------- -----
BASE            Yes
```

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Max Report: Peak Discharge Rate
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development Peak Discharge Rate

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
OFFSITE	BASE	100YR_072H2	0.00	98.00	99.00	0.0000	0	68.30	0.39	0.00	0.00

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Time Series Report: Peak Discharge Volume
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development Peak Discharge Volume

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_072H2	OFFSITE	BASE	704.27	98.00	99.00	0	0.06	0.00	6.006	0.000
100YR_072H2	OFFSITE	BASE	728.27	98.00	99.00	0	0.06	0.00	6.118	0.000
100YR_072H2	OFFSITE	BASE	752.27	98.00	99.00	0	0.05	0.00	6.228	0.000
100YR_072H2	OFFSITE	BASE	776.27	98.00	99.00	0	0.05	0.00	6.336	0.000
100YR_072H2	OFFSITE	BASE	792.01	98.00	99.00	0	0.05	0.00	6.405	0.000

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Max Report: Peak Stage
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development Peak Stage

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
SMF-1	BASE	100YR_072H2	68.30	108.52	109.00	0.0050	94238	59.99	9.64	68.30	0.94

Section 5

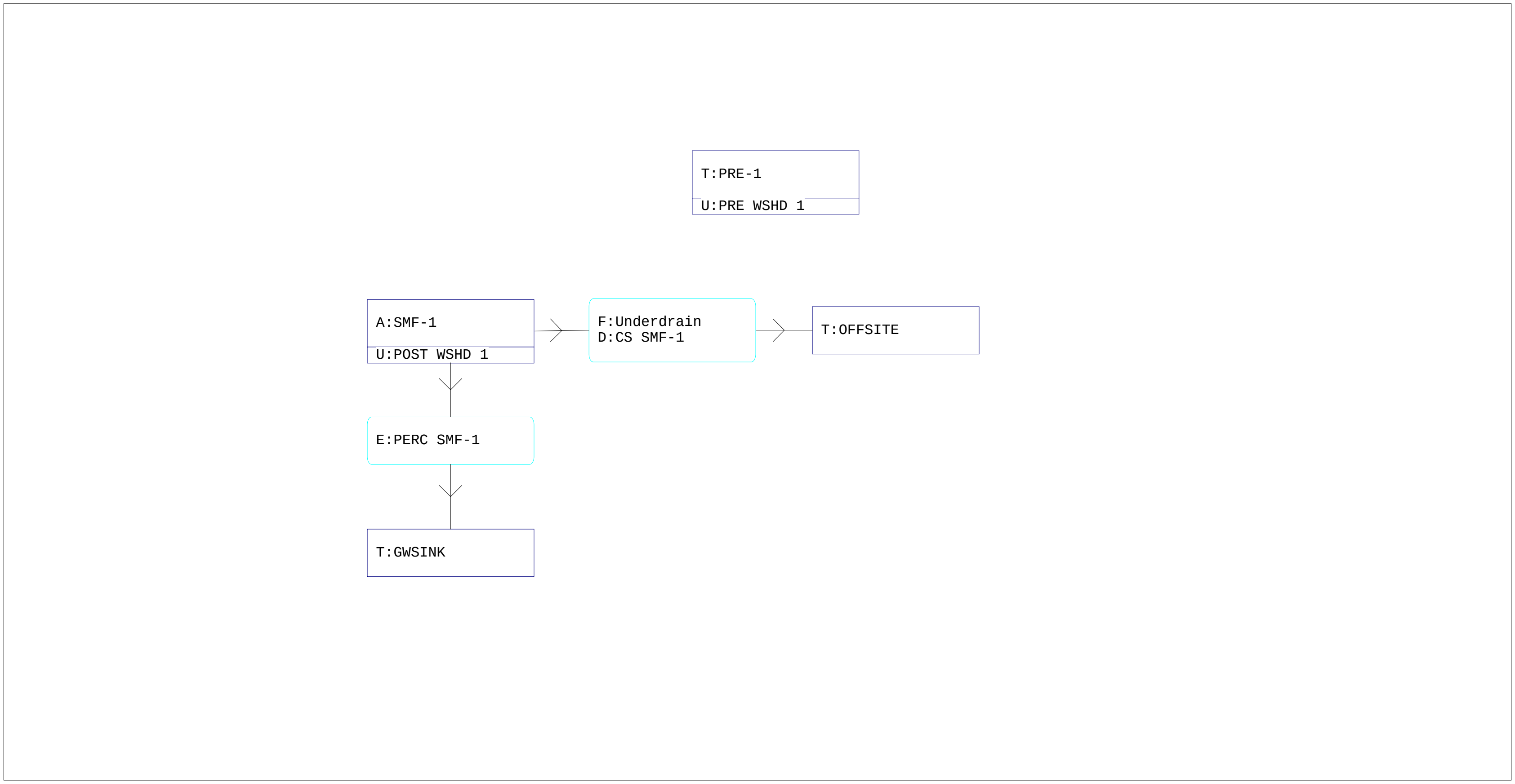
Post-Development Second Storm Event, 30 days after first:
100 year-168 hour

Project: 15-0150 City of Alachua Operations Center
Node Network Diagram
Designed by: SEW
Checked by: DHY
10/19/15

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Input Report
Designed by: SEW
Checked by: DHY
10/19/15

```
==========================================================================================
==== Basins ==============================================================================
==========================================================================================

         Name: POST WSHD 1             Node: SMF-1                 Status: Onsite
        Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                     Peaking Factor: 484.0
          Rainfall File:                      Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                  Time of Conc(min): 10.00
               Area(ac): 15.790                   Time Shift(hrs): 0.00
           Curve Number: 69.00               Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


----------------------------------------------------------------------------------------------------
         Name: PRE WSHD 1              Node: PRE-1                 Status: Onsite
        Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                     Peaking Factor: 323.0
          Rainfall File:                      Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                  Time of Conc(min): 13.00
               Area(ac): 15.020                   Time Shift(hrs): 0.00
           Curve Number: 45.00               Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


==========================================================================================
==== Nodes ===============================================================================
==========================================================================================

      Name: GWSINK             Base Flow(cfs): 0.000         Init Stage(ft): 94.400
     Group: BASE                                             Warn Stage(ft): 95.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          94.400
        9999.00          94.400

------------------------------------------------------------------------------------------
      Name: OFFSITE            Base Flow(cfs): 0.000         Init Stage(ft): 98.000
     Group: BASE                                             Warn Stage(ft): 99.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          98.000
        9999.00          98.000

------------------------------------------------------------------------------------------
      Name: PRE-1              Base Flow(cfs): 0.000         Init Stage(ft): 0.000
     Group: BASE                                             Warn Stage(ft): 0.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00           0.000
        9999.00           0.000

------------------------------------------------------------------------------------------
      Name: SMF-1              Base Flow(cfs): 0.000         Init Stage(ft): 104.430
     Group: BASE                                             Warn Stage(ft): 109.000
```

```
      Type: Stage/Area

**Initial stage is set at pond stage @ 30 days after the first storm

      Stage(ft)        Area(ac)
--------------- ---------------
        103.000          1.5830
        104.000          1.6830
        105.000          1.7850
        106.000          1.8890
        107.000          1.9960
        108.000          2.1050
        109.000          2.2170
        110.000          2.3300

==========================================================================================
==== Drop Structures =====================================================================
==========================================================================================

         Name: CS SMF-1            From Node: SMF-1            Length(ft): 45.00
        Group: BASE                  To Node: OFFSITE               Count: 1

               UPSTREAM       DOWNSTREAM                Friction Equation: Average Conveyance
     Geometry: Circular       Circular                 Solution Algorithm: Most Restrictive
     Span(in): 15.00          15.00                                  Flow: Both
     Rise(in): 15.00          15.00                    Entrance Loss Coef: 0.200
   Invert(ft): 98.450         98.000                       Exit Loss Coef: 0.500
  Manning's N: 0.012000       0.012000                   Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                       Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                         Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope



*** Weir 1 of 2 for Drop Structure CS SMF-1 ***
                                                                                   TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Vertical: Mavis           Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Circular              Orifice Disc Coef: 0.600

               Span(in): 2.75                        Invert(ft): 106.600
               Rise(in): 2.75                  Control Elev(ft): 106.600

*** Weir 2 of 2 for Drop Structure CS SMF-1 ***
                                                                                   TABLE
                  Count: 1                      Bottom Clip(in): 0.000
                   Type: Horizontal                Top Clip(in): 0.000
                   Flow: Both                    Weir Disc Coef: 3.200
               Geometry: Rectangular           Orifice Disc Coef: 0.600

               Span(in): 24.00                       Invert(ft): 108.800
               Rise(in): 37.00                 Control Elev(ft): 108.800


==========================================================================================
==== Percolation Links ===================================================================
==========================================================================================

         Name: PERC SMF-1          From Node: SMF-1                  Flow: Both
        Group: BASE                  To Node: GWSINK                Count: 1

         Surface Area Option: Vary based on Stage/Area Table
   Vertical Flow Termination: Horizontal Flow Algorithm
       Aquifer Base Elev(ft): 94.400                     Perimeter 1(ft): 1227.000
        Water Table Elev(ft): 94.400                     Perimeter 2(ft): 1542.000
 ****************************0.000                       Perimeter 3(ft): 4369.000
```

```
  Horiz Conductivity(ft/day): 0.500                Distance 1 to 2(ft): 50.000
   Vert Conductivity(ft/day): 0.500                Distance 2 to 3(ft): 450.000
     Effective Porosity(dec): 0.200                   Num Cells 1 to 2: 10
            Suction Head(in): 12.400                  Num Cells 2 to 3: 45
         Layer Thickness(ft): 8.600
```

```
==========================================================================================
==== Filters =============================================================================
==========================================================================================

         Name: Underdrain          From Node: SMF-1                   Flow: Both
        Group: BASE                  To Node: OFFSITE                Count: 1

                      Sloped: No
             Filter Elev(ft): 103.000                    Pipe Inv Elev(ft): 99.000
            Filter Width(ft): 4.000                      Pipe Diameter(in): 12.000
           Filter Length(ft): 85.000                    X Grav Thkness(in): 12.000
 Filter Permeability(ft/day): 10.000                    Y Grav Thkness(in): 12.000
```

```
==========================================================================================
==== Hydrology Simulations ===============================================================
==========================================================================================

         Name: 100Y_168HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_168HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 168.00
          Rainfall File: Fdot-168
    Rainfall Amount(in): 16.00

Time(hrs)       Print Inc(min)
--------------- ---------------
180.000         5.00
```

```
==========================================================================================
==== Routing Simulations =================================================================
==========================================================================================

         Name: 100YR_168H2         Hydrology Sim: 100Y_168HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_168H2.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                     Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                     End Time(hrs): 888.00
     Min Calc Time(sec): 0.5000               Max Calc Time(sec): 60.0000
        Boundary Stages:                          Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
172.000         15.000
336.000         60.000
888.000         1440.000

Group           Run
--------------- -----
BASE            Yes
```

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Max: Peak Discharge Rate
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development
Peak Stage

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
OFFSITE	BASE	100YR_168H2	0.00	98.00	99.00	0.0000	0	160.10	5.00	0.00	0.00

Post-Development
Peak Discharge
Volume

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Time Series Report: Peak Discharge Volume
Designed by: SEW
Checked by: DHY
10/19/15

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_168H2	OFFSITE	BASE	720.27	98.00	99.00	0	0.07	0.00	9.303	0.000
100YR_168H2	OFFSITE	BASE	744.27	98.00	99.00	0	0.07	0.00	9.437	0.000
100YR_168H2	OFFSITE	BASE	768.27	98.00	99.00	0	0.07	0.00	9.567	0.000
100YR_168H2	OFFSITE	BASE	792.27	98.00	99.00	0	0.06	0.00	9.695	0.000
100YR_168H2	OFFSITE	BASE	816.27	98.00	99.00	0	0.06	0.00	9.821	0.000
100YR_168H2	OFFSITE	BASE	840.27	98.00	99.00	0	0.06	0.00	9.943	0.000
100YR_168H2	OFFSITE	BASE	864.27	98.00	99.00	0	0.06	0.00	10.063	0.000
100YR_168H2	OFFSITE	BASE	888.01	98.00	99.00	0	0.06	0.00	10.179	0.000

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Max: Peak Stage
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development
Peak Stage

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
SMF-1	BASE	100YR_168H2	160.10	109.07	109.00	0.0044	96916	159.92	7.05	160.10	5.13

Section 6

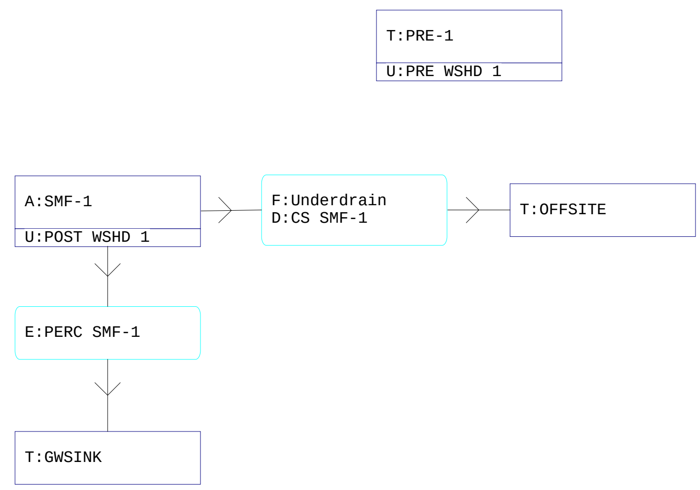
Post-Development Second Storm Event, 30 days after first:
100 year-240 hour

Project: 15-0150 City of Alachua Operations Center
Node Network Diagram
Designed by: SEW
Checked by: DHY
10/19/15

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



Interconnected Channel and Pond Routing Model (ICPR) ©2002 Streamline Technologies, Inc.

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Input Report
Designed by: SEW
Checked by: DHY
10/19/15

```
====================================================================================
==== Basins ========================================================================
====================================================================================

         Name: POST WSHD 1             Node: SMF-1                 Status: Onsite
        Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh484                  Peaking Factor: 484.0
          Rainfall File:                   Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000               Time of Conc(min): 10.00
               Area(ac): 15.790                Time Shift(hrs): 0.00
           Curve Number: 69.00            Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


----------------------------------------------------------------------------------------------
         Name: PRE WSHD 1              Node: PRE-1                 Status: Onsite
        Group: BASE                    Type: SCS Unit Hydrograph CN

        Unit Hydrograph: Uh323                  Peaking Factor: 323.0
          Rainfall File:                   Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000               Time of Conc(min): 13.00
               Area(ac): 15.020                Time Shift(hrs): 0.00
           Curve Number: 45.00            Max Allowable Q(cfs): 999999.000
                DCIA(%): 0.00


====================================================================================
==== Nodes =========================================================================
====================================================================================

      Name: GWSINK             Base Flow(cfs): 0.000          Init Stage(ft): 94.400
     Group: BASE                                              Warn Stage(ft): 95.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          94.400
        9999.00          94.400

------------------------------------------------------------------------------------
      Name: OFFSITE            Base Flow(cfs): 0.000          Init Stage(ft): 98.000
     Group: BASE                                              Warn Stage(ft): 99.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          98.000
        9999.00          98.000

------------------------------------------------------------------------------------
      Name: PRE-1              Base Flow(cfs): 0.000          Init Stage(ft): 0.000
     Group: BASE                                              Warn Stage(ft): 0.000
      Type: Time/Stage


      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00           0.000
        9999.00           0.000

------------------------------------------------------------------------------------
      Name: SMF-1              Base Flow(cfs): 0.000          Init Stage(ft): 104.500
     Group: BASE                                              Warn Stage(ft): 109.000
```

```
      Type: Stage/Area

**Initial stage is set at pond stage @ 30 days after the first storm

      Stage(ft)        Area(ac)
--------------- ---------------
        103.000          1.5830
        104.000          1.6830
        105.000          1.7850
        106.000          1.8890
        107.000          1.9960
        108.000          2.1050
        109.000          2.2170
        110.000          2.3300

==========================================================================================
==== Drop Structures =====================================================================
==========================================================================================

         Name: CS SMF-1           From Node: SMF-1            Length(ft): 45.00
        Group: BASE                 To Node: OFFSITE               Count: 1

               UPSTREAM       DOWNSTREAM                 Friction Equation: Average Conveyance
     Geometry: Circular       Circular                  Solution Algorithm: Most Restrictive
     Span(in): 15.00          15.00                                   Flow: Both
     Rise(in): 15.00          15.00                     Entrance Loss Coef: 0.200
   Invert(ft): 98.450         98.000                        Exit Loss Coef: 0.500
  Manning's N: 0.012000       0.012000                    Outlet Ctrl Spec: Use dc or tw
 Top Clip(in): 0.000          0.000                        Inlet Ctrl Spec: Use dc
 Bot Clip(in): 0.000          0.000                          Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope


*** Weir 1 of 2 for Drop Structure CS SMF-1 ***
                                                                                  TABLE
                  Count: 1                       Bottom Clip(in): 0.000
                   Type: Vertical: Mavis            Top Clip(in): 0.000
                   Flow: Both                     Weir Disc Coef: 3.200
               Geometry: Circular              Orifice Disc Coef: 0.600

               Span(in): 2.75                        Invert(ft): 106.600
               Rise(in): 2.75                  Control Elev(ft): 106.600

*** Weir 2 of 2 for Drop Structure CS SMF-1 ***
                                                                                  TABLE
                  Count: 1                       Bottom Clip(in): 0.000
                   Type: Horizontal                 Top Clip(in): 0.000
                   Flow: Both                     Weir Disc Coef: 3.200
               Geometry: Rectangular           Orifice Disc Coef: 0.600

               Span(in): 24.00                       Invert(ft): 108.800
               Rise(in): 37.00                 Control Elev(ft): 108.800


==========================================================================================
==== Percolation Links ===================================================================
==========================================================================================

         Name: PERC SMF-1         From Node: SMF-1                  Flow: Both
        Group: BASE                 To Node: GWSINK                Count: 1

         Surface Area Option: Vary based on Stage/Area Table
   Vertical Flow Termination: Horizontal Flow Algorithm
       Aquifer Base Elev(ft): 94.400                    Perimeter 1(ft): 1227.000
        Water Table Elev(ft): 94.400                    Perimeter 2(ft): 1542.000
 ****************************0.000                      Perimeter 3(ft): 4369.000
```

```
  Horiz Conductivity(ft/day): 0.500                    Distance 1 to 2(ft): 50.000
   Vert Conductivity(ft/day): 0.500                    Distance 2 to 3(ft): 450.000
     Effective Porosity(dec): 0.200                       Num Cells 1 to 2: 10
            Suction Head(in): 12.400                      Num Cells 2 to 3: 45
         Layer Thickness(ft): 8.600
```

```
==========================================================================================
==== Filters =============================================================================
==========================================================================================

         Name: Underdrain          From Node: SMF-1                   Flow: Both
        Group: BASE                  To Node: OFFSITE                Count: 1

                    Sloped: No
            Filter Elev(ft): 103.000                    Pipe Inv Elev(ft): 99.000
           Filter Width(ft): 4.000                      Pipe Diameter(in): 12.000
          Filter Length(ft): 85.000                    X Grav Thkness(in): 12.000
 Filter Permeability(ft/day): 10.000                   Y Grav Thkness(in): 12.000
```

```
==========================================================================================
==== Hydrology Simulations ===============================================================
==========================================================================================

         Name: 100Y_240HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100Y_240HR.R32

      Override Defaults: Yes
    Storm Duration(hrs): 240.00
          Rainfall File: Fdot-240
    Rainfall Amount(in): 18.00

Time(hrs)       Print Inc(min)
--------------- ---------------
260.000         5.00
```

```
==========================================================================================
==== Routing Simulations =================================================================
==========================================================================================

         Name: 100YR_240H2         Hydrology Sim: 100Y_240HR
     Filename: L:\2015\15-0150\Engineering\Drainage\2_Calculations\ICPR\100YR_240H2.I32

      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                      Delta Z Factor: 0.00500
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                      End Time(hrs): 960.00
     Min Calc Time(sec): 0.5000                Max Calc Time(sec): 60.0000
        Boundary Stages:                           Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
240.000         15.000
408.000         60.000
960.000         1440.000

Group           Run
--------------- -----
BASE            Yes
```

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Max: Peak Discharge Rate
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development Peak Discharge Rate

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
OFFSITE	BASE	100YR_240H2	0.00	98.00	99.00	0.0000	0	191.99	1.65	0.00	0.00

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Time Series Report: Peak Discharge Volume
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development Peak Discharge Volume

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
100YR_240H2	OFFSITE	BASE	720.26	98.00	99.00	0	0.07	0.00	11.372	0.000
100YR_240H2	OFFSITE	BASE	744.26	98.00	99.00	0	0.07	0.00	11.516	0.000
100YR_240H2	OFFSITE	BASE	768.26	98.00	99.00	0	0.07	0.00	11.656	0.000
100YR_240H2	OFFSITE	BASE	792.26	98.00	99.00	0	0.07	0.00	11.793	0.000
100YR_240H2	OFFSITE	BASE	816.26	98.00	99.00	0	0.07	0.00	11.928	0.000
100YR_240H2	OFFSITE	BASE	840.26	98.00	99.00	0	0.07	0.00	12.060	0.000
100YR_240H2	OFFSITE	BASE	864.26	98.00	99.00	0	0.06	0.00	12.189	0.000
100YR_240H2	OFFSITE	BASE	888.26	98.00	99.00	0	0.06	0.00	12.315	0.000
100YR_240H2	OFFSITE	BASE	912.26	98.00	99.00	0	0.06	0.00	12.439	0.000
100YR_240H2	OFFSITE	BASE	936.26	98.00	99.00	0	0.06	0.00	12.560	0.000
100YR_240H2	OFFSITE	BASE	960.00	98.00	99.00	0	0.06	0.00	12.677	0.000

Project: 15-0150 City of Alachua Operations Center
POST-DEVELOPMENT SECOND STORM in Back to Back Scenario
Node Max: Peak Stage
Designed by: SEW
Checked by: DHY
10/19/15

Post-Development
Peak Stage

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
SMF-1	BASE	100YR_240H2	191.99	108.91	109.00	0.0049	96144	183.91	9.24	191.99	1.75

Appendix B

Operation and Maintenance Requirements and
Erosion and Sedimentation Control Requirements

Operation and Maintenance Requirements

Proposed operation and maintenance and soil erosion and sediment control practices are outlined in the following paragraphs.

Stormwater Management Facilities

The man-made stormwater management facilities shall be maintained free of sediments and debris. Areas shall be inspected on a routine basis and nuisance plants shall be removed a minimum of twice annually. Grassed areas shall be mowed a minimum of 6 times per year. The natural systems shall be least disturbed as possible. Minimal maintenance is required for the natural and undisturbed areas. All basins shall be inspected monthly. Monthly documentation shall be noted based upon the inspection findings.

Erosion Control

All erosion damage at spillways, outfall structures, and along basin side slopes shall be repaired (grading and grassing) as conditions occur. All side slopes and other areas disturbed by construction shall be stabilized by sodding, hydro-mulching or other appropriate vegetative or non-vegetative erosion control measures.

Swale/Ditch

All swales, if any, shall be maintained free of debris and sediment. Sediments shall be removed when the depth has been reduced by 20 percent. Sediments removed from swales/ditches should be evenly spread over grassed areas away from the stormwater management facilities.

Culverts, Pipes and Structures

All pipes, if any, shall be inspected bi-annually. Culverts and pipes shall be maintained free of debris and sediment. Sediments removed from culverts and pipes should be evenly spread over grassed areas away from the stormwater management facilities.

The structures and paved flow lines, if any, shall be maintained clear of debris. Remove any debris and silt collected in inlets and pipes as routine inspections dictates.

Underdrains

All underdrains shall be inspected annually. Filter beds shall be maintained free of debris and sediment. Grass clippings shall be removed from the area after cutting and sod shall not be placed over filter material. Place stone or gravel over the filter material for stabilization, if necessary.

Inspection Reporting

Annual inspection reports, prepared by a properly licensed professional engineer, should be submitted to the water management district. The engineer shall inspect the site and report on the status and function of the system. Noted deficiencies and/or maintenance requirements shall be reported to the owner with recommendations for repairs. Repairs shall be executed.

Limerock/Sinkhole

If continuous limerock is encountered during excavation of the swales/basin or if a sinkhole forms in the area of a drainage swale/basin the engineer of record shall be notified by either the contractor or the established operation and maintenance entity. The engineer of record shall inspect the repaired area upon completion of the repair.

Where continuous limerock is encountered during excavation of the swales/basins, the limerock shall be over excavated by 2 feet and replaced with clayey soils that extend 2 feet beyond the perimeter of the limerock outcropping. The clayey soil shall have at least 20% passing the no. 200 sieve, compacted to 95% of standard proctor, and compacted in a wet condition with moisture 2% - 4% above optimum.

All swales/basins shall be inspected monthly for sinkhole occurrence. Should a sinkhole occur, the area shall be repaired as soon as possible. Repair shall include filling (limerock such as road base material, clay/sand mixture, or concrete if necessary). A 2-foot deep cap that extends 2 feet beyond the perimeter of the sinkhole shall be constructed with clayey soils. The clayey soil shall have at least 20% passing the no. 200 sieve, compacted to 95% of standard proctor, and compacted in a wet condition with moisture 2% - 4% above optimum. The clay soil cap shall be re-graded to prevent concentration of waters (ponding) and re-vegetated.

Operation & Maintenance Entity:

City of Alachua
P.O. Box 9
Alachua, FL 32616

Appendix C

Geotechnical Reports

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF A
GEOTECHNICAL SITE EXPLORATION

ALACHUA OPERATIONS CENTER

ALACHUA, ALACHUA COUNTY, FLORIDA

GSE PROJECT No. 12489

Prepared For:

WALKER ARCHITECTS

JULY 2015

Certificate of Authorization No. 27430

GSE Engineering & Consulting, Inc.

July 28, 2015

Mr. Joe Walker
Walker Architects, Inc.
4055 NW 43rd Street, Suite 28
Gainesville, FL 32606

Subject: Summary Report of a Geotechnical Site Exploration
Alachua Operations Center
Alachua, Alachua County, Florida
GSE Project No. 12489

Dear Mr. Walker:

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, stormwater management, and pavement designs.

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.

Corey A. Dunlap, P.E.
Project Engineer
Florida Registration No. 77678

Kenneth L. Hill, P.E.
Principal Engineer
Florida Registration No. 40146

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Z:Projects\12489 Alachua Operations Center/12489.doc

Distribution: Addressee (2)
File (1)

GSE Engineering & Consulting, Inc.
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Certificate of Authorization No. 27430

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LIST OF FIGURES

1.0 INTRODUCTION

1.1 General

GSE Engineering & Consulting, Inc. (GSE) has completed this geotechnical exploration for the proposed Alachua Operations Center located in Alachua, Alachua County, Florida. This exploration was performed in accordance with GSE Proposal No. 2015-156 dated May 28, 2015. Mr. Joe Walker with Walker Architects, Inc. authorized our services through an email correspondence dated July 16, 2015.

1.2 Project Description

The site is located along the west side of NW 104th Terrace at its southern termination. The City of Alachua plans to develop this site into an operations center. Mr. Joe Walker initially provided information about this project. Since those initial discussions, the site plan has changed dramatically. GSE was provided the 30% Construction Documents dated July 15, 2015 as well as the *Structural Criteria for Geotechnical Subsurface Investigation* from the project structural engineer.

The project will consist of two buildings, an Operations Administration Building and a Warehouse. The structures will be single-story concrete construction. The structural loads are expected to be approximately 40 kips for columns and 4 kips per foot for bearing walls. The ground surface slopes moderately down toward the west from the east with elevations near the proposed building locations ranging between 139 and 151 feet. The western sides of the buildings will be filled to raise finished floor elevations. The finished floor elevation of the eastern building is proposed to be set at 151.5 feet and the finished floor elevation of the western building is proposed to be set at 146.4 feet. A sidewalk will connect the two buildings, and stem wall/retaining wall is proposed for the west side of the sidewalk to help transition the site grades.

Driveways and parking lots will surround the structures. A materials storage yard will be located south of the buildings. This area will also be used for future buildings.

The preliminary site grading provided by CHW indicates the site will be filled to be relatively level, with a gentle slope down to the west to provide drainage to the storm water inlets. The preliminary site grades suggest up to 4 feet of fill will be placed beneath the western portion of the eastern building, 2 to 7 feet of fill will be placed beneath the western building, and up to 15 feet of fill will be placed in the materials storage yard to raise and level the site.

The majority of the stormwater management is proposed to be provided by an existing basin located north of the site. This basin is approximately 8 feet deep at the southern edge, but only about 2 feet deep at the northern edge where a soil berm was constructed to hold collected stormwater. We understand the basin is proposed to be excavated another 2+ feet to create enough storage for the planned development. As a second option, we understand that an on-site stormwater management basin could be constructed along the western property border.

A recent aerial photograph of the site was obtained. The 30% Construction Documents and the 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. Our exploration consisted of performing eight (8) Standard Penetration Test (SPT) borings to depths of 20 feet below land surface (bls) in the area of the proposed buildings, two (2) auger borings to depths of 15 feet bls in the area of the potential on-site stormwater basin, three (3) auger borings to depths of 15 to 30 feet bls in the area of the existing stormwater basin, and seven (7) auger borings to depths of 5 feet bls in the area of the driveways and parking lots.

The soil borings were performed at the approximate locations as shown on Figures 2 and 3. 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 July 21 and 22, 2015.

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 flight auger 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. Then the sampler was 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 fifteen (15) percent soil fines passing the No. 200 sieve determinations, fifteen (15) natural moisture content determinations, five (5) Atterberg Limits tests, four (4) constant head hydraulic conductivity tests, and one (1) Limerock Bearing Ratio (LBR) test. 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

Messrs. Corey A. Dunlap, P.E. and Stanley E. Henderson, E.I. with GSE visited the site on July 21, 2015 to observe the site conditions and mark the boring locations.

The majority of the site is open and covered with unmaintained grass, weeds, and underbrush. A few areas on the southern portion of the site contain large hardwood and pine trees with thick underbrush. A soil mound is located on the southeast portion of the site. It is unclear why the soil mound is present.

The existing stormwater management facility located north of the site is approximately 8 feet deep on the south end, but only about 2 feet deep on the north end. It appears as though a soil berm was created along the northern end to hold the collected stormwater. The basin is covered in pine trees. We understand the plan is to harvest the pine trees in order to excavate the basin deeper.

The topography at the site is moderately sloping down toward the west from the east. The topography survey within the 30% Construction Documents indicates the ground surface at the site generally ranges between 122 and 160 feet. The ground surface elevations across the proposed building areas fall from 151 feet on the east side to 139 feet on the west side.

3.2 Subsurface Conditions

The locations of the auger and SPT borings are provided on Figures 2 and 3. 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 in the area of the proposed driveways and parking lots (A-1 through A-7) generally encountered consistent soil conditions. The borings mostly penetrated silty and clayey sand (SM, SC) from ground surface to the explored depths of 5 feet bls. Various amounts of cemented sand boulders, traces of limestone, and lenses of clay were encountered in the soil profiles. The exception to this typical soil profile was encountered in auger boring A-6 which penetrated a stratum of very clayey sand (SC) from 3 to 5 feet bls.

The auger borings located in the potential on-site stormwater management facility (P-1 & P-2) generally encountered consistent soil conditions that comprise of silty sand (SM) from ground surface to the explored depth of 15 feet bls.

The auger borings located in the existing stormwater management facility north of the site (P-3, P-4 & P-5) encountered somewhat consistent soil conditions. Auger borings P-3 and P-4 penetrated 8 to 13.5 feet of silty sand (SM) underlain by clayey to very clayey sand and sandy clay to clay (SC, CL/CH) to the explored depths of 15 and 30 feet bls. Auger boring P-5 initially penetrated 3 feet of clayey sand (SC) underlain by a 1.5 feet thick stratum of clay with sand (CL/CH). These surficial soils were underlain by silty sand with clay (SM-SC) to a depth of 13.5 feet bls where a 2.5 feet thick stratum of very clayey sand (SC) was then encountered. The limestone formation was then penetrated from 16 feet to the explored depth of 30 feet bls.

The SPT borings located in the area of the proposed buildings (B-1 through B-8) indicate the subsurface conditions are relatively consistent. Overall, the borings generally encountered 5 to 8 feet of silty and clayey sand (SM, SC, SM-SC) with various amounts of cemented sand boulders and trace limestone. These surficial soils are generally underlain by clayey to very clayey sand with lenses of clay (SC) and sandy clay to clay (CL/CH, CH) to the explored depths of 20 feet bls.

The upper sandier soils (SM, SC, SM-SC) are generally in very loose to medium dense conditions with N-values ranging between 2 and 13 blows per foot. The deeper clay-rich soils (SC, CL/CH, CH) are generally in medium dense to dense and firm to stiff conditions with N-values ranging between 6 and 38 blows per foot.

The exception to the above described soil profile beneath the proposed buildings occurred in SPT boring B-4. This boring initially penetrated 8.5 feet of very loose silty sand with an abundant amount of decaying wood debris (SM/PT). Weight-of-hammer events were encountered in this material from depths of about 1.5 to 8.5 feet bls. Medium dense and firm to stiff clayey sand and clay (SC, CH) was then encountered to the explored depth of 20 feet bls. The subsurface conditions encountered in this boring suggest that it was located in a relic tree stump or pine tree tap root.

Groundwater was not encountered in the boreholes at the time of the drilling operations.

Indications of karst activity, sinkholes, and caverns were not encountered by the soil borings within the explored depths. However, this exploration was not intended to screen the site for sinkhole activity. Karst activity could be present at depths that were not explored by the soil borings.

3.3 Review of Published Data

The proposed construction site is mapped as two soil series by the Soil Conservation Service (SCS) Soil Survey for Alachua County[1]. The southeast portion of the site is mapped as Norfolk loamy fine sand, 5 to 8 percent slopes and the remainder of the site is mapped as Arredondo fine sand, 5 to 8 percent slopes. The existing basin located north of the site is also mapped as two soil series by the Soil Conservation Service (SCS) Soil Survey for Alachua County. The north half of the basin is mapped as Arredondo fine sand, 0 to 5 percent slopes while the south half of the site is mapped as Arredondo fine sand, 5 to 8 percent slopes. The following soil descriptions are from the Soil Survey.

Arredondo fine sand, 0 to 5 percent slopes – This nearly level to gently sloping, well-drained soil is in both small and large areas of uplands. Slopes are smooth to convex. The areas are irregular in shape and range from about 10 to 160 acres in size.

Typically, the surface layer is dark grayish brown fine sand about 8 inches thick. The subsurface layer is fine sand to a depth of 49 inches. The upper 23 inches is yellowish brown, and the lower 18 inches is brownish yellow. The subsoil extends to a depth of 86 inches or more. The upper 5 inches is yellowish brown loamy sand; the next 10 inches is yellowish brown sandy clay loam, and the lower 22 inches is dark yellowish brown sandy clay and sandy clay loam.

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[1] Soil Survey of Alachua County, Florida. Soil Conservation Service, U.S. Department of Agriculture.

Included with this soil in mapping are small depressional areas of soils that have a very dark gray or black surface layer 8 to 24 inches thick. This layer overlies gray sandy material. These areas are shown by wet spot symbols. Also included are small areas of Fort Meade, Gainesville, Kendrick, and Millhopper soils. A few areas of this soil include Arredondo soils that have 5 to 8 percent slopes. Some areas of this soil in the western part of the county have small spots of strongly acid to medium acid soil material 40 to 70 inches deep to calcareous limestone. Limestone boulders, fragments of limestone, and sinkholes are in some areas of this soil, mainly in the limestone plain sections of the western part of the county. Most of these boulders are siliceous. The sinkholes and the boulders are shown by appropriate map symbols. Total included areas are about 15 percent.

In this Arredondo soil, the available water capacity is low in the sandy surface and subsurface layers and low to medium in the loamy subsoil. Permeability is rapid in the surface and subsurface layers and moderately slow to moderate in the loamy subsoil. Natural fertility is low in the sandy surface and subsurface layers and medium in the finer textured subsoil. Organic matter content is low. The water table in this soil is at a depth of more than 72 inches. Surface runoff is slow.

Arredondo fine sand, 5 to 8 percent slopes - This sloping, well-drained soil is in small areas on sharp breaking slopes and in relatively large areas on long slopes of the uplands. The areas vary from about 5 to 40 acres.

Typically, the surface layer is dark grayish brown fine sand about 5 inches thick. The subsurface layer is yellowish brown fine sand to a depth of 65 inches. The yellowish brown subsoil extends to a depth of 88 inches or more. The upper 6 inches is sandy loam, and the lower 17 inches is sandy clay loam.

Included with this soil in mapping are small areas of Gainesville, Kendrick, and Millhopper soils. In a few mapped areas are small depressions where the soils have a black surface layer 8 to 24 inches thick over a yellowish brown to grayish brown sandy or loamy subsurface layer and subsoil. A few areas include Arredondo soils that have slopes of 0 to 5 percent or 8 to 12 percent. Siliceous limestone boulders and sinkholes are in some places and are shown by the appropriate map symbol. Total included areas are about 20 percent.

In this Arredondo soil, the available water capacity is low in the surface and subsurface layers and medium in the subsoil. Permeability is rapid in the sandy surface and subsurface layers and moderately slow in the loamy subsoil. Natural fertility is low in the sandy upper 65 inches and medium in the finer textured layers below. Organic matter content is low. The water table is more than 72 inches below the surface. Surface runoff is slow.

Norfolk loamy fine sand, 5 to 8 percent slopes – This sloping, well-drained soil is in irregularly shaped areas on small, sharp breaking slopes and in irregularly shaped and elongated areas on the long hillsides of the rolling uplands. These areas range from 8 to 35 acres.

Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsurface layer is light yellowish brown loamy sand about 5 inches thick. The subsoil extends to a depth of 75 inches or more. The upper 35 inches is yellowish brown sandy clay loam; the next 16 inches is yellowish brown, mottled sandy clay loam; and the lower 13 inches is mottled, yellowish brown and gray sandy clay.

Included with this soil in mapping are small areas of Kendrick, Lochloosa, and Bivans soils. Also included are small areas of soils that have a yellowish brown, clayey subsoil at a depth of less than 20 inches and have gray mottles within 30 inches of the surface. In a few small areas, the subsoil extends to a depth of less than 60 inches. Also included are small areas of soils that are similar to Norfolk soils but have more than 5 percent, by volume, nodules and fragments of ironstone. Limestone boulders and sinkholes are included in some areas and are shown by appropriate symbols. Total included areas are about 20 percent.

This Norfolk soil has a water table that is at a depth of 48 to 72 inches for 1 to 2 months during most years. Wetness is caused by hillside seepage. Surface runoff is rapid. The available moisture capacity is low in the sandy surface and subsurface layers and medium to high in the loamy and clayey subsoil. Permeability is rapid in the surface and subsurface layers. It is moderately slow in the upper part of the subsoil and very slow to slow in the lower part. Natural fertility is low in the sandy surface and subsurface layers and medium in the underlying subsoil. Organic matter content is low to moderately low.

The majority of the soils encountered in the test borings are more consistent with the Norfolk soil series rather than the Arredondo soil series.

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, hydraulic conductivity, and LBR. Samples selected for laboratory testing were collected at depths ranging from near ground 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 of silty sand, silty sand with clay, clayey sand, very clayey sand, sandy clay, clay with sand, and clay. The tested silty and clayey sand soils (SM, SC, SM-SC) contain approximately 14 to 26 percent soil fines passing the No. 200 sieve with natural moisture contents of about 10 to 17 percent. The tested very clayey sand (SC) contains approximately 34 to 38 percent soil fines passing the No. 200 sieve with natural moisture contents of about 19 to 22 percent.

The tested sandy clay (CL/CH, CH) contains approximately 51 to 62 percent soil fines passing the No. 200 sieve with natural moisture contents of about 25 to 33 percent. The Atterberg Limits tests indicate the tested sandy clay has Liquid Limit (LL) values of 81 to 82, Plastic Limit (PL) values of 18 to 26, and Plasticity Index (PI) values of 33 to 56. These values correspond to materials with marginal (50 > LL > 60 and 25 > PI > 35) to high (LL > 60 and PI > 35) potential for expansive behavior[2].

The tested clay with sand and clay (CH) soils contain approximately 78 to 97 percent soil fines passing the No. 200 sieve. The Atterberg Limits tests indicate these soils have LL values of 101 to 132, PL values of 23 to 29, and PI values of 78 to 103. These values correspond to materials with high (LL > 60 and PI > 35) potential for expansive behavior.

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

The constant head hydraulic conductivity test results indicate the silty sand (SM) soils have hydraulic conductivity values ranging between 0.2 and 2.4 feet per day. Tests were not conducted on the deeper clay-rich soils due to the limitations of the test method on soils having moderate to high fines content, but these soils are expected to be confining.

The LBR test indicates the tested surficial silty sand with cemented sand boulders (SM) has a maximum dry density of 116.9 pcf, an optimum moisture content of 11.5 percent, and a LBR value of 121.

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 and site grading designs 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.

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 not encountered in the borings at the time of our exploration. A seasonal high groundwater table is not expected to be present within the explored depths in this portion of Alachua County. However, you should expect groundwater to temporarily perch on top of the clay-rich soils after periods of intense or sustained seasonal rainfall. The estimated depths of the perched groundwater are shown on the individual boring logs.

4.3 Building Foundations

The soil borings near the proposed building footprint indicate the soils at the site are relatively consistent. Overall, the borings generally encountered 5 to 8 feet of silty and clayey sand with various amounts of cemented sand boulders and trace limestone. These surficial soils are generally underlain by clayey to very clayey sand with lenses of clay and sandy clay to clay to the explored depths of 20 feet bls. A more continuous and shallow stratum of clay-rich soils was encountered in the southernmost SPT borings. This clay was encountered at a depth of 2.5 feet below land surface at the southeast corner of the eastern building (SPT boring B-8).

The exception to the above described soil profile was encountered in SPT boring B-4. This boring encountered silty sand with an abundant amount of wood debris to a depth of 8.5 feet bls underlain by clayey sand with lenses of clay and clay soils. Weight-of-hammer events were encountered in the near-surface soils from a depth of about 1.5 to 8.5 feet bls. The presence of the wood debris and weight-of-hammer events suggest this boring was performed in a relic tree stump. However, we recommend this area be explored with test pits during the site preparation phase of construction to determine whether undercutting organic-rich soils in this area will be required. Our recommendations for additional explorations are further discussed in Section 4.4.

The laboratory tests indicate the majority of the tested clay-rich soils have high potential for expansive behavior, and some of the near-surface clay-rich soils have a marginal potential for expansive behavior. These soils were encountered within a depth range expected to be subject to seasonal variations in moisture that can result in differential foundation movement. However, it is our understanding the majority of the building areas will be filled so that the finished floor elevations will be set about 1 to 2 feet higher than the existing ground surface elevations along the east sides of the proposed buildings. Considering at least 6 feet of separation is likely to be present between the foundation bottoms and the top of the expansive soils, it is our opinion that alternate foundation designs and mass undercutting operations are not warranted for this project. Some undercutting of expansive clay is expected at the southeastern portion of the eastern building in the vicinity of boring B-8 where clay was encountered at shallow depths. Our undercutting recommendations are further discussed in Section 4.7.4.

However, the provided information is only preliminary. Should site grading plans be changed such that foundation bottoms start to approach within 6 feet of the expansive clay-rich soils, we recommend the Geotechnical Engineer be retained so that the site preparation techniques can be altered and recommendations to undercut and replace the expansive soils be prepared. Additionally, during the site preparation phase of construction, expansive clay-rich soils that are identified near-surface should be undercut and replaced. These soils should be undercut to a minimum depth of 6 feet beneath the foundation bottom elevation. The undercut trenches should be backfilled with on-site soils containing between 15 and 30 percent soil fines passing the No. 200 sieve. The intent of filling the undercut trenches with a silty or clayey material is so a “bowl” of sandy soils is not created that could lead to expansion of the surrounding clay-rich soils. The backfill material should be compacted to a minimum of 98 percent of the Standard Proctor maximum dry density (ASTM D698).

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. The upper 12 inches of the bearing surface should be compacted to 95 percent of the Modified Proctor maximum dry density (ASTM D1557). If clayey or silty sand material (SM, SC) is present at the bearing surface, these soils should be compacted to 98 percent of the Standard Proctor maximum dry density (ASTM D698).

Considering the site will mostly be filled with sandy 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 Additional Explorations

SPT boring B-4 was apparently performed in a relic tree stump. The boring encountered wood debris and weight-of-hammer conditions in the upper 8.5 feet bls. These conditions are expected to be isolated to this location. However, we recommend additional explorations be performed on this portion of the site. The additional explorations should consist of a test pit program conducted during the site preparation phase of construction. The test pits should be performed before the site is filled to the design grades. SPT boring B-4 was performed at the following GPS Coordinate: Latitude - 29° 46.537' N & Longitude - 82° 27.521' W. We recommend the test pit program begin at this location and extend outward from this location until the organic debris is not encountered.

We recommend the test pit program be conducted under the observation of the Geotechnical Engineer or his/her representative. The Geotechnical Engineer should be consulted to determine whether any undercutting of organic debris is required.

4.5 Retaining Walls

Stem walls and retaining walls will likely be constructed as part of this project. We recommend the following soil properties be used in the stem wall and retaining wall designs:

Clean Sand Fill

Unit Weight (γ) = 100 pcf
Submerged Unit Weight (γ_{sub}) = 50 pcf
Internal Friction Angle (ϕ) = 30°
Coefficient of Active Earth Pressure (K_a) = 0.333
Coefficient of Passive Earth Pressure (K_p) = 3.0
Coefficient of At-Rest Earth Pressure (K_o) = 0.5

Native Silty and Clayey Sand

Unit Weight (γ) = 115 pcf
Submerged Unit Weight (γ_{sub}) = 65 pcf
Internal Friction Angle (ϕ) = 34°
Coefficient of Active Earth Pressure (K_a) = 0.283
Coefficient of Passive Earth Pressure (K_p) = 3.537
Coefficient of At-Rest Earth Pressure (K_o) = 0.441

A friction coefficient of 0.5 can be used for calculating sliding resistance of the retaining wall foundation base.

4.6 Pavements

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.

Expansive soils are not expected to be located within 24 inches of the base course unless the site is "cut" to establish final grades. We have not been provided a final grading plan and therefore we cannot assist in determining whether undercutting will be required. However, if site grades are set such that expansive soils will be within 24 inches of the base course, we recommend these soils be undercut and replaced with non-expansive soils. In areas where undercutting is necessary, underdrains should be used to evacuate perched groundwater that will likely develop as a result of the undercutting.

4.6.1 Stabilized Subgrade

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 on-site material, 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. Our testing of the on-site near surface soils suggests the silty sand with cemented sand has an LBR value of 121. 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).

4.6.2 Base Course

The base course should consist of crushed limerock having a LBR of at least 100. Limerock should be obtained from a FDOT approved source, and should meet FDOT gradation requirements. The base course thickness should be a minimum of 6 inches in automobile parking areas and 8 inches in driveways. The base course should be compacted to at least 98 percent of the Modified Proctor maximum dry density (ASTM D1557).

4.6.3 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 at least 1.5 inches. For driveways, the thickness should be at least 2.0 inches and consist of an SP-12.5 mix. The asphalt should be compacted to at least 95 percent of the mix design density.

4.7 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.

4.7.1 Stripping

Strip the construction limits and 10 feet beyond the perimeter of all grass, roots, topsoil, pavement, 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.

4.7.2 Dewatering

Temporary dewatering should not be necessary at this site. However, 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.

4.7.3 Proof-Rolling

Excavate the site to the design grades. 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.

4.7.4 Clay Undercutting and Replacement

Clay-rich soils having a high potential for expansive behavior were encountered at shallow depths at boring location B-8 at the southeast corner of the eastern building. This portion of the building will be constructed near the existing grades, and it is anticipated the foundation elevation will be on or just above the clay soils. We recommend a minimum 6 feet separation between the foundation bottoms and the expansive soils. To accomplish this, we recommend the foundation lines be undercut to remove the expansive clay and replaced with a low permeability, non-expansive material.

We recommend the undercut be a minimum of 6 feet wide or wide enough to accommodate heavy compaction equipment. The undercut should be excavated to a depth that provides a minimum 6 separation between the expansive clays and the foundation bottoms.

We recommend the undercut be backfilled with a low permeability fill, such as clayey sand or crushed limerock base material. Clayey sand material should have a minimum of 15 percent passing the No. 200 sieve, and a maximum of 30 percent passing the No. 200 sieve. On-site clayey sands excavated from other portions of the site should be suitable for this purpose. Clayey sand backfill should be placed in maximum 6-inch loose lifts that are compacted to 98 percent of the Standard Proctor maximum dry density (ASTM D698). Crushed limerock base course material should be compacted to a minimum of 98 percent of the Modified Proctor maximum dry density (ASTM D1557). We recommend the undercutting begin at the southeast corner of the eastern building and extend to the north and west along the foundation lines until expansive clays within a depth of 6 feet below the foundation bottom are removed.

It is possible that undercutting will be necessary in other areas of the site. Exploratory test pits or additional auger borings should be performed in building areas where the finished grades are near the existing grades to determine if other areas of undercutting are necessary.

4.7.5 Proof Compaction

Silty and clayey sand soils are expected to be encountered at the ground surface. These materials 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 silty and clayey sand, the excavation should be performed in a manner that reduces soil disturbance. Silty and 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).

4.7.6 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 imported 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. On-site silty and clayey sand soils that will be used as structural fill should be placed in maximum 12-inch loose lifts and compacted to at least 98 percent of the Standard Proctor maximum dry density (ASTM D698).

When placing fill on the site, we recommend the natural slope of the native soils remain so that the subsurface drainage is undisturbed. It is imperative that perched groundwater be able to discharge down the slope toward the west so that it does not become a potential source of hydration for the expansive soils.

4.7.7 Testing

Perform compaction testing in the subgrade and fill. One test should be performed every 50 linear feet of continuous footing and every other column footing, per foot depth of fill or native material. Perform a compaction test 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 1 foot, at the frequencies stated above.

4.8 Stormwater Management

The soil conditions at the stormwater management facilities are somewhat consistent. The borings performed beneath the potential on-site stormwater basin encountered 15 feet of silty sand. The borings performed within the existing stormwater basin encountered 8 to 13.5 feet of silty sand, clayey sand, and silty clayey sand underlain by clayey to very clayey sand and sandy clay to clay to the explored depths. Auger boring P-5 encountered limestone from 16 feet to the explored depth of 30 feet bls.

The water table was not encountered in the auger borings at the time of our exploration. We anticipate the seasonal high groundwater table to be perched on the clay-rich soils at varying depths. The estimated perched seasonal high water table depths are shown on the individual boring logs.

The laboratory permeability tests indicate the tested silty sand (SM) soils have hydraulic conductivity values ranging between 0.2 and 2.4 feet per day. The underlying clay-rich soils are expected to be confining.

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.

Existing Stormwater Management Facility

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to 13 feet beneath existing basin bottom.
2. Unsaturated vertical infiltration rate of 1 foot per day.
3. Horizontal hydraulic conductivity equal to 1 foot per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 13 feet beneath existing basin bottom.

Potential On-Site Stormwater Management Facility

1. Base elevation of effective or mobilized aquifer (average depth of confining layer) equal to 15 feet beneath existing grade.
2. Unsaturated vertical infiltration rate of 1 foot per day.
3. Horizontal hydraulic conductivity equal to 1 foot per day.
4. Specific yield (fillable porosity) of 20 percent.
5. Average seasonal high groundwater table depth equal to 15 feet beneath existing grade.

Silty and clayey soils are expected to be present at the basin bottoms. Therefore, we recommend the basin bottoms be undercut a minimum of 2 feet and backfilled with the imported clean sand having a maximum of 10 percent soil fines passing the No. 200 sieve. 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 deeper deposits of sand. This sand blanket will also reduce the potential for 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 majority of the soils that will be excavated from this site are expected to be the surficial silty and clayey sand (SM, SC) soils. These soils are considered suitable for use as structural fill so long as they do not contain any deleterious materials. However, these soils are a less desirable source of fill because they are more moisture sensitive and more difficult to work and compact. If you wish to use the on-site silty and clayey sand soils we recommend they contain less than 30 percent soil fines (Passing the No. 200 sieve) with a Plasticity Index less than 10 and Liquid Limit less than 40. Mixing of soils with higher fines content with those with less fines content may increase their overall workability.

The deeper very clayey sand (SC) and sandy clay to clay (CH) soils containing greater than 30 percent fines are not considered a suitable source of structural fill.

4.10 Surface Water Control and Landscaping

Roof gutters should be considered to divert runoff away from the building. 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. The gutter downspouts should discharge a minimum of 10 feet from the structure. 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 existing and planted 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. Consideration should also be given to using landscaping that has a low water demand, so that excessive irrigation is not conducted around the structures.

If excavations for underground utilities encounter the clay-rich soils, the excavations should be made such that they do not trap water (i.e. “swimming pool” or “bowl” effect). Sloping the excavations, installing underdrains, or extending the excavation to a more pervious area can achieve this. Allowing surface water to become trapped within utility trenches or other excavations (including footings) serves as a potential water source for the clay, which can result in shrink swell of these soils. Furthermore, during construction, surface water within the building areas must be controlled such that the water does not become trapped and represent a source of water for the underlying clay-rich soils. Mismanagement of the surface water during construction within the building footprint could result in subsequent post-construction slab movement.

The above recommendations are intended to maintain relatively consistent moisture contents within the clay-rich expansive soils encountered by the borings. The importance of proper surface water control and landscaping placement cannot be overemphasized in accomplishing this objective.

5.0 FIELD DATA

5.1 Auger Boring Logs

GSE Engineering & Consulting, Inc.
5590 SW 64 th Street
Gainesville, Fl 32608
Telephone: 352-377-3233

CLIENT Walker Architects, Inc. **PROJECT NAME** Alachua Operations Center

PROJECT NUMBER 12489 **PROJECT LOCATION** Alachua, Alachua County, Florida

DATE PERFORMED 7/21/2015 **BORING NUMBER A-1**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

AT TIME OF DRILLING NE CHECKED BY CAD

ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	
0.0	AU 1	(SM) Brown silty SAND	1.0
	AU 2	(SC) Brown and orange clayey SAND with cemented sand	2.0
2.5	AU 3	(SC) Brown and orange clayey SAND with lenses of clay and trace limestone	5.0
5.0		Bottom of borehole at 5.0 feet.	

DATE PERFORMED 7/21/2015 **BORING NUMBER A-2**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

AT TIME OF DRILLING NE CHECKED BY CAD

ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	
0.0	AU 1	(SM) Brown silty SAND with cemented sand	5.0
2.5			
5.0		Bottom of borehole at 5.0 feet.	

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CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida

BORING NUMBER A-3

DATE PERFORMED 7/21/2015
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
AT TIME OF DRILLING NE
ESTIMATED SEASONAL HIGH > 5 ft
LOGGED BY WDI
CHECKED BY CAD
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0		AU 1	(SM) Dark brown silty SAND
			1.0
		AU 2	(SM) Brown silty SAND
2.5			2.5
		AU 3	(SM) Brown and orange silty SAND with cemented sand
5.0			5.0
			Bottom of borehole at 5.0 feet.

BORING NUMBER A-4

DATE PERFORMED 7/21/2015
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
AT TIME OF DRILLING NE
ESTIMATED SEASONAL HIGH > 5 ft
LOGGED BY WDI
CHECKED BY CAD
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0		AU 1	(SM) Dark brown silty SAND
			1.0
		AU 2	(SM) Brown silty SAND with cemented sand
2.5			
5.0			5.0
			Bottom of borehole at 5.0 feet.

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CLIENT Walker Architects, Inc. **PROJECT NAME** Alachua Operations Center

PROJECT NUMBER 12489 **PROJECT LOCATION** Alachua, Alachua County, Florida

BORING NUMBER A-5

DATE PERFORMED 7/21/2015

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

AT TIME OF DRILLING NE CHECKED BY CAD

ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	
0.0		AU 1	(SM) Brown silty SAND with cemented sand	5.0
2.5				
5.0			Bottom of borehole at 5.0 feet.	

BORING NUMBER A-6

DATE PERFORMED 7/21/2015

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

AT TIME OF DRILLING NE CHECKED BY CAD

ESTIMATED SEASONAL HIGH 2.5 ft, perched

NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION	
0.0		AU 1	(SM) Dark brown silty SAND	1.0
		AU 2	(SM) Brown and orange silty SAND with cemented sand	2.5
2.5		AU 3	(SC) Brown and gray clayey SAND with cemented sand and lenses of clay	3.0
		AU 4	(SC) Pale gray very clayey SAND	5.0
5.0			Bottom of borehole at 5.0 feet.	

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CLIENT Walker Architects, Inc. **PROJECT NAME** Alachua Operations Center

PROJECT NUMBER 12489 **PROJECT LOCATION** Alachua, Alachua County, Florida

DATE PERFORMED 7/21/2015 **BORING NUMBER A-7**

DRILLING CONTRACTOR Whitaker Drilling, Inc.

GROUND WATER LEVELS: LOGGED BY WDI

AT TIME OF DRILLING NE CHECKED BY CAD

ESTIMATED SEASONAL HIGH > 5 ft

NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0.0		AU 1	(SM) Brown silty SAND with cemented sand
2.0		AU 2	(SC) Brown and orange clayey SAND with cemented sand and trace limestone
5.0			Bottom of borehole at 5.0 feet.

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CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida

BORING NUMBER P-1

DATE PERFORMED 7/21/2015
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
AT TIME OF DRILLING NE
ESTIMATED SEASONAL HIGH > 15 ft
LOGGED BY WDI
CHECKED BY CAD
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0			(SM) Dark brown silty SAND
		AU 1	
5			
		AU 2	*% PASS -200 = 19* *MC = 11*
10			
15		AU 3 PS	*% PASS -200 = 20* *MC = 12* k_{hyd} = 2.4 ft/day 15.0
			Bottom of borehole at 15.0 feet.

BORING NUMBER P-2

DATE PERFORMED 7/21/2015
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
AT TIME OF DRILLING NE
ESTIMATED SEASONAL HIGH > 15 ft
LOGGED BY WDI
CHECKED BY CAD
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0			(SM) Dark brown silty SAND
		AU 1	
5			
10		AU 2	
			12.0
			(SM) Brown silty SAND
15		AU 3 PS	*% PASS -200 = 14* *MC = 11* k_{hyd} = 0.3 ft/day 15.0
			Bottom of borehole at 15.0 feet.

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CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida

BORING NUMBER P-3

DATE PERFORMED 7/21/2015
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
AT TIME OF DRILLING NE
CHECKED BY CAD
ESTIMATED SEASONAL HIGH 16.5 ft, perched
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0 – 13.5	AU 1; AU 2 PS	(SM) Dark brown silty SAND *% PASS -200 = 20* *MC = 10* *k_{hyd} = 1.2 ft/day*
13.5 – 17.5	AU 3	(SC) Brown very clayey SAND *% PASS -200 = 38* *MC = 19*
17.5 – 30.0	AU 4; AU 5; AU 6; AU 7	(CL/CH) Pale gray CLAY with trace limestone

Bottom of borehole at 30.0 feet.

BORING NUMBER P-4

DATE PERFORMED 7/21/2015
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
LOGGED BY WDI
AT TIME OF DRILLING NE
CHECKED BY CAD
ESTIMATED SEASONAL HIGH 8.0 ft, perched
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0 – 5.0	AU 1; AU 2	(SM) Dark brown silty SAND
5.0 – 8.0	AU 3 PS	(SM) Brown silty SAND with trace limestone *% PASS -200 = 23* *MC = 13* *k_{hyd} = 0.2 ft/day*
8.0 – 10.0	AU 4	(SC) Brown and gray very clayey SAND with trace limestone
10.0 – 13.0	AU 5	(CL/CH) Gray and orange sandy CLAY
13.0 – 15.0	AU 6	(CL/CH) Pale gray CLAY

Bottom of borehole at 15.0 feet.

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CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida

DATE PERFORMED 7/21/2015 **BORING NUMBER P-5**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
AT TIME OF DRILLING NE
ESTIMATED SEASONAL HIGH 13.0 ft, perched
LOGGED BY WDI
CHECKED BY CAD
NOTES

DEPTH (ft)	GRAPHIC LOG	SAMPLE TYPE NUMBER	MATERIAL DESCRIPTION
0		AU 1	(SC) Pale gray clayey SAND
			3.0
		AU 2	(CL/CH) Gray CLAY with sand
			4.5
5		AU 3	(SM-SC) Pale gray silty SAND with clay *% PASS -200 = 20* *MC = 12*
		AU PS	
10		AU 4	*% PASS -200 = 18* *MC = 12*
			13.5
15		AU 5	(SC) Pale gray very clayey SAND with lenses of green clay
			16.0
		AU 6	LIMESTONE
20			
		AU 7	
25			
		AU 8	
30			30.0
			Bottom of borehole at 30.0 feet.

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5.2 Standard Penetration Test Soil Boring Logs

GSE Engineering & Consulting, Inc.
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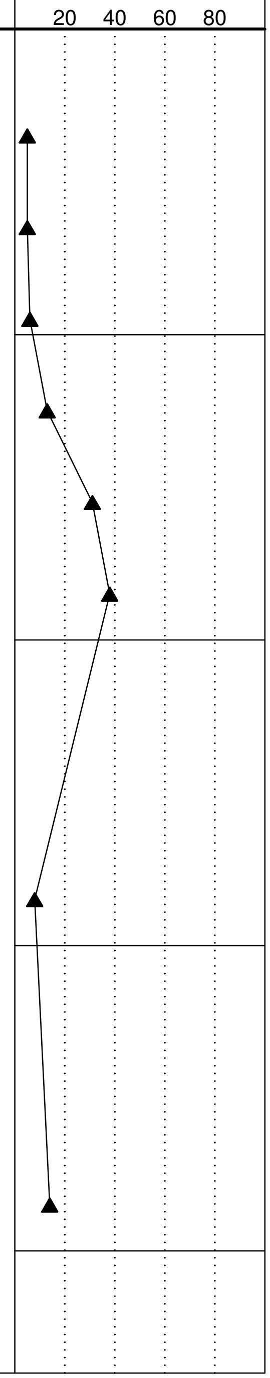
Telephone: 352-377-3233

BORING NUMBER B-1

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
▼ **AT TIME OF DRILLING** NE
LOGGED BY WDI **CHECKED BY** CAD
▽ **ESTIMATED SEASONAL HIGH** 5.0 ft, perched
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0		(SM) Loose dark brown silty SAND with cemented sand	2.5	SPT 1	2-2-3 (5)					
		(SC) Loose gray clayey SAND with trace limestone	4	SPT 2	3-2-3 (5)					
5		(SM-SC) Loose pale gray silty clayey SAND ▽	6	SPT 3	2-2-4 (6)					
		(CL/CH) Stiff gray sandy CLAY	7	SPT 4	3-5-8 (13)	51	18	33	51	28
		(SC) Dense pale gray and orange clayey SAND		SPT 5	10-18-13 (31)					
10			11	SPT 6	20-22-16 (38)				26	17
15		(CH) Firm to stiff gray CLAY		SPT 7	3-3-5 (8)					
20			20	SPT 8	5-6-8 (14)					
		Bottom of borehole at 20.0 feet.								

▲ SPT N VALUE ▲



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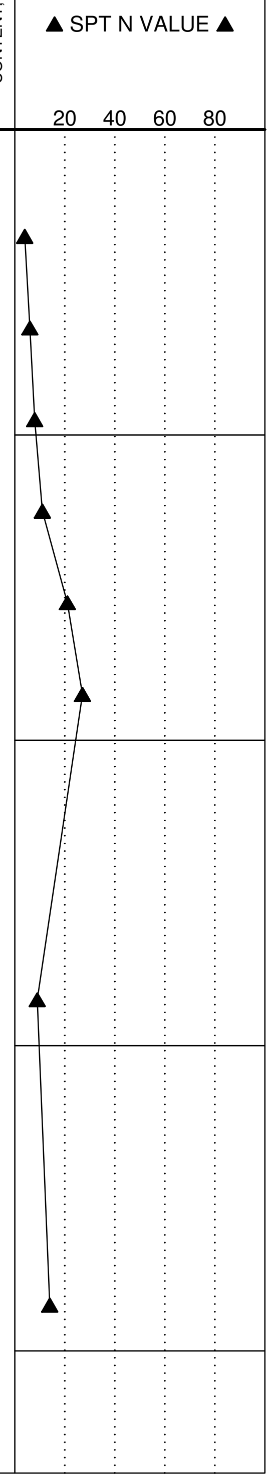
GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-2

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
▼ **AT TIME OF DRILLING** NE
LOGGED BY WDI **CHECKED BY** CAD
▽ **ESTIMATED SEASONAL HIGH** 5.0 ft, perched
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0		(SM) Loose brown silty SAND with cemented sand	4	SPT 1	1-2-2 (4)					
				SPT 2	2-3-3 (6)					
5		(SM-SC) Loose gray silty clayey SAND ▽	5.5	SPT 3	2-4-4 (8)					
		(CL/CH) Stiff pale gray sandy CLAY	7	SPT 4	5-5-6 (11)					
		(SC) Medium dense pale gray clayey SAND	10	SPT 5	8-9-12 (21)					
10				SPT 6	13-14-13 (27)					
		(CH) Stiff gray CLAY	20							
15				SPT 7	3-4-5 (9)					
20				SPT 8	7-7-7 (14)					
		Bottom of borehole at 20.0 feet.								



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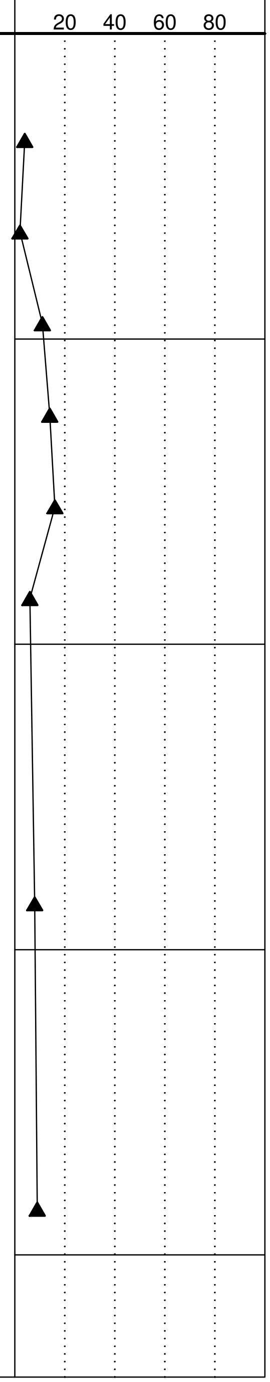
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-3

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 4.5 ft, perched
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SC) Loose brown clayey SAND with cemented sand		SPT 1	2-2-2 (4)					
	(SM-SC) Very loose brown and gray silty clayey SAND	3	SPT 2	2-1-1 (2)					
5	(SC) Medium dense pale gray clayey SAND with lenses of clay and cemented sand	4.5	SPT 3	4-4-7 (11)					
	(CL/CH) Stiff pale gray sandy CLAY	5	SPT 4	7-7-7 (14)					
	(SC) Medium dense pale gray very clayey SAND	7	SPT 5	9-8-8 (16)	40	19	21	34	22
10	(CH) Firm to stiff green and orange CLAY	9	SPT 6	2-3-3 (6)					
15			SPT 7	2-3-5 (8)					
20		20	SPT 8	2-3-6 (9)					
	Bottom of borehole at 20.0 feet.								

▲ SPT N VALUE ▲



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5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-4

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
▼ **AT TIME OF DRILLING** NE
LOGGED BY WDI **CHECKED BY** CAD
▽ **ESTIMATED SEASONAL HIGH** 7.0 ft, perched
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %	▲ SPT N VALUE ▲
0	(SM/PT) Very loose dark gray silty SAND with abundant wood debris *Weight-of-hammer from 1.5 to 2 feet bls*		SPT 1	1-0-1 (1)						
	Weight-of-hammer from 2.5 to 8.5 feet bls		SPT 2	0-0-0 (0)						
5			SPT 3	0-0-0 (0)						
	▽		SPT 4	0-0-0 (0)						
		8.5	SPT 5	0-0-0 (0)						
	(CH) Firm gray and orange CLAY		SPT 6	4-3-3 (6)						
10		12								
	(SC) Medium dense pale gray clayey SAND with lenses of gray clay		SPT 7	2-8-14 (22)						
15		19								
	(CH) Stiff green CLAY	20	SPT 8	3-7-8 (15)						
20	Bottom of borehole at 20.0 feet.									

SPT N VALUE scale: 20 40 60 80

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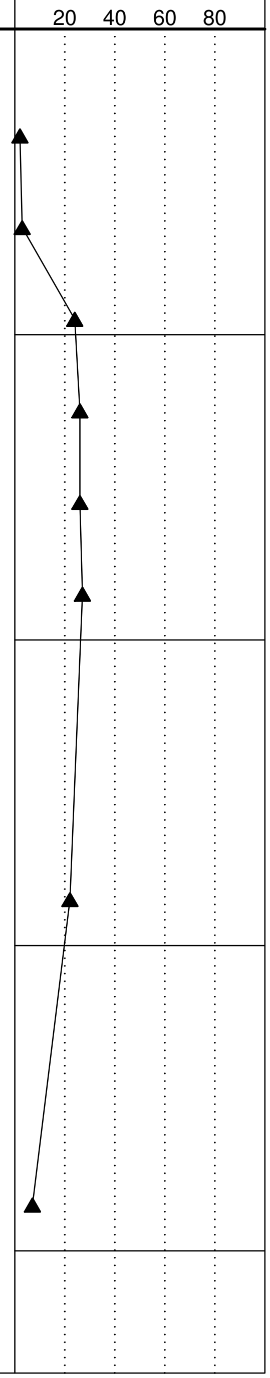
GSE Engineering & Consulting, Inc.
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-5

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 5.0 ft, perched
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SM) Very loose brown silty SAND								
			SPT 1	1-1-1 (2)					
			SPT 2	1-1-2 (3)					
5	(SM) Very loose to medium dense brown silty SAND with cemented sand	4.5	SPT 3	4-11-13 (24)					
	(CH) Very stiff gray sandy CLAY with cemented sand	6	SPT 4	11-11-15 (26)					
			SPT 5	11-13-13 (26)	82	26	56	57	33
10	(SC) Medium dense pale gray clayey SAND	8.5	SPT 6	14-14-13 (27)					
15			SPT 7	7-10-12 (22)					
20	(CH) Firm gray and orange sandy CLAY	17	SPT 8	2-3-4 (7)					
	Bottom of borehole at 20.0 feet.	20							

▲ SPT N VALUE ▲



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GSE Engineering & Consulting, Inc.
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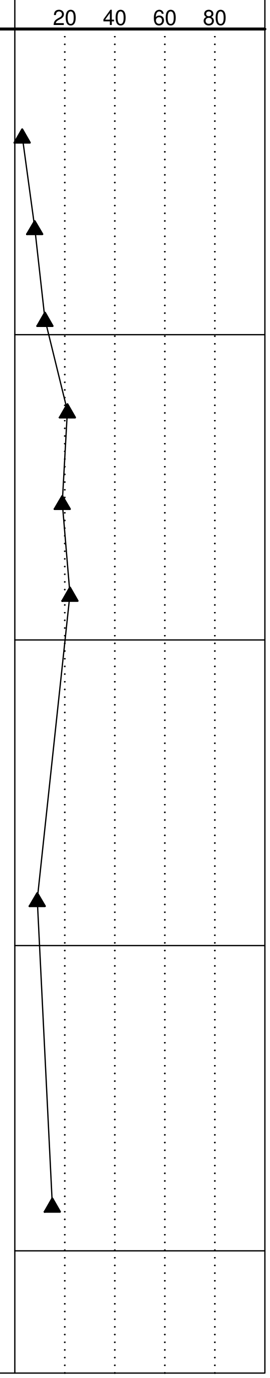
Telephone: 352-377-3233

BORING NUMBER B-6

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 5.0 ft, perched
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0		(SM) Very loose browk silty SAND	2.5	SPT 1	1-1-2 (3)					
		(SC) Loose to medium dense gray clayey SAND with cemented sand		SPT 2	2-3-5 (8)					
5			6	SPT 3	5-5-7 (12)					
		(CH) Very stiff green and orange CLAY with cemented sand	7	SPT 4	12-11-10 (21)					
		(CH) Stiff to very stiff green and orange CLAY		SPT 5	11-11-8 (19)	132	29	103	97	53
10				SPT 6	13-12-10 (22)					
15				SPT 7	3-4-5 (9)					
20			20	SPT 8	4-5-10 (15)					
		Bottom of borehole at 20.0 feet.								

▲ SPT N VALUE ▲



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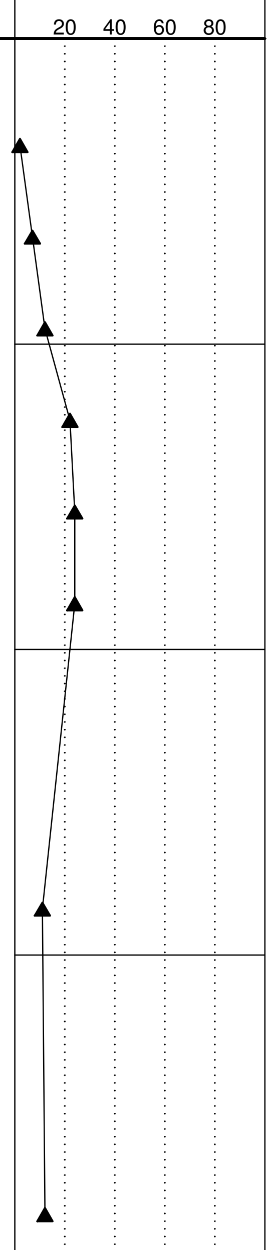
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-7

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 5.0 ft, perched
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		(SM) Very loose brown silty SAND		SPT 1	1-1-1 (2)						
		(SC) Loose to medium dense gray clayey SAND with cemented sand	2.5	SPT 2	3-3-4 (7)						
5		∇		SPT 3	4-5-7 (12)						
		(CH) Very stiff to stiff green and orange CLAY with sand	6	SPT 4	9-11-11 (22)	101	23	78	78	35	
				SPT 5	11-12-12 (24)						
10				SPT 6	12-13-11 (24)						
15				SPT 7	3-4-7 (11)						
20			20	SPT 8	5-6-6 (12)						
		Bottom of borehole at 20.0 feet.									



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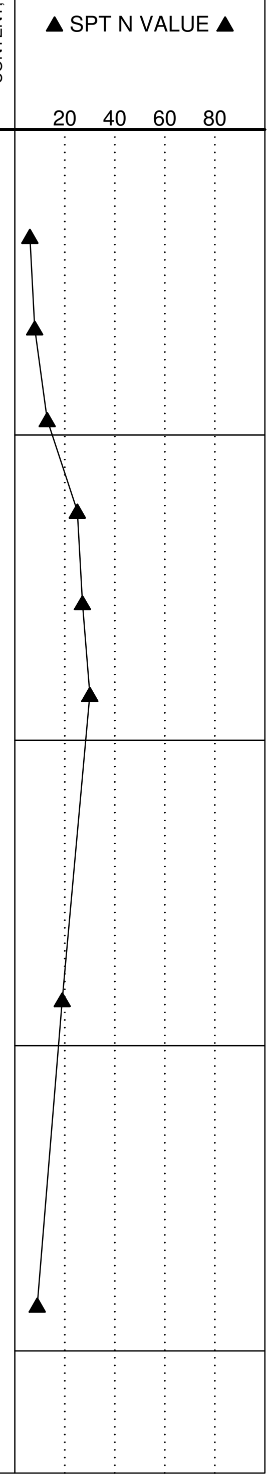
5590 SW 64th Street, Suite B
Gainesville, Florida 32608
Telephone: 352-377-3233

BORING NUMBER B-8

CLIENT Walker Architects, Inc.
PROJECT NAME Alachua Operations Center
PROJECT NUMBER 12489
PROJECT LOCATION Alachua, Alachua County, Florida
DATE STARTED 7/22/15 **COMPLETED** 7/22/15
GROUND ELEVATION **HOLE SIZE**
DRILLING CONTRACTOR Whitaker Drilling, Inc.
GROUND WATER LEVELS:
DRILLING METHOD SPT Flight Auger
AT TIME OF DRILLING NE
LOGGED BY WDI **CHECKED BY** CAD
ESTIMATED SEASONAL HIGH 4.5 ft, perched
NOTES

DEPTH (ft)	MATERIAL DESCRIPTION	CONTACT DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX	PERCENT PASS NO. 200 SIEVE	MOISTURE CONTENT, %
0	(SM) Loose brown silty SAND with cemented sand	2.5	SPT 1	2-3-3 (6)					
	(CL/CH) Firm brown and orange sandy CLAY	4.5	SPT 2	3-4-4 (8)				62	25
5	(SC) Medium dense pale gray clayey SAND with cemented sand	6	SPT 3	4-6-7 (13)					
	(SC) Medium dense light brown and pale gray clayey SAND with lenses of clay	7	SPT 4	10-12-13 (25)					
	(CH) Very stiff pale gray to green sandy CLAY	16	SPT 5	15-13-14 (27)					
10			SPT 6	14-15-15 (30)					
15			SPT 7	12-10-9 (19)					
	(CH) Stiff green and orange CLAY	20	SPT 8	3-4-5 (9)					
20	Bottom of borehole at 20.0 feet.								



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5.3 Laboratory Results

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF LABORATORY TEST RESULTS

Project Number: 12489

Project Name: Alachua Operations Center

Boring Number	Sample Depth (ft)	Soil Description	Natural Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Percent Passing No. 200 Sieve	Hydraulic Conductivity (ft/day)	Unified Soil Classification
P-1	7 - 7.5	Dark brown silty SAND	11				19		SM
P-1	13 - 15	Dark brown silty SAND	12				20	2.4	SM
P-2	13 - 15	Brown silty SAND	11				14	0.3	SM
P-3	8 - 10	Dark brown silty SAND	10				20	1.2	SM
P-3	13.5 - 14	Brown very clayey SAND	19				38		SC
P-4	5 - 7	Brown silty SAND with trace limestone	13				23	0.2	SM
P-5	4.5 - 5	Pale gray silty SAND with clay	12				20		SM-SC
P-5	10 - 10.5	Pale gray silty SAND with clay	12				18		SM-SC
B-1	6 - 7	Gray sandy CLAY	28	51	18	33	51		CL/CH
B-1	8.5 - 10	Pale gray and orange clayey SAND	17				26		SC
B-3	7 - 8.5	Pale gray very clayey SAND	22	40	19	21	34		SC

GSE Engineering & Consulting, Inc.

SUMMARY REPORT OF LABORATORY TEST RESULTS

Project Number: 12489

Project Name: Alachua Operations Center

Boring Number	Sample Depth (ft)	Soil Description	Natural Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Percent Passing No. 200 Sieve	Hydraulic Conductivity (ft/day)	Unified Soil Classification
B-5	7 - 8.5	Gray sandy CLAY with cemented sand	33	82	26	56	57		CH
B-6	7 - 8.5	Green and orange CLAY	53	132	29	103	97		CH
B-7	6 - 7	Green and orange CLAY with sand	35	101	23	78	78		CH
B-8	2.5 - 4	Brown and orange sandy CLAY	25				62		CL/CH

GSE Engineering & Consulting, Inc.

5590 SW 64th Street, Suite B
Gainesville, FL 32608
Phone: (352) 377 - 3233
Fax: (352) 377 - 0335

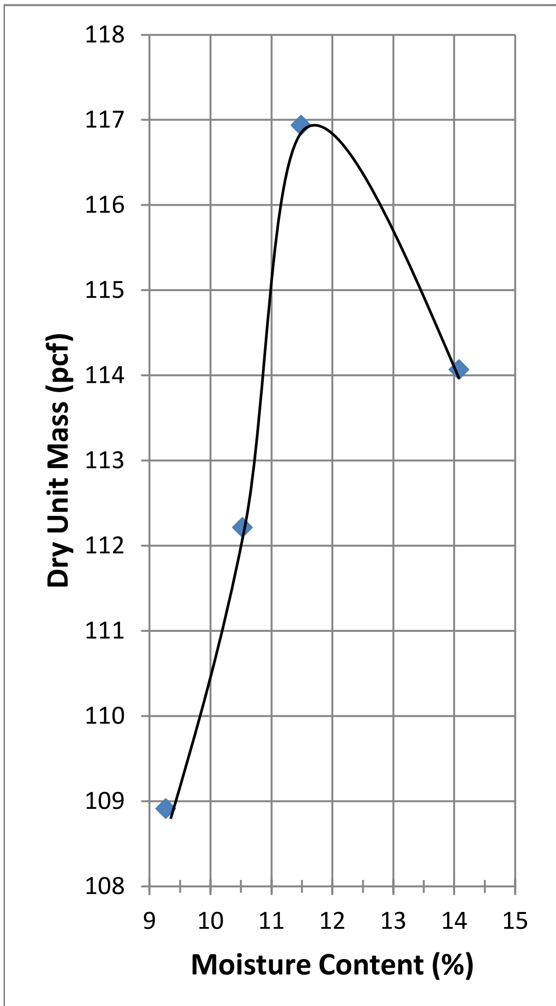
Project Name: Alachua Operations Center

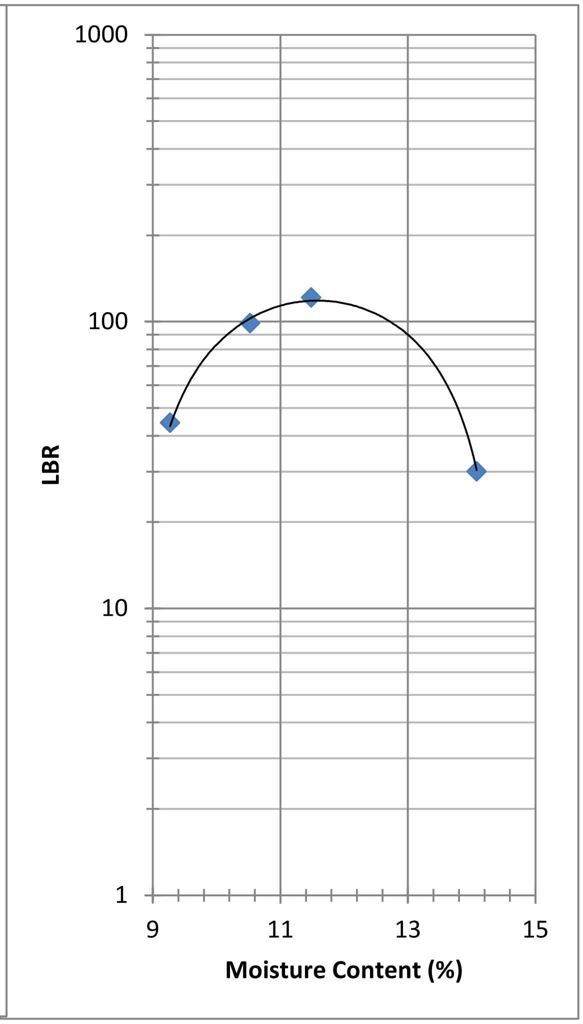
GSE Project No. 12489

Project Location: Alachua County, Florida

Contractor:

Date: 7/27/2015





PROCTOR DATA

Modified Proctor (ASTM D-1557)	X
Standard Proctor (ASTM D-698)	
Maximum Dry Density (pcf)	116.9
Optimum Moisture Content (%)	11.5
LBR	121
Percent Passing No. 200 Sieve (%)	NT
Liquid Limit:	NT
Plastic Limit:	NT
Plasticity Index:	NT

*NT: Not Tested
*NP: Non-Plastic

Sample Description: Brown Clayey Sand - Proctor 1, LBR 1

Sample Location: A-1

Proposed Use: Subgrade

Sampled By: C. Dunlap

Sample Date: 7/21/2015

Tested By: C. Senter, S. Henderson

Test Date: 7/23/2015 - 7/27/2015

5.4 Key to Soil Classification

KEY TO SOIL CLASSIFICATION CHART

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

CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

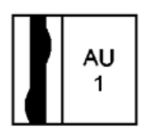
	No. OF BLOWS, N	RELATIVE DENSITY
	0 - 4	Very Loose
	5 - 10	Loose
SANDS:	11 - 30	Medium dense
	31 - 50	Dense
	OVER 50	Very Dense

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

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

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_v	=	Vertical Permeability, ft/day

6.0 LIMITATIONS

6.1 Warranty

This report has been prepared for our client for his 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 plans and by estimating distances from existing structures and site features. Figures in this report were not prepared by a licensed land surveyor and should not be interpreted as such.

6.4 Unanticipated Soil Conditions

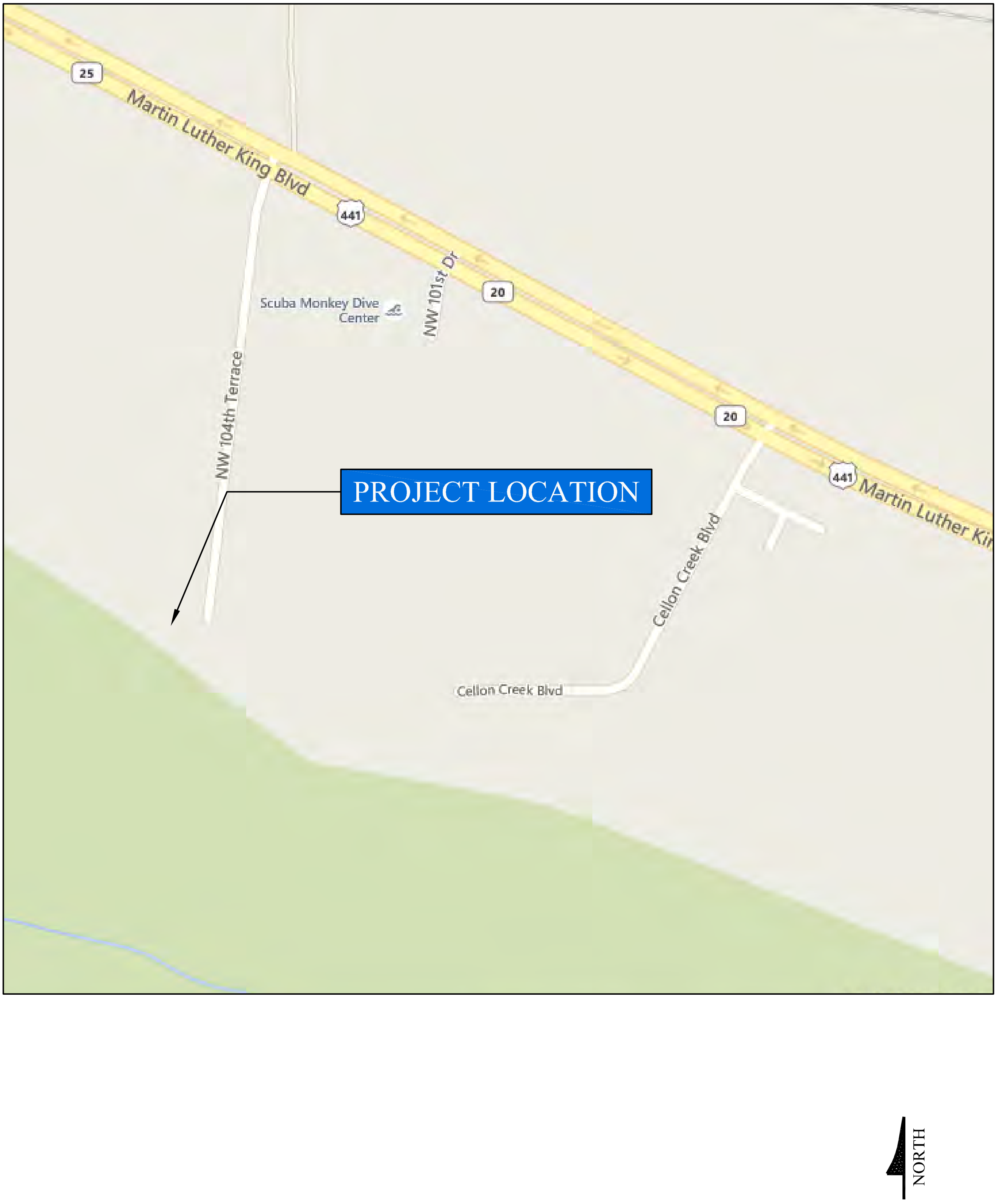
The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on Figure 2. This report does not reflect any variations that may occur between these borings.

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

6.5 Misinterpretation of Soil Engineering Report

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

FIGURES



NOT TO SCALE

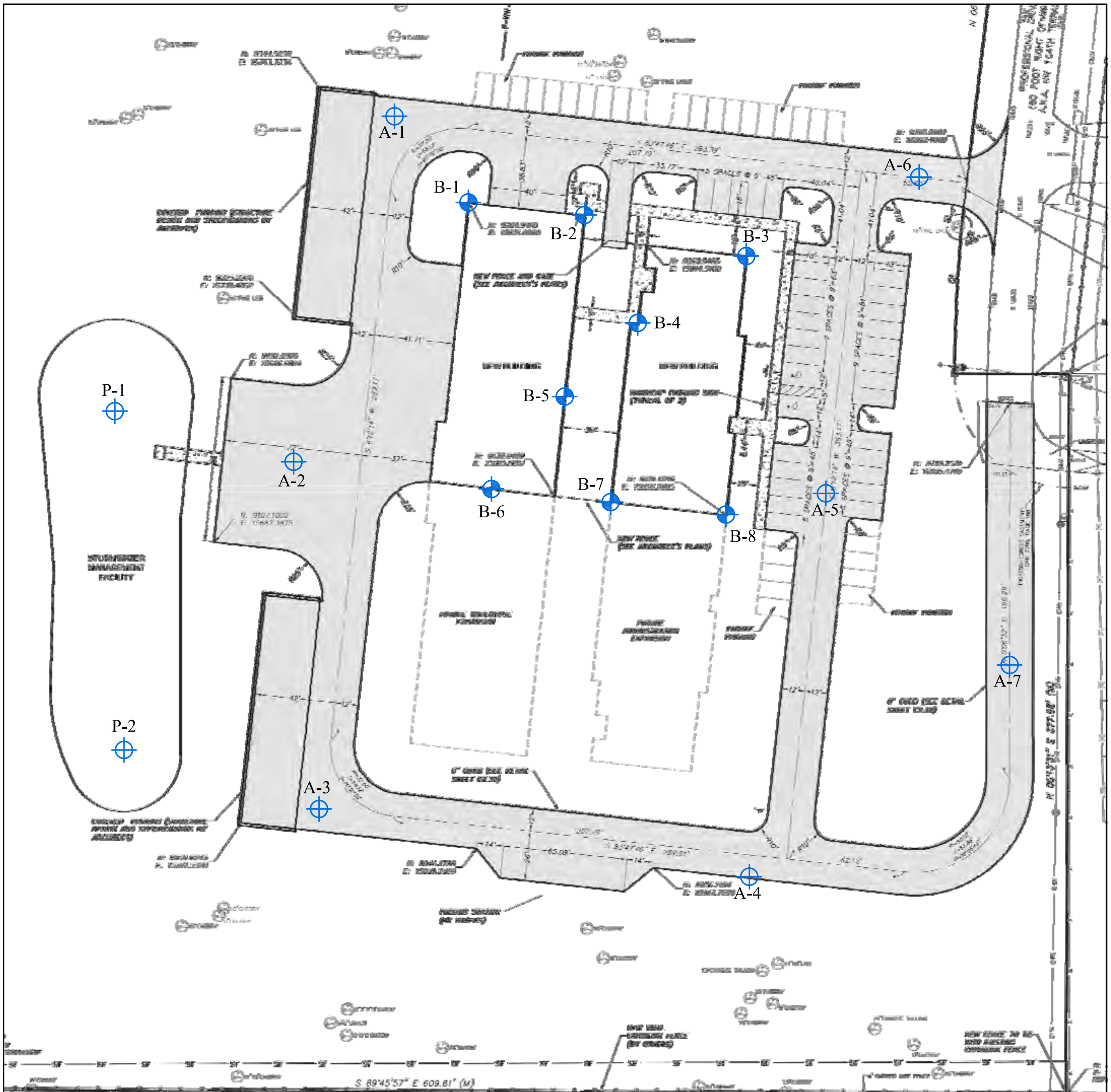
PROJECT SITE LOCATION MAP

ALACHUA OPERATIONS CENTER
ALACHUA, ALACHUA COUNTY, FLORIDA
GSE PROJECT No. 12489

DESIGNED BY : CAD
CHECKED BY : KLH
DRAWN BY : JSF

GSE Engineering & Consulting, Inc.

FIGURE 1



LEGEND :

- SPT BORING
- AUGER BORING

NORTH

0 80'

SCALE: 1" = 80' APPROX.

SITE PLAN SHOWING APPROXIMATE LOCATIONS OF FIELD TESTS

ALACHUA OPERATIONS CENTER
ALACHUA, ALACHUA COUNTY, FLORIDA
GSE PROJECT No. 12489

DESIGNED BY : CAD
CHECKED BY : KLH
DRAWN BY : JSF

GSE Engineering & Consulting, Inc.

FIGURE 2

NORTH

0 80'

SCALE: 1" = 80' APPROX.

LEGEND :

AUGER BORING

ALACHUA OPERATIONS CENTER
ALACHUA, ALACHUA COUNTY, FLORIDA
GSE PROJECT No. 12489

AERIAL PHOTOGRAPH SHOWING APPROXIMATE LOCATIONS OF FIELD TESTS

DESIGNED BY : CAD
CHECKED BY : KLH
DRAWN BY : JSF

GSE Engineering & Consulting, Inc.

FIGURE 3

SUWANNEE RIVER WATER MANAGEMENT DISTRICT

9225 CR 49 • LIVE OAK, FLORIDA 32060 • TELEPHONE 386/362-1001 • 800/226-1066 • FAX 386/362-1056
mysuwanneeriver.com

ERP Individual Permit

PERMITTEE:
Adam Boukari
City of Alachua
P.O. Box 9
Alachua, FL 32616

PERMIT NUMBER: ERP-001-205218-2
DATE ISSUED: October 30, 2015
DATE EXPIRES: October 30, 2020
COUNTY: Alachua
TRS: S19 T8S R19E

PROJECT: City of Alachua Operations Center and Warehouse

Upon completion, the approved entity to which operation and maintenance maybe transferred pursuant to rule 62-330.310 and 62-330.340 or 40B-4.1130, Florida Administrative Code (F.A.C) shall be:

Adam Boukari
City of Alachua
P.O. Box 9
Alachua, FL 32616

Based on the information provided to the Suwannee River Water Management District (District), the above mentioned project has met the conditions of issuance as found in subsection 62-330.301, subsections 62-330.407 through 62-330.635, or subsection 40B-4.3030, F.A.C. The permit is hereby in effect for the activity description below:

Previous permit was issued for the construction and operation of a surfacewater management system serving 18.0-acres of impervious surface on a 27.0-acre project site. This modification consists of the construction of an additional 1.42-acres of impervious surface and adding an additional project area of 10.90-acres system. This brings the new totals to 19.42 acres of impervious surface on a 37.90-acre site. The project shall be constructed in a manner consistent with the application package submitted by Adam Boukari, of the City of Alachua, and the plans certified by Daniel Young, P.E., of CHW Inc., on or before October 22, 2015.

DON QUINCEY, Chairman
Chiefland, Florida

ALPHONAS ALEXANDER, Vice Chairman
Madison, Florida

VIRGINIA H. JOHNS, Secretary/Treasurer
Alachua, Florida

KEVIN BROWN
Alachua, Florida

GARY F. JONES
Old Town, Florida

VIRGINIA M. SANCHEZ
Old Town, Florida

RICHARD SCHWAB
Perry, Florida

BRADLEY WILLIAMS
Monticello, Florida

VACANT
At Large

NOAH VALENSTEIN
Executive Director

As the permittee and/or operation and maintenance entity, it is your responsibility to ensure that adverse off-site impacts do not occur either during or after the construction. Any additional construction or alterations not authorized by this permit may result in flood control or water quality problems both on and off site and will be a violation of District rule.

You and any other substantially affected persons are entitled to request an administrative hearing or mediation. Please refer to the enclosed notice of rights.

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the District staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5, F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the District a fully executed Form 62-330.350(1), "Construction Commencement Notice,"[10-1-13], incorporated by reference herein (http://www.flrules.org/Gateway/reference.asp?No=Ref-02505), indicating the expected start and completion dates. A copy of this form may be obtained from the District, as described in subsection 62-330.010(5), F.A.C. If available, an District website that fulfills this notification requirement may be used in lieu of the form.

5. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.

DON QUINCEY, Chairman
Chiefland, Florida

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6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:

    1. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex — "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or

    2. For all other activities — "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].

    3. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:

    1. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.

    2. Within 30 days of submittal of the as- built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the District in writing of changes required by any other regulatory District that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:

    1. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;

    2. Convey to the permittee or create in the permittee any interest in real property;

    3. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or

DON QUINCEY, Chairman Chiefland, Florida | ALPHONAS ALEXANDER, Vice Chairman Madison, Florida | VIRGINIA H. JOHNS, Secretary/Treasurer Alachua, Florida | KEVIN BROWN Alachua, Florida | GARY F. JONES Old Town, Florida
VIRGINIA M. SANCHEZ Old Town, Florida | RICHARD SCHWAB Perry, Florida | BRADLEY WILLIAMS Monticello, Florida | VACANT At Large | NOAH VALENSTEIN Executive Director

4. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the District in writing:

    1. Immediately if any previously submitted information is discovered to be inaccurate; and

    2. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, District staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification shall be provided in accordance with Section 872.05, F.S.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be

DON QUINCEY, Chairman
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considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the District will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

WITHIN 30 DAYS AFTER COMPLETION OF THE PROJECT, THE PERMITTEE SHALL NOTIFY THE DISTRICT, IN WRITING, THAT THE FACILITIES ARE COMPLETE.

AUTHORIZED BY: Suwannee River Water Management District

By: Carlos D. Herd

____

Carlos D. Herd, P.G.
Division Director

DON QUINCEY, Chairman
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ALPHONAS ALEXANDER, Vice Chairman
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NOTICE OF RIGHTS

1. A person whose substantial interests are or may be determined has the right to request an administrative hearing by filing a written petition with the Suwannee River Water Management District (District), or may choose to pursue mediation as an alternative remedy under Section 120.569 and 120.573, Florida Statutes, (F.S.), before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for pursuing mediation are set forth in Sections 120.569 and 120.57 F.S. Pursuant to Rule 28-106.111, Florida Administrative Code, (F.A.C.), the petition must be filed at the office of the District Clerk at District Headquarters, 9225 C.R. 49, Live Oak, Florida 32060 within twenty-one (21) days of receipt of written notice of the decision or within twenty-one (21) days of newspaper publication of the notice of District decision (for those persons to whom the District does not mail actual notice). A petition must comply with Chapter 28-106, F.A.C.

2. If the Governing Board takes action which substantially differs from the notice of District decision to grant or deny the pe1mit application, a person whose substantial interests are or may be determined has the right to request an administrative hearing or may choose to pursue mediation as an alternative remedy as described above. Pursuant to Rule 28-106.111, F.A.C., the petition must be filed at the office of the District Clerk at District Headquarters, 9225 C.R. 49, Live Oak, Florida 32060 within twenty-one (21) days of receipt of written notice of the decision or within twenty-one (21) days of newspaper publication of the notice of District decision (for those persons to whom the District does not mail actual notice). Such a petition must comply with Chapter 28-106, F.A.C.

3. A substantially interested person has the right to a formal administrative hearing pursuant to Section 120.569 and 120.57(1), F.S., where there is a dispute between the District and the party regarding an issue of material fact. A petition for formal hearing must comply with the requirements set forth in Rule 28-106.201, F.A.C.

4. A substantially interested person has the right to an informal hearing pursuant to Section 120.569 and 120.57(2), F.S., where no material facts are in dispute. A petition for an informal hearing must comply with the requirements set forth in Rule 28-106.301, F.A.C.

5. A petition for an administrative hearing is deemed filed upon receipt of the petition by the Office of the District Clerk at the District Headquarters in Live Oak, Florida.

6. Failure to file a petition for an administrative hearing within the requisite time frame shall constitute a waiver of the right to an administrative hearing pursuant to Rule 28-106.111, F.A.C.

7. The right to an administrative hearing and the relevant procedures to be followed is governed by Chapter 120, Florida Statutes, and Chapter 28-106, F.A.C.

8. Pursuant to Section 120.68, F.S., a person who is adversely affected by final District action may seek review of the action in the District Court of Appeal by filing a notice of appeal pursuant to the Florida Rules of Appellate Procedure, within 30 days of the rendering of the final District action.

9. A party to the proceeding before the District who claims that a District order is inconsistent with the provisions and purposes of Chapter 3 73, F. S., may seek review of the order pursuant to Section 373.114, F.S., by the Florida Land and Water Adjudicatory Commission, by filing a request for review with the Commission and serving a copy of the Department of Environmental Protection and any person named in the order within 20 days of adoption of a rule or the rendering of the District order.

DON QUINCEY, Chairman
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ALPHONAS ALEXANDER, Vice Chairman
Madison, Florida
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Alachua, Florida
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Executive Director

10. For appeals to the District Courts of Appeal, a District action is considered rendered after it is signed on behalf of the District, and is filed by the District Clerk.

11. Failure to observe the relevant time frames for filing a petition for judicial review, or for Commission review, will result in waiver of the right to review.

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Executive Director

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing Notice of Rights has been sent to:

Adam Boukari
City of Alachua
P.O. Box 9
Alachua, FL 32616
(386) 418-6100

This November 04, 2015

Timothy J Sagul
____
Deputy Clerk
Suwannee River Water Management District
9225 C.R. 49
Live Oak, Florida 32060
386.362.1001 or 800.226.1066 (Florida only)

cc: File Number: ERP-001-205218-2

DON QUINCEY, Chairman, Chiefland, Florida | ALPHONAS ALEXANDER, Vice Chairman, Madison, Florida | VIRGINIA H. JOHNS, Secretary/Treasurer, Alachua, Florida | KEVIN BROWN, Alachua, Florida | GARY F. JONES, Old Town, Florida

VIRGINIA M. SANCHEZ, Old Town, Florida | RICHARD SCHWAB, Perry, Florida | BRADLEY WILLIAMS, Monticello, Florida | VACANT, At Large | NOAH VALENSTEIN, Executive Director

NOTICING INFORMATION

Dear Permittee:

Please be advised that the Suwannee River Water Management District (District) has not published a notice in the newspaper advising the public that it has issued a permit for this project.

Newspaper publication, using the District's form, notifies members of the public of their right to challenge the issuance of the permit. If proper notice is given by newspaper publication, then there is a 21-day time limit to file a petition challenging the issuance of the permit.

To close the point of entry for filing a petition, you may publish (at your own expense) a onetime notice of the District's decision in a newspaper of general circulation within the affected area as defined in Section 50.011 of the Florida Statutes. If you do not publish a newspaper notice, the time to challenge the issuance of your permit will not expire.

A copy of the notice and a partial list of newspapers of general circulation are attached for your convenience. However, you are not limited to those listed newspapers. If you choose to close the point of entry and the notice is published, the newspaper will return to you an affidavit as proof of publication. In accordance with 40B-1.1010(4), F.A.C., a copy of the affidavit shall be provided to the District within 14 days of publication. A scanned copy of the affidavit may be forwarded to Tilda Musgrove by email at *tjm@srwmd.org* (preferred method) or send the original affidavit of publication to:

Tilda Musgrove
Resource Management
9225 CR 49
Live Oak, FL 32060

If you have any questions, please contact me at 386.362.1001.
Sincerely,

Tilda Musgrove

Tilda Musgrove
Business Resource Specialist
Resource Management

DON QUINCEY, Chairman
Chiefland, Florida

ALPHONAS ALEXANDER, Vice Chairman
Madison, Florida

VIRGINIA H. JOHNS, Secretary/Treasurer
Alachua, Florida

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At Large

NOAH VALENSTEIN
Executive Director

NOTICE OF AGENCY ACTION TAKEN BY THE
SUWANNEE RIVER WATER MANAGEMENT DISTRICT

Notice is given that the following permit was issued on ____________________:
(Name and address of applicant)____
permit#____________________. The project is located in _____________County, Section ________, Township ________ South, Range ________ East. The permit authorizes a surface water management system on ________ acres for
____ known as
____________________. The receiving water body is ________________.
A person whose substantial interests are or may be affected has the right to request an administrative hearing by filing a written petition with the Suwannee River Water Management District (District). Pursuant to Chapter 28-106 and Rule 40BB-1.1010, Florida Administrative Code (F.A.C.), the petition must be filed (received) either by delivery at the office of the Resource Management Business Resource Specialist at District Headquarters, 9225 CR 49, Live Oak FL 32060 or by e-mail to tjm@srwmd.org, within twenty-one (21) days of newspaper publication of the notice of intended District decision (for those persons to whom the District does not mail or email actual notice). A petition must comply with Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes (F.S.), and Chapter 28106, F.A.C. The District will not accept a petition sent by facsimile (fax). Mediation pursuant to Section 120.573, F.S., is not available.

A petition for an administrative hearing is deemed filed upon receipt of the complete petition by the District Clerk at the District Headquarters in Live Oak, FL during the District's regular business hours. The District's regular business hours are 8 a.m. – 5 p.m., excluding weekends and District holidays. Petitions received by the District Clerk after the District's regular business hours shall be deemed filed as of 8 a.m. on the next regular District business day.

The right to an administrative hearing and the relevant procedures to be followed are governed by Chapter 120, Florida Statutes, Chapter 28-106, Florida Administrative Code, and Rule 40B-1.1010, Florida Administrative Code. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means the District's final action may be different from the position taken by it in this notice. **Failure to file a petition for an administrative hearing within the requisite time frame shall constitute a waiver of the right to an administrative hearing. (Rule 28-106.111, F.A.C.).**

If you wish to do so, you may request the Notice of Rights for this permit by contacting the Business Resource Specialist in the Division of Resource Management (RM), 9225 CR 49, Live Oak,, FL 32060, or by phone at 386.362.1001.

DON QUINCEY, Chairman
Chiefland, Florida
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NEWSPAPER ADVERTISING

ALACHUA

Gainesville Sun Legal Advertising
PO Box 14747
Gainesville, FL 32614
352.372.4222

BRADFORD

Bradford County Telegraph, Legal Advertising
P. O. Drawer A
Starke, FL 32901
904-964-6305/ fax 904-964-8628

COLUMBIA

Lake City Reporter
180 E Duval Street
Lake City, FL 32055
386.754.0401

DIXIE

Dixie County Advocate
174 County Road 351
Cross City, FL 32628
352.498.3312

GILCHRIST

Gilchrist County Journal
207 N Main St
Trenton, FL 32693
352.463.7135

HAMILTON

Jasper News
521 Demorest Street SE
Live Oak, FL 32064
386.362.1734

JEFFERSON

Monticello News
PO Drawer 772
Madison, FL 32344
850.997.3568

LAFAYETTE

Mayo Free Press
521 Demorest Street SE
Live Oak, FL 32064
386.362.1734

LEVY

Levy County Journal
PO Box 159
Bronson, FL 32621
352.486.2312

MADISON

Madison Carrier
PO Drawer 772
Madison, FL 32344
850.973.4141

SUWANNEE

Suwannee Democrat
521 Demorest Street SE
Live Oak, FL 32064
386.364.1734

TAYLOR

Taco Times
PO Box 888
Perry, FL 32348
850.584.5513

UNION

Union County Times
125 E Main Street
Lake Butler, FL 32054
386.496.2261

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City of Alachua
Water Meter Sizing

Water supply service is based on drainage fixture counts. Total the fixture units per Table 1: Fixture Unit Table. **NOTE:** Fixtures not listed in Table 1 shall have a *drainage fixture unit* load based on the outlet size of the fixture. The minimum trap size for unlisted fixtures shall be the size of the drainage outlet but not less than $1^1/_4$ inches (32 mm.) After completing Table 1, compare the total fixture unit value with Table 2 and identify the total number of fixture units, allowable number of fixture units, and recommended meter size at the bottom of this form.

Table 1: Fixture Unit Table

FIXTURE TYPE	FIXTURE UNIT VALUE AS LOAD FACTORS	TOTAL UNITS	FIXTURE UNIT VALUE FOR FIXTURE TYPE
Automatic clothes washers, commercial	3		
Automatic clothes washers, residential	2		
Bathroom group water closet, lavatory, bathtub or shower,1.6 gpf	5		
Bathroom group water closet, lavatory, bathtub or shower (water closet flushing greater than 1.6 gpf)	6		
Bathtub (with or without overhead shower or whirlpool attachments)	2		
Bidet	1		
Combination sink and tray	2		
Dental lavatory	1		
Dental unit or cuspidor	1		
Dishwashing machine, domestic	2		
Drinking fountain	$^1/_2$	4	3
Emergency floor drain	0		
Floor drains	2	9	18
Kitchen sink, domestic	2		
Kitchen sink, domestic with food waste grinder and/or dishwasher	2		
Laundry tray (1 or 2 compartments)	2		
Lavatory	1	12	12
Shower (based on the total flow rate through showerheads and body sprays) Flow rate: 5.7 gpm or less Greater than 5.7 gpm to 12.3 gpm Greater than 12.3 gpm to 25.8 gpm Greater than 25.8 gpm to 55.6 gpm	 2 3 5 6		
Service sink	2		
Sink	2		
Urinal	4	4	16
Urinal, 1 gallon per flush or less	2		
Urinal, non-water supplied	$^1/_2$		
Wash sink (circular or multiple) each set of faucets	2		
Water closet, flushometer tank, public or private	4		
Water closet, private (1.6 gpf)	3		
Water closet, private (flushing greater than 1.6 gpf)	4		
Water closet, public (1.6 gpf)	4		
Water closet, public (flushing greater than 1.6 gpf)	6	10	60
UNLISTED FIXTURE TYPE CALCULATIONS: FIXTURE DRAIN OR TRAP SIZE			
$1^1/_4$”	1	13	13
$1^1/_2$”	2	4	8
2”	3	4	12
$2^1/_2$”	4		
3”	5		
4”	6		
TOTAL FIXTURE UNIT VALUE:			142

Table 2: Water Meter Selection Table

NOTE: The Public Services Department will determine the water meter size for applications requiring flow rates in excess of those provided by a 2" water meter.

WATER SUPPLY FIXTURE UNITS W/ FLUSH TANK	WATER SUPPLY FIXTURE UNITS W/ FLUSH VALVE	WATER METER OPERATING RANGE (GPM)	WATER METER SIZE
<=30	<= 20	0.1 – 35	¾"S (5/8" x ¾")
21 – 145	21 – 60	0.4 – 55	1"
146 – 630	60 – 530	2.0 – 150	1-1/2"
631 – 1,000	531 – 930	2.5 – 200	2"

TOTAL NUMBER OF FIXTURE UNITS (FROM TABLE 1): 142

ALLOWABLE NUMBER OF FIXTURE UNITS (FROM TABLE 2): 530

WATER METER SIZE (BASED UPON CALCULATIONS COMPLETED ABOVE): 1-1/2"

Note: Fixture count provided by Moses & Associates.

Irrigation meter sizing:
Per irrigation system design by Buford, Davis, & Associates, the irrigation meter shall be 3/4" to supply 20 gpm @ 55 psi.

Based on Table 2 above, a 3/4" water meter is sufficient.