INVITATION FOR BID (IFB)

IFB Number	Scope Number	Closing Date	Closing Time	Return IFB Submittal
GC2020096656-004002	6717	4/27/2020	9:00am EST	bids@synergynds.com

IFB Reference Information:	**Sinkhole Structural Repairs**
Insured Property Owner:	**Alachua County Library District**
Property Location Name:	**Storage Warehouse**
Address Line 1:	3145 NW 43rd Street
Address Line 2:	Enter Text Here
City:	**Gainesville** State: Florida Zip Code: **32606**

DESCRIPTION: Furnish all required labor, materials and equipment necessary to provide Scope-of-Work at the above described location. Work is being authorized under the elected FMIT TurnKey Recovery Program℠ administered by Synergy NDS, Inc. (SynergyNDS) on behalf of the Insured Property Owner, a Member of the Florida Municipal Insurance Trust (FMIT).

SUBMITTAL INSTRUCTIONS: In support of Procurement Guidelines, the IFB Packet includes specifications and terms & conditions associated with the above referenced project information.

1. Bids shall be received no later than the Closing Date & Time indicated above. Bids received after above deadline or that are not submitted in accordance to Submittal Instructions may be rejected without further explanation or contractor notification.
2. Bid shall be completed and submitted using **ONLY** the **Contractor Submittal Form** (provided at the end of the IFB Packet).
3. Contractor is responsible to validate all Quantities and Units of Measurements specific to the following scope items &/or products. The information and descriptions provided in the IFB are intended for general guidance purposes only. Contractor may not change or alter any material &/or specifications identified in the IFB for submission purposes without prior written/email notification to: bids@synergynds.com.
4. Contractor has the sole responsibility to ensure that all services and material for BID Submittal (whether stated correctly in the IFB or not) satisfactorily meet all required Codes & Standards, OSHA Guidelines and The Americans with Disabilities Act (ADA).
5. Contractor should also consider the approach (if necessary) in which to stock/store material at the jobsite in a safe and secure manner. SynergyNDS will not be responsible for lost or stolen material, supplies or equipment stocked at the jobsite.
6. Bid award will be made based on best overall LUMP SUM project value as determined by SynergyNDS in accordance to market valuation, project demands, critical path scheduling – as well as overall Insured Member's WorkForce Participation Goals. Contributing factors, in addition to price, may be considered as necessary to help determine bid award based on any additional criteria set forth by the specific FMIT Insured Member.

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7. SynergyNDS reserves the right to modify the IFB Specifications and Terms & Conditions at any time during the bid solicitation process. Timely notice to all bidders will be given via an electronically distributed Addendum.
8. All registered HUB & HUB Zone Contractors, as well as DBEs are encouraged to participate. Additional Contractor Financial Assistance is available to help support daily HUB/DBE Contractor's operations under the terms and condition of a successful contract award.
9. SynergyNDS is an equal opportunity employer and administers all Contracts & Contractor Agreements in accordance to the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a).
10. Contractor is strongly encouraged to schedule a Site Visit of the property as necessary to support the IFB Submittal. All scheduled site visits can be requested at bids@synergynds.com.
11. When a mandatory Pre-BID Meeting is identified and scheduled in a specific IFB, Contractor Attendance is a requirement as part of the Solicitation. Contractors who fail to attend the Pre-BID Meeting will not be eligible to participate in the IFB and subsequent submittal process.
12. Contractor can submit all questions &/or concerns specific to the IFB by email to: bids@synergynds.com.

SCOPE-OF-WORK SUMMARY

Refer to **EXHIBIT A** and any subsequent **ATTACHMENTS** for scope-of-work description that will be included after the IFB Contractor Submittal Form on Page #9.

*This IFB is part of a potential Federally Funded Project.
*This IFB does not require a Contractor Payment or Performance Bond.
*This Project is Sales Tax Exempt through the specific Florida Public Entity.
*This IFB does not require a Pre-BID Meeting
*This IFB supports workforce participation goals.

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INVITATION FOR BID (IFB)

GENERAL TERMS & CONDITIONS

1. Contractor shall be responsible for field verifying all conditions, dimensions & quantities prior to IFB Submittal and the implementation of this scope of work. Any Exhibits, Plans, Drawing &/or Other Supporting Documents have been included for general reference purposes only.
2. Contractor is responsible to identify and satisfactorily address all applicable regulatory requirements, including but not limited to Codes & Standards, HUD/DBE Participation Goals & Guidelines and ADA/FHA Specifications.
3. Contractor shall indicate in writing and be responsible to submit to SynergyNDS via email distribution to projects@synergynds.com any request or need for additional 3rd Party Assignment as necessary to further identify required codes & standards, scope specifications or public health safety concerns outside of Contractor's professional competence &/or licenses.
4. Contractor is to obtain their own permits and schedule all applicable inspections. Permits can be obtained by contacting the Building Department or other administering entity. Permit Fees are reimbursable direct from SynergyNDS (in addition to contractor's Lump Sum Proposal) if incurred and submitted with proper documentation.
5. Contractor shall prohibit discrimination against staff &/or available workforce based on their status as protected veterans or individuals with disabilities and prohibit discrimination against all individuals based on their race, color, religion, sex, sexual orientation, gender identity or national origin. Moreover, these regulations require that Contractor and its subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, protected veteran status or disability.
6. Contractor is to abide by all applicable OSHA and project safety requirements and standards. Contractor shall require all employees to utilize proper PPE when applicable, including but not limited to: fall protection harnesses, hard hats, safety glasses, safety foot wear, gloves and etc.
7. Contractor is responsible for submitting applicable project and associated contract documents as defined by Architectural Drawings Specifications, Engineering Requirements, Certificates of Insurance, Change Order Requests and any written or documented deviations from approved scopes-of-work or Contract.
8. Contractor may be asked to provide Material Safety Data Sheets (MSDS) to the Industrial Hygienist of record (for the project) for chemical-based products that will be used including, but not limited to, glues, cleaners, solvents, anti-microbial products, sanitizing agents, etc. The Industrial Hygienist of record retains the right to not allow the use of any of the products selected.
9. Contractor shall be responsible under terms of the Agreement for supplying any and all necessary labor, equipment, tools, materials and travel expense to complete the scope of work unless directed otherwise in the IFB. This includes but is not limited to: Rental Equipment, Dumpsters, Storage Containers, Jobsite Trailer, General Conditions, Associated Expenses, Travel Cost and Overhead & Profit which are to be included in the IFB Contractor Lump Sum Proposal.
10. Contractor shall protect all property from new and supplemental damage during the performance of work. This includes, but necessarily limited to: wall finishes, floor finishes, windows, electrical systems, mechanical systems, communication systems, life safety systems, security systems, HVAC control

systems, plumbing systems, lighting systems, structurally related components, exterior elements, vegetation, property-of-others, and etc.

11. Contractor shall be responsible for any breakage &/or cleaning of unintended damage, debris, coatings, coverings, overspray and residual caulking from the aforementioned property described above. If affected property can't be successfully cleaned &/or restored to pre-existing condition, SynergyNDS will seek reimbursement from Contractor &/or deduct the appropriate replacement cost from outstanding Invoice Payment (Contract Value).
12. Contractor is EXPECTED to maintain a Clean & Safe Work Environment throughout the lifecycle of the awarded scope-of-work. This includes daily clean-up and organization of the Contractor's work area specific to all material waste, debris, tools &/or equipment. Failure to do so (after 3 documented warnings) can result in back charges to Contractor in the amount of $25.50 hourly rate with a minimum $150.00 per day clean-up rate (as determined by the SynergyNDS or the Insured Property Owner).
13. Contractor shall be responsible for securing work area(s) from access by non-authorized building occupants, including all persons not directly part of the restoration, repair and/or rebuild efforts. This includes securing work area(s) as identified in the IFB Scope-of-Work &/or under Contractors control.
14. Contractor shall provide and implement a site-specific health and safety plan to include hazard communication and related OSHA requirements to protect workers as well as the general public with access to the work area.
15. If the Contractor determines that deviations, modifications (change order or supplemental costs) from the initial scope-or-work are required, the Contractor shall submit a written request to SynergyNDS for review and approval prior to start of any additional work not otherwise included in initial BID. The written request will contain, at a minimum:
    a. Reason for deviation or modification
    b. Description of deviation or modification
    c. Project cost addition or subtraction for deviation or modification
    d. Estimated time required for deviation or modification.
16. Contractor is NOT responsible for any conditions or activities the building owner or employees implemented prior to their arrival to the job site. This includes removal of contents, equipment or personnel from the affected areas to the non-affected areas of the building.
17. During the performance of Contractor's scope-of-work, pre-existing damage to the building, structure, system failures or other anomalies may be found. If this occurs, the Contractor has the responsibility to identify, document and report these deficiencies immediately to SynergyNDS by email notification to projects@synergynds.com. Verbal notification &/or discussion only with the Onsite Project Manager is encouraged but not binding. Written documentation must be provided in efforts to comply with the required transparent approach.
18. Contractor is responsible to ensure that their employees &/or its sub-contractors comply with the provisions and terms of the IFB and Contract Agreement.

INVITATION FOR BID (IFB)

PAYMENT: Project is managed by SynergyNDS, Inc., under the FMIT Turnkey Recovery Program. Payments will be made directly to the contractor(s) in accordance with described terms & conditions. Qualified contractors may be eligible for an upfront material deposit or progress payments as determined prior to BID AWARD. **Contractor must be registered in the MVP (Managed Vendor Program) whereby required contractor documents must be uploaded to the database. There is annual $49.95 processing fee as part of the initial contractor vetting and background check.**

PAYMENT TERMS: Payments will be made after inspection and approval of work by SynergyNDS, City Building Official &/or Insurance Adjuster. Accurate invoices and required project documentation must be submitted to SynergyNDS for project audit prior to payment. *Material Deposits &/or Advanced Payments require Contractor to complete online registration in the Managed Vendor Program (MVP). MVP has an annual $49.99 Registration Fee to be part of the Contractor Direct Repair Program. Material Deposits &/or Advanced Payments will require a 2% Invoice Payment Discount.

HOLD HARMLESS: To the fullest extent permitted by law, the Contractor/Vendor shall indemnify, defend, and hold harmless SynergyNDS, Inc & FMIT, their officers, agents, employees, elected, and appointed officials, Insurance Representatives and volunteers from and against any and all claims, losses or liability, including attorney's fees, arising from injury or death to persons or damage to property occasioned by any act, omission, or failure of the Contractor/Vendor and any of its officers, agents, employees, and volunteers in satisfying the terms required by this contract.

RIGHT TO ACCEPT, REJECT AND WAIVE DEFECTS: SynergyNDS &/or Contracting Agent reserves the right to: reject all quotations; waive formalities, technical defects, and minor irregularities; accept the quotation (if any) deemed most advantageous to and in the best interests of Insured Members of FMIT. Award will be based on price, contractor's daily performance capabilities, availability to provide the specified services when required &/or in accordance to critical path scheduling.

DAMAGES: Contractor will be held liable for any damage caused to the building and ancillary structure, and/or injury to the occupants resulting from the execution of the work or from not exercising proper precautionary protective measures. Any cost of repair/replacement resulting from damages shall be at the Contractor's expense.

WORK-SITE PRACTICES: Contractor's workers, as well as the various trade contractors entering or leaving the work area, will all attend a site-specific safety meeting as well as daily safety meetings prior the scheduled workday. Contractor's workers entering or leaving the work area will don or remove personal protective equipment and clothing in the staging area outside of each work area. All debris & trash in the work area will be removed and disposed.

WORKER PERSONAL PROTECTION EQUIPMENT: The National Institute for Occupational Safety and Health (NIOSH) provides the following interim guidelines and warnings to restoration workers.

a) Steel toed leather boots should be worn. Tennis shoes or sneakers should *not* be worn because they will transfer contamination and will not prevent punctures, bites, or crush injuries.

b) Goggles, safety glasses with side shields or full-face shields shall be used when performing restoration related activities that involve demolition, cutting or the use of ANY power tools. Sun/glare-protective

lenses may be needed in some work settings. The use of goggles or protective eyewear should also be worn during the application of any cleaners, sanitizers or disinfectants.

c) Soft hat or another protective head cover. Wear an American National Standards Institute (ANSI) rated hardhat if there is any danger of falling debris or electrical hazards.

d) Hearing protection (when working in an environment with any noise that you must shout over to be heard).

e) Comfortable, form fitting, light weight clothing including long pants and a long-sleeved shirt or coveralls. Additional PPE, respiratory protection, or clothing may be required when specific exposure hazards are identified or expected at the work site. In some instances, the protective ensemble components (garment, boots and gloves) may need to be impervious to contaminated flood or other site-specific chemical, physical, or biological hazards. In all instances, workers are advised to wash their hands with soap and clean water, especially before eating or drinking. Protect any cuts or abrasions with waterproof gloves and dressings. The use of insect repellant, sun block and lip balm may also be required for some work environments. Drink plenty of bottled water and take frequent rest breaks to avoid overexertion.

THERMAL STRESSES: HEAT: Workers are at serious risk for developing heat stress. Excessive exposure to hot environments can cause a variety of heat-related problems, including heat stroke, heat exhaustion, heat cramps, and fainting. To reduce the potential for heat stress, drink a glass of fluid every 15 to 20 minutes and wear loose- fitting clothing. Additionally, incorporate work-rest cycles into work routines and when possible distribute the workload evenly throughout the day.

> *****Temporary cooling to the work areas shall only be authorized by the owner's representative based on the actual need for the work being performed. Where the conditions allow for the operation of part or all of the ventilation systems serving the work area then the need for temporary cooling is NOT necessary. The work area should be maintained at conditions that meet OSHA requirements for health and safety.*****

WORKING IN CONFINED SPACES: If you are required to work in a boiler, furnace, pipeline, pit, pumping station, septic tank, sewage digester, storage tank, utility vault, well, or similar enclosure, you should be aware of the hazards of working in confined spaces. A confined space has one or more of the following characteristics:

a) limited openings for entry or exit;
b) unfavorable natural ventilation; or
c) Is not designed for continuous worker occupancy.

Toxic gases, a lack of oxygen, or explosive conditions may exist in the confined area, resulting in a potentially deadly atmosphere. Because many toxic gases and vapors cannot be seen or smelled, never trust your senses to determine if safe entry is possible. **Never** enter a confined space unless you have been properly trained, even to rescue a fellow worker! If you need to enter a confined space and do not have the proper training and equipment, contact your local fire department for assistance.

INVITATION FOR BID (IFB)

CONTRACT IMPLEMENTATION: Contract will be awarded upon review of all bids and proposals received by SynergyNDS. Initiation of intent-to-contract with Contractor will be engaged upon email notification and signed/returned Contractor Agreement Form. Contract-in-full will occur upon SynergyNDS receipt of all required documentation including but not limited to:

a) Performance Bond &/or Payment Bond (If Required)
b) Certificate of General Liability Insurance
c) Certificate of Auto Insurance
d) Certificate of Worker's Compensation or Letter of Exemption
e) Contractor's W-9
f) State Licenses

Further description of insurance requirements is listed in "Insurance & Licensing Requirements." No material deposits &/or payments will be made to Contractor until all required documentation has been received.

ASSIGNMENT OF CONTRACT: Contractor shall not assign the contract or any part thereof to any person, firm, corporation or company unless such assignment is approved in writing by SynergyNDS. Such acceptance shall be at the sole discretion of the SynergyNDS upon request of the Contractor. Upon approved and executed Transfer-of-Contract-Agreement, Contractor will be responsible for the coordination and hand-off of work/trades with the newly Assigned Contractor. Failure to coordinate this work will not relieve original Contractor of their obligations and shall not constitute additional cost as governed by the Lump Sum Contract Award.

ASSIGNMENT OF CONTRACTOR: Contractor is responsible for supplying all required Personal Protective Equipment (PPE), including but not limited to the furnishing and appropriate use of: hard hat(s), safety glasses, face shields, ear plugs, gloves, boots, fall protection (where required), breathing protection (where required), tie off ropes/apparatuses/points (where required), fire extinguishers, first aid kits, etc. Contractor is required to be familiar with and follow all OSHA and State of Florida's safety requirements.

a) Contractor is to hold daily jobsite safety meetings that review the work to be performed, the hazards involved and the methods for reducing and eliminating such hazards, as well as maintain meeting records, - including attendance lists, which shall be kept onsite and available for SynergyNDS review at all times. Contractor shall be solely liable for any and all OSHA violations associated with his/her employees.
b) SynergyNDS reserves the right to hold weekly progress meetings for which the Subcontractor shall attend. Contractor shall be responsible for daily cleanup of the work performed herein. Failure to cleanup daily after trade will result in cleanup supplementation at Contractor's cost. Twenty-Four (24) hour notice will be given prior to supplementation. Contractor shall be responsible for delivery, loading, unloading, storage, protection, etc. of all work provided herein.

ENERGY EFFICIENCY: The Contractor shall comply with all mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under this contract is performed.

INVITATION FOR BID (IFB)

PROCUREMENT OF RECOVERED MATERIALS: In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor should procure items designated in the EPA Guidelines that contain the highest percentage of recovered materials practical unless the Contractor determines that such items:

a) are not reasonably available in a reasonable period of time;

b) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology;

FAILURE TO COMPLY: For failure to deliver in accordance with specifications, SynergyNDS may cancel the contract or any part thereof and purchase services on the open market, charging any additional cost to the Contractor. Contractor shall comply with all applicable state, federal and local codes, and pay all permits, licenses and certificates, and other fees as required by the work.

INSURANCE & LICENSING REQUIREMENTS: Before starting work, the Contractor will provide SynergyNDS proof of Worker's Compensation and Commercial and Public Liability Insurance. The Contractor must be licensed to do business in the State of Florida and SynergyNDS must be named as an additional insured on general liability insurance certificate. Contractor will need to go to www.syngerynds.com and complete the initial registration for the Managed Vendor Program (MVP). Contractor will be required to upload the following information (when applicable) prior to contract award and eligible material deposits.

a) The Contractor will carry Worker's Compensation Insurance for all employees engaged in work at the site, in accordance with State or Territorial Worker's Compensation Laws.

b) Commercial and Public Liability with bodily injury and property damage limits will be at a combined single limit of at least $500,000 to protect the contractor and each subcontractor against claims for injury to or death of one or more persons.

c) Automobile Liability on owned and non-owned motor vehicles used on the site(s), or in connection with the sites, for a combined single limit for bodily injury and property damages of not less than $500,000.00 per occurrence.

d) Builder's Work Insurance limit of at least $5,000.00 per occurrence and $10,000.00 aggregate.

e) Professional Liability $1,000,000 per occurrence (if applicable).

Contractor will not allow insurance coverage to lapse and will provide SynergyNDS with updated Certificates of Insurance as necessary. All policies must provide that at least thirty (30) days' notice of cancellation will be given to SynergyNDS . All Contractor employees &/or subcontractors are bound by the Insurance Requirement. Contractor is the sole responsible party for all its Employee &/or SubContractor infractions, accidents, damages and all general liability concerns that occur, whether directly or indirectly, as related to Contracted Scope-of-Work.

The certificate holder(s) must be noted as:

Synergy NDS, Inc.
1400 Sarno Rd
Melbourne, FL 3293

INVITATION FOR BID (IFB)

FEDERAL CONTRACT REQUIREMENTS ONLY (In a Declared Event)

If stated in the IFB, the Contractor and its subcontractors must follow the provisions, as applicable, as set forth in 2 C.F.R. §200.326 Contract provisions and Appendix II to 2 C.F.R. Part 200, as amended, including but not limited to:

9.29.1 Davis-Bacon Act, as amended (40 U.S.C. §§3141-3148). When required by Federal program legislation, which includes emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program and Transit Security Grant Program, all prime construction contracts in excess of $2,000 awarded by non-Federal entities must comply with the Davis-Bacon Act (40 U.S.C. §§3141-3144, and §§3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. If applicable, SynergyNDS must place a current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. SynergyNDS must report all suspected or reported violations to the Federal awarding agency. When required by Federal program legislation, which includes emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program and Transit Security Grant Program (it does not apply to other FEMA grant and cooperative agreement programs, including the Public Assistance Program), the contractors must also comply with the Copeland "Anti-Kickback" Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). As required by the Act, each contractor or subrecipient is prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. SynergyNDS must report all suspected or reported violations to the Federal awarding agency.

1. Contractor. The contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.
2. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as the FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
3. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.

9.29.2 Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, which includes all FEMA grant and cooperative agreement programs, all contracts awarded by SynergyNDS in excess of

$100,000 that involve the employment of mechanics or laborers must comply with 40 U.S.C.§§ 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. §3702 of the Act, each contractor must compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

9.29.3 Rights to Inventions Made Under a Contract or Agreement. If the Federal award meets the definition of "funding agreement" under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

9.29.4 Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387). Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. §§7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. §§1251-1387) and will report violations to FEMA and the Regional Office of the Environmental Protection Agency (EPA). The Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended—applies to Contracts and subgrants of amounts in excess of $150,000.

9.29.5 Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689(3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

9.29.6 Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non- Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

9.29.7 Compliance with Procurement of recovered materials as set forth in 2 CFR § 200.322. CONTRACTOR must comply with section 6002 of the Solid Waste disposal Act, as amended, by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered

materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired during the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

OTHER FEDERAL REQUIREMENTS (In a Declared Event)

9.29.9 Americans with Disabilities Act of 1990, as amended (ADA) – The CONTRACTOR will comply with all the requirements as imposed by the ADA, the regulations of the Federal government issued thereunder, and the assurance by the CONTRACTOR pursuant thereto.

9.29.10 Disadvantaged Business Enterprise (DBE) Policy and Obligation - It is the policy of SynergyNDS that DBE's, as defined in 49 C.F.R. Part 26, as amended, shall have the opportunity to participate in the performance of contracts financed in whole or in part with SYNERGYNDS funds under this Agreement. The DBE requirements of applicable federal and state laws and regulations apply to this Agreement. SynergyNDS and its CONTRACTOR agree to ensure that DBE's have the opportunity to participate in the performance of this Agreement. In this regard, all recipients and contractors shall take all necessary and reasonable steps in accordance with 2 C.F.R. § 200.321(as set forth in detail below), applicable federal and state laws and regulations to ensure that the DBE's have the opportunity to compete for and perform contracts. SynergyNDS and the CONTRACTOR and subcontractors shall not discriminate on the basis of race, color, national origin or sex in the award and performance of contracts, entered pursuant to this Agreement. 2 C.F.R. § 200.321 CONTRACTING WITH SMALL AND MINORITY BUSINESSES, WOMEN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS

a) If the CONTRACTOR, with the funds authorized by this Agreement, seeks to subcontract goods or services, then, in accordance with 2 C.F.R. §200.321, the CONTRACTOR shall take the following affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used whenever possible.

b) Affirmative steps must include:

   I. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

   II. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

   III. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;

   IV. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;

   V. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

VI. Requiring the Prime contractor, if subcontractor are to be let, to take the affirmative steps listed in paragraph (1) through (5) of this section.

9.30 The Contractor shall utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the Contractor during the term of the Contract and shall expressly require any subcontractors performing work or providing services pursuant to the Contract to likewise utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the Contract term.

9.31 If attached, the CONTRACTOR is bound by the terms and conditions of the Federally-Funded Subaward and Grant Agreement between SYNERGYNDS and the Florida Division of Emergency Management (Division).

9.32 The CONTRACTOR shall hold the Division and SYNERGYNDS harmless against all claims of whatever nature arising out of the CONTRACTOR's performance of work under this Agreement, to the extent allowed and required by law.

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IFB – CONTRACTOR SUBMITTAL FORM

IFB Number	Scope Number	Closing Date	Closing Time	Return IFB Submittal
GC2020096656-004002	6717	4/27/2020	9:00am EST	bids@synergynds.com

Company Name: _____

Address Line 1: _____

Address Line 2: _____

City: _____

State: _____ Zip Code: _____

Contractor Certification: ☐ DBE ☐ WBE/WOSB ☐ HUB ☐ SDVOSB/VOSB

CONTRACTOR LUMP SUM PROPOSAL:

IFB TITLE	Sinkhole Repairs	**PROPOSAL:**	$
IFB TITLE	Click or tap here to enter text.	**PROPOSAL:**	$
IFB TITLE	Click or tap here to enter text.	**PROPOSAL:**	$
IFB TITLE	Click or tap here to enter text.	**PROPOSAL:**	$

Material Deposit | ☐Required | ☐Requested | in the amount of $ _____

I, having the legal authorization to represent the "Company" (the undersigned) have read and understood all previous 1-9 pages and the subsequent Attached Exhibits in accordance to the applicable Terms & Conditions as described in the IFB Packet preceding the attached Contractor Submittal Form:

Company Contact Name (Please Print) | **Company Title (Please Print)**

Signature | **Date**

*Material Deposits &/or Advanced Payments require Contractor to complete online registration in the Managed Vendor Program (MVP). MVP has an annual $49.99 Registration Fee to be part of the Contractor Direct Repair Program. Material Deposits &/or Advanced Payments will require a 2% Invoice Payment Discount.

Exhibit A: Alachua County Library District - Storage Warehouse Engineering Report & Repair Plan

WESTCOAST FORENSIC CONSULTING GROUP, INC.
26484 Baxter Street, Brooksville, FL 34602 Ph (813) 425-2360 Fax (866) 642-0046
Cert. of Auth. No. 7754

Final Report: Structural Damage Assessment Geotechnical Evaluation

Alachua Library Maintenance Building

3145 Northwest 43rd Street
Gainesville, Florida 32606

Claim No: GC2020096656

WFCG File No: 20-106-54

PARCEL ID: 06103-000-000

Prepared For:

Florida League of Cities, Inc. c/o
Synergy Recovery Resources, LLC
1301 W Eua Gallie Blvd., #96
Melbourne, Florida 32935

Issue Date: March 23, 2020

This document was electronically signed and sealed by Arthur C. Baker, P.E. using a digital seal and date. Printed copies of this document are not considered signed and sealed and all signatures must be verified on any electronic copies.

ARTHUR C. BAKER LICENSE No 47698 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Arthur C Baker
Date: 2020.03.23 16:09:56 -04'00'

Arthur C. Baker, P.E. (date)
Principal Engineer
Fla. P.E. No. 47698

I. Table of Contents

II. Introduction

It was reported by maintenance personnel that damage had occurred at the Alachua Library Maintenance Building. Specifically, they were concerned about settlement of portions of the interior floor slab of the building and a separation that recently developed between the walls and ceiling of the office.

On January 16, 2020, Westcoast Forensic Consulting Group, Inc. (WFCG) was retained by Synergy Recovery Resources, LLC on behalf of the Florida League of Cities, Inc., to evaluate the cause of the damage to the Alachua Library Maintenance Building. The purpose and scope of the investigation was to determine if settlement related "structural damage" as define by Florida State Statute 627.706 (see Appendix F) has occurred to the building. Should it be determined that "structural damage" has occurred by definition, the investigation may expand in scope to warrant further investigation for a "sinkhole loss" in accordance with the Florida State Statutes.

On January 16 and 21, and March 12, 2020, Mr. Scott C. Bernard M.S., P.E.; under the direction of Mr. Arthur C. Baker, P.E., performed site visits at the Alachua Library Maintenance Building to observe the site conditions, document and photograph damages, measure the building for mapping purposes, perform a wall plumbness survey, hand auger borings, test pit excavations in an attempt to expose foundation elements, and perform a relative floor elevation survey. Tony Littles (maintenance director/manager) was on site during the inspections and performed the interview with WFCG. Geophysical testing consisting of a Ground Penetrating Radar (GPR) survey was performed by RMBaker LLC on the accessible interior portion of the maintenance building and the surrounding yard area immediately around the perimeter of the structure within the supporting zone of influence of the structures foundation(s).

Following the performance of the geophysical survey, on March 13, 2020 Westcoast Forensic Consulting Group, Inc. (WFCG) [Scott C. Bernard M.S., P.E. was on-site to witness] performed three (3) full depth SPT borings on the property. The purpose and scope of the investigation was to determine if settlement related "structural

damage'' as define by Florida State Statute 627.706 (see Appendix F) has occurred to the property. Should it be determined that ''structural damage'' has occurred by definition, the investigation may expand in scope to warrant further investigation for a ''sinkhole loss'' in accordance with the Florida State Statutes.

The findings of this study were evaluated, and the following report was prepared by Westcoast Forensic Consulting Group, Inc. Mr. Baker and Mr. Bernard are licensed Professional Engineers in the State of Florida, practicing in the area of Civil Engineering. Mr. Baker's major focus has been geotechnical and forensic engineering as it relates to the detection and remediation of sinkholes and the associated damage to structures since 1989. Mr. Baker is also a Certified General Contractor in the State of Florida, principally practicing in the area of geotechnical construction.

III. Site & Structure Description

Site Description

The Alachua Library Maintenance Building **(photograph 1)** was located at 3145 Northwest 43rd Street in Gainesville, Florida. The parcel's legal description was listed by the Alachua county property appraiser's website as "COM ON E SIDE NW 43RD ST AT SW COR OF NW1/4 POB N 640.60 FT SE/LY ALONG CREEK 521.69 FT N 191.72 FT E 329.36 FT S 664.46 FT TO S LINE NW1/4 W 823.86 FT TO POB LESS THE S 25 FT FOR PUBLIC ROAD OR 459/339 LESS R/W OR 1441/253 & OR 1685/2199 LESS R/W & WATER STG AREA PER OR 1730/1462 LESS WATER STG AREA AS PER OR 1801/0653) OR 1853/2624". The USGS topographic map indicated that the elevation of the site was roughly 153 feet above mean sea level **(photograph 2)**.

Structure Description

The structure was a one-story building. The exterior walls were constructed of concrete masonry units (CMU) with a painted finish. The interior floor was an unfinished concrete slab-on-grade. The interior walls were wood framed, either unfinished or faced with painted drywall. The foundation system was a strip footer and CMU stem wall system. The roof system of the building was a gable design, constructed of conventional wood framing/trusses and finished with asphalt shingles. Throughout this report the front of the building is referenced to face west.

The Alachua County Property Appraiser's website records didn't appear to indicate the date the maintenance building was originally constructed.

IV. Site Investigation

SITE OBSERVATIONS/ COMMENTS

The observed damage to the structure was documented by photographs taken during our site visit, some of which are referenced in the following discussion. The referenced photographs are contained in Appendix A of this report. During our site visit we observed the following conditions at the property:

On the west (front) side of the structure, we observed the following:

- Various hairline to 1/16-inch-wide horizontal, vertical, and stair-stepped cracks were observed in the CMU perimeter wall surfaces. The most predominate stair stepped crack was located near the south end of the wall section **(photograph 3)**.

On the south side of the structure, we observed the following:

- Various hairline to 1/32-inch-wide horizontal, vertical, and stair-stepped cracks were observed in the CMU perimeter wall surfaces. The most predominate cracks were found in the center part of the wall **(photograph 4)**.

On the east (rear) side of the structure, we observed the following:

- Various hairline to 1/32-inch-wide horizontal, vertical, and stair-stepped cracks were observed in the CMU perimeter wall surfaces **(photograph 5)**.

On the north side of the structure, we observed the following:

- Various hairline to 1/32-inch-wide horizontal, vertical, and stair-stepped cracks were observed in the CMU perimeter wall surfaces **(photograph 6)**.

On the interior of the structure, we observed the following damages:

- Southwest storage room: various hairline to 3/32-inch-wide horizontal, vertical, and stair-stepped cracks were observed in the exposed CMU perimeter wall surfaces **(photograph 7**), which matched the exterior crack(s).

- Various hairline to ¼-inch-wide horizontal and vertically oriented cracks were observed in the surfaces of the concrete floor slab-on-grade **[REASON FOR THE CLAIM] (photographs 8 through 10)**, and various hairline to 5-inch-wide separations were observed along the wall/ceiling and wall/wall joints of the main office and restroom areas located in the northeast quadrant of the structure **[REASON FOR THE CLAIM] (photographs 11 through 13)**.

The purpose of our photographs and damage documentation is to demonstrate the general condition of the structure at the time of our investigation and may not reflect all the damage present at the structure. Photographs taken during our site visit are retained in our file and available upon request.

RELATIVE FLOOR ELEVATION SURVEY

A relative elevation survey of the top of the interior floor slab was performed to establish a relative profile of the surface of the interior floor and perimeter foundation of the building. The survey was performed with a Technidea ZipLevel taking spot elevations at various points throughout the interior of the structure. A portion of the data is utilized to evaluate the current post-construction displacement or deflections in the floor surface and building containing primary structural members. The results of the survey are summarized in the slab elevation contour map, (see Appendix B: Maps & Drawings - Relative Floor Elevation Sketch). Allowances were made for the different heights of floor coverings in the building. The final differential elevation data represents the actual corrected elevation changes of the concrete floor slab, interior load bearing foundations and perimeter foundation of the building.

The maximum differential elevation change measured throughout the building was approximately 5.6 inches. All the relative elevations were measured from an arbitrary benchmark (0.0 inch) located at the rear entry (located along the east side of the southeast building corner). The highest relative elevation (+0.4 inch) was

found adjacent to the south window opening in the east building perimeter wall. The lowest relative elevation (-5.2 inch) was found at the southwest corner of the maintenance office area.

WALL PLUMBNESS SURVEY

Measurements of the exterior walls of the property were performed at various locations along the exterior load bearing walls of the structure to determine the plumbness of the structural elements of the building. Measurements were taken at the ends of each wall elevation and at approximately ten-foot intervals along the field of each wall plane. The purpose of the wall plumb survey is to identify listing, leaning or buckling of the exterior load bearing walls and/or interior load bearing members of the structure. It should be noted that imperfections of the wall finish (i.e.: rough stucco texture, irregular lap finishes, etc…) may facilitate slight irregularities in the individual readings which may not be representative of the overall wall plumbness.

The survey was performed utilizing a digital inclinometer device that measures the angle of a surface relative to the horizontal axis in decimal degrees. The data points were recorded and tabularized and the approximate location documented on the wall plumbness survey sketch. The individual readings are correlated to the appropriate wall construction type and wall height to determine if the center of gravity of the wall passes through the middle 1/3 of the wall thickness. Please refer to Appendix B: Maps & Drawings – Wall Plumb Survey Sketch, for the results of the survey.

HAND AUGER BORINGS

Four (4) hand auger borings were performed around the perimeter of the structure to explore the shallow soil profile. Please refer to Appendix B: Maps & Drawings - Boring Location Plan, for the approximate boring locations and Appendix C: Boring Logs - Hand Auger Boring Logs for the results.

Hand auger boring HA-1 was performed on the east side of the structure, near the northeast building corner. The boring revealed grass and topsoil for the upper 6

inches, followed by silty fine sand with roots to the termination depth of 24 inches below grade. The boring was terminated in impassible roots. The surficial water table was not encountered at the time of the boring.

Hand auger boring HA-2 was performed on the east side of the structure, near the southeast building corner. The boring revealed grass and topsoil for the upper 6 inches, followed by slightly silty fine sand to a depth of 36 inches below grade, then slightly clayey fine sand the termination depth of 54 inches below grade. The surficial water table was not encountered at the time of the boring.

Hand auger boring HA-3 was performed on the west side of the structure, near the west side of the southwest building corner. The boring revealed grass and topsoil for the upper 6 inches, followed by silty fine sand with roots to the termination depth of 24 inches below grade. The boring was terminated in impassible roots. The surficial water table was not encountered at the time of the boring.

Hand auger boring HA-4 was performed on the west side of the structure, near the west side of the northwest building corner. The boring revealed grass and topsoil for the upper 6 inches, followed by silty fine sand with roots to the termination depth of 24 inches below grade. The boring was terminated in impassible roots. The surficial water table was not encountered at the time of the boring.

TEST PIT EXCAVATIONS

Two (2) test pits were excavated adjacent to the foundations of the structure to expose the foundation elements (see Appendix B: Maps & Drawings - Boring Location Plan for the test pit locations). Multiple attempts were made to expose the foundation elements at the property, but due to abundant roots within the shallow soil profile, neither test pit was able to completely expose the continuous strip footer. Test pit TP-1 was performed on the east side of the structure and revealed that the top of the strip footer was embedded greater than 14 inches below grade. Test pit TP-2 was performed on the west side of the structure and revealed that the top of the strip footer was embedded greater than 12 inches below grade.

NRCS SOIL SURVEY REVIEW

Based on our review of the NRCS (Natural Resources Conservation Service) Soil Survey website for Alachua County, Florida the Alachua Library Maintenance Building appears to lie within the Millhopper Sand map unit. Millhopper Sand is described as having slopes that are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 57 inches during June, July, August, and September. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

GEOPHYSICAL SURVEY

A Ground Penetrating Radar (GPR) survey was conducted by RMBaker LLC across the accessible portions of the property on March 2, 2020. GPR transects were also performed on the interior of the building. The GPR survey was performed to identify possible changes in the soil profile that are suggestive of anomalies in the subsurface strata which may represent a potential for imminent collapse of the soil profile within the zone of influence below the perimeter building foundations (see Appendix D: Geophysical Survey Report).

The equipment for a GPR survey consists of an antenna that both transmits and receives radar signals, and a profiling recorder that processes the received signal and produces a graphic display of the data. The antenna transmits short-duration electromagnetic waves into the ground that are then reflected back to the receiver at different intensities depending on the geology of the soil strata. The profiling recorder processes the reflected signals and produces a cross-section of the soil profile. Anomalies of the soil profile are typically investigated further by performing soil borings.

The surveyor utilized both 250 MHz and 500 MHz antennas for this project. The 500 MHz antenna was set to 128.1ns on the interior of the building to provide a maximum depth of penetration of approximately 21.1 feet. The 250 MHz antenna was set to 253.5 ns for scanning the yard area to provide a maximum depth of penetration of approximately 41.8 feet below grade in dry, clean sand. The actual depths of penetration were reduced due to the soil composition and moisture content.

Three (3) features of geological interest was detected during the GPR survey. Feature 1 was located on the north yard area, adjacent to the building. Feature 2 was located in the yard area, just southwest of the building in a surface depression in the parking area and Feature 3 was located within the southern part of the interior of the building. Please refer to Appendix D: Geophysical Survey Report for a detailed description of the feature.

STANDARD PENETRATION TEST BORINGS

The SPT soil borings were performed with a standard hydraulic drill rig utilizing the mud-rotary drilling technique in accordance with ASTM Specification D-1586. Typically, the upper 4 feet of soil is hand auger sampled to bypass any shallow utilities, followed by continuous sampling to 10-feet and then each 5-foot sample interval thereafter. Soil samples are retrieved from the sample spoon in sealed containers and returned to our laboratory for further evaluation. After mud-rotary drilling to a sample depth, a standard 2-inch OD split spoon sampler is inserted to the bottom of the borehole and driven 6-inches into undisturbed soil by the drive hammer (seating interval). The hammer is a 140-pound hammer with a 30-inch fall. This procedure is typically repeated three times to obtain the soil sample and resistance vales of each 6-inch interval. The final 2 sample intervals are known as the penetration resistance or "N" value. Upon completion of the sample interval, the sampling spoon is removed, the sample recovered and then the drill tools inserted into the borehole and the boring advanced to the next sample interval. Upon completion the borehole is abandoned in accordance with Water Management District guidelines.

Three (3) Standard Penetration Test (SPT) borings were performed at the property to evaluate the deep soil profile within the soil supporting zone of influence below the

structure foundations that could reasonably represent a potential for imminent collapse, thus affecting the safety of the structure. The boring locations are provided in Appendix B: Maps & Drawings - Boring Location Plan and the boring logs are provided in Appendix C.

Boring B-1 was performed on the north side of the building and within anomaly 1 detected by the GPR survey. The boring generally revealed loose to dense to loose sandy soils in the upper 15 feet, followed by 10 feet of stiff to soft sandy/silty clays. From 30 to 35 feet below grade we noted firm clayey silts, followed by 5 feet of dense silty/clayey fine sands. From 40 to 45 feet below grade we noted very stiff sandy clays, followed by 5 feet of very dense fine sands. From 50 feet below grade to the termination depth of 80 feet below grade we noted hard to very hard sandy silts. None (0%) of the drilling fluid circulation was lost during the soil boring. The ground water table was not discernable at the time of boring. Upon termination, the boring was plugged with bentonite chips by the drilling contractor.

Boring B-2 was performed along the west side of the structure and within anomaly 2 identified by the GPR survey. The boring generally revealed very loose to medium dense to loose sandy soils in the upper 25 feet **(abundant construction debris was observed in the samples from 2 to 6 feet below grade)**, followed by 5.5 feet of very soft sandy silts. From 30.5 to 50 feet below grade we noted medium dense to very dense to dense sandy soils, followed by 10 feet of very hard sandy silts. From 60 to the termination depth of 70 feet below grade we noted very dense cemented sands. The boring was terminated at 70 feet below grade due to extremely difficult drilling conditions where the drilling rig was only able to advance a couple of inches after 30 minutes of drilling (presumably competent limestone). All (100%) of the drilling fluid circulation was lost at approximately 10 feet below grade during the soil boring with a 100% re-gain reported at approximately 17 feet below grade. All (100%) of the drilling fluid circulation was lost at approximately 23.5 feet below grade during the soil boring with a 100% re-gain reported at approximately 43 feet below grade. All (100%) of the drilling fluid circulation was lost at approximately 65 feet below grade during the soil boring with a 100% re-gain reported at approximately 68 feet below grade. The ground water table was not discernable at

the time of boring. Upon termination, the boring was plugged with bentonite chips by the drilling contractor.

Boring B-3 was performed along the east side of the structure adjacent to the two attached shed buildings. The boring generally revealed loose to medium dense to very loose to loose sandy soils in the upper 35 feet, followed by 30 feet of stiff to very hard to hard to very hard sandy silts to the termination depth of 65 feet below grade. The boring was terminated at 65 feet below grade due to extremely difficult drilling conditions where the drilling rig was only able to advance a couple of inches after 30 minutes of drilling (presumably competent limestone). None (0%) of the drilling fluid circulation was lost during the soil boring. The ground water table was not discernable at the time of boring. Upon termination, the boring was plugged with bentonite chips by the drilling contractor.

V. Analysis of Data

Based upon our experience, the building appeared to be well over 20 years old (as the property appraiser did not provide a date of construction for the maintenance building) and as such, it is reasonable to conclude that the building would be subject to "natural long-term settlement" defined herein as differential building settlements caused by variations in foundation loads, natural variations in soil densities and composition which occur over the lifetime of a structure. The difference in bearing capacity to the building foundations facilitates differential stresses in the building elements and ultimately causes stress cracks to develop in the structure.

"Natural environmental conditions" also persist that affect a structure over its lifetime such as moisture, rainfall and temperature variations throughout the seasons. These dynamic environmental changes facilitate several dimensional changes to various building products including but not limited to:

- Shrinkage of cement-based building materials (concrete, mortar, stucco, etc.).
- Thermal expansion/contraction movements of building materials.
- Shrinking and swelling of wood and ceramic tile materials due to fluctuations in the moisture content caused by changes in humidity.

The number of minor cracks tends to increase with age and is more susceptible to widening or re-cracking when additional differential settlements occur. Typically, cracks resulting from "natural long-term settlement" occur primarily at high stress points of the structure. By comparison, wood frame structures are lighter in unit weight than concrete masonry unit (CMU) structures and as such typically experience less differential settlement over their lifetime. Additionally, a frame structure is more flexible and able to absorb stresses; therefore, is not visibly damaged as readily or extensively as a CMU structure.

Inherent to cement based materials (such as stucco, mortar, concrete masonry units, and concrete) is their tendency to shrink as they cure from a flowable or plastic state to a hardened element. Most of the shrinkage in a concrete slab will occur in the first few months after placement of the slab; however, a small amount of shrinkage continues to occur throughout the life of the structure. This type of shrinkage crack is extremely common. The American Concrete Institute (ACI) recommends that slabs be saw-cut into square/rectangular sections of not greater than 10'x15' to control where shrinkage cracks will occur. Considering the size, patterns, and locations of the cracks that were found in the slabs, it is our opinion that the laterally oriented cracking damages observed in the concrete flatwork at the subject property were caused by shrinkage of the concrete as is cured from a plastic to a hardened element and have weathered over time.

Florida Statute 627.706 has defined "sinkhole loss" to mean structural damage to the covered building, including the foundation, caused by sinkhole activity (see Appendix G). The statute defines "structural damage" to mean a covered building, regardless of the date of its construction that has experienced the following: If any of these five criteria are concluded to be occurring, then a complete sinkhole evaluation is warranted.

1. *Interior floor displacement or deflection in excess of acceptable variances as defined in ACI 117-90 or the Florida Building Code, which results in settlement-related damage to the interior such that the interior building structure or members become unfit for service or represents a safety hazard as defined within the Florida Building Code;*

The results of the relative floor elevation survey indicate that the floor slab has a total difference in elevation of approximately 5.6 inches throughout the surveyed portions of the building. Some of the observed damage to the building correlated to the sloped floor surface areas in location and magnitude, indicating that a portion of the observed damage was the result of differential settlement of the structure. **It is our opinion that this condition <u>has been met</u>.**

According to the Standard Specifications for Tolerances for Concrete Construction and Materials (ACI 117-90), issued by the American Concrete Institute (ACI), the level alignment for the tops of floor slabs is to be (+/-) 3/4-inches, with no more than

1/2-inch deviation within any 10-feet. **The elevation variations measured in the floor surface of the subject property greatly exceeded this threshold. It is our opinion that this condition <u>has been met</u>.**

2. *Foundation displacement or deflection in excess of acceptable variances as defined in ACI 318-95 or the Florida Building Code, which results in settlement-related damage to the primary structural members or primary structural systems that prevents those members or systems from supporting the loads and forces they were designed to support to the extent that stresses in those primary structural members or primary structural systems exceeds one and one-third the nominal strength allowed under the Florida Building Code for new buildings of similar structure, purpose, or location;*

The results of the floor elevation survey indicated a total difference in elevation of 2.5 inches around the perimeter of the building. The floor slab of the building is sloped downward toward the southwest corner of the maintenance office area. **It is our opinion that the cracks in the exterior/perimeter CMU walls of the structure did not reduce the load bearing capacity to which they were originally designed. However, given the total difference in the floor/foundation elevations, it is our opinion that this condition <u>has been met</u>.**

3. *Damage that results in listing, leaning, or buckling of the exterior load-bearing walls or other vertical primary structural members to such an extent that a plumb line passing through the center of gravity does not fall inside the middle one-third of the base as defined within the Florida Building Code;*

We recorded a total of thirty (30) wall plumb data points, none of these points exceeded the allowable tolerance for wall verticality. We did not observe evidence of listing, leaning or tilting of the perimeter walls. **As such, it is our opinion that listing, leaning or buckling of the exterior load bearing walls has not occurred as defined by the applicable Florida statutes. It is our opinion that this condition <u>has not been met</u>.**

4. *Damage that results in the building, or any portion of the building containing primary structural members or primary structural systems, being significantly likely to imminently collapse because of the movement or instability of the ground within the influence zone of the supporting ground within the sheer plane necessary for the purpose of supporting such building as defined within the Florida Building Code; or*

We did not observe any obvious ground subsidence around the immediate perimeter of the building to confirm ongoing structural movement. We did however observe interior damages consistent with the differential settlement of a portion of the interior floor slab, which was manifested as the documented gaps between the interior walls and ceilings in central portions of the building during our initial investigation.

The results of the SPT boring B-2 revealed that the upper 30 feet of the soil profile exhibited an unstable soil profile which was potentially unstable and indicated conditions capable of reducing the ability to support the overlying load(s) of the building foundations. **It is our opinion that this condition <u>has been met</u>.**

5. *Damage occurring on or after October 15, 2005, that qualifies as "substantial structural damage" as defined in the Florida Building Code.*

We believe that the vertical elements of the lateral-force resisting system have not been damaged to the extent that the load carrying capacity has been reduced by more than 20 percent; the vertical load carrying components supporting more than 30 percent of the floor or roof area have been reduced to below 75 percent of the Florida Building Code. It is our opinion that this condition <u>has not been met</u>.

<u>SPT Sinkhole Activity Analysis</u>

A review of the SPT boring logs B-1 and B-3 reveals a relatively stable soil profile underlying the subject property with no significant declines in relative density or increases in porosity observed within the entirety of both boring profiles. As such, no evidence of active soil raveling or excessive dissolution of the upper portion of the bedrock was observed in either boring.

Conversely, the results of SPT boring B-2 exhibited detrimental geologic conditions within the soil profile which were consistent with sinkhole related activity. In particular we noted a significant decline in the relative density culminating in weight-of-rod/hammer conditions (from 28.5 to 30 feet below grade) at depth within the soil profile and above the upper portion of the carbonate bedrock formation. Weight-of-rod conditions indicate that the sampling tools advanced under the static

weight of drill rods, while weight-of-hammer conditions require the additional weight of the sampling hammer. Furthermore, direct evidence of a significant increase in soil porosity as evidenced by the complete loss of drilling fluid circulation were observed to closely correspond to the weight-of-hammer conditions at depth within the soil profile and overlying the carbonate bedrock formation which provided direct evidence of zones of active soil raveling consistent with sinkhole related activity.

Over time, we would have expected consolidation of the deeper soils underlying the groundwater table to have naturally occurred. However, very soft/loose soils were encountered at depth within the soil profile and above the upper surface of the carbonate bedrock formation, indicating that they may be raveling downward into voids and/or fractures within the carbonate bedrock formation. It is our opinion that the subsurface soil strata subsided due to the downward migration of soils into cracks, fissures, and/or voids within the limestone formation underlying the site as a result of solutioning. **Therefore, it is our opinion that evidence consistent with sinkhole related activity was observed in the results of SPT boring B-2 and was a contributing cause of damage to the structure within a reasonable professional probability.**

VI. Conclusions

1. It is our opinion that a portion of the differential settlement of the Alachua Library Maintenance Building was due to the "natural long-term settlement" of the structure.

2. It is our opinion that a portion of the damage to the Alachua Library Maintenance Building was caused by "natural environmental conditions".

3. It is our opinion that the laterally oriented cracking damages observed in the concrete flatwork at the subject property were caused by shrinkage of the concrete as is cured from a plastic to a hardened element and have weathered over time.

4. To the best of our knowledge and belief, the analysis conducted was of sufficient scope to **conclude**, within a reasonable professional probability, that "Structural Damage" **has occurred** to the property in accordance with Florida State Statute 627.707, Minimum Standards for Investigation of Sinkhole Claims by Insurers; non-renewals and the insurance policy definition of "structural damage".

5. To the best of our knowledge and belief, the analysis conducted was of sufficient scope to **conclude** within a reasonable professional probability, that sinkhole related activity cannot be eliminated as a contributing cause of damage to the structure in accordance with Florida State Statute 627.707, Minimum Standards for Investigation of Sinkhole Claims by Insurers; non-renewals.

VII. Recommendations

Considering the soil strata identified by the borings and the current distress noted at the property, we recommend improvement of subsurface soils by a compaction-grouting program around the entire perimeter of the building to remediate the effects of sinkhole related activity. It is our opinion that a minimum of twenty-four (24) primary grout injection locations will be needed around the perimeter of the structure will be needed to stabilize the property in accordance with the **Proposed Grout Point Location Plan** provided in Appendix B. Additional grout points may be specified by the engineer if high grout volumes are injected during the proposed grouting program.

Considering the soil strata identified by the borings and the distress noted at the property, we recommend that the perimeter foundations of the building be augmented with steel underpins to mitigate the building distress caused by the settlement of the footings due to differential settlements associated with sinkhole related activity. It is our opinion that approximately thirty-one (31) steel underpins will be required to adequately support the perimeter load bearing walls of the building in accordance with the **Underpin Location Plan, Underpin Details** and **Underpin Notes** in Appendix B. Additional, secondary underpins may be necessary if unforeseen conditions are encountered during construction. Due to the amount of settlement of the building and the significant likelihood of damaging the structure, we suggest that steel underpins be utilized to stabilize and provide supplemental support to the building foundations and may not be capable of re-leveling the building to within cosmetic tolerances. The interior floor slab and interior partition walls of the building may be raised to near pre-distressed elevations with interior floor underpins. We anticipate that forty one (41) interior floor slab underpins would be required to stabilize and partially re-level the floor slab. We anticipate that the floor slab may not be able to be re-leveled to within cosmetic tolerances without creating additional damage to the floor, and as such, will likely require an overlay after the work is complete as part of the cosmetic repairs. Additionally, we anticipate the need for shallow polyurethane grouting to be injected below the lifted

floor slab to stabilize the shallow soils and in-fill the gap between the floor slab and the soil surface.

COMPACTION GROUTING

All compaction-grouting operations shall comply with the **Technical Specifications for Compaction Grouting** provided in Appendix H. The following statements are intended to provide general information and an overview regarding the intended compaction-grouting program. Should it be interpreted that any of the following general information conflicts with the Technical Specifications; the Technical Specifications shall govern the process.

The grouting operations shall extend to sound bedrock, with grout injection locations spaced as necessary to stabilize subsurface soils. The intent of the grouting is to fill cracks, fissures and/or openings in the soils and limestone and to densify loose soils. After deeper conditions are stabilized, grout should be pumped in lifts upward, to near the ground surface to help densify loose zones above the limestone base.

Injection of a moderate slump (4" to 6") cement-based grout should be performed around the entire perimeter of the structure. Some of the grout injection points should be angled to direct the flow of grout beneath the structure. The grout injection points located near the perimeter corners of the structure should be placed vertically. The program should be sufficient in scope to provide adequate grout coverage beneath the structure and to approximately 5 feet beyond the footing perimeter.

At a grout depth of 20 feet below grade, we recommend that the grout pump speed be greatly reduced to deliver the grout at a controlled rate to densify the shallow soil profile. The grout pipe should be withdrawn at 1-foot intervals and be terminated at approximately 10 feet below grade. **The intent of this method of grouting is to permeate and densify the shallow soils with grout material, injected under comparatively low pressures and precisely controlled conditions.**

The contractor selected to complete this work should have a minimum of 5 years experience with projects of similar size and complexity. We would suggest that they submit to you for review a list of at least three projects, with contact names and current phone numbers that they have completed within the last three years.

Please be aware that the grouting program is designed and intended to improve the soil profile, which has been affected by sinkhole related activity. The grouting program is not intended for the treatment or remediation of other detrimental soil conditions that may or may not exist at the site such as buried debris, organic material, expansive (shrink/swell) clays or improper foundation design problems.

STRUCTURAL UNDERPINNING

The underpinning operations should extend to competent bedrock with the pin-pile locations spaced as necessary to provide adequate support to the structure. The actual spacing of pin-piles will depend to some extent on contractor means and methods, and on in-situ conditions, but in no instance should they be more than 6-feet to 8-feet on center per the attached Underpin Location Plan, Details and Notes.

The contractor shall have a minimum of 5-years' experience with projects of similar size and complexity. We would suggest that they submit to you for review a list of at least three projects, with contact names and current phone numbers that they have completed within the last three years.

Please be aware that the underpinning program is designed and intended to stabilize and re-lift the perimeter foundations, resulting from the soil subsidence related to the aforementioned sinkhole activity. The underpinning program is not intended for the treatment or remediation of other detrimental soil conditions that may or may not exist at the site nor does it address improper foundation design problems.

POLYURETHANE GROUT INJECTION

The polyurethane grout should be installed under low pressure to fill voids that exist between the floor slab and soil surface. The polyurethane material shall be injected through 1/2-inch holes (drilled through the slab) on approximate 4 foot centers

across the entire interior floor slab or as directed by the engineer. As the polyurethane grout chemically reacts, it expands and hardens, thus exerting the force necessary to lift the slab. The amount of rise must be controlled by using the pumping unit to regulate the rate and volume of injected material into a given area. During the construction process, the slab shall be continuously monitored by survey leveling equipment to monitor and control the amount of lift of the slab. Upon completion, the excessive polyurethane material shall be removed from the area and the hole sealed with a non-shrink cementations grout.

FIELD MONITORING

We suggest that Westcoast Forensic Consulting Group, Inc. (or another engineering firm experienced with this type of foundation improvement program) be retained to field monitor the project for compliance with the project specifications, verify the contractors grout volumes, grouting pressures, and field procedures including their monitoring of the potential uplift of the surrounding ground surface and property during the compaction-grouting program. We also recommend that Westcoast Forensic Consulting Group, Inc. be retained to work closely with the contractor during the underpinning and polyurethane grout injection programs.

COSMETIC BUILDING REPAIRS

It is our opinion that cosmetic building repairs should not commence before a minimum waiting period of 60 days upon completion of the foundation improvement work to allow the structure time to re-settle and re-distribute internal stresses. Any noteworthy, new, or reoccurring cracking or movement should be brought to our attention, prior to the commencement of any building repairs. Repairs should be completed by a licensed contractor who is qualified to perform all cosmetic repairs.

IX. Compliance with Florida Statute 627.707

In accordance with Florida State Statute 627.707, this report was prepared under the direction and supervisions of a Professional Engineer licensed in the State of Florida, who has experience and expertise in the identification of sinkhole activity as well as other potential causes of structural damage. The recommendations provided herein were prepared under the direction and supervision of a Professional Engineer licensed in the State of Florida who is qualified by experience and expertise to provide recommendations regarding necessary building stabilization and foundation repairs.

X. Limitations

The purpose of this report is to address the current observed conditions at the structure with respect to "structural damage" as defined in Florida State Statutes 627.706. This report does not specifically address construction deficiencies of the structure that may or not have been present at the time of installation, nor does it address any possible building code violations. We presume that the structure was inspected as part of the construction process and approved prior to the county building department issuing a Certificate of Occupancy.

Soil samples collected during our investigation will be disposed of after a period of 90 days after the report issue date, unless we are notified in writing by the client to preserve the samples for an extended period of time.

The geotechnical and structural data presented in this report is specific to this site at the time of testing. It should be understood that geologic and structural conditions can change over time due to numerous environmental, time based and man-made factors. We recommend that the engineer be contacted and informed of changes prior to relying on potentially outdated information. Please be aware that the detection and stabilization of geologic problems is not an exact science. We have utilized our past experience, non-destructive testing, sound judgment and proven scientific methods in the development of our data analysis, conclusions and recommendations for this project. The recommended method of subsurface improvement will reduce the potential for any adverse effects of this unique geologic condition. However, we cannot guarantee that minor differential subsidence will not occur over the life of the structure.

The surveys and testing performed are intended to collect pertinent data by non-destructive means and methods and observations to establish the integrity of the building systems and components. While due care has been exercised in the performance of these measurements and observations, as well as their interpretation, we can make no representations, warranties, or guarantees with respect to latent or concealed conditions that may exist, and/or which may be beyond the limits of detection with the methodologies used. We reserve the right to evaluate any new information that becomes available to determine the impact the new information has on our opinions, and to revise our opinions as necessary, based on the discovery of the new information. If conclusions or recommendations are made by others based on the data presented, those conclusions and recommendations are not the responsibilities of Westcoast Forensic Consulting Group, Inc.

This report was prepared for the exclusive use of Florida League of Cities, Incorporated and Synergy Recovery Resources, LLC and not intended for any other purpose.

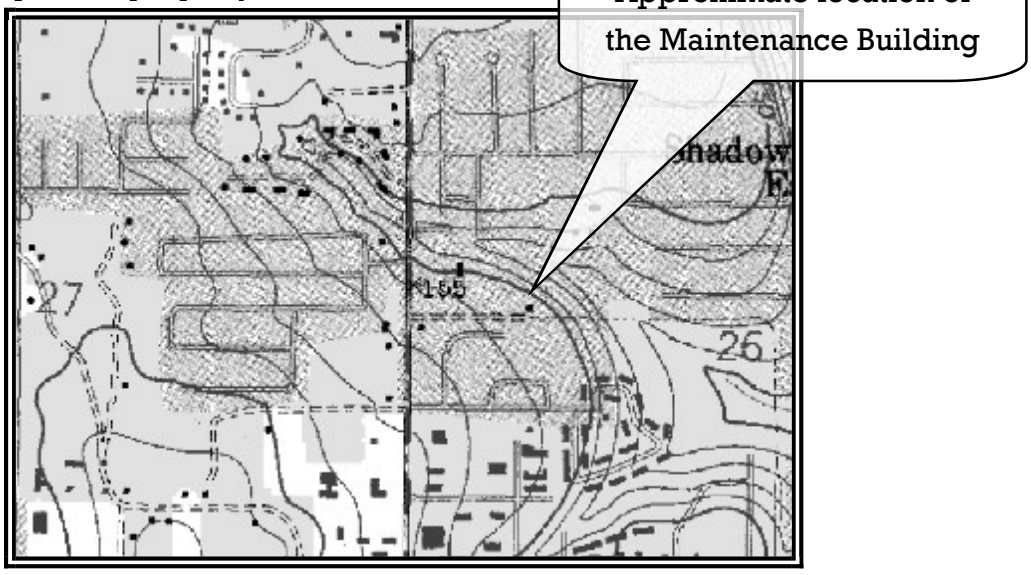
XI. Appendix A: Photographs

Photograph 1

Front (west) elevation of the Alachua Library Maintenance Building.

Photograph 2

Topographic map of the property.



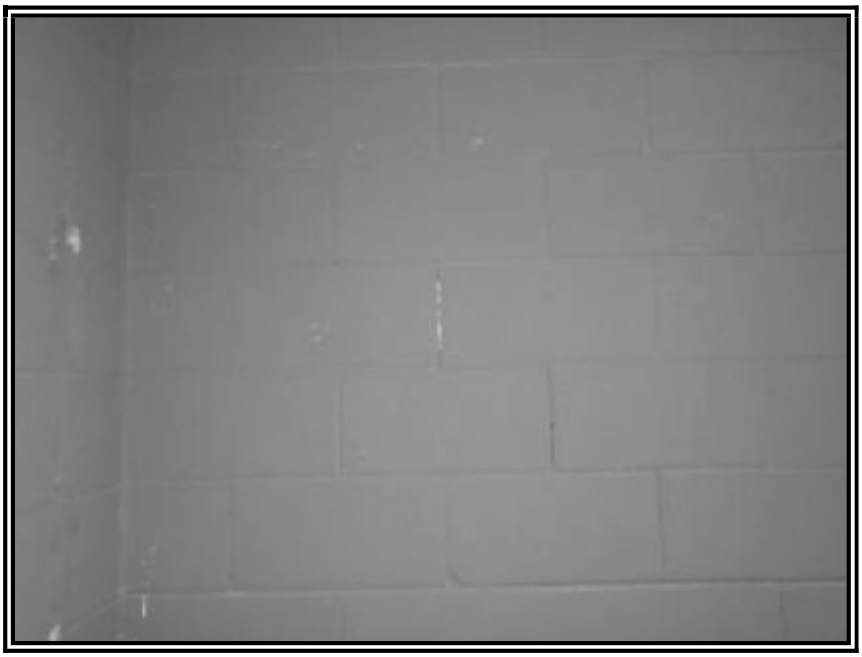
Photograph 3
View of damage in the west wall.

Photograph 4
View of damage in the south wall.

Photograph 5
View of damage in the east wall.

Photograph 6
View of damage in the north wall.

Photograph 7
View of interior CMU damage at the southwest corner looking east.



Photograph 8
*View of interior floor damage **[REASON FOR THE CLAIM]**.*

Photograph 9
View of interior floor damage ***[REASON FOR THE CLAIM]****.*

Photograph 10
View of interior floor damage ***[REASON FOR THE CLAIM]****.*

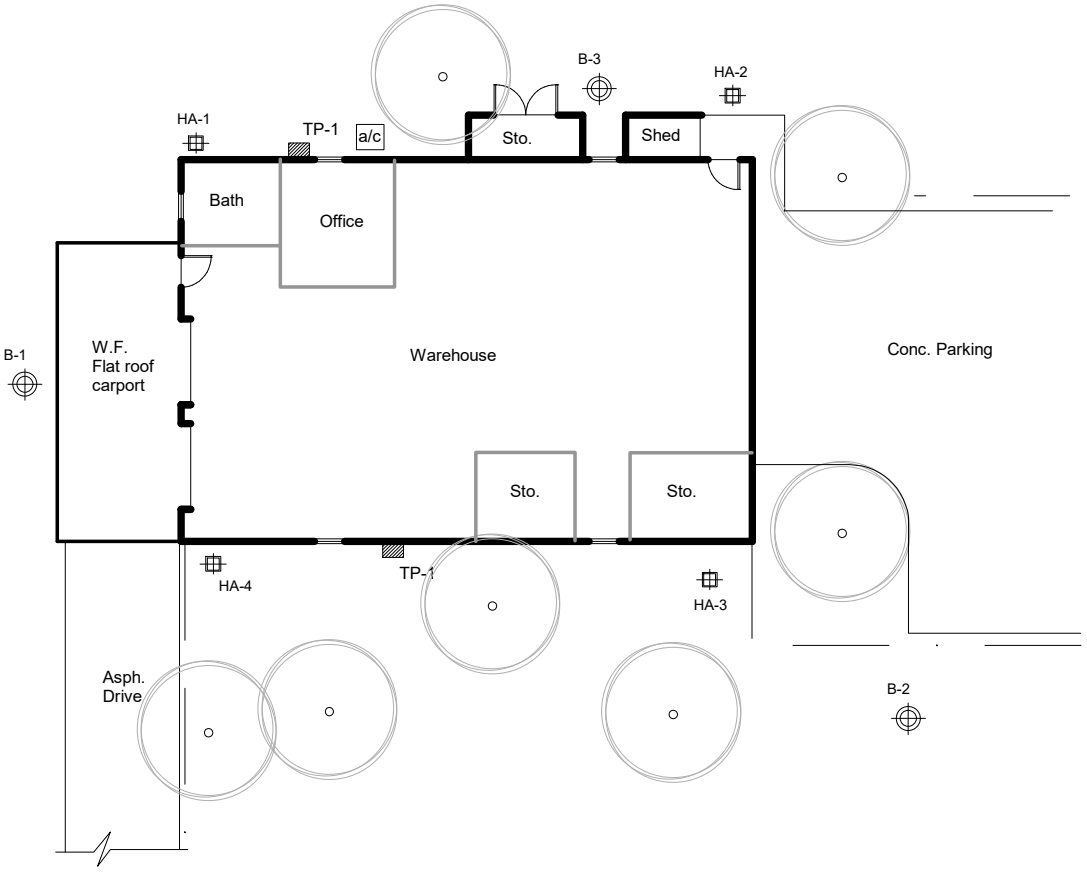
Photograph 11
View of damages in maintenance office ***[REASON FOR THE CLAIM]****.*

Photograph 12
View of damages in maintenance office ***[REASON FOR THE CLAIM]****.*

Photograph 13
View of damages in maintenance office ***[REASON FOR THE CLAIM]****.*

XII. Appendix B: Maps & Drawings

- **SCHEMATIC SITE PLAN**
- **RELATIVE FLOOR ELEVATION SKETCH**
- **WALL PLUMB SURVEY & DATA**
- **PROPOSED GROUT POINT PLAN**
- **PROPOSED UNDERPIN LOCATION PLAN, DETAILS, NOTES**



Notes:

1. This plan is not drawn to scale, and should not be relied upon to calculate quantities.
2. Hand Auger Boring Location
3. Standard Penetration Test Boring Location
4. Test Pit Excavation Location.

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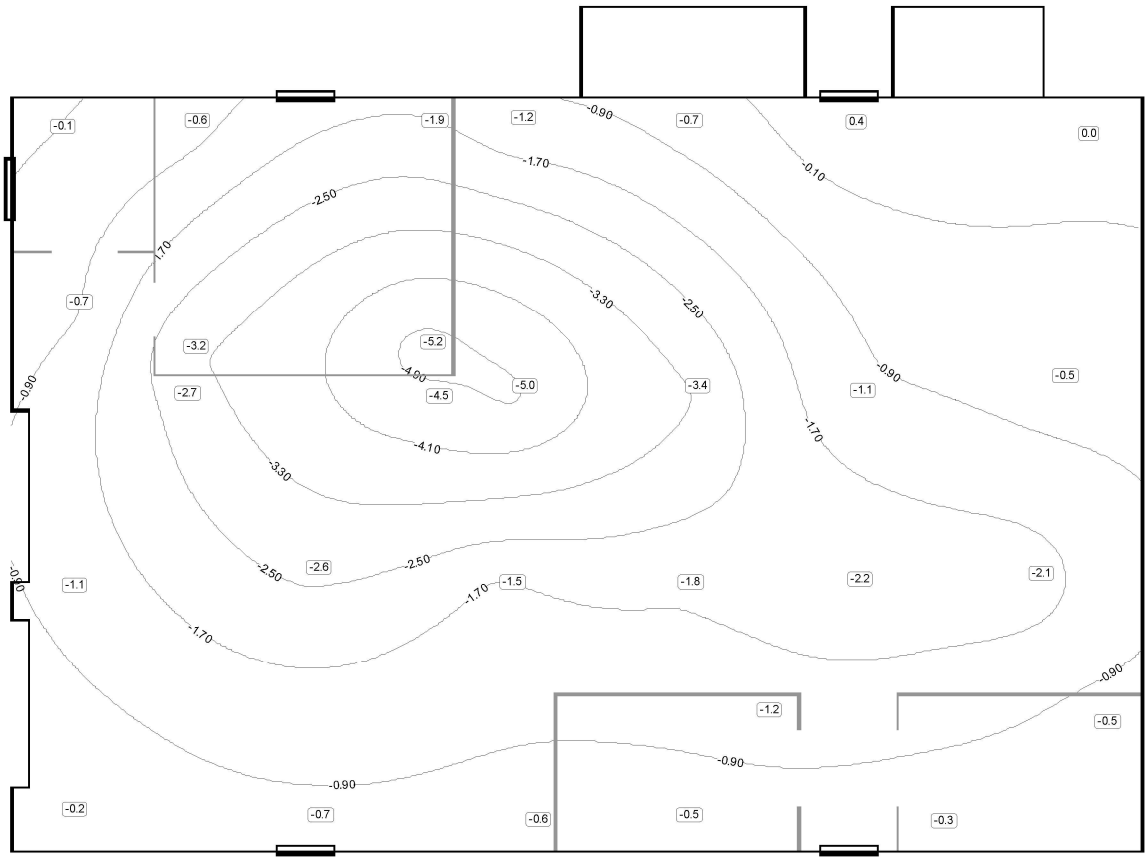
TITLE:

Schematic Site Plan

Alachua Library Maintenance Building
3145 NW 43rd Street
Gainesville, Florida

Drawn By:	Reviewed By:
scb	acb
Project No:	Date:
20-106-54	03/18/20
Scale:	Dwg. No:
nts	1 of 1



LEGEND

0.0 Denotes spot elevation taken in field in decimal inches

0.5 Denotes contour interpreted from field data and may not reflect actual conditions

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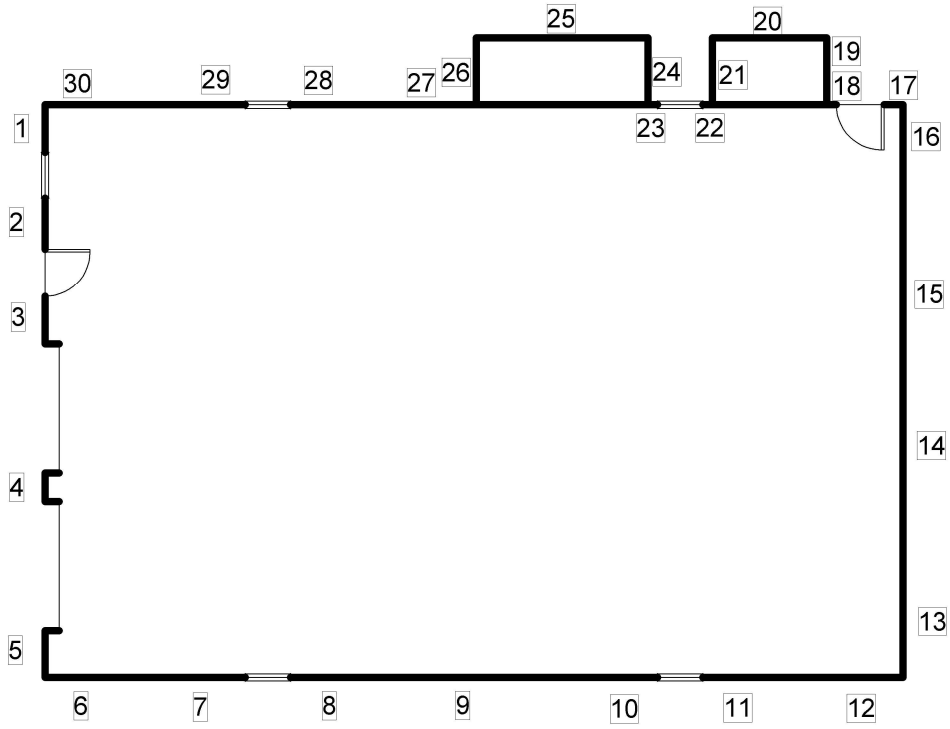
TITLE: **Relative Floor Elevation Sketch**

OWNER: Alachua Library
Gainesville, Florida

Drawn By:	Reviewed By:
pjw	acb
Project No:	Date:
20-106-54	3/18/20
Scale:	Dwg. No:
nts	1 of 1



Notes:

1. This plan is not drawn to scale, and should not be relied upon to calculate quantities.
2. # Location of data point
3. Area that exceeds allowable limits of plumb

Wall Thickness (in)	Allowable Offset (in)	8' Wall Angle (deg)	10' Wall Angle (deg)	12' Wall Angle (deg)
4"	0.67"	89.6	89.68	89.74
6"	1.00"	89.41	89.53	89.6
8"	1.33"	89.21	89.37	89.47
12"	2.00"	88.81	89.05	89.2

NOTE: Allowable wall angle taken from the horizontal axis in decimal degrees.

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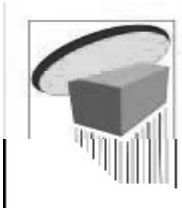
TITLE:
Wall Plumb Survey Sketch

Alachua Library Maintenance Building
3145 NW 43rd Street
Gainesville, Florida

Drawn By:	Reviewed By:
scb	acb
Project No:	Date:
20-106-54	03/18/20
Scale:	Dwg. No:
nts	1 of 1



Westcoast Forensic Consulting Group, Inc.

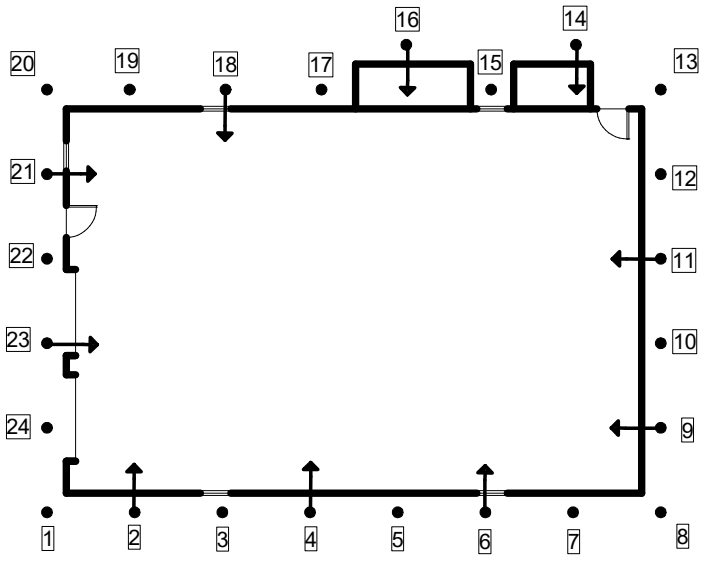
Wall Plumb Survey Data

Owner: Alachua Library Maintenance Building (Gainesville, Florida)
Claim No (ASI): GC2020096656
WFCG File No: 20-106-54

Data Point	Wall Height (feet)	Nominal Wall Thickness (inches)	Maximum Allowable Angle (degrees)	Actual Angle (degrees)	PASS/FAIL
1	10	8	89.37	89.80	PASS
2	10	8	89.37	90.00	PASS
3	10	8	89.37	90.00	PASS
4	10	8	89.37	90.00	PASS
5	10	8	89.37	90.00	PASS
6	10	8	89.37	89.70	PASS
7	10	8	89.37	89.60	PASS
8	10	8	89.37	89.90	PASS
9	10	8	89.37	89.90	PASS
10	10	8	89.37	90.00	PASS
11	10	8	89.37	90.00	PASS
12	10	8	89.37	89.90	PASS
13	10	8	89.37	90.00	PASS
14	10	8	89.37	89.90	PASS
15	10	8	89.37	90.00	PASS
16	10	8	89.37	89.90	PASS
17	10	8	89.37	90.00	PASS
18	10	8	89.37	90.00	PASS
19	10	8	89.37	89.60	PASS
20	10	8	89.37	89.70	PASS
21	10	8	89.37	89.70	PASS
22	10	8	89.37	89.70	PASS
23	10	8	89.37	89.80	PASS
24	10	8	89.37	89.70	PASS
25	10	8	89.37	89.80	PASS
26	10	8	89.37	89.70	PASS
27	10	8	89.37	89.90	PASS
28	10	8	89.37	89.90	PASS
29	10	8	89.37	89.80	PASS
30	10	8	89.37	90.00	PASS

Wall Thickness (in)	Allowable Offset (in)	8' Wall Angle (deg)	10' Wall Angle (deg)	12' Wall Angle (deg)
4"	0.67"	89.6	89.68	89.74
6"	1.00"	89.41	89.53	89.6
8"	1.33"	89.21	89.37	89.47
12"	2.00"	88.81	89.05	89.2

Note: Allowable wall angle taken from horizontal axis in decimal degrees.



Notes:

1. This plan is not drawn to scale, and should not be relied upon to calculate quantities.
2. Grout injection point locations are approximate and may require field adjustment at the direction of the project engineer from WFCG.
3. ● Proposed vertical Grout Injection Point Location
4. ●⟶ Proposed Angled Grout Injection Point Location

Grout Program Summary Data

# Grout Injection Points:	24	Max. Grout Pt. Space (House):	10'	Grout Slump:	4" to 6" @ delivery point
Est. Average Depth:	80'	Avg. Grt. Pt. Spacing (Pool):	n/a	Min. Grout Strength:	300 psi @ 72 hours
Est. Grout Volume:	250 cy	Max. Grout/Point/Day:	10 cy	Grout Method:	Stage Up

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Brooksville, FL 34602
(813) 838-3842 - Phone
(866) 642-0046 - Fax
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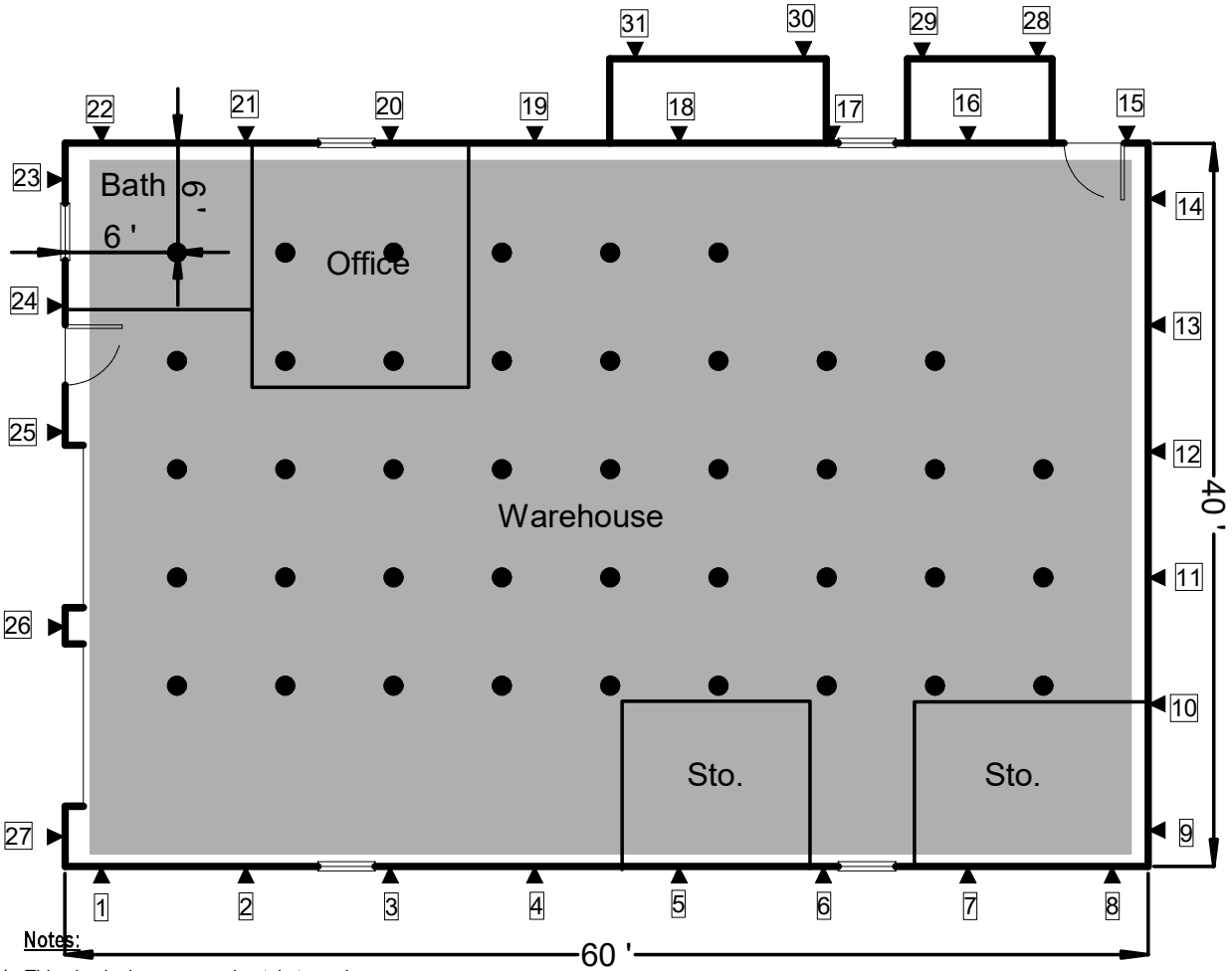
TITLE: **Proposed Grout Point Location Plan**

Alachua Library Maintenance Building
3145 NW 43rd Street
Gainesville, Florida

Drawn By:	Reviewed By:
scb	acb
Project No:	Date:
20-106-54	03/18/20
Scale:	Dwg. No:
nts	1 of 1



Notes:

1. This plan is drawn approximately to scale, however, copies of this drawing should not be relied upon to calculate quantities.
2. Underpin locations are approximate, and may require adjustment in the field, as approved by the engineer.
3. ▲ Proposed Exterior Underpin Location
4. ● Proposed Interior Underpin Location
5. Proposed Area of shallow Polyurethane Grout injection @ 4' +/- o.c. for void fill.

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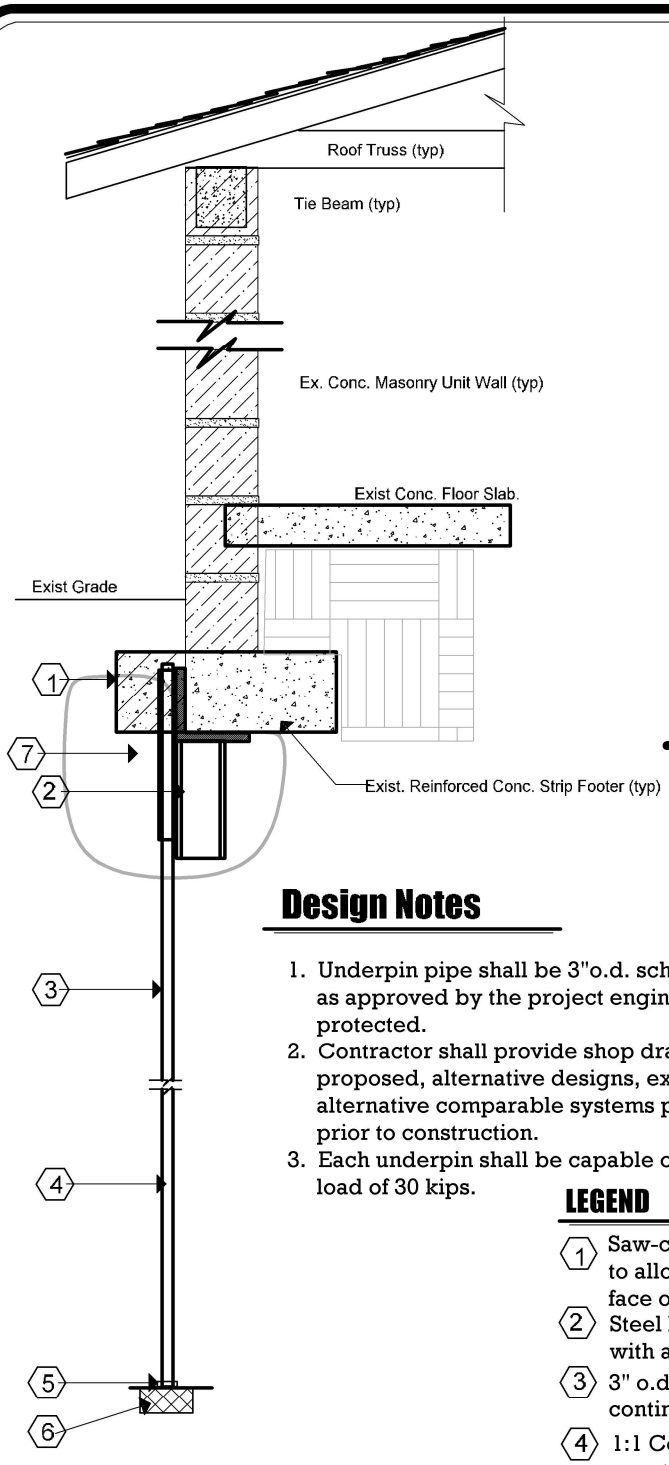
TITLE:
Underpin Location Plan

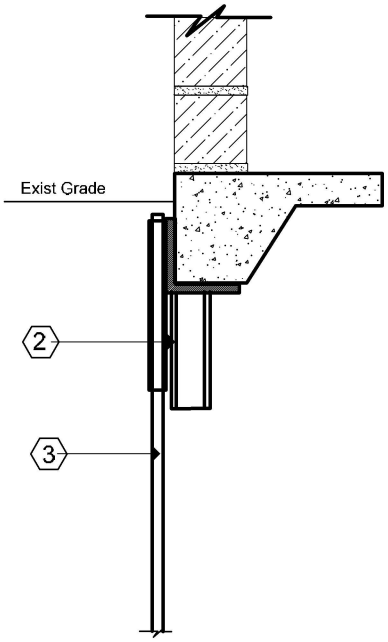
Alachua Library Maintenance Building
3145 NW 43rd Street
Gainesville, Florida

Drawn By:	Reviewed By:
scb	acb
Project No:	Date:
20-106-54	03/18/20
Scale:	Dwg. No:
nts	1 of 1



Spread Footing Typ. Section

NTS



Monolithic Footing Typ. Section

NTS

Design Notes

1. Underpin pipe shall be 3"o.d. sch.80 steel pipe, or better as approved by the project engineer, and shall be triple corrosion protected.
2. Contractor shall provide shop drawings of the complete underpin system proposed, alternative designs, exceptions taken to the plans and/or any alternative comparable systems proposed for approval of the engineer prior to construction.
3. Each underpin shall be capable of supporting an axial service load of 30 kips.

LEGEND

1. Saw-cut and remove footer to face of CMU wall face to allow placement of the foundation bracket at the outside face of the foundation stem-wall.
2. Steel Foundation Bracket, seated to the foundation with a 1" thick bed of non-shrink structural grout
3. 3" o.d. (min) interlocking steel pipe sections to form continuous column pier support.
4. 1:1 Cement/Water Grout, Installed per tremie method grouted to surface
5. Steel Drive Shoe
6. Competent Bearing Material / Rock Strata
7. Concrete backfill trench & bracket

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(866) 642-0046 - Fax
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TITLE: **Underpin Details**

Alachua Library Maintenance Building
3145 NW 43rd Street
Gainesville, Florida

Drawn By:	Reviewed By:
scb	acb
Project No:	Date:
20-106-54	03/18/20
Scale:	Dwg. No:
nts	1 of 1

Installation

1. Excavate a 2'x2' area sufficient to facilitate the installation of the foundation bracket (may require concrete slab removal).

2. Install foundation bracket and hydraulic ram assembly.

3. Each underpin shall be driven to refusal as determined by SPT boring verification as to depth to competent bearing capacity material (ie Limestone).

4. Upon completion of the installation of all specified underpins, the contractor shall lift the foundation to approximately pre-distressed elevations. If it becomes apparent that the lifting process is causing significant distress to the structure, the lifting may be terminated, at the direction of the project engineer.

5. Each underpin shall be welded into place upon completion of the lifting process, per the manufactures recommendations.

6. Grout the interior of each underpin with 1:1 water/cement grout, using a tremie method.

7. Place a minimum of 6 cubic feet of concrete into the excavation to secure underpin bracket to the adjacent footer, prior to backfilling the excavation.

8. Backfill the underpin excavation to grade.

Shop Drawings

1. All shop drawings shall be submitted to the project engineer prior to the commencement of work. This shall include dimensional drawings and specifications for the foundation bracket and underpin pipe materials.

2. A letter of certification must accompany the shop drawings stating that the system design capacities, material properties, and service load capacities. All elements of the underpinning system proposed by the contractor shall meet the minimum load requirements specified in these plans.

3. Any deviations from the planned underpin locations shall be approved by the project engineer, prior to construction.

Design Considerations

1. The design of this underpinning system assumes the original structure was constructed in accordance with the Standard Building Code in force at the time of construction.

2. The design of the underpinning system is intended to stabilize the portion of the structure supported by the underpins and does not guarantee differential settlements of other portions of the structure not supported by underpins.

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(866) 642-0046 - Fax
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TITLE: **Underpin Notes**

Alachua Library Maintenance Building
3145 NW 43rd Street
Gainesville, Florida

Drawn By:	Reviewed By:
scb	acb
Project No:	Date:
20-106-54	03/18/20
Scale:	Dwg. No:
nts	1 of 1

XIII. Appendix C: Boring Logs

- **HAND AUGER BORING LOGS**
- **SPT BORING LOGS**

Boring No: HA-1

Depth (in)	Symbol	LITHOLOGIC DESCRIPTION Soil descrpition based on ASTM D2488-00 Visual-Manual Procedure	USCS	DCP; ["N*"]
0		TOPSOIL/GRASS		
6		VERY DARK GRAYISH BROWN [10YR 3/2] SLIGHTLY SILTY FINE SAND	SM	
12		VERY DARK GRAYISH BROWN [10YR 3/2] SLIGHTLY SILTY FINE SAND WITH ROOTS	SM	
18				
24				

"N*"= Pseudo N from DCP readings

Notes:
Boring Terminated at 24" below grade
Water table not discernible

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Brooksville, FL 34602
tel: (813) 838-3842

Hand Auger Boring Log

Client
ALACHUA LIBRARY

Logged By	Rev By:
SCB	ACB
Project No.	**Date**
20-106-54	3/12/20
	Sheet

Boring No: HA-2

Depth (in)	Symbol	LITHOLOGIC DESCRIPTION Soil descrpition based on ASTM D2488-00 Visual-Manual Procedure	USCS	DCP; ["N*"]
0		TOPSOIL/GRASS		
6		DARK GRAYISH BROWN [10YR 4/2] SLIGHTLY SILTY FINE SAND	SM	
12		DARK GRAYISH BROWN [10YR 4/2] SLIGHTLY SILTY FINE SAND	SM	
24		BROWN [10YR 4/3] SLIGHTLY SILTY FINE SAND	SM	
36		BROWN [10YR 4/3] SLIGHTLY CLAYEY FINE SAND	SC	
48		YELLOWISH BRON [10YR 5/4] SLIGHTLY CLAYEY FINE SAND	SC	
54				

"N*"= Pseudo N from DCP readings

Notes:
Boring Terminated at 54" below grade
Water table not discernible

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www.westcoastforensic.com

Hand Auger Boring Log

Client
ALACHUA LIBRARY
GAINESVILLE, FLORIDA

Logged By	Rev By:
SCB	ACB
Project No. 20-106-54	**Date** 3/12/20
	Sheet 1 OF 1

Boring No: HA-3

Depth (in)	Symbol	LITHOLOGIC DESCRIPTION Soil descrpition based on ASTM D2488-00 Visual-Manual Procedure	USCS	DCP; ["N*"]
0		TOPSOIL/GRASS		
6		VERY DARK GRAYISH BROWN [10YR 3/2] SLIGHTLY SILTY FINE SAND	SM	
12		DARK GRAYISH BROWN [10YR 4/2] SLIGHTLY SILTY FINE SAND WITH ROOTS	SM	
18				
24				

"N*"= Pseudo N from DCP readings

Notes:
Boring Terminated at 24" below grade
Water table not discernible

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tel: (813) 838-3842

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Hand Auger Boring Log

Client
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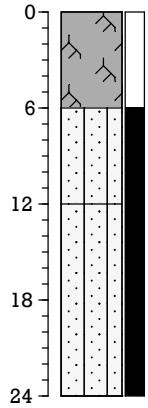
Logged By	Rev By:
SCB	ACB
Project No. 20-106-54	**Date** 3/12/20
	Sheet 1 OF 1

Boring No: HA-4

Depth (in)	Symbol	LITHOLOGIC DESCRIPTION Soil descrpition based on ASTM D2488-00 Visual-Manual Procedure	USCS	DCP; ["N*"]
0		TOPSOIL/GRASS		
6		VERY DARK GRAYISH BROWN [10YR 3/2] SLIGHTLY SILTY FINE SAND WITH ROOTS	SM	
12		VERY DARK GRAYISH BROWN [10YR 3/2] SLIGHTLY SILTY FINE SAND WITH ROOTS	SM	
18				
24				

"N*"= Pseudo N from DCP readings



Notes:
Boring Terminated at 24" below grade
Water table not discernible

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Hand Auger Boring Log

Client
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Logged By	Rev By:
SCB	ACB
Project No. 20-106-54	**Date** 3/12/20
	Sheet 1 OF 1

SPT Boring No: B-1

Depth (ft)	Symbol	LITHOLOGIC DESCRIPTION	USCS	Blows / 6"	N Value
0		DARK GRAYISH BROWN [10YR 4/2] SILTY FINE SAND WITH ROOTS	SM	HA	HA
		BROWN [10YR 5/3] CLAYEY FINE SAND	SC	HA	HA
5		LOOSE BROWN [10YR 5/3] CLAYEY FINE SAND	SC	2/3/3/5	6
		MEDIUM DENSE GRAY [10YR 5/1] CLAYEY FINE SAND	SC	5/9/11/13	20
		MEDIUM DENSE LIGHT GRAY [10YR 7/1] SILTY FINE SAND	SM	11/13/15/12	28
10		VERY LOOSE LIGHT GRAY [10YR 7/1] SILTY FINE SAND	SM	1/1/1	2
15		VERY LOOSE LIGHT GRAY [10YR 7/1] SILTY FINE SAND	SM	2/2/2	4
20		STIFF LIGHT YELLOWISH BROWN [10YR 6/4] SANDY SILTY CLAY	CL	6/5/4	9
25		LIGHT GREENISH GRAY [GLEY 1 10Y 7/1] SANDY SILTY CLAY	CL	1/2/2	4
30		FIRM LIGHT GREENISH GRAY [GLEY 1 10Y 7/1] CLAYEY SILTS	ML	2/3/3	6
35					

N - Value Curve: 1 — 10 — 100

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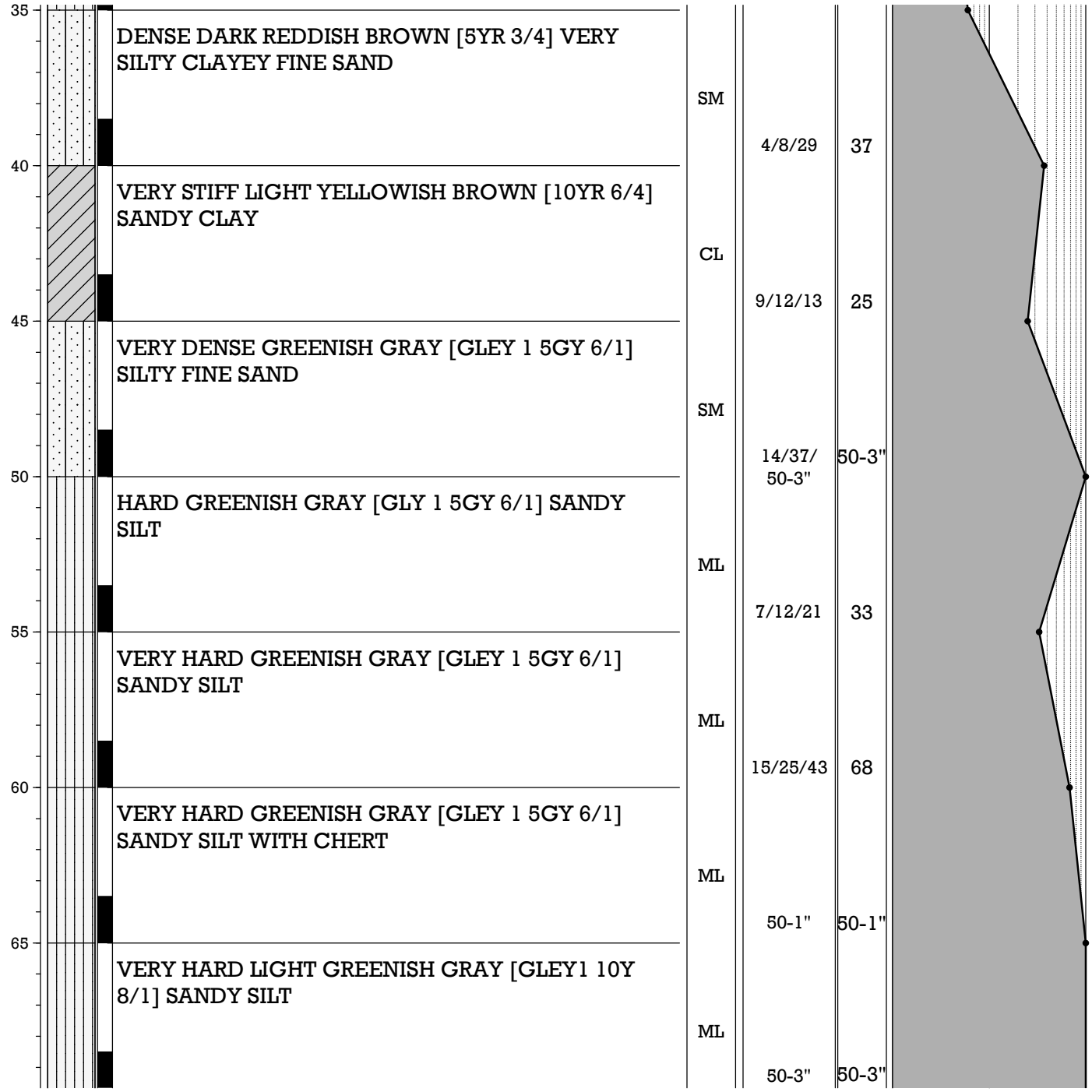

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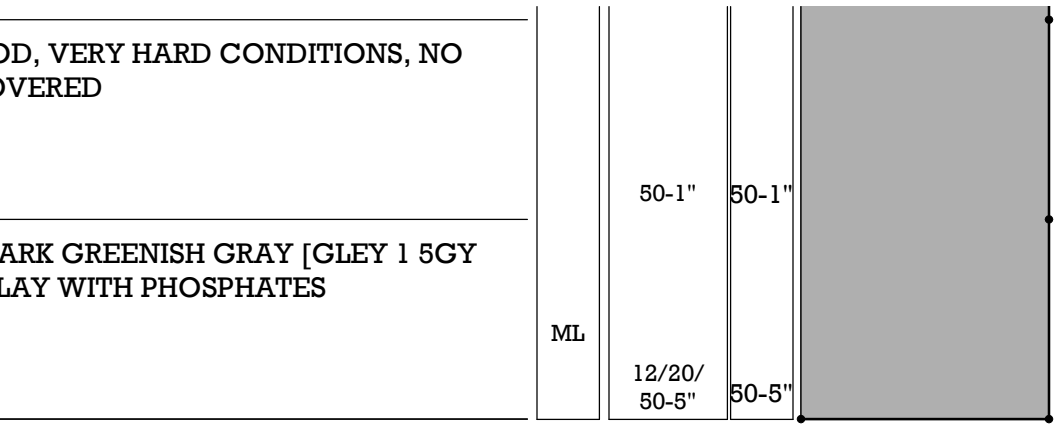
SPT Boring No: B-1

Depth (ft)	Symbol	LITHOLOGIC DESCRIPTION	USCS	Blows / 6"	N Value	N - Value Curve (1 / 10 / 100)
70		BOUNCING ROD, VERY HARD CONDITIONS, NO SAMPLE RECOVERED		50-1"	50-1"	
75		VERY HARD DARK GREENISH GRAY [GLEY 1 5GY 5/1] SANDY CLAY WITH PHOSPHATES	ML	12/20/ 50-5"	50-5"	
80						



NOTES:
Boring terminated at 80'
Ground water table not discernible
No loss of drilling fluid circulation
Borehole sealed with bentonite chips

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SPT Boring No: B-2

Depth (ft)	LITHOLOGIC DESCRIPTION	USCS	Blows / 6"	N Value
0	DARK GRAYISH BROWN [10YR 4/2] SILTY FINE SAND	SM	HA	HA
	DARK GRAYISH BROWN [10YR 4/2] DEBRIS WITH SILTY FINE SAND	SM	HA	HA
5	VERY LOOSE DARK GRAYISH BROWN [10YR 4/2] SILTY FINE SAND WITH CONCRETE DEBRIS	SM	5/2/1/2	3
	VERY LOOSE DARK GRAYISH BROWN [10YR 4/2] SILTY FINE SAND	SM	2/2/1/2	3
	LOOSE DARK GRAYISH BROWN [10YR 4/2] SILTY FINE SAND WITH DEBRIS	SM	2/2/3/1	5
10	LOOSE VERY PALE BROWN [10YR 7/3] SILTY FINE SAND	SM	3/2/5	7
15	MEDIUM DENSE LIGHT GRAY [10YR 7/2] SILTY FINE SAND	SM	3/13/11	24
20	LOOSE GREENISH GRAY [GLEY 1 10Y 6/1] SILTY CLAYEY FINE SAND	SM-SC	5/4/3	7
25	VERY SOFT GREENISH GRAY [GLEY 1 10Y 6/1] SILTY CLAYEY FINE SAND	ML	WH-1.5'/2	0
30	MEDIUM DENSE YELLOWISH BROWN [10YR 5/4] SILTY FINE SAND	SM	3/5/7	12
35				

N - Value Curve: 1 — 10 — 100

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SPT Boring No: B-2

Depth (ft)	Symbol	LITHOLOGIC DESCRIPTION	USCS	Blows / 6"	N Value	N - Value Curve (1 – 10 – 100)
35		MEDIUM DENSE YELLOWISH BROWN [10YR 5/4] SILTY FINE SAND	SM	6/8/9	17	
40		VERY DENSE LIGHT YELLOWISH BROWN [10YR 6/4] SILTY FINE SAND WITH CEMENTED SAND NODULES	SM	11/34/ 50-5"	50-5"	
45		DENSE LIGHT YELLOWISH BROWN [10YR 6/4] SILTY FINE SAND WITH CEMENTED SAND NODULES	SM	9/14/24	38	
50		VERY HARD DARK GREENISH GRAY [GLEY 1 10Y 4/1] SANDY SILT	ML	15/18/34	52	
55		VERY HARD DARK GREENISH GRAY [GLEY 1 10Y 4/1] SANDY SILT	ML	15/20/30	50	
60		VERY DENSE VERY DARK BROWN [10YR 7/3] CEMENTED SANDS	SM	50-3"	50-3"	
65		BOUNCING ROD, EXTREMELY HARD CONDITIONS, NO SAMPLE RECOVERED		50-0"	50-0"	

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SPT Boring No: B-2

Depth (ft)	Symbol	LITHOLOGIC DESCRIPTION	USCS	Blows / 6"	N Value	N - Value Curve 1 10 100
70						

NOTES:
Boring terminated at 70'
Ground water table not discernible
100% loss of drilling fluid circulation at 10'
100% regain of drilling fluid circulation at 17'
100% loss of drilling fluid circulation at 23.5'
Borehole sealed with bentonite chips

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SPT Boring No: B-3

Depth (ft)	Symbol	LITHOLOGIC DESCRIPTION	USCS	Blows / 6"	N Value	N - Value Curve (1 – 10 – 100)
0		LOOSE DARK GRAYISH BROWN [10YR 4/2] SILTY FINE SAND WITH ROOTS	SM	2/2/2/1	4	
		LOOSE DARK YELLOWISH BROWN [10YR 4/6] SILTY FINE SAND	SM	2/3/2/3	5	
5		LOOSE PALE BROWN [10YR 6/3] SILTY FINE SAND WITH LIMESTONE GRAVEL	SM	3/3/5/4	8	
		MEDIUM DENSE VERY PALE BROWN [10YR 7/3] SILTY FINE SAND	SM	5/6/7//7	1	
		MEDIUM DENSE LIGHT GRAY [10YR 7/2] SILTY FINE SAND	SM	9/8/7/5	15	
10		VERY LOOSE LIGHT GRAY [10YR 7/2] SILTY FINE SAND	SM	2/2/2	4	
15		LOOSE VERY PALE BROWN [10YR 7/3] SILTY FINE SAND	SM	2/2/3	5	
20		LOOSE GREENISH GRAY [GLEY 1 10Y 6/1] CLAYEY FINE SAND	SC	2/3/2	5	
25		VERY LOOSE GREENISH GRAY [GLEY 1 10Y 6/1] CLAYEY FINE SAND	SC	2/1/2	3	
30		LOOSE GREENISH GRAY [GLEY 1 10Y 6/1] CLAYEY FINE SAND	SC	2/3/4	7	
35						

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SPT Boring No: B-3

Depth (ft)	Symbol	LITHOLOGIC DESCRIPTION	USCS	Blows / 6"	N Value
35		STIFF GREENISH GRAY [GLEY 1 10Y 6/1] SANDY SILTS WITH PHOSPHATES	ML	3/3/8	11
40		HARD YELLOWISH BROWN [10YR 5/4] SANDY SILTS	ML	7/14/20	34
45		VERY HARD GREENISH GRAY [GLEY 1 10Y 6/1] SANDY SILTS	ML	13/27/ 50-5"	50-5"
50		HARD GREENISH GRAY [GLEY 1 10Y 6/1] SANDY SILTS	ML	10/14/26	40
55		VERY HARD GREENISH GRAY [GLEY 1 10Y 6/1] SANDY SILTS	ML	24/37/ 50-5"	50-5"
60		BOUNCING ROD, EXTREMELY HARD CONDITIONS, NO SAMPLE RECOVERED		50-0"	50-0"
65					

N - Value Curve: 1 — 10 — 100

NOTES:
Boring terminated at 65'
Ground water table not discernible
No loss of drilling fluid circulation
Borehole sealed with bentonite chips

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XIV. Appendix D: Geophysical Report

RMBAKER LLC
Geology and Geophysics

8600 Oldbridge Lane Orlando, FL 32819
www.rmbaker.com

GEOPHYSICAL EXPLORATION REPORT

FL Geology Business No. GB458

Client: Arthur C. Baker, P.E.
Westcoast Forensic Consulting Engineers, Inc. (WFCG)
26484 Baxter Street
Brooksville, FL 34602

Assignment: Alachua Co. Library Maint. Bldg.
3145 NW 43rd Street
Gainesville, FL

RMBAKER Job No: 20-2166
WFCG Job No: 20-106-54

Scope of Work:

RMBAKER LLC was retained to perform a ground penetrating radar (GPR) exploration at the subject site The purpose of the GPR exploration was to assemble geophysical data that would enable interpretations of subsurface geological or cultural conditions, and to provide a map showing the locations of notable outstanding geophysical features, or anomalies, in support of a geotechnical investigation.

Report Date: 3/10/2020
Field Work Date: 3/2/2020

Exploration Data:

Antenna Frequency (MHz)	Sampling Range (ns)	Velocity (ft/ns)	Maximum Depth (ft)	Maximum Effective Depth (ft)	No. of Transects	Lineal Length of Profiling (ft)
250 MHz/Deep=5	253.5	0.33	41.8	18	24	1465.2
500 MHz/Deep=8	128.1	0.33	21.1	6	6	284.2

Exploration Results:

Most of the GPR dataset was attenuated near a depth of 5-6 feet. Deeper anomalies noted by the 250MHz antenna extended downward to depths near 12-18 feet.

Anomaly: 1 Location: North end of structure, below car port
Description: This was a systematic anomaly pattern composed of a tapered vertical reflection stack, with the deepest parts noted below the western third of the car port. This anomaly did not appear to extend laterally toward anomaly 3.

Anomaly: 2 Location: Southwest of structure, below pavers
Description: This anomaly was a shallow pattern of diffractions and elevated amplitudes found below a surface depression. The anomaly may have indicated buried debris or remnant tree stump(s).

Anomaly: 3 Location: Interior south of office
Description: This was a systematic anomaly pattern similar in appearance to anomaly 1 noted below an area of notable structural settlement and distress. The patterns indicated a vertical stack of reflection energy. The 500MHz antenna indicated the presence of a void and raveled soils in the upper layers. The void may have been as much as 1-2 feet deep below the slab.

Electronic Version

Signed and sealed hardcopy on file

RMBAKER LLC
Robert M. Baker, CPG, PG
Managing Member
FL. Registered Geologist PG2186

Map and imagery attachments included

RMBAKER LLC
Geology and Geophysics

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GEOPHYSICAL EXPLORATION REPORT

FL Geology Business No. GB458

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Brooksville, FL 34602

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3145 NW 43rd Street
Gainesville, FL

RMBAKER Job No: 20-2166
WFCG Job No: 20-106-54

Limitations: While due care has been exercised in the performance of these measurements and observations, in accordance with methodologies utilized by the general practitioner, RMBAKER LLC can make no representations, warranties, or guarantees with respect to latent or concealed conditions that may exist, which may be beyond the detection capabilities of the methodologies used, or that may extend beyond the area and depths surveyed. The analyses and conclusions contained in our report are based on site conditions as they existed at the time of our survey. If, at any time, different subsurface conditions from those interpreted herein are observed to be present, we reserve the right to modify our analyses and conclusions as warranted by the new information.

GPR Methods:

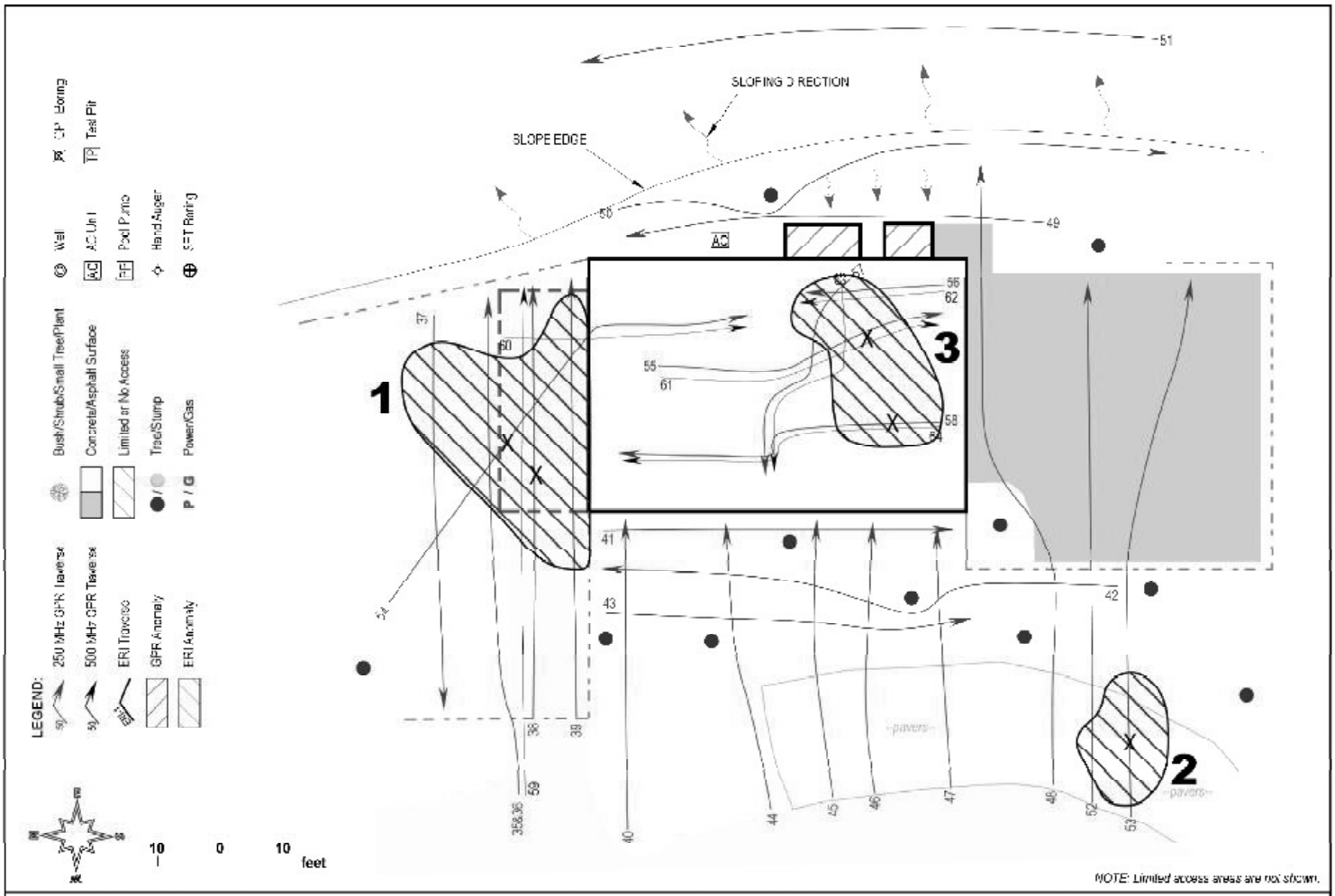
RMBAKER LLC GPR surveys are performed in accordance with ASTM D 6432-99, "Standard Guide for Using the Surface Penetrating Radar Method for Sub-surface Investigation." The GPR survey is designed to explore the shallow subsurface conditions and to identify possible geologic or cultural features. Geologic features may include sediment distinctions such as erosion surfaces, bedding surfaces, soil composition, soil density, soil and rock cementation, soil moisture content and void spaces. Cultural features may include underground utilities, drain fields, buried debris, petroleum contamination, soil backfill, and disturbed soils.

The equipment for a GPR survey consists of an antenna, which both transmits and receives, and a profiling recorder that digitally processes the received signal and produces a graphic display of the data. The antenna transmits short-duration electromagnetic waves into the ground, which are then reflected back to the receiver at different velocities and amplitudes, depending on the nature of the reflector and the surrounding medium. The profiling recorder produces a two dimensional subsurface profile along the traverse taken. RMBAKER LLC utilizes a Ramac X3M manufactured by Mala Geoscience AB. The Ramac X3M is used with a 250 MHz and/or a 500 MHz antenna.

The maximum depth of the GPR survey is limited by the soil and groundwater conditions at the site. The effective depth is recorded as a function of time (i.e. the time for the signal to penetrate into the soil and return to the receiver), and can be converted to an approximate depth measurement using known signal velocities. The signal velocities generally vary depending on the soil type and its moisture content.

With GPR systems, geological artifacts can appear when the ground surface has topographic relief. This occurs because the GPR system follows the contour of the ground surface and imposes that relief upon the subsurface reflections. Our interpretations of the GPR geophysical data take into account the general topographic contours of the ground surface.

Map and imagery attachments included



RMBAKER LLC
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GEOPHYSICAL EXPLORATION

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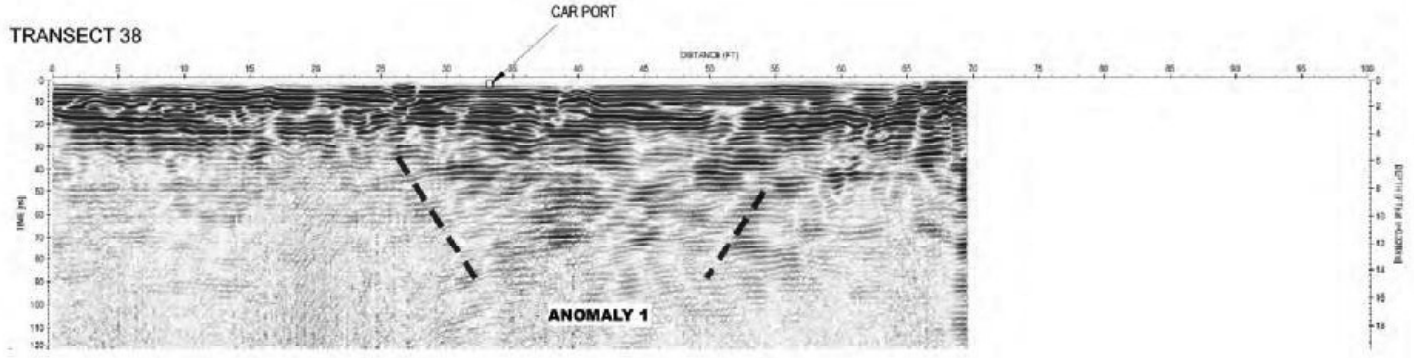

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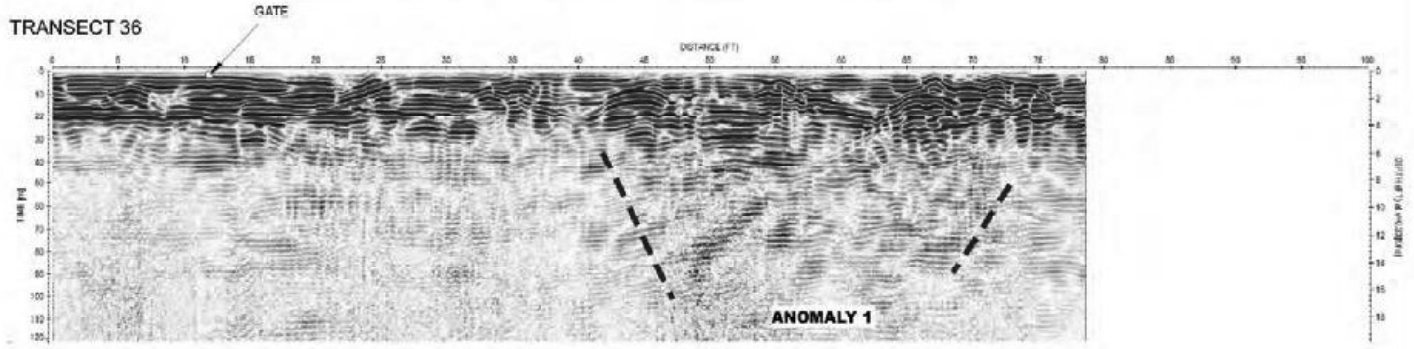

NOTE:
-Drawings are not surveyed, but are based on rough field measurements.
-Scales are approximate, and should be used for general referencing only.
-Profiles are shown in feet starting at the labeled end of the mapped transect.

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DAT_TRANSECT NO_PROCESSING STEP
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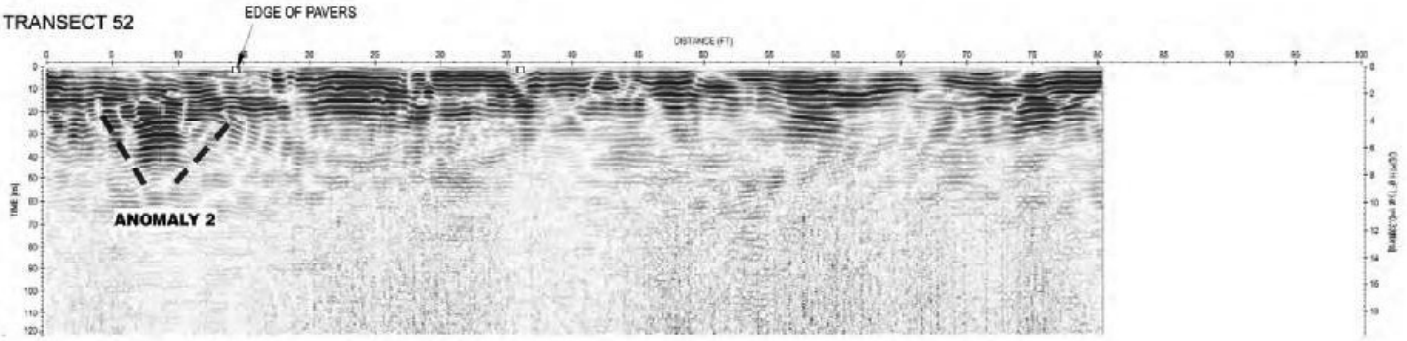

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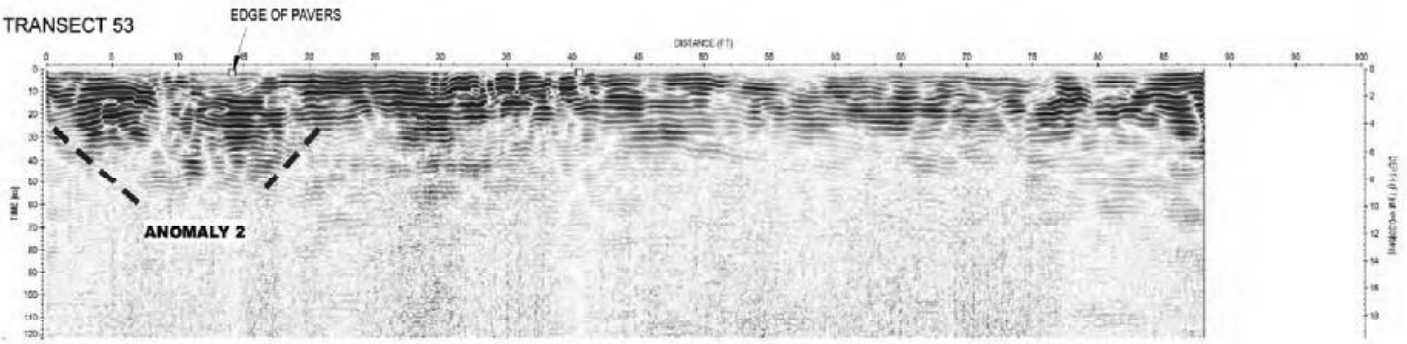

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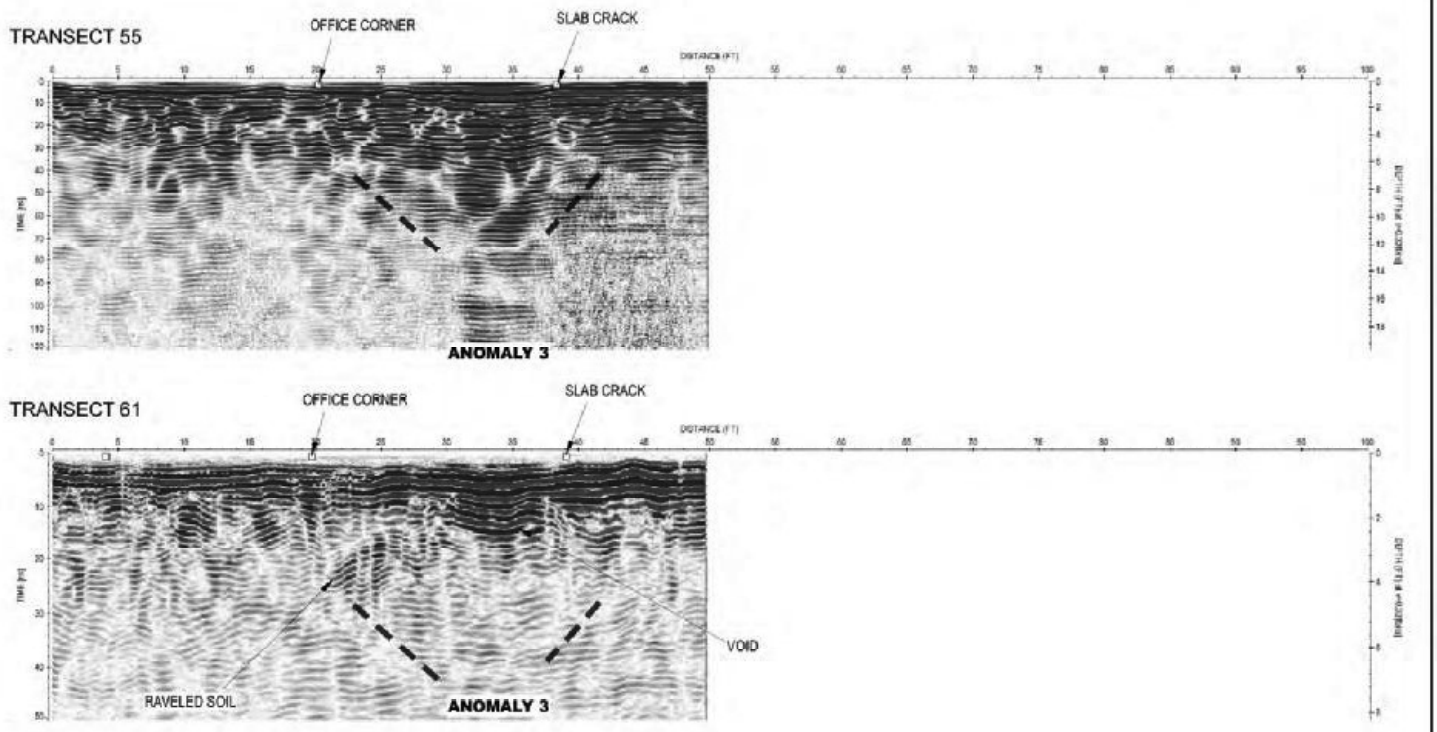

NOTE:
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XV. Appendix E: Methodologies, Standards & References

The following represents technical references & national standards commonly used during a foundation investigation. This is a comprehensive list and not all references are utilized for each individual project.

- ASTM D1586—99 "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils".
- ASTM D2487-00 "Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)".
- ASTM D2488-00 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).
- ASTM D2974-00 "Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils".
- ASTM D4318 "Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils".
- ASTM D 6432-99 "Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation".
- Technidea Pro-2000 Ziplevel elevation measurement system.
- FAS3 HS08; "Standard Test Method for Determining the General Levelness of a Horizontal Surface".
- "Standard Specification for Tolerances for Concrete Construction and Materials", ACI 117-90.
- "Building Code Requirements for Structural Concrete", ACI 318-95.
- Florida Building Code (most recent edition).
- Florida Building Code – Existing Buildings (most recent edition).
- "Practical Foundation Engineering Handbook", Second Edition, McGraw-Hill.
- "Bearing Capacity of Soils", ASCE, USCOE #7
- "Settlement Analysis", ASCE, US COE #9
- "Building on Sinkholes", Sowers, George F.
- "Geotechnical Aspects of Karst Terrains", Geotechnical Special Publication #14.
- "Essentials of Soil Mechanics and Foundations", McCarthey.
- "Soils and Foundation Handbook, 2000", FDOT.
- "Expansive Clay Soils and Vegetative Influence on Shallow Foundations", ASCE Geotechnical Special Publication #115.
- "Sinkholes, West Central Florida". USGS, Tihansky, Ann B.
- "A Short Course in Foundation Engineering, Second Edition", Simons & Menzies.
- "Verification of Geotechnical Grouting", ASCE Geotechnical Special Publication #57.

- "Advances in Grouting and Ground Modification", ASCE Geotechnical Special Publication #104.
- "Design and Control of Concrete Mixtures, 13th Edition", Portland Cement Association, 1988.
- "Guideline for Structural Condition Assessment of Existing Buildings", SEI/ASCE 11-99.
- "Residential Rehabilitation Inspection Guide", US Dept. of Housing & Urban Development, 2000.

XVI. Appendix F: Types of Sinkholes

The soluble limestone and dolomite that constitute the carbonate rocks are sculpted by dissolution and weathering processes into a distinct geomorphology known as Karst. Features characteristic of Karst terrains are directly related to limestone dissolution and ground water flow and induce sinkholes, springs, caves, disappearing streams, internally drained basins, and sub-surface drainage networks. Fractures, faults, bedding planes and differences in the mineral composition also play a role in the development, orientation and extent of the ground water system. Lineaments are often associated with locations of sinkholes and highly transmissive zones in the carbonate platform.

Three general types of sinkholes are prevalent in Florida: dissolution, cover subsidence and cover collapse sinkholes. Dissolution of the limestone formation is the ultimate cause of all sinkholes, but the type of sinkhole is also controlled by the thickness and type of overburden materials and the local hydrology. Although it is convenient to divide sinkholes into three distinct types, sinkholes can be a combination of types and/or may form in several phases.

Dissolution Sinkholes: Formed by rainfall and surface water percolating through joints in the limestone. Dissolved carbonate rock is carried away from the surface and a small depression gradually forms.

Cover Subsidence Sinkholes: Tend to develop gradually where the covering sediments are permeable and contain sand. The granular sediments spall into secondary openings in the underlying carbonate rock. A column of overlying sediment settles into he vacated spaces (piping). Dissolution and infilling continue, eventually forming a noticeable depression in the land surface.

Cover Collapse Sinkholes: May develop abruptly (over a period of hours) and cause catastrophic damage. They generally occur where the overburden sediments contain a significant amount of clay. Initially, sediments spall (or percolate) into the carbonate rock formation. As spalling continues, the cohesive covering sediments form a structural arch. The cavity migrates upward by the progressive roof collapse of the overburden. The cavity eventually breaches the ground surface.

XVII. Appendix G: Excerpts from Florida Statute 627.706

Catastrophic ground cover collapse - means geological activity that results in all the following:

1. The abrupt collapse of the ground cover;

2. A depression in the ground cover clearly visible to the naked eye;

3. Structural damage to the covered building, including the foundation; and

4. The insured structure being condemned and ordered to be vacated by the governmental agency authorized by law to issue such an order for that structure.

Contents coverage applies if there is a loss resulting from a catastrophic ground cover collapse. Damage consisting merely of the settling or cracking of a foundation, structure, or building does not constitute a loss resulting from a catastrophic ground cover collapse.

Neutral evaluation - means the alternative dispute resolution provided in s. 627.7074.

Neutral evaluator - means a professional engineer or a professional geologist who has completed a course of study in alternative dispute resolution designed or approved by the department for use in the neutral evaluation process and who is determined by the department to be fair and impartial.

Primary structural member - means a structural element designed to provide support and stability for the vertical or lateral loads of the overall structure.

Primary structural system - means an assemblage of primary structural members.

Professional engineer - means a person, as defined in s. 471.005, who has a bachelor's degree or higher in engineering. A professional engineer must also have experience and expertise in the identification of sinkhole activity as well as other potential causes of structural damage.

Professional geologist - means a person, as defined in s. 492.102, who has a bachelor's degree or higher in geology or related earth science and experience and expertise in the identification of sinkhole activity as well as other potential geologic causes of structural damage.

Sinkhole - means a landform created by subsidence of soil, sediment, or rock as underlying strata are dissolved by groundwater. A sinkhole forms by collapse into subterranean voids created by dissolution of limestone or dolostone or by subsidence as these strata are dissolved.

Sinkhole activity - means settlement or systematic weakening of the earth supporting the covered building only if the settlement or systematic weakening results from contemporaneous movement or raveling of soils, sediments, or rock materials into subterranean voids created by the effect of water on a limestone or similar rock formation.

Sinkhole loss - means "structural damage" to the covered building, including the foundation, caused by sinkhole activity. Contents coverage and additional living expenses apply only if there is structural damage to the covered building caused by sinkhole activity.

Structural damage - means a covered building, regardless of the date of its construction, has experienced the following:

1. Interior floor displacement or deflection in excess of acceptable variances as defined in ACI 117-90 or the Florida Building Code, which results in settlement-related damage to the interior such that the interior building structure or members become unfit for service or represents a safety hazard as defined within the Florida Building Code;

2. Foundation displacement or deflection in excess of acceptable variances as defined in ACI 318-95 or the Florida Building Code, which results in settlement-related damage to the primary structural members or primary structural systems that prevents those members or systems from supporting the loads and forces they were designed to support to the extent that stresses in those primary structural members or primary structural systems exceeds one and one-third the nominal strength allowed under the Florida Building Code for new buildings of similar structure, purpose, or location;

3. Damage that results in listing, leaning, or buckling of the exterior load-bearing walls or other vertical primary structural members to such an extent that a plumb line passing through the center of gravity does not fall inside the middle one-third of the base as defined within the Florida Building Code;

4. Damage that results in the building, or any portion of the building containing primary structural members or primary structural systems, being significantly likely to imminently collapse because of the movement or instability of the ground within the influence zone of the supporting ground within the sheer plane necessary for the purpose of supporting such building as defined within the Florida Building Code; or

5. Damage occurring on or after October 15, 2005, that qualifies as "substantial structural damage" as defined in the Florida Building Code.

Any claim, including, but not limited to, initial, supplemental, and reopened claims under an insurance policy that provides sinkhole coverage is barred unless notice of the claim was given to the insurer in accordance with the terms of the policy within 2 years after the policyholder knew or reasonably should have known about the sinkhole loss.

XVIII. Appendix H: Related Florida Building Code Excerpts

DANGEROUS: (Ref: Florida Building Code: Existing) Any building, structure or portion thereof that meets any of the conditions described below shall be deemed ‘‘dangerous’’:

1. The building or structure has collapsed, partially collapsed, moved off its foundation or lacks the support of ground necessary to support it.

2. there exists a significant risk of collapse, detachment or dislodgement of any portion, member appurtenance or ornamentation of the building or structure under service loads.

LOAD BEARING ELEMENT (Ref: Florida Building Code: Existing) Any column, girder, beam, joist, truss, rafter wall, floor or roof sheathing that supports any vertical load in addition to its on weight or any lateral load.

STRUCTURAL DETERMINATION: (Ref: Florida Building Code: Existing) For purposes of this code, ‘‘structural’’ shall mean any part, material or assembly of a building or structure which affects he safety of such building or structure and/or which supports any dead or designed live load and the removal of which part, material or assembly could cause, or be expected to cause, all or any portion to collapse or fall.

SUBSTANTIAL DAMGE: (Ref: Florida Building Code: Existing) Damage of any origin sustained by the structure whereby he cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

SUBSTANTIAL STRUCTURAL DAMAGE. (Ref: Florida Building Code: Existing) A condition where:

1. In any story, the vertical elements of the lateral-force-resisting system, in any direction and taken as a whole, have suffered damage such that the lateral load-carrying capacity has been reduced by more than 20 percent from its pre-damaged condition, or

2. The vertical load-carrying components supporting more than 30 percent of the structure's floor or roof area have suffered a reduction in vertical load-carrying capacity to below 75 percent of the Florida Building Code, Building required strength levels calculated by either the strength or allowable stress method.

UNSAFE: (Ref: Florida Building Code: Existing) Buildings, structures or equipment that are unsanitary, or that are deficient due to inadequate means of egress facilities, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structure members meet the definition of "Dangerous":, or that are otherwise "dangerous" to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed unsafe. A vacant structure that is not secured against entry shall be deemed unsafe.

XIX. Appendix I: Compaction Grouting Specifications

PART 1 – General

1.01 SCOPE OF WORK

A. The work covered by this section consists of furnishing all supervision, labor, materials and equipment, and performing all operations in connection with consolidation of soil underlying the existing foundations by the compaction grouting technique as shown on the plans or as described herein.

1.02 GENERAL DESCRIPTION AND METHODS

A. Compaction grouting is a soil improvement process in which a mass of very stiff mortar-grout is injected into weak soil stratums at relatively high pressures to displace the soil laterally thus enhancing the consolidation process. Penetration grouting, wherein a low viscosity or pourable grout is injected into the soil, is not permissible, and is not addressed in this specification.

B. Grout shall consist of a mixture of Portland cement and water, with silty sand or other bulk fillers and admixtures as may be necessary or desirable to accomplish the intent of these specifications.

C. Grout injection points shall be placed at locations shown on plans prepared by the Contractor and reviewed by the Engineer.

D. Grout injection points shall be drilled or driven to competent limestone or depths determined by the Engineer.

E. A stiff mortar-grout shall be injected by the Contractor at such pressures as may be necessary to form interconnecting bulbs of grout in the soil mass, while densifying the surrounding soils strata. The placement of grout within the soil shall act to compress and consolidate surrounding soil in such a way that bearing values are improved.

1.03 MATERIALS

A. Compaction Grouting:

1. Portland cement shall be Type I or II (ASTM C-150).

2. Fine aggregate shall be silty sand with a fines content (percent passing No. 200 sieve) of not less than 10% and not more than 25%. Natural fines may be supplemented with flyash (type F), bentonite (20 lb/cy, max.) or aggregate washings. The gradation of the fin aggregate shall be such that "sand blocking" is eliminated at the grout injection pressures. The Contractors

proposed grout mix design shall be reviewed and authorized by the Engineer, prior to construction.

3. As a minimum the mix proportions of the grout shall be as follows: approximately 12% cement by weight, 18% flyash by weight and 70% silty sand by weight per bulk cubic yard of grout, and water as required to achieve a pumpable mix with a four inch (4") slump +/- one inch (1") at the injection point, unless otherwise directed by the Engineer.
4. If agitated continuously, the grout may be held in the grout plant (redi-mix truck) for not more than three (3) hours or as authorized by the Engineer.
5. Admixtures shall not be used without prior written approval of the Engineer.
6. Redi-Mix grout is acceptable, contingent on pumpability; mix design, and consistent slump in accordance with these specifications.
7. Prior to construction the Contractor shall submit the proposed mix design to the Engineer for approval. The contractor is solely responsible for mix strength, pumpability, etc.
8. The grout mix design shall have a minimum compressive strength of 200 p.s.i in 48 hours after mixing and 300 psi in 72 hours after mixing and over 1,000 psi at 28 days. Should it be found through sampling and testing that the grout is incapable of achieving adequate compressive strength, a proportional unit price reduction shall apply, and the process repeated by the Contractor at his expense with no additional compensation. The scope of the remediation shall be at the sole discretion of the Engineer.

1.04 PLACING INJECTION POINTS

A. The location and spacing of injection points shall comply with the approved location plan, previously provided and/or reviewed by the Contractor and authorized by the Engineer. Upon completion of the primary grout points and based on there performance (as determined by the Engineer), additional (secondary) points may be required as directed by the Engineer, where unusual conditions are encountered or suspected. The number of injection points may be increased as determined by the Engineer, as field conditions warrant. The Contractor agrees that any additional work will be compensated for in accordance with their original unit price schedule.

B. Primary grout injection points shall be placed around the perimeter of the primary structure on approximately ten feet (10') on-center or as specified by the Engineer. Injection points should be kept a distance of about 5-feet from plumbing and other underground utility services. Primary grout injection points shall be placed around the perimeter of ancillary structures, (i.e., Pool decks, patio slabs, other surface improvements) on approximately twelve to fourteen feet (12'-14') on-center or as specified by the Engineer.

C. Primary grout injection points shall alternate between vertical and angled points. Angled points shall be installed at an angle from vertical of approximately 15-degrees +/- 2-degrees (or as directed by the Engineer) to direct the flow of grout beneath the structure. The grout injection points placed at the perimeter corners of the structure shall be placed vertically.

D. Injection points will be drilled and/or driven to refusal in solid limestone bearing strata. The use of drilling water will be permitted as a method of "flush drilling"; however, in no instance shall "Jetting" be permitted to install the grout injection points. The Contractor shall be able to demonstrate conclusively that the grout injection point has been advanced to competent bearing strata. Holes drilled through the slab shall be core-drilled with a 6-inch (6") bit for access to the sub-soils.

E. Diameter of grout hoses, injection pipes or drill holes shall be adequate to permit injection of the mix anticipated without undue loss of head due to hydraulic friction, but in no case shall be less than two and one half-inches (2.5") inside diameter.

F. The Contractor shall keep accurate field records of all grout injection locations, and shall include but not be limited to location and depth of injection points, method of installation, proportioning of grout mix, grouting pressures at each injection zone, grout volume per zone and other pertinent data such as difficulties encountered during drilling or grouting process. This information shall be forwarded to the Engineer at the end of each day's activities. Modification to these procedures may be necessary as field and soil conditions warrant, as directed by the Engineer.

1.05 GROUT INJECTION PROCEDURES

A. Compaction grouting may be performed by either grouting in descending stages or by grouting in ascending stages. This option shall be left to the Contractor.

Generally, for economic reasons and time constraints, the ascending stage method is preferable for residential and small commercial projects.

B. In **descending stages,** grout injection casings shall be drilled and/or driven to a depth of approximately five feet (5') below the ground elevation. The soil in the casing will be drilled out and the drill advanced three to five feet (3'-5') below the bottom of the casing (referred to hereinafter as a stage). Low slump compaction grout (four inches (4") or less) shall then be injected into the casing and lower stage under controlled high pressure to compact and displace the adjacent soils. Surface or structure monitoring is required for upper stage grouting.

   Upon completion of a series of the first stage grouting, the second stage grouting will be performed by drilling through the casing, the first stage grout and advancing into the underlying soil approximately three to five feet. Compaction grouting will be performed at the second or lower stage and this process repeated downward until a firm bearing strata is encountered.

C. In **ascending stages,** the casing shall be drilled and/or driven to the bottom of the zone to be stabilized. The termination depth of the drilling shall extend one-foot (1') into the top of competent limestone, or to a pre-determined depth as determined by the Engineer. If the casing is installed after the borehole is drilled, a snug fit is required. Casing may require driving into place for the lower several feet and a disposable tip used to prohibit soil from entering the casing during installation.

D. The grout shall be pumped in until "refusal" (see definition below) is achieved at which time the grout pipe is raised in a one to two-foot (1'-2') increment (to the next lift) and the grouting procedure repeated until grout flow is established around the annular space of the grout injection pin or to within five-feet (5') of the ground surface.

   1. "Refusal" shall be when any one of the following three conditions are met:

      a. Surface or structure movement is observed by instrumentation;

      b. Pre-determined volume of grout has been injected at any one stage per day (24-hours);

      c. Maximum backpressure attained.

   2. "Maximum structure movement" shall mean when the structure "heaves" or is raised upward in response to the pressure of the grout being injected under

the structure. The "heave" shall be limited to a maximum of 1/16-inches total uplift for each grout injection point, or as directed by the Engineer.

a. During grouting operations, the structure shall be continuously monitored for any signs of movement, upward or downward. A surveyor's level & tripod or other electronic instruments shall be used to continuously monitor the area within fifteen feet (15') of the grout injection point being grouted. This shall include, but is not limited to the structure, adjacent structures, slabs, decks, pools, etc. (See section 1.08 B).

b. All movements shall be noted on the grout injection log and brought to the immediate attention of the Engineer. In certain instances, controlled "heave" may be a desired effect of the grouting operations; however, the Engineer shall direct this.

3. Maximum volumes of grout per day shall mean when a grout injection point has accepted 20-cubic yards of grout within a five-foot (5') zone. This would typically require 2-3 lifts to achieve a five-foot (5') zone. If a grout injection point accepts 20-cubic yards of grout within a single lift or within a five-foot (5') zone, grouting shall cease and the grout casing flushed out with a minimal amount of water, and the pipe remain in the ground for additional grouting a minimum of 24-hours later, or as directed by the Engineer.

4. Maximum pressures vary from 20 psi to 50 psi within 5 feet to 6 feet of the surface to 200-300 psi at depths in excess of 20 feet. Higher pressures may be required at greater depths as soil conditions warrant, or as directed by the Engineer.

5. The grout pumping operations shall be performed in a "primary / secondary" pattern around segments of the structure (i.e. Pump on grout points 1, 3, 5, then back to 2, 4). This method uses every other grout point as a "primary" grout injection point, with the intermediate grout injection points as the "secondary" points.

1.06 EQUIPMENT

A. Only mixing and pumping equipment approved by the Engineer shall be used in the preparation and handling of grout. All oil and/or other rust inhibitors shall be removed from the mixing drums, stirring mechanisms, and other portions of the equipment in contact with the grout before the mixers are used. All equipment

shall be maintained in first class operating condition at all times. Materials and workmanship shall include, but not be limited to, the following requirements.

B. The grout plant shall be designed to handle the specific materials for this type of work. Only approved equipment shall be used. The grout plant shall be independently certified by FDOT or another qualified entity to assure that the proper mix design is continuously produced.

C. The mixer shall be of the pug type mixer, auger mixer, or equivalent to ensure complete uniform mixing of the materials used and shall be of sufficient capacity to continuously provide the pumping unit with mixed grout at its normal pumping rate.

D. The pumping unit shall be capable of continuously delivering the specified grout materials at a pressure of at least 800 psi. The grout pump shall be capable of pumping rates between one (1) and ten (10) cubic feet per minute. The pumping rate shall be independent of the pumping pressure.

E. The pump shall be equipped with a mechanical stroke counter or other approved device for the measurement of pump stroke count and volume of grout placement. The Engineer may request that the contractor periodically verify the pump stroke count to cubic yard ratio, periodically during the project.

F. An in-line pressure gauge shall be supplied near the grout pipe head. The gauge shall be a glycerin-filled gauge with a pressure range of 0-1000-pounds per square inch. The gauge shall be mounted in-line and contain a grease filled gauge saver device to buffer the pressure spikes in the grout line. The gauge shall be placed in-line hydraulically as close to the grout injection point as possible.

G. Grout injection pipes shall be steel casing of adequate strength to maintain the hole and to withstand the required jacking and pumping pressures. The interior diameter of the pipe shall be adequate to permit the injection of the compaction grout. A minimum of two and one half-inch (2.5") and a maximum of four-inch (4") inside diameter shall be used. If the Contractor proposes to use a smaller diameter grout injection casing, he/she must demonstrate to the Engineer, that the diameter is suitable for delivering adequate volume and pressure of grout to the target grout zone.

H. After completion of grouting in each grout injection point, the Contractor shall be responsible to patch all holes, restore all surfaces to their original condition and leave area clean of debris.

I. Approval of the proposed equipment by the Engineer, to be used on the project, does not imply final acceptance. It is solely the responsibility of the Contractor to provide the means and methods for the construction of the project.

1.07 EXISTING CONDITIONS

A. It is the responsibility of the Contractor to contact the appropriate utility locating services to identify and locate all underground lines and conduits prior to construction. The Contractor shall determine overhead clearance requirements and holes may be relocated as necessary to avoid overhead and underground obstructions, subject to approval by the Engineer.

B. It is the responsibility of the Contractor to locate all other underground utilities included but not limited to drain fields, septic tanks, irrigation systems, etc...

1.08 QUALITY CONTROL

A. Monitoring during grouting is essential to verify proper performance of compaction grouting. As a minimum, the following items shall be recorded by the Contractor for each grout injection point:

1. Drill depth, Date, Drill type, Driller's name, type and depth of materials encountered, Notations of abnormalities (voids, hard drilling, etc.) during the drilling.

2. Grout consistency (slump), supplier(s) name(s); mix design certification, copies of grout tickets (from supplier).

3. Injection rate per stage, Injection pressure per stage, Injection volume per stage, any structural movement, notations of any abnormalities that occur during the grouting operations.

B. Monitoring of structural movement shall be performed throughout the project by a surveyor's level and various markers placed on the structure at 0, 5, 10 and 15 –feet from the nearest point of the grout injection point from the face of the structure to detect any movement of the structure. Additionally, stanchions and markers shall be placed at 5-feet, 10-feet and 15-feet from the grout injection point as necessary to monitor surface heave adjacent to the structure.

C. At the completion of the work, the contractor shall provide a letter to the Engineer, that the work is complete and submit 1 copy of all documentation specified in section 1.08 A, including but not limited to a summary of the drilling logs, grout injection logs for each grout injection point, field notes, grout mix

design certification, and an as-built grout injection location plan with any field adjustments required to perform the work.

2.00 CONSTRUCTION SCHEDULE

A. Time is of the essence on this project. The Contractor shall provide manpower, tools, equipment, materials, etc., as necessary to successfully complete this project within a timely manor.

1. The Engineer may require the Contractor to provide a construction schedule with definable milestones for large projects.

3.00 INDEMNIFICATION

A. The Contractor and any subcontractor to the contractor shall indemnify and hold harmless the Owner, and Westcoast Forensic Consulting Group, Inc., its agents and employees, from and against all claims, damages, losses and expenses, including attorneys fees arising out of or resulting from: defects in the structure whether caused or created by others; damage or injury as a result of or incidental to the work; and damage or injury of any kind occurring in occupied areas while performing the work.