



Document 521
PRE-ASSESSMENT REPORT

CHAPTER: EWB-Nashville Professional
COUNTRY: JAMAICA
COMMUNITY: CHAPELTON
PROJECT: Community Water Supply
TRAVEL DATES: September-October 2009

PREPARED BY
Candice Owen
Luke Patterson
Darci Scherbak
Raymond White

July 17, 2009

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ENGINEERS WITHOUT BORDERS-USA
www.ewb-usa.org

Pre-Assessment Report Part 1 – Administrative Information

1.0 Contact Information

	Name	Email	Phone	Chapter
Project Lead	Darci Scherbak	ScherbakDM@bv.com	w.615-248-2666 c.615-306-3152	Nashville Professional
President	Kimberly Martin	MartinKM@cdm.com	w.615-340-6529 c.225-241-3715	Nashville Professional
Technical Lead #1	Raymond White	ruttonwhite@comcast.net	615-354-5200 615-210-3331	Nashville Professional
Technical Lead #2	Luke Patterson	LukeP@lpeng.com	615-778-9714	Nashville Professional
Technical Lead #3	Clint Camp	clint@campandsons.com	615-516-3574	Nashville Professional
Technical Lead #4	Marc Nelson	MarcN@eralley.com	615-294-4000	Nashville Professional
Health Point Person #1	Candice Owen	Candice.Owen@amec.com	615-418-7518	Nashville Professional
Health Point Person #2	Marc Nelson	MarcN@eralley.com	615-294-4000	Nashville Professional
NGO Contact	Janeth Simpson-Brown	JeromeJaneth@aol.com	615-595-1454	NA
Community Contact	Minna Edwards	NA	876-785-0133	NA
Education Lead	Kimberly Martin	MartinKM@cdm.com	w.615-340-6529 c.225-241-3715	Nashville Professional

2.0 Travel History

Dates of Travel	Assessment or Implementation	Description of Trip
Est. Sep-Oct 2009	Assessment 1	
Est. Oct 2010	Implementation 1	

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3.0 Travel Team

Name	E-mail	Phone	Chapter	Student or Professional
Raymond White	ruttonwhite@comcast.net	615-354-5200 615-210-3331	Nashville Professional	Professional
Luke Patterson	LukeP@lpeng.com	615-778-9714	Nashville Professional	Professional
Marc Nelson	MarcN@eralley.com	615-294-4000	Nashville Professional	Professional
Candice Owen	Candice.Owen@amec.com	615-418-7518	Nashville Professional	Professional
Kim Martin	MartinKM@cdm.com	w.615-340-6529 c.225-241-3715	Nashville Professional	Professional
Darci Scherbak	ScherbakDM@bv.com	w.615-248-2666 c.615-306-3152	Nashville Professional	Professional

4.0 Safety

4.1 State Department Warning

Important Security Information from the U.S. Embassy Kingston

*Embassy of the United States of America
Kingston, Jamaica
May 9, 2009*

Potential Jamaican Constabulary Force Protest

This message is issued by the U.S. Embassy to alert American citizens in Jamaica concerning a police labor dispute that could cause a shortage of police coverage in Jamaica.

The Government has informed the Embassy that due to a labor dispute between the Jamaican Constabulary Force (JCF) and the Government of Jamaica, a possibility exists that members of the JCF may take “sick leave” as a form of protest. This could create a shortage of police officers island-wide and increase police response time to emergencies. Jamaican Defense Force (JDF) military assets have been put on alert, in case the JCF takes such an action.

American citizens living in or visiting Jamaica should monitor the local news, be aware of their surroundings and take this information into account when planning your activities. Americans traveling abroad should regularly monitor the U.S. Embassy’s website at <http://kingston.usembassy.gov> and the U.S. Department of State's travel website at www.travel.state.gov ,

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where the current Worldwide Caution, Travel Warnings, and Travel Alerts can be found. The U.S. Embassy also encourages U.S. citizens to review to "A Safe Trip Abroad," found at http://travel.state.gov/travel/tips/safety/safety_1747.html , which includes valuable security information for those both living and traveling abroad. In addition to information on the Internet, travelers may obtain up-to-date information on security conditions by calling 1-888-407-4747 toll-free in the U.S. and Canada, or outside the U.S. and Canada on a regular toll line at 1-202-501-4444.

Citizens living and residing in Jamaica or the Cayman Islands are advised to register their presence in the country through the U.S. Department of State's automated online registration system, <https://travelregistration.state.gov>. U.S. citizens may also register by visiting the Consular Section at the U.S. Embassy or our consular agencies in Montego Bay and Georgetown, Cayman Islands during business hours.

For any emergencies involving American citizens, please contact the American Citizens Services (ACS) Unit of the U.S. Embassy's Consular Section, located at 142 Old Hope Road in the Liguanea area of Kingston, tel. (876) 702-6000; after hours emergency telephone (876) 702-6000; Consular Section fax (876) 702-6018; and e-mail at KingstonACS@state.gov. The U.S. Consular Agency in Montego Bay is located at St. James Place, 2nd Floor, Gloucester Avenue, tel. (876) 952-0160. The U.S. Consular Agency in the Cayman Islands is located at 118 Dorcy Drive, Suite B-1, Georgetown, Grand Cayman, tel. (345) 945-8173.

4.2 Point to point travel detail

This schedule briefly addresses transportation and lodging in Jamaica. A more detailed travel itinerary will be drafted as information becomes available and before departure on the assessment trip. The exact locations for dining, etc. are not yet identified, however, sanitary dining establishments are not anticipated to be scarce and the team will be drinking only boiled or bottled water and only eating food that is prepackaged or cooked.

Day 1 – Fly from Nashville, TN:

Arrive Kingston, Jamaica. Norman Manley International Airport.

- Met by Fergus Simpson Foundation (FSF).
- Meet with National Water Commission.
- Lodge in Kingston.
- Transportation by rental SUV with FSF chaperone.

Day 2 – Travel to Chapelton.

- Travel with FSF in rental SUVs.
- Meet with local officials.
- Lodge at Hotel Versailles in May Pen, 7 miles from Chapelton.

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Day 3- 5 – Assess village of Chapelton

- Transportation to and from Chapelton in rental vehicles.
- Travel by foot within Chapelton.
- Assess community and project possibilities.
- Gather data.

Day 6 – Travel to Kingston

- Return with FSF chaperone in rented vehicles.
- Meet with local contractors and suppliers to price possible needed materials.
- Lodge at hotel in Kingston.

Day 7 – Depart Kingston, Jamaica via airplane. Norman Manley International Airport – Arrival in Nashville, TN

4.3 Safety Plan

Safe driving should include having qualified drivers, riding in SUVs or other appropriately rugged vehicles. Extreme caution will be used when crossing roadway gullies due to wash away hazards.

Per the CDC, malaria risks are very limited in Jamaica and prophylactics are not recommended. All persons will travel with insect repellent. Room repellents (VapMat) will be used at night. Team members will drink only boiled or bottled water. All food consumed while in Jamaica will either be cooked or prepackaged.

Hurricanes will be avoided. State issued warnings will be closely monitored.

The team will closely monitor the US Embassy website prior to travel and be up-to-date on any specific violence/theft issues in Jamaica. The team will take care to not unnecessarily travel to areas of the country listed on the US Embassy website as having specific problems with violence/theft. Relations with the Chapelton community will be handled by the FSF who are already performing outreach in the community. One of the slated members of the assessment team, Marc Nelson, is a native of Jamaica and will also assist in this area.

The local topography at Chapelton, Central Jamaica, changes approximately 100meters over 500meters length (328 feet over 1640 feet, or 0.2-foot per foot). Chapelton is generally warm and humid; therefore the team will bring lightweight wicking clothing. Unknowns may exist in the areas surrounding the water source and potential conveyance routes; therefore, the team will wear long pants and boots to protect the lower body from potential irritants if off-road investigations are necessary. The team will also be equipped with rain gear, sun screen, and bug repellent as necessary.

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4.4 Emergency Plan and Exit Strategy

Rental cars will be available to the team at all times providing transportation for any emergency that may arise. The team will also have detailed information on hand about hospitals and various methods for dealing with possible emergencies.

If an emergency requires evacuation from the country, the team will contact the American Consulate to arrange any emergency flights or evacuation from the country in the instance of civil unrest or other political safety issues. In this scenario, the team will drive the rental cars to Kingston and stay with Marc Nelson's extended family until a flight from Norman Manley International Airport can be procured.

The team plans to travel outside of the hurricane season in Jamaica; however, if such a weather event should be forecasted, the team will again deal with the US Consulate to arrange safe exit from the country.

4.5 Contacts

4.5.1 On-the-ground phone number and email for travel team

Marc Nelson: (615) 294-4000 – team travel cell phone

Primary Project Facilitator: Mrs. Minna Edwards
Phone: (876) 785-0133
Hyman Street, Chapelton P.O
Clarendon, Jamaica

4.5.2 Nearest US Consulate Contact Information

Address: 142 Old Hope Road, Kingston 6, Jamaica
Phone: (876) 702-6450;
(876) 702-6000 (after-hours emergency number)
Fax: (876) 702-6018

4.5.3 Nearest Hospital Contact Information

Chapelton Community Hospital, May Pen
Chapelton P.O.
Clarendon, Jamaica
(876) 987-2215

5.0 Budget

5.1 Cost

Expense	Total Cost
Airfare	6 (\$900)
On Ground	6 (\$500)

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Materials	\$500
Other	6 (\$100)
Total	\$9,500

5.2 Hours

Names	# of Weeks	Hours/Week	Trip Hours	Total Hours
Project Lead: Darci Scherbak	8	3	50	74
Technical Lead: Raymond White	1	4	50	54
Technical Lead: Luke Patterson	2	4	50	58
Technical Lead: Clint Camp	2	2	50	54
Technical Lead, Health, Community Contact: Marc Nelson	8	2	50	66
Health Point and Fundraising Chair: Candice Owen	8	1	50	58
President and Education Lead: Kim Martin	8	1	50	58
Fundraising Committee: 3 members	8	1	NA	24

5.3 Donors and Funding

Donor Name	Type (company, foundation, private, in-kind)	Account Kept at EWB-USA?	Amount
CDM	Company	Yes	\$1,200
EWB-Nashville fundraising	Chapter	Yes	\$1,200
Total Amount Raised:			

6.0 Project Location

Clarendon parish, central Jamaica, Caribbean

Longitude: 77°16'01"W

Latitude: 18°04'34"N

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7.0 Project Impact

Persons directly affected: Chapelton community, approximately 1,000

Persons indirectly affected: Bottled water merchants, water couriers, surrounding users of spring water, approximately 4,000

8.0 Technical Lead Resumes

See Attached

Pre-Assessment Report Part 2 – Technical Information

1.0 INTRODUCTION

The purpose of this Pre-Assessment Report is to document planning, safety, and logistics for the Nashville EWB Chapter's assessment trip to Chapelton Jamaica in September-October 2009. The proposed project is to create a safe and reliable water supply for the Chapelton, Jamaica community with a proposed completion date of October 2010.

2.0 PROGRAM BACKGROUND

This is the first assessment trip to Chapelton, Jamaica. The mission of the program is to improve local water supply and sanitation within the community so that the health conditions of the community are improved. The program is necessary because the community's water supply and sanitation facilities are severely limited. Chapelton is located uphill and at the end of a water supply system, and the community receives water less than fifty percent of the time. It is estimated that the community, at best, receives one week/month of water and, at its worse, one day/month of water from the government water supply pipeline. This limitation impacts community children's school attendance and the daily lives and routines of those in the community. If the overall water supply to the community is increased, it will limit the time spent by families to fetch and carry water. The lack of water also has a severe impact on the local sanitary facilities. Without adequate water there isn't adequate sanitary conveyance. Therefore local public bathrooms in places like schools become overburdened with odors, flies, and other vector attraction insects.

3.0 OBJECTIVES OF SITE ASSESSMENT TRIP

The objectives of the first site assessment trip will be to: 1) obtain an adequate knowledge of the situation to allow the water supply project to be formulated and designed, and 2) obtain knowledge of the local community adequate to understand how the water supply project can be operated and maintained by the local people.

According to the NGO, Chapelton is located uphill and at the end of a water supply system, and the community receives water less than fifty percent of the time. As part of the assessment trip, the team will verify the frequency with which the community receives water and the potential factors (pump failure, power outages, insufficient water plant capacity, etc.) that are responsible for the inconsistent supply.

EWB-Nashville will investigate on the assessment trip whether the new Chapelton water supply will need to be tied into the existing distribution systems, and any other regulations pertaining to water supply in the area.

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Secondary objectives will be to assess the sanitary, structural, and water supply needs of the Primary School facility for future EWB projects in Chapelton.

4.0 COMMUNITY INFORMATION

4.1 Description of Community

The Chapelton, Jamaica community consists of primarily subsistence farmers, with no local large industry. Some community members travel to May Pen to work. There is an approximate population of 3,000 and it is a rural area. There are some paved and some unpaved roads.

4.2 Community/NGO Resources and Constraints

The NGO, Fergus Simpson Foundation, is a primary resource. There are no financial resources available, although labor resources are expected. Political organization is not expected to be a constraint. The FSF website is located at www.fsfjamaica.org.

During the assessment trip, additional community resources such as labor, tools, and supplies will be investigated; as well as any constraints that the community has.

4.3 Community Relations

Our current community contacts are with Janeth Simpson-Brown (President, Founder) who is currently living in Tennessee and Mrs. Minna Edwards who lives locally in Chapelton, both representing the FSF.

The mission of the FSF is to enrich Chapelton and its surrounding areas by equipping its residents with educational, entrepreneurial, emotional, and spiritual resources and tools to improve their quality of life. This mission supports a vision of a vibrant, model community as one that is economically self-sufficient, with easy access to quality education, entertainment, health care, and support services. The FSF will be providing our team with local labor for the implementation projects.

4.4 Community Priorities

The Chapelton community priorities are as listed below, unless found differently during the assessment trip.

Water Supply to Community. This project will use a local artesian spring as a water supply source for the community. This well will serve to augment the existing community water supply. The project proposed will develop the well and provide treatment and storage for supply into the local water distribution pipeline.

Improve Primary School Facilities. Chapelton Primary School is located in the town center of Chapelton and serves approximately 700 students (ages 6-14 years old). The

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school rooms are missing roofs and windows due to hurricane damage. This project will serve to improve the conditions at the local primary school by repairing and replacing the schools missing roof and broken windows and doors.

Improve Primary School Water Supply and Sanitation. Although connected to the government water system, the school experiences a severe water shortage, impacting hygiene and sanitation of the institution. This problem is further compounded by poorly designed kitchen and bathroom facilities.

5.0 DATA COLLECTION AND ANALYSIS

5.1 Site Mapping

EWB-Nashville anticipates the following site diagrams for the Chapelton, Jamaica project will be developed as draft maps prior to the assessment phase and final maps prior to the implementation phase:

Site Vicinity Map – a scaled Site Vicinity Map will be prepared to include features of the Chapelton community as well as the surrounding areas. Features are expected to include roadways, buildings, water sources, drainage areas, utility locations, significant landmarks, obstructions, property boundaries (as applicable), and the water supply project details (e.g., pump location, piping locations, treatment system locations, etc.). The map may also include surrounding communities and ingress/egress to the areas. Multiple maps may be developed of varying scale to provide the proper detail of the vicinity.

Project Detail Map – a scaled Project Detail Map will be prepared to include the specific features for the project. This map is intended to provide a more detailed schematic of the project. The map may include the size of water piping, number/type of pipe bends, changes in elevation, trenching locations, size/location of tanks, location of utility (e.g., electrical, etc.) components of the system, and materials of construction.

Topographic Map – a scaled Topographic Map will be prepared and include an approximate 1/2-mile radius of the Chapelton community. This map is intended to be used for changes in elevation as well as direction of surface water drainage. This map may also be used as a location map, which will depict significant roads and recognizable community features (e.g., churches, cemeteries, bridges, etc.). If a survey benchmark is in the area, it will be included on the map if possible.

Preliminary Maps are attached to this document.

5.2 Technical Data Collection

Technical data to be collected during or before the assessment trip for the water project will include:

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- 1) Determine the amount and quality of water available from the potential source. Assuming the source is already in use, interview citizens or health workers to determine the history of illness—or lack thereof—stemming from use of the source.
- 2) Determine the present and mid-term future amount of water needed by the community.
- 3) Determine who will do management, operation, and maintenance of the system once it is built.
- 4) Find out the availability of materials expected to be needed for construction such as pipe and accessories, pumps, valves, tanks, concrete, sand, reinforcing steel.
- 5) Determine what operating supplies are available such as chlorine for disinfection, the form in which they are available, and the cost in various forms.
- 6) Find out how the continuing operation of the system can be funded. Will there be a charge to the users? Will there be funds available from some level of government? Etc.
- 7) Find out what—if any—water supply facilities are currently available in the community and whether they can be continued in use as part of the project.
- 8) Find out what the community wants and thinks it needs from this project.
- 9) Determine enough information about the physical layout of the project to allow design.
- 10) Find out whether there are building—particularly electrical—codes that must be met.
- 11) Find out whether there is a governmental authority that has oversight of water systems and, if so, what regulations must be met.
- 12) Estimate the effect the availability of additional water will have on wastewater disposal.
- 13) Outline follow up projects that will flow from this one such as additional water distribution lines, wastewater collection and disposal projects, etc.
- 14) Determine the availability of electric power and voltage and cycles of same. Get best possible information on reliability of power source and length and frequency of likely outages. If there is no power available, how could it be made available and at what cost? Would solar power or a hydraulic ram (www.bamford.com, etc) be feasible?
- 15) What construction equipment or contractors are available in the area (is local “sweat equity” labor available)?
- 16) Determine existing extents of the water distribution system and if this could adequately transport the water obtained from the potential source.

5.3 Monitoring and Evaluation Data

- 1) The pre-construction evaluation will include an assessment of whether data adequate to design the project was actually obtained (as discussed in Sections 5.2 and 6.0).
- 2) Has it been possible to complete a design that is buildable, in all senses of the term, so construction can proceed?
- 3) Was construction completed satisfactorily?
- 4) Is the community operating the project responsibly?
- 5) Is the community benefiting from the project as envisioned?

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6.0 SCHEDULE OF TASKS

PRIOR TO TRIP (IF POSSIBLE)

- 1) Determine availability of mapping, aerial photographs, and survey monuments.
- 2) Find out if there is a health worker who services the area and arrange a meeting to discuss water borne disease history in the area, potential source pollution, methods of safeguarding the source area, quality of other water sources in the area or aquifer and any anticipated negative effects of the project on surrounding areas.
- 3) Find out whether there is a governmental agency that has oversight of water projects whose rules must be obeyed and make an appointment to meet with a representative; discuss implications of this project for other communities in the area.
- 4) Find out whether there are codes (particularly electrical) that must be obeyed and make an appointment to meet with a representative.

* If any of these cannot be done before arrival, they need to be dealt with on **Day 1**.

DAY 1

- 1) Meet with local people and leaders to determine what they expect, want and need.
- 2) Determine from locals what the current water usage is and how much they think it would increase based on easier availability and on growth of the community once it has better water availability and other factors.
- 3) Find out what water supply facilities are available now, such as distribution piping, taps, and storage facilities.
- 4) Discuss with local leaders how, and who, and with what funds, the system would be operated.
- 5) Discuss with local leaders the availability of materials and equipment and make arrangements to visit vendors on Day 4 if necessary.
- 6) Discuss with local leaders the availability of local labor and the skills, tools, supplies, and equipment that might be available in this labor pool.
- 7) Discuss with local leaders the wastewater disposal situation and determine how the availability of additional water will impact this situation. This may lead to estimation of future projects or advice on how to minimize negative effects of the project.

DAY 2

- 1) Visit water source and determine ownership of land, ownership of water rights, potential pollution sources, plan for protection of source area.
- 2) Obtain sample and test for coliform (test will need to be done at room temperature), pH, turbidity, nitrate. If pollution appears to be a problem, determine what tests are needed and how to get them.
- 3) Rough out route for pipeline(s) and determine ownership of property and how to get easements.
- 4) Locate power source for pumps and determine feasibility of getting power to the pump location. If this appears impossible, assess possibilities for use of solar power or hydraulic rams.
- 5) Obtain all possible local information on reliability of the source and flow rate fluctuations. Install a weir in outflow channel to check the current flow rate.

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DAY 3

- 1) Using available mapping, wheel or survey the pipeline route.
- 2) Run an elevation profile along the pipeline route to storage or distribution point using hand held levels or GPS or preferable both to allow pump head calculation.
- 3) Obtain topographic data at source to allow design of a collection box/pump well and determine head that could be available for a ram.
- 4) Determine site for storage tank if possible.
- 5) Based on all other information determine what method will be used to control pumps: water level in tank, manual turn on/off at specific times of the day, constant pumping against closed or open valve at distribution point(s) with recirculation valve—this would be the least attractive option because of excess power use and might not be feasible in any event.
- 6) Determine how and where to install treatment facilities such as chlorination and obtain topographic and power data to support design.
- 7) Determine any accessories such as air release valves, fittings, valves that are needed and insure that data has been obtained to allow the complete design.

DAY 4

- 1) Meet with oversight agencies and codes administrators.
 - 2) Meet in Kingston or elsewhere if needed with suppliers or others.
 - 3) Clean up any other loose ends.
- * Transportation will need to be available for use if needed.

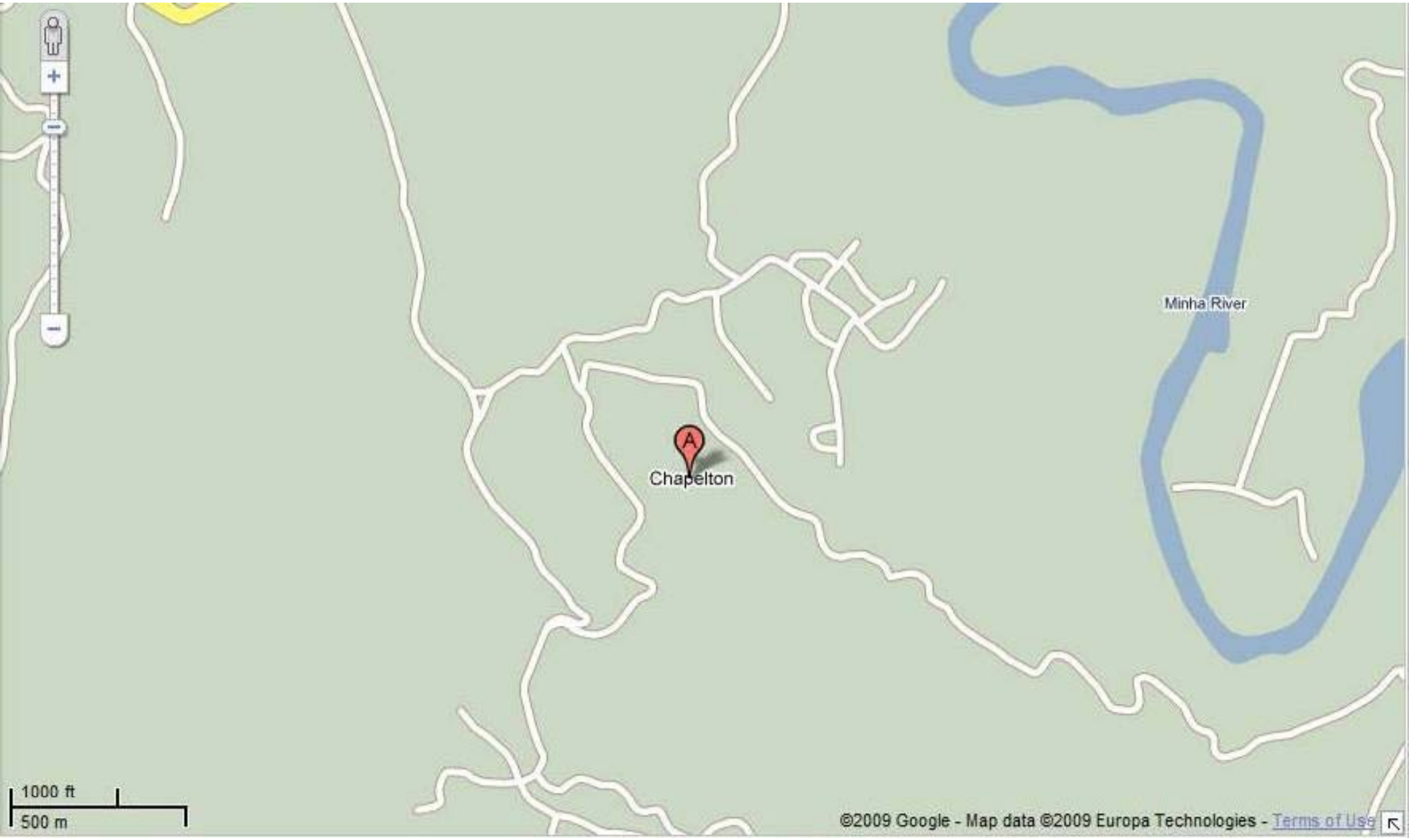
7.0 PROJECT FEASIBILITY

The following criteria will be used by the chapter to determine the feasibility of the project and whether the chapter will continue with the project or the program in general:

- 1) Is there power available from some source that will be adequate to operate the system?
- 2) Is there local leadership or area-wide leadership, or a combination of both that will be able to operate the system?
- 3) Is the community committed to the project?
- 4) Does it appear to be possible to build the project at a feasible cost?
- 5) Does the community have the appropriate funds or access to such funds to maintain the project indefinitely?

8.0 MENTOR ASSESSMENT

The pre-assessment document has been prepared by the Project leader and the technical lead for the water portion of the project and the technical lead for the structural/building portion of the project. Pre-visit contacts will be undertaken by the above team members to determine as much information as possible and set up visits with government representatives, etc. There has been no training for the trip at this time.

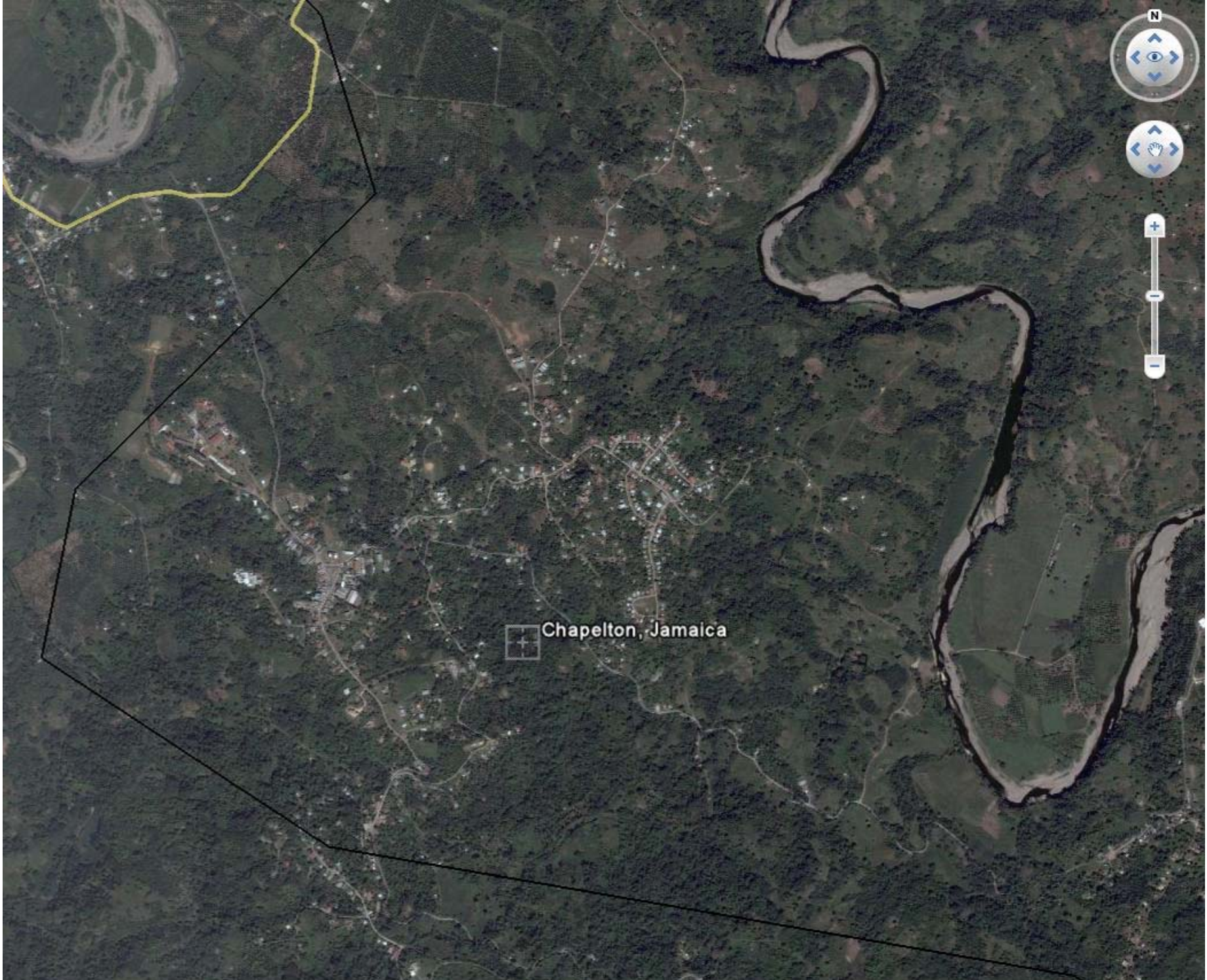


Chapelton

Minha River

1000 ft
500 m

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Chapelton, Jamaica

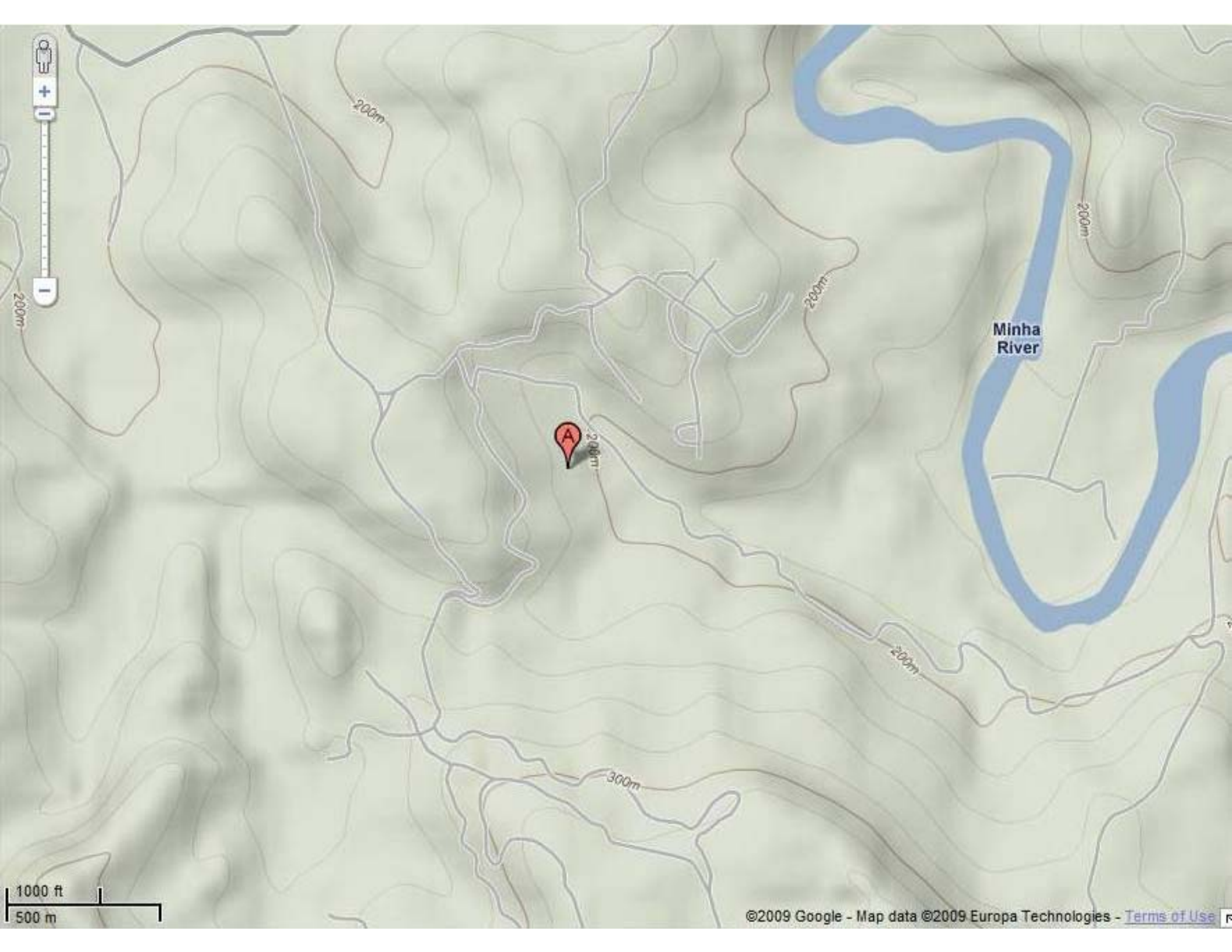
© 2009 Google
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Imagery Date: Nov 18, 2004

18°05'03.34" N 77°15'30.70" W

Eye alt 3.30 km



Minha River

A

1000 ft
500 m

Raymond D. White, PE, DEE

780 Harpeth Trace Drive
Nashville, TN 37221

615-354-5200 home
615-210-3331 mobile
rduttonwhite@comcast.net

Current volunteer activities

- Project CURE volunteer
- Cheekwood Botanical Garden and Museum of Art, Museum of Art Committee Member
- Tennessee State Board for Examining Architects and Engineers, Middle Tennessee Associate Engineer Member
- Tennessee Engineering Foundation Board Member and Secretary
- Tennessee Engineering Center, Board Member and Treasurer
- Dutton House, Inc., Board Member

ENGINEERING CAREER

Retired

Senior Vice President of Garver Engineers, LLC, January 1, 1998

until retirement on March 1, 2005. Forty years of engineering planning and design focused for water and wastewater projects including treatment plants, pumping stations, water distribution piping; gravity, small diameter gravity, vacuum, and pumped wastewater collection lines; water storage tanks, and other appurtenances.

President of White Taylor Walker/GM, Consulting Engineers, for 21 years prior to the merger of White Taylor Walker/GM with Garver Engineers.

Engineer Intern, Engineer, and Vice President, J. R. Wauford & Company from 1964-1976.

Licensed as a Professional Engineer for the first time in Tennessee on October 3, 1968, and subsequently licensed in Tennessee and nine other states

EDUCATION

Elementary education began at Parmer School, Nashville, Tennessee.

High School: Academy of Richmond County, Augusta, Georgia. Graduated in 1957

S.B. in Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1961

Columbia University Graduate School of International Affairs, New York, New York; International Fellow, 1963-1964

SERVICE TO COMMUNITY AND PROFESSION

CURRENT AND PAST

CHEEKWOOD MUSEUM OF ART

Board of Trustees Member; Museum of Art Committee Chairman; Executive Committee Member

TRANSPLANTS, INC.

Founding President; raised \$1.25 million for those needing to pay for organ transplant operations; established \$550,000 fund in Middle Tennessee Community Foundation to promote organ donation education

AMERICAN COUNCIL ON TRANSPLANTATION

Board of Directors; Member
 TENNESSEE DONOR SERVICE
 Advisory Board of Directors; Member and Vice Chairman
 ROTARY CLUB, Nashville Downtown
 Member; Paul Harris Fellow
 NASHVILLE ACADEMY OF MEDECINE & DAVIDSON COUNTY MEDICAL SOCIETY
 Community Service Award for 1991
 MARY CATHERINE SCHWEISS STROBEL AWARD
 Outstanding Volunteer of the Year Finalist Award 1990
 HISTORIC CARNTON ASSOCIATION
 Board of Directors; Member, Restoration Committee Chairman
 HOPE, INCORPORATED (housing opportunities and counseling for low income Nashvillians)
 Board of Directors; Member
 AMERICAN RED CROSS NASHVILLE CHAPTER
 Board of Directors Member
 WILLIAMSON COUNTY PLANNING COMMISSION
 Formerly Member of the Planning Commission
 PROJECT CURE
 Volunteer
 PRESBYTERY OF MIDDLE TENNESSEE
 Chairman Administration and Finance Committee; Member of Coordinating Council
 DOWNTOWN PRESBYTERIAN CHURCH
 Elder; Sunday School teacher
 BROOKMEADE CONGREGATIONAL CHURCH, UCC
 Treasurer, Trustee, Committee Member
 U S NAVY

- Commissioned Ensign 1961
- Active duty aboard USS John Hood (DD655) 1961-1963, Main Propulsion Assistant, Damage Control Assistant, Officer of the Deck Underway
- Drilling reservist 1963-1988; Commanding Officer Naval Weapons Station Earle Reserve Support Unit 1509; Commanding Officer Naval Reserve Research Company 6-18
- Retired as Commander (Engineering Duty) 1988

AMERICAN COUNCIL OF ENGINEERING COMPANIES
 Member, Director, Treasurer, Nashville Chapter Chairman
 NASHVILLE STATE TECHNICAL INSTITUTE
 Civil Engineering Visiting Committee Member
 DIPLOMATE, AMERICAN ACADEMY OF ENVIRONMENTAL ENGINEERS
 AMERICAN SOCITEY OF MECHANICAL ENGINEERS
 Life Member
 TENNESSEE SOCIETY OF PROFESSIONAL ENGINEERS
 Life Member
 2006 Outstanding Engineer of the Year
 TENNESSEE ENGINEERING FOUNDATION
 Board of Directors; Member, Secretary
 AMERICAN WATERWORKS ASSOCIATION
 Life Member
 AMERICAN SOCIETY FOR TESTING AND MATERIALS
 Member and Subcommittee Chairman

TENNESSEE ENGINEERING CENTER
Steering Committee Member and Treasurer

PI TAU SIGMA, Mechanical Engineering Honor Society,
Member

SIGMA XI, Society for Scientific Research
Associate Member

PUBLICATIONS

Author of articles on a variety of subjects that have appeared in *Public Works, Tennessee Town and City, The Tennessee Professional Engineer, Tennessee Historical Quarterly, Sea History, The Magazine ANTIQUES, Journal of the Museum of Early Southern Decorative Arts, American Art Review, and Focus on Critical Care*. Author of the book *Hell NO!*

HOBBIES

Collecting art and antiques; taking care of my fox terrier; reading; traveling (62 countries and counting).

MARRIED

Linda Tysseling White, an ordained minister of the Presbyterian Church

First wife Lorene Sharp White (1943-1983) an ordained minister of the Presbyterian Church

LUKE G. PATTERSON, P.E.

PRESENT POSITION

President and Senior Engineer
LP Engineering, LLC

EDUCATION AND TRAINING

2002 Bachelors of Science, Chemical Engineering, University of Tennessee, Knoxville
2002 Water Quality Analysis Simulation Program Training, Conducted by EPA Region 4
2002 40-Hour HAZWOPER Training (OSHA 29 CFR 1910.120), Hazardous Waste Operations and Emergency Response
2002 ImmunoAssay Systems, RaPid Assay Carcinogenic PAH Testing System Training
2003 8-Hour Supervisory Training (OSHA 29 CFR 1910.120), Hazardous Material Supervisor Training
2004 Groundwater Pollution and Hydrology, Princeton Groundwater Inc.
2004 Water Surveying Equipment, Trimble HYDROpro and Water Navigational Systems Training
2008 40-hour Pathway-to-Principal, ZweigWhite
2008 8-hour Environmental Project Management, ZweigWhite
2009 8-Hour Refresher Training (OSHA 29 CFR 1910.120), Hazardous Waste Operations and Emergency Response

PROFESSIONAL REGISTRATION

Registered Professional Engineer
State of Tennessee (License #109750)
State of Georgia (License #32544)
State of Mississippi (License #18296)

ENVIRONMENTAL SITE ASSESSMENTS

Phase I, II, III, and IV Environmental Site Assessments across the U.S.
Assessments, inspections, and audits of existing and new cellular telephone and radio towers, commercial warehouses, flex-type tenant buildings, chemical manufacturing facilities, and undeveloped land.

UNDERGROUND STORAGE TANK INVESTIGATION AND REMEDIATION

Management of environmental, remediation, engineering projects for industrial facilities;
Underground Storage Tank and Trust Fund Releases;
Soil testing for potential releases;
Monitoring well, observation well, and recovery well installations;
Routine and non-routine site sampling;
Soil/groundwater remedial design and installation; and
Management of multiple sites.

LUKE G. PATTERSON, P.E.

DRYCLEANER AND DEGREASER REMEDIATION

Commercial or residential drycleaner inspections and clean-up;
Anaerobic and aerobic degradation of contaminants in soil and groundwater;
U.S. Patent co-inventor for aerobic bio-remediation of groundwater containing chlorinated solvents from drycleaner related operations;
Degreaser (and former degreaser) investigations and soil excavation; and
Soil vapor and ambient air monitoring.

ENVIRONMENTAL PERMITS AND AUDITS

Storm Water Pollution Prevention Plans (SWPPP);
Spill Prevention Control and Countermeasure Plans (SPCC);
Treatment/disposal of hazardous and non-hazardous waste, pump and treat design and implantation, excavation of contaminated soil, soil remediation, facility response plans; and
Management of NPDES permitting, Discharge Monitoring Reports (DMRs), Monthly Operating Reports (MORs), Form R, Toxic Release Inventory (TRI), and other routine reporting obligations.

WATER RESOURCES AND USAGE

Water quality studies on various water bodies across the U.S.;
Diurnal dissolved oxygen modeling, hydrodynamic data collection and modeling, color and temperature studies, and eutrophication modeling; and
Effluent discharge studies.

Clinton R. Camp, M.ASCE, P.E., LEED® AP

EDUCATION:

Vanderbilt University
August 2007 – Present
Master of Engineering in Construction Management
GPA: 3.x; Anticipated Graduation Date: May, 2009

Tennessee Technological University
August 2005 – December 2006
Non-Degree Graduate Student
Geographic Information Systems (GIS) 9 Credit Hours

Tennessee Technological University
August 1999 – December 2004
Bachelor of Science in Civil Engineering
GPA 3.0; Focus: Structures

Hume-Fogg Academic High School
August 1995 – May 1999

REGISTRATIONS:

Professional Engineer in Tennessee (Lic. No. 112040)

ASSOCIATIONS:

Member, American Society of Civil Engineers, Nashville Branch
Member, International Association of Structural Movers
Member, Tennessee Geographic Information Council
Member, Engineers Without Borders-USA, Nashville Chapter

EMPLOYMENT:

Littlejohn Engineering Associates
Project Engineer
April 2007-Present

Barge, Waggoner, Sumner & Cannon
Project Engineer
January 2006-April 2007

Tennessee Dept. of Transportation
Graduate Transportation Associate
January 2005-January 2006

Lumberman's Wholesale
Design Engineer
June 2004-January 2005

W. P. Camp & Sons Housemovers

1990 – Present

SKILLS: Ability to move historic buildings including timber frames or solid masonry buildings in excess of 300 tons

Ability to build equipment for transport of oversized loads in house moving activities

Computer Skills: **AutoCAD, MicroStation, GeoPak, Bentley Design Products, Hydraflow Design Products, ArcGIS**

RELEVANT ENGINEERING / DESIGN EXPERIENCE:

Mr. Camp has extensive experience in the construction inspection, GPS coordination, and civil design of several site development projects. He has provided numerous due diligence reports for various projects, tasks which included re-projection of data, coordination of aerial survey data, and GIS information available from government sources. He has provided erosion control and construction inspection services for several public roadway projects.

A representative sampling of his projects follows:

Dickerson Road Streetscape, Nashville, TN

Providing civil engineering design for urban streetscape renovation project. Provided Phase One construction documents including crosswalk, sidewalk, and pedestrian improvements.

**MDHA Three Year Indefinite Delivery Contract
Nashville, TN**

Providing civil engineering design services under a three year indefinite delivery contract for MDHA. The scope of work includes various streetscape, roadway, sidewalk, and drainage improvements to existing HUD sites.

Adelicia Condominiums, Nashville, TN

Provided civil engineering and planning services for this 18-story, \$65 million-plus premier mixed-use development. The brownstone-inspired tower includes 197 luxury condominiums with ground level retail and parking. The 1.21 acre development is located on the same site of the childhood home of Adelicia Hayes, a historic 19th century figure. Provided zoning and agency coordination, construction permitting, site approval services, and streetscape and offsite utility improvements.

Temple Road Bridge at Highway 100, Nashville, TN

Provided construction inspection services for bridge spanning creek at intersection to Highway 100. Project performed for the Tennessee Department of Transportation (TDOT).

Highway 431 (Trinity Lane), Nashville, TN

Provided erosion control and inspection services along roadway project. Project performed for the Tennessee Department of Transportation (TDOT).

State Route 155 (Briley Parkway), Nashville, TN

Provided erosion control inspection services along newly constructed corridor from Two Rivers Parkway to Lebanon Pike. Project performed for the Tennessee Department of Transportation (TDOT).

RELEVANT STRUCTURAL / CONSTRUCTION EXPERIENCE:

Sam Haynes' Log Home (Murfreesboro, TN 2007) – 240 ton log cabin raised and moved to save from demolition.

Nashville West Development – Relocation of Recreated Robertson Home Log Cabin (Nashville, TN 2006) Relocated log cabin on site to allow for further development of property.

Amqui “Johnny Cash” Train Station (Madison, TN / Hendersonville, TN 2006) Relocation of Train Station in two pieces.

Nissan Smyrna Plant Expansion (Smyrna, TN 2005) Relocation of large concrete storage facilities and offices on site to allow for plant expansion.

Historic Sam Davis Home (Smyrna, TN 2002) Relocation of historic home to save from demolition. Then moved again to bring closer to museum.

Historic Cool Springs House (Brentwood, TN 1995) Historic home now at the center of Crockett Park. Removed roof and moved as two-story. Moved all associated outbuildings, including historic pole barn.

Historic Ellis Garage (Nashville, TN 1993) Relocation of solid masonry garage built in 1929 to allow for roadway widening at corner of Old Murfreesboro Road and Smith Springs Road.

Nashville International Airport Noise Abatement Program (Nashville, TN 1989-1996) Moved dozens of homes to allow for airport to expand its noise mitigation program.

Portable Classroom Relocations throughout Middle Tennessee

Standard House Moves throughout Middle Tennessee

Raising, Leveling of Structures throughout Tennessee

CAREER SUMMARY

Mr. Nelson is an Environmental Consultant with highly diverse experience executing engineering and environmental planning, management and permitting projects. Over his 16 year career, his primary clients have been executive directors, senior environmental engineers and managers of municipal and industrial water and wastewater treatment facilities. Other clients have included attorneys involved with environmental regulatory issues and government entities involved with the regulation and operation of engineering and environmental control facilities. Other significant experience has involved office and group management including profit and loss responsibility, business development and client retention.

Education

M.E. Environmental Engineering
University of Florida,
1997

B.S. Civil Engineering
University of Florida,
1991

Experience

16 Years

Joined Firm

2006

CORE SKILLS

- Industrial Wastewater/Water Plant Design
- Water Reuse Recycle
- Treatability Studies
- Municipal Water/Wastewater System Design

PROFESSIONAL REGISTRATIONS

- Professional Engineer: TN, FL

REPRESENTATIVE PROJECTS

Industrial Wastewater/Water Plant Design

Nuclear Fuel Services, Erwin, TN

Managed design, construction, startup and delivery of a 200,000 GPD radiological groundwater treatment system in a nuclear fuel production facility. Project involved design and construction of chemical/physical process, instrumentation, specifications, controls, programming-integration PLC configuration, and equipment and piping installation. Facility testing and start-up after construction was also included. Managed overall budget for design-build, start-up, and delivery of facility to client.

McKee Foods Corporation, Collegedale, TN

Project manager for design of a 1.2 MGD Dissolved Air Flotation (DAF) system for food processing wastewater. Project involved process design, piping and hydraulics, instrumentation, specifications, controls and structural design. The project also involved automatic recirculation of equalization basin contents to maximize use of the DAF during non-peak flow periods. This project is currently under construction.

Plus Mark, Afton, TN

Project manager for design of 25,000 GPD wastewater treatment facility. The project included the design of a passive flow fixed film recirculating sand filter system with UV disinfection prior to discharging to a permitted stream outfall.

Brandy Branch Generation Station Water & Wastewater Improvements, Jacksonville, FL

Project manager for the design, permitting, and services during construction for a wastewater pumping station, an access roadway and associated storm water improvements, the deepening of an existing water supply well and the addition of a water supply well.

Water Reuse Recycle

U.S. Pipe and Foundry, Birmingham, AL

Managed and carried out consulting and design for a 1.2 MGD industrial wastewater treatment reuse and recycle facility. Process involved grit removal, settling, sludge handling, coagulation/ flocculation, and chemicals removal. Project involved treatability study, engineering study, process design, detailed design including process, process piping, instrumentation, controls, structural and specifications. The resulting process reuses 90 percent of the treated water and reduces the purchase of industrial water from 1.2 MGD to 0.12 MGD.

Mandarin Reclaimed Water Pipeline Design, Jacksonville, FL

Project Engineer for the design and permitting of approximately 23 miles of 24-inch to 6-inch reclaimed water pipeline. Responsible for designing a significant portion of the pipeline including multiple subaqueous crossings in addition to transmission system modeling using AFT Fathom 4.0, and delivery station design.

Treatability Studies

Shaw Industries, Dalton, GA

Performed treatability study for oil/water separation and emulsified oil (acid cracking) separation from industrial wastewater. Performed studies for iron complex and mercury removal from waste stream. This treatability study identified process, equipment size, developed budgetary cost and feasibility of implementation for the process.

U.S. Pipe and Foundry, Birmingham, AL

Performed treatability study for a 1.2 MGD industrial wastewater treatment reuse and recycle facility. Treatability involved separation of sand for reuse from sand/cement mixture, removal of cement from process wastewater, separation of free and emulsified oils, metals removal, cyanide oxidation, and pH adjustment. Process involved grit removal, settling, sludge handling, coagulation/ flocculation, chemicals precipitation and chemical oxidation. The resulting process reuses 90 percent of the treated water and reduces the purchase of some 1.2 MGD of industrial water to 0.12 MGD.

KIK Custom Products, Memphis, TN

Performed treatability study to develop treatment process for eliminating sud production from 160,000 gpd industrial sewer discharge. Developed treatability protocol to determine suds potential of product wastewater developed in-line testing of product wastewater and resulting treatment protocol to eliminate sud potential of wastewater. The project identified process, equipment size, developed budgetary cost and feasibility of implementation for the process.

Municipal Water/Wastewater System Design**Hickman County Sewer System Expansion, Hickman County and Dickson County, TN**

Supervised and completed the design of a 6.3 mile long 8-inch wastewater force main along S.R.-46 from the East Hickman County High School to an existing gravity sewer connection to the Dickson Water Authority's wastewater system just south of Interstate-40. Project also included the design of two wastewater pump stations with flows of 350 gpm and 110 gpm as well as the design of 3,540 linear feet of gravity sewer system. Assisted in the creation of easement descriptions to support easement acquisition for placement and construction of pipeline.

City of Crossville Sewer System Expansion, Crossville, TN

Managed and executed the design of a 3 mile long wastewater force main along S.R.-127 from Cumberland Mountain State Park to an existing force main connection to the City of Crossville's wastewater system. Worked closely with TDOT to develop pipeline alignment to support roadway expansion and pipeline construction efforts. Worked closely with city officials to support the project through the City Council project authorization and funding process.

Buffalo Sewer Treatment Plant Sewer Line Extension, Humphreys County, TN

Directed and completed the design of a sewer line extension to the Buffalo Sewer Treatment Plant, Humphreys County, Tennessee. Project included 1,480 linear feet of 4-inch sanitary sewer force main, 4,439 linear feet of 8-inch gravity sewer, and a pump station with a flow of 100 gpm. The project also included the design of a 310 linear feet of jack and bore under Interstate-40 as well as 56 linear feet of jack and bore under S.R.-13. Assisted in acquiring TDOT approval for these bores.

River Crossing Transient Hydraulic Analysis, Jacksonville, FL

Managed the hydraulic analysis and surge analysis for a 21 mgd raw water distribution system pipeline with over 15 miles of pipe and 3 miles of subaqueous crossings. The project required the use of multiple hydraulic analysis software tools including AFT Fathom, EPANET and SURGE.

OTHER PROFESSIONAL QUALIFICATIONS**Organizations**

- Water Environment Federation
- American Water Works Association
- Engineers Without Borders Nashville (Project Coordinator)
- Jamaican Diaspora of Nashville (Founder/Director)