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SC Court of Appeals

THE STATE OF SOUTH CAROLINA
In the Court of Appeals

APPEAL FROM THE ADMINISTRATIVE LAW COURT

The Honorable Ralph King Anderson, III
Chief Administrative Law Judge

APPELLATE CASE NO. 2020-001323

ADMINISTRATIVE LAW COURT CASE NO.: 18-ALJ-07-0358-CC
ADMINISTRATIVE LAW COURT CASE NO.: 18-ALJ-07-0360-CC
ADMINISTRATIVE LAW COURT CASE NO.: 18-ALJ-07-0366-CC

CareAlliance Health Services, d/b/a Roper St. Francis Healthcare, Roper Hospital, Inc., Bon Secours-St. Francis Xavier Hospital, Inc., Roper St. Francis Berkeley Hospital and Roper Mount Pleasant Hospital,……Respondent,

v.

South Carolina Department of Health and Environmental Control and Medical University Hospital Authority, d/b/a MUHA Community Hospital,…….Respondents,

AND

Walterboro Community Hospital, Inc., d/b/a Colleton Medical Center,……Appellant,

v.

South Carolina Department of Health and Environmental Control and Medical University Hospital Authority, d/b/a MUHA Community Hospital,…….Respondents,

AND

Trident Medical Center, LLC d/b/a Trident Medical Center and Summerville Medical Center,……...Appellants,

v.

South Carolina Department of Health and Environmental Control and Medical University Hospital Authority, d/b/a MUHA Community Hospital,…….Respondents.

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APPLICATION

TRIAL EXHIBIT

Joint Exh. 1

FOR A HEALTH FACILITY OR SERVICE

SCDHEC Received: DEC 27 2017 Certificate of Need Program

Proposal Prepared by:

Name: Patrick J. Cawley, MD

Title: CEO, MUSC Health & Vice President of Health Affairs, University

Organization: Medical University Hospital Authority

Address: 169 Ashley Avenue

City: Charleston State: South Carolina

Zip Code: 29425 Telephone Number: 843-792-4000

Email: cawleypj@musc.edu

The Applicant hereby certifies that the information contained in this Application, including all assurances and attachments, are correct to the best of his knowledge and belief.

Applicants Signature: _____

Date: 12/8/17

Please copy all correspondence related to this application for:

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S.C. Department of Health and Environmental Control
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APPLICATION FOR CERTIFICATION OF NEED FOR A HEALTH FACILITY OR SERVICE

NOTE: A "complete" application shall include a written narrative report by the applicant (Regulation 61-15, Section 202).

PART A - QUESTIONNAIRE
1. Name of Facility MUHA Community Hospital
2. Address, City, County, State, Zip Code 0 Nexton Parkway: Tract A TMS # 185-00-00-046

3. Type of Facility (Circle)		
A. Hospital	B. Nursing Home	C. Psychiatric Facility
D.Rehabilitation Facility	E. Substance Abuse Facility	F. Ambulatory Surgery Facility
F. Other (Specify)		

4. Purpose of Review (Circle)		
A. New Facility	B. Change of Licensure	C. Addition to Existing Facility
D. Renovation of Existing Facility	E. Change of Services	
F. Other (Specify)		

5. Management		
A. Name of Administrator Patrick J. Cawley, MD	B. Address, City, State, Zip Code 169 Ashley Avenue Charleston, SC 29425	
C. Telephone: 843-792-4000	D. Fax Number 843-792-6682	E. Email cawleypj@MUHA.edu

6. Licensee
A. Name of Licensee Medical University Hospital Authority

B. Address, City, State, Zip Code 169 Ashley Avenue Charleston, SC 29425

7. Ownership or Control of the Facility (Attach a list of names and addresses of the owners of the facility, indicating percent of ownership of each owner, the person responsible for the proposal, and the attorney(s) representing the proposal). Circle the appropriate information regarding ownership.			
A. Individual	B. Partnership	C. Corporation	D. Proprietary
E. Non-Profit	F. Government - State		
G. Other: (Specify)			

8. Proposed Site of the Property	
A. Owned	B. Leased
C. Length of Site Lease	
D. Option	E. Length of Option
F. Name and Address of Owner(s) of Real Property Please see **Attachment E** for the LOI to own the land.	

9. Total Bed Capacity for Which Application is Made*

	Existing Facilities			
	New Facility Only	Existing Beds	# Gained or Lost	Bed Total
Type of Beds				
A. Medical/Surgical	100	356	100	456
B. Obstetrics	16	36	16	52
C. Pediatrics		98		98
D. Substance Abuse		23		23
E. Psychiatric		82		82
F. Rehabilitation				
G. Nursing Care				
H. RTFs				
I. ICU/CCU	12	118	12	130
J. Other				
K. TOTAL	128	713	(128)	841

* 9-Does not include additional 48 beds approved under SC-15-26. These beds will be licensed when the SJCH is operational and the backfill of the current Children's Hospital is fulfilled.

10. Construction and Site	
A. Type of Construction **New Hospital**	B. Number of Buildings Pertaining to Project **One**
C. Number of Stories Pertaining to Project **Five**	D. Size of the Site in Acres **40 Acres**
E. Size of the Project Site in Acres **35 Acres**	F. Square Footage of the Project **311,221 sf**
G. Anticipated Date of Beginning Construction **December 2019**	H. Anticipated Date of Licensing or Project Completion **May 2022**
I. Anticipated Date for Submission of Final Completion Report **April 2022**	
11. Zoning of Construction Site Commercial	

12. Costs (Provide Estimated Signed Cost Statement from Either the Architect or Engineer)	
A. Land Cost Land Acquisition: $10,000,000 Sitework: $11,235,720	B. Construction Cost Building Construction: $152,105,132 Construction Contingency: $7,605,257 Design Contingency: $7,605,257 Subtotal: $167,315,646
B. Architect's/Engineer's Fee $11,025,507	D. Equipment Costs 1) Fixed Equipment: $28,189,768* *Includes tax of 8.5%
F. Financing Cost During Construction $25,663,738	F. Other Costs (Specify) Furniture/Fixtures: $2,489,768 Telecommunications/IT: $8,130,743 Owner Costs: $52,539,144 Professional Services/Fees: $8,409,966 Subtotal: $71,569,621
G. Total Project Cost $325,000,000	H. Construction and Equipment Cost 1) Per Square Foot Construction: $538 Equipment (fixed, furniture, IT): $125 2) Per Bed Construction: $1,307,154 Equipment: $303,205

Part B. Additional Information

1. **Document that the applicant has published notification of this project in a local newspaper as required by Section 201 of these regulations.**

   Response: The published notification of the intent to file this CON is provided as **Attachment A.**

2. **Describe the project setting forth the proposed change in services or facilities in as much detail as possible. State whether the project will change the existing licensed or survey bed capacity, will encompass the development of a new service, or result in the discontinuance of an existing service. If a new facility is proposed, list all services to be provided.**

Introduction

The Medical Center of the Medical University of South Carolina, now under Medical University Hospital Authority (MUHA) ownership, was established in 1955 as both a teaching and referral center and is South Carolina's largest academic medical center. Centrally located in downtown Charleston, MUHA has achieved international recognition and national acclaim as a premier biomedical research, educational, and clinical institution. MUHA's mission is "to provide excellence in patient care, teaching, and research in an environment that is respectful of others, adaptive to change, and accountable for outcomes."

MUHA offers a wide range of services to a large population base residing primarily in South Carolina and extending across the state and beyond. Among the services provided on the hospital's campus is a full range of emergency, maternity, pediatric, medical/surgical and diagnostic services. MUHA serves as an academic training facility for numerous medical residency programs. With 49 different medical specialty residency training programs, the hospital serves as a valuable resource for educating and preparing future physicians.

Current Situation

In addition to its acute care and trauma services, MUHA is comprised of several specialty divisions operating under the MUHA Medical Center license, including MUHA Children's Hospital, the Institute of Psychiatry, and the Storm Eye Institute. Currently, these various centers, occupying over 1,300,000 square feet and are housed in many different buildings on the hospital's campus. While the quality of care provided is outstanding, earning MUHA the reputation as one of the top hospitals in the United States, the acute bed tower was designed and constructed over 20 years ago, with other portions of the facilities almost 50 years old. Much of the current infrastructure and buildings need upgrades, repairs, and major maintenance. The infrastructure systems are reflective of the codes at the time the buildings were constructed, but may not have been upgraded to current needs and standards. Since the hospital buildings on the campus are spread out, most are served by infrastructures internal to the buildings, creating system redundancy, which adds to the operating costs of the facilities.

MUHA's facility growth has been focused on specific service lines and "Integrated Centers

of Clinical Excellence" which has allowed the necessary expansion. However, this facility growth strategy has not allowed for complete efficiency and integration of the clinical services. The current travel distances, functional adjacencies, and floor plan layouts of departments do not allow for the special efficiencies which hospitals depend on in order to have maximum direct patient care time and minimized unproductive time. Much of the patient care buildings are undersized and require replacement or significant upgrading. MUHA's ability to deliver state-of-the-art care and to maintain its attractiveness to patients will be difficult to maintain under the current conditions of the buildings on its campus. In addition, MUHA's capacity constraints are at an all-time high and the current buildings, future Shawn Jenkins Children's Hospital and the backfill of Children's will not provide enough beds to alleviate the current constraints on patient care.

Project Overview

MUHA is committed to building an integrated health care system with the depth and breadth to lead health innovation for the lives we touch. By adding a 128-bed Community Hospital in Nexton to the MUHA system, we will establish a natural, complementary component to our tertiary, quaternary hospital facility on the peninsula, where we care for the sickest patients and provide the most intensive care. Our new Community Hospital in Nexton will provide a range of specialized inpatient and outpatient services. This combination of services will enable MUHA to deliver the right care to patients in the right place at the right time. MUHA's rationale for the project revolves around three main trends in the tri-county area market, which are as follows:

- A large percentage of MUHA's adult inpatients originate from the Berkeley county area and establishing an acute care hospital in Berkeley county will allow patients to have convenient access to MUHA's state-of-the-art care near their place of work and home.
- Berkeley county is a dramatically underserved market in the tri-county area and only has one acute care hospital planned and under construction to service the entire population.
- Increased demand for inpatient services at MUHA and within the tri-county service area, resulting in capacity constraints and prolonged boarding hours.

First, the project promotes a community-health model promoting patient convenience. MUHA hopes to change what's possible by providing the World-Class Care with a Home-Town Feel in the Nexton and Cane Bay Communities. Both Nexton and Cane Bay are located in Berkeley county and are among the nation's top-selling master-planned communities. Nexton is the perfect community to deliver community care as it anticipates 8,500 new residences and was awarded the best emerging neighborhood by Post and Courier in 2016. In addition, Cane Bay could be home to 25,000 or more when completed and includes ten district neighborhoods and three top-rated schools, which also makes it an ideal location to deliver convenient care to local residents. As the state's largest academic medical center, MUHA has achieved international recognition and national acclaim as a premier biomedical research, educational, and clinical institution. MUHA wants to expand to offer the same world-class care with a home-town feel by providing inpatient services closer to the homes of many of our patients. Patients originating from the tri-county area accounted for 56% of MUHA's overall adult inpatient population in FY2017, which represents approximately 17,272 patients. Of those patients, 29% (representing approximately 8,796

patients) originate from the North Charleston, Summerville, and Monks Corner submarkets, which is where the project will be located. The site location is significantly closer to this patient population with an average drive time of 16 minutes for patients and families living in the northern zip codes. This saves an average of approximately 30 minutes when compared to the amount of time required for driving, parking, and way-finding at MUHA's downtown campus for the same population. The ability for MUHA to provide high-quality care closer to home creates a seamless, patient experience. Nexton's vision is to provide a quality of life that no other development in Charleston provides, benefitting both businesses and employees. By embedding a Community Hospital within this 4,500-acre master planned community, MUHA will help bring this vision to life. The inpatient hospital will provide the perfect complement to Palmetto Primary Care Physicians' planned outpatient medical campus at Nexton. Palmetto Primary Care Physicians is the largest Primary Care physician practice group in the tri-county and are construction an outpatient medical campus in Nexton to be complete in 2018. In addition, the explosive economic and residential development in Berkeley and Dorchester Counties creates an opportune environment for providing convenient healthcare to this new patient population. By establishing an acute care hospital in Berkeley county, patients have convenient access to MUHA's state-of-the-art care near their places of work and home.

Second, the Berkeley County population is currently an underserved healthcare market. The most recent Berkeley County Comprehensive Plan, found on the Berkeley County Government webpage, and included in **Attachment R**, indicates a lack of health care facilities providing services for the general population in the county. Furthermore, MUHA partnered with Roper St. Francis and Trident United Way (partner organizations) to successfully complete the Community Health Needs Assessment (CHNA) in 2016. The monumental health challenges facing Tri-County residents impact not only their length and quality of life, but also their ability to contribute to the region's growth and economy. The partner organizations are committed to changing from making isolate impact to working together to achieve broad impact on our region's health. The top health issue identified as a priority in the CHNA was access to health services. Of the six barriers to accessing health services the lack of availability of healthcare services in Berkeley County was identified as a driving factor. Currently, Berkeley County has only one 50-bed acute care hospital under construction to serve a rapidly growing population – Roper's Berkeley Hospital. The CON for Roper's Berkeley Hospital was filed in 2008 and although the hospital is not yet operational, it will begin accepting patients in Fall 2019. Trident Health also filed a CON in 2008 to construct a hospital in Berkeley County, however, they have not begun construction on their site. MUHA's project will further support the need for two Community Hospitals in Berkeley County, as highlighted in the CHNA and future reiterated by South Carolina Supreme Court, when it upheld the decision of the Administrative Law Court Judge John D. McLeod, affirming DHEC's decision to approve the CON applications for two hospitals in Berkeley County. The project will address the challenges identified in the CHNA by increasing access to acute care, specifically for patients originating from the Berkeley and Dorchester markets. A significant portion of MUHA's inpatient volume originates from zip codes within the Berkeley and Dorchester markets. In addition, many of the patient transfers received by MUHA originate from tri-county hospitals in the north to include both Summerville Medical Center and Trident Medical Center. All population assumptions in this

CON use MUHA's current patient population and projected population growth. The proposed project does not assume any migration of patients from other facilities in the Berkeley market.

Third, MUHA has experienced an increased demand for inpatient services over the past several years. This new hospital will serve to meet many of these growing demands. The need was reinforced by the 2017-2018 State Health Plan which indicates a need of 147 beds over the next seven years at MUHA. The project addresses the current and projected demand consistent with the State Health Plan's stated need. MUHA has seen an increase in high acuity patients and subsequently, increased case mix indices (CMI). As the high acuity inpatient volume increases, this results in a longer length of stay and decreased bed capacity. Midnight census in the acute care units at MUHA has risen significantly over the past three years, with all units averaging 90% capacity in 2017. Furthermore, constraints on bed capacity have led to extensive boarding hours in both the operating rooms and emergency department. Boarding hours are defined as hours a patient is waiting or "boarding" within the hallways for an inpatient bed. Patients that access MUHA through the ED and require inpatient admission, wait on average two hours to be placed into an inpatient bed to receive treatment. Patients that receive treatment in an OR and require inpatient admission, wait on average one hour to be placed into an inpatient bed. Furthermore, MUHA is often unable to accept patient transfer requests from local tri-county and affiliate hospitals on a daily basis due to lack of available beds. All of these issues stem from the growing tri-county population and increasing inpatient demand at MUHA's downtown campus. MUHA delivers a unique value to patients due to the level of multidisciplinary, subspecialty care, which continues to drive the increasing demand for services. By shifting lower acuity patients away from the downtown campus, and providing primary and secondary care in the community, MUHA will be able to focus on the tertiary and quaternary care downtown. The project will allow MUHA to treat lower acuity patients closer to home while caring for many of the sickest patients in the state and portions of the southeast downtown at the tertiary/quaternary hub.

A significant portion of MUHA's inpatient volume originates from zip codes within the Berkeley and Dorchester markets. In addition, many of the patient transfers received by MUHA originate from tri-county hospitals in the north to include both Summerville Medical Center and Trident Medical Center. All population assumptions in this CON use MUHA's current patient population and projected population growth. The project does not assume any migration of patients from other facilities in the Berkeley market.

The new Community Hospital will be expertly planned, designed, equipped and staffed to promote a patient-centered environment. The facility will be intentionally designed to reduce wait time and promote individualized, high quality community care at a lower cost to the patient. The Community Hospital will provide sufficient free, surface lot parking in a more convenient geographic location to improve access to services than currently are delivered on the peninsula in downtown Charleston.

This project will alleviate the growing constraints on the hospitals within the Tri-County market. MUHA and Bon Secours St. Francis hospitals have both increased inpatient

volumes by six percent over the last five years. Trident Medical Center has increased inpatient volumes by fourteen percent within the last five years. East Cooper Medical Center and Mount Pleasant Hospital have increased inpatient volumes by twenty-one percent and twenty-nine percent, respectively, over the last five years. The growth in inpatient population in each of these non-peninsula hospital facilities is driven by population growth outside of and migration away from the peninsula city. This trend indicates that the tri-county hospitals will continue to grow inpatient volumes in the future.

3. **Provide the total cost of the project, indicating design fees, land cost, interest cost, construction cost, equipment cost, and any other cost involved in the project. Provide an estimate of the construction cost from a licensed architect or engineer; in the case of equipment, valid/current estimate from a vendor is acceptable.**

Response: The total project cost for the construction of a 128-bed acute care Community Hospital is $325,000,000. The full detail is provided in Attachment B. This includes all necessary equipment to support the facility, construction/design costs, land/site work, financing fees, legal fees, DHEC fees and contingencies due to the unknown construction escalation costs.

The equipment costs for the Community Hospital are estimated at $38.8M. This analysis was reviewed by Strategic Hospital Resources in Atlanta. Strategic Hospital resources partnered with MUHA's facility team to determine cost by department which includes 10% for contingencies. Also, we escalated equipment costs at 6% annually to midpoint of construction. All estimates include the 8.5% sales tax. The equipment cost breakdown and quotes for the 1.5T MRI and 128-slice CT are provided in **Attachment B**. A summary of total project and equipment costs are shown in Figure 1, below:

Figure 1:
Total Costs & Equipment Costs

Cost Category	Cost	
Total Land Acquisition Costs	$	10,000,000
Total Construction Costs*	$	163,340,852
Design Contingency	$	7,605,257
Construction Contingency	$	7,605,257
Total Other Building/Equip Costs	$	38,810,279
Total Professional Services and Fees	$	19,435,473
Total Owner Costs	$	78,202,882
Total Project Costs	$	325,000,000

Notes: *- includes 2.37% escalation to midpoint of construction Feb 2021 per schedule. Site work costs are included in the Construction costs.

Equipment Costs

Other Building/Equipment Costs					Cost
	Procurement Consultant				$ 350,000
	Medical Equipment-Imaging				$ 10,120,000
	Medical Equipment-Surgical				$ 3,366,000
	Medical Equipment-ICU				$ 1,188,000
	Medical Equipment-Nursing Service				$ 2,000,000
	Medical Equipment-OB				$ 3,104,200
	All Other				$ 3,576,980
	Medical Equipment-Escalation				$ 4,484,588
Medical Equipment-Total					$ 28,189,768
IT/AV/Monitors/TV/Computers/Cabling/infrastructure					$ 8,130,743
Furniture, Fixtures, Office Equipment, Signage		$8	per SF	311,221	$ 2,489,768
					$ 38,810,279

4. **State the specific location of the facility or service and/or equipment, including, where applicable, specific areas of an existing facility to be affected by the project. Provide room numbers of all patient rooms affected. Sufficient detail should be provided to allow the Department to visually inspect the site. The number of private and semi-private patient rooms shall be identified.**

Response: The MUHA Community Hospital (Community Hospital) will consist of a 5-story, 128-bed inpatient facility. The new facility will be capable of delivering a high level of community based care and have a powerful, patient-focused architectural presence. The new Community Hospital will include:

- 100 Medical/Surgical Beds
- 12 Intensive Care Beds
- 16 Post-Partum Beds
- 8 Labor and Delivery Rooms
- Newborn Nursery with 8 newborn bassinets; Facility will foster a couplet-care environment similar to Shawn Jenkins Children's Hospital
- Surgery – 4 ORs, 2 Cesarean Section ORs
- 2 Endoscopy Suites
- Vascular Lab
- Emergency Department
- Diagnostic and Imaging Department
- Non-Invasive Testing
- Administration (Executive, Nursing, General, Auditorium, Staff Facilities)
- Clinical Support (Laboratory/Pharmacy)
- Logistics and Support (Food Service, Technology, Building Support, Central Sterile Processing, and Materials Management)

The summary of the program plan is included below and the details are included in **Attachment C:**

Floor	Clinical Service
First	Imaging Suite to include MRI & CT Emergency Services Nuclear Medicine Lab Pharmacy Non-Invasive Cardiology Dietary
Second	Operating Rooms Procedure Rooms Rehab Therapy Intensive Care Unit (12 Beds) Obstetrics: 8 LDRs, 16 Postpartum Beds Nursery: 8 bassinets

Third	20-bed Medical/ Surgical Unit Rehab
Fourth	Two 20-Bed Medical/ Surgical Units
Fifth	Two 20-Bed Medical/ Surgical Units

MUHA's received CON approval for a Freestanding Emergency Department to be located in Summerville approximately two miles from the site. The Freestanding Emergency Department will ultimately be relocated to the Community Hospital in order to co-locate services and reduce duplication of Emergency Services within the same zip code.

The Community Hospital facility will be located in Summerville-Berkeley County on the approximately 40-acre site bounded off of Nexton Blvd at 0 Nexton Parkway: Tract A Drive under option to be purchased by MUHA.

The TMS number for the land is 195-00-00-165. Please refer to **Attachment D** for the land map. The Nexton Community is owned by a business entity of North America Sekisui House, LLC (NASH), and is being developed by Newland Communities, the master developer of the community. Newland has signed a letter of intent to sell its ownership interest in the land to MUHA which is included in **Attachment E.**

5. **Provide details regarding any proposed construction and/or renovations. Discuss alternatives to new construction and why these alternatives were rejected. For a multi-floor project, construction and/or renovation must be described, by floor, to include any additions and/or deletions made to each floor. Provide evidence that the applicant has adequately planned for any temporary move or relocation of any department, facility, or services, which may be necessary during the construction period. Document that plans exist to assure adequate protection (from fire, noise, dust, etc.) and continuation of all services during the proposed construction period.**

   Response: Renovation was not considered as a viable option since the project is in a new location in a different part of the service area. No existing buildings are available in the area for renovation to suit this project's purpose. The new fully sprinklered building is currently planned with the first floor housing the Emergency Department, Imaging and Diagnostics, Dietary and other clinical and general support functions. The second floor is currently planned with Surgery, Critical Care, OB and Postpartum Services. The third floor includes Rehab and Renal Dialysis Services as well as a 20 bed patient floor. The fourth and fifth include additional 40 bed per floor. Above this area we will have Mechanical space and helipad services. See the conceptual floor plans attached for more detail. Since the project will be all new construction on a remote site from existing MUHA facilities, no temporary relocations or interruptions of services will occur during construction. Please refer to Attachment B with the letter from the architects.

6. **If a replacement facility or ancillary service is being constructed, describe plans for disposition of the existing facility or ancillary service area upon completion of the project.**

   Response: Not Applicable. This is not a replacement facility.

7. **Provide a timetable for development and completion of the project to include, at a minimum, the date of site acquisition, date of architectural contract, architectural design schedule, date of closing for financing, date of valid construction contract, date that all necessary permits (grading, building, sewer, etc.) will be obtained, and date of start of construction. The timetable shall be presented in one-month increments commencing with the month following receipt of the Certificate of Need and ending with the execution of a contract or purchase order for equipment only projects.**

   Response: The timetable, developed by the project architect, is included in **Attachment F**. The construction is expected to begin in February 2020 and the project is expected to be finished and ready for occupancy in May 2022 as shown in **Figure 2**.

Figure 2:
Community Hospital CON Timeline

Stage of Work	CON Timeline
Site Acquisition	October 2018
Architectural Contract	October 2018
Architectural Design	October 2018 – November 2019
Closing for Financing	November 2019
Bid/Award Construction Contract	November 2019 – December 2019
Obtaining of Permits	November – December 2019
Construction	December 2019 – February 2022
Construction for Operating Rooms	February 2020 – February 2022
Equipment Installation/Testing	February 2022 – May 2022
Project Completion	May 2022

8. **Provide the following ownership information:**

   a) **Proposed name of facility:**
   MUSC Community Hospital

   b) **Name and address of licensee or prospective licensee. (Note: The licensee is defined as the legal entity who, or whose governing body, has the ultimate responsibility and authority for the conduct of the facility or service; the owner of the business. The licensee must be the entity to whom the Certificate of Need is issued.)**

   Medical University Hospital Authority
   PO Box 250332
   169 Ashley Avenue
   Charleston, SC 29425

   c) **Complete title of the licensee's governing body:**
   Medical University Hospital Authority Board of Trustees

d) **Name, title and mailing address of presiding officer of the governing body.**
Donald R. Johnson, II, MD

e) **Name and mailing address of all persons and/or legal entities having any ownership interest or owner's equity of the licensee to include a schedule of percent and type ownership claim of each.**
Medical University Hospital Authority
PO Box 250332
169 Ashley Avenue
Charleston, SC 29425

f) **Name and mailing address of all persons and/or legal entities claiming liabilities of the licensee or of the facility or service for which this Certificate of Need is requested to include a schedule of percent and type of claim of each.**
See response to (e) above.

g) **Provide a listing which identifies all officers of the licensee.**
Please see **Attachment G** for a listing of the officers of the licensee.
Attachment H includes the organizational chart for MUHA.

h) **Is the land and/or building on/in which the proposed facility or service is to be conducted owned by the applicant.**
YES NO

Please refer to **Attachment E** for the LOI to transfer ownership of the land from to MUHA.

i) **Has the licensee engaged an entity other than an employee of the licensee to manage or operate the facility or service?**
YES **NO**
If yes, provide information similar to that required in (b) through (g) above.

j) **Is there any agreement, contract, option, understanding, intent or other arrangement that will effect a change in any of the information requested and/or provided in (b) through (g) above?**
YES **NO.**
If yes, provide information similar to that required in (b) through (g) above.

k) **Provide a complete listing of all existing licensed health care facilities and/or services and Certificates of Need in which the proposed licensee currently has an ownership interest, to include names and addresses of each facility or service. In the cases of Certificates of Need for undeveloped facilities and services, provide the name, address, and telephone number of a contact person representing the authority which issued the Certificate of Need.**

The Medical University Hospital Authority (licensee) has ownership interest in the following facilities:

Medical University Hospital
Tax ID: 57-1098556
171 Ashley Avenue Charleston, SC 29425

MUHA Ashley River Tower
Tax ID: 57-1098556
25 Courtney Drive Charleston, SC 29425

MUHA Children's Hospital
Tax ID: 57-1098556
169 Ashley Avenue Charleston, SC 29425

MUHA Institute of Psychiatry
Tax ID: 57-1098556
67 President Street Charleston, SC 29425

Shawn Jenkins Children's Hospital and Women's Pavilion (SC-15-07), Open Heart OR (SC-17-63)
326 Calhoun Street Charleston, SC 29401
3 and 5 Charleston Center Drive, Charleston, SC 29401

MUHA North Charleston Pediatric Imaging Center (SC-17-30)
Rivers Avenue & Mall Drive
North Charleston, SC 29406

MUHA North Charleston Pediatric Ambulatory Surgery Center (SC-17-32)
Rivers Avenue & Mall Drive
North Charleston, SC 29406

Mount Pleasant Surgery Center (SC-17-64)
1106 Chuck Dawley Blvd. #200
Mount Pleasant, SC 29464

MUSC Musculoskeletal Institute (SC-17-31)
2060 Sam Rittenberg Blvd.
Charleston, SC 29407

l) **Should the licensee be a subsidiary corporation, provide a diagram of the licensee's relationship to the parent corporation and list the name and addressof the parent corporation as well as the corporation which has ultimate control. In addition, please provide the name and mailing address of all persons and/or legal entities having ownership interest of five percent or more or any person with any agreement, contract, option, arrangement, or intent to acquire ownership interest of five percent**

or more, of all corporations in the corporate organizational structure which have ultimate control of the licensee.

Not applicable to this project.

9. **Provide documentation that the applicant has sought cooperative agreements such as transfer agreements with other facilities, as applicable.**

Response: MUHA currently holds transfer agreements with numerous facilities in the region. The project does not affect any of these transfer agreements already in place.

The following facilities have engaged with the MUHA Medical Center regarding transfer agreements:

1. Alston Wilkes Society
2. Barnwell County
3. Beaufort Memorial Hospital
4. Bishop Gadsden Retirement Centers
5. Bon Secours St. Francis
6. Carolina Pines Regional Medical Center
7. Carolinas Medical Center
8. Charleston Surgery Center
9. Charlotte-Mecklenburg Hospital Authority
10. Children's Hospital of The King's Daughter
11. Coastal Carolina Medical Center
12. Conway Dialysis Center
13. East Cooper Community Hospital
14. East Cooper Regional Medical Center
15. Gambro Healthcare Santee
16. Tidelands Georgetown Memorial Hospital
17. Grand Strand Regional Medical Center d/b/a South Strand Ambulatory Care Center
18. Greenville Health System
19. Greenville Memorial Hospital
20. Harvest Health
21. HealthSouth Rehabilitation Hospital of Charleston
22. Hilton Head Regional Medical Center
23. Integrated Health Services at Driftwood, Inc.
24. Island Oaks Living Center
25. Marion County Medical Center
26. Mary Black Health System
27. MCG Health System
28. Palmetto Health Richland Hospital
29. Palmetto Kidney Center, Inc.
30. Piedmont Medical Center
31. Providence Hospital
32. Regional Medical Center of Orangeburg

33. Renal Advantage, Inc.
34. Riverside Health and Rehab
35. Roper Hospital
36. Roper St. Francis Healthcare
37. Second Chance Senior Care Center
38. Sisters of Providence Charity Hospital
39. Spartanburg Regional Medical Center
40. THI of SC at Charleston, LLC d/b/a Driftwood Rehabilitation & Nursing Center
41. Trident Medical Center, LLC
42. Palmetto Health Tuomey
43. White Oak Manor – Charleston
44. McLeod Regional Medical Center
45. Vibra Hospital of Charleston
46. Tidelands Waccamaw Community Hospital

10. **Indicate the means by which a person will have access to the facility's services (i.e. physician referral, self-admission, etc.). Identify the specific facilities or agencies the applicant expects to receive referrals from (i.e. hospitals, home health agencies, etc.). Describe any limitations placed on admissions.**

Response: Patients will have access to the Community Hospital by self-referral and by internal and external physician referral. Referrals derive from private physician practices, public clinics and other hospitals. Access to the facility also comes from physicians affiliated with the following health care organizations: the MUHA Medical Center, the Family Medicine Clinic, and the MUHA/UMA satellite primary care network affiliates under MUHA Ambulatory Care Services. There are no limitations placed on admissions.

Please refer to documentation on file with the Department for MUHA's Patient Rights and Responsibilities documentation.

11. **Demonstrate that the proposed project is needed or projected as necessary to meet an identified need of the public. This shall address at a minimum: identification of the target population; the degree of unmet need; projected utilization of the proposed facility or service; utilization of existing facilities and services; past utilization of existing similar services within the facility; and justification that the proposed project will not unnecessarily duplicate existing entities. The applicant must show all assumptions, data sources, and methodologiesused. The applicant must use population statistics consistent with those generated by the State Demographer, State Budget and Control Board.**

Response:

Project Overview

MUHA is committed to building an integrated health care system with the depth and breadth to lead health innovation for the lives we touch. By adding a 128-bed Community Hospital in Nexton to the MUHA system, we will establish a natural, complementary component to our tertiary, quaternary hospital facility on the peninsula, where we care for the sickest patients and provide the most intensive care. Our new Community Hospital in Nexton will provide a range of specialized inpatient and outpatient services. This combination of services will enable MUHA to deliver the right care to patients in the right place at the right time. MUHA's rationale for the project revolves around three main trends in the tri-county area market, which are as follows:

- A large percentage of MUHA's adult inpatients originate from the Berkeley county area and establishing an acute care hospital in Berkeley county will allow patients to have convenient access to MUHA's state-of-the-art care near their place of work and home.
- Berkeley county is a dramatically underserved market in the tri-county area and only has one acute care hospital planned and under construction to service the entire population.
- Increased demand for inpatient services at MUHA and within the tri-county service area, resulting in capacity constraints and prolonged boarding hours.

First, the project promotes a community-health model promoting patient convenience. MUHA hopes to change what's possible by providing the World-Class Care with a Home-Town Feel in the Nexton and Cane Bay Communities. Both Nexton and Cane Bay are located in Berkeley county and are among the nation's top-selling master-planned communities. Nexton is the perfect community to deliver community care as it anticipates 8,500 new residences and was awarded the best emerging neighborhood by Post and Courier in 2016. In addition, Cane Bay could be home to 25,000 or more when completed and includes ten district neighborhoods and three top-rated schools, which also makes it an ideal location to deliver convenient care to local residents. As the state's largest academic medical center, MUHA has achieved international recognition and national acclaim as a premier biomedical research, educational, and clinical institution. MUHA wants to expand to offer the same world-class care with a home-town feel by providing inpatient services closer to the homes of many of our patients. Patients originating from the tri-county area accounted for 56% of MUHA's overall adult inpatient population in FY2017, which represents approximately 17,272 patients. Of those patients, 29% (representing approximately 8,796 patients) originate from the North Charleston, Summerville, and Monks Corner submarkets, which is where the project will be located. The site location is significantly closer to this patient population with an average drive time of 16 minutes for patients and families living in the northern zip codes. This saves an average of approximately 30 minutes when compared to the amount of time required for driving, parking, and way-finding at MUHA's downtown campus for the same population. The ability for MUHA to provide high-quality care closer to home creates a seamless, patient experience. Nexton's vision is to provide a quality of life that no other development in Charleston provides, benefitting both businesses and employees. By embedding a Community Hospital within this 4,500-acre master planned community, MUHA will help bring this vision to life. The inpatient hospital will provide the perfect complement to Palmetto Primary Care Physicians' planned outpatient medical campus at Nexton. Palmetto Primary Care Physicians is the largest Primary Care physician practice group in the tri-county and are construction an outpatient medical campus in Nexton to be complete in 2018. In addition, the explosive economic and residential development in Berkeley and Dorchester Counties creates an opportune environment for providing convenient healthcare to this new patient population. By establishing an acute care hospital in Berkeley county, patients have convenient access to MUHA's state-of-the-art care near their places of work and home.

Second, the Berkeley County population is currently an underserved healthcare market. The most recent Berkeley County Comprehensive Plan, found on the Berkeley County Government webpage, and included in **Attachment R**, indicates a lack of health care facilities providing services for the general population in the county. Furthermore, MUHA partnered with Roper St. Francis and Trident United Way (partner organizations) to successfully complete the Community Health Needs Assessment (CHNA) in 2016. The monumental health challenges facing Tri-County residents impact not only their length and quality of life, but also their ability to contribute to the region's growth and economy. The partner organizations are committed to changing from making isolate impact to working together to achieve broad impact on our region's health. The top health issue identified as a priority in the CHNA was access to health services. Of the six barriers to accessing health services the lack of availability of healthcare services in Berkeley County was identified as a driving factor.

Currently, Berkeley County has only one 50-bed acute care hospital under construction to serve a rapidly growing population – Roper's Berkeley Hospital. The CON for Roper's Berkeley Hospital was filed in 2008 and although the hospital is not yet operational, it will begin accepting patients in Fall 2019. Trident Health also filed a CON in 2008 to construct a hospital in Berkeley County, however, they have not begun construction on their site. MUHA's project will further support the need for two Community Hospitals in Berkeley County, as highlighted in the CHNA and future reiterated by South Carolina Supreme Court, when it upheld the decision of the Administrative Law Court Judge John D. McLeod, affirming DHEC's decision to approve the CON applications for two hospitals in Berkeley County. The project will address the challenges identified in the CHNA by increasing access to acute care, specifically for patients originating from the Berkeley and Dorchester markets. A significant portion of MUHA's inpatient volume originates from zip codes within the Berkeley and Dorchester markets. In addition, many of the patient transfers received by MUHA originate from tri-county hospitals in the north to include both Summerville Medical Center and Trident Medical Center. All population assumptions in this CON use MUHA's current patient population and projected population growth. The proposed project does not assume any migration of patients from other facilities in the Berkeley market.

Third, MUHA has experienced an increased demand for inpatient services over the past several years. This new hospital will serve to meet many of these growing demands. The need was reinforced by the 2017-2018 State Health Plan which indicates a need of 147 beds over the next seven years at MUHA. The project addresses the current and projected demand consistent with the State Health Plan's stated need. MUHA has seen an increase in high acuity patients and subsequently, increased case mix indices (CMI). As the high acuity inpatient volume increases, this results in a longer length of stay and decreased bed capacity. Midnight census in the acute care units at MUHA has risen significantly over the past three years, with all units averaging 90% capacity in 2017. Furthermore, constraints on bed capacity have led to extensive boarding hours in both the operating rooms and emergency department. Boarding hours are defined as hours a patient is waiting or "boarding" within the hallways for an inpatient bed. Patients that access MUHA through the ED and require inpatient admission, wait on average two hours to be placed into an inpatient bed to receive treatment. Patients that receive treatment in an OR and require inpatient admission, wait on average one hour to be placed into an inpatient bed. Furthermore, MUHA is often unable to accept patient transfer requests from local tri-county and affiliate hospitals on a daily basis due to lack of available beds. All of these issues stem from the growing tri-county population and increasing inpatient demand at MUHA's downtown campus. MUHA delivers a unique value to patients due to the level of multidisciplinary, subspecialty care, which continues to drive the increasing demand for services. By shifting lower acuity patients away from the downtown campus, and providing primary and secondary care in the community, MUHA will be able to focus on the tertiary and quaternary care downtown. The project will allow MUHA to treat lower acuity patients closer to home while caring for many of the sickest patients in the state and portions of the southeast downtown at the tertiary/quaternary hub.

A significant portion of MUHA's inpatient volume originates from zip codes within the Berkeley and Dorchester markets. In addition, many of the patient transfers received by MUHA originate from tri-county hospitals in the north to include both Summerville Medical Center and

Trident Medical Center. All population assumptions in this CON use MUHA's current patient population and projected population growth. The project does not assume any migration of patients from other facilities in the Berkeley market.

The new Community Hospital will be expertly planned, designed, equipped and staffed to promote a patient-centered environment. The facility will be intentionally designed to reduce wait time and promote individualized, high quality community care at a lower cost to the patient. The Community Hospital will provide sufficient free, surface lot parking in a more convenient geographic location to improve access to services than currently are delivered on the peninsula in downtown Charleston.

This project will alleviate the growing constraints on the hospitals within the Tri-County market. MUHA and Bon Secours St. Francis hospitals have both increased inpatient volumes by six percent over the last five years. Trident Medical Center has increased inpatient volumes by fourteen percent within the last five years. East Cooper Medical Center and Mount Pleasant Hospital have increased inpatient volumes by twenty-one percent and twenty-nine percent, respectively, over the last five years. The growth in inpatient population in each of these non-peninsula hospital facilities is driven by population growth outside of and migration away from the peninsula city. This trend indicates that the tri-county hospitals will continue to grow inpatient volumes in the future.

Service Area

The patients for the Community Hospital will be current MUHA adult patients residing from the tri-county area and surrounding markets based on a drive time analysis. MUHA's pediatric patients will continue to be served downtown at the Shawn Jenkins Children's Hospital. This facility was expertly designed to care for pediatrics and will offer a unique level of subspecialty care not provided elsewhere in the state. As shown in **Figure 3**, approximately 29% of MUHA's adult inpatient volumes, representing approximately 9,094 patients, are from the northern tri-county markets of North Charleston, Summerville and Moncks Corner and therefore the site will be a more convenient site for these established patients to receive acute care than the downtown peninsula.

Figure 3:
MUHA Adult (Ages 16+) Inpatient Origin FY 2017

MUSC Adult Inpatient Origin		
	FY 17	% of Total
Tri-County	17,272	56%
North Charleston	5,593	18%
Summerville	2,524	8%
West Ashley	2,435	8%
East Cooper	2,221	7%
Sea Islands	2,118	7%
Peninsula Charleston	1,404	5%
Moncks Corner	977	3%
Secondary	6,917	22%
Tertiary	5,278	17%
Outside SC	1,302	4%
Total	30,769	100%

Source: MUHA Internal Data. Zip code definition is provided in **Attachment N.**

As the oldest medical institution in the southern United States, MUHA serves a wide population base and it is regionally recognized as providing excellence in patient care, teaching and research. Therefore, the service area for the project includes the primary service area of Berkeley, Dorchester, and Charleston and secondary service area of Georgetown, Horry, Williamsburg, Florence, Colleton, Orangeburg, and Beaufort. The drive time analysis by zip codes, provided in the utilization section, provides the redirection percentages by zip code within these markets. The map in **Figure 4** shows the primary service area broken out in the following submarkets by zip code: North Charleston, Summerville, East Cooper, West Ashley, Sea Islands, Moncks Corner and the Peninsula. The submarkets are a more accurate way to view a patient population and its ability to access care in the tri-county.

Figure 4:
MUHA Primary Service Area Submarkets Map

As shown in **Figure 5**, the Nexton site is centrally located and easily accessible to patients of the entire service area due to the close proximity to I-26. Since a majority of MUHA patients originate from the Berkeley and Dorchester counties, and due to the congested nature of the peninsula, it was imperative to place the hospital in a convenient location accessible to major roadways. This facility will be closer and more accessible to patients residing in the northern tri-county submarkets, which represent 29% of MUHA Heath's adult inpatient population. The site will be located directly off the new exit 197 on I-26. The site will also be more accessible to patient living in northern Berkeley county, which is discussed in the traffic study included in **Attachment I**. Approximately 26% of MUHA's adult inpatients reside in North Charleston and Summerville, and the site will be an average of thirty minutes closer (one way) to this patient population than MUHA's downtown campus. Patients will no longer have to experience the estimated 10-20 minutes for parking and way-finding when traveling to the downtown campus. In addition to decreased drive time, the patients that will be shifted from the Downtown Main Hospital location to the proposed location will not have to spend additional time navigating within the main hospital, which has multiple access points and structures. Please see the drive time analysis documented in **Figure 6**.

Figure 5:
MUHA
Service Area with Site Location

Figure 6:
Drive Time Analysis

Departure Location[2]	Nexton Boulevard		MUSC Medical Center, 171 Ashley Avenue, Charleston, SC 29425				Total Time Difference Range (Downtown - Nexton Parkway)
	Miles	Driving Time (min)	Miles	Driving Time (min)	Total MUSC Time with Parking/ Wayfinding Time of 10 minutes[1]	Total MUSC Time with Parking/ Wayfinding Time of 20 minutes[1]	
29483 - Summerville	5.0	13	27.1	34	44	54	31-41
29486 - Summerville	6.7	12	25.4	31	41	51	29-39
29406 - North Charleston	11.1	12	13.6	16	26	36	14-24
29461 - Moncks Corner	13.2	19	29.8	34	44	54	25-35
29445 - Goose Creek	15.3	25	20.3	30	40	50	15-25
29414 - West Ashley	20.1	29	10	19	29	39	0-10
29403 - Peninsula Charleston	22.3	24	1.4	4	14	24	(10)
29464 - East Cooper	29.3	34	8	15	25	35	(9) - 1
29412 - James Island	31.6	41	7.8	16	26	36	(15)-(5)
29488 - Colleton	40.5	55	53	67	77	87	22-32
29115 - Orangeburg	51.9	55	73.4	78	88	98	33-43
29440 - Georgetown	64.0	79	65.3	77	87	97	8-18
29910 - Beaufort	99.1	110	91.7	110	120	130	10-20
29501 - Florence	107.4	95	129.3	116	126	136	31-41
29526 - Horry	108.2	129	103.8	120	130	140	1-11

Source: MapPoint

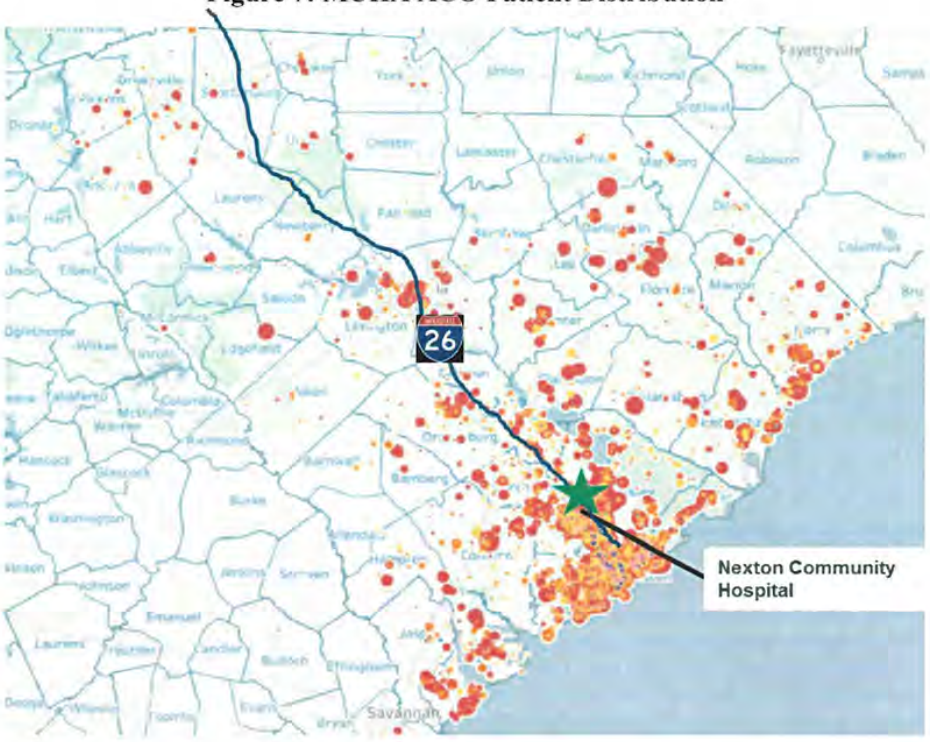
Notes:

1. **Assumes an average of 10-20 additional minutes for parking/way-finding at MUHA downtown**
2. **Sorted by closest proximity of departure location to Nexton Parkway**

The drive time analysis in **Figure 6** above shows the most populated zip code in each of MUHA's primary and secondary submarkets with their respective drive times to both the site and the existing site. As demonstrated, the location of the proposed site significantly reduces drive time for the targeted populations of North Charleston, Summerville and Moncks Corner with an average time savings of approximately 30 minutes. In addition, populations in the secondary submarket, which includes Colleton, Orangeburg, Georgetown, Beaufort, Florence and Horry, also benefit from the proximity of the site with an average drive time savings of approximately 23 minutes. Furthermore, patients near the downtown campus who choose to seek treatment at the site location in Summerville will not be burdened with a significantly increased drive time, with an average of less than 4 minutes of additional drive time. It is evident by this analysis that MUHA patients within the primary and secondary submarkets will experience overall increased convenience and access through the project.

Another reason the Summerville site was selected was to improved accessibility to healthcare for MUHA's Track 3 Accountable Care Organization (ACO) patient population. In January of 2017, MUHA went live with a Track 3 ACO. As part of this endeavor, MUHA became responsible for the healthcare of about 13,277 patients. Approximately 34% of these patients reside in the northern submarkets and the Community Hospital will offer a convenient healthcare option for these patients. Please see **Figure 7** below for MUHA's ACO patient origin map.

Figure 7: MUHA ACO Patient Distribution



In addition, the Community Hospital site was selected is due to the higher elevation of land,

which is not located in a flood zone. Patients travelling to MUHA's downtown campus for care encounter many unforeseen challenges when it floods. MUHA's campus is located in a major flood zone and when it rains at high tide, this portion of the peninsula shuts down, delaying patient care and inhibiting access points. Furthermore, the outpatient operating rooms at Rutledge Tower are located on the first floor and are always the first part of the building to be affected by the floods. During the recent flood in October 2015, MUHA was forced to shut down four of its operating rooms and approximately 199 surgical cases were cancelled. Similarly, in September of 2017 hospital operations were disrupted and surgical cases were canceled. The new Community Hospital will allow for MUHA to decant cases from the peninsula during severe flooding and prevent the delays in patient care that occur today.

Please see below for photos from the most recent flooding in September 2017:

PUBLIC
SAFETY
PUBLIC
SAFETY

Demographics

As shown in **Figure 8**, the population in the primary service area is projected to grow approximately 9% between 2017 and 2022. This projected growth represents approximately 64,833 residents over the five-year time period. The projected population growth for the total service area is higher than that for South Carolina overall (6%). Population growth for the service area has been consistently strong, and is expected to continue in the future.

The North Charleston and Moncks Corner submarkets are projected to grow 9% by 2022. Additionally, the Summerville submarket is projected to grow 8% by 2022. These submarkets will be in close proximity and easily accessible to the site due to its location on I-26.

Figure 8:
MUHA
Service Area Population Projections
All Ages

South Carolina Population Growth 2017-2022, All Ages			
Service Area	**2017 Population**	**2022 Population**	**% Change**
Tri-County Region	745,275	810,108	9%
East Cooper	119,934	132,551	11%
Sea Islands	71,997	78,519	9%
North Charleston	231,287	251,691	9%
Moncks Corner	60,817	66,130	9%
Summerville	132,186	143,190	8%
West Ashley	93,103	100,247	8%
Peninsula	35,951	37,780	5%
Secondary Region	846,353	901,259	6%
Horry	333,621	367,254	10%
Beaufort	185,491	201,584	9%
Georgetown	53,766	55,407	3%
Florence	147,834	151,873	3%
Colleton	35,150	35,249	0%
Orangeburg	90,491	89,892	-1%
Tertiary Region	3,340,317	3,502,217	5%
Total SC	4,931,945	5,213,584	6%

Source: Claritas
Notes: Sorted by % Change

The MUHA Community Hospital intends to serve primarily adults and as such, adult only population growth is broken out in **Figure 9** below. For the purpose of this project, the adult population was defined as individuals ages 16 years and older. The adult population in the primary service area is projected to grow approximately 9% between 2017 and 2022. This projected growth represents approximately 51,363 residents over the five-year time period. The projected population growth for the total service area is higher than that for South Carolina overall (6%). Population growth for the service area has been consistently strong, and is expected to continue in the future.

The North Charleston and Moncks Corner adult submarkets are projected to grow 9% by 2022. Additionally, the Summerville adult submarket, where the site of the Community Hospital is located, is projected to grow 10% by 2022. These submarkets will be in close proximity and easily accessible to the site due to its location on I-26 and the growing adult population in these submarkets further supports the need for adult acute care in this service area.

Figure 9:
MUHA
Service Area Population Projections
Adult Only (Ages 16+)

South Carolina Population Growth 2017-2022, Adult Only			
Service Area	2017 Population	2022 Population	% Change
Tri-County	605,677	661,235	9%
East Cooper	98,211	109,571	12%
Moncks Corner	105,678	116,106	10%
North Charleston	49,223	53,901	10%
Peninsula Charleston	182,284	199,025	9%
Sea Islands	61,438	66,814	9%
Summerville	77,131	82,757	7%
West Ashley	31,712	33,061	4%
Secondary	700,278	749,865	7%
Beaufort	280,987	310,947	11%
Colleton	153,788	167,001	9%
Florence	44,781	46,660	4%
Georgetown	118,748	123,222	4%
Horry	28,435	28,765	1%
Orangeburg	73,539	73,270	0%
Tertiary Region	2,718,654	2,875,619	6%
Total SC	4,024,609	4,286,719	7%

Source: Claritas
Notes: Sorted by % Change

As stated in question B.11, population statistics used in all analyses must be consistent with those generated by the State Demographer of the State Budget and Control Board. Claritas is the source for all population projections presented for the primary and secondary service area. A comparison of the area county-wide population projections for all ages from Claritas and the South Carolina State Demographer is included in **Attachment J**. Also included in **Attachment J** is Claritas' methodology for the data provided. The population projections calculated by Claritas are consistent with those of the South Carolina State Demographer and are therefore reliable population data.

The demographic analysis reveals MUHA's service area has a strong population base and projected growth over the next five years. The demand for healthcare services is already high in the tri-county region, and will continue to grow in the coming years. The project will not only address the increasing future demand for healthcare in the service area, but also address the current demand. In addition, the analysis demonstrates the substantial population growth in all markets and service areas within the tri-county and beyond, which will permit all of the tri-county area's existing and approved acute care hospitals to maintain health levels of inpatient utilization.

Beyond the demographic analysis presented above, which only factors in traditional population growth, it is critical to understand the explosive industry growth occurring in the tri-county area. Within the next ten years, an additional 7,327 jobs are expected in the Charleston market through the expansion of organizations such as Volvo and Mercedes (see **Figure 11**).

Figure 10:
MUHA
FY2017 Adult (Ages 16+) Inpatient Origin

MUSC Adult Inpatient Origin		
	FY 17	% of Total
Tri-County	17,272	56%
North Charleston	5,593	18%
Summerville	2,524	8%
West Ashley	2,435	8%
East Cooper	2,221	7%
Sea Islands	2,118	7%
Peninsula Charleston	1,404	5%
Moncks Corner	977	3%
Secondary	6,917	22%
Tertiary	5,278	17%
Outside SC	1,302	4%
Total	30,769	100%

Source: MUHA Internal Data. Includes patient origin for inpatient volumes to include all inpatient procedures performed by MUHA physicians. Inpatient volumes expected to shift to the community hospital originate majorly from North Charleston and Summerville counties due to proximity to proposed site location.

The location of the Community Hospital is conveniently located off the I-26 corridor in Berkeley county, near the up-and-coming Nexton community. This site location was chosen primarily due to the increased accessibility and better distribution for MUHA patients located in the Berkeley and Dorchester county areas, specifically for those patients in North Charleston, Summerville and Moncks Corner. A drive time analysis is included in Attachment K. Combined, the North Charleston, Summerville and Moncks Corner submarkets account for approximately thirty-two percent of MUHA's overall inpatient origin as shown in Figure 10 above. This equates to approximately 12,273 patients. In addition, the surrounding area is expecting significant industrial growth in the coming years. Within the next ten years it is anticipated that an additional 7,327 jobs will be created in the North Charleston and Summerville submarkets. The additional jobs will be filled both by current residents and individuals (with their families) moving to the Tri-county area to fill those job vacancies. Figure 11 below outlines the anticipated industrial growth in the area, including the number of additional jobs to be brought to the market within the next ten years, per recent news articles and press releases.

Figure 11:
Anticipated Corporate Relocations or Expansions
North Charleston and Summerville Markets

Anticipated Corporate Relocations or Expansions in North Charleston and Summerville Markets		
Company	**Type of Business**	**Anticipated Number of New Jobs (0-10 Years)**
Volvo Cars of North America	Automobile Manufacturing	4,000
Daimler Vans Manufacturing (Mercedes-Benz)	Automobile Manufacturing (Vans)	1,300
Comcast	Customer Care & Technical Support	550
Call Experts	Answering Service Company	310
Alkane Truck Company	Original Equipment Manufacturer (OEM) for Trucks and Tractors	300
Blackbaud, Inc.	Software for Non-Profit Organizations	300
Viva Holdings Group, Inc.	Rubber and Plastics Recycling	200
Sea Pac, LLC	Plastics Export (Warehousing, Logistics, etc.)	200
The Lighthouse for the Blind, Inc.	Product Assembly & Light Machining for Aerospace Sector	55
Limehouse Produce Company	Farmed Produce	40
Moneypenny	Answering Service Company	40
ThyssenKrupp Industrial Services NA, Inc.	Customized Product Management Solutions	32
Total New Jobs Expected in Market		**7,327**

Source: Local news outlets including but not limited to: Post and Courier, Charleston County Development, Berkeley Means Business.

Further impacting the growth in the market is the construction and development of the Nexton community in Summerville. The Nexton Community is located at the I-26 and Highway 17A interchange, and in the pathway of Charleston's explosive growth. The full build-out of Nexton will be comprised of nearly 8,000 residents, 6 million square feet of commercial space, 3 schools, and 2,000 acres of parks. Tying everything together with a network of trails and pathways, Nexton will be a master-planned community making it a sustainable and

desirable urban hub to live, work and play. The proposed site of the Community Hospital is within two miles of the Nexton Community and would be able to service the current population as well as the rapidly increasing population. See **Attachment L** for Nexton conceptual site plans and additional information.

Utilization

MUHA is aware of the increasing need for acute care access in Berkeley and Dorchester counties and believes the project will alleviate the concerns of patients living in the area as well as growing inpatient demands on MUHA's downtown campus. MUHA's project will increase access to acute care hospital services, specifically for patients originating from the Berkeley and Dorchester markets. A significant portion of MUHA's inpatient volume originates from zip codes within the Berkeley and Dorchester markets. In addition, many of the patient transfer requests received by MUHA originate from the local tri-county hospitals. In FY 17 MUHA had 13,243 transfer requests and 20.7% were from tri-county hospitals as displayed in **Figure 22**. This indicates that MUHA provides a level of care that is not available within the other local tri-county hospitals. All population assumptions in this CON application use MUHA's current patient population and projected population growth. The project does not assume any migration of patients from other facilities.

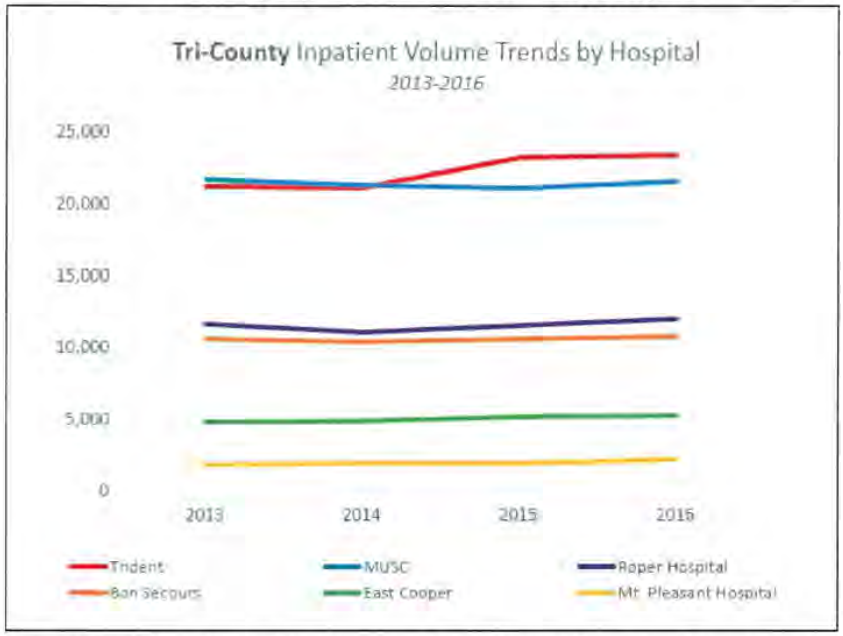
Tri-County inpatient volumes have grown steadily over the last five calendar years showing 7% growth in adult inpatient volumes between CY12 and CY16, **Figure 12**. A vast majority of the health systems (**Figure 13**) in the Tri-County have increased in inpatient volumes between CY15 and CY16. MUHA and Trident Medical Center/Summerville Medical Center gained the most significant volume of adult inpatient cases between CY15 and CY16, as depicted by the graph in **Figure 13**.

Figure 12:
Adult Inpatient Trends for Tri-County Hospitals

Adult (Ages 16+) Inpatient Trend for Tri-County Hospitals						
Hopsital Name	**2012**	**2013**	**2014**	**2015**	**2016**	**5-Year Change**
MUSC	26,479	26,801	27,028	26,625	28,184	6%
Trident Medical Ctr	20,160	20,285	20,136	21,811	23,065	14%
Roper Hospital	14,805	13,797	12,403	13,105	13,550	-8%
Bon Secours	8,491	8,667	8,608	8,698	9,030	6%
East Cooper	4,345	4,721	4,859	5,108	5,238	21%
Mount Pleasant Hospital	1,420	1,495	1,642	1,623	1,829	29%
Total	**75,700**	**75,766**	**74,676**	**76,970**	**80,896**	**7%**

Source: Revenue and Fiscal Affairs Office
Note: Hospitals are listed in descending order of inpatient volumes for 2016. Trident represents both Trident and Summerville because these hospitals report data as a health system.

Figure 13:
Tri-County Inpatient Volume Trends by Hospital



Source: Revenue and Fiscal Affairs Office. Trident represents both Trident and Summerville because these hospitals report data as a health system.

As this data demonstrates, a substantial increase in MUHA's acute bed inventory is needed, and needed soon. This need is paralleled in the 2017-2018 State Health Plan which indicates a bed need of 147 for MUHA. A majority of the above tri-county hospitals presented in **Figure 13** are located in Charleston County, with a vast majority of the beds located in downtown Charleston or Mount Pleasant. These locations are not conveniently accessible to most of the residents of Berkeley and Dorchester counties now, and will be even less so in the future as the populations continue to rise and the traffic becomes more congested as a result of the economic development, particularly including Volvo, Daimler, Mercedes, and other emerging businesses.

As an effect of population growth and rising inpatient volumes, MUHA's midnight census in acute care units has increased rapidly from FY 2014 to FY 2017. This rapid increase has placed capacity constraints on MUHA adult acute care units which operated at an average of 90% capacity during FY2017. See **Attachment M** for overall capacity trends in MUHA acute care units. This is well over the recommended occupancy rate of 75% for a 350+ bed hospital as defined by the 2017-2018 State Health Plan. DHEC recognizes these capacity issues and has indicated an additional bed need of 147 for MUHA. MUHA is the only hospital in the tri-county area that has shown a consistently high bed need in the last three state health plans. In the 2012-2013 State Health Plan MUHA had a need of 52 incremental Beds, in the 2014-2015 State Health Plan there was a bed need of 48 incremental beds and in the 2017-2018 State Health Plan there was a need of 147 incremental beds. The Community Hospital will accommodate 128 of the 147 beds as demonstrated by the analysis below.

As discussed above, the state health plan states a hospital specific need of 147 acute care beds at MUHA over the next seven years. The state health plan applies a variable occupancy rate factor of 75% for a hospital greater than 350 beds. Based on MUHA's 2015 volumes and patient days in the state health plan, MUHA in 2015, MUHA was at 76.4% occupancy. Population growth was applied to the 2015 volumes to predict that MUHA would be at 91.8% occupancy in 2022 if the enterprise operated at 656 acute care beds. This calculation assumes MUHA is operating 656 acute care beds, but in reality only 608 of these acute care beds are licensed and operational to date. The remaining 48 will come online when the Shawn Jenkins Children's Hospital opens in the fall of 2019 (15 beds) and the backfill beds (33 beds) are renovated and flipped to adult inpatient beds. The total of 52 incremental beds were approved in SC-15-26. If the state health plan bed need methodology was applied to the 608 beds currently operational, the projected bed need would be 195 acute care beds over the next seven years. In addition, the calculation in the state health plan does not accommodate for observation patients. MUHA's observation patients represent an additional 6,000 patients a year. MUHA does not have a dedicated observation unit and therefore these patients are cared for in inpatient beds throughout the medical center. If these patients were accounted for, the overall bed need at MUHA would be higher as these observation patients add to the current capacity constraints. Please refer to **Figure 14** below for the state health plan bed need model.

Figure 14:
State Health Plan Bed Need Projections

Facility	Age Cat	2015 Pop	2022 Pop	2015 Pt Days	Proj Days	Proj ADC	Variable Rate Factor	Bed Need	Existing Beds	To be Added	2015 % Occ	Projected 2022 % Occ
MUSC	0-17	166,114	180,030	28,399	30,872	84						
	18-64	476,343	535,390	105,594	118,819	325						
	65+	102,069	146,830	48,814	70,072	192						
		744,526	862,250	182,807	219,763	602	75%	803	656	147	76.35%	91.77%

Source: State Health Plan, 2015 JAR.

Based on FY 17 volumes and patient days, MUHA is currently at 89.7% occupancy for the 608 acute care beds that are licensed and operational. Overall, MUHA patients have an average length of stay of 6.2 days. The average length of stay for Community Hospitals in South Carolina is 4.8 days. The above average length of stay is attributed to the typically medically complex and high acuity patients seeking care at MUHA. As demonstrated in **Figure 15** below, MUHA's average CMI weight is the highest in the region and 20% higher than the state average CMI weight. Patients come to MUHA seeking a high caliber of care that is associated with cutting edge technology, world class clinical expertise, and patient experience excellence.

Figure 15:
Average CMI by Tri-County Hospitals and South Carolina Overall

Total CMI Weight by Hospital Competitors and Calendar Year							
	2012	2013	2014	2015	2016	12-'16 Weight Δ	12-'16 Weight % Δ
MUHA	1.86	1.90	1.87	1.95	1.97	0.12	6%
RSFH	1.63	1.67	1.70	1.73	1.72	0.09	5%
Trident/Summerville	1.36	1.44	1.45	1.45	1.53	0.16	12%
East Cooper	1.62	1.64	1.68	1.72	1.72	0.09	6%
All Other SC Hospitals	1.43	1.46	1.47	1.48	1.53	0.10	7%
Total	**1.46**	**1.50**	**1.50**	**1.53**	**1.57**	**0.11**	**7%**

Sources: RFA dada based on calendar years.

Over the last three years, MUHA's acute care volumes have grown 7% and patient days have grown 9%. If this growth trajectory continues, MUHA's downtown hospital will only be further constrained. As displayed below, in FY 15 MUHA was at 82.9% occupancy and in FY 17 MUHA was at 89.7% occupancy.

Figure 16:
MUHA Historical Occupancy

Year	Volume	Days	ADC	ALOS	Licensed Beds	Occupancy
FY 15	29,951	182,807	501	6.1	604	82.9%
FY 16	30,825	187,866	515	6.09	608	84.7%
FY 17	32,019	199,098	545	6.22	608	89.7%

Source: JAR and internal data for FY 2017. Defined by all inpatient to exclude normal newborns and psych patients. FY 2017 volumes excludes transition care patients to be consistent with the methodology provided below. FY 15 and FY 16 include transitional care patients because these are included in the JAR definition.

The Community Hospital will slightly alleviate these constraints, but MUHA will remain full downtown. MUHA proposes to shift patients to the Community Hospital based on proximity to the hospital's location and patient's choice to receive MUHA-level care in the lower acute setting. The zip code redirection percentages are provided below:

Figure 17:
Assumed MUHA Patient Redirection
Non-tertiary, Adult (Ages 16+) Patients

Scenario 1: Patient Redirection in Year 3	Redirection
0-15 minutes	65%
10-25 minutes	55%
26-40 minutes	35%
41-55 minutes	30%
56-70	10%
All Other: driving 71+ minutes & Secondary Counties	2%

Notes: Drive time source was Google maps, because this application has the most updated roads/traffic lights.

Please refer to **Attachment N** for the specific zip codes that fall under each redirection category based on the drive time analysis. A majority of these patients live closer to the Community Hospital and therefore are likely to receive care closer to home. While a small portion of these patients may be closer to MUHA's downtown campus, they may choose to seek care in Nexton because they are of lower acuity and would prefer a community setting rather than the tertiary/quaternary care setting downtown. Also, patients may not want to deal with the traffic and parking issues on the Charleston peninsula. Please refer to **Figure 18** for the medical/surgical volume assumptions (100 medical/surgical beds and 12 ICU beds) and **Figure 19** for the OB volume assumptions (16 Postpartum beds) for the Community Hospital. Overall MUHA volumes that will remain downtown are shown in **Figure 20**. In summary, in FY 2023 9% of current MUHA volumes will shift to the Community Hospital and 91% of volumes will remain downtown.

As shown in **Figure 18** below, the project warrants a need for 100 medical/surgical beds with a projected 57% occupancy in year three. The analysis is based on current MUHA non-tertiary, adult patients that will be redirected to the new hospital based on convenience of the location or preference to receive MUHA care in a Community Hospital setting. The tertiary DRGs excluded from this analysis are listed in **Figure 21** below. This represents current patients redirected to 100 incremental medical/surgical beds. Of the current non-tertiary, adult (ages 16+) patients, the redirection assumes the following volume projections in the first three years of the project:

Figure 18:
Community Hospital Inpatient Medical/Surgical Volume Projections

Med/Surg Beds (112 beds)							Project Years 1-3		
	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Volume							2,457	3,127	4,467
Days							12,776	16,261	23,230
ADC							35	45	64
% Occ							31%	40%	57%

Notes: Baseline volumes based on ages 16+, inpatient only, excludes OB DRGs and Tertiary DRGs. FY 25 based on the redirection of Zip Codes in FY 17 with a CAGR of 1.7% based on Tri-County Adult Population Growth. Year 1 assumes 55% of total patients that would be redirected. Year 2 assumes 70% of total patients that would be redirected and year 3 assumes all of these patients based on the redirection chart in Figure16 will be redirect. Assumes current Length of stay is reduced by 10%, for an ALOS of 5.2 days to accommodate for a community setting. Current non-tertiary adult patients have an average length of stay of 5.73.

Figure 19:
Community Hospital Inpatient OB Volume Projections

OB Beds (16 beds)							Project Years 1-3		
	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Volume							678	863	1,233
Days							1,966	2,503	3,575
ADC							5.39	6.86	9.80
% Occ							34%	43%	61%

Notes: Includes OB DRGs, non-tertiary, ages 15-40 as the lower risk OB population that would be seen at the Community Hospital. Current Average Length of Stay for non-tertiary OB patients is 3.2 days. Analysis assumes Average LOS reduced by 10% to 2.9 days.

Figure 20:
Total MUHA Volumes to remain downtown

Total Volumes Remaining Downtown							Project Years 1-3		
	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Volume	32,019	32,563	33,117	33,680	34,252	34,835	**32,292**	**32,039**	**30,941**
Days	199,098	202,483	205,925	209,426	212,986	216,607	**200,209**	**179,419**	**173,272**
ADC	545	555	564	574	584	593	**549**	**492**	**475**
Licensed Beds	608	608	608	656	656	656	656	656	656
% Occ	90%	91%	93%	87%	89%	90%	**84%**	**75%**	**72%**

Notes: All ages, All DRGs, excludes Psych and Transitional Care Unit patients. Assumes Licensed beds downtown increase to 656 when the SJCH (SC-15-08) is operational and the 52-Bed Expansion CON (SC-15-29) is fully implemented in FY 2020.

Figure 21:
Excluded Tertiary DRGs

MS-DRG	MDC	TYPE	MS-DRG Decription
001-017	PRE	Surg	Transplants, Tracheostomy
020-042	1	Surg	Nervous System Surgery
052-055	1	Med	Spinal Disorders, Nervous System Neoplasms
215-251	5	Surg	Circulatory System Surgery
286-287	5	Med	Cardiac Catheterization
456-460	8	Surg	Spinal Fusion Surgery
461-462, 469-470	8	Surg	Bilateral or Multiple Major Joint Procs of Lower Extremity
471-473	8	Surg	Cervical Spinal Fusion Surgery
652	11	Surg	Kidney Transplant
736-743	13	Surg	Uterine Cancer Surgery
754-756	13	Med	Female Reproductive System Malignancy
789-794	15	Med	Neonatal Medical Care
820-830	17	Surg	Lymphoma, Leukemia
834-849	17	Med	Lymphoma, Leukemia, Chemotherapy
876-887	19	Med	Psychiatric Diagnoses
894-897	20	Med	Alcohol/Drug Abuse
913-914	21	Med	Traumatic Injury
927-929	22	Surg	Burns
933-935	22	Med	Burns
945-946	23	Med	Medical Rehabilitation
955-959	24	Surg	Multiple Significant Traumatic Injury Surgery
963-965	24	Med	Multiple Significant Traumatic Injury
981-987	NA	Surg	OR Procedure Unrelated to Principal Diagnosis

Finally, **Figure 22** below demonstrates the overall impact to the enterprise when the 128 beds are operational. The 608 acute care beds will be the total from FY 17-FY20 and accounts for the four additional acute care beds added in November of 2015 in ART as part of the 52-Bed Expansion CON (SC-15-26). When the Shawn Jenkins Children's Hospital and backfill beds are open in FY 2020, MUHA will be licensed for 656 acute care beds and occupancy rates are projected to decline slightly to 87%, which also accounts for organic population growth. If the project is approved, and MUHA is able to add 128 beds in FY 2023, the enterprise will be at 77% occupancy, demonstrating a slight relief in capacity constraints. After a year of operations and if MUHA is able to reduce length of stay by 10% overall due to additional

capacity in FY 2024 and by redirecting community care to the community setting allowing for tertiary/quaternary care to remain downtown, MUHA would finally achieve a reasonable overall occupancy level of 72% in FY 2025. Please see **Figure 22** below for the projected total MUHA volumes to be accommodated downtown and in the Community Hospital. Even with these additional beds, MUHA will be constrained.

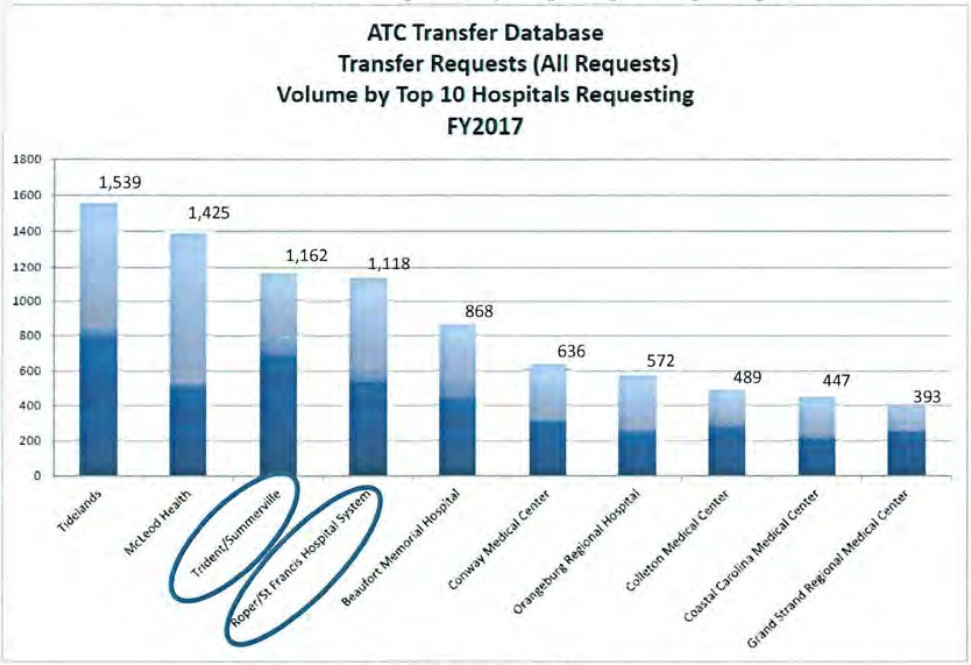
Figure 22:
MUHA Total Volumes & Patient Days

Year	Volume	Days	ADC	ALOS	FY 17 Current Beds	FY 20 Beds	FY 23 Beds	Current Occ	FY 20 Occ	FY 23 Occ
FY 17	32,019	199,098	545	6.2	608	656	784	90%		
FY 18*	32,563	202,483	555	6.2	608	656	784	91%		
FY 19	33,117	205,925	564	6.2	608	656	784	93%		
FY 20	33,680	209,426	574	6.2	608	656	784	94%	87%	
FY 21	34,252	212,986	584	6.2	608	656	784	96%	89%	
FY 22	34,835	216,607	593	6.2	608	656	784	98%	90%	
FY 23	35,427	220,289	604	6.2	608	656	784	99%	92%	77%
FY 24**	36,029	201,403	552	5.6	608	656	784	91%	84%	70%
FY 25	36,642	205,193	562	5.6	608	656	784	92%	86%	72%

Notes: Baseline data for FY 17 includes inpatient, acute care volumes only, all ages. Excludes patients currently in the Transitional Care Unit (TCU) and psych patients. Transitional care unit patients typically have a longer length of stay due to medical complexities the lack of nursing home beds in the community and therefore were excluded from the analysis but do provide additional capacity constraints within the system. * FY 17 is based on actuals; volumes are projected beginning in FY 18 based on the tri-county adult population CAGR of 1.7%. Patient days are projected based on the ALOS multiplied by projected volumes. **Model assumes ALOS reduced by 10% in FY 24 based on care efficiencies achieved through the reduced overall capacity constraints and the ability to care for lower acuity patients in the community versus downtown.

In addition to standard population growth and external impact factors, MUHA must also consider the capacity impact of patient transfer requests from surrounding hospitals. The below figures illustrate the historical number of patient transfer requests received by MUHA in FY 17.

Figure 23:
MUHA
FY2017 Transfer Requests by Top Requesting Hospitals



Source: MUHA Internal Data

As shown in **Figure 23** above, MUHA received a majority of FY2017 transfer requests from Tidelands, McLeod Health, and Trident/Summerville Hospitals. Combined, these three hospital systems accounted for approximately 4,126 transfer requests to MUHA in FY 2017. Nearly half of all transfer requests originate from these three organizations.

Figure 24:
Transfer Requests by Tri-County Hospitals in FY2017

Hospital System	Number of Transfer Requests FY2017	Percent of Total Transfer Requests FY2017
Total Tri-County	**2,744**	**20.7%**
Trident	**1,162**	**8.8%**
Roper Hospital	**1,118**	**8.4%**
East Cooper	**340**	**2.6%**
Bon Secours	**104**	**0.8%**
Mt. Pleasant Hospital	**20**	**0.2%**
All Other	**10,499**	**79.3%**
Total Transfer Requests	**13,243**	**100.0%**

Source: MUHA Internal Data

Of the hospitals located within the tri-county, Trident Medical Center and Roper Hospital

System account for 8.8% and 8.4%, respectively, of all transfer requests received by MUHA in FY 2017 (**Figure 24**). The Community Hospital will allow MUSC to shift lower acuity patients in the new hospital in order to adequately accommodate these patients that need to be transferred from external hospitals to MUHA's downtown campus for a higher level of care. The site is central to both Trident Medical Center and Roper Hospital System, which will decrease the transport time required to fulfill transfer requests resulting in safer and more efficient patient care.

MUHA's commitment to patient care allows a significant number of these transfer requests to be approved. However, there is a need for additional beds to support the demand faced by MUHA's inpatient population as well as the patient transfers requested by surrounding hospitals. The 2017-2018 State Health Plan indicates a bed need of 147 for MUHA alone. The project operationalizes 128 of these beds in the Berkeley county community, where 22% of MUHA's inpatient population originates from, and where a majority of patient transfer requests come from.

Figure 25:
Patient Transfers to MUHA FY11-FY17

Patient Transfers to MUSC							
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Total Requests	8,323	9,810	10,364	9,889	9,827	10,827	13,243
Total Denied	1,663	2,155	1,289	1,024	884	839	884

Source: MUHA Internal Data

Figure 25 illustrates the historical number of transfer requests received by MUHA as well as the number of request denials. The data indicates a significant growth in the number of patient transfer requests over a six-year period, an approximate increase of 5,000 requests.

Figure 26:
Denied Patient Transfers to MUHA FY11-FY17

Denied Patient Transfers to MUSC							
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
No floor beds Available	53	24	87	126	180	158	366
No ICU beds available	39	13	24	78	51	27	24
Total Denied	1,663	2,155	1,289	1,024	884	839	884
Percent of Total Denied	6%	2%	9%	20%	26%	22%	44%

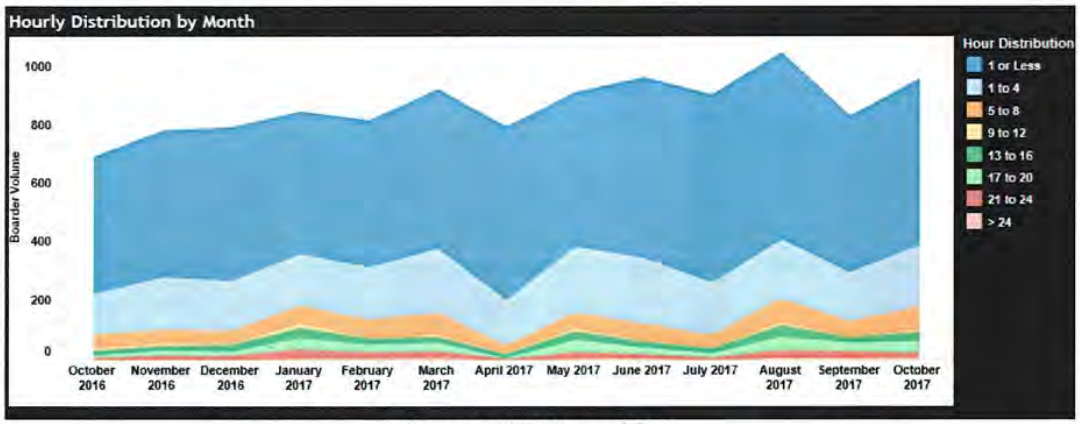
Source: MUHA Internal Data

Figure 26 details the reasons for denied patient transfers, specifically due to a lack of available floor and ICU beds for patients needing transfer. Other reasons for denial of a transfer request include: discharged from transferring hospital, not medically cleared for admission, or patient was able to be treated at the sending hospital via telemedicine. Though the overall volume of patient denials has decreased, the percentage of denials resulting from unavailable floor and ICU beds has risen from six percent in FY2011 to forty-four percent in FY2017. As the population and inpatient volumes grow, MUHA facilities are considerably

constrained by bed availability. The project adds 128 acute care beds in the Berkeley county area which would provide acute care access in a convenient setting, decrease bed constraints downtown, and allow MUHA to accept higher acuity transfer requests for patients needing highly-specialized care offered only at MUHA's downtown campus.

In addition to the increasing number of patient transfer requests, MUHA patients in the Emergency Department and in the Post-operative recovery space experience above average wait times to be place in an inpatient bed due to capacity constraints. Approximately 869 surgical inpatients wait for an inpatient bed an average of at least 30 minutes to be placed in a bed. A significant portion of patients are waiting one to four hours as displayed in **Figure 27** below.

Figure 27:
October 2016-October 2017 Hourly OR Boarding Times by Month



Source: MUHA Internal Data

In FY 2017, approximately 17% of ED patients, representing 13,876 patients are admitted to the hospital. This proportion has remained fairly constant over the past three years while ED volumes continue to climb. Please refer to **Figure 28** for the Emergency Department volume trends:

Figure 28:
ED Volumes FY14 – FY17

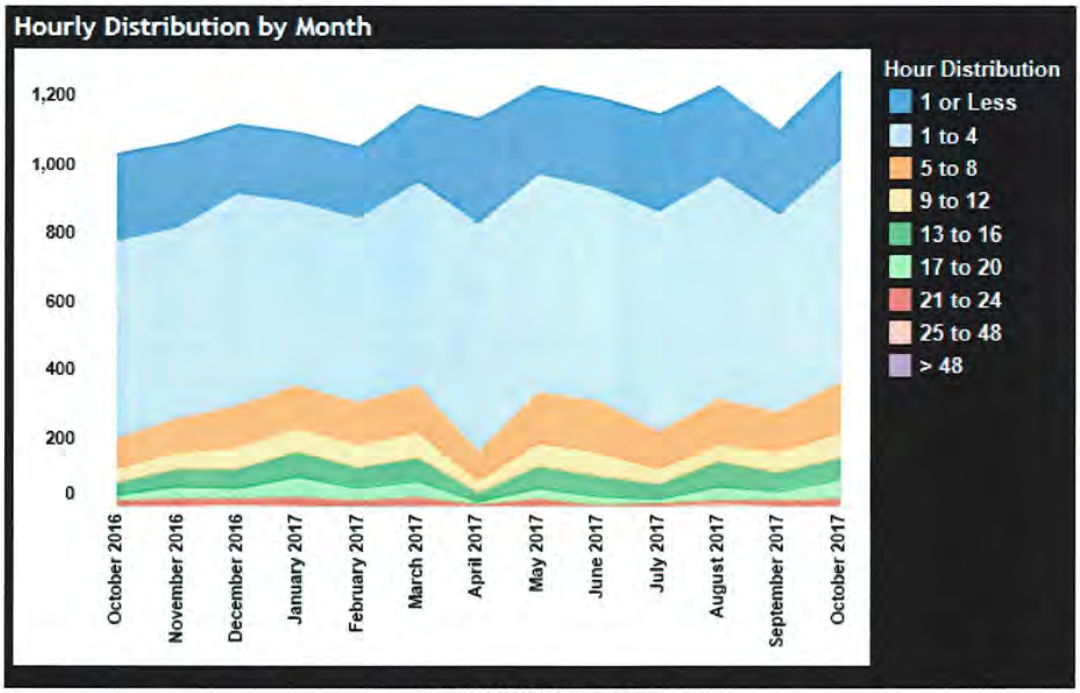
	2014	2015	2016	2017 7/1/16-5/9/17
Total Emergency Visits	77,249	79,165	81,260	68,428
Visits Resulting in Admission to Hospital	13,491	11,930	13,876	13,308
% of Total	17%	15%	17%	19%

Source: JAR, FY 17 based on internal data using the JAR definition and only includes 9.25 months of volume.

Of these 13,876 admitted in FY 2017, non-psych patients waited an average of two hours in the

ED for an inpatient bed. Psych patients wait and average of 21 hours for a psych bed to become available and the wait time has continued to increase. Please see **Figure 29** below for the non-psych ED patients waiting for an inpatient bed by month.

Figure 29:
October 2016-October 2017 Hourly ED Boarding Times by Month



Source: MUHA Internal Data

The Community Hospital will also provide advanced imaging services to support the patients within the hospital. Between 27%-28% of patients traveling to one of MUHA's current campuses for and MRI or CT travel from the northern submarkets of North Charleston, Summerville and Moncks Corner. The MUHA Community Hospital will offer imaging services at a more convenient location to these patients. Furthermore, 39% of patients travel to MUHA from outside the tri-county for imaging services. If the project is approved, these patients will have the option to receive care downtown or at the Community Hospital which will offer ample parking and more of a community-based setting versus the tertiary/quaternary hub downtown. Please see **Figures 30 and 31** for the imaging volume shifts and adult inpatient imaging patient origin, respectively.

Figure 30:
MUHA
Historical and Projected Inpatient & Outpatient Imaging Volumes, MRI and CT

MUSC Community Hospital Historical & Projected Volumes							
Imaging Modality	Historical		Interim Volume		Project Years 1-3		
	FY16	FY17	FY18	FY19	FY20	FY21	FY22
MRI	4,149	4,613	4,691	4,771	1,213	2,467	3,764
CT	8,640	9,278	9,436	9,596	2,440	4,963	7,570

Notes: Based on MUHA Internal data. Assumes 50% of the volumes of MUHA inpatient and outpatient MRI and CT from patients with origin zip codes within 10-15 mile radius of the site location. Assumed 1.7% annual growth in volume based on Tri-County population growth. Assumed 25% ramp-up volume in FY20, 50% ramp-up volume in FY21 and 75% ramp-up volume in FY22. Historical volumes shown reflect 50% shift. Excluded pediatric inpatient volume, but included pediatric ED and outpatient volume.

Figure 31:
MUHA
FY2017 Patient Origin and Total Volumes
Adult Inpatient MRI & CT

MUSC Adult Inpatient MRI Volumes		
	FY2017	% of Total
Tri-County	**13,762**	57%
North Charleston	3,831	16%
East Cooper	2,693	11%
Summerville	2,012	8%
West Ashley	1,905	8%
Sea Islands	1,827	8%
Peninsula Charleston	780	3%
Moncks Corner	714	3%
Secondary	**5,199**	22%
Tertiary	**4,140**	17%
Grand Total	**23,942**	100%

MUSC Adult Inpatient CT Volumes		
	FY2017	% of Total
Tri-County	**26,512**	59%
North Charleston	8,093	18%
East Cooper	4,407	10%
Sea Islands	3,846	9%
West Ashley	3,610	8%
Summerville	3,209	7%
Peninsula Charleston	2,110	5%
Moncks Corner	1,237	3%
Secondary	**9,073**	20%
Tertiary	**6,974**	16%
Grand Total	**44,663**	100%

Source: MUHA Internal data represents Inpatient MRI and CT volumes performed on the downtown campus.

Impact on Existing Facilities

First, the Community Hospital will not have an impact on existing facilities because it is only filling an unmet need identified by the 2017-2018 State Health Plan. By definition, the project meets the acute bed need identified in the 2017-2018 State Health Plan. The most recent Berkeley County Comprehensive Plan, found on the Berkeley County Government webpage, indicates a lack a health care facilities providing services for the general population in the county. There are two approved CON applications for the construction of acute care hospitals in Berkeley County. The CON for Roper's Berkeley Hospital was filed in 2008 and although the hospital is not yet operational, it will begin accepting patients in Fall 2019. Trident Health

also filed a CON in 2008 to construct a hospital in Berkeley County, however, they have not begun construction on their site. Both Roper and Trident submitted their CONs in 2008 and were issued CON approval in early 2016. Therefore, it can be reasonably assumed that both projects should be following the same general time line and progression status. Trident Health has not made significant progress with their hospital construction, as evidenced by the progress reports and extension requests submitted to DHEC. See **Attachment O** for Trident Health's progress reports and extension requests. In summary, the first extension request was submitted on April 24, 2017 noting that $2.15M was paid for the land and they "recently discovered" wetlands issues affecting hospital placement. It seems unreasonable to recently discover wetlands issues on a site that was identified for the project ten years ago. DHEC granted the extension request on May 17,2017 for an additional 9 months. Trident will have to request another extension no later than January 26, 2018. Furthermore, **Trident Health CEO Todd Gallati has been quoted in several sources saying, "there are no immediate plans for construction."** Gallati has contested that, "Under this scenario, Trident cannot build a hospital in Moncks Corner," said Trident CEO Todd Gallati. "We do not want to be a part of a process which promotes unnecessary spending of healthcare dollars to duplicate services." In an article posted by the Post and Courier as recently December 5, 2017, Trident stated that they "don't have any plans at this time to build a hospital on this site." The article goes on to state that Trident is simply improving site drainage plans in the event that they develop the land in the future. It has been the position of company officials that Trident has no "immediate" plans to build a "full service" hospital, and that it is only doing "drainage" work in the event it intends to build a hospital in the future. Please see full articles and wetlands permit in **Attachment P**.

It is MUHA's mission to improve health and maximize quality of life through education, research, and patient care. Once this project became public knowledge, MUHA CEO Dr. Patrick Cawley provided the following statement to the Post and Courier regarding the project: "The state health plan has clearly identified that MUHA has a need for 147 additional beds to serve the Charleston area based on current hospital occupancy and fill rates. This new hospital will serve to meet many of those growing health care demands, delivering our consistent, high quality and compassionate care." Please see **Attachment Q** for Post and Courier article. In an internal press release to all MUHA Employees, MUHA President David J. Cole said, "MUHA is committed to building an integrated health care system with the depth and breadth to lead heath innovation for the lives we touch." MUHA's senior leadership fully supports and fully intends to follow through with the entirety of the project as quickly as possible, in order to serve the residents of Berkeley County and beyond. There is a steadily increasing need for MUHA's full range of health care services as the community expands, and MUHA is committed to meeting the need of today's patients and families, as well as the needs of future patients and families. As stated by Donald R. Johnson, II, M.D., chairman of the MUHA Board of Trustees, "It will make the best quality care even more convenient to obtain in the future." After receiving CON approval, MUHA plans to proceed swiftly in the construction and operation of the project to effectively serve the needs of Berkley county residents and beyond.

In addition, the project will address one of the primary challenges found in Community Health Needs Assessment and therefore will impact the health of the community without impacting

existing facilities, which are already full. Berkeley County is a drastically underserved area and has a significant and sustainable need for this Community Hospital. This sentiment is echoed in the most recent Berkeley County Comprehensive Plan, found on the Berkeley County Government webpage, which indicates a lack of health care facilities providing services for the general population in the county (**Attachment R**). Data presented in the 2016 Community Health Needs Assessment (CHNA), included in **Attachment S** attests to this fact. As demonstrated in the CHNA, Berkeley County is projected to grow nine percent between the years of 2016 and 2021, which equates to an additional 18,745 Berkeley County residents. Approximately 23% of adults and 8% of children in Berkeley County are uninsured. The lack of medical insurance in these populations discourages them from seeking routine medical care due to costs, which increases their risk for serious and disabling health conditions. In addition, Berkeley County suffers from a primary care physician shortage with a ratio of 2,900 patients per physician. This is well over the national average of 1,410 patients per physician. Furthermore, access to mental health services is severely limited in Berkeley County with a ratio of 1,261 patients per physician. The national average is 490 patients per physician for mental health services. According to outpatient forecasters, psychoses and other mental health disorder visits are expected to increase approximately 10-13% in Berkeley and Dorchester counties by 2021. This major increase in mental illness will be a significant burden on the current tri-county healthcare network if the project is not completed. The Community Hospital will allow these patients to be hospitalized closer to home, if needed, and will also provide tele-psych consults to the downtown MUHA psychiatric hospital. If the patient presents with a more tertiary/quaternary care issue, he or she will be directly transported downtown via helicopter to MUHA's academic hub.

Clinical preventive services, such as routine disease screening and scheduled immunizations, are key to reducing death and disability and to improving the nation's health. Early detection of illness during treatable stages significantly reduces the risk of illness, disability, early death and medical care costs. Furthering the health issues in Berkeley County is the rate of obesity. Approximately 37% of Berkeley County Residents are considered obese, which is over the state average of 32%. MUHA's Community Hospital will be embedded in the patients' neighborhoods and address this issue by providing world-class preventative services to patients.

As demonstrated by the above-stated facts from the 2016 Community Health Needs Assessment, Berkeley County is an extremely medically underserved population. MUHA's Community Hospital will have no impact on existing facilities due to high demand and an already staggering lack of patient access.

The project will not represent unnecessary duplication of services and will not adversely affect existing facilities in the service area. As described above, the utilization projections are a result of redirecting current MUHA patients originating from Berkeley and Dorchester counties from the downtown campus to the Community Hospital to receive care closer to their home. As such, these patients are currently being served by MUHA physicians and referral patterns will not change. MUHA physicians are set apart from the community physicians and are able to maintain their patient base because they are part of an Academic Medical Center offering unique care not available anywhere else in the region. MUHA physicians provide patients and

the community with health care for everyday needs and the most specialized services for complex diseases, illness and injuries. There will be additional cases generated due to the organic population growth for the service area, and the existing and projected population already fully supports the project.

Certificate of Need Plan Standards

The project satisfies each of the following applicable criteria for the establishment of an acute care hospital, as outlined in the 2017-2018 State Health Plan. In this plan, there was an identified need for 147 additional acute care beds in the service area. The following sets forth the Certificate of Need Standards in the Acute Care Hospitals chapter of the Plan and this project's consistency with each of these standards.

1. **Calculations of hospital bed need are made for individual hospitals and totaled by county to determine the overall bed need for that service area, which is the county for CON purposes.**

2. **For individual hospitals, the methodology for calculating bed need is as follows:**
   A. **Determine the current facility use rate by dividing the current utilization by the current population in each of the three age cohorts.**
   B. **Multiply the current facility use rate by age cohort by the projected population for seven years in the future by age cohort (in thousands) and divide by 365 to obtain a projected average daily census by age cohort.**
   C. **Divide the sum of the age cohort projected facility average daily census by the variable occupancy (.65/.70/.75) to determine the number of beds needed to meet the hospital's need.**
   D. **The number of additional beds needed or excess beds for the hospital is obtained by subtracting the number of existing beds from the bed need.**
   E. **The totals for each hospital in a county or service area are summed to determine whether there is an overall projected surplus or need for additional beds.**

Response: The bed need methodology reflects a need for 147 additional acute care beds at MUHA.

3. **If a service area indicates a surplus of beds, then no additional beds will be approved unless an individual hospital in the service area indicates a need for additional beds. Should an individual hospital indicate a need for additional beds, then a maximum of the actual projected bed need or up to 50 additional beds may be approved for that hospital to allow for the construction of an economical unit at either the existing hospital site or another site, if the existing hospital is relocating or has relocated in whole or in part to that site. The hospital requesting the addition must document the need for additional beds beyond those indicated as needed by the methodology stated above, based on historical and projected utilization, as well as projected population growth or other factors demonstrating the need for the proposed beds. Additional beds will only be approved for the specific hospital indicating a need.**

Response: The bed need methodology in the state health plan indicates a need for 147 additional acute care beds at MUHA. The need methodology was included in the utilization section above and is provided below: Not Applicable because MUHA is not adding additional beds above the need provided in the plan.

4. **If there is a need for additional hospital beds in the service area, then any entity may apply to add these beds within the service area, and any entity may be awarded the Certificate of Need for these beds. If the number of beds needed is less than 50, then up to a total of 50 beds could be approved for any entity at any location within the service area. An applicant requesting additional beds beyond those indicated as needed by the methodology stated above must document the need for additional beds based on historical and projected utilization, projected population growth that has not been considered in this Plan or other factors demonstrating the need for the proposed beds. It is up to the applicant to document the need and the potential negative impact on the existing facilities.**

Response: Not Applicable. MUHA is applying for a portion of the 147 beds indicated in the State Health Plan.

5. **A facility may apply to create a new additional hospital at a different site within the same service area through the transfer of existing licensed beds, the projected bed need for the facility, or a combination of both existing beds and projected bed need. The facility is not required to have a projected need for additional beds in order to create a new additional hospital. There is no required minimum number of beds in order to approve the CON application. The applicant must justify, through patient origin and other data, the need for a new hospital at the chosen site and the potential adverse impact a new hospital at the chosen site could have on the existing hospitals in the service area.**

Response: The project involves the construction of a 128-bed acute care hospital in Berkeley county to service tri-county area patients with acute inpatient needs. The 128-bed request is a conservative request based on the 2017-2018 State Health Plan, which indicates a bed need of 147 for MUHA Medical Center. See above responses to Question 11 regarding justification through patient origin and other data, the need for a hospital at the chosen site, and lack of adverse impact on existing hospitals in the area.

6. **No additional hospital will be approved unless it is a general hospital and will provide:**
   A. **A 24-hour emergency services department that meets the requirements to be a Level III emergency service as defined in the Emergency Services section of Regulation 61-16;**
   B. **Inpatient medical services to both surgical and non-surgical patients; and**
   C. **Medical and surgical services on a daily basis within at least six of the major diagnostic categories as recognized by Centers for Medicare and Medicaid Services (CMS).**

Any applicant for a new hospital must provide a written commitment that the facility will

accept Medicare and Medicaid patients and that unreimbursed services for indigent and charity patients are provided at a percentage that meets or exceeds other hospitals in the service area. The CMS Diagnostic Categories Chart is located in Chapter XIII of this Plan.

Response: The Community Hospital will meet and exceed all of the above requirements as outlined by the 2017-2018 State Health Plan.

The acute care hospital will operate a 24-hour emergency department, which meets all requirements for a Level III emergency service as defined in Regulation 61-16 Sec. 613 Emergency Services. MUHA's Emergency Department practices with the most state-of-the-art equipment available as well as highly advanced specialists in several fields of medicine. In compliance with EMTALA, all patients requiring tertiary and quaternary services will be transferred to the MUHA downtown campus for thorough diagnostics and treatment. Unlike non-teaching facilities, MUHA is able to provide a specialist in virtually any field to the bedside 24/7, every day of the year. In addressing every day patients with the most intricate and exotic medical problems, and by constantly interacting with multiple highly advanced specialists and leaders in their field, the staff of MUHA's Emergency Department carries a level of experience and knowledge that cannot be found elsewhere in South Carolina. Add this to MUHA's unique diagnostic capabilities and specialists, and you have the best Emergency care available in the area. This Community Hospital will service patients with high-quality care comparable to what they would receive at the main MUHA campus in Downtown Charleston. Any condition that requires treatment not available at the community hospital will have ready access to the main MUHA campus site for thorough diagnostic and treatment services.

MUHA offers inpatient medical services to both surgical and non-surgical patients. This offering will remain consistent in the Community Hospital

MUHA accepts patients regardless of payor status, and has a long history of serving Medicare, Medicaid, and patients qualifying as charity or indigent. MUHA's commitment to Medicare, Medicaid, and charity and indigent patients can be found in **Attachment T.**

7. **Due to the low utilization and the low capital cost of converting hospital-based nursing home, psychiatric, rehabilitation and/or substance abuse beds to general acute care hospital beds, the following policies may apply:**

   A. **Hospitals that have licensed nursing home beds within the hospital may be allowed to convert nursing home beds to general acute care hospital beds only within the hospital, provided the hospital can document an actual need for additional general acute care beds. Need will be based on actual utilization, using current information. A Certificate of Need is required for this conversion.**

   B. **Existing acute care hospitals that have inpatient psychiatric, rehabilitation, or substance abuse beds may be allowed to convert such beds to acute care hospital beds, regardless of the projected need for general acute care hospital beds. A Certificate of Need is required for this conversion.**

Response: Not applicable. The project does not involve converting nursing home beds to acute care beds.

8. **In some areas of South Carolina, a considerable influx of tourists is not counted in the permanent population. If an individual hospital in these areas can document and demonstrate the need for additional beds due to non-resident (tourist) population and seasonal utilization fluctuations due to this population, then, based on further analysis, the Department may approve some additional beds at the existing hospital.**

Response: Not applicable. The project addresses current and future demand based on population growth in the tri-country and secondary markets, and therefore, does not account for fluctuations due to tourism.

9. **Should the deletion of services at a federal facility result in an immediate impact on the utilization of a hospital, then the Department may approve a request for additional beds at the affected hospital. The affected hospital must document the increase in demand and explain why additional beds are needed to accommodate patients previously served at the federal facility.**

Response: Not applicable. The proposed project does not involve adding acute care beds due to deletion of services at a federal facility.

10. **Changes in the delivery system due to health care reform have resulted in the consolidation of facilities and the establishment of provider networks. These consolidations and agreements may lead to situations where affiliated hospitals may wish to transfer beds between themselves in order to serve their patients in a more efficient manner. A proposal to transfer or exchange hospital beds requires a Certificate of Need and must comply with the provisions outlined in Chapter II, Transfer between Affiliated Facilities.**

Response: Not applicable. MUHA is not seeking to transfer or exchange hospital beds.

11. **Factors to be considered regarding modernization of facilities include:**
    - **A. Functional arrangement of the facility as it relates to efficient handling of patients and related workloads.**
    - **B. The ability to update medical technology within the existing plant.**
    - **C. Existence of The Joint Commission (TJC) or other accreditation body deficiencies or "grandfathered" licensure deficiencies.**
    - **D. Cost efficiency of the existing physical plant versus plant revision, etc.**
    - **E. Private rooms are now considered the industry standard.**

Each modernization proposal must be evaluated on the basis of merit, cost efficiency, and impact on healthcare delivery within the service area.

Response: Not applicable. The project does not include modernization of existing facilities.

However, the facility will be constructed according to best practice standards regarding functionality and efficiency of handling patients and related workloads, cost efficiency, merit, and impact of healthcare delivery within the service area. All existing patient rooms at MUHA are private, and all rooms will be consistent with this standard of care.

Conclusion

In conclusion, as the largest Academic Medical Center in the state, MUHA feels a great responsibility to construct MUHA Community Hospital to increase access for patients requiring non-tertiary care in the tri-county area. At a national level, the models for successful population health management are changing. Acute care services need to be more accessible to communities meet the high demand and growing populations. Shifting acute inpatient care to Berkeley county improves MUHA's ability to deliver excellent care on both the local and statewide level. As mentioned above, the project has the support of tri-county community, and the proximity to the growing industrial and residential areas in Berkeley county will allow for the delivery of world-class care with a home-town feel. The acute care hospital will help the community of Berkeley county experience leading edge care in the area where they work and live.

12. Discuss alternative facilities and/or services considered including the advantages and disadvantages of each alternative. Include a statement as to why this project alternative was adopted.

Maintain the Status Quo:

Under the status quo, MUHA patients and physicians will continue to experience capacity challenges associated with the existing inpatient services which are well utilized. Maintaining the status quo would not address demand for inpatient services, which will continue to grow as MUHA's service area continues to grow. In addition to providing area residents enhanced convenience and improved wait times, the project will enhance access. The buildings are landlocked and there is not space for additional construction downtown. Without increasing capacity, there would be significant delays in access to care, workflow inefficiencies, and inconvenience for patients. Equally important, approximately 29% of current adult inpatients originate from the North Charleston, Summerville and Moncks Corner submarkets. Patients from this area experience extreme inconvenience when traveling downtown with limited parking. This alternative would hinder MUHA's ability to provide high quality, accessible patient care and was therefore rejected.

Further Expand MUHA's Existing Hospital-Based Inpatient Services:

Due to the age of the existing facility and the fact that most of the patient care buildings are undersized and require replacement or significant upgrading, this is not a viable alternative. Few viable expansion zones surrounding the hospital remain. The current building structures downtown will not support additional floors to be constructed above existing floors. Furthermore, much of the current infrastructure system and buildings need upgrades, repairs, and major maintenance. The infrastructure systems are reflective of the codes at the time the buildings were constructed, but may not have been upgraded to current needs and standards. Significant cost expenditures would be required to renovate existing services. Since the

buildings on campus are separate from each other, most are served by infrastructures internal to the buildings, creating system redundancy. The costs to renovate the various buildings on MUHA's campus are comparable to the costs of developing the project, however, the quality of care provided to patients would suffer if this option was selected. Additionally, a phased renovation of existing inpatient floors would create notable disruption to the existing services and add to the project cost. From a health planning perspective, it is not appropriate to place new acute beds in service in a portion of the tri-county service area that is not expanding rapidly when another part of the service area is expanding rapidly.

Construct Facility at the Nexton Location:
The location in Summerville-Berkeley County provides multiple benefits to the adult inpatient patients currently served by MUHA. It will provide care closer to our patients, increase efficiency of care, and allow the downtown campus to focus on tertiary care. This alternative was accepted because it alleviates the inconvenience of downtown while bringing care into the community of MUHA's patients. If these resources remained in their current location or were added to the downtown campus, patient care would be delayed and inconvenient, leading to a less than optimal patient/family experience.

13. Discuss any serious problems, such as costs, availability, or accessibility in obtaining care of the type proposed, experienced by patients in the absence of this project.

Response: While the quality of care provided is outstanding, earning MUHA the reputation as one of the top hospitals in the United States, the downtown campus was designed and constructed over 20 years ag, with portions of the facilities almost 50 years old. Much of the current infrastructure and buildings need upgrades, repairs and major maintenance. The infrastructure systems are reflective of the codes at the time the buildings were constructed, but may not have been upgraded to current needs and standards. Locating the Community Hospital in Summerville will increase accessibility for the patient population served, particularly in light of the economic development and population growth in the Berkeley county area.

14. Where a project affects an increase or decrease in bed capacity, provide annual occupancy rates for the facility based on licensed beds, for the past three years by category (i.e. general acute, psychiatric, obstetric, nursing home, etc.).

Response: Please see below for total acute care volumes to exclude inpatient psych and normal newborns.

	FY 15	FY 16	FY 17
Volume	29,951	30,825	32,058
Patient Days	182,807	187,866	202,055
ADC	501	515	554
Licensed Acute Care Beds	604	608	608
Occupancy Rate	82.9%	85%	91.0%

Notes: Previous analysis for FY 17 excluded the Transition Care Unit patients from the inpatient volumes, but the analysis above includes these patients for a total picture which aligns with the JARs. Volumes exclude psych and normal newborns.

Source: JARs

15. **Identify the method of financing the cost of the project, including the start-up costs. Provide documentation that the applicant can obtain such financing. Alternative sources and/or methods of financing must be identified and the method chosen demonstrated to be the most feasible option.**

Response: Depending on the interest rate environment at the time of the loan application, MUHA will finance the capital cost of this project through either FHS insured tax exempt loan or through a GNMA insured taxable loan. Both the FHA and GNMA loans are insured under the U.S. Department of Housing and Urban Development (HUD) Section 242 Hospital Mortgages Insurance. Please refer to **Attachment U** for our commitment to secure the funds from the Chief Financial Officer at MUHA, Lisa Goodlett. This attachment also includes a financial commitment letter from Armadale Capital Inc., a licensed FHA multifamily lender and SEC registered municipal advisor.

16. **For an addition to an existing facility or service, provide a current annual budget and at least a three fiscal year projected budget for both the overall facility and the proposed project. The projections must be developed by an accountant. For a new facility or service, provide a projected annual budget for not less than three fiscal years following the completion of the proposed project. The projections must be attested to by an accountant. These budgets must at a minimum include how proposed charges, proposed cost of service, utilization, depreciation, reimbursementrates and contractual adjustments were calculated. Any assumptions made in the application must be specifically noted shown.**

Response: Attachment V contains the financial projections for the project through the first three years of operation and the assumptions used in these calculations. Also included in **Attachment V** is a letter from Lisa Goodlett, MUHA Chief Financial Officer, attesting to the accuracy of the assumptions and calculations used in these projections.

17. **Provide a list of proposed charges for the project. The charges provided may be used for comparison with the average charges in the final completion report as required in Section 607.3.b.**

Response: The charges for services associated with the project are projected to be comparable to those established by other facilities for similar services. Upon project completion, charges will remain reasonable and consistent with those currently in place. There are no anticipated charge increases other than those necessary to offset inflation. The following figure provides the FY 2017 average charges for top volume DRG codes for general acute inpatients with non-tertiary DRGs.

Figure 32
MUHA FY 2017 Average Top Volume DRG Codes and Charges
General Acute Patients with Non-Tertiary DRGSs

DRG	Average Charge
0775 VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES	$10,877.78
0765 CESAREAN SECTION W CC/MCC	$32,811.94
0871 SEPTICEMIA OR SEVERE SEPSIS W/O MV >96 HOURS W MCC	$63,894.72
0774 VAGINAL DELIVERY W COMPLICATING DIAGNOSES	$14,609.04
0812 RED BLOOD CELL DISORDERS W/O MCC	$27,582.28
0101 SEIZURES W/O MCC	$24,155.66
0064 INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION W MCC	$59,325.94
0291 HEART FAILURE & SHOCK W MCC	$33,622.70
0999 UNGROUPABLE	$54,885.26
0766 CESAREAN SECTION W/O CC/MCC	$23,199.29

Source: MUHA Internal Data

18. Document that the project is economically feasible, both immediately and long-term. In the case of existing facilities, indicate what impact the proposed project will have on patient charges and cost per unit of service.

Response: As evidenced by the financial projections in **Attachment V**, the project is feasible both immediately and in the long term. Also included in the attachment is a letter from Lisa Goodlett, CPA and MUHA Chief Financial Officer, attesting to the accuracy of the financial projections.

19. State how the project will foster cost containment and improve quality of care through the promotion of such services as ambulatory and home health care, preventive health care, promotion of shared services, economies of scale, and design and construction economies.

Response: The proposed project will have a positive impact on the quality of care for the Berkeley county patient population and beyond. MUHA's acute inpatient services are currently restricted to the downtown Charleston peninsula, which is often difficult for patients to travel to and navigate. Furthermore, acute inpatient services are currently located in aging, outdated facilities which are scattered across the campus in several different buildings. By offering select acute inpatient services off of the downtown peninsula and in a facility with appropriately designed facilities, productivity and efficiency of the providers of care and the systems supporting them will be greatly improved. This, in turn, translates into design economies and ultimately better patient care. The proposed facility will integrate many departments and services and will allow them to function efficiently with the support of one infrastructure rather than functioning independently with duplicative infrastructures.

Second, the proposed project will significantly improve access to acute inpatient services for patients in the tri-county and beyond. By providing acute care services off the peninsula and in a Community Hospital setting, patients will be able to access MUHA's world class care closer to their home and work. The proposed project will not only bring inpatient care closer to a significant proportion of MUHA's patient population, it will also improve the ease of navigation and parking with a free surface lot. Furthermore, shifting care into the community allows the downtown campus to focus on providing high-quality care for high acuity patients. This proposal will enhance the delivery of care to residents in the area without any impact on existing providers since MUHA will be shifting existing clinically appropriate acute care patient volumes from the downtown campus to the Community Hospital.

Third, the proposed building will have a more efficient layout than the current facility, decreasing the overall cost of care while improving collaboration and multidisciplinary care for the patient population. The enhanced collaboration among the care team will result in a decrease in duplicated efforts, thus promoting cost containment.

20. In the case of projects involving additional long-term care beds, discuss how the plans of other agencies, organizations, or programs responsible for providing and financing long-term care have been considered.

Response: Not applicable. The project does not involve additional long-term care beds.

21. Provide a three-year projected manpower budget in full-time equivalents (FTE's) detailing the existing and proposed nursing, other professional, and non- professional personnel required for the staffing of the new project.

Response: The three-year projected manpower budget is included along with the financial projections in **Attachment V**. There are 613 FTEs associated with the project by year three.

22. Provide the number of existing and proposed medical staff by specialty, to include physicians employed by, or with admission privileges to, the facility. Include the name of the Chief of the Medical Staff, if available.

Response: The following numbers of Physicians listed in **Figure 33** are currently employed by, or have admission privileges to, the MUHA Medical Center which will also have privileges at the Community Hospital:

Figure 33
MUHA Medical Staff Detail

Anesthesiology	66
Dermatology	16
Family Medicine	33
Medicine	241
Neurology	35
Neurosurgery	21
Obstetrics & Gynecology Services	37
Ophthalmology	15
Oral & Maxillofacial Surgery	5
Orthopaedic Surgery	22
Otolaryngology	27
Pathology & Lab. Med.	30
Pediatrics	139
Psychiatry	57
Radiation Oncology	9
Radiology	46
Surgery	50
Urology	11
Total	**860**

The Chief of Medical Staff for this facility will be determined at a later date. The Curriculum Vitae will be submitted as an addendum when assigned.

23. Indicate those physicians who have expressed a willingness to utilize the proposed services or to refer patients to the facility for the provision of services.

Response: Letters of support will be included as an addendum.

24. Discuss the availability of health manpower resources for the provision of the proposed services, including the contemplated program and plan for recruiting and training personnel.

Response: MUHA, as a teaching hospital with numerous educational affiliations, has access to multiple sources of trained and qualified personnel, as well as the capability to provide extensive training itself. If there is a need to hire additional staff in the future, recruitment is not foreseen to be a problem for MUHA.

25. Describe the previous experience of the applicant in the proposed health care field. If the applicant has no prior experience, specify the anticipated sources of technical assistance, either from specific individuals or organizations.

Response: Founded in 1824 in Charleston, The Medical University of South Carolina (MUHA) is the oldest medical school in the South. Today, MUHA continues the tradition of excellence in education, research, and patient care. MUHA educates and trains more than 3,000 students and residents annually, and has nearly 10,000 employees, including 1,300 faculty members. MUHA operates a 709-bed medical center, which includes a nationally recognized Children's Hospital and a leading Institute of Psychiatry. MUHA is nationally recognized for its tradition of excellence, and is accredited by the Joint Commission on Accreditation of Healthcare Organizations.

Included in the wide array of facilities, services and programs offered by MUHA is the MUHA Children's Hospital, a facility planned, designed, equipped, and staffed with children in mind. This facility provides comprehensive services for children from birth to 18 years of age. Pediatric specialists in nearly every discipline ensure that every child receives the most effective age-specific care. Individualized pediatric teams can be created instantly by combining the expertise of diversely trained staff pediatricians. The Pediatric Intensive Care Unit is staffed exclusively by trained pediatric critical care teams. The hospital is home to the South Carolina Children's Heart Center, an adjunct of the MUHA Heart & Vascular Center. CHILD magazine lists the MUHA Children's Hospital as one of the top 25 in the U.S. MUHA continues to be in the elite list for the Best Children's Hospitals survey. MUHA also recently received top awards from the U.S. News Media Group's 2013-2014 edition of America's Best Children's Hospitals, where the MUHA Children's Hospital was ranked among the top 50 programs for three specialties. For the fifth time, the heart and heart surgery programs attained this distinction. For the second time this year, the gastroenterology program was listed; and for the first time this year, its nephrology program also ranked as one of the top 50 in the nation.

In addition, the MUHA Children's Hospital neonatal intensive care unit (NICU) is named one of the country's top 10. Children's Hospital has one of the few Level III Neonatal Intensive Care Units in the state. The NICU is dedicated to excellence in the care of newborns and their families. MUHA believes that parents are active partners in the care of their infants and in the understanding and development of the science of newborn care. The compassionate treatment MUHA provides is a model of effective integration of evidence-based, interdisciplinary and family-centered approaches. As a result of this approach, MUHA Children's Hospital is recognized as the premier provider of care for high-risk newborns. MUHA is one of five Regional Perinatal

Centers (RPCs) in South Carolina. In addition to providing comprehensive services for high-risk obstetric and complex neonatal conditions, RPCs provide consultative, outreach, educational and support services to other hospitals in the region.

26. Discuss the impact of the project on the clinical training programs of health professional schools, particularly the extent to which these schools will have accessto the services for training.

Response: The Medical University of South Carolina has extensive clinical training programs which involve the rotations of students from varying areas of clinical specialization including medical residents, student nurses, and radiology technicians. These training programs will continue and will be enhanced through the project, which will foster an improved learning environment for students.

27. Provide documentation of policies and procedures to assure the quality of healthcare services by addressing patient safety and quality indicators, as applicable. Documents may include, but are not limited to, measures of patient care, patient safety, healthcare-acquired infections and the following of best practices established by recognized organizations. Applicable quality standards in the South Carolina Health Plan must be addressed.

Response: The following provides detail regarding MUHA's quality and safety policies. MUHA's patient safety policies are on file with the Department.

a. Accuracy of patient identification.
Upon arrival of alert and oriented patients, reception will request pictures IDs to confirm patient identity. Medical records will be verified by asking patients to validate their SSN, date of birth, as well as the correct spelling of their name and address. Staff members will confirm the same patient data before procedures are started.

b. Effectiveness of communication among caregivers.
Consistency of care will be guaranteed with effective verbal and written policies. Documented clinical indications and protocols will be verbally communicated between the clinical staff to ensure accuracy of tests and quality patient care.

c. Safety of using medications.
Safes or locked areas will be provided for all high alert medications and access will be limited to Physicians, RNs, RTs and other appropriate and fully trained clinical staff. Clinical manuals will be provided listing all drugs in stock. The manual will list all drug side effects, contraindications, dosing, and reversal protocols. Daily logs will be documented for all drugs administered to include patient name, dosage and any clinically observed reactions.

d. Reduce risk of health-care associated infections.
Universal Precautions will be used by all staff for delivery of care. Training and monitoring of all staff will be conducted.

e. Accurately and completely reconcile medications across continuum of care.

Medication administration will be documented and monitored appropriately. Patients' charts will accurately reflect their medications to include date, medication prescribed, dosage, and the amount provided. All of this information is reviewed prior to administering medications.

f. Reduce the risk of patient harm resulting from falls.
All installed alarm systems will be tested for effectiveness and operational accuracy at least once a month by the monitoring company. An intercom system is available to alert designated on-site staff of the appropriate emergency code if needed. Staff will be trained in emergency protocols.

g. Reduce the risk of influenza and pneumococcal disease in institutionalized older adults.
All staff are encouraged to receive annual flu and pneumonia vaccines.

h. Reduce the risk of surgical fires.
Standard safety precautions will be used by all staff to reduce the risk of surgical fires. Training of all staff will be conducted.

i. Implementation of applicable National Patient Safety Goals and associated requirements by components and practitioner sites.
MUHA implements applicable National Patient Safety Goals and associated requirements as applicable.

j. Encourage patients' active involvement in their own care as a patient safety strategy.
All patients are encouraged to actively participate in their care.

k. Prevent health care-associated pressure ulcers (decubitus ulcers).
MUHA implements appropriate protocols to prevent health care-associated pressure ulcers.

l. The organization identifies safety risks inherent in its patient population.
Patient safety policies and procedures are already on file with DHEC from a previous Certificate of Need, SC-15-07. These policies and procedures confirm MUHA's commitment to safety and quality of care issues. These same policies will apply to the project.

A discussion of deficiencies related to any of the foregoing, including complaints, cited by the SCDHEC Bureau of Health Facilities Regulation and/or Bureau of Certification within the past year. The applicant may provide additional information and discuss additional time spans if desired.

MUHA has no known citations by the SCDHEC Bureau of Health Facilities or the Bureau of Certification within the past year.

MUHA has addressed the Joint Commission Patient Safety Goals regarding safety of patient care as outlined in the State Health Plan. The MUHA Medical Center Quality and Safety Framework demonstrates the organization's commitment to the quality and safety of patient care. It is an interdisciplinary structure that drives and coordinates the error reduction and performance improvement activities within the medical center. This structure represents a systematic

organization-wide approach to planning for quality results.

The Quality and Safety Framework focuses on the patient and organizational functions that lead to safe, positive patient outcomes and provides for process standardization across the medical center. Through the committees and communication channels of the Quality and Safety Framework, improvement efforts and error reduction activities within these functions are identified, prioritized, and quantified. This framework represents a transition from an approach in which performance improvement is a distinct set of activities to one in which performance improvement is integrated into the operational structure of each service as well as the organization. This cross-organizational approach ensures that the monitoring and evaluation of important functions occur within existing operational and medical staff committees.

The MUHA Board of Trustees is responsible for the quality of patient care provided. The Board of Trustees requires the medical staff to implement and report on the activities and mechanisms for monitoring, assessing and evaluating patient safety practices and the quality of patient care, for identifying and resolving problems and for identifying opportunities to improve patient care and services or performance throughout the facility. The Board of Trustees delegates this responsibility to the MUHA Medical Center Medical Executive Committee. The purpose of the MEC is to ensure high quality, safe, patient-centered, cost-effective care throughout the MUHA's clinical enterprise.

The MUHA Medical Center Quality Council, made up of administrative and physician leaders, oversees and coordinates the performance assessment and improvement activities within the organization. This group will ensure that improvements are planned, designed, measured, analyzed, and sustained.

With designated responsibility from the Quality Council, the Patient Safety Committee will operate as a subcommittee of the Quality Council dedicated to the implementation and monitoring of the effectiveness of the Patient Safety Program.

Specific policies implemented to address patient safety include:

- Safety Management Plan
- Security Management Plan
- Hazardous Materials and Waste Management Plan
- Emergency Management Plan
- Fire Safety Management Plan
- Medical Equipment Management Plan
- Utility Systems Management Plan

In addition, a department was created several years ago to address these patient safety efforts. The Center for Clinical Effectiveness and Patient Safety is dedicated to ensuring that MUHA staff upholds high standards of patient health and safety with goals of:

- Providing a safe, healthy, and secure environment,
- Performing jobs carefully and competently,
- Using safe and effective practices,
- Responding promptly to any needs, 62

- Coordinating care between the patient and caregivers,
- Answering health care questions honestly and completely, and
- Keeping the patient informed of any changes in treatment plans.

MUHA's Quality and Safety Policies are on file with the Department.

28. Provide any additional information that would assist the department in evaluating this project.

Response: There is no additional information that would assist the department at this time.

Part C. Programmatic Documents

Provide adequate programmatic documents in support of the various elements of the proposed project. These documents will include as appropriate:

1. **An Indigent Care Plan as required by the Board of Health and Environmental Control. It shall address at a minimum, the following:**

    a. **The existing and proposed admission and treatment policies of the facility or agency with regard to race, sex, creed, national origin, and ability to pay.**

Response: Patients are admitted to MUHA facilities without regard to race, sex, creed, or national origin. The MUHA admission policy does require a financial analysis of all patients to be admitted in order to determine their ability and willingness to pay their hospital bill. Should a patient's financial coverage be deemed inadequate, the admission request is reviewed from a medical/clinical perspective. This review determines if the patient requires services only available at the MUHA facility. Emergency admissions are review financially as soon as possible after admission with required documentation from the admitting physician explaining the nature of the emergency.

All patients admitted to MUHA facilities are financial counseled regarding their personal responsibility for the payment of their medical bills. A patient's family gross income and family size are benchmarked against the MUHA's Indigent Discount Chart. The discount chart is based on federal poverty guidelines. The indigent determination is applied to patients unable to pay at the time of admission and to those whose benefits expire while in the care of the hospital.

MUHA Medical Center's Patient Rights and Responsibilities documentation is on file with the Department.

    b. **The proposed admission and treatment policies of the facility or agency with respect to admission and care of indigent patients including those patients unable to pay at the time of admission and those whose benefits expire while in the care of the facility or agency.**

Response: The level of indigent care provided by MUHA reflects a tradition of commitment to helping the entire population of South Carolina and the low-country. MUHA will continue its historical tradition of working with all governmental levels to address the issues of indigent care and secure adequate funding for the future.

    c. **In existing facilities or agencies, provide the amount, in dollars and percent of gross revenues, that the facility or agency provided in indigent care during the past three fiscal years. NOTE: Indigent care does not include bad debt; contractual adjustments; or care which is reimbursed by a governmental program (Medicare, Medicaid, county indigent program), church, or philanthropic organization.**

Response: MUHA is committed to providing needed health care to all patients regardless of

ability to pay. In order to demonstrate the organization's commitment to providing indigent and charity care, the indigent care expenditures from FY 2015 to FY 2017 are shown below in **Figure 34.**

Figure 34
FY2015 – FY2017 MUHA Indigent Care

Fiscal Year	Indigent Care Dollars	Ind Care % of Gross Rev
2015	$63,010,515	1.87%
2016	$110,370,690	2.97%
2017	$147,718,399	3.59%

Source: MUHA Internal Data

d. Provide the proposed amount of indigent care the facility or agency projects to provide during the existing fiscal year and next fiscal year. This projection should be expressed in both dollars and a percent of gross revenues.

Response: The amount of indigent care MUHA projects to provide during the existing and next fiscal year is as follows:

Figure 35
MUHA Projected Indigent Care FY2018 – FY2019

Fiscal Year	Indigent Care Dollars	Ind Care % of Gross Rev
2018	$153,120,578	3.77%
2019	$160,235,740	3.77%

Source: MUHA Internal Data

e. A discussion of why the above figures are adequate or inadequate for the needs of the community; the need of indigent care within the proposed service area; and any solutions, remedial plans or proposals by the facility or agency to better address the indigent care problem in the service area. Include any initiatives or undertakings the facility or agency has begun to address the indigent care problem in the proposed service area.

Response: MUHA is an operating and approved disproportionate share medical facility. Due to the nature of this funding, Medicaid contractual adjustments and indigent care costs are offset, allowing for the continued support of health care for all South Carolina citizens.

f. Describe any Board or Advisory Board established to implement or control the indigent problem at the facility or agency. Include the Board's functions, responsibilities, and limitations.

Response: Not applicable to this project.

2. A map of sufficiently large scale to be meaningful, indicating the location of the project site and its geographical area.

Response: Refer to **Attachment D** for the land map.

3. **A plot plan of the project site showing existing buildings, roads, parking areas, walks, service and entrance courts, existing utilities (electricity, telephone, water, railroads, sewer, gas, etc.) and other natural land features necessary for adequate analysis of site conditions.**

Response: Please refer to **Attachment C** for a map of the site.

4. **A legal description of the project site indicating its physical characteristics and existing easements.**

Response: Please refer to **Attachment W** for a legal description of the project site.

5. **A square foot program of space and/or equipment elements, and scale drawings describing the existing space and proposed alterations and additions.**

Response: Please see **Attachment C** for the schematic drawings associated with the project.

6. **Documentation from the appropriate zoning authorities that the proposed site is or can be zoned for the intended use.**

Response: Please see **Attachment C** for the zoning documentation of the site.

7. **Documentation from appropriate sources that utilities supplied to the site are adequate for the project to include electricity, gas, water, and sewerage.**

Response: Please see **Attachment C** for documentation detailing the available utilities at the site to include electricity, gas, water and sewage.

8. **Endorsement from the community that the project is desirable. This may include but is not limited to members of the medical community, citizen's groups, governmental elected officials and other health and social service disciplines in the community.**

Response: Letters of support will be included as an addendum.

9. **Documentation that the proposed project has been approved by the health facility's planning committee and governing body.**

Response: Please see **Attachment X** for the Board of Trustees minutes.

10. **For the facilities or services not licensed by the Department of Health and Environmental Control, provide documentation of coordination and support from the appropriate licensing agency.**

Response: Not applicable to this project.

PART D: ASSURANCES

The applicant must furnish written assurance of each of the following where applicable:

The applicant assures to the following:

(1) The applicant has a fee simple title to the proposed site which includes all necessary easements and rights of way sufficient to assure use and possession for the purpose of construction operation of the facility.

(2) Final drawings and specifications for the project will be prepared by an architect/and or engineer who is legally regulated and licensed under laws of the state of South Carolina and approval of the same will be obtained from the Department.

(3) The applicant will submit to the Department for prior approval, changes that substantially alter the scope of work, function, utilities, major items of equipment, safety or cost of the facility during the construction period.

(4) The applicant will ensure that the project will be completed in accordance with all the Certificate of Need application regulations and guidelines.

(5) The applicant will ensure that the project will be completed in accordance with approved plans and specifications by maintaining competent and adequate architectural and engineering services throughout the construction administration phase of the project. At the completion of the project, the architect of record will be required to issue a statement that to the best of his knowledge and belief, based upon available records, supplemental documents, and periodic observation of the work, the project was constructed according to those documents approved by the Department.

(6) The facility will be operated and maintained in accordance with the standards prescribed by law and regulations for the maintenance and operation of such facilities.

(7) The applicant understands the Certificate of Need shall become void at the end of the specified time period from the date of issuance unless otherwise extended under Chapter 6 of Department regulations.

(8) The Department of Health and Environmental Control or its authorized representatives may at any time during the course of construction and upon completion of the project make an on-site inspection to check for compliance of the construction in accordance with the application for which the Certificate of Need was issued.

(9) The controlling interest as specified shall not be sold or leased or otherwise disposed of without a Certificate of Need or exemption by the Department being received by the appropriate individual.

(10) The applicant will provide the Department with a certified letter stating that the contractual agreement has been completed.

(11) The applicant will provide the Department with written notice of the date that a new or expanded service has been implemented, completed or terminated.

(12) The applicant will provide the Department with monthly progress reports and a final completion report as indicated which contain information required by Section 607 of Department regulations.

Signature **Date** 12/8/17

Patrick J. Cawley, MD
CEO, MUSC Health
Medical University of South Carolina

Attachment A:
Published Notification of Project

CAROLINE COTTER, MHA OFFICE OF STRATEGIC PLANNING (MUSC)
261 CALHOUN STREET SUITE 100/ MSC 566
CHARLESTON SC 29425

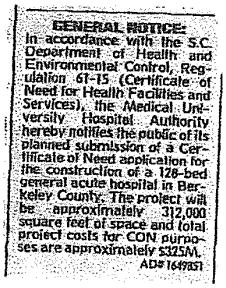
AFFIDAVIT OF PUBLICATION

The Post and Courier

State of South Carolina

County of Charleston

Personally appeared before me the undersigned advertising clerk of the above indicated newspaper published in the city Charleston, county and state aforesaid, who, being duly sworn, says that the advertisement of


GENERAL NOTICE:
In accordance with the S.C. Department of Health and Environmental Control, Regulation 61-15 (Certificate of Need for Health Facilities and Services), the Medical University Hospital Authority hereby notifies the public of its planned submission of a Certificate of Need application for the construction of a 128-bed general acute hospital in Berkeley County. The project will be approximately 312,000 square feet of space and total project costs for CON purposes are approximately $325M.
AD# 1649851

(copy attached)

appeared in the issues of said newspaper on the following day(s):

12/22/17 Fri PC
12/23/17 Sat PC
12/24/17 Sun PC
12/22/17 Fri CNW
12/23/17 Sat CNW
12/24/17 Sun CNW

at a cost of **$137.19**
Account# **333693**
Order# **1649851**
P.O. Number:

Subscribed and sworn to before me this 26th day of December A.D. 2017

advertising clerk

NOTARY PUBLIC, SC
My commission expires

DHEC CON 000070

Attachment B:
Total Cost Detail
MRI & CT Equipment
Quotes

LS3P ENGAGE DESIGN TRANSFORM

December 20, 2017

Mrs Sarah Bacik
MUSC Strategic Ventures
326 Calhoun St
Charleston, SC 29425
baciks@musc.edu

RE: MUSC Health Community Hospital: CON submission

LS3P ASSOCIATES LTD. is pleased to have the opportunity to provide MUHA with our assistance for preparing the CON Application documents for the proposed Community Hospital in Summerville South Carolina. Please do not hesitate to contact me if you require additional information.

Per your request, please accept this letter for MUSC's submission to SCDHEC as required for a Certificate of Need for a new hospital and other clinical support services to be located in a new Summerville, Berkeley County, South Carolina. Please find provided below the following items: **certified project budget (prepared by LS3P and a 3rd party estimator), Location(see attached site concept drawing); Details about Proposed Construction; Scope Narrative description and program, and a preliminary project schedule.**

PROJECT BUDGET:

Based on the preliminary studies done for the CON preparations the total project costs for the project are estimated at approximately $325,000,000. See the attached certified Total Cost summary for the break out of the Land, Building, Construction, Equipment, and other costs such as Professional fees, Permits, Geotechnical, Environmental, and Inspections and Financing Interest costs.

LOCATION /LEGAL DESCRIPTION:

The building is to be located on the approximately 40 acre site bounded by Nexton Parkway, under option to be purchased by MUSC. The property consists of +/- 40 Acres acres of highland with not significant wetlands area. We will likely develop approximately 35 acres in the hospital project. The parcel is currently zoned for a PUD for Commercial Development which allows for this proposed Institutional Occupancy. The property is outside any flood zone areas.

Power line and utilities run along the perimeter but will all need to be upgraded to suit the new purposes of the site. Site planning will include a conceptual site layout for roughly 35 acres with building location, driveways, site detention, and parking.

Parking will be provided onsite to meet the zoning requirements of Nexton Developments for Institutional requirements as well as per the FGI Guidelines providing 1 per Patient bed, treatment area and 1 per employee per weekday shift with approximately 870 parking spaces for the hospital. A separate service loop drive is planned for deliveries. See the site plan attached.

PROJECT DESCRIPTION:

The project includes the preparation of the documents associated with the CON application for a roughly 311,221 SF of space. The building will include 128 inpatient beds, 4 Operating Rooms, 2 Procedure Rooms, 8 Labor and Delivery Rooms, a Nursery, 1 MRI, I CT Scan, 2 Fluoroscopy, 2 Imaging rooms in addition to the prep and recovery spaces, nursing support, and associated clerical and family spaces for a community hospital. The building will also include a helipad to transport patients downtown if needed.

The building will be type IIA construction a multi-story steel framed structure per the 2015 IBC. It will meet the requirements of SCDHEC Regulation 61-16 - MINIMUM STANDARDS FOR LICENSING HOSPITALS AND INSTITUTIONAL GENERAL INFIRMARIES and other related sections Food Service and X-ray. A detailed program and a scaled preliminary plan drawing are attached. Mechanical and electrical services will be provided to meet the redundancy requirements listed in the current NFPA documents for such a healthcare setting.

PROJECT TIMELINE:

I understand the CON preparation process for the project is to be completed in December 2017. Design Services will be completed in 12-13 months after the CON approval. Site and Building Construction, expected to take approximately 27 months, would commence in December 2019 and be completed in February 2022 and ready for opening after equipment installation and licensure in May 2022. See the detailed monthly schedule attached.

Sincerely Yours,

Rebecca M. Smith

LS3P ASSOCIATES LTD.

Rebecca M. Smith, AIA
Vice President | Principal | Studio Leader
SC Architectural Registration #3970

CC: file

Attachments: Total Cost Summary
Program
Site Plan & Floor Plans
Timeline Schedule

MUSC Health
MEDICAL UNIVERSITY of SOUTH CAROLINA

MUSC HEALTH COMMUNITY HOSPITAL

Total Project Costs Estimate

Land Acquisition						
Purchase Price					$0	
Broker Fee					$0	
Legal Fees					$0	
				Total Land Acquisition Costs		$10,000,000
Sitework*					$11,235,720.20	
Building Construction*	128 beds	*$478 per SF*	*311,221*		$148,729,995	
		ADD STRUCTURE/ROOF FOR FUTURE WING OVER PRE/POST			$2,375,313	
		ADD HELIPAD ON ROOF			$999,824	
					$152,105,132	
(*includes 2.37 % escalation to midpoint of construction Feb 2021 per schedule)				***Total Construction Costs****		**$163,340,852**
Contingencies:						
Design Contingency 5% of Building Construction Costs						**$7,605,257**
Construction Contingency 5% of Building Construction Costs						**$7,605,257**
Other Building/Equipment Costs						
	Procurement Consultant	350,000				
	Medical Equipment-Imaging	$10,120,000				
	Medical Equipment-Surgical	$3,366,000				
	Medical Equipment-ICU	$1,188,000				
	Medical Equipment-Nursing Service	$2,000,000				
	Medical Equipment-OB	$3,104,200				
	All Other	$3,576,980				
	Medical Equipment-Escalation	$4,484,583				
Medical Equipment-Total		$28,189,768			$28,189,768	
IT/AV/Monitors/TV/Computers/Cabling/infrastructure					$8,130,743	
Furniture, Fixtures, Office Equipment, Signage	$8	per SF	311,221		$2,489,768	
					$38,810,279	
				Total Other Building/Equip Costs		**$38,810,279**
Professional Services and Fees						
A/E Professional Fees (Civil/Land/Struct/Arch/Interiors/MEP/FP)		6.75% of construction costs			$11,025,507	
Add. Services (Med Equip Planner/Acoustics/Vibration/Food Service/ Elevator/Traffic Study/Security/IT/Comm/3rd party Cost Estimate/Building Envelope& Roofing)		1.75% of construction costs			$2,858,465	
Surveying and Geotechnical					$100,000	
Reimbursable				5% of fee	$551,275	
Permitting, Testing, Fees, Insurance, Licenses		3% of construction costs			$4,900,226	
					$19,435,473	
				Total Professional Services and Fees		**$19,435,473**
Owner Costs						
AMPO (Amount To Make Project Operational)					$3,571,027	
Financing Interest Fees - @5.75%)					$25,663,738	
Legal Fees;HUD Fees, Mortgage Insurance, Financing, Consultant					$15,337,500	
Project Management					$2,365,000	
Owner Contingency					$31,265,617	
					$78,202,882	
				Total Owner Costs		**$78,202,882**
				Total Project Costs		**$325,000,000**

SUMMARY		
Total Land Acquisition Costs		$10,000,000
Total Construction Costs*		$163,340,852
Design Contingency		$7,605,257
Construction Contingency		$7,605,257
Total Other Building/Equip Costs		$38,810,279
Total Professional Services and Fees		$19,435,473
Total Owner Costs		$78,202,882
	Total Project Costs	**$325,000,000**
METRICS	***Cost per SF (311,221 GSF)***	**$1,044**
	Cost per Licensed Bed (128 Beds)	**$2,539,062**

Siemens Medical Solutions USA, Inc.
40 Liberty Boulevard, Malvern, PA 19355
Fax: (866) 309-6967

SIEMENS Healthineers

SIEMENS REPRESENTATIVE
Jared Barley - (803) 448-8900

PRELIMINARY PROPOSAL

Customer Number: 0000032928

Date: 11/7/2017

MEDICAL UNIVERSITY HOSPITAL AUTH
165 ASHLEY AVE
CHARLESTON, SC 29425-8905

Quote Nr: **1-M1BUA0 Rev. 0**

SOMATOM Definition AS (AS+ Configuration)

All items listed below are included for this system:

Qty	Part No.	Item Description
1	14444241	**SOMATOM Definition AS (AS+)** The SOMATOM Definition AS (AS+, 128-slice configuration) is Siemens' state-of-the-art single source CT that provides the possibility to maximize clinical outcome and to minimize radiation dose. The unique STRATON X-ray source utilizes an electron beam that is accurately and rapidly deflected, creating two precise focal spots alternating 4,608 times per second. This doubles the X-ray projections reaching each detector element. The two overlapping projections result in an oversampling in z-direction. The resulting measurements interleave half a detector slice width, doubling the scan information without a corresponding increase in dose. Siemens' proprietary UFC (Ultra Fast Ceramic) detectors and the corresponding 128-slice detector electronics enable a virtually simultaneous readout of two projections for each detector element - resulting in a full 128-slice acquisition. This sampling scheme is identical to that of a 128 x 0.3 mm allowing for reconstruction of 384 slices using 0.1 mm reconstruction interval increment. The fast rotation time of 0.33 seconds (0.30 s optional) delivers excellent temporal resolution. The SOMATOM Definition AS is set to raise the standard of patient-centric productivity with FAST CARE Technology. With Siemens' FAST - Fully Assisting Scanner Technologies - the SOMATOM Definition AS can simplify typically time consuming and complex procedures during a CT examination: the scanning process gets more intuitive and the results become more reproducible. The CARE technology includes many unique features like CARE kV that sets the ideal voltage for every examination and adjusts the respective scan parameters or industry's first Adaptive Dose Shield that prevents clinically irrelevant over radiation in spiral scanning. Additionally, its large bore of 78 cm and a table load capacity of up to 307 kg (optional) opens CT to virtually all patients, meaning that virtually no patient is excluded.
1	14420996	**100 kW Power** The 100 kW power allows the X-ray generator the use of maximum power of 100kW in fine adjustable steps.
1	14420962	**High Speed 0.30 s Rotation** Fast rotation time of 300 milliseconds for unprecedented image quality and highest scan speed. Fast gantry rotation times are the prerequisite for highest temporal resolution and are therefore essential for brilliant, motion free cardiovascular imaging.
1	14420766	**SAFIRE #AWP** The Sinogram Affirmed Iterative Reconstruction (SAFIRE) enhances spatial resolution, reduces image noise and increases sharpness by introducing multiple iteration steps in the reconstruction process. The resulting improved image quality enables to reduce dose by up to 60%*. *In clinical practice, the use of SAFIRE may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. The following test method was used to determine a 54 to 60% dose reduction when using the SAFIRE reconstruction software. Noise, CT numbers, homogeneity, low-contrast resolution and high contrast resolution were assessed in a Gammex 438 phantom. Low dose data reconstructed with SAFIRE showed the same image quality compared to full dose data

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Fax: (866) 309-6967

SIEMENS Healthineers

SIEMENS REPRESENTATIVE
Jared Barley - (803) 448-8900

PRELIMINARY PROPOSAL

Qty	Part No.	Item Description
		based on this test. Data on file.
1	14444243	**iMAR #AWP** The iMAR metal artifact reduction algorithm combines three successful approaches (beam hardening correction, normalized sinogram inpainting and frequency split). This allows to reduce metal artifacts caused by metal implants such as coils, metal screws and plates, dental fillings or implants. iMAR is compatible with extended FoV, the extended CT scale as well as the newest dose reduction feature. Along with the new algorithm comes the simple user interface of iMAR enabling easy reconstruction of clinical images with reduced metal artifacts.
1	14433993	**FAST Planning #AWP** Direct, organ-based setting of scan and recon ranges for a faster and more standardized workflow
1	14449409	**FAST Adjust** FAST Adjust: assists the user to handle system settings in a fast and easy way by automatically solving of conflicts within user defined limits by one single click on the FAST Adjust button. The limits for scan time and tube current per scan are defined via the Scan Protocol Assistant. FAST Adjust offers an undo functionality to return to previously set values.
1	14449412	**CARE kV** CARE kV automatically proposes the best tube voltage based on the patient's size, the system capabilities, and the type of examination. Once the kV setting has been chosen, CARE kV also automatically adjusts other scan parameters, including the tube current. This reduces dose, maintains a constant image quality, and simplifies processes for technicians.
1	14420771	**CARE Child** Dedicated pediatric CT imaging, including 70 kV scan modes and specific CARE Dose4D curves and protocols.
1	14449411	**CARE Dashboard** Visualization of activated dose reduction features and technologies for each scan range of an examination to analyze and manage the dose to be applied in the scan.
1	14449410	**CARE Profile** CARE Profile: Visualization of the dose distribution of the scan range along the topogram prior to the scan.
1	14419142	**Workstream 4D #AWP** WorkStream 4D further enhances the already superb workflow of the SOMATOM CT system by offering direct generation of sagittal, coronal, oblique or double-oblique reconstructed images directly from CT raw data as part of the CT protocol.
1	14408111	**Extended Field of View #AWP** Software program with special reconstruction algorithms that allow for visualization of objects using a FOV up to 78 cm (non-diagnostic image quality). License to use software on a single unit.
1	14420855	**Standard IRS** Reconstruction computer for the preprocessing and reconstruction of the CT raw data. The reconstruction computer contains of a cluster of 3 high-performance GPU boards performing the preprocessing and reconstruction of the CT data. The raw data memory is 1.5 Tbyte. The peak reconstruction performance is up to 40 frames/sec.
1	14408149	**UHR** UHR mode delivers Ultra High resolution in plane of up to 24lp/cm for high defined imaging of small structures such as inner ear, joints or fractures of the bone
1	14408032	**Rear cover incl. gantry panels** Rear Cover including gantry control panels with control functionality from the backside.

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PRELIMINARY PROPOSAL

Customer Number: 0000032928

Date: 11/7/2017

MEDICAL UNIVERSITY HOSPITAL AUTH
165 ASHLEY AVE
CHARLESTON, SC 29425-8905

Quote Nr: **1-M1BUA0 Rev. 0**

SOMATOM Definition AS (AS+ Configuration)

All items listed below are included for this system:

Qty	Part No.	Item Description
1	14444241	**SOMATOM Definition AS (AS+)** The SOMATOM Definition AS (AS+, 128-slice configuration) is Siemens' state-of-the-art single source CT that provides the possibility to maximize clinical outcome and to minimize radiation dose. The unique STRATON X-ray source utilizes an electron beam that is accurately and rapidly deflected, creating two precise focal spots alternating 4,608 times per second. This doubles the X-ray projections reaching each detector element. The two overlapping projections result in an oversampling in z-direction. The resulting measurements interleave half a detector slice width, doubling the scan information without a corresponding increase in dose. Siemens' proprietary UFC (Ultra Fast Ceramic) detectors and the corresponding 128-slice detector electronics enable a virtually simultaneous readout of two projections for each detector element - resulting in a full 128-slice acquisition. This sampling scheme is identical to that of a 128 x 0.3 mm allowing for reconstruction of 384 slices using 0.1 mm reconstruction interval increment. The fast rotation time of 0.33 seconds (0.30 s optional) delivers excellent temporal resolution. The SOMATOM Definition AS is set to raise the standard of patient-centric productivity with FAST CARE Technology. With Siemens' FAST - Fully Assisting Scanner Technologies - the SOMATOM Definition AS can simplify typically time consuming and complex procedures during a CT examination: the scanning process gets more intuitive and the results become more reproducible. The CARE technology includes many unique features like CARE kV that sets the ideal voltage for every examination and adjusts the respective scan parameters or industry's first Adaptive Dose Shield that prevents clinically irrelevant over radiation in spiral scanning. Additionally, its large bore of 78 cm and a table load capacity of up to 307 kg (optional) opens CT to virtually all patients, meaning that virtually no patient is excluded.
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1	14449409	**FAST Adjust** FAST Adjust: assists the user to handle system settings in a fast and easy way by automatically solving of conflicts within user defined limits by one single click on the FAST Adjust button. The limits for scan time and tube current per scan are defined via the Scan Protocol Assistant. FAST Adjust offers an undo functionality to return to previously set values.
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1	14408032	**Rear cover incl. gantry panels** Rear Cover including gantry control panels with control functionality from the backside.

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PRELIMINARY PROPOSAL

Qty	Part No.	Item Description
1	14420777	**Patient Table 2000 mm** Patient table to support up to 200cm scan range. Motor-driven table height adjustment from min. 49 cm to max. 92 cm, longitudinal movement of the tabletop 200 cm in increments of 0.5 mm, positioning accuracy +/- 0.25 mm from any direction. Horizontal scan range 200 cm. Table height can be controlled alternatively by means of foot switch (2 each on both sides of the patient table). In the case of emergency stop or power failure, the tabletop can also be moved manually in horizontal direction. Max. table load: 227 kg/500 lbs, Table feed speed: 2-200 mm/s, Distance between gantry front and table base 40 cm. Positioning aids: Mattress protector, head-arm support (inclusive cushion), and non-tiltable head holders with positioning cushion set, patient restraining system for head fixation, restraining-strap set with body fixation strap that can be directly connected to the patient table top, headrest, table extension, knee-leg support.
1	14420929	**Mattress for Patient Table** For the comfortable positioning of the patient on the CT table.
1	14408022	**Cooling System Air** Air cooling for the dissipation of heat generated in the gantry.
1	14408101	**Computer Desk #AWP** New CT desk to accommodate the control components and color monitor. Width: 1200 mm, Depth: 800 mm, Height: 720 mm.
1	14408102	**Computer Cabinet #AWP** New cabinet to accommodate the computer system and UPS. Matched to the design of the control console table. Width: 800 mm, Depth: 800 mm, Height: 720 mm
1	CT_RECON_384	**AS+ configuration z-Sharp Technology** The unique STRATON X-ray source utilizes an electron beam that is accurately and rapidly deflected, creating two precise focal spots alternating 4,608 times per second. This doubles the X-ray projections reaching each detector element. The two overlapping projections result in an oversampling in z-direction. The resulting measurements interleave half a detector slice width, doubling the scan information without a corresponding increase in dose. Siemens' proprietary UFC (Ultra Fast Ceramic) detectors and the corresponding 128-slice detector electronics enable a virtually simultaneous readout of two projections for each detector element - resulting in a full 128-slice acquisition. This sampling scheme is identical to that of a 128 x 0.3 mm allowing for reconstruction of 384 slices using 0.1 mm reconstruction interval increment. z-Sharp Technology, utilizing the STRATON X-ray sources and the UFC detectors, provides scan speed independent visualization of 0.33 mm isotropic voxels and a corresponding elimination of spiral artifacts in the daily clinical routine at any position within the scan field.
1	SURE_VIEW	**SureView** Provides exceptional image quality at any pitch setting, enabling you to scan faster because you can scan at any pitch without degrading image quality
1	UFC_DETECTOR	**UFC Detector** Ultra Fast Ceramics (UFC) technology is a unique type of scintillation technology material that quickly and efficiently transforms radiation from the X-ray tube into light signals. Its superb overall quantum efficiency and unique short afterglow enable time-critical X-ray detection at low doses and extremely fast data collection.
1	ADAPT_DOSE_SHIELD	**Adaptive Dose Shield** Adaptive Dose Shield for spiral acquisition to eliminate pre- and post-spiral over-radiation.
1	FAST_SCAN_ASSIST	**FAST Scan Assistant** FAST Scan Assistant: An intuitive user interface for solving conflicts by changing the scan time, resp. the pitch and/or the maximum tube current manually.

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Qty	Part No.	Item Description
1	CARE_DOSE4D	**CARE Dose4D** CARE Dose4D delivers the highest possible image quality at the lowest possible dose for patients - maximum detail, minimum dose. Adaptive dose modulation for up to 60% dose reduction
1	CT_LUNGIMAGASPL	**Lung Imaging** For well over a decade, CT has been recognized and used as the standard of care for lung nodule detection and sizing. This is due to CT's spatial resolution, geometric accuracy, and ability to create various reconstructions and 3D views. The high contrast environment in the chest between the lungs and the nodules makes for a relatively easy detection task for clinicians using CT images. Recent advances in CT technology have allowed these scans to be effectively performed at lower doses, higher resolutions, and faster scan times. The SOMATOM Definition AS+ CT is indicated for use in low dose lung cancer screening for high risk populations*. The AS+ is delivered with two specific scan protocols to provide low dose lung cancer screening exams at approximately 1.3 mGy CTDI for a standard size adult. These default protocols utilize Siemens proprietary dose reducing features such as CARE Dose4D(tm), automatic exposure control technology that modulates and adapts dose for every patient, for high image quality at low dose. *As defined by professional medical societies.
1	ACCESS_PROTECT	**Access Protection** Scan Protocols are password protected allowing only authorized staff members to access and permanently change protocols
1	NEMA_XR-29	**NEMA_XR-29 Standard** This system is in compliance with NEMA XR-29 Standard Attributes on CT Equipment Related to Dose Optimization and Management, also known as Smart Dose.
1	CT_UPS_DEF_AS	**Standard UPS for Definition AS** The standard partial system uninterruptible power system (UPS) is built directly into the power distribution cabinet (PDC) and supports the critical circuits for table and gantry electronics, console computer, image reconstruction system, and the internal Ethernet switch (to ensure connectivity). This enables safe removal of patient if outage occurs during scanning. The UPS allows for a safe shutdown of the CT scanner in the event of power interruption. The UPS provides 5-7 minutes of power, during which the user is prompted and guided through the process to perform a safe shutdown of the system. This safe shutdown ensures that no data is lost.
1	CT_PM	**CT Project Management** A Siemens Project Manager (PM) will be the single point of contact for the implementation of your Siemen's equipment. The assigned PM will work with the customer's facilities management, architect or building contractor to assist you in ensuring that your site is ready for installation. Your PM will provide initial and final drawings and will coordinate the scheduling of the equipment, installation, and rigging, as well as the initiation of on-site clinical education.
1	CT_BUDG_ADDL_RIG	**Budgetary Add'l/Out of Scope Rigging @ $3,000**
1	CT_STD_RIG_INST	**CT Standard Rigging and Installation** This quotation includes standard rigging and installation of your CT new system. Standard rigging into a room with reasonable access, as determined by Siemens Project Management, during standard working hours (Mon. - Fri./ 8 a.m. to 5 p.m.) It remains the responsibility of the Customer to prepare the room in accordance with the SIEMENS planning documents. Any special rigging requirements (Crane, stairs, etc.) and/or special site requirements (e.g. removal of existing systems, etc.) is an incremental cost and the responsibility of the Customer. All other "out of scope" charges (not covered by the standard rigging and installation) will be identified during the site assessment and remain the responsibility of the Customer.
1	4SPAS014	**Low Contrast CT Phantom & Holder**
1	PSPD250480Y3K	**Surge Protective Device (SPD)**

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Qty	Part No.	Item Description
1	CTSDEF01	**CT Slicker** Thermoseal seams and flaps deflect fluids, reducing contaminant penetration into the cushion and table. Contaminants are retained on the tabletop or shunted to the floor. Cleanup is faster, more thorough, and contaminant build-up is reduced. Built using heavy, clear, micro matte vinyl, and top grade hook and loop fastening strips (Velcro) to better fit the specified table. Custom vinyl resists tears and minimizes radiologic interference. Latex free. Set includes CT Skirts. Shipped with main cover, a catheter bag holder, and 3 restraining belts unless otherwise noted. Includes warranty from RADSCAN Medical.
1	CT_INITIAL_32	**Initial onsite training 32 hrs** Up to (32) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	CT_FOLLOWUP_24	**Follow-up training 24 hrs** Up to (24) hours of follow-up on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	SY_PR_TEAMPLAY	**teamplay Welcome & Registration Package** teamplay is a cloud-based network that brings together your imaging modality users, the systems' dose and utilization data, and the users' expertise to help you improve the delivery of care to your patients. Basic features are provided free of charge. Premium features (benchmarking, non-Siemens devices) are provided on a trial basis for three months at no charge, and may be used thereafter on a subscription fee basis. To register: http://teamplay.siemens.com/#/institutionRegistration/1

System Total: $1,202,118

FINANCING: The equipment listed above may be financed through Siemens. Ask us about our full range of financial products that can be tailored to meet your business and cash flow requirements. For further information, please contact your local Sales Representative.

Siemens Healthcare is pleased to submit this Preliminary Pricing Proposal. A Preliminary Pricing Proposal is provided for planning purposes only; it is not contractually binding. To receive a contractually binding proposal for the Products listed above, inclusive of Terms, Conditions, and Warranty coverage, please contact your Siemens Healthcare Sales Representative.

Siemens Healthcare

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SIEMENS REPRESENTATIVE
Karen Dixon - (865) 360-8644

PRELIMINARY PROPOSAL

Customer Number: 0000032928

Date: 11/7/2017

MEDICAL UNIVERSITY HOSPITAL AUTH
165 ASHLEY AVE
CHARLESTON, SC 29425-8905

Quote Nr: **1-M1L1PN Rev. 0**

MAGNETOM Aera

All items listed below are included for this system:

Qty	Part No.	Item Description
1	14456140	**MAGNETOM Aera - System** MAGNETOM Aera is designed to provide you the versatility you need to meet the increasing demands in healthcare. Maximize 1.5T with its core technologies Tim(r) 4G and Dot(r), along with its comprehensive application portfolio and experience unique functionalities to increase patient comfort. Every case. Every day. System Design - Short and open appearance (145 cm system length and 70 cm Open Bore Design) to reduce patient anxiety and claustrophobia - Whole-body superconductive Zero Helium Boil-Off 1.5T magnet - Actively Shielded water-cooled Siemens gradient system for maximum performance - TrueForm Magnet and Gradient Design Tim 4G (Total imaging matrix in the 4th generation) for excellent image quality and speed - Siemens unique DirectRF(tm) technology enabling the all digital-in/ digital-out design - Dual-Density Signal Transfer Technology - Tim Coil Interface Dot (Day optimizing throughput) for higher consistency, flexibility and efficiency - Dot Display - Dot Control Centers - Brain Dot Engine Tim Application Suite allowing excellent head-to-toe imaging - Neuro Suite - Angio Suite - Cardiac Suite - Body Suite - Onco Suite - Breast Suite

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SIEMENS REPRESENTATIVE
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PRELIMINARY PROPOSAL

Qty	Part No.	Item Description
		- Ortho Suite - Pediatric Suite - Scientific Suite Further included - High performance host computer - Patient communication: standard headphones and MagnaCoil(tm) In-Ear headset - Siemens uniqueTimCT FastView localizer and CAIPIRINHA - syngo MR software including - 1D/2D PACE - BLADE - iPAT² - Phoenix - Inline Diffusion - WARP - MDDW (Multiple Direction Diffusion Weighting) - CISS - DESS - TGSE The system (magnet, electronics and control room) can be installed in 30sqm space. For system cooling either the Eco Chiller options or the Separator is required.
1	14456141	**Tim [204x24] XJ Gradients #Ae** Tim [204x24] XJ-gradient performance level Tim 4G with it's newly designed RF system and innovative coil architecture enables high resolution imaging and increased throughput. Up to 204 simultaneously connected coil elements can be combined with the 24 independent RF channels for the most flexible parallel imaging and support demanding applications. Maximum SNR is ensured through the new Tim 4G matrix coil technology. XJ - gradients The XJ- gradients are designed combining high performance and linearity to support clinical whole body imaging at 1.5T. The force compensated gradient system minimizes vibration levels and accoustic noise. The XJ gradients combine 33 mT/m peak amplitude with a slew rate of 125 T/m/s. High-performance measurement and reconstruction system
1	14456138	**Standard Coil Package 24-ch #Ae** This package includes: - Head/Neck 16 DirectConnect - Spine 24 DirectConnect - Body 6 - Flex Large 4 - Flex Small 4 - Flex Coil interface
1	14416905	**Tim Table #Ae** The new Tim Table is designed for maximized patient comfort and smooth patient preparation. The unique design of the Tim Table can support up to 250 kg (550 lbs) patients without restricting the vertical or horizontal movement.

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Qty	Part No.	Item Description
1	14416914	**Pure White Design #T+D** The MAGNETOM Aera / MAGNETOM Skyra design is available in different light and appealing variants which perfectly integrates into the different environments. The color of the main face plate cover of the Pure White Design Variant with the integrated Dot Control Centers and the unique Dot Display is brilliant white surrounded by a brilliant silver trim. The asymmetrical deco area on the left side is colored white matte and also with a brilliant surrounding silver trim. The table cover is presented also in the same color and material selection.
1	08464872	**PC Keyboard US english #Tim** Standard PC keyboard with 101 keys.
1	14446650	**SW syngo MR E11C** syngo MR E11C software with new features and applications. GOBrain protocols (for Aera and Skyra with 48 or more rf-channels).
1	14441866	**DotGO Routine Package #T+D** The DotGO Routine Package includes both: - Spine Dot Engine and - Large Joint Dot Engine. As a package they offer a comprehensive set of workflows with guidance and automation, for standardized image quality in Spine and MSK MR imaging. The Spine Dot Engine provides the functionality of Inline Composing and Tim Planning Suite for streamlining workflows in all spine imaging. Tools, such as auto-positioning and vertebral recognition with AutoAlign Spine, AutoCoverage and Spine Labelling support and optimize reproducibility for your cervical, thoracic and lumbar spine imaging for all clinical indications. The Large Joint Dot Engine enhances standardization of the knee, hip and shoulder workflows and optimizes reproducible image quality by incorporating automation tools, such as anatomically based auto-positioning (AutoAlign). Dedicated imaging techniques, such as Advanced WARP, are included and can help to expand the access of diagnostic MRI to a broader range of patient types.
1	14446591	**Advanced Diffusion #T+D** Advanced Diffusion is a package consisting of the diffusion-weighted, readout-segmented EPI sequence RESOLVE and the noise reduced QuietX DWI sequence.
1	14441748	**Quiet Suite #T+D** Quiet Suite enables complete, quiet examinations for neurology and orthopedics with at least 70% reduction in sound pressure levels.
1	14407259	**MR Workplace Table, height adjust.** The table is suitable for the syngo Acquisition Workplace and the syngo MR Workplace based on syngo hardware. This 110V version has motorized table height adjustment.
1	14407261	**MR Workplace Container, 50cm** 50 cm wide extra case for the syngo host computer with sliding front door to allow change of storage media (CD/DVD/USB)
1	14456315	**UPS system (Libert)** UPS system Liebert GXT4 3000RT230E for MAGNETOM Aera, Skyra, Prisma, Essenza, Amira, Spectra, C! for safeguarding computers. Including Power Cable of 9 m for connecting the UPS. Power output: 3.0 kVA / 2.7 kW Bridge time: 3 min full load / 12 min half load Input voltage: 230 VAC
1	14456316	**UPS Battery module (Libert GXT4 BATT)** UPS battery module Liebert GXT4 72VBATTE for MAGNETOM Aera, Skyra, Prisma, ESSENZA, Amira, Spectra, C! for safeguarding computers. Extension for: Liebert GXT4 3000RT230E (14456315)

Siemens Medical Solutions USA, Inc.
40 Liberty Boulevard, Malvern, PA 19355
Fax: (866) 309-6967

SIEMENS Healthineers

SIEMENS REPRESENTATIVE
Karen Dixon - (865) 360-8644

PRELIMINARY PROPOSAL

Qty	Part No.	Item Description
		Battery type: Closed, maintenance-free Extension of the bridge time to: 21 minutes full load / 48 min half load with one module Dimensions (H x D x W): Battery module: 430 x 602 x 85 mm Weight: approx. 46 kg
1	MR_STD_RIG_INST	**MR Standard Rigging and Installation** MR Standard Rigging and Installation This quotation includes standard rigging and installation of your new MAGNETOM system Standard rigging into a room on ground floor level of the building during standard working hours (Mon. - Fri./ 8 a.m. to 5 p.m.) It remains the responsibility of the Customer to prepare the room in accordance with the SIEMENS planning documents Any rigging requiring a crane over 80 tons and/or special site requirements (e.g. removal of existing systems, etc.) is an incremental cost and the responsibility of the Customer. All other "out of scope" charges (not covered by the standard rigging and installation) will be identified during the site assessment and remain the responsibility of the Customer.
1	MR_BTL_INSTALL	**MR Standard Rigging & Install**
1	MR_PREINST_FIXED	**T+D Preinstall kit for fixed table**
1	MR_CRYO	**Standard Cryogens**
1	MR_PM	**MR Project Management** A Siemens Project Manager (PM) will be the single point of contact for the implementation of your Siemen's equipment. The assigned PM will work with the customer's facilities management, architect or building contractor to assist you in ensuring that your site is ready for installation. Your PM will provide initial and final drawings and will coordinate the scheduling of the equipment, installation, and rigging, as well as the initiation of on-site clinical education.
1	4MR5142869	**Armrest #MR**
1	MR_INT_DOT_BCLS	**MR Dot Training Class** Tuition for (1) imaging professional to attend Classroom Course at Siemens Training Center. The objectives of this class are to introduce the user interface of the common syngo platform, including Dot, and instructions on building protocols, demonstration of software functions, and hands-on sessions. This class includes lunch, economy airfare, and lodging for (1) imaging professional. All arrangements must be arranged through Siemens designated travel agency. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	MR_INITIAL_32	**Initial onsite training 32 hrs** MR_INITIAL_32 Up to (32) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	MR_FOLLOWUP_32	**Follow-up training 32 hrs** Up to (32) hours of follow-up on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.

Siemens Medical Solutions USA, Inc.
40 Liberty Boulevard, Malvern, PA 19355
Fax: (866) 309-6967

SIEMENS Healthineers

SIEMENS REPRESENTATIVE
Karen Dixon - (865) 360-8644

PRELIMINARY PROPOSAL

Qty	Part No.	Item Description
1	MR_FOLLOWUP_24	**Follow-up training 24 hrs** Up to (24) hours of follow-up on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	MR_ELEARN	**e.learning CEU subscription (12 mths)** This (12) month multi-modality e.learning subscription will provide access for (10) imaging professionals at the customer site to utilize up to (50 CEUs). This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	KKTECOMR_60	**KKT ECOCHILLER 133L** The KKT ECO 133 -L chiller is a dedicated 20°C cooling system for MAGNETOM Aera and MAGNETOM Skyra which automatically adapts to the different cooling requirements (e.g. system in operation, standby, ...) to reduce the energy consumption for cooling. The cooling system must be used in combination with the IFP (Interface Panel), if there is no on-site chilled water supply at all. The IFP is included in the scope of supply.
1	KRAUS_CHILINST	**Kraus Start-up and Warranty**
1	MR_GOBRAIN	**GOBrain** GOBrain delivers reliable quality at exceptional speed. It enables clinically validated, push-button brain exams, with multiple orientations and all relevant contrasts. This fast exam is more tolerable for patients, and helps reduce motion-related artifacts and the need for rescans and sedation. As a result, GOBrain potentially doubles throughput and reduces costs per scan. Supported by our Tim 4G technology and DotGO, it delivers consistently high quality and maximizes the productivity of your MRI scanner - while improving patient care.
1	SY_PR_TEAMPLAY	**teamplay Welcome & Registration Package** teamplay is a cloud-based network that brings together your imaging modality users, the systems' dose and utilization data, and the users' expertise to help you improve the delivery of care to your patients. Basic features are provided free of charge. Premium features (benchmarking, non-Siemens devices) are provided on a trial basis for three months at no charge, and may be used thereafter on a subscription fee basis. To register: http://teamplay.siemens.com/#/institutionRegistration/1
1	MR_BUDG_ADDL_RIG	**Budgetary Add'l/Out of Scope Rigging**

System Total: $1,076,124

Siemens Medical Solutions USA, Inc.
40 Liberty Boulevard, Malvern, PA 19355
Fax: (866) 309-6967

SIEMENS REPRESENTATIVE
Karen Dixon - (865) 360-8644

PRELIMINARY PROPOSAL

FINANCING: The equipment listed above may be financed through Siemens. Ask us about our full range of financial products that can be tailored to meet your business and cash flow requirements. For further information, please contact your local Sales Representative.

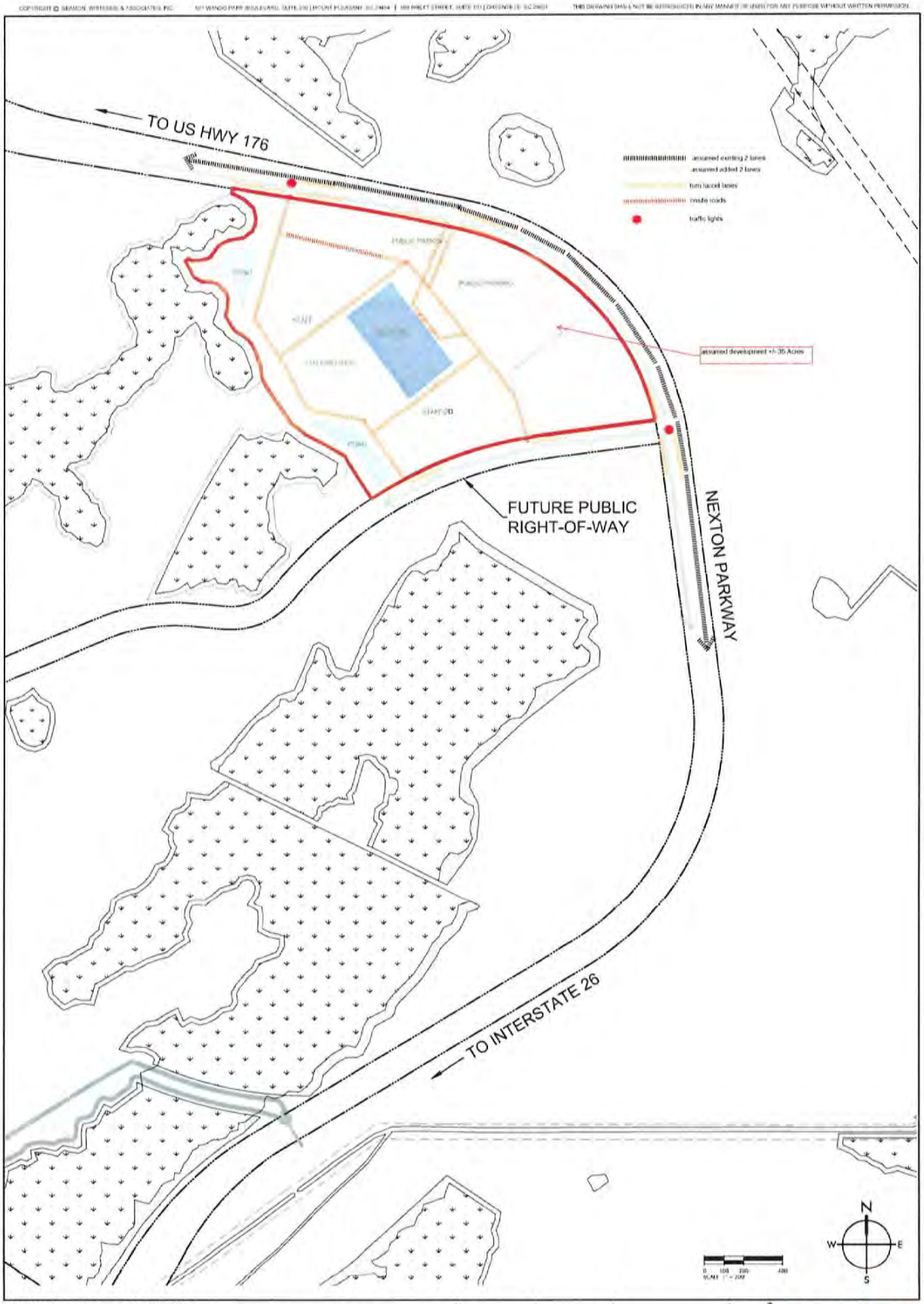
Siemens Healthcare is pleased to submit this Preliminary Pricing Proposal. A Preliminary Pricing Proposal is provided for planning purposes only; it is not contractually binding. To receive a contractually binding proposal for the Products listed above, inclusive of Terms, Conditions, and Warranty coverage, please contact your Siemens Healthcare Sales Representative.

Siemens Healthcare

Karen Dixon
(865) 360-8644
karen.dixon@siemens-healthineers.com

Attachment C:
Program Plan Details
Proposed Site Plan
Schematic Drawings
Zoning Documents
Utilities Documents

COPYRIGHT © SEAMON, WHITESIDE & ASSOCIATES, INC. 947 WANDO PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29464 | 100 PRATT STREET, SUITE 101 | GREENVILLE, SC 29601 THIS DRAWING SHALL NOT BE REPRODUCED IN ANY MANNER OR USED FOR ANY PURPOSE WITHOUT WRITTEN PERMISSION



PARCEL EXHIBIT- DETAILED

SHEET 2 OF 2

NEXTON

NEWLAND COMMUNITIES

BERKELEY COUNTY, SOUTH CAROLINA

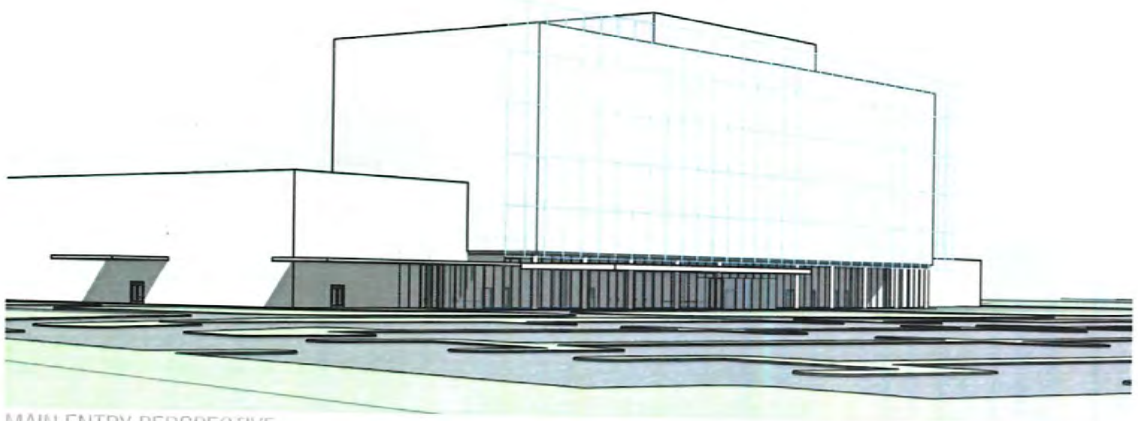
SEAMONWHITESIDE

Joint Exh. 1-0090

DHEC CON 000090

3D AERIAL LOOKING WEST

3D AERIAL LOOKING NORTH



MAIN ENTRY PERSPECTIVE

LS3P

MUSC Health
MEDICAL UNIVERSITY of SOUTH CAROLINA

MUSC Health
MEDICAL UNIVERSITY of SOUTH CAROLINA

FIRST FLOOR PLAN

S3P

Joint Exh. 1-0093

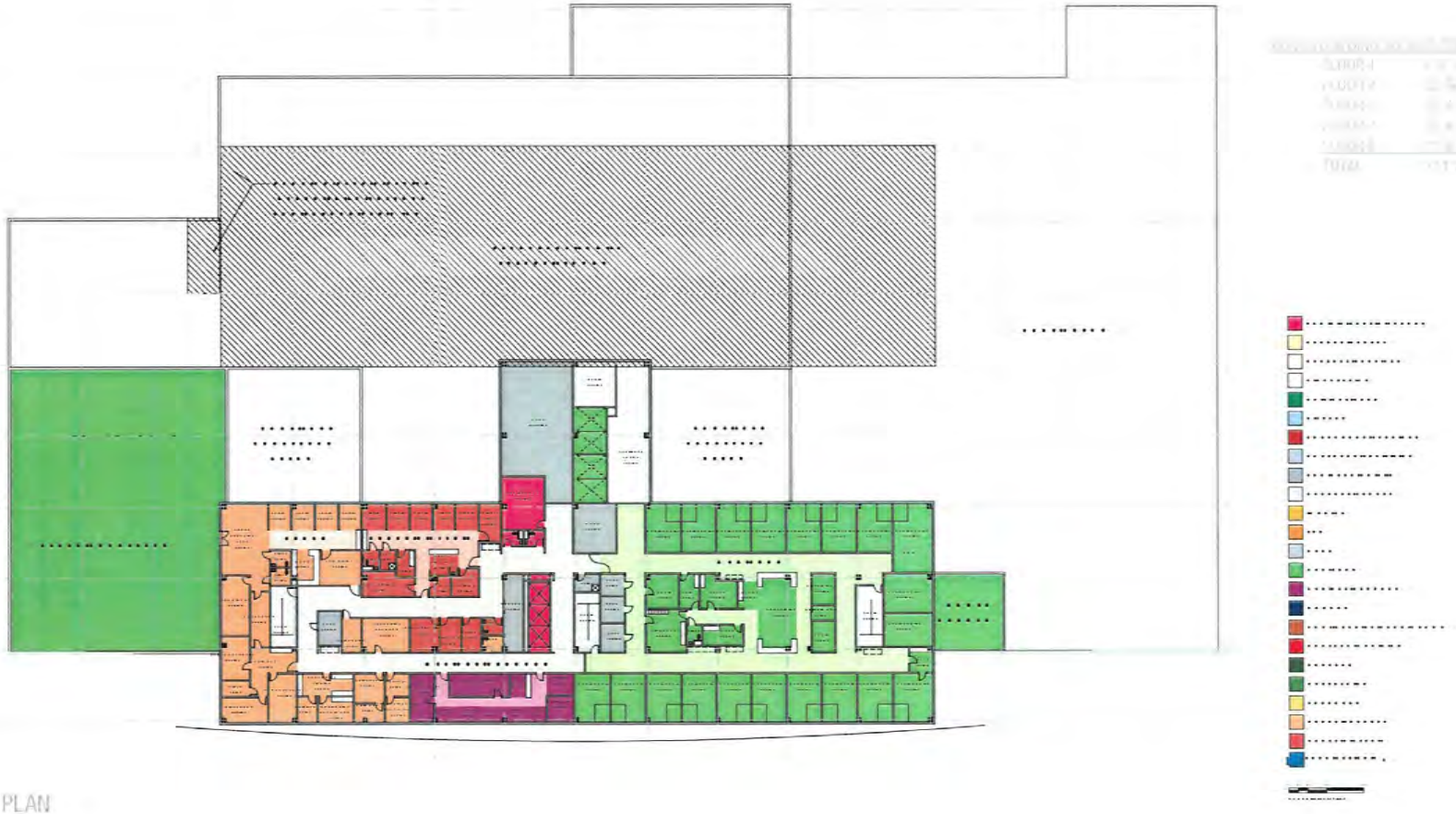
SECOND FLOOR PLAN

S3P

MUSC Health
MEDICAL UNIVERSITY of SOUTH CAROLINA

ROA 004407

DHEC CON 000093



THIRD FLOOR PLAN

LS3P

MUSC Health
MEDICAL UNIVERSITY of SOUTH CAROLINA

Joint Exh. 1-0095

FOURTH & FIFTH FLOOR PLAN

LS3P

MUSC Health
MEDICAL UNIVERSITY of SOUTH CAROLINA

ROA 004409

DHEC CON 000095

BCWS

BERKELEY COUNTY WATER & SANITATION

October 7, 2010

Madelyn Robinson
Town of Summerville
200 South Main Street
Summerville, South Carolina 29483

Re: Parks of Berkeley / Sheep Island Tracts

Mrs. Robinson:

Seamon, Whiteside & Associates and MWV Sheep Island, LLC have been working with Berkeley County Water and Sanitation (BCWS) on the master plan to serve the referenced development within Summerville's corporate limits with potable water and sanitary sewer collection/treatment. BCWS considers this a part of the larger development situated completely within unincorporated Berkeley County and detailed plans for the replacement and abandonment of existing facilities and the installation of new infrastructure have been coordinated with all parties.

BCWS currently has treatment capacity in our water and sewer plants to provide/treat the estimated flows for this proposed development. This development and related flows are consistent with our water and sewer master planning for the area.

If you have any questions regarding our willingness or ability to serve this development please do not hesitate to contact me. I can be reached at 719.2679 or by email: mgmiley@bcwsa.com.

Sincerely,

Micah G. Miley, PE
Director of Engineering

212 Oakley Plantation Drive • PO Box 1529 • Moncks Corner, SC 29461 • Telephone (843) 572-4400 • 761-8817 • 567-2061 • Fax (843) 569-5309

January 17, 2016

Mr. Theodore Pusser, P.E.
Seamon, Whiteside & Associates
501 Wando Park Blvd., Suite 200
Mt. Pleasant, SC 29464

Re: Sewer Availability for Nexton

Mr. Pusser:

Berkeley County Water and Sanitation (BCWS) is willing and able to provide wastewater service to the Nexton development located in Berkeley County, SC. The Nexton development has been incorporated into BCWS' wastewater master plan through our twenty (20)-year planning period. The wastewater master plan is regularly reviewed and updated as we deem necessary. All planned developments are considered, evaluated, and incorporated in our continuous effort to keep our wastewater master plan up to date to accommodate the expected growth within the County.

The treatment plant, Lower Berkeley Wastewater Treatment Plant (LBWWTP), currently has a permitted capacity of 18 MGD with an average utilization of 13 MGD and an allocated capacity of 16.2 MGD. BCWS is currently in the process of upgrading the capacity at LBWWTP to 22.5 MGD. The upgrade is expected to be completed in the near future.

If you have any questions or comments regarding Berkeley County Water and Sanitation and its wastewater services for Nexton, please do not hesitate to contact me.

Sincerely,

Ashley Yeh, P.E.
Director of Engineering

212 Oakley Plantation Drive • Moncks Corner, SC 29461 • Telephone (843) 572-4400 • Fax (843) 569-5309

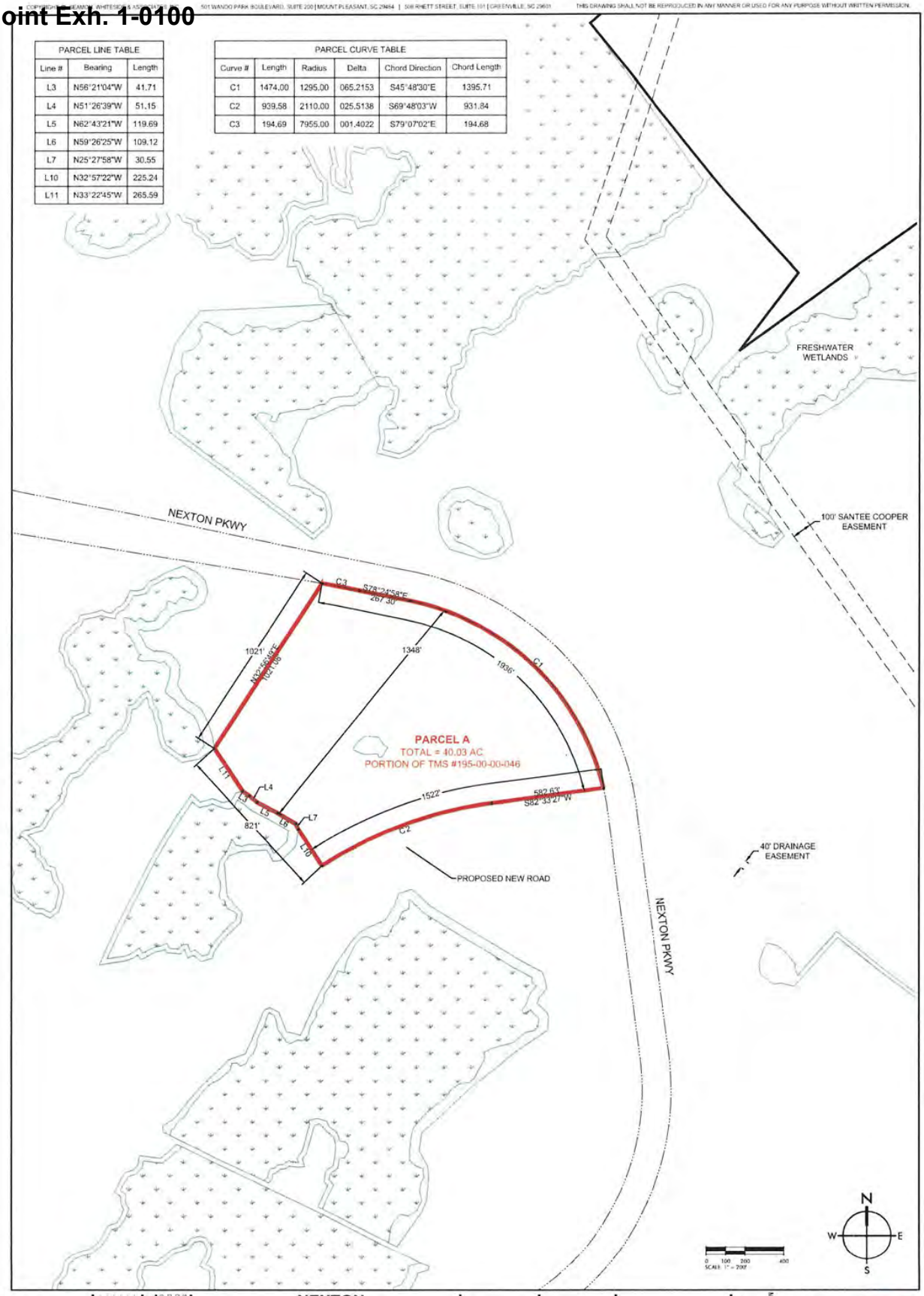
Attachment D: Land Maps
2 Parcel Maps with Dimensions of the property to be demised
Larger Parcel Map with the Larger existing TMS Parcel and Information

Attachment D: Land Maps
2 Parcel Maps with Dimensions of the property to be demised
Larger Parcel Map with the Larger existing TMS Parcel and Information
Wetlands Detail

501 WANDO PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29464 | 508 RHETT STREET, SUITE 101 | GREENVILLE, SC 29601 THIS DRAWING SHALL NOT BE REPRODUCED IN ANY MANNER OR USED FOR ANY PURPOSE WITHOUT WRITTEN PERMISSION.

PARCEL LINE TABLE		
Line #	Bearing	Length
L3	N56°21'04"W	41.71
L4	N51°26'39"W	51.15
L5	N62°43'21"W	119.69
L6	N59°26'25"W	109.12
L7	N25°27'58"W	30.55
L10	N32°57'22"W	225.24
L11	N33°22'45"W	265.59

PARCEL CURVE TABLE					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	1474.00	1295.00	065.2153	S45°48'30"E	1395.71
C2	939.58	2110.00	025.5138	S69°48'03"W	931.84
C3	194.69	7955.00	001.4022	S79°07'02"E	194.68

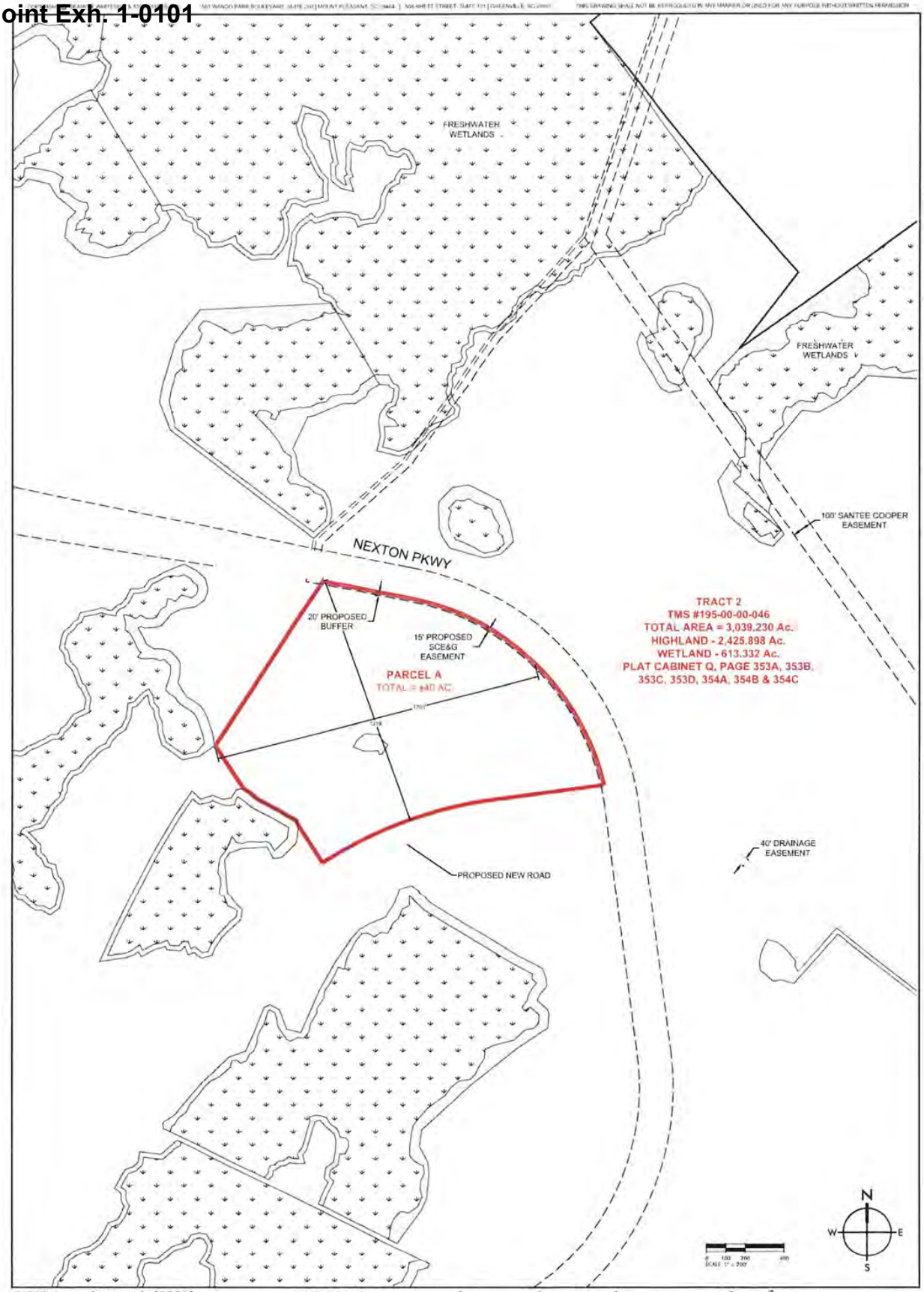


REVISION HISTORY

NEXTON
PARCEL EXHIBIT
PARCEL A
BERKELEY COUNTY, SOUTH CAROLINA

SWSIDE

DHEC CON 000100



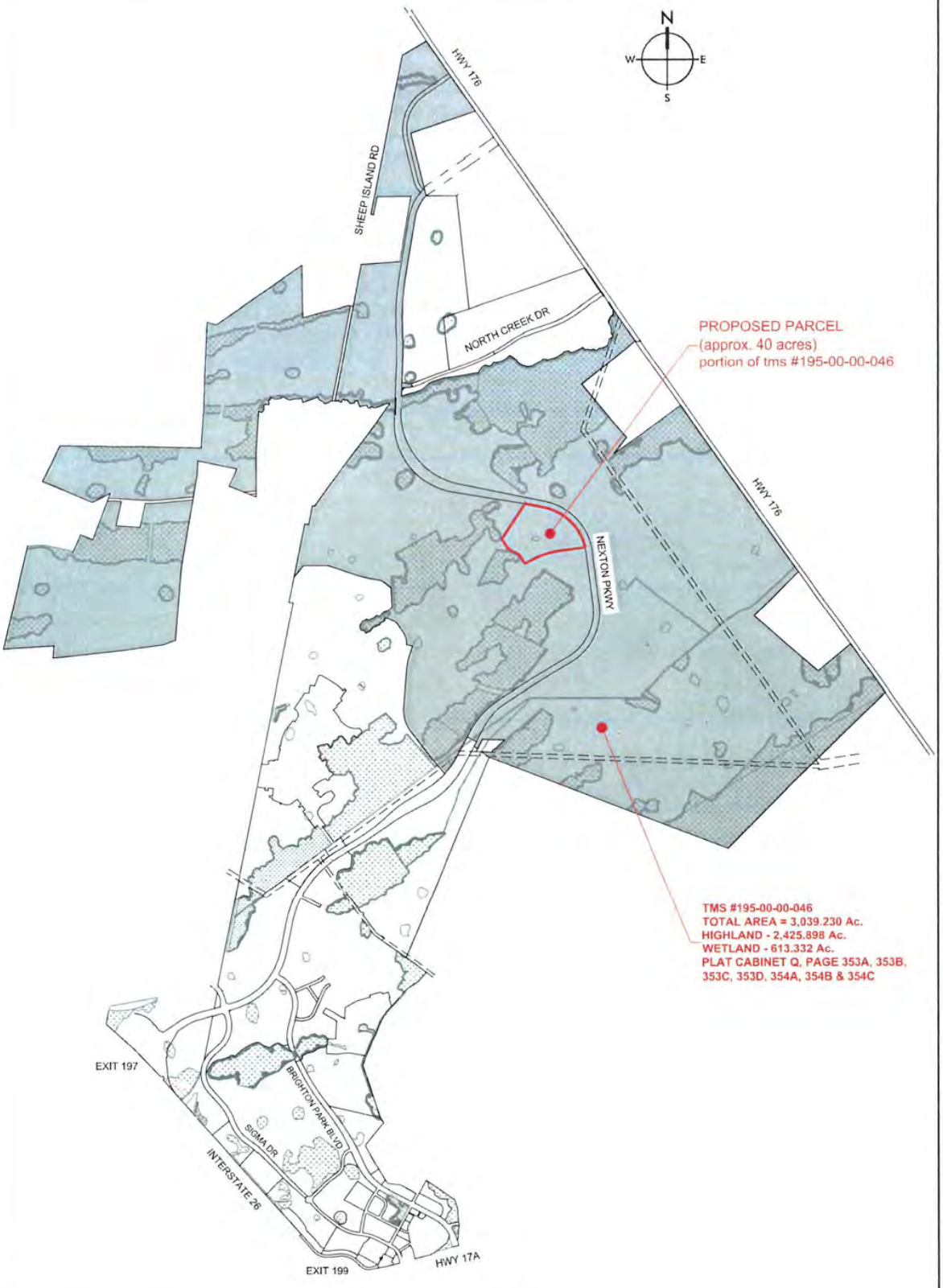
PARCEL A EXHIBIT

REVISION HISTORY

NEXTON
PARCEL EXHIBIT
PARCEL A
BERKELEY COUNTY, SOUTH CAROLINA

SW SIDE

501 WANDO PARK BOULEVARD, SUITE 200 | MOUNT PLEASANT, SC 29464 | 308 RHETT STREET, SUITE 101 | GREENVILLE, SC 29601 THIS DRAWING SHALL NOT BE REPRODUCED IN ANY MANNER OR USED FOR ANY PURPOSE WITHOUT WRITTEN PERMISSION



REVISION HISTORY

NEXTON
PARCEL EXHIBIT
PARCEL A
BERKELEY COUNTY, SOUTH CAROLINA

SWA SIDE

DHEC CON 000102

DEPARTMENT OF THE ARMY PERMIT

Permittee: CRESCENT RESOURCES, LLC
c/o MR. JOHN ROACH

400 S. TRYON ST, STE 1300
CHARLOTTE, NC 28201

Permit No: 2006-419-2IG

Issuing Office: CHARLESTON DISTRICT

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:
The work consists of placing fill material in wetlands to create a mixed-use development consisting of residential, commercial, office, light industrial, institutional development, open space, and public use areas to construct a flexible, economically viable, long term, master planned mixed-use community in accordance with the attached drawings entitled: Activity: Community Development; Project: The Parks of Berkeley; Location: Berkeley County, SC: Applicant: Crescent Resources, LLC, 400 South Tryon Street, Ste. 1300, Charlotte, NC 28201-1003. Sheets 1 thru 57 and sheets 59 thru 60 of 61 dated November 29, 2005 and sheets 58 and 61 of 61 revised March 5, 2007.

Project Location:
This project is located on a 3,860.81 acre tract of land adjacent to Sheep Island Road, Berkeley County, South Carolina.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on 31 December 2037. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

SEE PAGES 4 & 5.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

☒ Section 404 of the Clean Water Act (33 U.S.C. 1344).

☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

John W. Roach — 11.13.07

(PERMITTEE) — (DATE)

CRESCENT RESOURCES, LLC
MR. JOHN ROACH

John W. Roach
PRINT NAME

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

(DISTRICT ENGINEER) — (DATE)

J. RICHARD JORDAN III, LTC
or his Designee
for Tina B. Hadden
Chief, Regulatory Division

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

MWV-Parkland Berkeley, LLC

(TRANSFEREE) President and CEO — 10/27/08

(DATE)

A. SPECIAL CONDITIONS FOR PERMIT #: 2006-419-2IG

a. That the permittee agrees to provide all contractors associated with construction of the authorized activity a copy of the permit and drawings. A copy of the permit will be available at the construction site at all times.

b. That the permittee shall submit a signed compliance certification to the Corps within 60 days following completion of the authorized work and any required mitigation. The certification will include:
   1. A copy of this permit;
   2. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;
   3. A statement that any required mitigation was completed in accordance with the permit conditions;
   4. The signature of the permittee certifying the completion of the work and mitigation.

c. That the permittee recognizes that its commitment to perform and implement the following conditions was a deciding factor towards the favorable and timely decision on this permit and that the permittee recognizes that a failure on its part to both actively pursue and implement these conditions may be grounds for modification, suspension or revocation of this Department of the Army authorization.

   1. That as compensatory mitigation for the impacts to aquatic resources, the permittee agrees implement and carry out the mitigation plan entitled "The Parks of Berkeley Phase 2 Compensatory Mitigation Plan, Berkeley County, SC, Revised March 12, 2007", wherein the permittee agrees to preserve 583.20 acres of unaltered wetlands, preserve 106.66-acres of enhanced wetlands, restore and preserve 76.72 acres of wetlands, and preserve 106.66 acres of upland buffers. Preservation shall be by means of either deed restrictive covenants or conservation easement. The covenants or easement documents and surveyed plat of the mitigation area must be submitted to the District Engineer or his designee for review and approval prior to execution. Sample language for restrictive covenants and easement documents are enclosed for your consideration.

   2. That the permittee must submit evidence of execution and recording of the preservation easements or covenants and surveyed plat of the mitigation area to both the Corps of Engineers and DHEC not later than 60 days from the effective date of this authorization, or prior to commencement of the authorized work, whichever is later. Your responsibility to complete the required compensatory mitigation as set forth in this Special Condition will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers.

   3. That the permittee agrees that no work will commence in waters of the United States until stormwater studies have been reviewed and approved by SCDHEC, and, if necessary, Berkeley County and the Town of Summerville. A copy of the approval documents from the state, County, and/or City and a letter from the Professional Engineer (PE) responsible for the stormwater study attesting to the fact that the data substantiates that no increase in flooding will occur as a result of the development will be provided to this office.

4. That the permittee understands and agrees that portions of the project site and the adjacent upstream and downstream properties are located within the 100-year floodplain and are subject to flooding. The permittee must take all necessary measures to ensure that the proposed project will not increase flows on downstream properties or back water onto upstream properties. All flow conveyance structures to be placed in road crossings of wetlands and/or waters of the United States must be designed to accommodate future stormwater flows.

5. That the permittee agrees that all clearing of wetlands associated with the construction and maintenance of boardwalks berms shall be done by selective hand cutting and that use of pesticides/herbicides shall be prohibited.

6. That the permittee understands and agrees that the road alignments shown on the attached permit drawings have been reviewed and approved by this office. Prior to initiating each phase of construction, the permittee must submit appropriate documentation and obtain written authorization from this office for any modification to these road alignments.

7. That the permittee understands and agrees that they have voluntarily provided advance compensatory mitigation for potential modifications to the road alignments. All requests for modification will be evaluated by this office based on their individual merit. Avoidance and minimization must be demonstrated prior to considering compensatory mitigation.

Berkeley County
Cynthia B. Forte
Register of Deeds 00022277 Vol: 9183 Pg: 160
Moncks Corner 294616120

53 2011 00022277

Instrument Number: 2011- 00022277
As
Recorded On: November 10, 2011 **Restrictive Covenants**

Parties: MWV-PARKS OF BERKELEY LLC
To
PARKS OF BERKELEY

Billable Pages: 9

Recorded By: NELSON, MULLINS RILEY & SCARBOROUGH LLP **Num Of Pages:** 14

Comment:

** Examined and Charged as Follows: **

Restrictive Covenants	19.00
Recording Charge:	**19.00**

** THIS PAGE IS PART OF THE INSTRUMENT **

I hereby certify that the within and foregoing was recorded in the Register of Deeds Office For: Berkeley County, SC

File Information:

Document Number: 2011- 00022277
Receipt Number: 348416
Recorded Date/Time: November 10, 2011 11:18:21A
Book-Vol/Pg: Bk-R Vl-9183 Pg-160
Cashier / Station: J Pearson / Cash Station 3

Record and Return To:

NELSON, MULLINS RILEY & SCARBOROUGH LLP
P O BOX 1806
CHARLESTON SC 29402-1806

REGISTER OF DEEDS SEAL BERKELEY COUNTY

Cynthia B. Forte

Cynthia B Forte - Register of Deeds

DHEC CON 000108

Doc # 00022277

00022277 Vol: 9183 Pg: 161

STATE OF SOUTH CAROLINA

COUNTY OF BERKELEY

DECLARATION OF RESTRICTIVE COVENANTS

THIS DECLARATION OF RESTRICTIVE COVENANTS is made this 8th day of November, 2011 by **MWV-PARKS OF BERKELEY LLC** ("Declarant").

WHEREAS, Declarant is the owner of certain real property located in Berkeley County, South Carolina, commonly known as The Parks of Berkeley and more particularly described in those deeds into Declarant referenced in Exhibit B ("Property"); and

WHEREAS, the Property includes (i) the wetlands and buffers described in Exhibit A-1 and shown on Exhibit A-1, 'Parks of Berkeley-Phase 1 Exhibit' consisting of approximately 2.38 acres wetlands and approximately 1.89 acres upland buffers and (ii) the wetlands and buffers described in Exhibit A-2 and shown on Exhibit A-2, 'Parks of Berkeley-Phase 1 Exhibit' consisting of approximately 130.33 acres wetlands, of which 76.72 acres is the Restoration Area, and 9.93 acres upland buffers (collectively, the wetlands and buffer property described and shown in Exhibit A-1 and Exhibit A-2 is the "Restricted Property"); and

WHEREAS, the Restricted Property is also depicted on and consistent with Exhibit C, 'Parks of Berkeley USCOE Permit # 2006-419-21G, MWV, Berkeley County, SC'; and

WHEREAS, the Restricted Property is restricted by this Declaration and under US Army Corps of Engineers Permit Number 2006-419-2IG ("Permit"); and

WHEREAS, as compensatory mitigation under Federal and State law for Permit 2006-419-2IG issued by the U.S. Army Corps of Engineers, Charleston District ("Corps" or "Charleston District," to include any successor agency), and certification(s) and/or permit(s) issued by the S.C. Department of Health and Environmental Control ("DHEC," to include any successor agency), and in recognition of the continuing benefit to the Restricted Property, and for the protection of waters of the United States and scenic, resource, environmental, and general property values, Declarant has agreed to place certain restrictive covenants on the Restricted Property, in order that the Restricted Property shall remain substantially in its natural condition forever.

NOW THEREFORE, Declarant hereby declares that the Restricted Property shall be held, transferred, conveyed, leased, occupied or otherwise disposed of and used subject to the following restrictive covenants, which shall run with the land and be binding on all heirs, successors, assigns (they are included in the term, "Declarant," below), lessees, or other occupiers and users.

1. **Prohibitions**. Declarant is and shall be prohibited from the following: filling, draining, flooding, dredging, impounding, clearing, burning, cutting or destroying vegetation, cultivating, excavating, erecting, constructing, releasing wastes, or otherwise doing any work on the Restricted Property; introducing exotic species into the Restricted Property (except biological controls preapproved in writing by the Corps and DHEC); and from changing the grade or elevation, impairing the flow or circulation of waters, reducing the reach of waters, and any other

discharge or activity requiring a permit under clean water or water pollution control laws and regulations, as amended. The following are expressly excepted from this paragraph:

a) cumulatively very small impacts associated with hunting (excluding planting or burning), fishing, and similar recreational or educational activities, consistent with the continuing natural condition of the Restricted Property;

b) removal or trimming of vegetation hazardous to person or property, or of timber downed or damaged due to natural disaster;

c) restoration or mitigation required under law;

d) construction and maintenance of trails at grade for pedestrian use, including boardwalks no wider than 6 feet and constructed of wood or similar material, and including observation platforms or areas no larger than twenty feet by twenty feet, with prior approval of the Corps;

e) using herbicides to control exotic plants;

f) using prescribed burning for ecosystem management;

g) controlling exotic or environmentally destructive animals, such as feral hogs;

h) maintenance of currently functional and historically active ditches, swales and outfalls within the Restricted Property, provided that in such maintenance, these ditches shall not be expanded or deepened. Declarant agrees that such maintenance will not involve the use of wheeled or track motorized machinery or equipment without the prior written approval of the USACE and SCDHEC, but maintenance may include hand excavation, manual clearing and other similar activities with prior notification to the USACE and SCDHEC.

i) harvesting timber for ecosystem management or enhancement; (e.g. converting loblolly pine to longleaf or thinning loblolly pine plantations to encourage and accelerate natural conversion to hardwoods) as pre-approved in writing by the Corps;

j) construction of ditches, swales, and outfalls as pre-approved in writing by the U.S. Corps of Engineers (COE) and the South Carolina Department of Health and Environmental Control (DHEC) that are both required and the minimum necessary for compliance with applicable stormwater management and sediment reduction laws and regulations. These ditches shall not be constructed so as to drain wetlands through alteration of the hydrology. Activities allowed under this exception shall be limited as follows:

i. all such activities shall be applicable to upland buffer areas only and not wetlands;
ii. all such activities shall be the minimum size and number necessary;
iii. ditches and swales shall have a bottom width of not more than five feet (1.52 meters), a depth below adjacent natural ground elevation of not more than four feet (1.22 meters), and a side slope of not less than three feet vertical to one foot horizontal (3V:1H);
iv. the side slopes and surrounding areas of ditches and swales shall be stabilized and restored immediately following construction with natural vegetation. The bottoms of

ditches and swales may be cleared and periodically maintained by removal of vegetation. Vegetation shall not be removed by use of herbicides or other chemical means;
v. upon completion of the work, disturbed areas other than ditches and swales shall be restored to the original contours and elevations and shall be permanently stabilized by restoration of natural vegetation; and

h) installation and maintenance of necessary utilities in designated upland buffer areas as pre-approved in writing by the COE and SCDHEC. All excavated areas shall be restored to pre-existing grade immediately following construction. Utility construction in wetland mitigation areas may be allowed if properly permitted by appropriate state and federal authorities.

2. **Amendment**. After recording, these restrictive covenants may only be amended by a recorded document signed by the Corps and DHEC and Declarant. The recorded document, as amended, shall be consistent with the Charleston District model conservation restrictions at the time of amendment. Amendment shall be allowed at the discretion of the Corps and DHEC, in consultation with resource agencies as appropriate, and then only in exceptional circumstances. Compensatory mitigation for any adverse impacts associated with an amendment will be required pursuant to Charleston District mitigation policy at the time of amendment. There shall be no obligation to allow an amendment.

3 **Notice to Government**. Any permit application, or request for certification or modification, which may affect the Restricted Property, made to any governmental entity with authority over wetlands or other waters of the United States, shall expressly reference and include a copy (with the recording stamp) of these restrictive covenants.

4. **Reserved Rights**. It is expressly understood and agreed that these restrictive covenants do not grant or convey to members of the general public any rights of ownership, entry or use of the Property. These restrictive covenants are created solely for the protection of the Restricted Property, and for the consideration and values set forth above, and Declarant*(s)* reserve*(s)* the ownership of the fee simple estate and all rights appertaining thereto, including without limitation the rights to exclude others and to use the property for all purposes not inconsistent with these restrictive covenants.

5. **Compliance Inspections**. The Corps, DHEC, and Declarant's authorized agents shall have the right to enter and go upon the lands of Declarant, to inspect the Restricted Property and take actions necessary to verify compliance with these restrictive covenants.

6. **Enforcement**. The Declarant grants to the Corps, the U.S. Department of Justice, and/or DHEC, a discretionary right to enforce these restrictive covenants in a judicial action against any person(s) or other entity(ies) violating or attempting to violate these restrictive covenants; provided, however, that no violation of these restrictive covenants shall result in a forfeiture or reversion of title. In any enforcement action, an enforcing agency shall be entitled to a complete restoration for any violation, as well as any other judicial remedy such as civil penalties. Nothing herein shall limit the right of the Corps to modify, suspend, or revoke the Permit.

7. **Property Transfers**. Declarant shall include the following notice on all deeds, mortgages, plats, or any other legal instruments used to convey any interest in the Restricted

Property (failure to comply with this paragraph does not impair the validity or enforceability of these restrictive covenants): NOTICE: This Property Subject to Declaration of Restrictive Covenants Recorded at Book _____, Page ____ in the land records for Berkeley County.

8. **Marking of Property**. The perimeter of the Restricted Property shall at all times be plainly marked by permanent signs saying, "Protected Natural Area," or by an equivalent, permanent marking system.

9. **Recording of Plat**. A plat depicting the boundaries of the wetlands, including the Restricted Property subject to these restrictive covenants is recorded on March 17, 2005 in the Registry of Deeds for Berkeley County, South Carolina in Plat Cabinet Q, page 352A.

10. **Long-Term Management.** The Declarant is responsible for long-term management activities identified in the approved mitigation plan, dated February, 2006 (revised). The required activities include but are not limited to management activities (invasive species, fire, etc) and the maintenance and/or replacement of structures (fences, ditch plugs, weirs, etc) that are critical to the long-term success of the mitigation activities as described in the approved mitigation plan.

11. **Separability Provision**. Should any separable part of these restrictive covenants be held contrary to law, the remainder shall continue in full force and effect.

IN WITNESS WHEREOF, the Declarant has duly executed this Declaration of Restrictive Covenants the date written above.

IN THE PRESENCE OF:

MWV-Parks of Berkeley LLC

By: _____
Kenneth T. Seeger
Its: President and Chief Executive Officer

STATE OF SOUTH CAROLINA)
) ACKNOWLEDGEMENT
COUNTY OF BERKELEY)

I, a Notary Public, do hereby certify that MWV-Parks of Berkeley LLC by Kenneth T. Seeger, its President and Chief Executive Officer personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and seal this 8TH day of NOVEMBER, 2011.

_____ (Signature)

LAURA SENNETT (Typed/Printed)
NOTARY PUBLIC FOR SOUTH CAROLINA
My Commission Expires: 10-27-2018

Laura E. Sennett
NOTARY PUBLIC
State of South Carolina
My Commission Expires
October 27, 2018

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EXHIBIT A-1
'Parks of Berkeley-Phase 1 Exhibit

ALL that certain piece, parcel or tract of land, together with any improvements thereon being shown on a plat entitled, "SUBDIVISION PLAT SHOWING THE SUBDIVISION OF A PORTION OF TMS NO. 221-00-00-048 AND TMS NO. 221-00-00-096, AND THE ABANDONMENT OF THE PROPERTY LINES BETWEEN TMS NO. 221-00-00-096, TMS NO. 221-00-00-040, & TMS NO. 221-00-00-048 TO CREATE NEW TRACT "1" - THE PARKS OF BERKELEY PHASE 1-CONTAINING 1,149.651 ACRES OWNED BY MEADWESTVACO FORESTRY, LLC, A DELAWARE LIMITED LIABILITY COMPANY AND TO BE CONVEYED TO THE PARKS OF BERKELEY, LLC. PARTIALLY LOCATED IN THE TOWN OF SUMMERVILLE BERKELEY COUNTY SOUTH CAROLINA" prepared by GPA Professional Land Surveyors dated February 15, 2005, and last revised March 15, 2005 and recorded in Plat Cabinet Q at Pages 352A through 352D, in the ROD Office for Berkeley County; South Carolina, and being more particularly described as follows:

Beginning at a 3/4" open iron pipe being located on the northern right of way of Rose Drive (66' right of way) being a common corner of the property described herein and now or formerly Elizabeth W. Brown property, said pipe being the POINT OF BEGINNING. Thence leaving said right of way of Rose Drive and with the common line of Elizabeth W. Brown property N54°31'25"W, a distance of 486.80 feet to a ½" open pipe; thence N26°35'52"W, a distance of 1,331.82 feet to a 5/8" pin; thence an undetermined distance in a northeasterly direction to a concrete monument found; thence S28°11'14"E, a distance of 182.78 feet to a 5/8" iron pin; thence S30°33'14"E, a distance of 1,121.24 feet to a 2" open pipe; thence N42°27'55"E, a distance of 250.16 feet to a 5/8" pin; thence S60°07'26"E, a distance of 306.96 feet to a 5/8" pin; thence S59°43'36"E, a distance of 124.09 feet to a 5/8" iron pin; said pin being located on the northern right of way of Rose Drive; thence with the northern right of way of Rose Drive (66' right of way) the following (2) calls; thence S26°20'10"W, a distance of 821.49 feet to a 1" iron pipe; thence S28°17'20"W, a distance of 75.84 feet to a 3/4" iron pipe being the POINT OF BEGINNING.

TMS: 221-00-00-133 and TMS 221-00-00-141

TOGETHER WITH

ALL that certain piece, parcel or lot of land, with any buildings and improvements thereon, and being in the Second Goose Creek Tax District, County of Berkeley, State of South Carolina and being shown as "LOT C 133408 SF 3.063 Ac" on a plat entitled "SUBDIVISION SURVEY OF 6.12 ACRES OWNED BY MARIAN B. ATTAWAY ET AL LOT B IS ABOUT TO BE CONVEYED TO THE ESTATE OF MARION B. ATTAWAY LOT C IS ABOUT TO BE CONVEYED TO CARL BROWN 2ND GOOSE CREEK

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PARISH, BERKELEY COUNTY, SOUTH CAROLINA" prepared by Ashley Surveying, Inc., dated August 22, 1996 and recorded in Plat Cabinet M, Page 196-A, ROD Office for Berkeley County, S.C.

TMS: 221-00-00-087

EXHIBIT A-1 00022277 Vol: 9183 Pg: 167

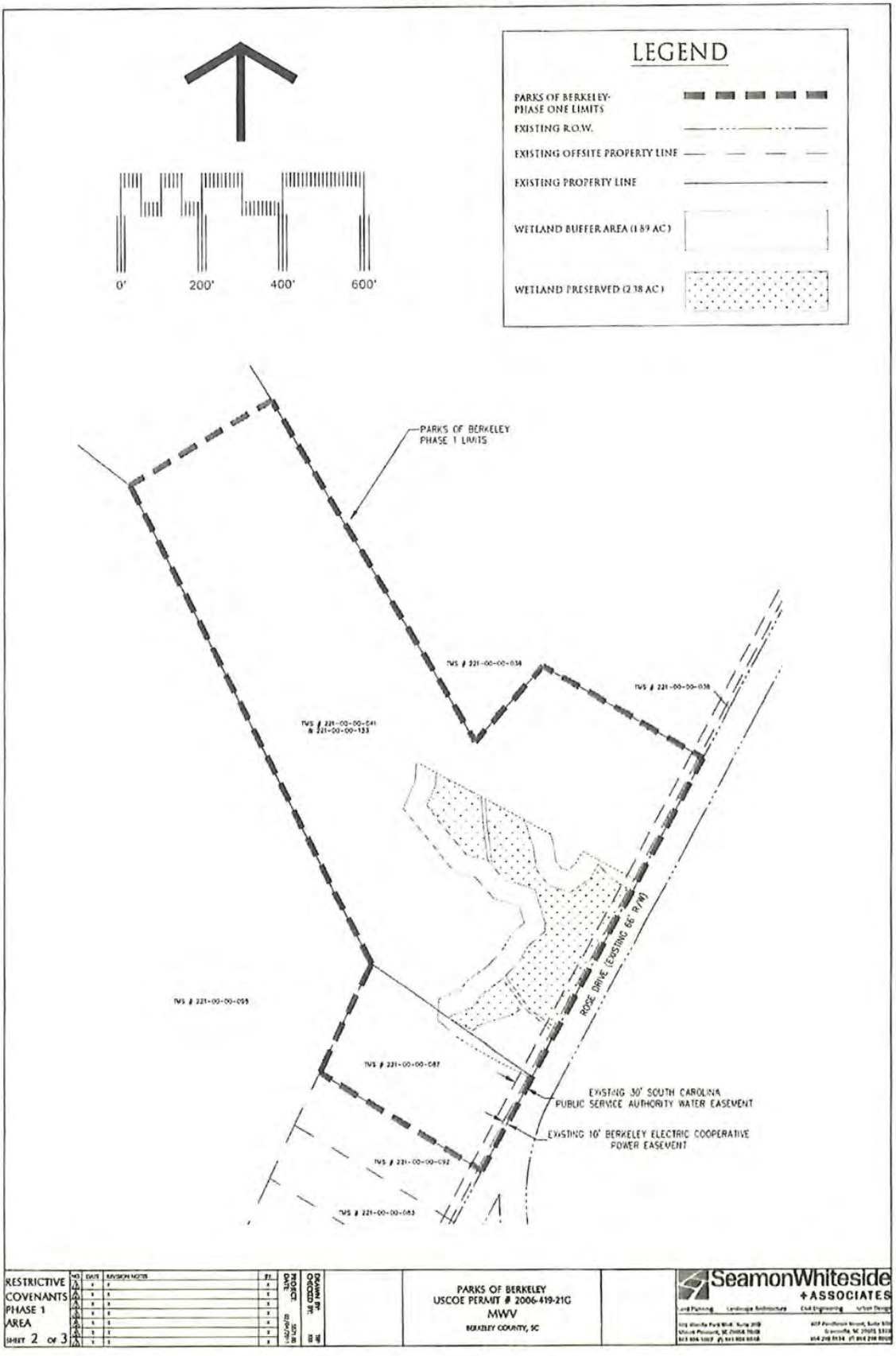

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EXHIBIT A-2
'Parks of Berkeley-Phase 1 Exhibit

All that certain piece, parcel or tract of land, with the improvements thereon, if any, situate, lying and being in the County of Berkeley, South Carolina, being shown on a plat entitled, "VARIOUS PARCELS LOCATED IN THE SHEEP ISLAND AREA NEAR SUMMERVILLE OWNED BY WESTVACO CORPORATION – PRELIMINARY WETLAND SURVEY – 1" prepared by GPA Professional Land Surveyors dated March 29, 2005, and being more particularly described as follows:

Beginning at a 1" iron pin found being located at the western boundary of the right of way for State Road US Highway 176 (100' Right of Way) at the easternmost point of the property herein described, said pipe being the POINT OF BEGINNING. Thence leaving said point and proceeding around the perimeter of the herein described property for the following bearings and distances (feet).

S50°33'23"W 0.13
S50°33'23"W 1655.85
S39°24'10"E 967.59
S38°17'25"W 51.62
S15°09'01"W 29.99
S38°13'56"W 27.50
S56°53'49"W 33.40
S26°40'16"W 27.53
S19°09'57"W 14.20
S23°31'11"W 25.84
S67°33'55"W 31.00
S30°58'21"W 32.99
S77°55'01"W 25.62
S43°21'11"W 30.19
S46°21'09"W 22.89
S50°47'14"W 28.59
S09°28'34"W 42.97
S71°13'01"W 27.28
S68°21'25"W 44.40
S47°25'45"W 26.21
S72°01'21"W 45.98
S81°54'41"W 20.75
S68°15'37"W 21.86
S46°20'23"W 27.86
S56°07'13"W 31.20
S86°45'48"W 70.22
S82°25'51"W 40.36
S77°21'03"W 18.65
S38°13'29"W 23.05
S38°30'12"W 21.42
S63°27'16"W 22.36
S72°28'09"W 20.62
S07°14'48"W 22.97
S31°33'03"W 14.79
N75°48'42"W 25.37
S56°55'49"W 25.45
S24°27'29"W 28.62
S58°00'34"W 24.83
S84°57'32"W 42.75
S41°22'33"W 17.44
S56°32'30"W 32.79
S76°16'29"W 29.32
N53°29'17"W 28.39
S55°03'09"W 24.31
S58°54'01"W 36.94
S57°55'29"W 37.87
S42°42'36"W 19.25
S21°07'15"W 32.39
S46°27'01"W 27.97
S09°19'14"W 41.55
S55°51'12"W 47.41
S41°36'22"W 35.12
S67°16'52"W 40.04
N67°58'58"W 38.14
S81°00'02"W 31.37
S69°54'14"W 44.89
S20°09'27"W 41.72
S07°25'16"E 28.66
S55°46'02"W 43.12
S08°34'14"W 32.92
S18°06'34"E 20.15
S25°01'30"W 24.81
S70°20'37"W 27.03
S79°40'58"W 20.18
S01°14'38"W 35.01
S44°33'47"W 19.38
S18°47'10"W 28.13
S14°53'29"E 22.25
S16°43'53"W 38.74
S13°49'56"E 33.60
S20°29'42"E 33.86
S41°54'28"E 39.81
S11°26'26"W 24.60
S56°23'25"W 29.51
S56°24'34"W 40.03
S75°58'45"W 39.50
S58°21'55"W 48.59
S39°15'09"W 55.25
S46°38'56"W 53.70
S44°24'47"W 21.67
S63°38'39"W 32.34
S71°02'33"W 28.46
N75°09'39"W 51.39
N76°14'31"W 36.18
N14°57'23"E 53.65
N06°51'47"W 53.89
N89°35'32"E 53.25
N79°00'06"E 22.68
N38°57'49"W 39.93
N69°22'54"W 27.93
N35°17'07"W 25.65

N34°34'23"E 39.67
N70°09'45"E 27.46
N19°31'14"E 44.43
N05°56'27"E 52.35
N32°17'54"W 18.03
N70°03'52"W 20.93
N31°30'42"W 46.81
S88°59'35"W 36.14
N83°04'14"W 28.41
S60°46'39"W 40.37
N27°14'57"W 383.38
S71°29'44"E 40.59
S86°23'08"E 32.68
N69°01'08"W 29.32
N45°06'54"W 50.78
N15°24'45"W 34.44
N49°13'12"W 37.13
N71°55'04"W 33.90
N10°58'39"W 40.02
N54°59'29"W 50.51
N71°44'41"W 41.64
N22°09'40"W 39.70
N19°25'57"W 34.15
N44°24'59"W 22.77
S86°29'23"W 27.65
N08°14'38"E 46.28
N12°26'22"E 42.85
N03°07'59"E 47.06
N34°04'24"E 47.21
N53°16'17"E 59.74
S45°41'59"E 26.40
N75°53'18"E 42.36
N69°45'16"E 47.33
N85°05'30"E 22.60
N85°26'20"E 39.56
S85°43'33"E 22.98
S74°33'14"E 37.39
S23°14'58"E 44.74
N63°15'23"E 29.87
N81°31'21"E 34.55
N85°46'26"E 32.51
N32°14'13"E 59.04
N31°19'03"E 16.33
N12°39'50"E 23.66
N05°41'10"E 41.19
N24°08'16"E 48.54
N53°47'26"E 35.50
N66°55'11"E 24.84
N04°41'56"E 26.92
N35°33'20"E 28.53
S84°59'46"E 37.75
N77°11'54"E 22.01
N14°45'19"E 35.95
N09°12'28"W 22.29
N25°17'13"W 40.84
N31°58'59"W 32.00
N74°34'01"W 34.70
S51°19'10"W 31.45
N77°24'32"W 37.97
N29°38'36"W 38.82
N56°19'31"W 35.20
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S37°23'04"W 34.32
N74°28'57"W 41.89
N61°54'56"W 27.32
S36°44'35"W 20.25
S20°47'05"W 24.95
S01°06'14"E 72.93
S06°16'22"W 32.31
S20°54'56"E 25.89
S56°32'00"W 21.34
S17°16'54"E 45.06
N77°00'03"W 15.92
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N04°21'29"W 32.41
N15°54'13"W 22.40
N66°45'57"W 41.93
N00°18'37"W 17.55
N22°34'46"E 52.17
N33°53'06"W 38.17
N47°30'40"W 25.32
N79°10'04"W 46.98
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S16°13'44"W 35.13
S17°55'37"W 52.10
N76°56'41"W 10.70
S12°38'54"E 62.82
S24°37'19"E 39.31
S10°18'59"E 39.43
S33°39'08"E 36.15
S35°03'37"E 19.22
S39°29'39"E 8.08
S08°47'03"E 8.35
S23°30'01"E 38.67
S29°05'17"E 46.92
S43°32'33"E 44.96
S03°31'45"W 40.45
S03°15'36"E 44.44
S73°31'16"W 35.65
S84°54'06"W 32.06
S65°57'11"W 31.62
N66°43'16"W 53.31
S75°19'00"W 37.92
S24°49'37"W 46.63
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S23°03'02"E 37.90
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N21°46'16"W 33.32
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N31°21'14"W 616.57
S74°18'39"E 25.94
N19°36'46"E 30.48

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N08°35'21"W 16.06
N54°14'27"E 29.81
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N26°50'32"E 11.65
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N53°58'18"E 59.57
S78°37'21"E 48.11
S75°43'44"E 55.17
N74°01'15"E 31.85
N59°16'45"E 58.13
N34°50'55"E 69.84
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N60°17'27"E 42.03
N64°11'03"E 56.57
N50°24'56"E 60.47
N46°12'00"E 52.60
S63°25'45"E 39.47
S49°41'15"E 38.89
S56°29'12"E 21.32
S34°09'19"E 28.41
S67°53'44"E 18.57
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N68°14'04"E 58.98
N57°37'40"E 50.53
N65°28'32"E 36.25
N40°30'59"E 45.90
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S51°32'07"E 34.29
N79°39'26"E 28.09
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N44°07'21"E 33.52
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N25°28'14"E 69.88
N16°43'48"E 105.52
N56°55'12"E 119.81
N04°00'17"W 66.12
N39°35'19"W 63.03
N00°33'06"E 84.21
N27°43'18"W 29.78
N00°49'06"W 43.34
N26°29'30"W 39.86
N30°02'35"W 55.49
N04°02'09"W 39.94
N28°37'27"E 47.62
N24°31'13"E 37.32
N50°53'39"E 43.21
N57°37'48"E 37.00
N04°55'05"E 22.58
N02°55'38"E 60.10
S35°01'26"E 272.75
S35°04'42"E 352.56
S35°03'27"E 193.03,
being the POINT OF
BEGINNING

Joint Exh. 1-0119

EXHIBIT A-2

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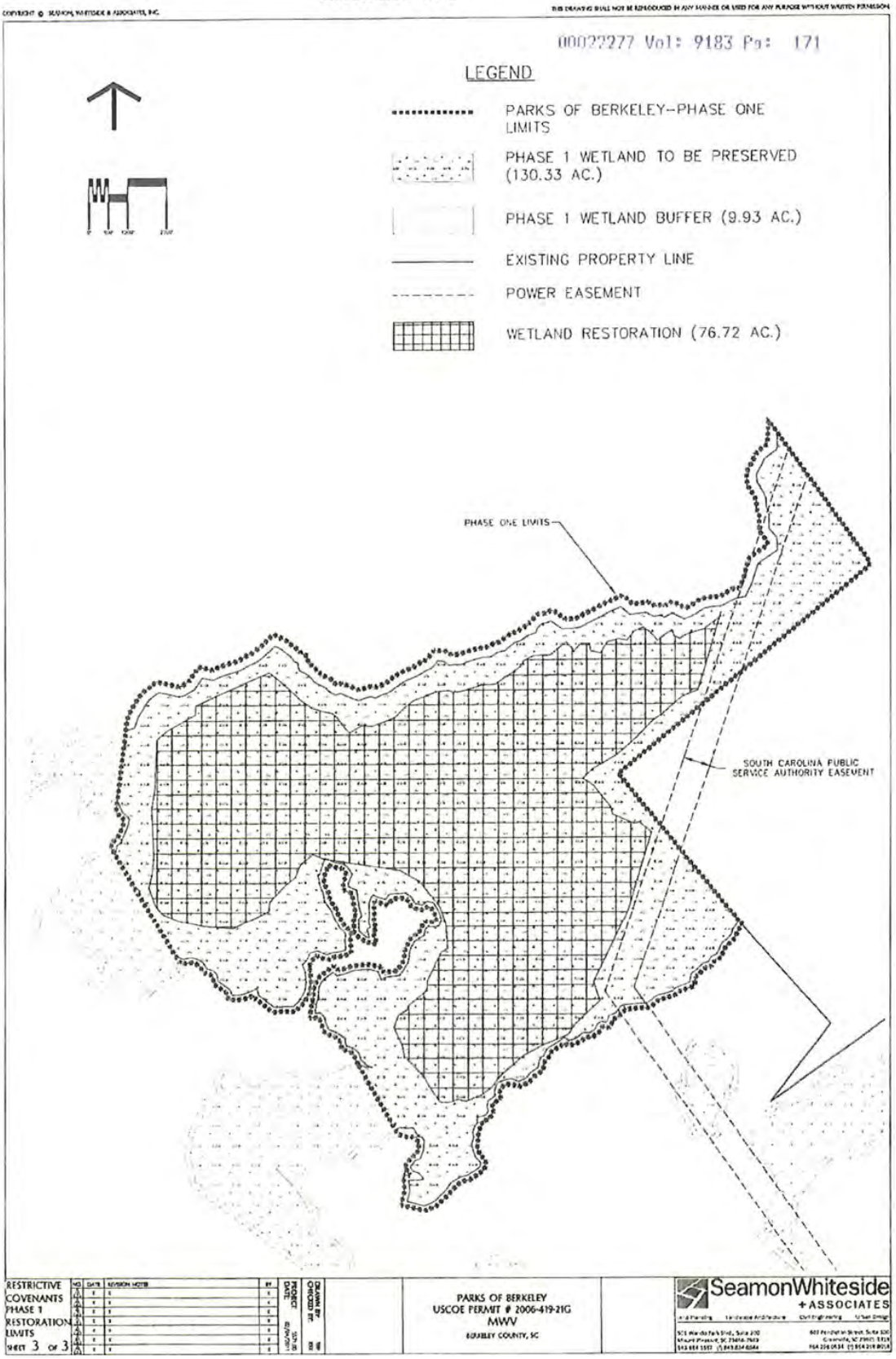
THIS DRAWING SHALL NOT BE REPRODUCED IN ANY MANNER OR USED FOR ANY PURPOSE WITHOUT WRITTEN PERMISSION

00022277 Vol: 9183 Pg: 171



RESTRICTIVE COVENANTS PHASE 1 RESTORATION LIMITS
SHEET 3 OF 3

PARKS OF BERKELEY
USCOE PERMIT # 2006-419-21G
MWV
BERKELEY COUNTY, SC

SeamonWhiteside +ASSOCIATES

DHEC CON 000119

00022277 Vol: 9183 Pg: 172

EXHIBIT B
Property

Special Warranty Deed from THE PARKS OF BERKELEY, LLC to MWV-PARKS OF BERKELEY, LLC, dated October 27, 2008 and recorded October 24, 2008 in Book 7621, Page 295 in the land records of Berkeley County, South Carolina.

Special Warranty Deed from CRESCENT RESOURCES, LLC to MWV-PARKS OF BERKELEY, LLC, dated October 27, 2008 and recorded October 24, 2008 in Book 7621, Page 279 in the land records of Berkeley County, South Carolina.

00022277 Vol: 9183 Pg: 173

EXHIBIT C
Parks of Berkeley USCOE Permit # 2006-419-21G, MWV, Berkeley County, SC

Berkeley County
Cynthia B. Forte
Register of Deeds
Moncks Corner 294616120

53 2013 00016132

Instrument Number: 2013- 00016132
As
Recorded On: June 25, 2013 **Restrictive Covenants**

Parties: MWV-PARKS OF BERKELEY LLC
To
MWV-PARKS OF BERKELEY LLC

Billable Pages: 26

Recorded By: NEXSEN PRUET LLC

Num Of Pages: 31

Comment:

** Examined and Charged as Follows: **

Restrictive Covenants	36.00
Recording Charge:	**36.00**

** THIS PAGE IS PART OF THE INSTRUMENT **

I hereby certify that the within and foregoing was recorded in the Register of Deeds Office For: Berkeley County, SC

File Information:
Document Number: 2013- 00016132
Receipt Number: 435020
Recorded Date/Time: June 25, 2013 02:54:13P
Book-Vol/Pg: Bk-R VI-10205 Pg-1
Cashier / Station: J Pearson / Cash Station 8

Record and Return To:
NEXSEN PRUET LLC
ATTORNEY AND COUNSELORS AT LAW
PO BOX 486
CHARLESTON SC 29402-9942

REGISTER OF DEEDS SEAL BERKELEY COUNTY

Cynthia B. Forte

Cynthia B Forte - Register of Deeds

DHEC CON 000122

STATE OF SOUTH CAROLINA

DECLARATION OF RESTRICTIVE COVENANTS

COUNTY OF BERKELEY

THIS DECLARATION OF RESTRICTIVE COVENANTS is made this 2nd day of April, 2013 by **MWV-Parks of Berkeley, LLC** ("Declarant").

WHEREAS, Declarant is the owner of certain real property located in Berkeley County, South Carolina, commonly known as The Parks of Berkeley and more particularly described in Exhibit B ("Property"); and

WHEREAS, the Property includes (i) the wetlands and buffers described in Exhibit A and shown on Exhibit A, "The Parks of Berkeley-Protected Wetlands Exhibit –Phase 2," December 5, 2012, consisting of approximately 725.45 acres wetlands and approximately 138.19 acres upland buffers (the wetlands and buffer property described and shown in Exhibit A is the "Restricted Property") and

WHEREAS, the Restricted Property is restricted by this Declaration and under U. S. Army Corps of Engineers Permit Number 2006-419-2IG, as modified August 14, 2009, Exhibit C, ("Permit"); and

WHEREAS, as compensatory mitigation under Federal and State law for the Permit issued by the U.S. Army Corps of Engineers, Charleston District ("Corps" or "Charleston District," to include any successor agency), and certification(s) and/or permit(s) issued by the S.C. Department of Health and Environmental Control ("DHEC," to include any successor agency), and in recognition of the continuing benefit to the Restricted Property, and for the protection of waters of the United States and scenic, resource, environmental, and general property values, Declarant has agreed to place certain restrictive covenants on the Restricted Property, in order that the Restricted Property shall remain substantially in its natural condition forever.

NOW THEREFORE, Declarant hereby declares that the Restricted Property shall be held, transferred, conveyed, leased, occupied or otherwise disposed of and used subject to the following restrictive covenants, which shall run with the land and be binding on all heirs, successors, assigns (they are included in the term, "Declarant," below), lessees, or other occupiers and users.

1. **Prohibitions**. Declarant is and shall be prohibited from the following: filling, draining, flooding, dredging, impounding, clearing, burning, cutting or destroying vegetation, cultivating, excavating, erecting, constructing, releasing wastes, or otherwise doing any work on the Restricted Property; introducing exotic species into the restricted Property (except biological controls preapproved in writing by the Corps and DHEC); and from changing the grade or elevation, impairing the flow or circulation of waters, reducing the reach of waters, and any other discharge or activity requiring a permit under clean water or water pollution control laws and regulations, as amended. The following are expressly excepted from this paragraph:

a) cumulatively very small impacts associated with hunting (excluding planting or burning), fishing, and similar recreational or educational activities, consistent with the continuing natural condition of the Restricted Property;

b) removal or trimming of vegetation hazardous to person or property, or of timber downed or damaged due to natural disaster;

c) restoration or mitigation required under law;

d) construction and maintenance of trails at grade for pedestrian use, including boardwalks no wider than 6 feet and constructed of wood or similar material, and including observation platforms or areas no larger than twenty feet by twenty feet, with prior approval of the Corps;

e) using herbicides to control exotic plants;

f) using prescribed burning for ecosystem management;

g) controlling exotic or environmentally destructive animals, such as feral hogs;

h) maintenance of currently functional and historically active ditches, swales and outfalls within the Restricted Property, provided that in such maintenance, these ditches shall not be expanded or deepened. Declarant agrees that such maintenance will not involve the use of wheeled or track motorized machinery or equipment without the prior written approval of the USACE and SCDHEC, but maintenance may include hand excavation, manual clearing and other similar activities with prior notification to USACE and SCDHEC.

i) harvesting timber for ecosystem management or enhancement; (e.g. converting loblolly pine to longleaf or thinning loblolly pine plantations to encourage and accelerate natural conversion to hardwoods) as pre-approved in writing by the Corps;

j) construction of ditches, swales, and outfalls as pre-approved in writing by the U.S. Corps of Engineers (COE) and the South Carolina Department of Health and Environmental Control (DHEC) that are both required and the minimum necessary for compliance with applicable stormwater management and sediment reduction laws and regulations. These ditches shall not be constructed so as to drain wetlands through alteration of the hydrology. Activities allowed under this exception shall be limited as follows:

i. all such activities shall be applicable to upland buffer areas only and not wetlands;

ii. all such activities shall be the minimum size and number necessary;

iii. ditches and swales shall have a bottom width of not more than five feet (1.52 meters), a depth below adjacent natural ground elevation of not more than four feet (1.22 meters), and a side slope of not less than three feet vertical to one foot horizons (3V:1H);

iv. the side slopes and surrounding areas of ditches and swales shall be stabilized and restored immediately following construction with natural vegetation. The bottoms of ditches and swales may be cleared and periodically maintained by removal of vegetation. Vegetation shall not be removed by use of herbicides or other chemical means;

v. upon completion of the work, disturbed areas other than ditches and swales shall be restored to the original contours and elevations and shall be permanently stabilized by restoration of natural vegetation; and

k) installation and maintenance of necessary utilities in designated upland buffer areas as pre-approved in writing by the COE and SCDHEC. All excavated areas shall be restored to pre-existing grade immediately following construction. Utility construction in wetland mitigation areas may be allowed if properly permitted by appropriate state and federal authorities.

2. **Amendment**. After recording, these restrictive covenants may only be amended by a recorded document signed by the Corps and DHEC and Declarant. The recorded document, as amended, shall be consistent with the Charleston District model conservation restrictions at the time of amendment. Amendment shall be allowed at the discretion of the Corps and DHEC, in consultation with resource agencies as appropriate, and then only in exceptional circumstances. Compensatory mitigation for any adverse impacts associated with an amendment will be required pursuant to Charleston District mitigation policy at the time of amendment. There shall be no obligation to allow an amendment.

3. **Notice to Government**. Any permit application, or request for certification or modification, which may affect the Restricted Property, made to any governmental entity with authority over wetlands or other waters of the United States, shall expressly reference and include a copy (with the recording stamp) of these restrictive covenants.

4. **Reserved Rights**. It is expressly understood and agreed that these restrictive covenants do not grant or convey to members of the general public any rights of ownership, entry or use of the Property. These restrictive covenants are created solely for the protection of the Restricted Property, and for the consideration and values set forth above, and Declarant(*s*) reserve(*s*) the ownership of the fee simple estate and all rights appertaining thereto, including without limitation the rights to exclude others and to use the property for all purposes not inconsistent with these restrictive covenants.

5. **Compliance Inspections**. The Corps, DHEC, and Declarant's authorized agents shall have the right to enter and go upon the lands of Declarant, to inspect the Restricted Property and take actions necessary to verify compliance with these restrictive covenants.

6. **Enforcement**. The Declarant grants to the Corps, the U.S. Department of Justice, and/or DHEC, a discretionary right to enforce these restrictive covenants in a judicial action against any person(s) or other entity(ies) violating or attempting to violate these restrictive covenants; provided, however, that no violation of these restrictive covenants shall result in a forfeiture or reversion of title. In any enforcement action, an enforcing agency shall be entitled to a complete restoration for any violation, as well as any other judicial remedy such as civil penalties. Nothing herein shall limit the right of the Corps to modify, suspend, or revoke the Permit.

7. **Property Transfers**. Declarant shall include the following notice on all deeds, mortgages, plats, or any other legal instruments used to convey any interest in the Restricted Property (failure to comply with this paragraph does not impair the validity or enforceability of these restrictive covenants):

NOTICE: This Property Subject to Declaration of Restrictive Covenants Recorded at Book ____, Page ___ in the land records for Berkeley County.

8. **Marking of Property**. The perimeter of the Restricted Property shall at all times be plainly marked by permanent signs saying, "Protected Natural Area," or by an equivalent, permanent marking system.

9. **Recording of Plat**. A plat depicting the boundaries of the Restricted Property subject to these restrictive covenants is attached.

10. **Long-Term Management**. The Declarant is responsible for long-term management activities identified in the approved mitigation plan incorporated into the Permit. The required activities include but are not limited to management activities (invasive species, fire, etc) and the maintenance and/or replacement of structures (fences, ditch plugs, weirs, etc) that are critical to the long-term success of the mitigation activities as described in the approved mitigation plan.

11. **Separability Provision**. Should any separable part of these restrictive covenants be held contrary to law, the remainder shall continue in full force and effect.

IN WITNESS WHEREOF, the Declarant has duly executed this Declaration of Restrictive Covenants the date written above.

IN THE PRESENCE OF:

Miriam L. Holladay

Laura Jennett

MWV-Parks of Berkeley LLC

By: Kenneth T. Seeger

Its: President

STATE OF SOUTH CAROLINA)

) ACKNOWLEDGEMENT

COUNTY OF BERKELEY)

I, a Notary Public, do hereby certify that MWV-Parks of Berkeley LLC by Kenneth T. Seeger its President personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and seal this 2nd day of April, 2013.

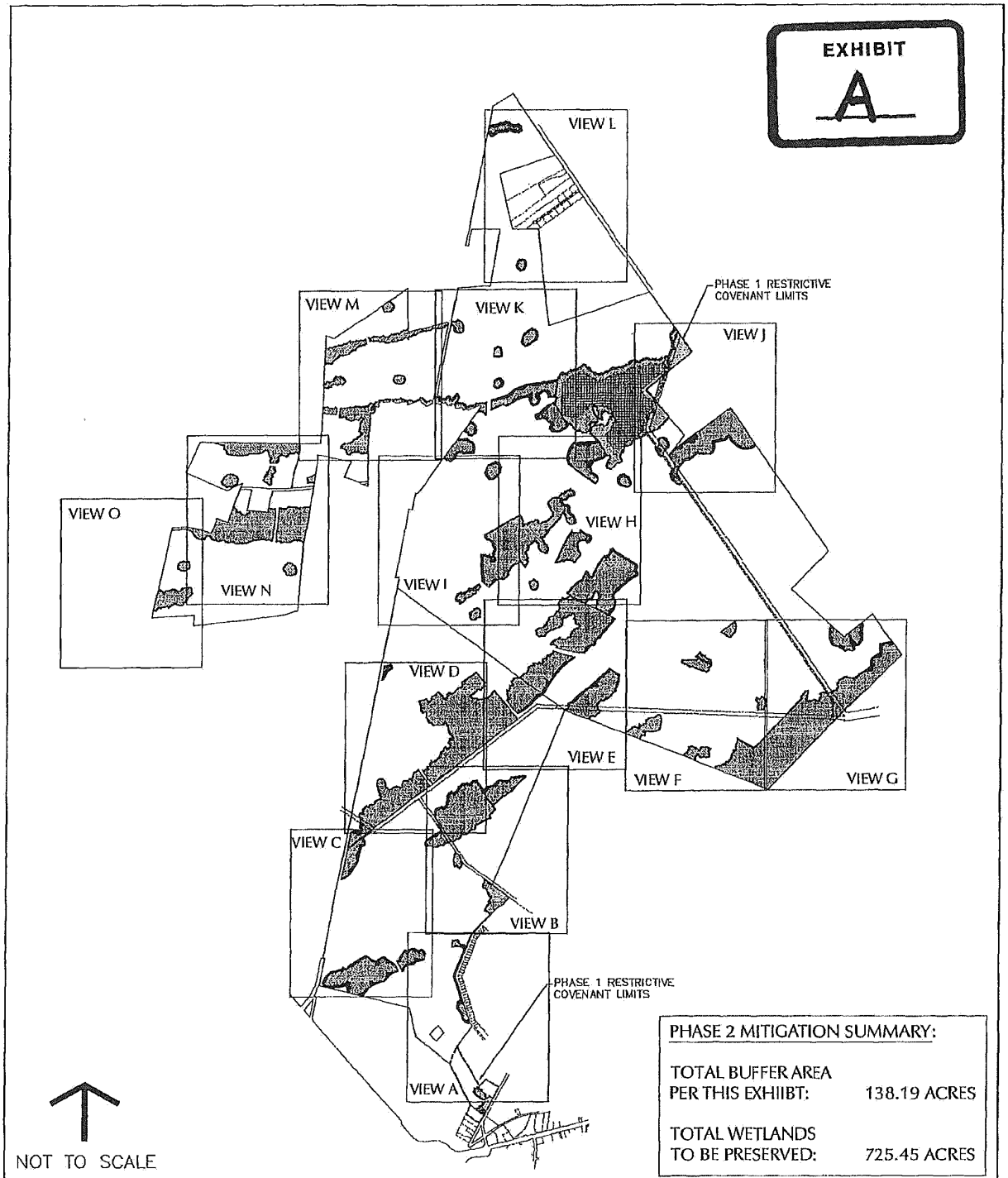
Miriam L. Holladay (Signature)

Miriam L. Holladay (Typed/Printed)

NOTARY PUBLIC FOR SOUTH CAROLINA

My Commission Expires: My Commission Expires May 8, 2018

MIRIAM L. HOLLADAY NOTARY PUBLIC SOUTH CAROLINA



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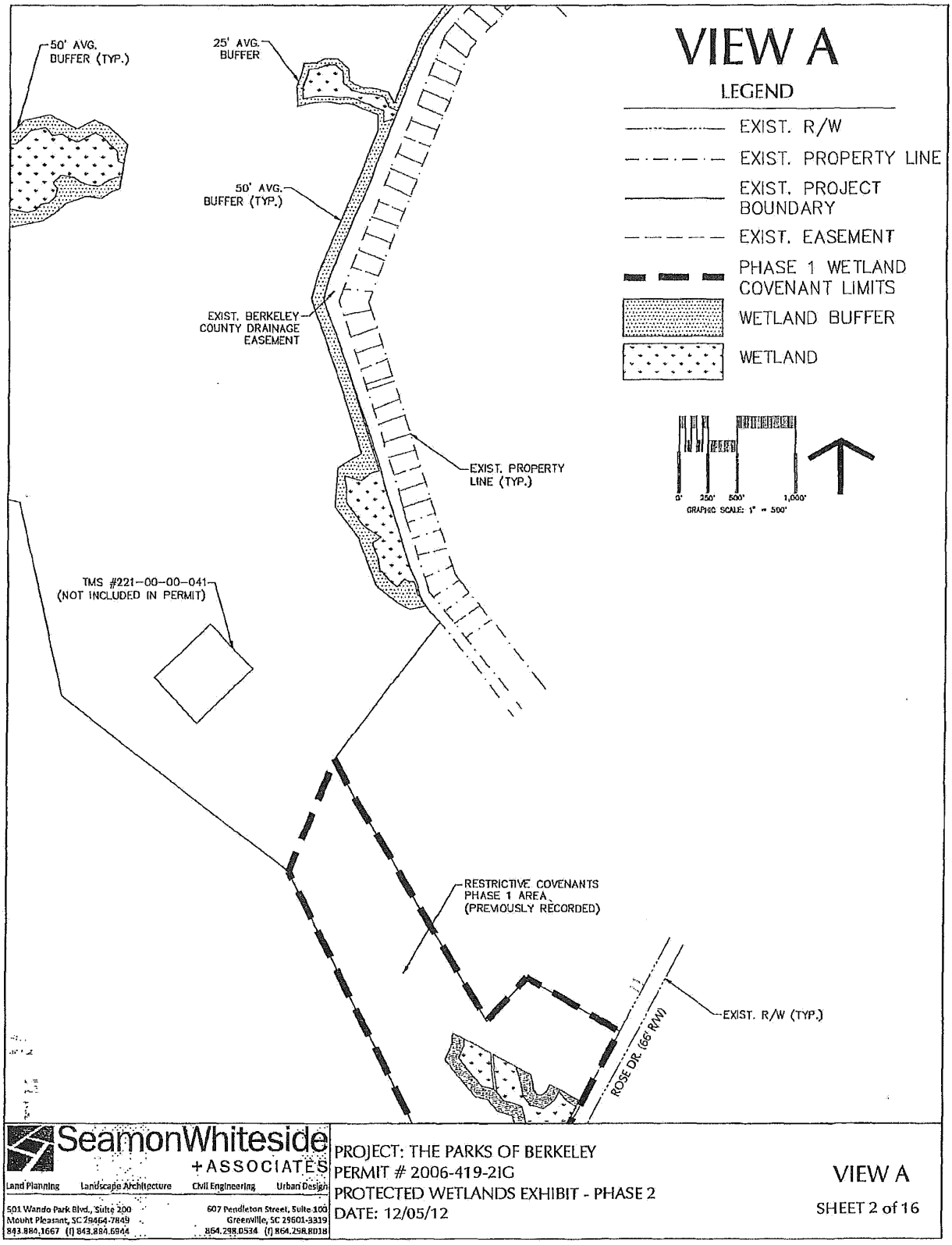
Greenville, SC 29601-3319
864.298.0534 (f) 864.298.8018

PROJECT: THE PARKS OF BERKELEY
PERMIT # 2006-419-2IG
PROTECTED WETLANDS EXHIBIT - PHASE 2
DATE: 12/05/12

KEY MAP
SHEET 1 of 16

DHEC CON 000128



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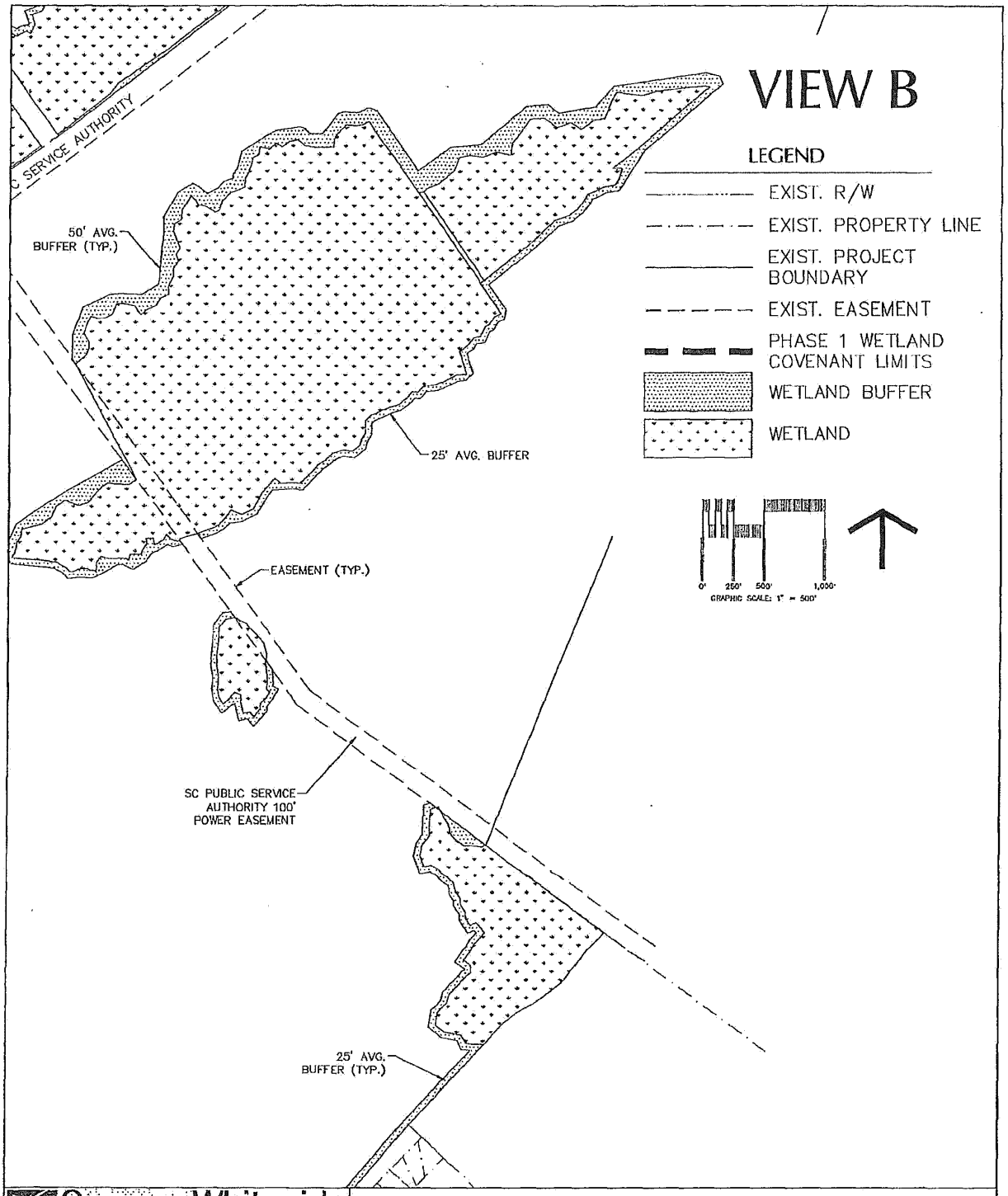
PROJECT: THE PARKS OF BERKELEY
PERMIT # 2006-419-2IG
PROTECTED WETLANDS EXHIBIT - PHASE 2
DATE: 12/05/12

VIEW A
SHEET 2 of 16

DHEC CON 000129



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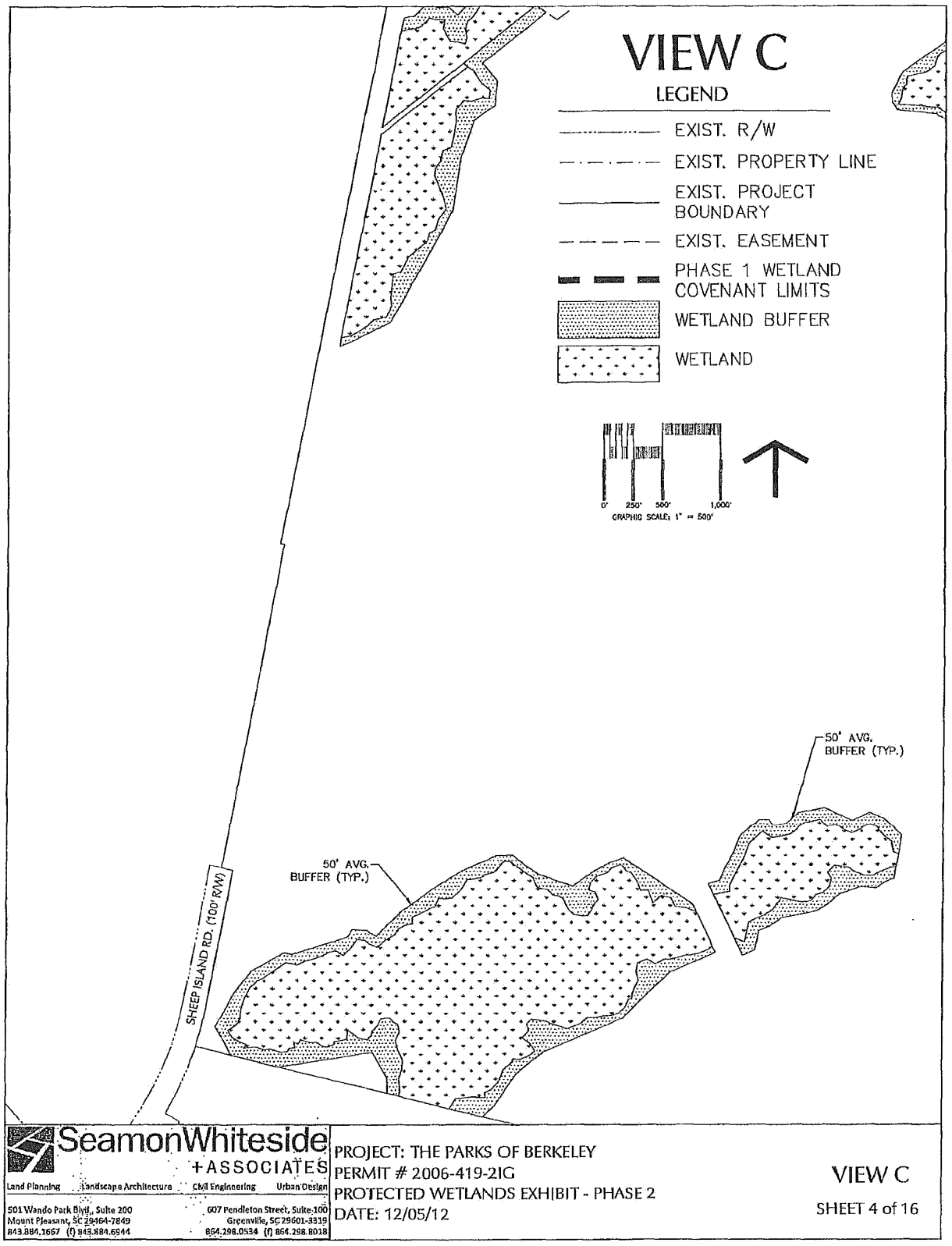

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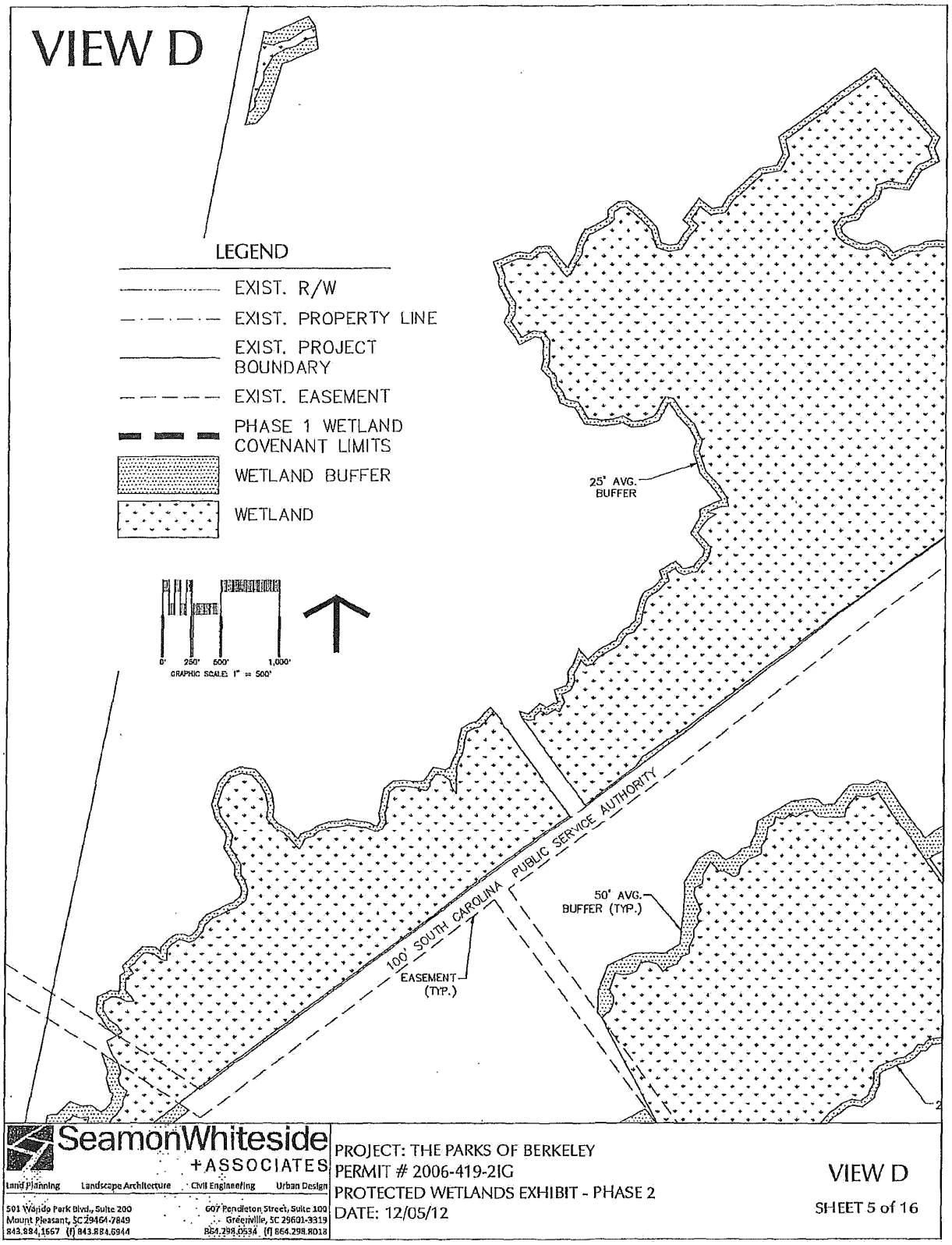

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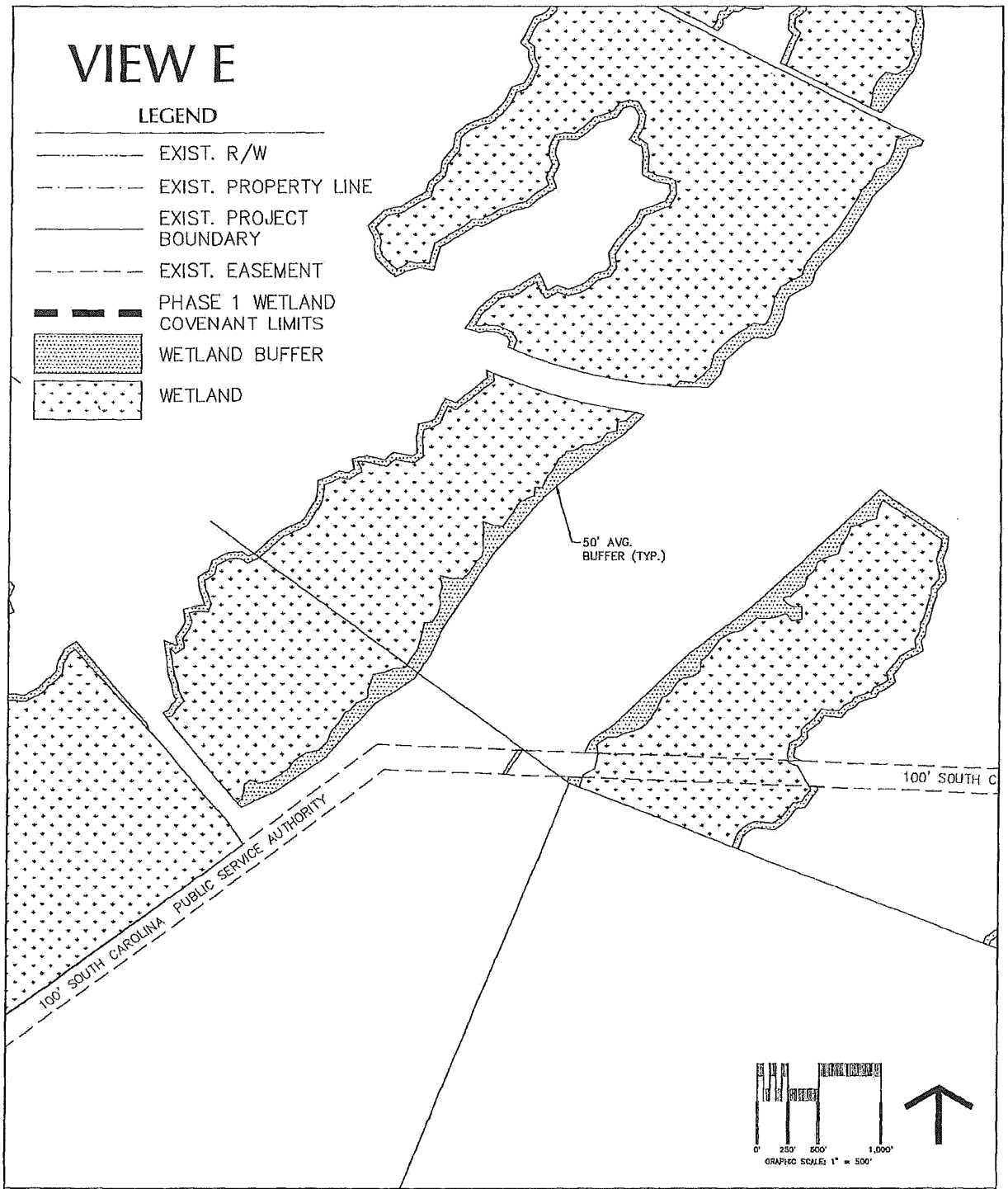

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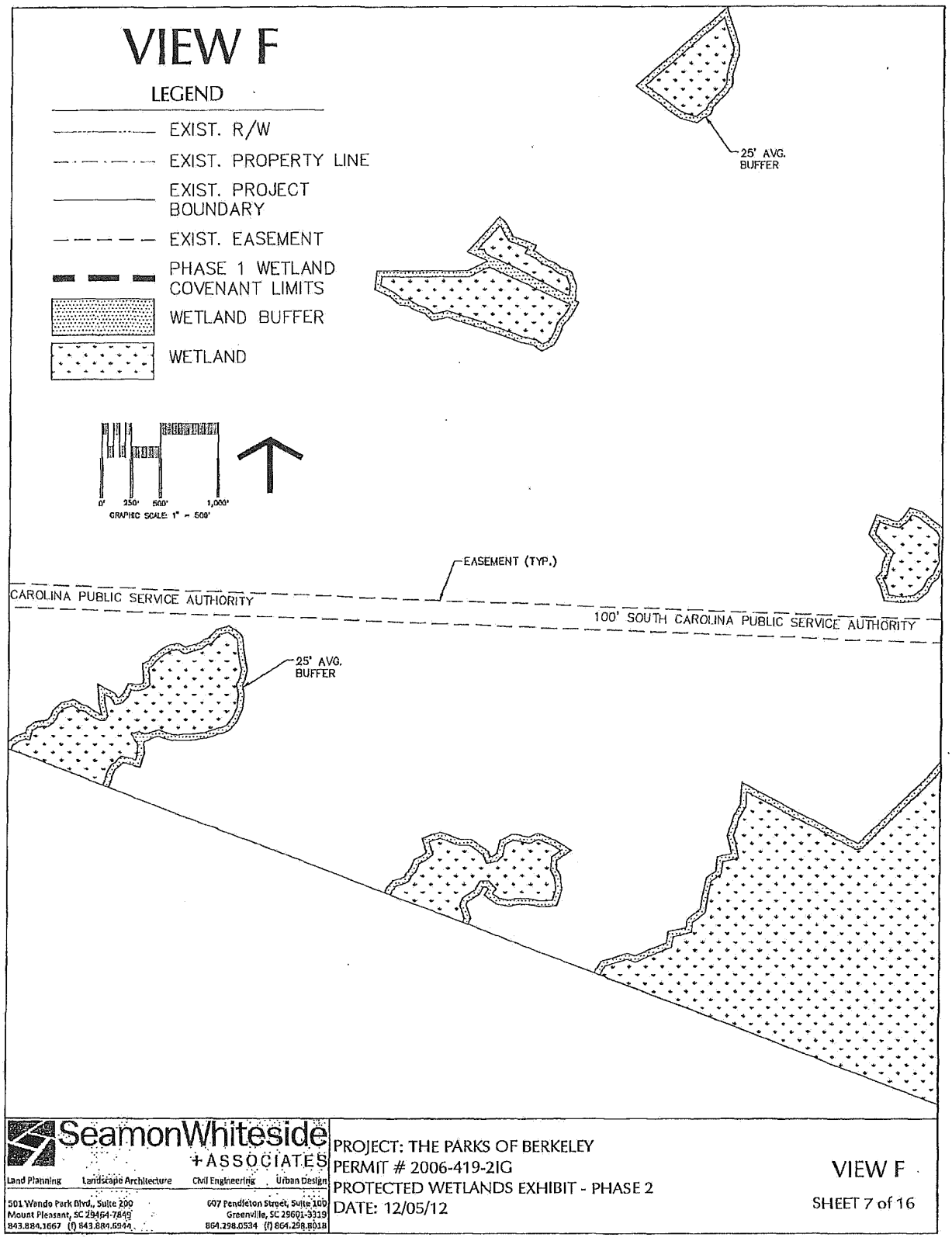

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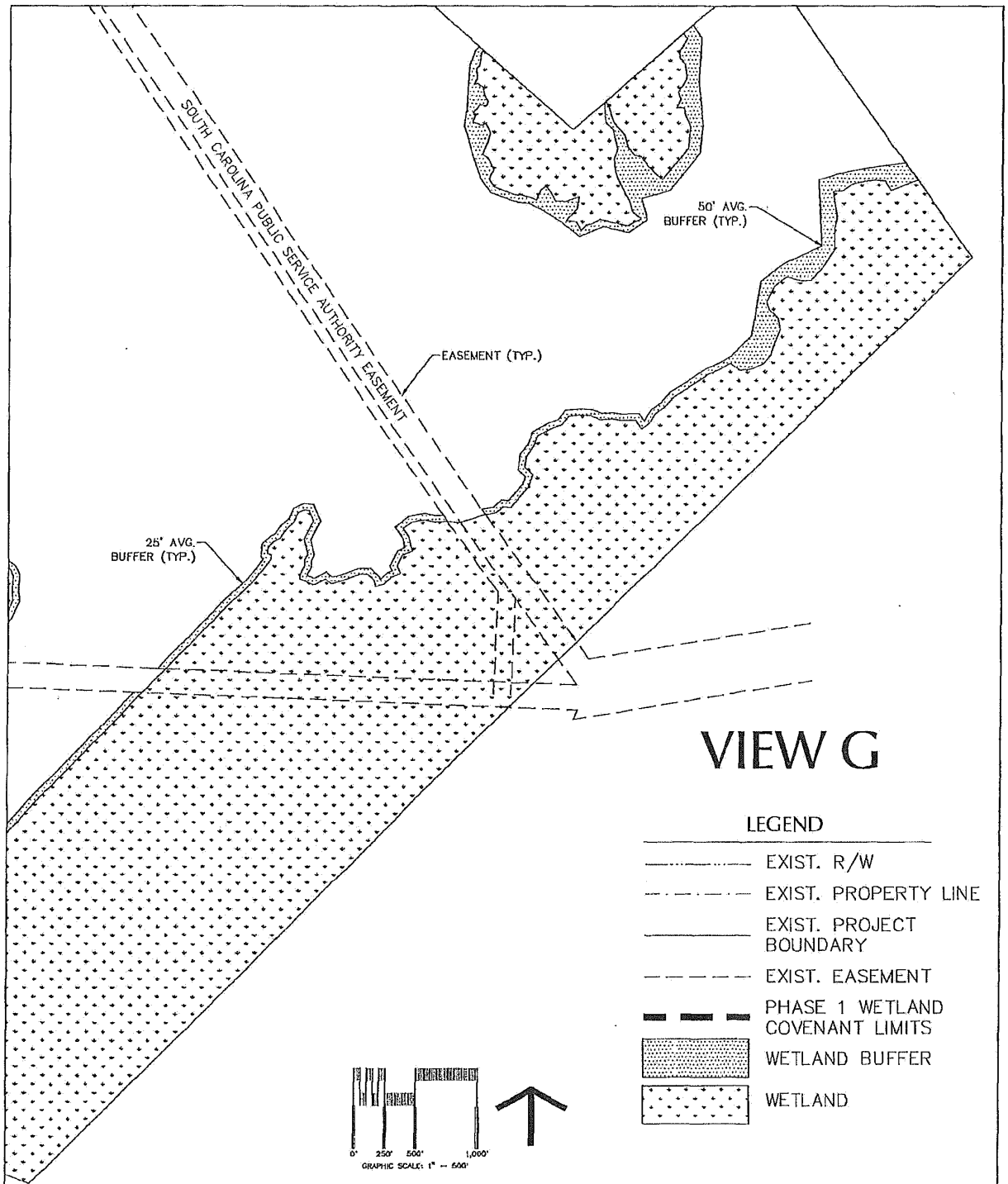

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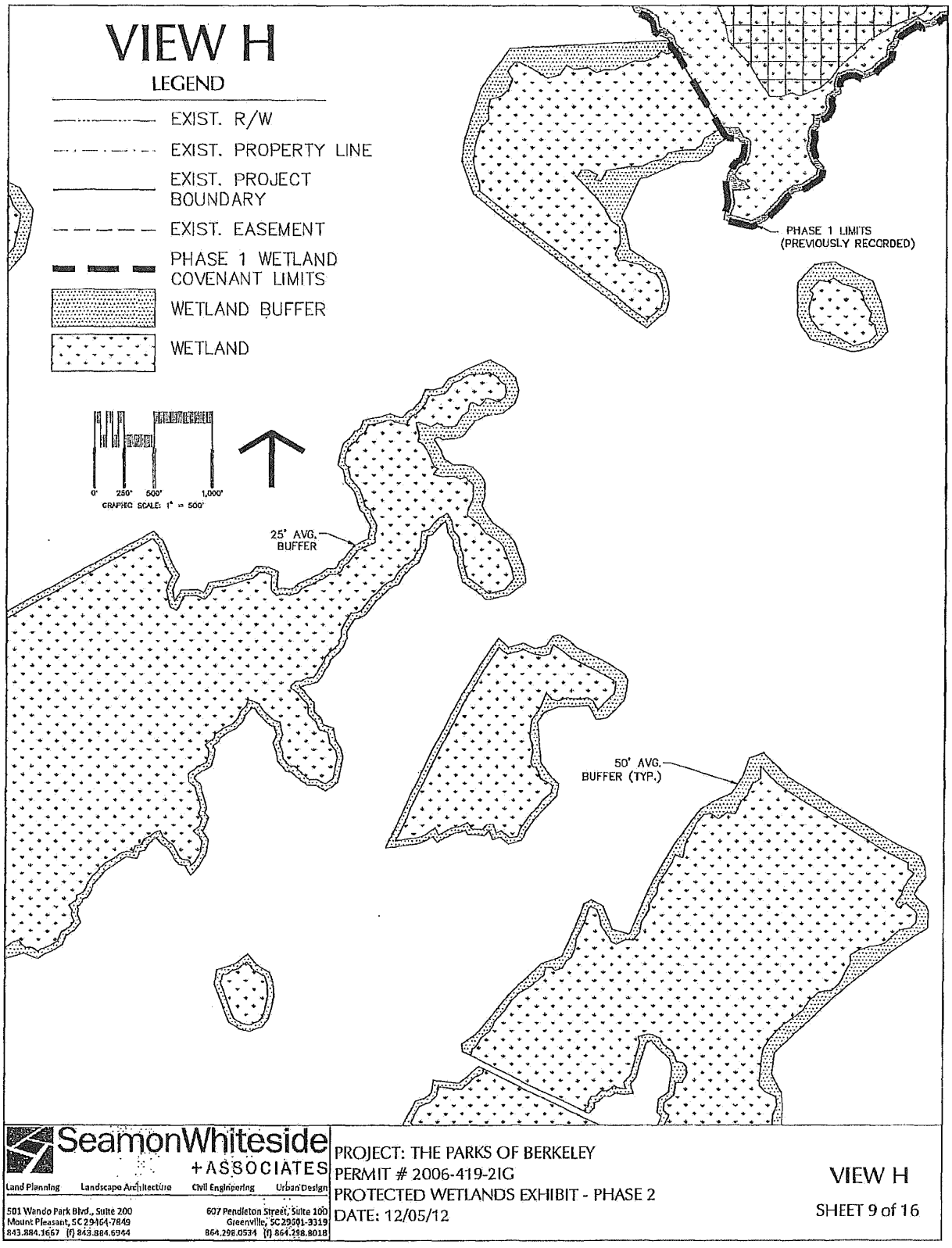
864.298.0534 (f) 864.298.8018

PROJECT: THE PARKS OF BERKELEY
PERMIT # 2006-419-2IG
PROTECTED WETLANDS EXHIBIT - PHASE 2
DATE: 12/05/12

VIEW G
SHEET 8 of 16

DHEC CON 000135



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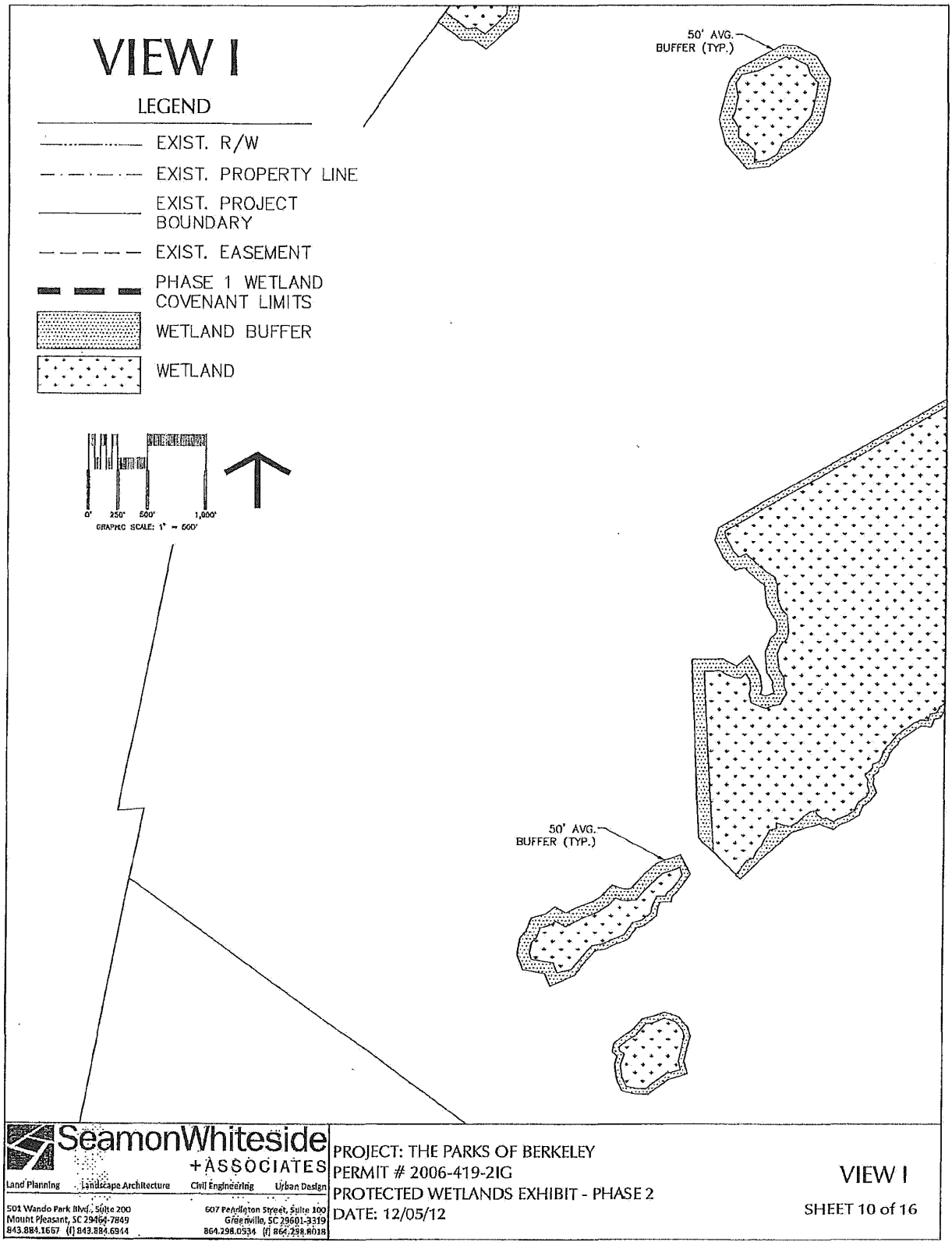

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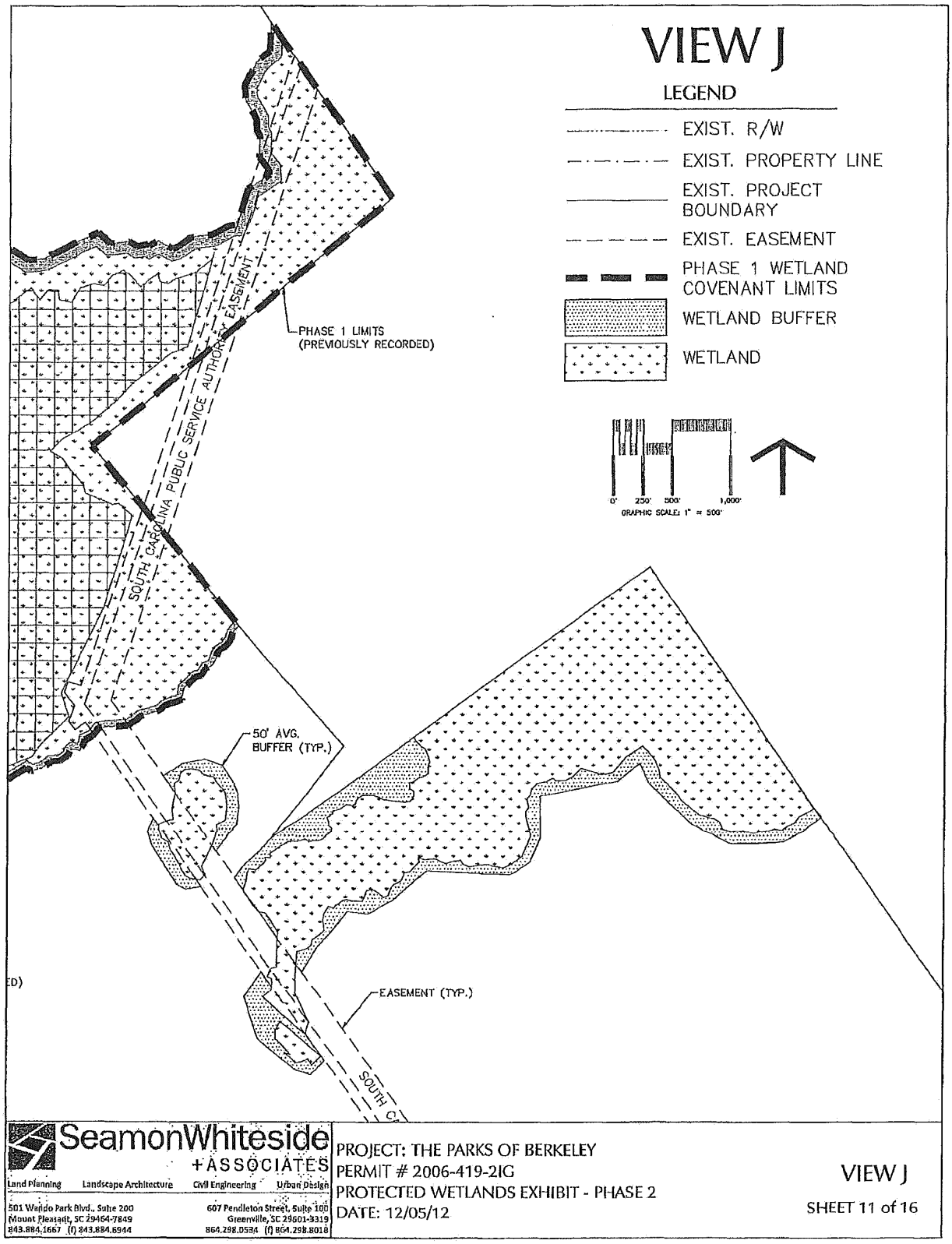

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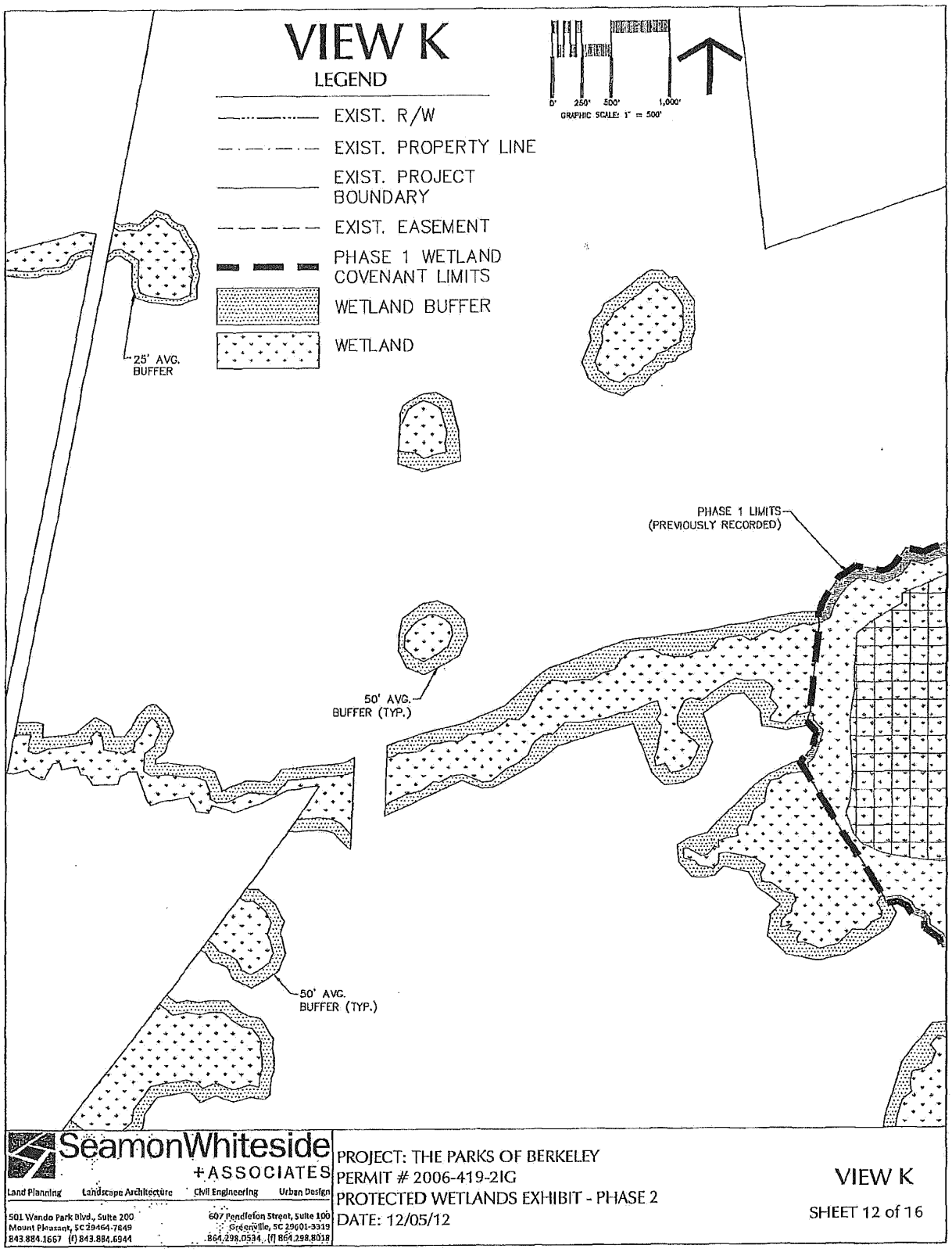

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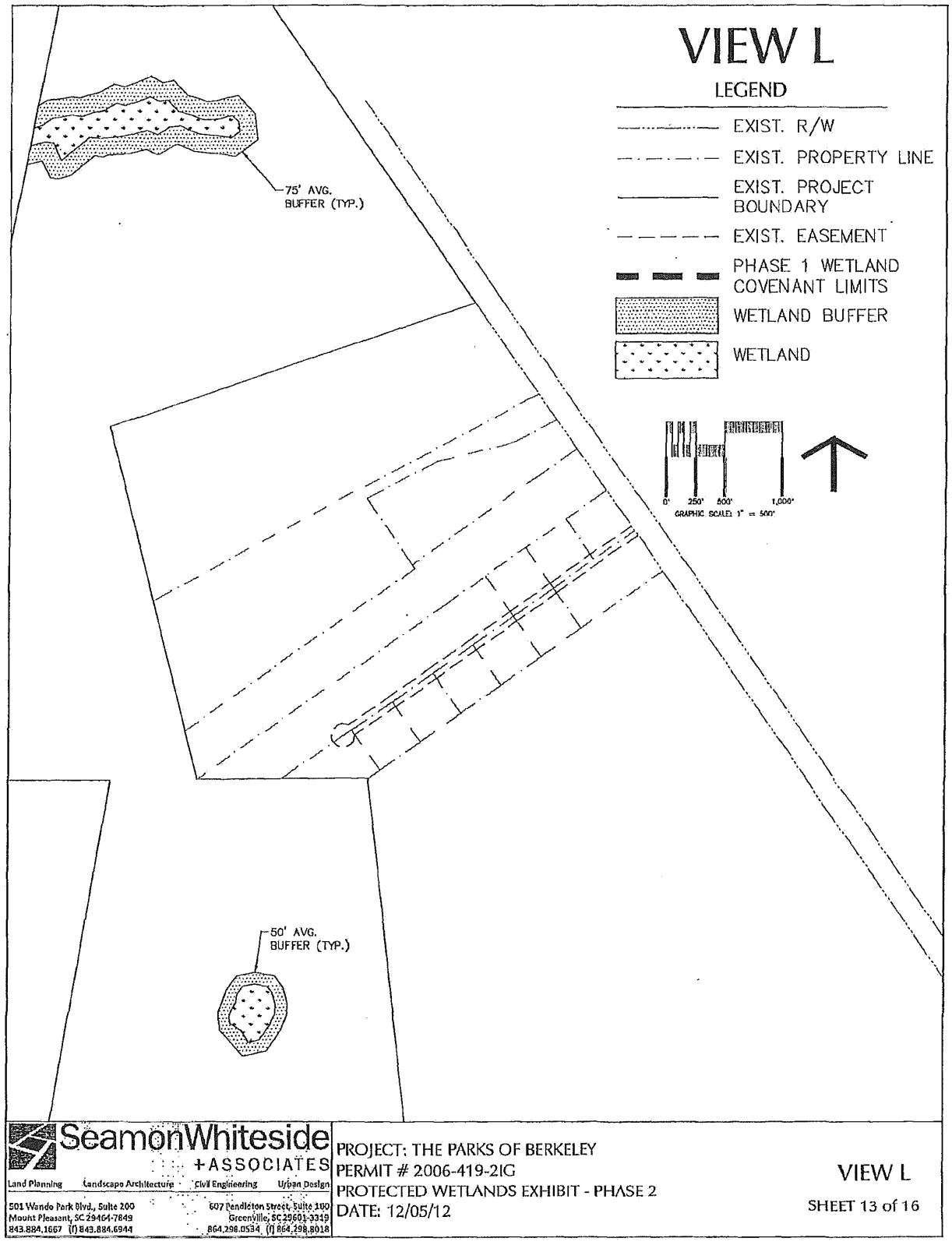

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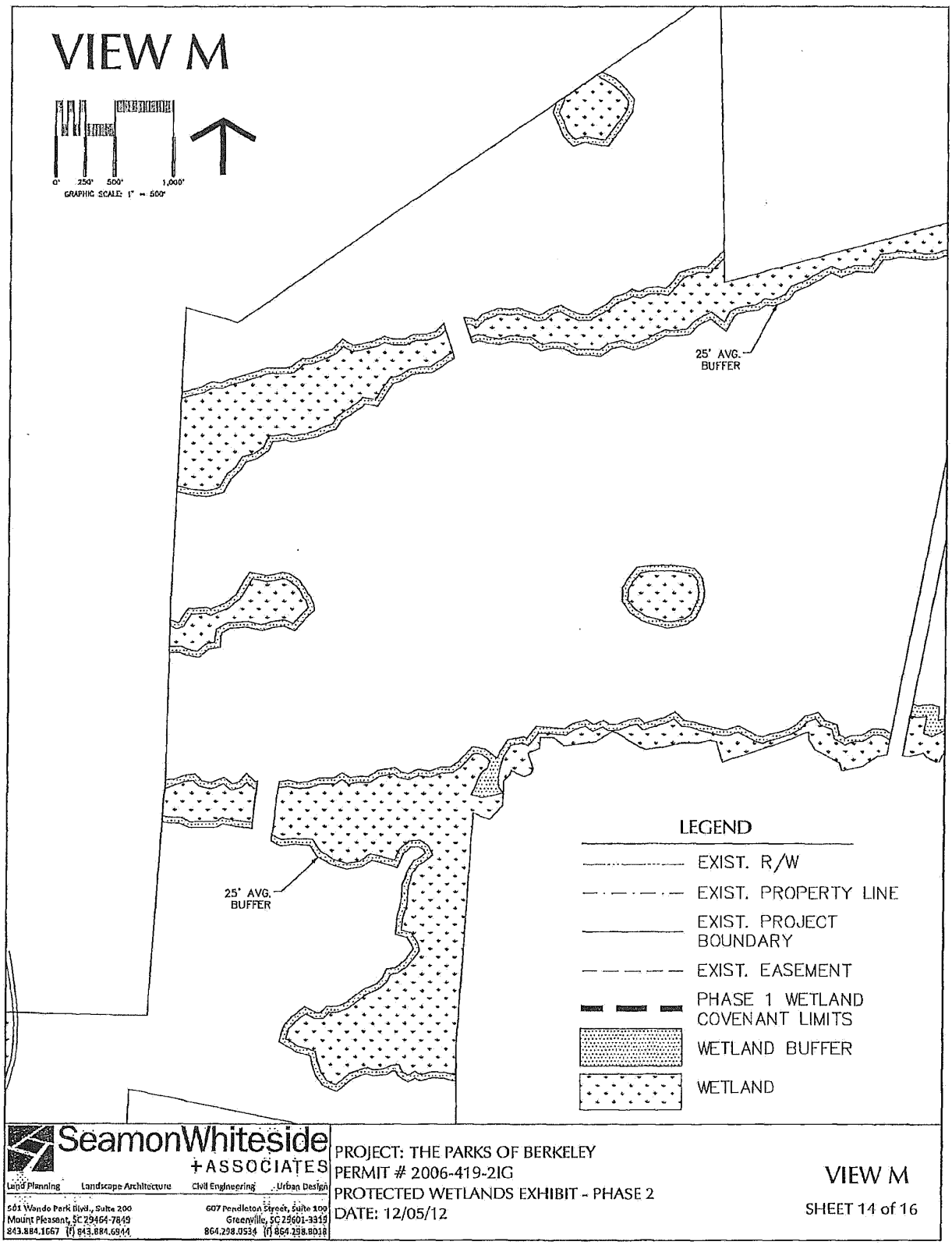

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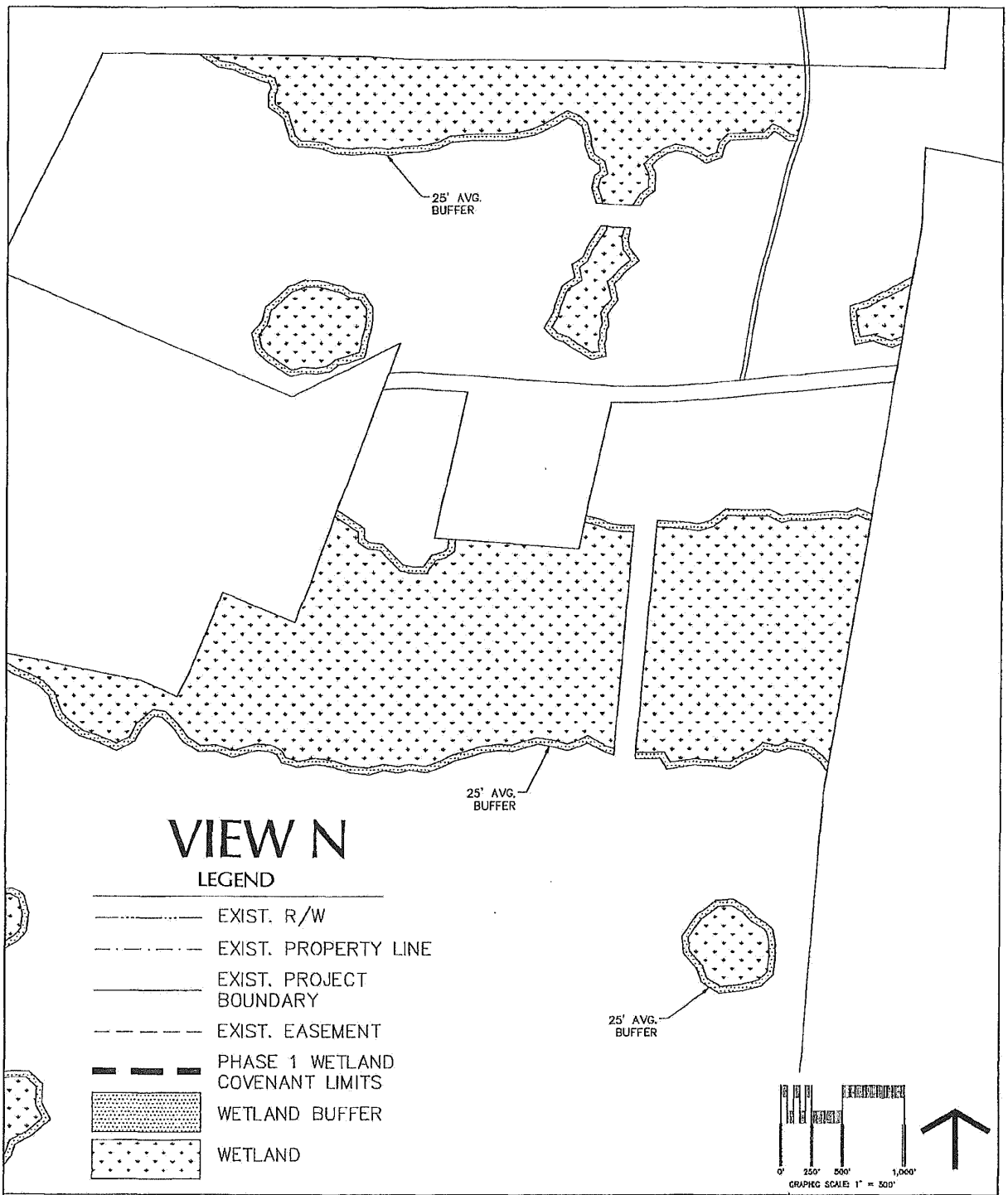

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PROJECT: THE PARKS OF BERKELEY
PERMIT # 2006-419-2IG
PROTECTED WETLANDS EXHIBIT - PHASE 2
DATE: 12/05/12

VIEW N

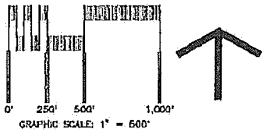
SHEET 15 of 16

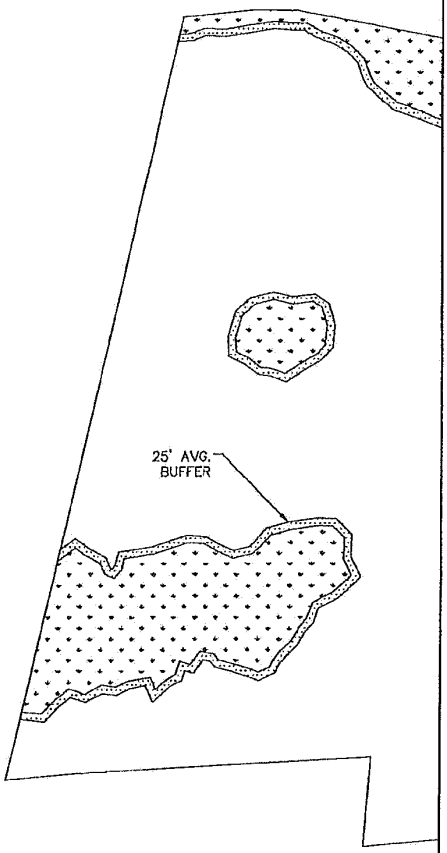
DHEC CON 000142

VIEW O

LEGEND

- EXIST. R/W
- EXIST. PROPERTY LINE
- EXIST. PROJECT BOUNDARY
- EXIST. EASEMENT
- PHASE 1 WETLAND COVENANT LIMITS
- WETLAND BUFFER
- WETLAND





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PROJECT: THE PARKS OF BERKELEY
PERMIT # 2006-419-2IG
PROTECTED WETLANDS EXHIBIT - PHASE 2
DATE: 12/05/12

VIEW O
SHEET 16 of 16

DHEC CON 000143

EXHIBIT
B

EXHIBIT B
PROPERTY DESCRIPTION

NEW TRACT "1" – (1,149.651 Acres):

All that certain piece, parcel or tract of land, together with any improvements thereon, and being shown as "NEW TRACT "1" PARKS AT BERKELEY – PHASE 1 PORTION OF TMS NO. 221-00-00-048 1,149.651 ACRES" on a plat entitled "SUBDIVISION PLAT SHOWING THE SUBDIVISION OF A PORTION OF TMS NO. 221-00-00-048 AND TMS NO. 221-00-00-096, TMS NO. 221-00-00-040, & TMS NO. 221-00-00-048 TO CREATE NEW TRACT "1" – THE PARKS OF BERKELEY PHASE 1 – CONTAINING 1,149.651 ACRES OWNED BY MEADWESTVACO FORESTRY, LLC, A DELAWARE LIMITED LIABILITY COMPANY AND TO BE CONVEYED TO THE PARKS OF BERKELEY, LLC, PARTIALLY LOCATED IN THE TOWN OF SUMMERVILLE BERKELEY COUNTY SOUTH CAROLINA" prepared by GPA Professional Land Surveyors dated February 15, 2005, and last revised March 15, 2005, and recorded in Plat Cabinet Q at Pages 352A through 352D in the ROD Office for Berkeley County, reference to which is craved for a more complete description.

LOT "C" – (3.063 Acres):

All that certain piece, parcel or lot of land, with any buildings and improvements thereon, and being in the Second Goose Creek District, County of Berkeley, State of south Carolina, and being shown as "LOT C 133408 SF 3.063 Ac" on a plat entitled "SUBIDVISION SURVEY OF 6.12 ACRES OWNED BY MARIAN B. ATTAWAY ET AL LOT B IS ABOUT TO BE CONVEYED TO THE ESTATE OF MARION B. ATTAWAY LOT C IS ABOUT TO BE CONVEYED TO CARL BROWN 2ND GOOSE CREEK PARISH, BERKELEY COUNTY, SOUTH CAROLINA" prepared by Ashley Surveying, Inc., dated August 22, 1996, and recorded in Plat Cabinet M, Page 196-A in the ROD Office for Berkeley County, reference to which is craved for a more complete description.

NEW TRACT "2" – (3,402.187 Acres):

All that certain piece, parcel or tract of land, together with any improvements thereon, and being shown as "NEW TRACT 2 PORTION OF TMS NO. 221-00-00-048 3,402.187 ACRES" on a plat entitled "SUBDIVISION PLAT SHOWING THE SUBDIVISION OF A PORTION OF TMS NO. 21-00-00-048 TO CREATE NEW TRACT "2"- CONTAINING 3,402.187 ACRES OWNED BY MEADWESTVACO FORESTRY, LLC, A DELAWARE LIMITED LIABILITY COMPANY TO BE CONVEYED TO CRESCENT RESOURCES, LLC BERKELEY COUNTY SOUTH CAROLINA", prepared by GPA Professional Land Surveyors, dated March 4, 2005, and recorded in Plat Cabinet Q, Page 353A through 353D and 354A through 354C, in the ROD Office for Berkeley County, reference to which is craved for a more complete description.

EXHIBIT
C

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69-A Hagood Avenue
CHARLESTON, SOUTH CAROLINA 29403-5107

REPLY TO
ATTENTION OF

November 13, 2007

Regulatory Division

Crescent Resources, LLC
c/o Mr. John Roach
400 S. Tryon St., Ste 1300
Charlotte, North Carolina 28201

Dear Mr. Tryon:

This is in response to your application requesting a Department of the Army permit.

Enclosed is your Department of the Army Permit #2006-419-2IG. It authorizes you to perform the work specified on the attached drawings. This permit is issued under the provisions of the Federal laws for the protection and preservation of the navigable waters of the United States.

Please notify this office promptly, in writing, when you start and complete the work. The enclosed cards may be used for that purpose. You should also be aware that a special condition has been included in this permit which requires that a copy of the permit and drawings must be available at the work site during the entire time of construction.

Respectfully,

for Tina B. Hadden
Chief, Regulatory Division

Enclosures

DEPARTMENT OF THE ARMY PERMIT

Permittee: CRESCENT RESOURCES, LLC
c/o MR. JOHN ROACH

400 S. TRYON ST, STE 1300
CHARLOTTE, NC 28201

Permit No: 2006-419-2IG

Issuing Office: CHARLESTON DISTRICT

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:
The work consists of placing fill material in wetlands to create a mixed-use development consisting of residential, commercial, office, light industrial, institutional development, open space, and public use areas to construct a flexible, economically viable, long term, master planned mixed-use community in accordance with the attached drawings entitled: Activity: Community Development; Project: The Parks of Berkeley; Location: Berkeley County, SC: Applicant: Crescent Resources, LLC, 400 South Tryon Street, Ste. 1300, Charlotte, NC 28201-1003. Sheets 1 thru 57 and sheets 59 thru 60 of 61 dated November 29, 2005 and sheets 58 and 61 of 61 revised March 5, 2007.

Project Location:
This project is located on a 3,860.81 acre tract of land adjacent to Sheep Island Road, Berkeley County, South Carolina.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **31 December 2037.** If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

SEE PAGES 4 & 5.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

☒ Section 404 of the Clean Water Act (33 U.S.C. 1344).

☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

John W. Roach — 11.13.07

(PERMITTEE) — (DATE)

CRESCENT RESOURCES, LLC
MR. JOHN ROACH

John W. Roach

PRINT NAME

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

(DISTRICT ENGINEER) — (DATE)

J. RICHARD JORDAN III, LTC
or his Designee
for Tina B. Hadden
Chief, Regulatory Division

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) — (DATE)

A. SPECIAL CONDITIONS FOR PERMIT #: 2006-419-2IG

a. That the permittee agrees to provide all contractors associated with construction of the authorized activity a copy of the permit and drawings. A copy of the permit will be available at the construction site at all times.

b. That the permittee shall submit a signed compliance certification to the Corps within 60 days following completion of the authorized work and any required mitigation. The certification will include:
   1. A copy of this permit;
   2. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;
   3. A statement that any required mitigation was completed in accordance with the permit conditions;
   4. The signature of the permittee certifying the completion of the work and mitigation.

c. That the permittee recognizes that its commitment to perform and implement the following conditions was a deciding factor towards the favorable and timely decision on this permit and that the permittee recognizes that a failure on its part to both actively pursue and implement these conditions may be grounds for modification, suspension or revocation of this Department of the Army authorization.

   1. That as compensatory mitigation for the impacts to aquatic resources, the permittee agrees implement and carry out the mitigation plan entitled "The Parks of Berkeley Phase 2 Compensatory Mitigation Plan, Berkeley County, SC, Revised March 12, 2007", wherein the permittee agrees to preserve 583.20 acres of unaltered wetlands, preserve 106.66-acres of enhanced wetlands, restore and preserve 76.72 acres of wetlands, and preserve 106.66 acres of upland buffers. Preservation shall be by means of either deed restrictive covenants or conservation easement. The covenants or easement documents and surveyed plat of the mitigation area must be submitted to the District Engineer or his designee for review and approval prior to execution. Sample language for restrictive covenants and easement documents are enclosed for your consideration.

   2. That the permittee must submit evidence of execution and recording of the preservation easements or covenants and surveyed plat of the mitigation area to both the Corps of Engineers and DHEC not later than 60 days from the effective date of this authorization, or prior to commencement of the authorized work, whichever is later. Your responsibility to complete the required compensatory mitigation as set forth in this Special Condition will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers.

   3. That the permittee agrees that no work will commence in waters of the United States until stormwater studies have been reviewed and approved by SCDHEC, and, if necessary, Berkeley County and the Town of Summerville. A copy of the approval documents from the state, County, and/or City and a letter from the Professional Engineer (PE) responsible for the stormwater study attesting to the fact that the data substantiates that no increase in flooding will occur as a result of the development will be provided to this office.

4. That the permittee understands and agrees that portions of the project site and the adjacent upstream and downstream properties are located within the 100-year floodplain and are subject to flooding. The permittee must take all necessary measures to ensure that the proposed project will not increase flows on downstream properties or back water onto upstream properties. All flow conveyance structures to be placed in road crossings of wetlands and/or waters of the United States must be designed to accommodate future stormwater flows.

5. That the permittee agrees that all clearing of wetlands associated with the construction and maintenance of boardwalks berms shall be done by selective hand cutting and that use of pesticides/herbicides shall be prohibited.

6. That the permittee understands and agrees that the road alignments shown on the attached permit drawings have been reviewed and approved by this office. Prior to initiating each phase of construction, the permittee must submit appropriate documentation and obtain written authorization from this office for any modification to these road alignments.

7. That the permittee understands and agrees that they have voluntarily provided advance compensatory mitigation for potential modifications to the road alignments. All requests for modification will be evaluated by this office based on their individual merit. Avoidance and minimization must be demonstrated prior to considering compensatory mitigation.

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69-A Hagood Avenue
CHARLESTON, SOUTH CAROLINA 29403-5107

REPLY TO
ATTENTION OF

August 14, 2009

Regulatory Division

Mr. Ken Hance
Newkirk Environmental, Inc.
Post Office Box 746
Mount Pleasant, South Carolina 29465-0746

Dear Mr. Hance:

This is in response to your letter dated January 22, 2009, (with additional information received March 20, 2009, and revised drawings received August 4, 2009), requesting that the permit originally issued to Crescent Resources and subsequently transferred to MeadWestvaco Corporation numbered 2006-419-2IG issued on November 13, 2007, be modified to reflect the changes on the attached drawings (Sheets 1-76 of 76, with sheets 1, 1A, and 62-76 revised June 24, 2009, and sheets 2-61 of 76 dated November 29, 2005). It is noted that the purchase of the Sheep Island Tract (aka The Parks of Berkeley) from Crescent Resources by MeadWestvaco Corporation included the Phase II standard permit area #2006-419-2IG as well as the adjacent Phase I, wherein isolated, non-jurisdictional wetland impacts were previously certified and permitted by the South Carolina Department of Health and Environmental Control (SCDHEC) under their stormwater regulations (#08-05-06-06-NJW).

The impacts currently proposed by MeadWestvaco Corporation include impacts to 0.14 acres of jurisdictional wetland 1-36 and 0.19 acres of jurisdictional wetland 1-2 for a total of 0.33 acres of impacts to jurisdictional wetlands in the former Phase I area for relocation of the access/entrance road. Additional impacts to non-jurisdictional wetlands include an increase in impacts to Phase I non-jurisdictional wetland 1-9 by 0.03 acres for widening of a road. In addition the permittee proposes to remove Phase I non-jurisdictional wetland 1-17 (2.41 acres of wetland and 0.88 acres of upland buffer) from the onsite preservation area from Phase I to provide flexibility in anticipation of future public road infrastructure projects. Finally, the permittee wishes to combine the former Phase I and Phase II areas into one permit area and has provided one complete set of permit drawings for the new permit area. This is requested since the impacts to the Phase I area did not require a Department of the Army permit and as such a SCDHEC permit only was issued for this area. The relocation of the entrance road now requires Department of the Army approval for impacts to 0.33 acres of jurisdictional wetlands that are located in the Phase I area. Mitigation will continue to be provided through the preservation of the remaining 790.28 acres of onsite wetlands enhanced by the preservation of 126.39 acres of upland buffer and the enhancement/restoration of 76.72 acres of onsite wetlands. The primary purpose of the proposed modification is to construct a safer and more efficient access/entrance road that will better serve the longer term traffic needs of the community.

This is to inform you that your request for modification is granted. Please attach this letter with the modified drawings to the original permit. All of the conditions to which the work is made subject remain in full force and effect. It is noted that the South Carolina Department of Health and Environmental Control, has no objections to these changes per their letter dated May 4, 2009.

Respectfully,

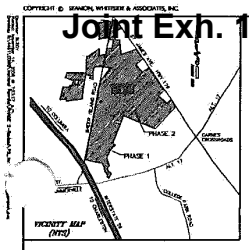
for: Jason A. Kirk, P. E.
Lieutenant Colonel, U.S. Army
Commander and District Engineer

Tina B. Hadden
Chief, Regulatory Division

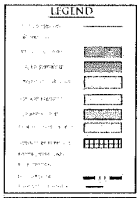
Enclosure

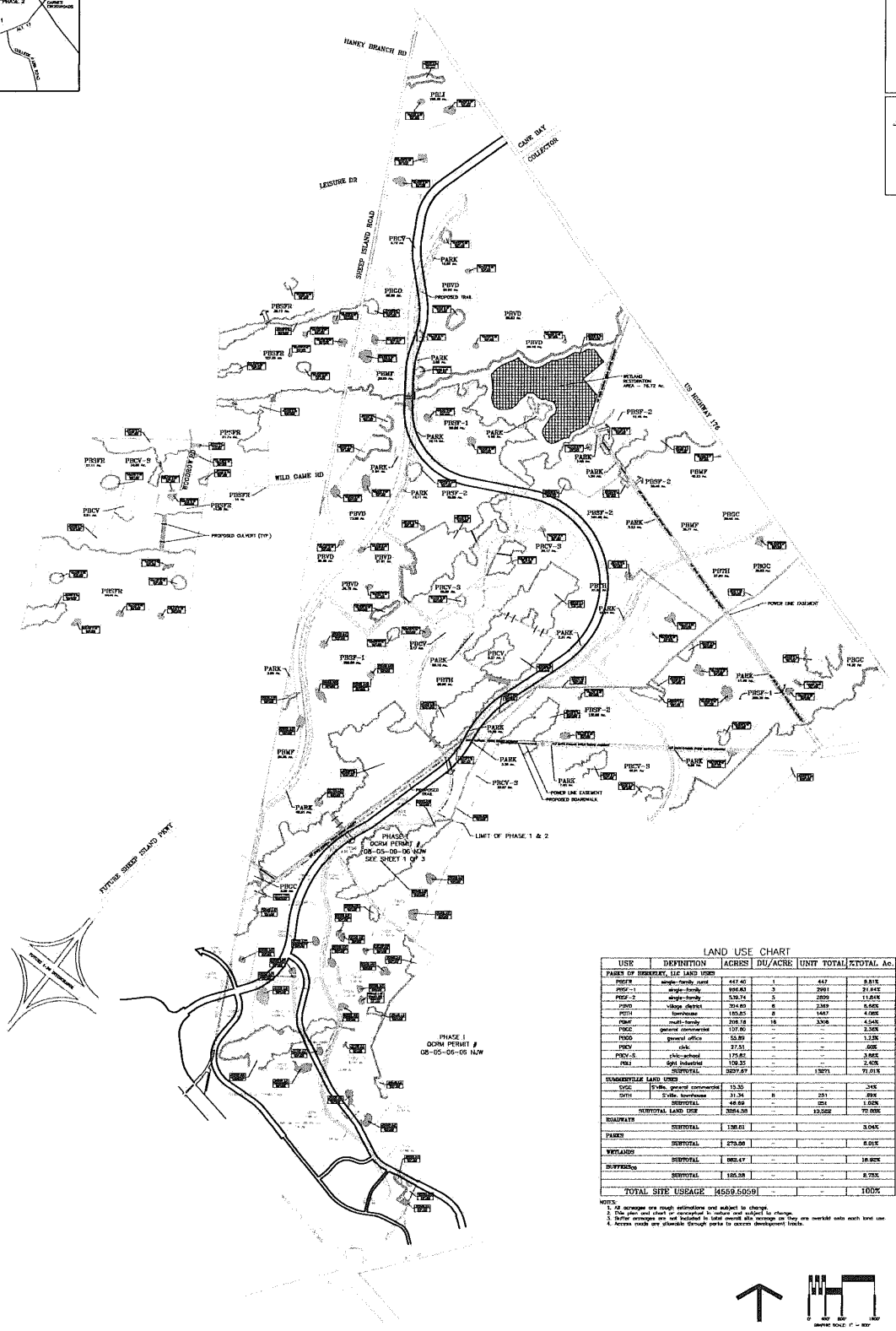
COPYRIGHT © SEAMON, WHITESIDE & ASSOCIATES, INC.
THIS DRAWING SHALL NOT BE REPRODUCED IN ANY MANNER OR USED FOR ANY PURPOSE WITHOUT WRITTEN PERMISSION.

Joint Exh. 1-0153



DISCLAIMER: This plan is preliminary in nature and subject to modification based upon, governmental regulatory input, and refined program data. This plan is for illustrative purposes only.

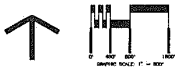




LAND USE CHART

USE	DEFINITION	ACRES	DU/ACRE	UNIT TOTAL	%TOTAL Ac.
PARKS OF BERKELEY, LLC LAND USES					
PRSFR	single-family rural	447.40	1	447	9.81%
PRSF-1	single-family	996.83	3	2991	21.84%
PRSF-2	single-family	539.74	5	2699	11.81%
PRVD	village district	304.89	8	2349	6.68%
PRTH	townhouse	185.85	8	1487	4.08%
PRMF	multi-family	208.78	16	3308	4.54%
PRGC	general commercial	107.80	--	--	2.36%
PRGO	general office	55.89	--	--	1.23%
PRCV	civic	27.55	--	--	.60%
PRCV-S	civic-school	175.82	--	--	3.86%
PRLI	light industrial	109.35	--	--	2.40%
	SUBTOTAL	3237.67	--	13271	71.01%
SUMMERVILLE LAND USES					
SVGC	S'ville, general commercial	15.35	--	--	.34%
SVTH	S'ville, townhouse	31.34	8	251	.69%
	SUBTOTAL	46.69	--	251	1.02%
SUBTOTAL LAND USE		3284.36	--	13522	72.03%
ROADWAYS					
	SUBTOTAL	138.61	--	--	3.04%
PARKS					
	SUBTOTAL	273.56	--	--	6.01%
WETLANDS					
	SUBTOTAL	862.47	--	--	18.92%
BUFFERS(1)					
	SUBTOTAL	185.58	--	--	4.75%
TOTAL SITE USEAGE		4559.5059	--	--	100%

NOTES:
1. All acreages are rough estimations and subject to change.
2. This plan and chart or conceptual in nature and subject to change.
3. Buffer acreages are not included in total overall site acreage as they are overlaid onto each land use.
4. Access roads are allowable through parks to access development tracts.



SHEET 01 OF 01

NO.	DATE	REVISION NOTES	BY
A	12.15.05	CHANGES PER PRE-APPLICATION SITE VISIT COMMENTS	RHP
B	01.11.06	MODIFICATIONS TO PHASE 1 PERMIT PLAN	X
A	X	X	X
A	X	X	X
A	X	X	X
A	X	X	X

PROJECT MGR. RHP
DRAWN BY MAS
DATE 11/18/05

THE PARKS OF BERKELEY
PHASE 2 PERMITTED PLAN AND PHASE 1 PROPOSED MODIFICATIONS
MEADWESTVACO CORPORATION
BERKELEY COUNTY, SOUTH CAROLINA

SEAMON, WHITESIDE & ASSOCIATES, INC
Mount Pleasant, SC
Greenville, SC

DHEC CON 000153

Attachment E:
Letter of Intent to Transfer Land Ownership

NASH – NEXTON HOLDINGS, LLC
13777 Ballantyne Corporate Place
Suite 250
Charlotte, NC 28277-3427

December 22, 2017

Lisa M. Goodlett
Chief Financial Officer
Medical University Hospital Authority
169 Ashley Ave.
Charleston, SC 29425

RE: Letter of Intent to purchase approximately +/- 40.00 acres of land located within Nexton in Berkeley County, South Carolina identified as TMS No. 195-00-00-046

Dear Ms. Goodlett:

This letter of intent (this "**LOI**") constitutes an expression of the parties' interest in purchasing and selling the Property (defined below) on the general terms and conditions described herein. It will also serve as the basis for negotiating a definitive purchase and sale agreement for the purchase and sale of the Property (the "**Purchase Agreement**"). This LOI supersedes all prior oral and written proposals between the parties. The proposed terms and conditions for the purchase and sale of the Property are as follows:

1. Seller: NASH – NEXTON HOLDINGS, LLC ("**Seller**").

2. Buyer: Medical University Hospital Authority ("**Buyer**"), or its assignee subject to the consent of Seller, which consent will not be unreasonably withheld.

3. Property: Approximately, 40.00 developable acres of land located in Nexton in Berkeley County, South Carolina as shown on Exhibit A attached hereto, together with any and all rights and appurtenances of Seller pertaining thereto (but without warranty as to any such rights and appurtenances, whether statutory, express or implied), including existing development approvals and permits, to the extent assignable (the "**Property**"). The Purchase Agreement will, among other provisions typically included in Seller's transactions, provide for a site plan approval process between Seller and Buyer and will, among other things, provide for any necessary cross-easements for parking, access, ingress, egress, landscaping, storm water, utilities and the like. The Property shall be sold and conveyed to Buyer subject to the Restrictions and any other Permitted Encumbrances (each as defined below that may be applicable to the Property.

4. Site Condition: Buyer intends to develop and use the Property for (and as) a hospital and associated medical office space, and such uses as are incidental thereto (the "**Intended Use**"). All utilities required for Buyer's Intended Use shall be supplied by Seller to the edge of the Property. Additionally, the delivered Property shall include all off-site road improvements (the "**Current Improvement Obligations**") expressly included in the current Traffic Improvement Analysis approved by Berkeley County; provided, that, in connection with Buyer's due diligence during the Inspection Period, Buyer shall obtain its own Traffic Improvement Analysis with respect to Buyer's Intended Use of the Property, and, to the extent any off-site road

improvements other than the Current Improvement Obligations are contemplated therein (any "**Additional Road Improvements**") for the Intended Use, then the Additional Road Improvements will be subject to installation at Buyer's sole cost and expense. The Property will be subdivided (if the Property is not already a separate lot) and available for Buyer's construction work prior to March 1, 2018. All off-site improvement obligations, if any, to be performed by Seller not completed prior to Closing, including stubs for water and sewer services, will be secured by Seller in the form of a bond or letter of credit in an amount equal to the Seller's site contractor's estimated construction costs for the defined improvements.

5. Purchase Price: The purchase price (the "**Purchase Price**") for the Property shall be as follows:

   (a) Option #1 Purchase Price: If Buyer is responsible for all the required offsite improvements, then the Purchase Price shall be EIGHT MILLION TWENTY THOUSAND DOLLARS ($8,200,000.00), which is based on TWO HUNDRED FIVE THOUSAND DOLLARS ($205,000.00) per acre of land times the acreage to be acquired by Buyer (the "**Option #1 Purchase Price**"); or

   (b) Option #2 Purchase Price: If Seller is responsible for all the required offsite improvements, then the Purchase Price shall be TEN MILLION DOLLARS ($10,000,000.00), which is based on TWO HUNDRED FIVE THOUSAND DOLLARS ($250,000.00) per acre of land times the acreage to be acquired by Buyer (the "**Option #2 Purchase Price**"). Any such required offsite improvements shall be mutually agreed upon by both Buyer and Seller and set forth in the Purchase Agreement.

   During the negotiation of the Purchase Agreement (and prior to the execution thereof by the parties), Buyer and Seller shall agree upon which of the aforesaid two (2) Purchase Price options shall be applicable and the agreed upon Purchase Price (i.e., either the Option #1 Purchase Price or the Option #2 Purchase Price) shall be set forth and contained in the Purchase Agreement.

   The Purchase Price shall be paid by Buyer to Seller upon Buyer's closing on the Property in cash by wire transfer of immediately available federal funds, less credited deposit(s) as described below.

6. Purchase and Sale Agreement: Upon Buyer's execution and delivery of this LOI to Seller, Seller will instruct its attorneys to prepare a draft of the proposed Purchase Agreement and deliver same to Buyer within fifteen (15) business days after Buyer's execution and delivery of this LOI to Seller, or as soon thereafter as reasonably possible. The parties contemplate that the Purchase Agreement will be finalized, executed and delivered by both parties within a thirty (30) day period from the date the initial draft thereof is delivered to Buyer. Unless otherwise specifically provided for to the contrary in the Purchase Agreement, the Purchase Agreement will provide that the Property will be sold in its "AS IS, WHERE IS" CONDITION "WITH ALL FAULTS" without representation or warranty by Seller, as more particularly described in Section 19 below.

7. Inspection Period:

   (c) Within five (5) business days of the mutual execution of the Purchase Agreement by both Buyer and Seller, Seller shall provide Buyer with all of the following to the extent such documents exist and are in Seller's possession (i) Seller's most current ALTA Survey of the Property, (ii) a current title report for the Property, together with copies of all documents affecting title to the Property disclosed therein, (iii) the most recent real estate tax and other operating costs for the Property, (iv) governmental approvals, (v)

geotechnical, architectural, and engineering reports, (vi) any studies/reports in the possession of Seller relating to the presence (or absence) of hazardous/toxic materials (including asbestos) at the Property, (vii) a list of all actions, suits, and legal or administrative proceeding affecting the Property and (viii) other documents relating to the Property as Buyer may reasonably request (collectively, the "**Seller Provided Due Diligence Materials**").

(d) The Purchase Agreement shall provide Buyer with a one hundred and sixty (160) day inspection period, upon its execution, to approve or disapprove the Property, in its sole and absolute discretion (the "**Inspection Period**"). Buyer shall have the right to extend the Inspection Period for one period of thirty (30) days by delivering written notice to Seller prior to the then scheduled expiration of the Inspection Period along with an Inspection Period extension fee of TWO HUNDRED FIFTY THOUSAND DOLLARS ($250,000.00) (the "**Inspection Period Extension Fee**"), which fee shall be delivered, in cash by wire transfer of immediately available federal funds, to Escrow Agent (defined below) prior to such expiration. The Inspection Period Extension Fee shall be deemed additional Earnest Money (defined below) and become a part of the Earnest Money and shall be distributed as Earnest Money in accordance with the terms of the Purchase Agreement.

(e) During the Inspection Period, Buyer shall have the right to conduct physical, engineering, environmental, soil and other feasibility studies inspections and to cause one or more engineers or other representatives of Buyer to physically inspect the Property without interfering with Seller's use or operation of the Property to satisfy itself that the condition of the Property is acceptable to Buyer. All inspection fees, appraisal fees, engineering fees and other expenses of any kind incurred by Buyer relating to the inspection of the Property will be solely Buyer's expense. During the Inspection Period, Buyer and its agents shall have the right to enter onto the Property for the purpose of conducting the foregoing inspections and studies after providing to Seller at least twenty-four (24) hours' prior written notice; provided, however, and notwithstanding the foregoing, Buyer and its agents shall not have the right to conduct any subsurface or invasive testing (e.g., borings, drilling, soil/water sampling, etc.) on the Property, including, without limitation, any so-called "Phase II" environmental testing, without first obtaining Seller's written consent (and providing Seller at least seventy-two (72) hours' prior written notice), which consent may be withheld in Seller's sole discretion and shall be subject to any terms and conditions imposed by Seller in its sole discretion. In the event Buyer fails to obtain Seller's written consent prior to any invasive testing, Buyer shall be fully responsible and liable for all costs of remediation, including, but not limited to, costs for disposal of materials that may be discovered during any invasive testing. Seller shall have the right to have a representative present during any inspections of the Property. Buyer shall pay all expenses incurred or caused to be incurred by Buyer in connection with any inspections and/or testing, including, without limitation, all expenses incurred to comply with applicable laws. Prior to Closing Date, Seller shall cooperate with Buyer in all reasonable respects in making any further inspections, provided, however, that the results of such inspections shall not alleviate Buyer from its obligation to purchase. Seller shall cooperate in providing any deliverables which Seller has committed to provide under the Purchase Agreement. In making any inspection, Buyer will treat, and will cause any representative of Buyer to treat, all information obtained by Buyer pursuant to the terms of this Agreement as strictly confidential. Buyer may, however, disclose all reports, information and other due diligence materials obtained by Buyer to Buyer's proposed lenders, investors, contractors, consultants, engineers and attorneys and to any

governmental agency, utility district or other political subdivision with jurisdiction over the Property, if necessary or required to obtain an approval, permit, license or entitlement from such agency, district or subdivision. Buyer agrees to supply Seller with legible copies of any and all due diligence materials prepared or acquired by Buyer as part of its inspections upon request for the same by Seller. Buyer agrees that upon completion of its inspections, it shall repair and restore the Property to substantially the same condition that existed prior to commencement of such inspections.

(f) If, during the Inspection Period, Buyer is not satisfied as to any of the above items or any other item related to the Property, Buyer shall have the right to terminate the Purchase Agreement by giving written notice of such termination to Seller no later than 5:00 p.m. Eastern Time on the last day of the Inspection Period, and, upon such termination, the Inspection Period Extension Fee and the other Earnest Money shall be disbursed in accordance with Section 8 below. Failure of Buyer to notify Seller in writing of Buyer's election to terminate the Purchase Agreement on or before 5:00 p.m. Eastern Time on the last day of the Inspection Period, shall be deemed Buyer's approval of the transaction.

8. Earnest Money: Within five (5) business days of the mutual execution of the Purchase Agreement by both Buyer and Seller, Buyer will deposit with Seller's attorneys, Nexsen Pruet, LLC ("**Escrow Agent**"), as escrow agent, in cash by wire transfer of immediately available federal funds, an earnest money deposit in the amount of TWO HUNDRED AND FIFTY THOUSAND DOLLARS ($250,000.00)(the "**Initial Deposit**"). Upon expiration of the Inspection Period, Buyer will deposit with Escrow Agent, in cash by wire transfer of immediately available federal funds, an additional earnest money deposit in the amount of TWO HUNDRED FIFTY THOUSAND DOLLARS (the "**Additional Deposit**")(the Initial Deposit and the Additional Deposit, together with the Inspection Period Extension Fee, if any, and, together any and all interest accruing on such sums, being collectively referred to herein as the "**Earnest Money**"),

If the Purchase Agreement is terminated pursuant to any of the terms thereof, or if the transaction fails to close for any reason other than by reason of a default on the part of Buyer, or if a contingency or condition set forth in the Purchase Agreement for the benefit of Buyer is not satisfied or removed, the Earnest Money shall be delivered by the Escrow Agent to Buyer. If the transaction fails to close due to a default on the part of Buyer, the Earnest Money shall be delivered by the Escrow Agent to Seller as its sole and exclusive remedy, as more particularly provided for in the default section of the Purchase Agreement. If the sale of the Property is consummated in accordance with the terms hereof, the Earnest Money shall be applied to the Purchase Price. If the Purchase Agreement is terminated by Buyer in accordance with Buyer's right to do so under the terms of the Purchase Agreement, One Hundred Dollars ($100.00) of the Earnest Money shall be paid to Seller as consideration for the execution of the Purchase Agreement and Buyer's right to terminate the Purchase Agreement as provided therein and the balance of the Earnest Money shall be returned to Buyer upon satisfaction of the conditions set forth in the following paragraph of this Section 8.

Notwithstanding anything contained in this LOI to the contrary, as a condition precedent to Buyer's entitlement to the Earnest Money under the above provisions, Buyer shall (i) execute and deliver to Seller a release in the form to be attached to the Purchase Agreement, (ii) return all of the Seller Provided Due Diligence Materials to Seller and (iii) deliver to Seller all of the materials described in Section 7(e) above.

9. Conditions to Close: The following shall be the sole conditions to Buyer's obligation to close on the contemplated transaction (collectively, the "**Conditions to Close**"):

(a) Buyer and Seller shall have mutually agreed upon the preliminary site plan for Buyer's intended development of the Property (the "**Approved Preliminary Site Plan**").

(b) If the Property is not already a separate lot, then Seller shall have obtained approval of a subdivision plat of the Property (the "**Final Plat**") in accordance with the requirements of the applicable government agencies as a separate lot as reflected on the Approved Preliminary Site Plan.

(c) Buyer shall have obtained a recommendation of approval of a site plan by the applicable government agencies for the development of the Property in accordance with the Approved Preliminary Site Plan, the Restrictions (defined herein), the Permitted Encumbrances (defined herein), the Final Plat and the requirements of the applicable government agencies.

It is acknowledged that other permits and approvals are required to be obtained from various governmental and quasi-governmental authorities for the construction of the Buyer's proposed improvements on the Property. At any time after the effective date of the Purchase Agreement, Buyer shall be entitled to make such applications for such other permits and approvals as Buyer may determine; provided, however, obtaining any such other permits and approvals shall not be conditions for Buyer's obligation to purchase the Property, and all of such other permits and approvals shall be effective only upon, and shall be subject to, Buyer's acquisition of the Property. Buyer shall be responsible for, and shall pay, all of the costs, fees, and expenses with respect to the preparation, filing and processing of any such other applications for the construction of the Buyer Improvements. Seller shall cooperate with Buyer in connection with such applications and approvals, and shall execute such documents as may be necessary in connection with such applications subject to the provisions hereof; provided, however, Seller shall incur no cost, expense or liability with respect to such cooperation, and Buyer shall not obligate or impose any encumbrance, obligation or liability upon Seller or any of the Property (except as and to the extent Seller may, in its sole discretion, hereafter expressly agree in writing).

10. Closing: The closing of the purchase and sale transaction (the "**Closing**") shall occur on the date that is thirty (30) days after the expiration of the Inspection Period (the "**Closing Date**").

11. Closing Costs: Seller shall pay for the costs of preparation of the Deed (defined below) and any and all fees (a/k/a deed stamps) required to record the Deed pursuant to Sections 12-24-10 through 12-24-160 of the Code of Laws of South Carolina 1976, as amended. Buyer shall pay the cost of any title insurance commitment or policies, the cost of a title search or abstract of the Property and other title related costs, all fees required to record the Deed (other than deed stamps), and any and all costs and expenses related to its due diligence activities and investigations. Each party shall pay its own legal fees and other closing costs per customary arrangement in the State of South Carolina.

12. Credits and Prorations. The Purchase Agreement shall contain customary prorations with respect to real estate taxes and any and all items customarily prorated between the parties in transactions of this size and type in the State of South Carolina.

13. Rollback Taxes: Each of Buyer and Seller shall be responsible for paying a portion of any rollback taxes assessed against the Property under the rollback provisions of Section 12-43-220(d)(4) of the Code of Laws of South Carolina 1976, as amended, in proportion to the amount of time each of Seller and Buyer has owned/shall own the Property divided by the total amount of time for which roll-back taxes are due and payable. The Purchase Agreement shall provide that,

at Closing, Seller will escrow with Purchaser's attorney the sum which is One Hundred Twenty Percent (120%) of the Berkeley County rollback tax estimate for the Property attributable to the five (5) calendar years prior to the year in which Closing occurs pursuant to terms of a separate rollback tax escrow agreement (the "**Rollback Tax Escrow Agreement**") to be signed at Closing, which Rollback Tax Escrow Agreement shall be (i) in a form mutually agreed upon by Purchaser and Seller during the negotiation of the Purchase Agreement and attached as an exhibit to the Purchase Agreement, and (ii) executed by Buyer and Seller at Closing.

14. Title: At Closing, Seller shall execute and deliver to Buyer a special warranty deed (the "**Deed**") for the Property, subject to the Restrictions and the other permitted encumbrances ("**Permitted Encumbrances**") to be described in the Purchase Agreement.

15. Governing Documents and Other Restrictions: Buyer acknowledges that the Property will be controlled by, and shall be sold and conveyed to Buyer subject to, the following covenants, conditions, restrictions, reservations, easements, instruments and other matters (collectively, the "**Restrictions**"):

    (a) The Property shall be conveyed to Buyer subject to the restrictive covenant that the Property shall be used only for (1) the Intended Use and (2) such other purposes, if any, as may be permitted and consented to in writing by Seller (which permission and consent will not be unreasonably withheld) (the "**Restrictive Covenant**"). The Restrictive Covenant shall continue in full force and effect for a period of ten (10) years, commencing on the date of Closing and ending on the date which is ten (10) years after the date of Closing. The Restrictive Covenant shall run with the land, shall be binding on Buyer, its successors and assigns, and all successors in title to the Property and shall apply to any use of the Property by any party, including, but not limited to, Buyer, its successors and assigns, all successors in title to the Property, any tenant, licensee or other party occupying the Property;

    (b) The Declaration of Easements and Covenant to Share Costs for Nexton, dated January 18, 2013 and recorded on January 18, 2013, in the Office of the Register of Deeds for Berkeley County, South Carolina, in Book 9906 at Page 285, as now or hereafter modified, amended and/or supplemented;

    (c) The Charter for Nexton Commercial Properties, dated January 18, 2013, and recorded on January 18, 2013, in the Office of the Register of Deeds for Berkeley County, South Carolina, in Book 9906 at Page 171, as now or hereafter modified, amended and/or supplemented (collectively, the "**Charter**");

    (d) The Articles of Incorporation and By-Laws of NEXTON COMMERCIAL ASSOCIATION, INC., a South Carolina non-profit corporation, as now or hereafter modified, amended and/or supplemented;

    (e) The design guidelines referenced in the Charter, as now or hereafter modified, amended and/or supplemented;

    (f) The Development Agreement by and between MWV-Sheep Island, LLC, MWV-Parks of Berkeley, LLC, MWV Community Development and Land Management, LLC, and the Town of Summerville, South Carolina, dated April 27, 2011, and recorded April 28, 2011, in Book 8913, Page 1, in the Office of the Register of Deeds for Berkeley County, South Carolina, as now or hereafter modified, amended and/or supplemented;

(g) The Nexton Development Agreement (formerly known as The Parks of Berkeley Development Agreement) by and between MWV-Parks of Berkeley, LLC and Berkeley County, dated April 3, 2006, and recorded April 21, 2006, in Book 5549, Page 1, in the Office of the Register of Deeds for Berkeley County, South Carolina, as now or hereafter modified, amended and/or supplemented; and

(h) The Master Agreement by and between MWV-Parks of Berkeley, LLC, NEXTIP, LLC and Berkeley Cable Television Company, Inc. dated December 18, 2013 as evidenced by that certain Memorandum of Master Agreement recorded in the Office of the Register of Deeds of Berkeley County, SC on September 29, 2015, at Volume 2026, Page 411 (the "Master Technology Agreement").

The foregoing notwithstanding, Seller acknowledges that, as of the date of this LOI, Buyer has not reviewed the Restrictions or other governing documents for Nexton. Buyer reserves the right, upon reviewing the same, to require mutually agreeable additional or differing language in the final Purchase Agreement in order to address concerns raised by the Restrictions.

16. Financing Contingency: None.

17. Commission: Broker fees, real estate commissions or finder's fees associated with this purchase, shall be subject to the terms of a separate written agreement.

18. Construction Timing: Buyer acknowledges that its intent is not to hold the Property for any period of time extending beyond two (2) years after Closing and to commence construction within that time frame. The Purchase Agreement will provide for construction commencement within eighteen (18) months and an opening deadline of a maximum of three (3) years from Closing. Seller shall have a repurchase right and/or right of first refusal in the event of Buyer's failure to meet either deadline.

19. Disclaimer:

BUYER HEREBY ACKNOWLEDGES TO AND AGREES WITH SELLER THAT BUYER IS PURCHASING THE PROPERTY (AND THE PROPERTY IS BEING CONVEYED TO BUYER) IN ITS "AS IS, WHERE IS" CONDITION "WITH ALL FAULTS", AS SET FORTH BELOW AND WHICH LANGUAGE SHALL BE REFLECTED IN THE DEED.

BUYER HEREBY ACKNOWLEDGES TO AND AGREES WITH SELLER THAT BUYER SHALL NOT BE ENTITLED TO, AND SHALL NOT, RELY ON SELLER, ITS AGENTS, EMPLOYEES OR REPRESENTATIVES, AND, EXCEPT AS EXPRESSLY SET FORTH IN THE PURCHASE AGREEMENT, SELLER HAS NOT MADE, DOES NOT MAKE, AND HEREBY SPECIFICALLY NEGATES AND DISCLAIMS ANY REPRESENTATIONS, WARRANTIES, PROMISES, COVENANTS, AGREEMENTS OR GUARANTIES OF ANY KIND OR CHARACTER WHATSOEVER, WHETHER EXPRESS OR IMPLIED, ORAL OR WRITTEN, WHETHER UNDER COMMON LAW, BY STATUTE, OR OTHERWISE, OF, AS TO, CONCERNING, OR WITH RESPECT TO (I) THE QUALITY, NATURE, ADEQUACY OR PHYSICAL CONDITION OF THE PROPERTY INCLUDING, BUT NOT LIMITED TO, ANY STRUCTURAL ELEMENTS, FOUNDATION, ACCESS, LANDSCAPING, SEWAGE OR UTILITY SYSTEMS AT THE PROPERTY, IF ANY; (II) THE QUALITY, NATURE, ADEQUACY OR PHYSICAL CONDITION OF SOILS AND GROUND WATER OR THE EXISTENCE OF GROUND WATER AT THE PROPERTY; (III) THE EXISTENCE, QUALITY, NATURE, ADEQUACY OR PHYSICAL CONDITION OF ANY UTILITIES

SERVING THE PROPERTY; (IV) THE DEVELOPMENT POTENTIAL OF THE PROPERTY, ITS VALUE, ITS PROFITABILITY, ITS HABITABILITY, MERCHANTABILITY OR FITNESS, SUITABILITY OR ADEQUACY OF THE PROPERTY FOR ANY PARTICULAR PURPOSE; (V) THE ZONING OR OTHER LEGAL STATUS OF THE PROPERTY; (VI) THE COMPLIANCE OF THE PROPERTY OR ITS OPERATIONS WITH ANY APPLICABLE CODE, STATUTE, LAW, ORDINANCE, RULE, REGULATION, COVENANT, PERMIT, AUTHORIZATION, STANDARD, CONDITION OR RESTRICTION OF ANY GOVERNMENTAL OR REGULATORY AUTHORITY; (VII) THE QUALITY OF ANY LABOR OR MATERIALS RELATING IN ANY WAY TO THE PROPERTY; (VIII) THE SQUARE FOOTAGE OR ACREAGE OF THE PROPERTY; (IX) THE OPERATION OF THE PROPERTY FROM THE DATE HEREOF UNTIL THE CLOSING; (X) THE PRESENCE ON, IN, UNDER OR NEAR THE PROPERTY OF (INCLUDING WITHOUT LIMITATION ANY RESULTANT OBLIGATION UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT ("CERCLA") 42 U.S.C. § 9601 et seq. AND THE RULES AND REGULATIONS PROMULGATED THEREUNDER ("CERCLA"), THE RESOURCE CONSERVATION AND RECOVERY ACT ("RCRA"), 42 U.S.C. § 6973 et seq., ANY STATE STATUTE OR REGULATION, OR OTHERWISE, TO REMOVE, REMEDIATE OR RESPOND TO) ASBESTOS CONTAINING MATERIAL, RADON, UREA FORMALDEHYDE OR ANY OTHER TOXIC, HAZARDOUS OR OTHERWISE REGULATED WASTE, SUBSTANCE, CHEMICAL, POLLUTANT OR CONTAMINANT; (XI) COMPLIANCE OF THE PROPERTY, OR COMPLIANCE OF PAST OWNERS AND OPERATORS OF THE PROPERTY, IN REGARD TO ANY PAST, PRESENT AND FUTURE FEDERAL, STATE AND LOCAL ENVIRONMENTAL PROTECTION, POLLUTION CONTROL, POLLUTION CLEANUP, AND CORRECTIVE ACTION LAWS, RULES, REGULATIONS, ORDERS, AND REQUIREMENTS (INCLUDING WITHOUT LIMITATION CERCLA, RCRA, AND OTHERS PERTAINING TO THE USE, HANDLING, GENERATION, TREATMENT, STORAGE, RELEASE, DISPOSAL, REMOVAL, REMEDIATION OR RESPONSE TO, OR NOTIFICATION OF GOVERNMENTAL ENTITIES CONCERNING, TOXIC, HAZARDOUS, OR OTHERWISE REGULATED WASTES, SUBSTANCES, CHEMICALS, POLLUTANTS OR CONTAMINANTS), OR LAND USE LAWS, RULES, REGULATIONS, ORDERS OR REQUIREMENTS, AND (XII) ANY OTHER STATE OF FACTS WHICH EXIST WITH RESPECT TO THE PROPERTY. SPECIFICALLY, BUT NOT IN LIMITATION OF THE FOREGOING, BUYER FURTHER ACKNOWLEDGES AND AGREES THAT SELLER HAS NOT MADE, DOES NOT MAKE AND SPECIFICALLY NEGATES AND DISCLAIMS ANY REPRESENTATIONS OR WARRANTIES REGARDING COMPLIANCE OF THE PROPERTY WITH ANY ENVIRONMENTAL PROTECTION, POLLUTION OR LAND USE LAWS, RULES, REGULATIONS, ORDERS OR REQUIREMENTS, INCLUDING, WITHOUT LIMITATION, THOSE PERTAINING TO SOLID WASTE, AS DEFINED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY REGULATIONS AT 40 C.F.R., PART 261, OR THE DISPOSAL OR EXISTENCE, IN OR ON THE PROPERTY, OF ANY HAZARDOUS SUBSTANCES, AS DEFINED BY THE COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT OF 1980, AS AMENDED, AND THE REGULATIONS PROMULGATED THEREUNDER.

BUYER SHALL RELY SOLELY ON ITS OWN INVESTIGATION OF THE PROPERTY AND NOT ON ANY INFORMATION PROVIDED OR TO BE PROVIDED BY SELLER, ITS AGENTS OR CONTRACTORS PRIOR TO OR AFTER THE EXECUTION OF THIS LOI. SELLER SHALL NOT BE LIABLE OR BOUND IN ANY MANNER BY ANY VERBAL OR WRITTEN STATEMENTS, REPRESENTATIONS OR INFORMATION PERTAINING TO THE PROPERTY OR THE OPERATION THEREOF, FURNISHED BY ANY PARTY

PURPORTING TO ACT ON BEHALF OF SELLER WHETHER MADE PRIOR TO OR AFTER THE EXECUTION OF THIS LOI. NOTHING IN THIS SECTION 19 SHALL NEGATE THE LIMITED WARRANTY OF TITLE SET FORTH IN THE DEED OR ANY EXPRESS REPRESENTATION OF SELLER SET FORTH IN THE PURCHASE AGREEMENT.

BUYER ACKNOWLEDGES THAT BUYER SHALL NOT RELY, AND IS NOT RELYING, UPON ANY INFORMATION, DOCUMENT, SALES BROCHURES OR OTHER LITERATURE, MAPS, SKETCHES, DRAWINGS, PLANS, PROJECTION, PROFORMA, STATEMENT, REPRESENTATION, GUARANTEE OR WARRANTY (WHETHER EXPRESS OR IMPLIED, ORAL OR WRITTEN, MATERIAL OR IMMATERIAL) THAT MAY HAVE BEEN GIVEN BY OR MADE BY OR ON BEHALF OF SELLER.

BUYER ACKNOWLEDGES THAT BY THE END OF THE INSPECTION PERIOD, BUYER WILL HAVE HAD AN ADEQUATE OPPORTUNITY TO MAKE SUCH LEGAL, FACTUAL AND OTHER INQUIRIES AND INVESTIGATIONS AS BUYER DEEMS NECESSARY, DESIRABLE OR APPROPRIATE WITH RESPECT TO THE PROPERTY. SUCH INQUIRIES AND INVESTIGATIONS OF BUYER SHALL BE DEEMED TO INCLUDE AN ENVIRONMENTAL AUDIT OF THE PROPERTY, AN INSPECTION OF THE PHYSICAL COMPONENTS AND GENERAL CONDITION OF ALL PORTIONS OF THE PROPERTY, SUCH STATE OF FACTS AS AN ACCURATE SURVEY AND INSPECTION WOULD SHOW, THE PRESENT AND FUTURE ZONING AND LAND USE ORDINANCES, RESOLUTIONS AND REGULATIONS OF THE CITY, COUNTY AND STATE WHERE THE PROPERTY IS LOCATED AND THE VALUE AND MARKETABILITY OF THE PROPERTY. THIS SECTION 19 AND ALL OF ITS PROVISIONS SHALL SURVIVE CLOSING.

20. Confidentiality: Except as required by law, the terms of this LOI and the proposed transaction will be kept strictly confidential by both parties; provided, however, that either party may disclose such terms to its employees, officers, shareholders, financial advisors, consultants, partners, affiliates, lenders, investors, and attorneys who need to know such terms for purposes of evaluating the proposed transaction.

21. Non-Binding Letter: Except for Sections 20 and 21 of this LOI, which shall be binding on the parties, this is a letter of interest only and shall be non-binding on the parties, and nothing in this LOI should be construed as a binding Seller to sell the Property to Buyer, or create any rights in favor of Buyer or Seller or any third party. Either party may terminate negotiations and this LOI without penalty at any time, for any reason by delivering written notice to the other party hereto. This LOI does not address all matters upon which agreement must be reached in order for the proposed transaction to be consummated. The parties hereto acknowledge and agree that the Purchase Agreement shall contain other material terms as may be acceptable to the parties which are not included in this LOI. Seller shall have no obligation to sell the Property or, except as aforesaid, any other obligation with respect to the matters set forth in this LOI until such time as Buyer and Seller have entered into the Purchase Agreement with terms mutually acceptable to Seller and Buyer in their respective, sole and absolute discretion.

The foregoing terms notwithstanding, Seller acknowledges that Buyer's ability to construct the proposed project will require, among other things, the issuance of a Certificate of Need from the South Carolina Department of Health and Environmental Control ("**CON**"). As the final Purchase Agreement is negotiated, the Buyer will identify concerns related to the timing and ultimate issuance of the CON. It is anticipated that additional terms may be included in the final Purchase Agreement to address impacts of

delays in the issuance of the CON, as well as terms to address the possibility that a CON is never issued (to include potential adjustments for the closing and construction timelines and exit strategies in the event the CON is not issued).

If the foregoing outline of basic terms and conditions is acceptable to Buyer as a basis for exclusive negotiations, we request that Buyer so acknowledge by signing and returning the enclosed copy of the letter within five (5) business days of its submission. If Buyer does not execute this LOI within five (5) business days of its submission, this LOI shall automatically expire.

Each individual and entity executing this LOI hereby represents and warrants that he, she or it has the capacity set forth on the signature pages hereof with full power and authority to bind the party on whose behalf he, she or it is executing this LOI to the terms hereof.

Thank you for your time and consideration, and we look forward to consummating this transaction.

Sincerely,

NASH – NEXTON HOLDINGS, LLC,
a Delaware limited liability company

By: NEWLAND REAL ESTATE GROUP, LLC,
a Delaware limited liability company
Its: Development Manager

By: _____
Name: J. Brent Gibadlo
Title: Asst. Vice President

Enclosure (Exhibit A)

cc: Bill Mumford
Dan Klausner

ACCEPTED AND AGREED TO THIS 22nd DAY OF December, 2017.

BUYER:

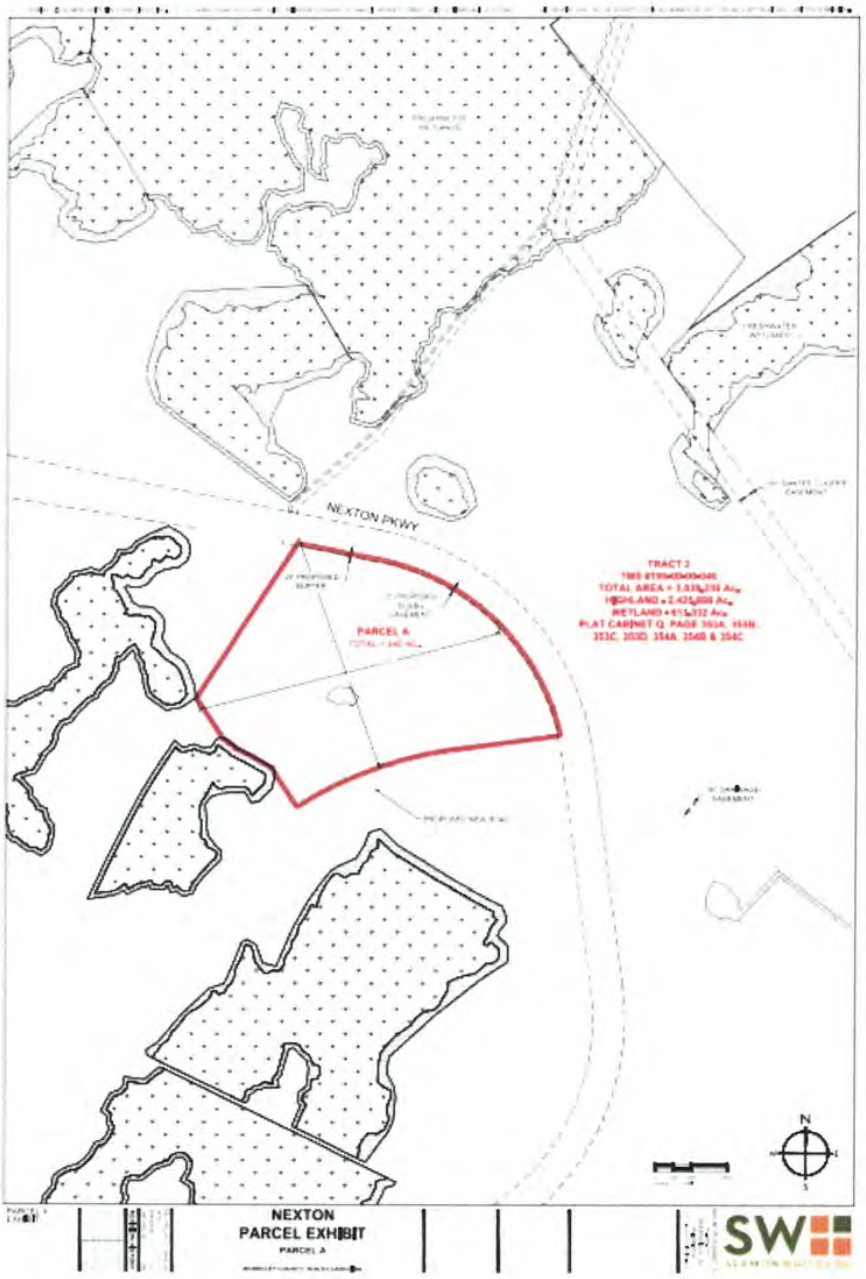
MEDICAL UNIVERSITY HOSPITAL AUTHORITY

By: _____
Name (Print): Patrick J Cawley, MD
Title: CEO, MUSC Health

OFFICE OF THE
GENERAL COUNSEL
MUSC/MUHA
-APPROVED AS TO FORM
BY: _____
DATE: 12/22/17

EXHIBIT "A"

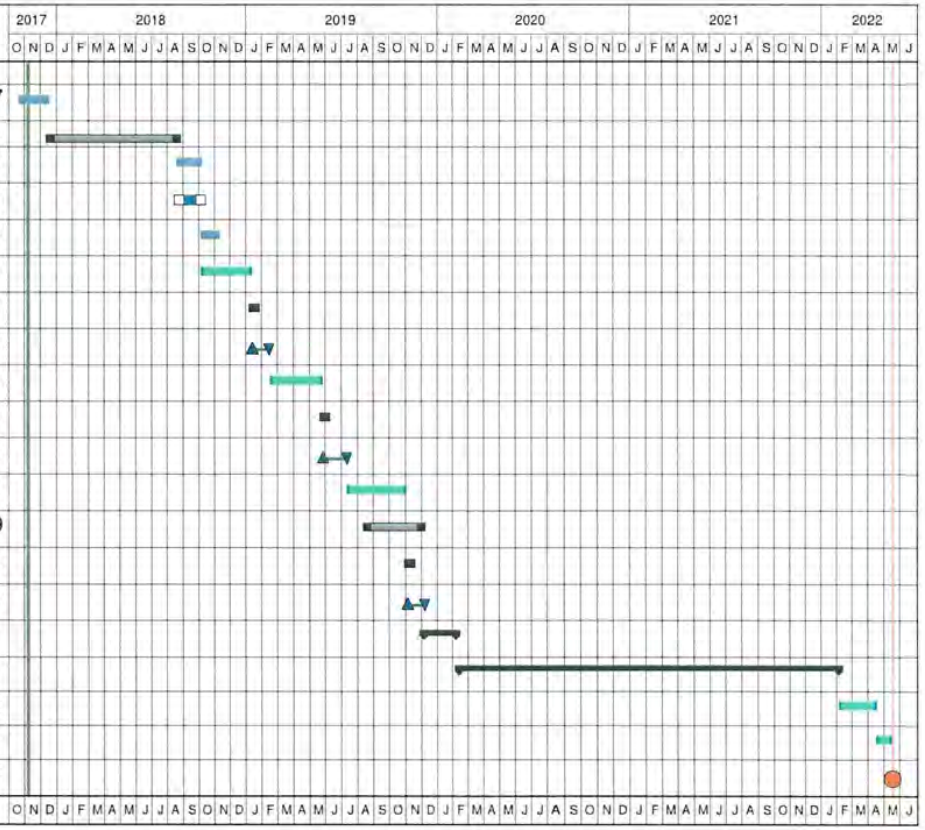
Map of Property



Attachment F:
Project Timetable

Joint Exh. 1-0167

	Activity Name	Duration (Work Days)	Start Date	Finish Date
1				
2	CON Document Preparations	40.00	10/23/17	12/15/17
3	CON Application (9 Months)	175.00	12/18/17	8/17/18
4	Advertise for Design Services	35.00	8/20/18	10/5/18
5	Geotechnical/Survey Site	35.00	8/20/18	10/5/18
6	Advertise for CM selection	25.00	10/8/18	11/9/18
7	Schematic Design	70.00	10/8/18	1/11/19
8	DHEC/Owner SD Review	5.00	1/14/19	1/18/19
9	Schematic Design Pricing	25.00	1/14/19	2/15/19
10	Design Development (3-5 Months)	70.00	2/18/19	5/24/19
11	DHEC/Owner DD Review	5.00	5/27/19	5/31/19
12	GMP Pricing Effort	35.00	5/27/19	7/12/19
13	Construction Documents	80.00	7/15/19	11/1/19
14	Early Site Permitting Submittals	75.00	8/19/19	11/29/19
15	DHEC /Owner Final Review	5.00	11/4/19	11/8/19
16	Final GMP	25.00	11/4/19	12/6/19
17	Preliminary Site Construction	50.00	12/2/19	2/7/20
18	Building/Final Site Construction	520.00	2/10/20	2/4/22
19	MUSC Move In/Equipment Install	50.00	2/7/22	4/15/22
20	DHEC Licensure	20.00	4/18/22	5/13/22
21	Hospital Opens	0.00	5/16/22	5/16/22



ROA 004481

Attachment G:
Officers of the Licensee

MUSC Health
Medical University of South Carolina

MSV Health Inc.

Board of Directors

Dr. Don Johnson, Chair

Dr. Pat Cawley, President & CEO

Dr. David Cole

Dr. Donna Johnson

Dr. Scott Reeves

Mr. Charles Schulze

Dr. Murrell Smith

Mr. Tom Stephenson

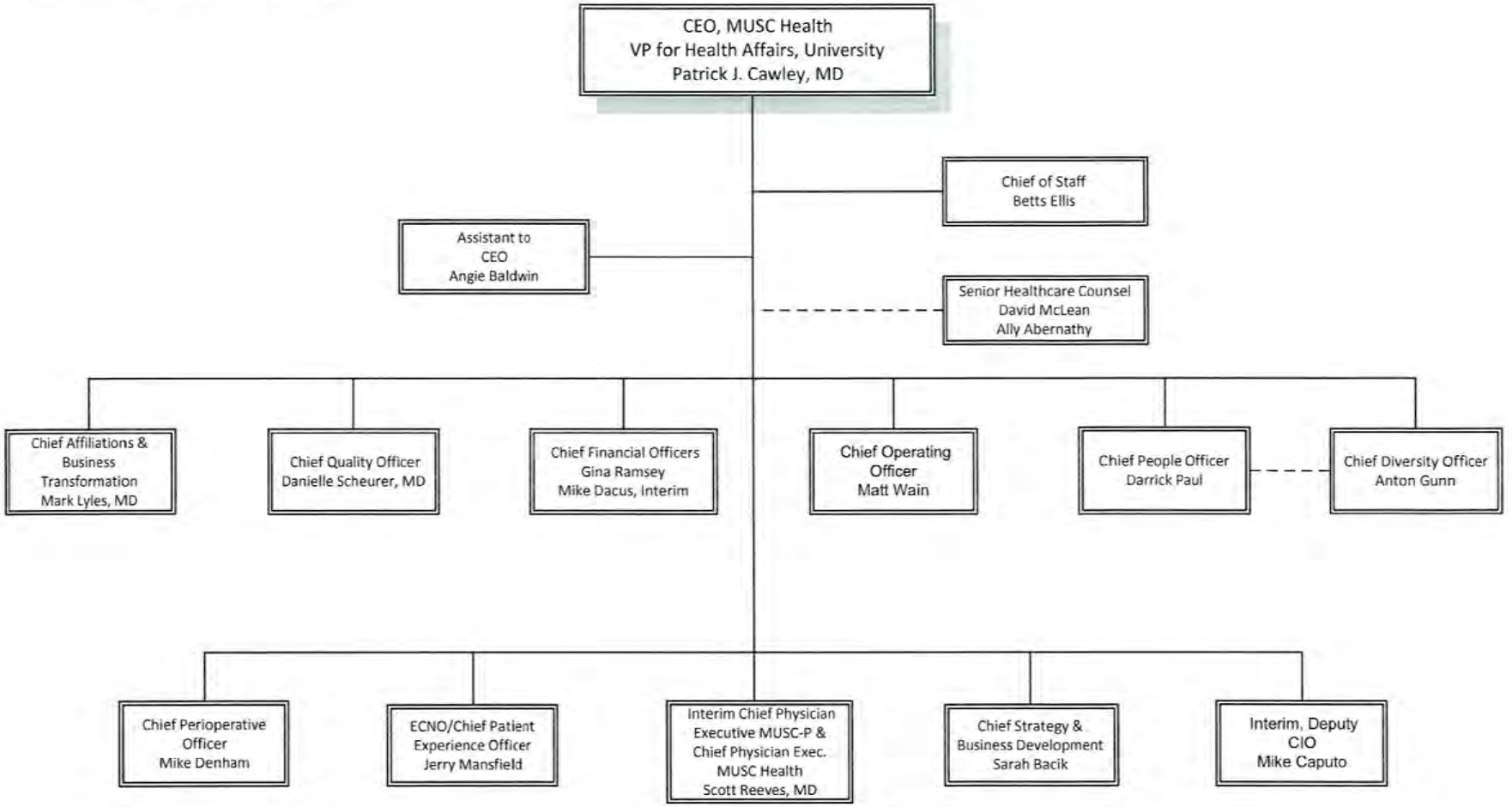
Dr. Rod Rutledge

Attachment H:
MUHA Organizational Chart

Joint Exh. 1-0171

MUSC Health
Medical University of South Carolina

MUSC Health Organizational Chart



ROA 004485

Attachment I:
Traffic Study

BIHL ENGINEERING

Memorandum

To: Clint Busby, Deputy County Engineer
Berkeley County

From: Jennifer T. Bihl, PE, President
Bihl Engineering, LLC

Date: August 1, 2013

Subject: Brighton Park Traffic Study

This memo addresses the operations of the access points for the Brighton Park neighborhood located on Brighton Park Blvd. and Nexton Parkway. Trip generation, distribution, and assignment are presented along with the projected intersection operations and queuing analysis. The Brighton Park area of the Nexton development is expected to have a 2018 buildout. This report addresses both the 2018 and 2028 (future overall buildout date for the Nexton development) traffic conditions at the neighborhood access points. Data from the Kimley-Horn and Associates, Inc. *Parks of Berkeley Sheep Island Tract, November 2010*, traffic study report were used to develop the background traffic volumes for the 2018 and 2028 buildout conditions.

Brighton Park is planned to have the following land uses:

- 250 apartments
- a 900-student elementary school
- 180,000 square feet (sf) of retail
- 765 dwelling units of single family residential

Brighton Park Blvd. will have the following access points:

- Full access at Brighton Park Blvd. Residential Driveway
- Right-in, Right-out access at Brighton Park Blvd. Right-in, Right-out Driveway

Nexton Parkway will have the following access points:

- Full access at Retail Driveway
- Full access at School House Road
- Full access at Bus Driveway
- Full access at North Residential Driveway
- Right-in, Right-out access at Retail Right-in, Right-out Driveway

Locations of these access points are shown on the Seamon Whiteside + Associates roadway plans. Trip generation was determined using the Institute of Transportation Engineers *Trip Generation, Ninth Edition*. Pass-by and internal capture were determined using the Institute of Transportation Engineers standards. A 25% internal capture rate was also assumed between the single family residential units and the neighborhood elementary school. To present a worst case scenario, AM peak hour and PM peak hour of generator trip generation was used for the elementary school land use though the PM peak hour of the school would occur prior to the PM peak of the roadway (4 – 6 PM). **Table 1** shows the projected Brighton Park trip generation for the 2018 buildout conditions.

Table 1:
Brighton Park Trip Generation

Land Use[1]	Intensity	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
LUC 210 - Single Family Residential	765 Dwelling Units	136	409	413	243
LUC 220 - Apartment	250 Dwelling Units	25	101	100	55
LUC 520 - Elementary School	900 Students	222	183	113	139
LUC 820 - Shopping Center	180,000 sf	138	85	426	462
Gross Trips		521	778	1,052	899
Internal Capture		-142	-142	-184	-184
Driveway Trips		379	636	868	715
Pass-by Trips		0	0	-118	-125
New Trips		379	636	750	590

1. LUC = Institute of Transportation Engineers Land Use Code

Trip distribution from previous modeling and traffic studies was used to develop the distribution for the Brighton Park neighborhood. General cardinal directions applied to the trip generation were:

- 24% to/from Brighton Park Blvd. to the east
- 56% to/from Nexton Parkway from the south
- 20% to/from Nexton Parkway from the north

Trips were assigned by each land use based on the location of the land use in the development and the expected distribution of trips. For example, most apartment trips were assigned to use the Brighton Park Blvd. Residential Driveway as it is adjacent to the proposed apartment site. The residential trips were split among all driveways depending on where trips were going to and coming from. The elementary school trips use School House Road and the Bus Driveway.

Figure 1 and **Figure 2** shows the projected distribution of the trips at study area driveways for the 2018 buildout conditions for the AM and PM peak hours, respectively. Because Brighton Park is planned to be built out by 2018, trips into and out of this section of the development will not increase, however, the trips may shift to other movements as development continues around the Brighton Park area.

2028 background conditions were determined using the *Parks of Berkeley Sheep Island Tract, November 2010*, traffic study, specifically assuming development across Nexton Parkway from Brighton Park (northwest quadrant of Brighton Park Blvd. at the Nexton Parkway intersection) and across Brighton Park Blvd. from Brighton Park (southeast quadrant of Brighton Park Blvd. at the Nexton Parkway intersection). For this analysis, 150,000 sf of office and 150,000 sf of retail are assumed for the northwest quadrant of the intersection resulting in 357 entering trips and 108 exiting trips during the AM peak hour and 398 entering trips and 594 exiting trips during the PM peak hour. 200,000 sf of retail is assumed for the southeast quadrant of the intersection resulting in 147 entering trips and 91 exiting trips during the AM peak hour and 457 entering trips and 496 exiting trips during the PM peak hour. The intensities and trip assignments for these quadrants are assumed at this time and may change in the future. It is expected that the specific trips for these quadrants will be refined in further studies. It was further assumed that internal capture would take place between quadrants, which was limited to 10% to be conservative.

Figure 3 shows the projected assignment of the trips for the 2028 buildout conditions.

In addition to the planned signalization of Nexton Parkway at Brighton Park Blvd., it is expected that three access points to Brighton Park will warrant signalization in the future. These three locations are Brighton Park Blvd. at the Brighton Park Blvd. Residential Driveway, the Retail Driveway on Nexton Parkway, and School House Road at Nexton Parkway. For this analysis, these intersections were assumed to be signalized, although it is recognized that signal warrant studies will need to be performed prior to signalization as traffic volumes increase on these roadways.

It is expected that by Year 2028, the access points to the northwest quadrant will be the fourth legs of the Retail Driveway and the School House Road intersections with Nexton Parkway and the access point to the southeast quadrant will become the fourth leg of the Brighton Park Blvd. Residential Driveway.

Capacity analyses were performed for the study area intersections for the AM and PM peak hours for the 2018 buildout conditions and 2028 buildout conditions using the Synchro Version 8 software program to determine the operating characteristics of the adjacent road network and the potential traffic impacts of the proposed project. The analyses were conducted with methodologies contained in the 2000 Highway Capacity Manual (TRB Special Report 209, 2000 update).

Capacity of an intersection is the maximum number of vehicles that can pass through an intersection during a specified time, typically an hour. Level-of-Service (LOS) describes the operating characteristics of the intersection. The Highway Capacity Manual defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. LOS D is considered acceptable for urban and suburban conditions. However, it is not uncommon that some driveways on major roadway facilities may operate at elevated levels of service during peak periods.

LOS for signalized intersections and all-way-stop controlled intersections is reported as the overall LOS for the entire intersection. LOS for a two-way stop-controlled (TWSC) intersection is determined by the delay of the poorest performing minor approach, as LOS is not defined for TWSC intersections as a whole.

BIHL ENGINEERING

Table 3 summarizes the LOS and control delay (in average seconds of delay per vehicle) for the study intersections for the 2018 buildout conditions and 2028 buildout conditions for the AM and PM peak hours.

The 2018 buildout analysis assumes the improvements presented in the current roadway plans for the corridor. The 2028 buildout analysis assumed the Year 2028 roadway improvements outlined in the *Parks of Berkeley Sheep Island Tract, November 2010*, traffic study.

Table 2:
Level of Service[1] and delay in average seconds per vehicle[2]

Intersection	Traffic Control[3]	2018 Buildout Conditions		2028 Buildout Conditions	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Nexton Parkway at Brighton Park Blvd.	S	B (11.5)	C (34.6)	B (16.7)	D (49.0)
Nexton Parkway at Retail Driveway	S	A (2.9)	B (17.6)	B (12.4)	C (29.9)
Nexton Parkway at Retail Right-in, Right-out Driveway	U	B (10.9) - WB	C (15.0) - WB	A (9.1) - WB	B (13.9) - WB
Nexton Parkway at School House Road	S	B (12.5)	B (12.7)	C (20.2)	C (27.8)
Nexton Parkway at Bus Driveway[4]	U	C (22.6) - WB	E (47.7) - WB	C (21.5) - WB	D (30.9) - WB
Nexton Parkway at North Residential Driveway	U	E (38.0) - NB	F (120.5) - NB	C (24.7) - NB	F (100.0) - NB
Brighton Park Blvd. at Brighton Park Blvd. Right-in, Right-out Driveway	U	A (9.0) - SB	A (9.1) - SB	A (9.6) - SB	B (10.5) - SB
Brighton Park Blvd. at Brighton Park Blvd. Residential Driveway	S	C (20.9)	B (19.7)	C (28.3)	C (22.7)

1. For unsignalized intersections, the level of service of the poorest performing minor approach is reported.
2. NB = Northbound, WB = Westbound, SB = Southbound
3. S = Signalized, U = Unsignalized
4. Police control is recommended to assist bus movements in and out of driveway during school hours.

It is recommended that police control be considered, if needed, at the Bus Driveway to help facilitate left-turning buses out of the school site.

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Based on the results of the 2018 buildout conditions analysis, all intersections are projected to operate acceptably with the planned improvements, with the exception of the unsignalized Nexton Parkway at the North Residential Driveway which experiences delay during the PM peak hour. As stated previously, this is not uncommon for minor driveways on major roadways.

Based on the results of the 2028 buildout conditions analysis, the intersections continue to operate acceptably with the implementation of the planned improvements. It is assumed that by the 2028 buildout conditions the northernmost access to Brighton Park will be signalized, if appropriate.

Queuing analysis for the Brighton Park intersections on Nexton Parkway were also reviewed for the 2018 and 2028 buildout conditions.

Table 3 shows the results of the queuing analysis for the Nexton Parkway corridor from Brighton Park Blvd. to School House Road and Brighton Park Blvd. at the Brighton Park Blvd. Residential Driveway.

Average queues as calculated by Synchro Version 8 software program are shown for the through movements during the peak hours.

Table 3:
Projected Average Queues (in feet) for Intersection Through Movements

Intersection	Traffic Control[1]	2018 Buildout Conditions		2028 Buildout Conditions	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Nexton Parkway at Brighton Park Blvd.	S	NB – 320' SB – 145'	NB – 1,112' SB – 178'	NB – 423' SB – 108'	NB – 1,313' SB – 290'
Nexton Parkway at Retail Driveway	S	NB – 72' SB – 107'	NB – 286' SB – 197'	NB – 112' SB – 172'	NB – 282' SB – 216'
Nexton Parkway at School House Road	S	NB – 141' SB – 332'	NB – 260' SB – 408'	NB – 58' SB – 563'	NB – 236' SB – 860'
Brighton Park Blvd. at Brighton Park Blvd. Residential Driveway	S	EB – 55' WB – 60'	EB – 70' WB – 145'	EB – 32' WB – 11'	EB – 20' WB – 74'

1. S = Signalized, U = Unsignalized

Based on the results of the queuing analysis, it is projected that queues will not significantly affect corridor operations.

Based on the SCDOT ARMS manual, the following turn lane locations and lengths are recommended at study area driveways for Brighton Park.

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- Nexton Parkway at Brighton Park Blvd.: northbound right-turn lane – 250 feet, southbound left-turn lane – 150 feet
- Nexton Parkway at Retail Driveway: northbound right-turn lane – 200 feet, southbound left-turn lane – 150 feet
- Nexton Parkway at School House Road: northbound right-turn lane – 100 feet, southbound left-turn lane – 150 feet
- Brighton Park Blvd. at Brighton Park Blvd. Residential Driveway: eastbound left-turn turn – 150 feet, westbound right-turn lane – 100 feet

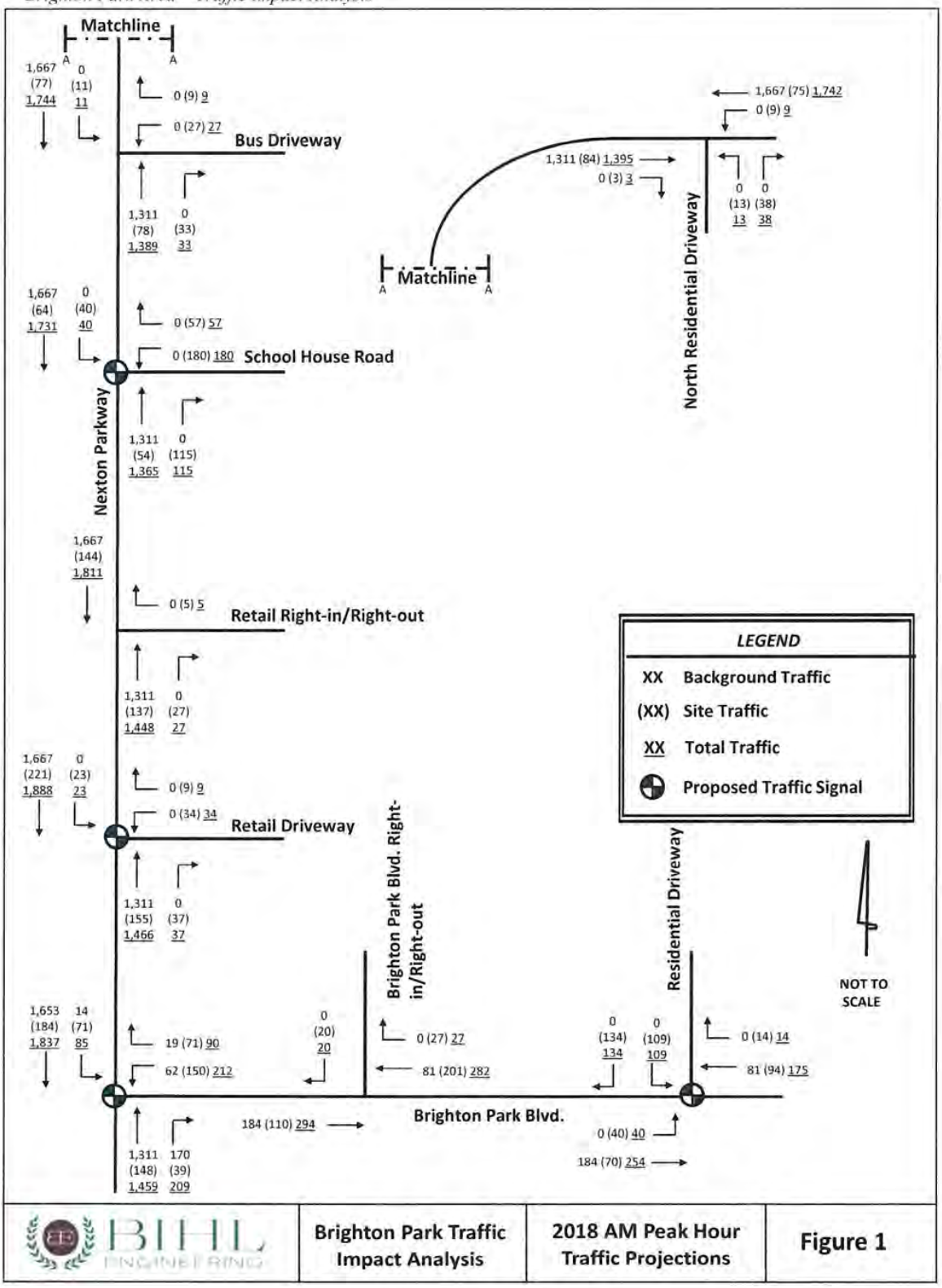
Intersection capacity analysis and queuing reports are attached to this memo.

SOUTH CAROLINA
BIHL ENGINEERING LLC.
No. 4620
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 25271
08/01/13
JENNIFER TROPEA BIHL

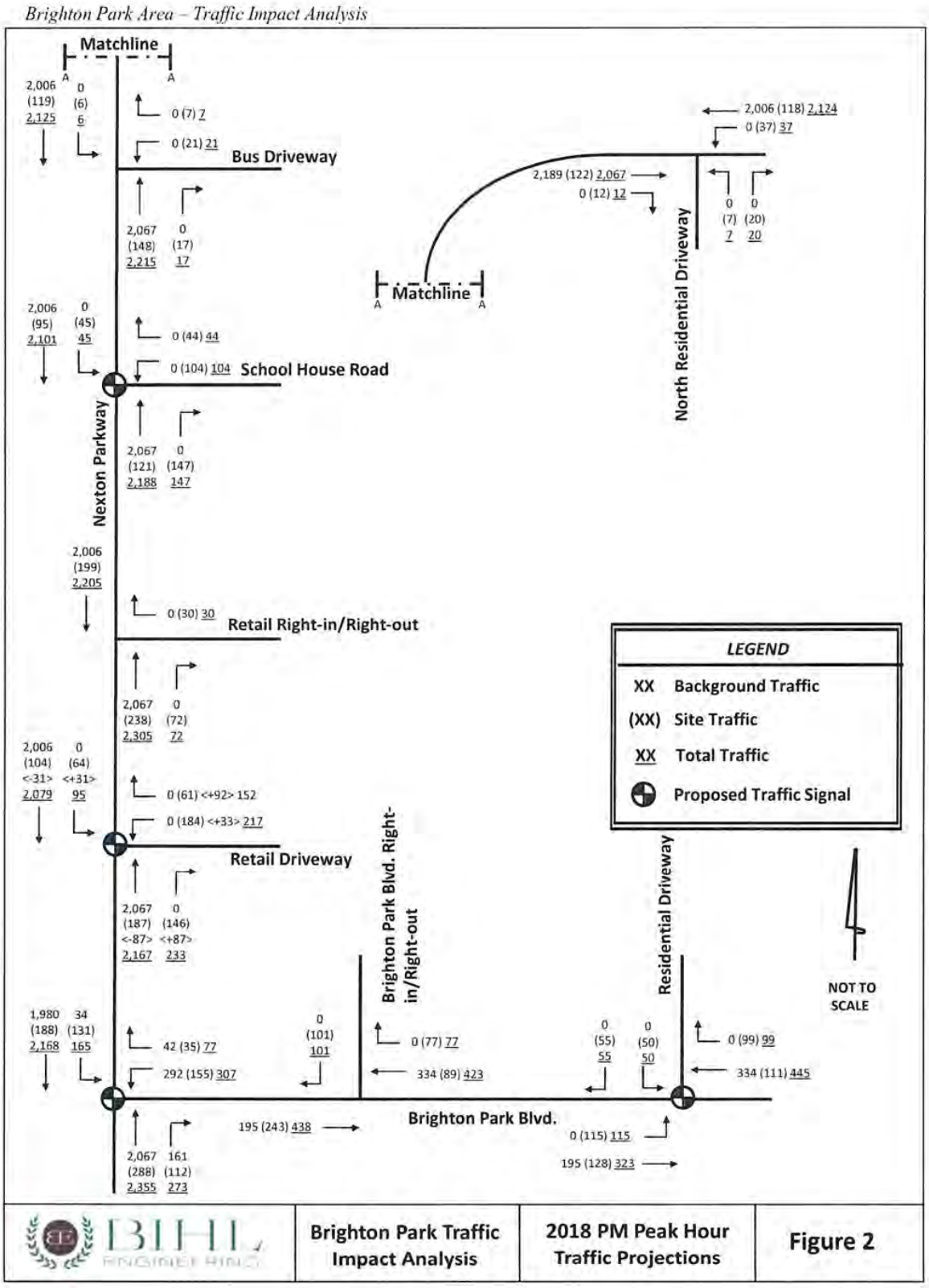
Joint Exh. 1-0179

Brighton Park Area – Traffic Impact Analysis

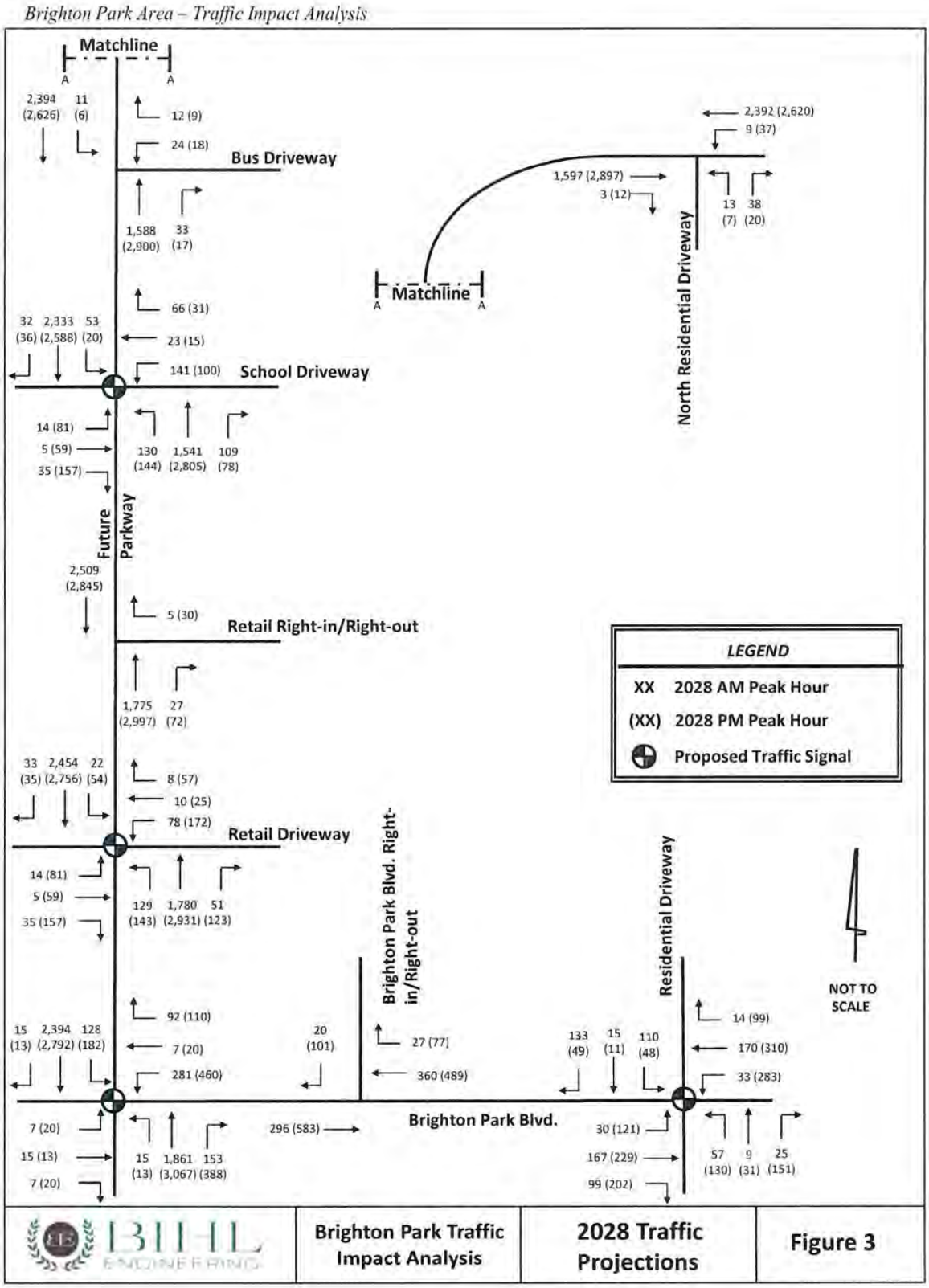


DHEC CON 000179

Joint Exh. 1-0180



DHEC CON 000180



DHEC CON 000181

Queues
3: Nexton Parkway & Brighton Park Blvd.

2018 AM
7/31/2013

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Group Flow (vph)	1536	220	89	1934	223	95
v/c Ratio	0.64	0.16	0.36	0.70	0.60	0.25
Control Delay	12.8	0.5	7.3	4.6	77.6	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	0.5	7.3	4.7	77.6	11.7
Queue Length 50th (ft)	320	0	11	145	91	8
Queue Length 95th (ft)	446	11	m18	158	109	35
Internal Link Dist (ft)	433			841	301	
Turn Bay Length (ft)		250	200			100
Base Capacity (vph)	2394	1410	251	2770	510	379
Starvation Cap Reductn	0	0	0	33	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.16	0.35	0.71	0.44	0.25

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
3: Nexton Parkway & Brighton Park Blvd.

2018 AM
7/31/2013

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (vph)	1459	209	85	1837	212	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3505	1568	1752	3505	3400	1568
Flt Permitted	1.00	1.00	0.11	1.00	0.95	1.00
Satd. Flow (perm)	3505	1568	199	3505	3400	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1536	220	89	1934	223	95
RTOR Reduction (vph)	0	46	0	0	0	37
Lane Group Flow (vph)	1536	174	89	1934	223	58
Turn Type	NA	pm+ov	pm+pt	NA	NA	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Actuated Green, G (s)	81.9	95.1	94.8	94.8	13.2	20.1
Effective Green, g (s)	81.9	95.1	94.8	94.8	13.2	20.1
Actuated g/C Ratio	0.68	0.79	0.79	0.79	0.11	0.17
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2392	1321	246	2768	374	341
v/s Ratio Prot	0.44	0.01	0.02	c0.55	c0.07	0.01
v/s Ratio Perm		0.10	0.26			0.03
v/c Ratio	0.64	0.13	0.36	0.70	0.60	0.17
Uniform Delay, d1	10.8	2.9	8.4	5.9	50.9	42.8
Progression Factor	1.00	1.00	1.32	0.54	1.40	0.48
Incremental Delay, d2	1.3	0.0	0.7	1.2	2.5	0.2
Delay (s)	12.1	2.9	11.8	4.4	73.7	20.7
Level of Service	B	A	B	A	E	C
Approach Delay (s)	11.0			4.7	57.9	
Approach LOS	B			A	E	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
5: Nexton Parkway & Retail Driveway

2018 AM
7/31/2013

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	36	9	1543	39	24	1987
v/c Ratio	0.31	0.04	0.53	0.03	0.09	0.63
Control Delay	59.6	21.6	2.7	0.6	1.5	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	21.6	2.7	0.6	1.5	1.8
Queue Length 50th (ft)	27	0	72	0	1	107
Queue Length 95th (ft)	61	15	97	m1	m2	103
Internal Link Dist (ft)	167		920			415
Turn Bay Length (ft)				150	150	
Base Capacity (vph)	233	202	2924	1313	280	3133
Starvation Cap Reductn	0	0	0	0	0	30
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.04	0.53	0.03	0.09	0.64

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
5: Nexton Parkway & Retail Driveway

2018 AM
7/31/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	34	9	1466	37	23	1888
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	1568	3505	1568	1752	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.13	1.00
Satd. Flow (perm)	1752	1568	3505	1568	237	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	36	9	1543	39	24	1987
RTOR Reduction (vph)	0	8	0	7	0	0
Lane Group Flow (vph)	36	1	1543	32	24	1987
Turn Type	NA	pm+ov	NA	Perm	pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	5.5	9.1	92.9	92.9	102.5	102.5
Effective Green, g (s)	5.5	9.1	92.9	92.9	102.5	102.5
Actuated g/C Ratio	0.05	0.08	0.77	0.77	0.85	0.85
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	80	197	2713	1213	247	2993
v/s Ratio Prot	c0.02	0.00	0.44		0.00	c0.57
v/s Ratio Perm		0.00		0.02	0.08	
v/c Ratio	0.45	0.00	0.57	0.03	0.10	0.66
Uniform Delay, d1	55.8	51.3	5.5	3.1	3.5	2.9
Progression Factor	1.00	1.00	0.37	0.30	0.56	0.33
Incremental Delay, d2	4.0	0.0	0.7	0.0	0.1	0.9
Delay (s)	59.8	51.3	2.7	1.0	2.1	1.9
Level of Service	E	D	A	A	A	A
Approach Delay (s)	58.1		2.7			1.9
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	2.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
8: Nexton Parkway & School House Road

2018 AM
7/31/2013

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	189	60	1437	121	42	1822
v/c Ratio	0.73	0.14	0.62	0.09	0.39	0.69
Control Delay	64.3	14.2	9.9	0.1	64.3	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	14.2	9.9	0.1	64.3	10.2
Queue Length 50th (ft)	141	11	141	0	32	332
Queue Length 95th (ft)	210	43	196	0	71	502
Internal Link Dist (ft)	264		368			974
Turn Bay Length (ft)	250	200		100	150	
Base Capacity (vph)	350	443	2307	1419	113	2633
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.14	0.62	0.09	0.37	0.69

Intersection Summary

HCM Signalized Intersection Capacity Analysis
8: Nexton Parkway & School House Road

2018 AM
7/31/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	180	57	1365	115	40	1731
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	1568	3505	1568	1752	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1752	1568	3505	1568	1752	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	60	1437	121	42	1822
RTOR Reduction (vph)	0	33	0	25	0	0
Lane Group Flow (vph)	189	27	1437	96	42	1822
Turn Type	NA	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1	2	3	1	6
Permitted Phases	8	3		2		
Actuated Green, G (s)	17.8	24.2	77.8	95.6	6.4	90.2
Effective Green, g (s)	17.8	24.2	77.8	95.6	6.4	90.2
Actuated g/C Ratio	0.15	0.20	0.65	0.80	0.05	0.75
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	259	394	2272	1327	93	2634
v/s Ratio Prot	c0.11	0.00	0.41	0.01	0.02	c0.52
v/s Ratio Perm		0.01		0.05		
v/c Ratio	0.73	0.07	0.63	0.07	0.45	0.69
Uniform Delay, d1	48.8	38.8	12.6	2.6	55.1	7.7
Progression Factor	1.00	1.00	0.64	0.00	1.00	1.00
Incremental Delay, d2	9.9	0.1	1.2	0.0	3.5	1.5
Delay (s)	58.7	38.9	9.3	0.0	58.6	9.2
Level of Service	E	D	A	A	E	A
Approach Delay (s)	53.9		8.6			10.3
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
9: Bus Driveway & Nexton Parkway

2018 AM
7/31/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1389	33	11	1744	27	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1462	35	12	1836	28	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1054					
pX, platoon unblocked			0.74		0.74	0.74
vC, conflicting volume			1497		2421	748
vC1, stage 1 conf vol					1479	
vC2, stage 2 conf vol					941	
vCu, unblocked vol			959		2213	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		85	99
cM capacity (veh/h)			521		192	796

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	975	522	624	1224	28	9
Volume Left	0	0	12	0	28	0
Volume Right	0	35	0	0	0	9
cSH	1700	1700	521	1700	192	796
Volume to Capacity	0.57	0.31	0.02	0.72	0.15	0.01
Queue Length 95th (ft)	0	0	2	0	13	1
Control Delay (s)	0.0	0.0	0.6	0.0	26.9	9.6
Lane LOS			A		D	A
Approach Delay (s)	0.0		0.2		22.6	
Approach LOS					C	

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
11: Brighton Park Blvd. & BPB RIRO Driveway

2018 AM
7/31/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	20	282	27	0	294
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	21	297	28	0	309
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			419			381
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	466	163			325	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	399	88			255	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	561	925			1266	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	21	198	127	155	155
Volume Left	0	0	0	0	0
Volume Right	21	0	28	0	0
cSH	925	1700	1700	1700	1700
Volume to Capacity	0.02	0.12	0.07	0.09	0.09
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	9.0	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.0	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
14: Brighton Park Blvd. & BPB Residential Driveway

2018 AM
7/31/2013

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	115	141	199	42	267
v/c Ratio	0.19	0.14	0.21	0.06	0.14
Control Delay	28.2	1.7	32.9	13.4	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	1.7	32.9	13.4	14.4
Queue Length 50th (ft)	62	0	60	15	55
Queue Length 95th (ft)	107	23	92	33	76
Internal Link Dist (ft)	126		233		339
Turn Bay Length (ft)				150	
Base Capacity (vph)	613	1032	958	712	1927
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.14	0.21	0.06	0.14

Intersection Summary

HCM Signalized Intersection Capacity Analysis — 2018 AM
14: Brighton Park Blvd. & BPB Residential Driveway — 7/31/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	109	134	175	14	40	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	1568	3465		1752	3505
Flt Permitted	0.95	1.00	1.00		0.53	1.00
Satd. Flow (perm)	1752	1568	3465		978	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	115	141	184	15	42	267
RTOR Reduction (vph)	0	60	5	0	0	0
Lane Group Flow (vph)	115	81	194	0	42	267
Turn Type	NA	pm+ov	NA		pm+pt	NA
Protected Phases	6	7	8		7	4
Permitted Phases		6			4	
Actuated Green, G (s)	42.0	69.0	33.0		66.0	66.0
Effective Green, g (s)	42.0	69.0	33.0		66.0	66.0
Actuated g/C Ratio	0.35	0.58	0.28		0.55	0.55
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Lane Grp Cap (vph)	613	980	952		712	1927
v/s Ratio Prot	c0.07	0.02	c0.06		0.01	c0.08
v/s Ratio Perm		0.03			0.02	
v/c Ratio	0.19	0.08	0.20		0.06	0.14
Uniform Delay, d1	27.1	11.4	33.4		12.6	13.2
Progression Factor	1.00	1.00	1.00		1.05	1.08
Incremental Delay, d2	0.7	0.2	0.5		0.2	0.1
Delay (s)	27.8	11.5	33.9		13.4	14.3
Level of Service	C	B	C		B	B
Approach Delay (s)	18.9		33.9			14.2
Approach LOS	B		C			B

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
16: Nexton Parkway & Retail RIRO Driveway

2018 AM
7/31/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	5	1448	27	0	1811
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	5	1524	28	0	1906
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			495			448
pX, platoon unblocked	0.81	0.81			0.81	
vC, conflicting volume	2477	762			1553	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1282	232			1210	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	125	620			458	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	5	762	762	28	953	953
Volume Left	0	0	0	0	0	0
Volume Right	5	0	0	28	0	0
cSH	620	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.45	0.45	0.02	0.56	0.56
Queue Length 95th (ft)	1	0	0	0	0	0
Control Delay (s)	10.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	10.9	0.0			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis — 2018 AM
18: Northern Residential Driveway & Nexton Parkway — 7/31/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1395	3	9	1742	13	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1468	3	9	1834	14	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1472		3323	1470
vC1, stage 1 conf vol					1470	
vC2, stage 2 conf vol					1853	
vCu, unblocked vol			1472		3323	1470
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		87	74
cM capacity (veh/h)			455		106	155

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	1472	1843	14	40
Volume Left	0	9	14	0
Volume Right	3	0	0	40
cSH	1700	455	106	155
Volume to Capacity	0.87	0.02	0.13	0.26
Queue Length 95th (ft)	0	2	11	24
Control Delay (s)	0.0	0.1	43.7	36.0
Lane LOS		A	E	E
Approach Delay (s)	0.0	0.1	38.0	
Approach LOS			E	

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		

Queues
3: Nexton Parkway & Brighton Park Blvd.

2018 PM
8/1/2013

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Group Flow (vph)	2479	287	174	2282	323	81
v/c Ratio	1.06	0.22	1.06	0.84	0.76	0.22
Control Delay	58.5	1.7	105.6	5.5	47.7	21.5
Queue Delay	16.5	0.0	0.0	0.2	0.0	0.0
Total Delay	75.0	1.7	105.6	5.6	47.7	21.5
Queue Length 50th (ft)	~1112	21	~111	178	125	34
Queue Length 95th (ft)	#1244	34	m#170	227	176	70
Internal Link Dist (ft)	433			783	301	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	2336	1343	164	2716	453	370
Starvation Cap Reductn	0	0	0	50	0	0
Spillback Cap Reductn	137	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.21	1.06	0.86	0.71	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
3: Nexton Parkway & Brighton Park Blvd.

2018 PM
8/1/2013

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Volume (vph)	2355	273	165	2168	307	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3505	1568	1752	3505	3400	1568
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3505	1568	86	3505	3400	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2479	287	174	2282	323	81
RTOR Reduction (vph)	0	15	0	0	0	5
Lane Group Flow (vph)	2479	272	174	2282	323	76
Turn Type	NA	pm+ov	pm+pt	NA	NA	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Actuated Green, G (s)	80.0	95.0	93.0	93.0	15.0	22.0
Effective Green, g (s)	80.0	95.0	93.0	93.0	15.0	22.0
Actuated g/C Ratio	0.67	0.79	0.78	0.78	0.12	0.18
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2336	1319	163	2716	425	365
v/s Ratio Prot	0.71	0.03	0.06	c0.65	c0.10	0.01
v/s Ratio Perm		0.15	c0.76			0.04
v/c Ratio	1.06	0.21	1.07	0.84	0.76	0.21
Uniform Delay, d1	20.0	3.1	44.2	8.7	50.8	41.6
Progression Factor	1.00	1.00	1.43	0.38	0.71	0.58
Incremental Delay, d2	37.4	0.1	71.0	1.8	7.6	0.3
Delay (s)	57.4	3.2	134.4	5.2	43.4	24.3
Level of Service	E	A	F	A	D	C
Approach Delay (s)	51.8			14.4	39.6	
Approach LOS	D			B	D	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues
5: Nexton Parkway & Retail Driveway

2018 PM
8/1/2013

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	228	161	2281	245	100	2188
v/c Ratio	0.82	0.40	1.01	0.23	0.72	0.84
Control Delay	71.8	38.6	20.7	4.7	45.9	8.3
Queue Delay	0.0	0.0	15.9	0.0	0.0	0.0
Total Delay	71.8	38.6	36.6	4.7	45.9	8.3
Queue Length 50th (ft)	169	98	~286	27	35	197
Queue Length 95th (ft)	#282	164	m258	m25	m#67	234
Internal Link Dist (ft)	167		920			426
Turn Bay Length (ft)				150	150	
Base Capacity (vph)	306	402	2269	1057	138	2597
Starvation Cap Reductn	0	0	9	0	0	11
Spillback Cap Reductn	0	0	100	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.40	1.05	0.23	0.72	0.85

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
5: Nexton Parkway & Retail Driveway

2018 PM
8/1/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	217	153	2167	233	95	2079
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	1568	3505	1568	1752	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.05	1.00
Satd. Flow (perm)	1752	1568	3505	1568	88	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	228	161	2281	245	100	2188
RTOR Reduction (vph)	0	6	0	42	0	0
Lane Group Flow (vph)	228	155	2281	203	100	2188
Turn Type	NA	pm+ov	NA	Perm	pm+pt	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	19.1	24.3	77.7	77.7	88.9	88.9
Effective Green, g (s)	19.1	24.3	77.7	77.7	88.9	88.9
Actuated g/C Ratio	0.16	0.20	0.65	0.65	0.74	0.74
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	278	395	2269	1015	137	2596
v/s Ratio Prot	c0.13	0.02	c0.65		0.03	c0.62
v/s Ratio Perm		0.08		0.13	0.51	
v/c Ratio	0.82	0.39	1.01	0.20	0.73	0.84
Uniform Delay, d1	48.8	41.4	21.1	8.6	35.0	10.7
Progression Factor	1.00	1.00	0.57	1.04	1.74	0.52
Incremental Delay, d2	17.3	0.6	7.0	0.0	11.2	2.2
Delay (s)	66.1	42.1	19.1	8.9	72.2	7.8
Level of Service	E	D	B	A	E	A
Approach Delay (s)	56.2		18.1			10.6
Approach LOS	E		B			B

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues
8: Nexton Parkway & School House Road

2018 PM
8/1/2013

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	109	46	2303	155	47	2212
v/c Ratio	0.60	0.13	0.94	0.11	0.42	0.79
Control Delay	63.9	31.4	14.3	0.1	65.9	10.3
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	63.9	31.4	14.4	0.1	65.9	10.3
Queue Length 50th (ft)	82	23	257	0	35	408
Queue Length 95th (ft)	137	54	m#260	m0	#92	628
Internal Link Dist (ft)	264		420			988
Turn Bay Length (ft)	250	200		100	150	
Base Capacity (vph)	277	351	2458	1427	113	2786
Starvation Cap Reductn	0	0	6	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.13	0.94	0.11	0.42	0.79

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
8: Nexton Parkway & School House Road

2018 PM
8/1/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	104	44	2188	147	45	2101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	1568	3505	1568	1752	3505
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1752	1568	3505	1568	1752	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	109	46	2303	155	47	2212
RTOR Reduction (vph)	0	8	0	29	0	0
Lane Group Flow (vph)	109	38	2303	126	47	2212
Turn Type	NA	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	3	1	2	3	1	6
Permitted Phases	8	3		2		
Actuated Green, G (s)	12.6	19.0	83.0	95.6	6.4	95.4
Effective Green, g (s)	12.6	19.0	83.0	95.6	6.4	95.4
Actuated g/C Ratio	0.10	0.16	0.69	0.80	0.05	0.80
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	326	2424	1327	93	2786
v/s Ratio Prot	c0.06	0.01	c0.66	0.01	0.03	c0.63
v/s Ratio Perm		0.02		0.07		
v/c Ratio	0.60	0.12	0.95	0.09	0.51	0.79
Uniform Delay, d1	51.3	43.3	16.6	2.7	55.3	6.8
Progression Factor	1.00	1.00	0.54	0.00	1.00	1.00
Incremental Delay, d2	5.1	0.2	4.3	0.0	4.3	2.4
Delay (s)	56.4	43.5	13.2	0.0	59.5	9.3
Level of Service	E	D	B	A	E	A
Approach Delay (s)	52.6		12.4			10.3
Approach LOS	D		B			B

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
9: Bus Driveway & Nexton Parkway

2018 PM
8/1/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	2215	17	6	2125	21	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2332	18	6	2237	22	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1068					
pX, platoon unblocked			0.34		0.34	0.34
vC, conflicting volume			2349		3472	1175
vC1, stage 1 conf vol					2341	
vC2, stage 2 conf vol					1131	
vCu, unblocked vol			1068		4401	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		75	98
cM capacity (veh/h)			216		89	364

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	1554	795	752	1491	22	7
Volume Left	0	0	6	0	22	0
Volume Right	0	18	0	0	0	7
cSH	1700	1700	216	1700	89	364
Volume to Capacity	0.91	0.47	0.03	0.88	0.25	0.02
Queue Length 95th (ft)	0	0	2	0	22	2
Control Delay (s)	0.0	0.0	1.3	0.0	58.6	15.1
Lane LOS			A		F	C
Approach Delay (s)	0.0		0.4		47.7	
Approach LOS					E	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
11: Brighton Park Blvd. & BPB RIRO Driveway

2018 PM
8/1/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	101	423	77	0	438
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	106	445	81	0	461
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			419			381
pX, platoon unblocked	0.91	0.91			0.91	
vC, conflicting volume	716	263			526	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	492	0			283	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	89			100	
cM capacity (veh/h)	458	984			1155	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	106	297	229	231	231
Volume Left	0	0	0	0	0
Volume Right	106	0	81	0	0
cSH	984	1700	1700	1700	1700
Volume to Capacity	0.11	0.17	0.13	0.14	0.14
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	9.1	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.1	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	27.1%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
14: Brighton Park Blvd. & BPB Residential Driveway

2018 PM
8/1/2013

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	53	58	572	121	340
v/c Ratio	0.13	0.14	0.38	0.20	0.15
Control Delay	37.5	10.1	22.1	11.5	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	10.1	22.1	11.5	11.2
Queue Length 50th (ft)	33	0	145	46	70
Queue Length 95th (ft)	68	35	190	m65	m84
Internal Link Dist (ft)	126		233		339
Turn Bay Length (ft)				150	
Base Capacity (vph)	408	410	1521	612	2336
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.14	0.38	0.20	0.15

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis 2018 PM
14: Brighton Park Blvd. & BPB Residential Driveway 8/1/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	50	55	445	99	115	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1752	1568	3409		1752	3505
Flt Permitted	0.95	1.00	1.00		0.34	1.00
Satd. Flow (perm)	1752	1568	3409		622	3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	58	468	104	121	340
RTOR Reduction (vph)	0	44	16	0	0	0
Lane Group Flow (vph)	53	14	556	0	121	340
Turn Type	NA	Perm	NA		pm+pt	NA
Protected Phases	6		8		7	4
Permitted Phases		6			4	
Actuated Green, G (s)	28.0	28.0	53.0		80.0	80.0
Effective Green, g (s)	28.0	28.0	53.0		80.0	80.0
Actuated g/C Ratio	0.23	0.23	0.44		0.67	0.67
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Lane Grp Cap (vph)	408	365	1505		612	2336
v/s Ratio Prot	c0.03		c0.16		c0.03	0.10
v/s Ratio Perm		0.01			0.10	
v/c Ratio	0.13	0.04	0.37		0.20	0.15
Uniform Delay, d1	36.4	35.6	22.4		8.0	7.4
Progression Factor	1.00	1.00	1.00		1.50	1.50
Incremental Delay, d2	0.7	0.2	0.7		0.6	0.1
Delay (s)	37.0	35.8	23.1		12.7	11.2
Level of Service	D	D	C		B	B
Approach Delay (s)	36.4		23.1			11.6
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 2018 PM
16: Nexton Parkway & Retail RIRO 8/1/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	30	2305	72	0	2205
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	32	2426	76	0	2321
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			506			552
pX, platoon unblocked	0.55	0.36			0.36	
vC, conflicting volume	3587	1213			2502	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			1625	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			100	
cM capacity (veh/h)	557	391			142	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	32	1213	1213	76	1161	1161
Volume Left	0	0	0	0	0	0
Volume Right	32	0	0	76	0	0
cSH	391	1700	1700	1700	1700	1700
Volume to Capacity	0.08	0.71	0.71	0.04	0.68	0.68
Queue Length 95th (ft)	7	0	0	0	0	0
Control Delay (s)	15.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					
Approach Delay (s)	15.0	0.0			0.0	
Approach LOS	C					

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	73.7%	ICU Level of Service		D
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis 2018 PM
18: Northern Residential Driveway & Nexton Parkway 8/1/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	2189	12	37	2124	7	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2304	13	39	2236	7	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2317		4624	2311
vC1, stage 1 conf vol					2311	
vC2, stage 2 conf vol					2314	
vCu, unblocked vol			2317		4624	2311
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			82		84	56
cM capacity (veh/h)			213		46	48

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	2317	2275	7	21
Volume Left	0	39	7	0
Volume Right	13	0	0	21
cSH	1700	213	46	48
Volume to Capacity	1.36	0.18	0.16	0.44
Queue Length 95th (ft)	0	16	13	40
Control Delay (s)	0.0	0.4	96.9	128.8
Lane LOS		A	F	F
Approach Delay (s)	0.0	0.4	120.5	
Approach LOS			F	

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	151.4%	ICU Level of Service	H
Analysis Period (min)	15		

Queues 2028 AM
3: Nexton Parkway & Brighton Park Blvd. 8/1/2013

Lane Group	NBL	NBT	NBR	SBL	SBT	SET	NWL	NWT
Lane Group Flow (vph)	16	1959	161	135	2536	30	296	104
v/c Ratio	0.14	0.60	0.13	0.52	0.69	0.34	0.64	0.36
Control Delay	9.2	17.4	1.0	81.7	5.4	65.8	73.8	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	17.4	1.0	81.7	5.4	65.8	73.8	20.5
Queue Length 50th (ft)	4	423	0	72	108	22	96	33
Queue Length 95th (ft)	12	515	19	m92	187	58	141	82
Internal Link Dist (ft)		433			841	140		301
Turn Bay Length (ft)	150		250	200			300	
Base Capacity (vph)	118	3274	1282	260	3693	175	527	445
Starvation Cap Reductn	0	0	0	0	63	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.60	0.13	0.52	0.70	0.17	0.56	0.23

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis — 2028 AM
3: Nexton Parkway & Brighton Park Blvd. — 8/1/2013

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	15	1861	153	128	2394	15	7	15	7	281	7	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91			1.00		0.94	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			0.97		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1752	5036	1568	3400	5031			1766		4942	1587	
Flt Permitted	0.04	1.00	1.00	0.95	1.00			0.89		0.95	1.00	
Satd. Flow (perm)	78	5036	1568	3400	5031			1588		4942	1587	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	1959	161	135	2520	16	7	16	7	296	7	97
RTOR Reduction (vph)	0	0	44	0	0	0	0	7	0	0	48	0
Lane Group Flow (vph)	16	1959	117	135	2536	0	0	23	0	296	56	0
Turn Type	pm+pt	NA	pm+ov	Prot	NA		Perm	NA		Prot	NA	
Protected Phases	5	2	3	1	6			4		3	8	
Permitted Phases	2		2				4					
Actuated Green, G (s)	97.6	95.1	109.1	11.5	104.1			5.4		14.0	25.4	
Effective Green, g (s)	97.6	95.1	109.1	11.5	104.1			5.4		14.0	25.4	
Actuated g/C Ratio	0.65	0.63	0.73	0.08	0.69			0.04		0.09	0.17	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0			6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	78	3192	1203	260	3491			57		461	268	
v/s Ratio Prot	0.00	0.39	0.01	c0.04	c0.50					c0.06	0.04	
v/s Ratio Perm	0.13		0.07					c0.01				
v/c Ratio	0.21	0.61	0.10	0.52	0.73			0.41		0.64	0.21	
Uniform Delay, d1	13.7	16.4	6.0	66.6	14.2			70.7		65.6	53.6	
Progression Factor	1.00	1.00	1.00	1.16	0.35			1.00		1.03	0.70	
Incremental Delay, d2	1.3	0.9	0.0	1.1	0.8			4.7		3.0	0.4	
Delay (s)	15.0	17.3	6.0	78.4	5.8			75.4		70.3	38.1	
Level of Service	B	B	A	E	A			E		E	D	
Approach Delay (s)		16.5			9.5			75.4			62.0	
Approach LOS		B			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
5: Nexton Parkway & Retail Driveway

2028 AM
8/1/2013

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	15	42	82	19	136	1874	54	23	2583	35
v/c Ratio	0.15	0.39	0.43	0.09	0.68	0.51	0.05	0.13	0.79	0.03
Control Delay	54.4	33.9	61.5	40.1	69.5	5.8	0.1	5.6	10.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	33.9	61.5	40.1	69.5	5.8	0.1	5.6	10.2	0.0
Queue Length 50th (ft)	13	5	72	9	103	112	0	3	172	0
Queue Length 95th (ft)	33	46	119	36	180	126	m0	m6	220	m0
Internal Link Dist (ft)		209		167		920			415	
Turn Bay Length (ft)	150		150		150		150	150		100
Base Capacity (vph)	99	203	227	329	205	3640	1175	180	3260	1069
Starvation Cap Reductn	0	0	0	0	0	0	0	0	10	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.21	0.36	0.06	0.66	0.51	0.05	0.13	0.79	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Joint Exh. 1-0209

HCM Signalized Intersection Capacity Analysis — 2028 AM
5: Nexton Parkway & Retail Driveway — 8/1/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	5	35	78	10	8	129	1780	51	22	2454	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1601		1752	1728		1752	5036	1568	1752	5036	1568
Flt Permitted	0.75	1.00		0.42	1.00		0.04	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1374	1601		777	1728		74	5036	1568	169	5036	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	5	37	82	11	8	136	1874	54	23	2583	35
RTOR Reduction (vph)	0	35	0	0	7	0	0	0	17	0	0	13
Lane Group Flow (vph)	15	7	0	82	12	0	136	1874	37	23	2583	22
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	9.8	8.2		25.8	18.2		112.2	102.4	102.4	97.3	93.5	93.5
Effective Green, g (s)	9.8	8.2		25.8	18.2		112.2	102.4	102.4	97.3	93.5	93.5
Actuated g/C Ratio	0.07	0.05		0.17	0.12		0.75	0.68	0.68	0.65	0.62	0.62
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	93	87		209	209		197	3437	1070	149	3139	977
v/s Ratio Prot	0.00	0.00		c0.03	0.01		c0.06	0.37		0.00	c0.51	
v/s Ratio Perm	0.01			c0.04			0.46		0.02	0.10		0.01
v/c Ratio	0.16	0.08		0.39	0.06		0.69	0.55	0.03	0.15	0.82	0.02
Uniform Delay, d1	66.1	67.3		54.1	58.3		44.4	12.0	7.7	10.2	21.8	10.8
Progression Factor	1.00	1.00		1.00	1.00		1.64	0.48	1.00	0.73	0.40	1.00
Incremental Delay, d2	0.8	0.4		1.2	0.1		8.3	0.5	0.0	0.3	1.7	0.0
Delay (s)	66.9	67.7		55.3	58.4		81.1	6.3	7.8	7.7	10.5	10.8
Level of Service	E	E		E	E		F	A	A	A	B	B
Approach Delay (s)		67.5			55.9			11.3			10.5	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues 2028 AM
8: Nexton Parkway & School House Road 8/1/2013

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	15	42	148	93	137	1622	115	56	2456	34
v/c Ratio	0.16	0.39	0.87	0.38	0.70	0.47	0.09	0.47	0.74	0.03
Control Delay	57.6	33.9	101.3	25.8	67.8	4.5	0.1	79.7	20.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	33.9	101.3	25.8	67.8	4.5	0.1	79.7	20.2	0.1
Queue Length 50th (ft)	13	5	137	21	97	58	0	54	563	0
Queue Length 95th (ft)	35	46	#233	80	175	63	0	100	756	0
Internal Link Dist (ft)		254		264		368			974	
Turn Bay Length (ft)	150		150		250		100	150		100
Base Capacity (vph)	95	203	171	299	226	3483	1279	130	3325	1072
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	30	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.21	0.87	0.31	0.61	0.47	0.09	0.43	0.75	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
8: Nexton Parkway & School House Road

2028 AM
8/1/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	5	35	141	23	66	130	1541	109	53	2333	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.87		1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1601		1752	1639		1752	5036	1568	1752	5036	1568
Flt Permitted	0.70	1.00		0.42	1.00		0.04	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1285	1601		773	1639		75	5036	1568	1752	5036	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	5	37	148	24	69	137	1622	115	56	2456	34
RTOR Reduction (vph)	0	35	0	0	61	0	0	0	22	0	0	12
Lane Group Flow (vph)	15	7	0	148	32	0	137	1622	93	56	2456	22
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4			8			2		2			6
Actuated Green, G (s)	9.7	8.1		24.1	16.5		111.4	99.0	109.0	8.9	95.5	95.5
Effective Green, g (s)	9.7	8.1		24.1	16.5		111.4	99.0	109.0	8.9	95.5	95.5
Actuated g/C Ratio	0.06	0.05		0.16	0.11		0.74	0.66	0.73	0.06	0.64	0.64
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	88	86		189	180		194	3323	1202	103	3206	998
v/s Ratio Prot	0.00	0.00		c0.05	0.02		c0.06	0.32	0.01	0.03	c0.49	
v/s Ratio Perm	0.01			c0.07			c0.47		0.05			0.01
v/c Ratio	0.17	0.08		0.78	0.18		0.71	0.49	0.08	0.54	0.77	0.02
Uniform Delay, d1	66.2	67.4		58.7	60.6		42.8	12.8	5.9	68.6	19.3	10.0
Progression Factor	1.00	1.00		1.00	1.00		1.47	0.34	0.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.4		18.8	0.5		9.8	0.5	0.0	5.8	1.8	0.0
Delay (s)	67.1	67.8		77.5	61.0		72.7	4.8	0.0	74.3	21.1	10.1
Level of Service	E	E		E	E		E	A	A	E	C	B
Approach Delay (s)		67.6			71.1			9.5			22.2	
Approach LOS		E			E			A			C	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
9: Bus Driveway & Nexton Parkway

2028 AM
8/1/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1588	33	11	2394	24	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1672	35	12	2520	25	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1054					
pX, platoon unblocked			0.84		0.84	0.84
vC, conflicting volume			1706		2552	575
vC1, stage 1 conf vol					1689	
vC2, stage 2 conf vol					863	
vCu, unblocked vol			1170		2178	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		86	99
cM capacity (veh/h)			493		183	907

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	669	669	369	516	1008	1008	25	13
Volume Left	0	0	0	12	0	0	25	0
Volume Right	0	0	35	0	0	0	0	13
cSH	1700	1700	1700	493	1700	1700	183	907
Volume to Capacity	0.39	0.39	0.22	0.02	0.59	0.59	0.14	0.01
Queue Length 95th (ft)	0	0	0	2	0	0	12	1
Control Delay (s)	0.0	0.0	0.0	0.7	0.0	0.0	27.8	9.0
Lane LOS				A			D	A
Approach Delay (s)	0.0			0.1			21.5	
Approach LOS							C	

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
11: Brighton Park Blvd. & BPB RIRO Driveway

2028 AM
8/1/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	20	360	27	0	296
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	21	379	28	0	312
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)			419			381
pX, platoon unblocked	1.00	1.00			1.00	
vC, conflicting volume	549	204			407	
vC1, stage 1 conf vol	393					
vC2, stage 2 conf vol	156					
vCu, unblocked vol	546	201			405	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)	5.9					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	538	803			1142	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	21	253	155	156	156
Volume Left	0	0	0	0	0
Volume Right	21	0	28	0	0
cSH	803	1700	1700	1700	1700
Volume to Capacity	0.03	0.15	0.09	0.09	0.09
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	9.6	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.6	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	20.8%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
14: Brighton Park Blvd. & BPB Residential Driveway

2028 AM
8/1/2013

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	60	35	116	156	35	194	32	176	104
v/c Ratio	0.37	0.35	0.54	0.61	0.04	0.08	0.04	0.07	0.09
Control Delay	57.4	39.8	63.1	23.5	10.6	9.0	3.4	3.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	39.8	63.1	23.5	10.6	9.0	3.4	3.0	0.1
Queue Length 50th (ft)	51	9	101	15	11	32	4	11	0
Queue Length 95th (ft)	89	47	154	88	30	58	m10	21	0
Internal Link Dist (ft)		103		126		233		339	
Turn Bay Length (ft)					150		150		100
Base Capacity (vph)	280	413	398	625	829	2431	900	2637	1206
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.08	0.29	0.25	0.04	0.08	0.04	0.07	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis — 2028 AM
14: Brighton Park Blvd. & BPB Residential Driveway — 8/1/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	9	25	110	15	133	33	170	14	30	167	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.87		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1639		1752	1596		1752	3464		1752	3505	1568
Flt Permitted	0.69	1.00		0.36	1.00		0.64	1.00		0.59	1.00	1.00
Satd. Flow (perm)	1272	1639		666	1596		1182	3464		1097	3505	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	60	9	26	116	16	140	35	179	15	32	176	104
RTOR Reduction (vph)	0	25	0	0	129	0	0	2	0	0	0	27
Lane Group Flow (vph)	60	10	0	116	27	0	35	192	0	32	176	77
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	14.3	5.8		26.3	11.8		101.7	101.7		111.7	111.7	111.7
Effective Green, g (s)	14.3	5.8		26.3	11.8		101.7	101.7		111.7	111.7	111.7
Actuated g/C Ratio	0.10	0.04		0.18	0.08		0.68	0.68		0.74	0.74	0.74
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	148	63		221	125		801	2348		834	2610	1167
v/s Ratio Prot	0.02	0.01		c0.05	0.02			c0.06		0.00	c0.05	
v/s Ratio Perm	0.02			c0.04			0.03			0.03		0.05
v/c Ratio	0.41	0.16		0.52	0.22		0.04	0.08		0.04	0.07	0.07
Uniform Delay, d1	63.6	69.7		54.8	64.8		8.0	8.2		5.1	5.1	5.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.52	0.51	0.00
Incremental Delay, d2	1.8	1.2		2.2	0.9		0.1	0.1		0.0	0.0	0.1
Delay (s)	65.4	70.9		57.0	65.6		8.1	8.3		2.7	2.7	0.1
Level of Service	E	E		E	E		A	A		A	A	A
Approach Delay (s)		67.4			62.0			8.3			1.8	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
16: Nexton Parkway & Retail RIRO Driveway

2028 AM
8/1/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	5	1775	27	0	2509
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	5	1868	28	0	2641
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			495			448
pX, platoon unblocked	0.74	0.81			0.81	
vC, conflicting volume	2749	623			1897	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382	0			1288	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	434	876			429	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	5	623	623	623	28	880	880	880
Volume Left	0	0	0	0	0	0	0	0
Volume Right	5	0	0	0	28	0	0	0
cSH	876	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.37	0.37	0.37	0.02	0.52	0.52	0.52
Queue Length 95th (ft)	0	0	0	0	0	0	0	0
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A							
Approach Delay (s)	9.1	0.0				0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
18: Northern Residential Driveway & Nexton Parkway

2028 AM
8/1/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1597	3	9	2392	13	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1681	3	9	2518	14	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1684		2961	842
vC1, stage 1 conf vol					1683	
vC2, stage 2 conf vol					1278	
vCu, unblocked vol			1684		2961	842
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		87	87
cM capacity (veh/h)			371		109	306

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	1121	564	849	1679	14	40
Volume Left	0	0	9	0	14	0
Volume Right	0	3	0	0	0	40
cSH	1700	1700	371	1700	109	306
Volume to Capacity	0.66	0.33	0.03	0.99	0.13	0.13
Queue Length 95th (ft)	0	0	2	0	10	11
Control Delay (s)	0.0	0.0	0.9	0.0	42.6	18.6
Lane LOS			A		E	C
Approach Delay (s)	0.0		0.3		24.7	
Approach LOS					C	

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	82.4%	ICU Level of Service		E
Analysis Period (min)	15			

Queues
3: Nexton Parkway & Brighton Park Blvd.

2028 PM
8/1/2013

Lane Group	NBL	NBT	NBR	SBL	SBT	SET	NWL	NWT
Lane Group Flow (vph)	14	3228	408	192	2953	56	484	137
v/c Ratio	0.12	1.08	0.33	0.62	0.85	0.52	0.92	0.39
Control Delay	9.9	74.0	2.0	72.0	11.6	66.4	84.8	33.5
Queue Delay	0.0	7.6	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	9.9	81.7	2.0	72.0	11.8	66.4	84.8	33.5
Queue Length 50th (ft)	4	~1313	19	100	290	38	156	63
Queue Length 95th (ft)	12	#1379	50	m#104	m297	85	#237	m119
Internal Link Dist (ft)		433			841	140		301
Turn Bay Length (ft)	150		250	200			300	
Base Capacity (vph)	117	2982	1245	312	3484	167	527	443
Starvation Cap Reductn	0	0	0	0	82	0	0	0
Spillback Cap Reductn	0	139	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	1.14	0.33	0.62	0.87	0.34	0.92	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis — 2028 PM
3: Nexton Parkway & Brighton Park Blvd. — 8/1/2013

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (vph)	13	3067	388	182	2792	13	20	13	20	460	20	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.0		6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91			1.00		0.94	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			0.95		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1752	5036	1568	3400	5032			1719		4942	1610	
Flt Permitted	0.05	1.00	1.00	0.95	1.00			0.82		0.95	1.00	
Satd. Flow (perm)	84	5036	1568	3400	5032			1434		4942	1610	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	14	3228	408	192	2939	14	21	14	21	484	21	116
RTOR Reduction (vph)	0	0	103	0	0	0	0	15	0	0	38	0
Lane Group Flow (vph)	14	3228	305	192	2953	0	0	41	0	484	99	0
Turn Type	pm+pt	NA	pm+ov	Prot	NA		Perm	NA		Prot	NA	
Protected Phases	5	2	3	1	6			4		3	8	
Permitted Phases	2		2				4					
Actuated Green, G (s)	90.0	87.6	103.6	13.8	99.0			8.6		16.0	30.6	
Effective Green, g (s)	90.0	87.6	103.6	13.8	99.0			8.6		16.0	30.6	
Actuated g/C Ratio	0.60	0.58	0.69	0.09	0.66			0.06		0.11	0.20	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0			6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	77	2941	1145	312	3321			82		527	328	
v/s Ratio Prot	0.00	c0.64	0.03	c0.06	c0.59					c0.10	0.06	
v/s Ratio Perm	0.11		0.17					c0.03				
v/c Ratio	0.18	1.10	0.27	0.62	0.89			0.50		0.92	0.30	
Uniform Delay, d1	24.5	31.2	8.8	65.5	21.0			68.6		66.4	50.6	
Progression Factor	1.00	1.00	1.00	1.06	0.52			1.00		0.93	0.95	
Incremental Delay, d2	1.1	50.0	0.1	1.0	1.1			4.7		20.7	0.5	
Delay (s)	25.7	81.2	8.9	70.7	12.1			73.3		82.5	48.6	
Level of Service	C	F	A	E	B			E		F	D	
Approach Delay (s)		72.9			15.6			73.3			75.0	
Approach LOS		E			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues
5: Nexton Parkway & Retail Driveway

2028 PM
8/1/2013

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	85	227	181	86	151	3085	129	57	2901	37
v/c Ratio	0.38	0.96	0.79	0.26	1.16	1.00	0.13	0.59	0.99	0.04
Control Delay	51.5	95.7	71.8	22.4	125.5	18.3	1.2	37.3	23.5	0.0
Queue Delay	0.0	0.8	0.0	0.0	0.0	2.6	0.0	0.0	8.3	0.0
Total Delay	51.5	96.5	71.8	22.4	125.5	20.9	1.2	37.3	31.9	0.0
Queue Length 50th (ft)	66	167	149	22	~129	~282	5	16	216	0
Queue Length 95th (ft)	115	#345	#240	74	m#112	m241	m4	m23	#1129	m0
Internal Link Dist (ft)		209		167		920			415	
Turn Bay Length (ft)	150		150		150		150	150		100
Base Capacity (vph)	225	237	234	325	130	3088	1021	96	2920	973
Starvation Cap Reductn	0	0	0	0	0	31	0	0	11	0
Spillback Cap Reductn	0	1	0	0	0	0	0	0	86	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.96	0.77	0.26	1.16	1.01	0.13	0.59	1.02	0.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
5: Nexton Parkway & Retail Driveway

2028 PM
8/1/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	59	157	172	25	57	143	2931	123	54	2756	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.89		1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1644		1752	1652		1752	5036	1568	1752	5036	1568
Flt Permitted	0.70	1.00		0.18	1.00		0.04	1.00	1.00	0.05	1.00	1.00
Satd. Flow (perm)	1293	1644		325	1652		81	5036	1568	85	5036	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	85	62	165	181	26	60	151	3085	129	57	2901	37
RTOR Reduction (vph)	0	55	0	0	50	0	0	0	51	0	0	16
Lane Group Flow (vph)	85	172	0	181	36	0	151	3085	78	57	2901	21
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	23.7	16.7		38.0	25.0		97.8	90.8	90.8	90.2	87.0	87.0
Effective Green, g (s)	23.7	16.7		38.0	25.0		97.8	90.8	90.8	90.2	87.0	87.0
Actuated g/C Ratio	0.16	0.11		0.25	0.17		0.65	0.61	0.61	0.60	0.58	0.58
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	225	183		227	275		130	3048	949	86	2920	909
v/s Ratio Prot	0.02	c0.10		c0.08	0.02		c0.05	c0.61		0.01	0.58	
v/s Ratio Perm	0.04			0.12			c0.70		0.05	0.38		0.01
v/c Ratio	0.38	0.94		0.80	0.13		1.16	1.01	0.08	0.66	0.99	0.02
Uniform Delay, d1	55.9	66.1		47.9	53.2		49.6	29.6	12.3	36.0	31.2	13.4
Progression Factor	1.00	1.00		1.00	1.00		1.65	0.42	1.13	1.72	0.42	1.00
Incremental Delay, d2	1.1	48.6		17.4	0.2		80.8	8.4	0.0	7.8	9.4	0.0
Delay (s)	56.9	114.8		65.4	53.5		162.9	20.7	14.0	69.6	22.5	13.4
Level of Service	E	F		E	D		F	C	B	E	C	B
Approach Delay (s)		99.0			61.5			26.8			23.3	
Approach LOS		F			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	103.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Queues
8: Nexton Parkway & School House Road

2028 PM
8/1/2013

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	85	227	105	49	152	2953	82	21	2724	38
v/c Ratio	0.36	0.89	0.74	0.22	0.84	0.87	0.07	0.40	0.91	0.04
Control Delay	55.0	77.8	81.2	27.9	66.1	11.2	0.1	93.0	32.9	0.1
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	1.0	0.0
Total Delay	55.0	78.0	81.2	27.9	66.1	11.4	0.1	93.0	33.9	0.1
Queue Length 50th (ft)	69	152	86	14	117	236	1	21	860	0
Queue Length 95th (ft)	120	#294	#159	55	m121	m240	m1	#58	938	0
Internal Link Dist (ft)		254		264		368			974	
Turn Bay Length (ft)	150		150		250		100	150		100
Base Capacity (vph)	236	271	142	260	190	3376	1213	53	2997	995
Starvation Cap Reductn	0	0	0	0	0	62	0	0	0	0
Spillback Cap Reductn	0	1	0	0	0	0	0	0	101	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.84	0.74	0.19	0.80	0.89	0.07	0.40	0.94	0.04

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
8: Nexton Parkway & School House Road

2028 PM
8/1/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	59	157	100	15	31	144	2805	78	20	2588	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.89		1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1644		1752	1658		1752	5036	1568	1752	5036	1568
Flt Permitted	0.64	1.00		0.24	1.00		0.04	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1186	1644		447	1658		78	5036	1568	1752	5036	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	85	62	165	105	16	33	152	2953	82	21	2724	38
RTOR Reduction (vph)	0	64	0	0	29	0	0	0	20	0	0	16
Lane Group Flow (vph)	85	163	0	105	20	0	152	2953	63	21	2724	22
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4			8			2		2			6
Actuated Green, G (s)	28.7	18.6		24.5	16.5		105.4	97.0	105.0	2.4	88.1	88.1
Effective Green, g (s)	28.7	18.6		24.5	16.5		105.4	97.0	105.0	2.4	88.1	88.1
Actuated g/C Ratio	0.19	0.12		0.16	0.11		0.70	0.65	0.70	0.02	0.59	0.59
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	265	203		142	182		180	3256	1160	28	2957	920
v/s Ratio Prot	0.02	c0.10		c0.04	0.01		c0.06	c0.59	0.00	0.01	0.54	
v/s Ratio Perm	0.04			0.08			0.52		0.04			0.01
v/c Ratio	0.32	0.80		0.74	0.11		0.84	0.91	0.05	0.75	0.92	0.02
Uniform Delay, d1	51.6	63.9		56.3	60.1		49.5	22.6	7.0	73.5	27.8	13.0
Progression Factor	1.00	1.00		1.00	1.00		1.49	0.46	0.02	1.00	1.00	1.00
Incremental Delay, d2	0.7	20.1		18.1	0.3		10.7	1.6	0.0	71.8	6.1	0.0
Delay (s)	52.3	84.0		74.4	60.4		84.7	12.0	0.1	145.3	33.9	13.0
Level of Service	D	F		E	E		F	B	A	F	C	B
Approach Delay (s)		75.3			69.9			15.2			34.5	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
9: Bus Driveway & Nexton Parkway

2028 PM
8/1/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	2900	17	6	2626	18	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	3053	18	6	2764	19	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	1054					
pX, platoon unblocked			0.40		0.40	0.40
vC, conflicting volume			3071		3996	1026
vC1, stage 1 conf vol					3062	
vC2, stage 2 conf vol					934	
vCu, unblocked vol			926		3239	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		85	98
cM capacity (veh/h)			291		123	432

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1221	1221	628	559	1106	1106	19	9
Volume Left	0	0	0	6	0	0	19	0
Volume Right	0	0	18	0	0	0	0	9
cSH	1700	1700	1700	291	1700	1700	123	432
Volume to Capacity	0.72	0.72	0.37	0.02	0.65	0.65	0.15	0.02
Queue Length 95th (ft)	0	0	0	2	0	0	13	2
Control Delay (s)	0.0	0.0	0.0	0.8	0.0	0.0	39.5	13.5
Lane LOS				A			E	B
Approach Delay (s)	0.0			0.2			30.9	
Approach LOS							D	

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
11: Brighton Park Blvd. & BPB RIRO Driveway

2028 PM
8/1/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	101	489	77	0	583
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	106	515	81	0	614
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)			419			381
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	862	298			596	
vC1, stage 1 conf vol	555					
vC2, stage 2 conf vol	307					
vCu, unblocked vol	801	221			527	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)	5.9					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	86			100	
cM capacity (veh/h)	427	758			1000	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	106	343	253	307	307
Volume Left	0	0	0	0	0
Volume Right	106	0	81	0	0
cSH	758	1700	1700	1700	1700
Volume to Capacity	0.14	0.20	0.15	0.18	0.18
Queue Length 95th (ft)	12	0	0	0	0
Control Delay (s)	10.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.5	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
14: Brighton Park Blvd. & BPB Residential Driveway

2028 PM
8/1/2013

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	192	51	64	298	430	127	241	213
v/c Ratio	0.67	0.72	0.33	0.41	0.41	0.19	0.18	0.09	0.17
Control Delay	70.7	35.2	55.1	28.1	16.9	11.0	4.9	4.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.7	35.2	55.1	28.1	16.9	11.0	4.9	4.0	0.3
Queue Length 50th (ft)	122	50	43	11	131	74	20	20	0
Queue Length 95th (ft)	175	133	77	57	259	131	43	37	4
Internal Link Dist (ft)		103		126		233		339	
Turn Bay Length (ft)					150		150		100
Base Capacity (vph)	206	395	248	376	722	2212	698	2624	1227
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.49	0.21	0.17	0.41	0.19	0.18	0.09	0.17

Intersection Summary

HCM Signalized Intersection Capacity Analysis — 2028 PM
14: Brighton Park Blvd. & BPB Residential Driveway — 8/1/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	31	151	48	11	49	283	310	99	121	229	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.88		1.00	0.88		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1616		1752	1620		1752	3378		1752	3505	1568
Flt Permitted	0.50	1.00		0.44	1.00		0.60	1.00		0.46	1.00	1.00
Satd. Flow (perm)	924	1616		811	1620		1110	3378		856	3505	1568
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	33	159	51	12	52	298	326	104	127	241	213
RTOR Reduction (vph)	0	128	0	0	49	0	0	14	0	0	0	55
Lane Group Flow (vph)	137	64	0	51	15	0	298	416	0	127	241	158
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	24.8	13.0		17.0	9.1		96.4	96.4		111.1	111.1	111.1
Effective Green, g (s)	24.8	13.0		17.0	9.1		96.4	96.4		111.1	111.1	111.1
Actuated g/C Ratio	0.17	0.09		0.11	0.06		0.64	0.64		0.74	0.74	0.74
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	217	140		141	98		713	2170		685	2596	1161
v/s Ratio Prot	c0.05	0.04		0.02	0.01			0.12		c0.01	0.07	
v/s Ratio Perm	c0.05			0.02			c0.27			0.13		0.10
v/c Ratio	0.63	0.46		0.36	0.15		0.42	0.19		0.19	0.09	0.14
Uniform Delay, d1	56.7	65.1		60.8	66.8		13.1	10.9		5.7	5.4	5.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.68	0.65	0.06
Incremental Delay, d2	5.9	2.4		1.6	0.7		1.8	0.2		0.1	0.1	0.2
Delay (s)	62.6	67.5		62.4	67.5		14.9	11.1		4.0	3.6	0.6
Level of Service	E	E		E	E		B	B		A	A	A
Approach Delay (s)		65.5			65.3			12.7			2.6	
Approach LOS		E			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
16: Nexton Parkway & Retail RIRO Driveway

2028 PM
8/1/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	30	2997	72	0	2845
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	32	3155	76	0	2995
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			495			448
pX, platoon unblocked	0.66	0.40			0.40	
vC, conflicting volume	4153	1052			3231	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			1356	
tC, single (s)	6.9	7.0			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			100	
cM capacity (veh/h)	672	437			201	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	32	1052	1052	1052	76	998	998	998
Volume Left	0	0	0	0	0	0	0	0
Volume Right	32	0	0	0	76	0	0	0
cSH	437	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.07	0.62	0.62	0.62	0.04	0.59	0.59	0.59
Queue Length 95th (ft)	6	0	0	0	0	0	0	0
Control Delay (s)	13.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B							
Approach Delay (s)	13.9	0.0				0.0		
Approach LOS	B							

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
18: Northern Residential Driveway & Nexton Parkway

2028 PM
8/1/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	2897	12	37	2620	7	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	3049	13	39	2758	7	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			3062		4513	1531
vC1, stage 1 conf vol					3056	
vC2, stage 2 conf vol					1457	
vCu, unblocked vol			3062		4513	1531
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.5	3.3
p0 queue free %			63		65	80
cM capacity (veh/h)			105		21	105

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	2033	1029	958	1839	7	21
Volume Left	0	0	39	0	7	0
Volume Right	0	13	0	0	0	21
cSH	1700	1700	105	1700	21	105
Volume to Capacity	1.20	0.61	0.37	1.08	0.35	0.20
Queue Length 95th (ft)	0	0	38	0	25	18
Control Delay (s)	0.0	0.0	47.8	0.0	249.4	47.8
Lane LOS			E		F	E
Approach Delay (s)	0.0		16.4		100.1	
Approach LOS					F	

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		

Attachment J:
Claritas Population Projections & Methodology

Claritas Pop-Facts Update 2017

County	2017 Population	2022 Population
Primary Service Area	**745,275**	**810,108**
Berkeley County	164,639	179,901
00-04	10,912	11,630
05-09	11,123	11,585
10-14	11,125	11,868
15-17	6,428	7,396
18-19	4,617	5,227
20	2,393	2,543
21	2,365	2,497
22-24	6,968	7,403
25-29	11,335	11,042
30-34	11,679	11,892
35-39	10,932	12,312
40-44	10,477	11,532
45-49	10,537	11,027
50-54	10,739	11,031
55-59	10,681	11,161
60-61	4,048	4,624
62-64	5,482	6,323
65-66	3,476	4,117
67-69	4,656	5,505
70-74	6,342	8,087
75-79	4,128	5,524
80-84	2,320	3,240
85-UP	1,876	2,335
Charleston County	391,891	424,487
00-04	23,119	24,237
05-09	22,824	24,661
10-14	21,372	24,464
15-17	12,148	14,381
18-19	10,593	12,015
20	5,430	5,158

21	5,148	4,902
22-24	14,365	13,534
25-29	33,216	25,739
30-34	31,795	35,445
35-39	26,870	31,628
40-44	23,821	28,561
45-49	23,244	25,179
50-54	24,968	24,435
55-59	26,130	25,901
60-61	10,473	11,365
62-64	14,308	15,540
65-66	9,620	12,180
67-69	12,893	16,315
70-74	15,592	20,003
75-79	10,388	13,023
80-84	6,595	8,296
85-UP	6,979	7,525
Dorchester County	188,745	205,720
00-04	12,469	13,280
05-09	13,033	13,282
10-14	13,621	13,866
15-17	8,023	9,017
18-19	4,940	5,450
20	2,432	2,740
21	2,385	2,703
22-24	7,354	8,347
25-29	12,936	12,988
30-34	13,361	13,750
35-39	12,892	13,933
40-44	12,620	13,539
45-49	12,917	13,166
50-54	13,045	13,360
55-59	12,333	13,314
60-61	4,467	5,260
62-64	6,123	7,172
65-66	3,788	4,532
67-69	5,120	6,049
70-74	6,509	8,549

75-79	4,106	5,850
80-84	2,350	3,211
85-UP	1,921	2,362
Secondary Service Area	**846,353**	**901,259**
Beaufort County	185,491	201,584
00-04	10,636	11,559
05-09	10,736	11,450
10-14	10,331	11,574
15-17	5,706	6,983
18-19	5,047	5,715
20	2,447	2,487
21	2,353	2,422
22-24	6,866	7,113
25-29	11,027	10,384
30-34	10,794	11,536
35-39	10,060	11,543
40-44	9,730	10,736
45-49	9,565	10,351
50-54	9,909	10,102
55-59	10,792	10,378
60-61	5,316	5,278
62-64	7,304	7,155
65-66	7,044	8,443
67-69	9,431	11,326
70-74	13,049	15,631
75-79	8,121	9,266
80-84	4,807	5,043
85-UP	4,420	5,109
Colleton County	35,150	35,249
00-04	2,144	2,148
05-09	2,254	2,113
10-14	2,317	2,223
15-17	1,371	1,430
18-19	842	858
20	428	437
21	409	440
22-24	1,288	1,302
25-29	2,034	2,092

30-34	1,912	2,000
35-39	1,849	1,882
40-44	1,932	1,817
45-49	2,140	1,882
50-54	2,425	2,088
55-59	2,491	2,314
60-61	1,074	1,081
62-64	1,434	1,484
65-66	1,025	1,207
67-69	1,385	1,599
70-74	1,765	2,023
75-79	1,189	1,274
80-84	709	767
85-UP	733	788
Florence County	147,834	151,873
00-04	9,379	9,445
05-09	9,698	9,443
10-14	10,009	9,763
15-17	5,894	6,308
18-19	3,781	4,003
20	2,285	2,376
21	2,121	2,230
22-24	5,854	6,179
25-29	9,237	9,214
30-34	9,061	9,217
35-39	8,948	9,020
40-44	9,134	8,939
45-49	9,339	9,087
50-54	9,608	9,235
55-59	9,834	9,375
60-61	4,051	4,087
62-64	5,488	5,566
65-66	3,733	4,447
67-69	4,971	5,971
70-74	6,098	7,304
75-79	4,216	4,702
80-84	2,647	3,175
85-UP	2,448	2,787

Georgetown County	53,766	55,407
00-04	2,787	2,881
05-09	2,934	2,846
10-14	3,264	3,020
15-17	2,041	2,091
18-19	1,252	1,289
20	620	677
21	606	671
22-24	1,864	2,052
25-29	2,797	3,153
30-34	2,583	2,863
35-39	2,669	2,629
40-44	2,815	2,698
45-49	3,036	2,847
50-54	3,358	3,058
55-59	3,837	3,380
60-61	1,849	1,937
62-64	2,517	2,683
65-66	2,009	2,330
67-69	2,651	3,121
70-74	3,506	4,051
75-79	2,262	2,479
80-84	1,292	1,311
85-UP	1,217	1,340
Horry County	333,621	367,254
00-04	16,957	18,282
05-09	17,625	18,612
10-14	18,052	19,413
15-17	10,852	12,454
18-19	7,477	8,456
20	3,680	3,836
21	3,609	3,792
22-24	11,047	11,450
25-29	20,573	20,031
30-34	20,246	22,451
35-39	19,122	22,148
40-44	19,398	20,846
45-49	20,065	21,037

50-54	21,587	21,615
55-59	23,066	22,988
60-61	11,199	12,348
62-64	15,325	16,841
65-66	12,208	15,502
67-69	16,414	20,793
70-74	19,781	24,652
75-79	12,197	14,337
80-84	7,089	7,923
85-UP	6,052	7,447
Orangeburg County	90,491	89,892
00-04	5,608	5,554
05-09	5,700	5,478
10-14	5,644	5,590
15-17	3,360	3,473
18-19	2,917	2,950
20	1,599	1,509
21	1,467	1,364
22-24	3,786	3,532
25-29	5,860	5,547
30-34	5,247	5,680
35-39	4,644	5,091
40-44	4,645	4,521
45-49	5,100	4,479
50-54	5,847	4,894
55-59	6,239	5,581
60-61	2,613	2,623
62-64	3,589	3,611
65-66	2,534	2,938
67-69	3,382	3,938
70-74	4,260	4,851
75-79	2,746	2,915
80-84	1,861	1,862
85-UP	1,843	1,911
Tertiary Service Area	**3,340,317**	**3,502,217**
Abbeville County	20,012	20,238
00-04	1,079	1,086
05-09	1,125	1,080

10-14	1,211	1,140
15-17	781	791
18-19	650	654
20	341	350
21	310	328
22-24	798	858
25-29	1,055	1,138
30-34	1,016	1,055
35-39	1,011	1,006
40-44	1,102	1,019
45-49	1,225	1,095
50-54	1,276	1,197
55-59	1,382	1,245
60-61	647	663
62-64	883	907
65-66	633	738
67-69	829	990
70-74	1,014	1,181
75-79	718	772
80-84	454	440
85-UP	472	505
Aiken County	157,591	163,994
00-04	8,940	9,292
05-09	9,371	9,207
10-14	9,871	9,685
15-17	5,920	6,383
18-19	3,927	4,200
20	2,013	2,115
21	1,950	2,065
22-24	5,801	6,042
25-29	9,891	9,676
30-34	9,818	10,153
35-39	9,088	10,010
40-44	8,915	9,325
45-49	9,528	9,057
50-54	10,552	9,620
55-59	11,304	10,599
60-61	4,615	4,977

62-64	6,337	6,763
65-66	4,430	5,492
67-69	5,950	7,385
70-74	7,808	9,350
75-79	4,957	5,503
80-84	3,390	3,501
85-UP	3,215	3,594
Allendale County	9,329	8,854
00-04	465	429
05-09	477	424
10-14	514	448
15-17	322	295
18-19	190	190
20	136	125
21	123	120
22-24	405	386
25-29	753	744
30-34	660	687
35-39	549	545
40-44	571	499
45-49	646	551
50-54	607	539
55-59	636	530
60-61	283	275
62-64	391	375
65-66	278	291
67-69	356	398
70-74	397	429
75-79	236	245
80-84	173	161
85-UP	161	168
Anderson County	166,779	174,392
00-04	9,948	10,291
05-09	10,406	10,244
10-14	10,828	10,769
15-17	6,578	6,988
18-19	4,440	4,797
20	2,179	2,375

21	2,081	2,298
22-24	6,136	6,699
25-29	9,746	10,205
30-34	9,684	10,019
35-39	9,628	9,918
40-44	10,105	9,876
45-49	10,616	10,329
50-54	11,098	10,765
55-59	11,479	11,139
60-61	4,541	4,848
62-64	6,222	6,596
65-66	4,437	5,419
67-69	5,942	7,323
70-74	7,984	9,580
75-79	5,571	6,124
80-84	3,698	3,872
85-UP	3,432	3,918
Bamberg County	13,973	13,444
00-04	705	675
05-09	734	667
10-14	781	698
15-17	596	549
18-19	676	645
20	361	360
21	323	309
22-24	717	700
25-29	745	809
30-34	641	693
35-39	637	606
40-44	693	605
45-49	794	647
50-54	891	742
55-59	958	830
60-61	439	436
62-64	599	619
65-66	398	443
67-69	528	593
70-74	670	732

75-79	455	459
80-84	299	280
85-UP	333	347
Barnwell County	22,546	22,370
00-04	1,561	1,538
05-09	1,525	1,513
10-14	1,546	1,484
15-17	946	937
18-19	578	562
20	301	294
21	282	298
22-24	884	890
25-29	1,348	1,427
30-34	1,226	1,295
35-39	1,221	1,170
40-44	1,273	1,175
45-49	1,342	1,225
50-54	1,507	1,277
55-59	1,634	1,422
60-61	637	661
62-64	879	891
65-66	602	686
67-69	805	930
70-74	999	1,138
75-79	617	684
80-84	404	449
85-UP	429	424
Calhoun County	10,536	10,523
00-04	569	566
05-09	596	561
10-14	639	593
15-17	382	392
18-19	227	240
20	121	124
21	121	119
22-24	370	359
25-29	580	606
30-34	535	570

35-39	550	531
40-44	587	543
45-49	637	578
50-54	742	624
55-59	845	761
60-61	371	397
62-64	508	545
65-66	337	388
67-69	438	514
70-74	578	655
75-79	340	372
80-84	222	233
85-UP	241	252
Cherokee County	51,012	52,544
00-04	3,145	3,195
05-09	3,266	3,181
10-14	3,422	3,310
15-17	2,110	2,181
18-19	1,354	1,408
20	694	682
21	668	707
22-24	2,067	2,080
25-29	3,331	3,372
30-34	3,018	3,356
35-39	2,880	3,053
40-44	3,183	2,905
45-49	3,453	3,198
50-54	3,449	3,439
55-59	3,374	3,379
60-61	1,332	1,384
62-64	1,824	1,875
65-66	1,277	1,519
67-69	1,715	2,002
70-74	2,143	2,575
75-79	1,440	1,635
80-84	936	1,091
85-UP	931	1,017
Chester County	32,686	32,768

00-04	1,999	1,980
05-09	2,073	1,970
10-14	2,094	2,052
15-17	1,241	1,299
18-19	751	773
20	406	390
21	387	393
22-24	1,195	1,197
25-29	1,970	1,960
30-34	1,806	1,934
35-39	1,707	1,783
40-44	1,882	1,663
45-49	2,189	1,838
50-54	2,353	2,122
55-59	2,426	2,265
60-61	1,004	1,056
62-64	1,362	1,450
65-66	895	1,074
67-69	1,192	1,412
70-74	1,528	1,767
75-79	968	1,044
80-84	639	682
85-UP	619	664
Chesterfield County	44,189	44,690
00-04	2,554	2,563
05-09	2,672	2,562
10-14	2,868	2,678
15-17	1,793	1,783
18-19	1,102	1,074
20	562	578
21	560	566
22-24	1,722	1,777
25-29	2,658	2,832
30-34	2,432	2,620
35-39	2,430	2,422
40-44	2,686	2,408
45-49	3,020	2,654
50-54	3,236	2,957

55-59	3,180	3,139
60-61	1,276	1,328
62-64	1,752	1,834
65-66	1,189	1,435
67-69	1,611	1,933
70-74	1,993	2,335
75-79	1,313	1,426
80-84	870	956
85-UP	710	830
Clarendon County	34,791	34,646
00-04	1,792	1,811
05-09	1,872	1,783
10-14	2,021	1,866
15-17	1,330	1,338
18-19	862	839
20	511	496
21	500	481
22-24	1,534	1,521
25-29	2,134	2,175
30-34	1,852	1,988
35-39	1,728	1,784
40-44	1,792	1,703
45-49	1,931	1,710
50-54	2,273	1,899
55-59	2,614	2,255
60-61	1,151	1,198
62-64	1,581	1,673
65-66	1,142	1,321
67-69	1,519	1,759
70-74	1,959	2,215
75-79	1,310	1,381
80-84	759	760
85-UP	624	690
Darlington County	64,318	64,821
00-04	3,681	3,661
05-09	3,888	3,657
10-14	4,188	3,871
15-17	2,589	2,628

18-19	1,738	1,752
20	912	931
21	874	883
22-24	2,558	2,632
25-29	3,817	4,051
30-34	3,430	3,759
35-39	3,526	3,396
40-44	3,890	3,478
45-49	4,122	3,828
50-54	4,336	4,026
55-59	4,598	4,196
60-61	1,963	2,005
62-64	2,650	2,782
65-66	1,780	2,135
67-69	2,402	2,849
70-74	2,949	3,450
75-79	1,939	2,087
80-84	1,270	1,411
85-UP	1,218	1,353
Dillon County	31,561	31,731
00-04	2,217	2,212
05-09	2,244	2,167
10-14	2,257	2,195
15-17	1,340	1,389
18-19	782	831
20	406	421
21	413	404
22-24	1,246	1,259
25-29	1,980	2,020
30-34	1,826	1,922
35-39	1,850	1,778
40-44	1,845	1,784
45-49	1,863	1,771
50-54	2,032	1,777
55-59	2,136	1,930
60-61	849	846
62-64	1,182	1,166
65-66	765	899

67-69	1,039	1,210
70-74	1,292	1,512
75-79	878	981
80-84	543	644
85-UP	576	613
Edgefield County	34,012	35,159
00-04	1,616	1,679
05-09	1,764	1,679
10-14	2,019	1,826
15-17	1,308	1,340
18-19	800	825
20	447	476
21	438	482
22-24	1,370	1,486
25-29	2,110	2,328
30-34	2,229	2,259
35-39	2,234	2,225
40-44	2,124	2,089
45-49	2,322	2,156
50-54	2,468	2,263
55-59	2,621	2,533
60-61	1,006	1,142
62-64	1,373	1,554
65-66	909	1,118
67-69	1,249	1,493
70-74	1,440	1,769
75-79	903	1,044
80-84	613	673
85-UP	649	720
Fairfield County	22,123	21,988
00-04	1,109	1,097
05-09	1,196	1,099
10-14	1,317	1,188
15-17	840	812
18-19	496	496
20	277	257
21	265	262
22-24	817	799

25-29	1,270	1,344
30-34	1,114	1,258
35-39	1,119	1,093
40-44	1,244	1,105
45-49	1,386	1,214
50-54	1,614	1,361
55-59	1,949	1,800
60-61	798	847
62-64	1,071	1,158
65-66	680	802
67-69	925	1,079
70-74	1,068	1,236
75-79	718	770
80-84	456	478
85-UP	394	433
Greenville County	546,047	586,201
00-04	34,651	36,320
05-09	35,807	36,541
10-14	36,060	37,810
15-17	20,973	23,762
18-19	15,062	16,735
20	8,009	8,675
21	7,530	8,198
22-24	20,668	22,691
25-29	34,669	34,100
30-34	36,322	36,265
35-39	35,269	37,998
40-44	35,772	36,912
45-49	36,700	37,186
50-54	37,199	37,961
55-59	36,328	37,974
60-61	13,681	15,462
62-64	18,716	21,059
65-66	12,049	14,565
67-69	16,113	19,583
70-74	21,486	27,169
75-79	14,764	17,614
80-84	9,271	11,543

85-UP	8,948	10,078
Greenwood County	68,334	69,906
00-04	4,305	4,381
05-09	4,429	4,353
10-14	4,359	4,473
15-17	2,608	2,800
18-19	2,100	2,151
20	989	961
21	926	918
22-24	2,686	2,678
25-29	4,372	4,340
30-34	4,172	4,383
35-39	3,972	4,160
40-44	3,973	3,940
45-49	4,244	3,964
50-54	4,430	4,159
55-59	4,381	4,284
60-61	1,736	1,786
62-64	2,391	2,447
65-66	1,709	1,969
67-69	2,280	2,656
70-74	3,026	3,586
75-79	2,063	2,254
80-84	1,560	1,508
85-UP	1,623	1,755
Hampton County	23,553	23,372
00-04	1,322	1,297
05-09	1,360	1,288
10-14	1,453	1,336
15-17	909	908
18-19	566	521
20	321	314
21	313	299
22-24	953	949
25-29	1,542	1,619
30-34	1,498	1,610
35-39	1,439	1,421
40-44	1,431	1,346

45-49	1,462	1,310
50-54	1,603	1,396
55-59	1,657	1,488
60-61	685	695
62-64	923	937
65-66	642	760
67-69	861	1,005
70-74	1,094	1,246
75-79	685	724
80-84	456	478
85-UP	378	425
Jasper County	26,339	28,659
00-04	1,609	1,750
05-09	1,665	1,720
10-14	1,638	1,791
15-17	948	1,112
18-19	577	677
20	362	363
21	355	354
22-24	1,091	1,101
25-29	1,905	1,887
30-34	1,765	1,989
35-39	1,599	1,815
40-44	1,593	1,675
45-49	1,624	1,643
50-54	1,756	1,697
55-59	1,803	1,787
60-61	734	824
62-64	1,014	1,111
65-66	709	897
67-69	945	1,183
70-74	1,122	1,426
75-79	699	847
80-84	422	550
85-UP	404	460
Kershaw County	70,707	74,426
00-04	4,291	4,481
05-09	4,535	4,453

10-14	4,895	4,717
15-17	2,866	3,129
18-19	1,807	1,961
20	862	941
21	850	940
22-24	2,545	2,854
25-29	4,042	4,389
30-34	4,174	4,205
35-39	4,273	4,342
40-44	4,344	4,407
45-49	4,586	4,443
50-54	4,936	4,662
55-59	5,141	4,964
60-61	2,042	2,263
62-64	2,795	3,117
65-66	1,833	2,270
67-69	2,478	3,027
70-74	3,026	3,743
75-79	1,951	2,319
80-84	1,304	1,480
85-UP	1,131	1,319
Lancaster County	68,210	73,147
00-04	3,773	3,994
05-09	4,001	3,975
10-14	4,136	4,269
15-17	2,501	2,742
18-19	1,503	1,681
20	837	885
21	818	866
22-24	2,516	2,688
25-29	4,448	4,566
30-34	4,249	4,676
35-39	3,984	4,416
40-44	4,287	4,175
45-49	4,414	4,459
50-54	4,556	4,584
55-59	4,653	4,667
60-61	1,854	1,988

62-64	2,501	2,719
65-66	2,002	2,467
67-69	2,651	3,317
70-74	3,539	4,346
75-79	2,303	2,588
80-84	1,401	1,566
85-UP	1,283	1,513
Laurens County	60,808	62,161
00-04	3,473	3,544
05-09	3,638	3,522
10-14	3,788	3,730
15-17	2,330	2,438
18-19	1,731	1,823
20	951	976
21	887	902
22-24	2,432	2,459
25-29	3,592	3,626
30-34	3,350	3,617
35-39	3,178	3,355
40-44	3,461	3,212
45-49	3,830	3,444
50-54	4,173	3,817
55-59	4,347	4,104
60-61	1,798	1,887
62-64	2,453	2,573
65-66	1,699	2,061
67-69	2,259	2,752
70-74	2,839	3,344
75-79	1,829	2,004
80-84	1,302	1,402
85-UP	1,468	1,569
Lee County	14,862	14,308
00-04	744	739
05-09	801	713
10-14	905	759
15-17	556	563
18-19	333	336
20	226	221

21	220	221
22-24	692	684
25-29	1,102	1,063
30-34	972	992
35-39	836	816
40-44	841	800
45-49	844	753
50-54	970	791
55-59	1,076	884
60-61	464	475
62-64	634	648
65-66	396	452
67-69	529	596
70-74	672	747
75-79	447	451
80-84	308	293
85-UP	294	311
Lexington County	303,656	324,026
00-04	17,918	18,745
05-09	18,881	18,867
10-14	19,949	19,936
15-17	12,229	13,318
18-19	7,493	8,183
20	3,823	4,157
21	3,802	4,080
22-24	11,528	12,648
25-29	19,407	19,973
30-34	19,949	20,403
35-39	19,491	20,617
40-44	20,257	20,315
45-49	20,915	20,875
50-54	21,384	21,380
55-59	21,312	21,739
60-61	8,016	9,043
62-64	11,004	12,338
65-66	7,030	8,798
67-69	9,490	11,780
70-74	12,105	15,259

75-79	7,974	9,854
80-84	4,968	6,313
85-UP	4,731	5,405
Marion County	29,316	29,147
00-04	1,810	1,787
05-09	1,888	1,767
10-14	1,955	1,848
15-17	1,167	1,191
18-19	694	712
20	372	351
21	368	366
22-24	1,136	1,103
25-29	1,768	1,832
30-34	1,621	1,718
35-39	1,657	1,575
40-44	1,662	1,603
45-49	1,698	1,603
50-54	1,825	1,635
55-59	2,071	1,751
60-61	932	936
62-64	1,299	1,295
65-66	880	1,012
67-69	1,146	1,339
70-74	1,341	1,548
75-79	886	943
80-84	589	629
85-UP	551	603
Marlboro County	26,983	26,551
00-04	1,427	1,399
05-09	1,503	1,392
10-14	1,550	1,462
15-17	948	936
18-19	586	569
20	360	350
21	355	340
22-24	1,092	1,086
25-29	1,996	2,033
30-34	1,980	2,001

35-39	1,839	1,748
40-44	1,760	1,627
45-49	1,751	1,591
50-54	1,842	1,606
55-59	1,845	1,691
60-61	743	762
62-64	1,007	1,032
65-66	705	824
67-69	975	1,114
70-74	1,129	1,287
75-79	707	748
80-84	456	500
85-UP	427	453
McCormick County	10,459	10,310
00-04	350	343
05-09	396	340
10-14	429	413
15-17	254	269
18-19	156	161
20	96	92
21	96	96
22-24	309	281
25-29	579	577
30-34	575	600
35-39	479	488
40-44	539	458
45-49	618	523
50-54	732	619
55-59	802	684
60-61	393	424
62-64	540	582
65-66	497	553
67-69	670	744
70-74	900	980
75-79	553	574
80-84	284	285
85-UP	212	224
Newberry County	40,075	41,440

00-04	2,283	2,359
05-09	2,349	2,339
10-14	2,469	2,418
15-17	1,528	1,603
18-19	1,235	1,287
20	614	631
21	582	602
22-24	1,570	1,641
25-29	2,339	2,431
30-34	2,216	2,375
35-39	2,122	2,255
40-44	2,274	2,154
45-49	2,481	2,304
50-54	2,643	2,470
55-59	2,824	2,632
60-61	1,210	1,304
62-64	1,658	1,743
65-66	1,156	1,394
67-69	1,541	1,888
70-74	2,002	2,373
75-79	1,258	1,397
80-84	823	891
85-UP	898	949
Oconee County	76,514	79,315
00-04	4,070	4,200
05-09	4,186	4,197
10-14	4,374	4,390
15-17	2,642	2,785
18-19	1,620	1,711
20	874	881
21	870	870
22-24	2,665	2,645
25-29	4,420	4,507
30-34	4,105	4,547
35-39	3,918	4,195
40-44	4,184	4,034
45-49	4,578	4,255
50-54	4,971	4,628

55-59	5,545	4,989
60-61	2,516	2,699
62-64	3,438	3,702
65-66	2,646	3,201
67-69	3,572	4,272
70-74	4,758	5,538
75-79	3,125	3,432
80-84	1,882	1,867
85-UP	1,555	1,770
Pickens County	131,411	137,597
00-04	6,807	7,069
05-09	7,234	7,102
10-14	7,819	7,537
15-17	4,987	5,069
18-19	3,372	3,414
20	2,865	2,533
21	2,752	2,445
22-24	8,164	7,114
25-29	9,057	10,521
30-34	7,604	9,401
35-39	7,163	7,879
40-44	7,635	7,391
45-49	8,261	7,860
50-54	8,861	8,432
55-59	8,893	8,960
60-61	3,381	3,731
62-64	4,637	5,111
65-66	3,189	3,816
67-69	4,276	5,181
70-74	5,825	7,187
75-79	3,795	4,362
80-84	2,507	2,830
85-UP	2,327	2,652
Richland County	396,515	418,917
00-04	23,587	24,299
05-09	24,238	24,442
10-14	24,426	25,184
15-17	14,974	16,166

18-19	16,751	17,288
20	9,208	8,182
21	8,658	7,596
22-24	23,477	20,403
25-29	30,545	32,567
30-34	28,140	30,323
35-39	25,466	28,371
40-44	23,750	26,050
45-49	23,382	24,232
50-54	23,922	23,800
55-59	24,038	24,089
60-61	9,189	10,098
62-64	12,553	13,802
65-66	7,638	9,129
67-69	10,359	12,268
70-74	13,029	16,849
75-79	8,387	11,498
80-84	5,381	6,425
85-UP	5,417	5,856
Saluda County	11,852	12,144
00-04	833	840
05-09	833	829
10-14	780	832
15-17	416	485
18-19	251	295
20	134	133
21	132	132
22-24	416	408
25-29	775	682
30-34	812	773
35-39	741	801
40-44	708	737
45-49	727	696
50-54	754	709
55-59	778	742
60-61	298	321
62-64	409	426
65-66	257	319

67-69	370	420
70-74	525	598
75-79	359	386
80-84	238	260
85-UP	306	320
Spartanburg County	297,170	313,035
00-04	18,153	18,858
05-09	18,801	18,834
10-14	19,524	19,542
15-17	11,992	12,773
18-19	8,697	9,168
20	4,360	4,570
21	4,179	4,421
22-24	12,032	12,652
25-29	19,090	19,730
30-34	18,067	19,640
35-39	17,166	18,551
40-44	18,222	17,603
45-49	19,632	18,642
50-54	20,247	19,885
55-59	19,919	20,308
60-61	7,792	8,367
62-64	10,637	11,499
65-66	7,146	8,661
67-69	9,629	11,627
70-74	12,720	15,629
75-79	8,584	9,696
80-84	5,517	6,568
85-UP	5,064	5,811
Sumter County	106,157	107,936
00-04	7,442	7,518
05-09	7,355	7,353
10-14	7,117	7,279
15-17	4,242	4,438
18-19	2,830	2,958
20	1,725	1,631
21	1,683	1,577
22-24	4,846	4,557

25-29	7,726	7,264
30-34	6,987	7,521
35-39	6,200	6,822
40-44	5,867	6,059
45-49	6,128	5,732
50-54	6,704	5,933
55-59	6,874	6,446
60-61	2,637	2,765
62-64	3,621	3,748
65-66	2,250	2,566
67-69	3,019	3,443
70-74	4,076	4,844
75-79	3,042	3,285
80-84	1,969	2,186
85-UP	1,817	2,011
Union County	26,533	26,363
00-04	1,424	1,401
05-09	1,517	1,407
10-14	1,657	1,543
15-17	1,039	1,041
18-19	657	657
20	313	331
21	322	303
22-24	937	957
25-29	1,476	1,537
30-34	1,383	1,453
35-39	1,427	1,362
40-44	1,603	1,403
45-49	1,705	1,551
50-54	1,868	1,654
55-59	2,057	1,827
60-61	806	873
62-64	1,119	1,225
65-66	771	908
67-69	1,030	1,213
70-74	1,298	1,498
75-79	909	970
80-84	622	601

85-UP	593	648
Williamsburg County	29,968	29,454
00-04	1,593	1,569
05-09	1,704	1,559
10-14	1,889	1,676
15-17	1,197	1,139
18-19	716	702
20	389	383
21	375	392
22-24	1,173	1,171
25-29	1,918	2,028
30-34	1,755	1,886
35-39	1,712	1,647
40-44	1,741	1,589
45-49	1,838	1,659
50-54	1,929	1,697
55-59	2,169	1,859
60-61	944	970
62-64	1,291	1,318
65-66	881	1,011
67-69	1,192	1,357
70-74	1,443	1,631
75-79	910	965
80-84	610	611
85-UP	599	635
York County	259,390	281,640
00-04	15,937	16,848
05-09	17,081	16,979
10-14	18,322	18,268
15-17	10,905	12,205
18-19	7,803	8,580
20	3,524	4,165
21	3,394	3,952
22-24	9,761	11,553
25-29	15,102	16,591
30-34	15,712	15,973
35-39	16,419	16,641
40-44	17,846	17,347

45-49	18,705	18,785
50-54	18,584	19,527
55-59	17,770	19,243
60-61	6,567	7,668
62-64	8,953	10,477
65-66	5,573	6,840
67-69	7,518	9,217
70-74	9,985	12,831
75-79	6,547	8,569
80-84	3,889	5,187
85-UP	3,493	4,194

CLARITAS

CLARITAS DEMOGRAPHIC UPDATE 2017.1 METHODOLOGY

AUGUST 2016

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INTRODUCTION

This methodology document covers the 2017.1 Claritas Demographic Update. Claritas has a proven track record as an industry leader producing quality data, and maintains this position by continually innovating and improving upon the methodology used for the annual demographic update. Claritas utilizes existing and new external data resources that can lead to increased value, and is continually looking to the future and to changes that may impact the demographic estimation process. One example of this has been the replacement of the census long form with the American Community Survey.

This document will outline the process for the development of the 2017.1 update. It includes household and population data covering more than 4,000 demographic variables from Census 2000, Census 2010, and the American Community Survey, as well as current year estimates and five-year projections.

EXPERIENCED LEADERSHIP

The Claritas demographics team is headed by Dr. Ken Hodges, who brings a 34-year history of groundbreaking contributions to the field of applied demography. After earning his doctorate in Sociology and Demography from Cornell University, Dr. Hodges joined Claritas in 1982. During his tenure, Dr. Hodges has developed and refined methods for using consumer database information as input to small area estimates, and adapted standard demographic methods for use in nationwide small area estimates.

In addition to his work at Claritas, Dr. Hodges' professional involvements include the following:

- Author, A Compass for Understanding and Using American Community Survey Data: What the Business Community Needs to Know
- Board Member, Council of Professional Associations on Federal Statistics
- Member, Population Association of America Committee on Population Statistics
- Member, American Community Survey Data Products Redesign Group

EVALUATION AND SUPPORT MATERIALS

The Claritas demographic update is supported by extensive research and evaluation, with results often documented in professional papers. In addition to this methodology document, papers describing the following topics are available:

- Improving the accuracy of block group data from the American Community Survey
- ACS multi-year estimates as proxies for point in time data
- Evaluation of 2010 estimates against 2010 census results
- Evaluation of Claritas Master Address File counts against 2010 census results
- Comparison of 1996 estimates and 2001 projections from alternative suppliers
- Evaluation of geometric data retrieval methods

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DEMOGRAPHIC UPDATE

The update is a shorthand term for the massive set of demographic estimates and projections produced for the Claritas Pop-Facts products. ***Estimates*** consist of data prepared for the current year, and ***projections*** (sometimes called forecasts) prepared for dates five years in the future.

The update is brought up to date for many geographic levels including national, state, county, census tract, and block group. Data is also available for commonly-used areas such as metropolitan areas, cities/towns, ZIP Codes, and media areas such as Nielsen DMA regionss. Because it is produced for small areas, the update can be easily aggregated to custom geographic areas specified by the user.

The update begins with the estimation and projection of base counts, including total population, household population, group quarters population, households, family households, and housing units. Characteristics related to these base counts are then estimated. Population characteristics include age, sex, race, and Hispanic ethnicity. Households are estimated by age of householder and income. Owner-occupied housing units are estimated by value, and renter occupied units are estimated by contract rent.

CHANGES TO METHODOLOGY AND DATA SOURCES

Claritas is always exploring and testing ways to innovate and improve on estimation techniques, to adapt to a changing demographic landscape, and to take advantage of new resources. In recent updates, the following changes were implemented:

The Claritas Demographic Update continues to implement new ACS data as available from the U.S. Census Bureau. The 2017.1 update makes use of data from the 2014 releases of ACS data. Specifically, the update incorporates one-year ACS data for 2014 and five-year data for 2010-2014.

Since the 2010 update, the formerly ratio-adjusted data items have been significantly upgraded through the use of control totals based on the most recent one-year and five-year estimates from the ACS. The 2017.1 Claritas Demographic Update continues the use of control totals based on the one-year ACS data, and the use of five-year ACS data for these data items at the block group level. In block groups where the ACS sample is thin, the ACS data is augmented through the addition of responses from nearby neighborhoods.

In addition to the ratio-adjusted data items, the ACS data contributes to the estimates of household income, housing value, and contract rent.

TOP-DOWN VS. BOTTOM-UP METHODOLOGIES

Over the years, some descriptions of small-area estimation methods have emphasized a distinction between top-down and bottom-up methodologies. The distinction is overdone, as estimates produced with pure top-down or bottom-up methods are rare. A pure top-down method might produce estimates at the county level, and then distribute to tracts and block groups without reference to any post-census tract and block group data. This approach has obvious and severe limitations for small areas. On the other hand, a pure bottom-up method would use post-census block group data to produce estimates at that level, and then sum to all larger areas,

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without reference to independent estimates for larger areas such as cities, counties, and states. This approach has severe limitations for larger areas.

Claritas estimates combine the strengths of top-down and bottom-up methods. Post-census data for tracts and block groups drive the estimates at those levels, while post-census data for counties and states drive the estimates at those levels. The small area estimates are then adjusted to conform with the independent estimates for larger areas. This approach is designed to achieve maximum detail at all levels. Thus it cannot be described as either top-down or bottom-up.

In a bottom-up approach Claritas identifies growth trends using small area data sources such as USPS, new construction data, and the Claritas Master Address File (MAF). The MAF contains over 120 million occupied unit records and is informed by various household level sources such as Epsilon, Valassis, and Infogroup.

Once the trends have been identified and estimates have been generated at the block group level, a top-down approach is taken in applying controls that will prevent the generation of unrealistic estimates at larger geographic levels such as county or state. Claritas utilizes county level data provided annually by the Census Bureau and other federal agencies as control totals for the small area estimates.

TRENDING

To take full advantage of methodological refinements and new data resources, each set of updates begins not with the previous year's estimates, but with data from the most recent decennial census or American Community Survey. For this reason, the difference between estimates for consecutive years is not an estimate of change from one year to the next. Change is estimated with reference to the previous census numbers – either from the decennial census or the ACS. It is not recommend to trend current year estimates from one year to the next. Changes in data values could be caused by differing methodologies, new data sources, and/or true change in data values.

ESTIMATION DATE

The target date for estimates and projections is January 1 of the relevant year.

VARIABLE CATEGORIES

The Claritas Demographic Update includes the categories and data items listed in the sections below.

Population & Race

- Base Count Population, Households, Housing Units, Families, Group Quarters
- Population by Age, Sex, Race, Ethnicity
- Population by Ancestry/Origin
- Population by Language Spoken
- Population by Marital Status
- Means and Medians

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Housing & Household Composition

- Households by Age, Race, Ethnicity, and Tenure
- Owner Occupied Housing Units by Value
- Renter Occupied Housing Units by Rent
- Households by Size (number of persons) and Presence of Children
- Households by Sex of Unmarried Partners
- Housing Units by Year Built
- Housing Units by Number of Units
- Households by Year Householder Moved In
- Households by Vehicles Available
- Housing Units by Vacancy Status
- Means and Medians

Affluence & Education

- Households by Income, Age, Race and Ethnicity of Householder
- Effective Buying Income (EBI)
- Families by Poverty Status
- Population Educational Attainment by Sex and Ethnicity
- Population by Level of School Enrollment
- Means and Medians

Employment & Occupation

- Population by Employment Status and Sex
- Population by Transportation to Work
- Population by Travel Time to Work
- Population by Class of Worker
- Population by Industry and Occupation
- Means and Medians

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GEOGRAPHY

The Claritas demographic update is prepared for a wide range of geographic areas, summarized below.

STANDARD MACRO GEOGRAPHIES	STANDARD MICRO GEOGRAPHIES	INDUSTRY GEOGRAPHIES
Country* [1] State* [51] County* [3K+] Nielsen Designated Market Area (DMA) [200+] Combined Statistical Area (CSA) [100+] Core-Based Statistical Area – Metropolitan/Micropolitan (CBSA) [900+] Three-Digit Zip (TDZ) [800+]	Place [25K+] Tract* [60K+] Block Group* [200K+] Block* [10M+] Zip Code [30K+] Minor Civil Division (MCD) [Includes Census Civil Divisions (CCD)*] [35K+]	Cable [9K+] Wire Centers [20K+] Major & Basic Trading Area Wireless (MTA & BTA) [500 +] Metro/Rural Service Area for Wireless (RSA) [700+]

* Census geographies

DATA OVERVIEW

Base Counts

Base counts are the basic totals for population, households, family households, group quarters population, and housing units. At the national, state, and county geography levels, base count updates are based on estimates from the Census Bureau. At the block group level, base count information is based on sources including trends in United States Postal Service (USPS) deliverable address counts, counts from the Claritas Master Address File, and Valassis counts of new housing units.

Population Characteristics

Population is estimated for the following demographic characteristics:

- Age
- Sex
- Race
- Hispanic ethnicity
- Age by Sex by Race by Hispanic ethnicity

Population by Age/Sex

Age/sex distribution is estimated using a modified cohort survival method, which ages population based on age/sex specific survival probabilities, and estimates births over the estimation period. Group quarters and other populations that do not age in place are not aged. The method is applied first for counties, estimating forward from the Census Bureau's most recent estimates of population by age/sex at that level. Following the completion of the county age/sex estimates, block group age/sex estimates were produced and controlled to the county estimates.

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Population by Race/Ethnicity

Race by Hispanic ethnicity is estimated for 14 categories reflecting single classification race. Estimates are produced first for counties, building from the Census Bureau's most recent estimates of population by race and ethnicity at that level. Block group estimates of race/ethnicity then are produced based on 2000-2010 census trends, identified through the Claritas conversion of 2000 census race/Hispanic counts to the block groups defined for the 2010 census. The resulting estimates of Hispanic and Asian population are modified for selected areas where surname matches against consumer databases suggest greater increases since the census.

Household Characteristics

Households are estimated for the following characteristics:

- Household income
- Household size
- Age of householder
- Race and ethnicity
- Year householder moved into unit
- Household Income by age of householder

Household Income

Income estimates and projections reflect the census/ACS money income definition, and are produced for current dollar values. Rates of change in median income are estimated first, and then ACS income distributions are advanced to reflect the estimated rate of change. Median income targets at the national level are based on income estimates from the ACS and the Census Bureau's Current Population Survey. Income estimates at the county level reflect income change indicated by the Bureau of Economic Analysis (BEA) income estimates, income statistics from the Internal Revenue Service (IRS), and income estimates from the ACS.

Income change at the block group level is estimated based on recent changes in median income in the ACS, and with reference to income change at the county level.

Distributions of ACS income are advanced to the estimated and projected target dates through a process that estimates the movement of households from one income category to the next based on the specific area's estimated rate of income growth. The national medians serve only as targets, not control totals, while the block group estimates are controlled to the county level.

Household Size

The distribution of households by size starts with Census 2010 distributions, and advances them to current year based on estimated change in persons per household (average household size). Iterative proportional fitting (IPF) is then used to provide consistency with previously estimated household totals and average household size. For more information about IPF, see the "Additional Terminology" section.

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Income by Age of Householder

The income by age estimates are produced after those for population by age and households by income. The household by income estimates serve as totals for the income dimension, but persons by age estimates are converted to householders by age through the use of headship rates reflecting Census 2010 householder by age data. The households by income and householders by age estimates serve as income and age row and column totals for the estimated income by age table. Cell values (specific income by age categories) are estimated through iterative proportional fitting of recent ACS income by age data to the estimated income and age totals. This process yields income by age values that not only sum to the income and age estimates, but also preserve the statistical relationship between income and age for each area as measured by the ACS.

Housing Unit Characteristics

Housing units are estimated for the following characteristics:

- Total number of owner-occupied and renter-occupied units
- Renter-occupied units by rent
- Value of owner-occupied units
- Year structure built

Housing Value

Housing value is estimated for all owner-occupied housing units. As with income, the method begins with the estimation of a rate of change, which is then used to advance recent ACS distributions to current year and projection year.

At the national level, target rates of change in value are based on change in value estimated by the ACS, as well as change in the House Price Index from the Federal Housing Finance Agency (FHFA) and the Case-Shiller house price index.

At the metropolitan area level, the FHFA data is combined with change in median sales price data from the National Association of Realtors (NAR) to estimate change. An additional data source contributing to estimated change at the county level is that containing the most recent estimates of median home value from the ACS. Block group rates of change are estimated based on recent trends in ACS median value estimates, with reference to rates of change at the county level.

As with income, estimated rates of change are used to advance recent ACS distributions to current year and the five-year projection date. The national medians serve only as targets (not control totals) for the county estimates, while the block group estimates are controlled to the county level.

Rent

Contract rent is estimated for renter-occupied housing units. As with value, the method begins with the estimation of a rate of change, which is then used to advance recent ACS distributions to current year and projection year.

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At the national level, target rates of change in rent are based on change in value estimated by the ACS. At the county level, rates of change are based on ACS trends combined with those from the Department of Housing and Urban Development's Fair Market Rent data series.

As with value, estimated rates of change are used to advance recent ACS distributions to current year and the five year projection date. The national rates serve only as targets (not control totals) for the county estimates, while the block group estimates are controlled to the county level.

Ratio-Adjusted Tables

In addition to the demographic estimates and projections, past updates provided a series of detailed tables from the former Census long form that were ratio-adjusted to relevant current year totals. In recent updates, the formerly ratio-adjusted tables have been transitioned to build from five-year ACS data, and are controlled to ACS data for larger counties, as available.

Census Data Differences and Median Values

There are some instances where users may notice differences between the Claritas published census data and values as published by the U.S. Census Bureau.

For example, users may see differences in the Claritas published Census 2000 and Census 2010 data collections in two types of situations:

- Because it is not feasible for Claritas to calculate true median values, the Claritas Demographic Update makes use of calculations to estimate median values based data summarized for categories or ranges of variables, such as income. Category detail can differ by product, so users also may notice differing median values between Claritas demographic products.
- Differences also may be observed due to varied geographic definitions. For example, because the update is now prepared for 2010 census geography, the 2000 census base counts will not always match those published on 2000 census data products.

BASE COUNTS

For this document, base counts include basic totals such as population, households (occupied housing units), family households (households with two or more related persons), group quarters population (persons in dormitories, military quarters, prisons, nursing homes, and other non-household living arrangements), and housing units (a house, apartment, or group of rooms intended to serve as separate living quarters).

Total U.S. Population

Total U.S. population is estimated using Census Bureau estimates of total United States resident population (all persons residing in the United States, regardless of citizenship). The 2017 estimate was a short projection beyond the Census Bureau's most recent post-2010 estimate (for July 2015). Total group quarters population is estimated in a similar manner, based on the Census Bureau's most recent estimates for group quarters population (in this case for July 2015).

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Total estimated households are derived by subtracting the estimated group quarters population from the estimated total population to derive the total number of persons in households. This figure is then divided by the estimated average household size, or persons per household (PPH). Estimated average household size is based on change in PPH indicated by the Census Bureau's Current Population Survey and the ACS.

Five-year projections of the national base counts are produced by applying recent rates of change to the current year estimates described above. The Census Bureau produces national level projections of total population, but because they are produced infrequently, they serve only as a guideline for the population projections, not as control totals.

State

State population estimates are projections from the Census Bureau's most recent population estimates at the state level. (Census Bureau 2015 estimates were used for the 2017.1 update.) Household totals are estimated indirectly from the completed population estimates. Specifically, the Census Bureau's estimates of group quarters population are projected to 2017. This number is then subtracted from the estimated population to determine estimated household population. The result is divided by estimated average household size (based on inter-censal trends) to determine estimated households.

County

County population estimates are based on the most recent Census Bureau county population estimates, in combination with county population estimates produced by selected states. The Census Bureau estimates lag 18 months behind the Claritas estimation date, so a series of long- and short-term projections is produced for the target date (in this case, January 1, 2017). The mean of these projections serves as the census-based county population estimate. Where state-produced estimates are available, and contributed to increased detail in the past, these estimates also are projected to current year, and averaged with the census-based estimates. The resulting estimates are then adjusted to conform with the state population estimates described above.

Group quarters population is estimated similarly based on the Census Bureau's county estimates of population in group quarters (in this case, Census Bureau estimates for July 2015). Estimated group quarters population is subtracted from estimated total population to produce estimates of persons in households. Then estimates of total households are derived by dividing estimated persons in households by estimated persons per household (PPH). The 2017 estimates of PPH are a conservative projection of inter-censal trends.

Housing units were derived by applying the 2010 census housing/household ratios to the 2017 household estimates. Family households were similarly derived by applying the 2010 census family household/household ratios to the 2017 household estimates.

Projections of county base counts to 2022 were based on moderated rates of change from 2010 census to the 2017 estimates. Persons in households and persons in group quarters were projected first, and summed to complete the projection of total population. The household projections were derived by dividing projected household population by projections of persons per household. Housing units were derived by applying the 2010 census housing/household ratios to the 2022 household projections, and family households were derived by applying the family/household ratios from the 2010 census to the 2022 household projections. Note that the

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county estimates and projections of housing units and family households serve as a guideline for numbers summed from block group, not as control totals.

Block Group

The estimation of block group base counts starts with households, followed by the estimation of persons in households and persons in group quarters (which sum to total population). Housing units and family households are then derived from the estimates of total households.

The major data resources tracking change in households since the 2010 census are the following:

- Counts of active residential addresses from the U.S. Postal Service.
- Counts from the Claritas Master Address File (MAF).
- Valassis counts of new housing units.

Household estimates are the average of several alternatives. The first alternative, based on the 2000-2010 trend in total households, serves as a backup for areas where post-2010 data sources do not pass reliability checks. The other alternatives were based on change in USPS address counts, change in Claritas MAF counts, and the Claritas MAF count totals. Evaluations of the 2010 estimates confirmed the ability of Claritas MAF counts to improve estimates in rapid change areas, so the MAF-based estimates were given additional weight in such areas – and served as the household estimate in selected areas, such as those where Valassis indicated rapid and recent growth. The preliminary household estimates were controlled to the county household estimates described above.

Next, household population was estimated as a weighted average of the 2000-2010 census trend and the 2010-2017 estimated rate of change in households. Group quarters population was similarly estimated for 2017 as the average of estimates based on 2000-2010 change and the rate of change in households. The household population and group quarters population estimates were controlled to the county level, and summed to provide the final estimates of total population for 2017. In this method, persons per household (PPH) is a byproduct of the estimates of households and household population, so the values are checked relative to 2010 census values.

Estimates of housing units and family households were produced by applying 2010 census housing/household and family/household ratios to the 2017 estimates of total households. Adjustments were not made to the county housing and family household estimates, but the uncontrolled estimates were checked for consistency with independent estimates.

Five-year projections of block group base counts are produced as nonlinear projections from the 2010 census counts through the current year estimates. Rapid rates of growth and decline are moderated into the future to reflect the assumption that extreme rates of net migration are unlikely to be sustained over long periods of time. Household population and group quarters population are projected first, and adjusted to the county control total projections. Projected household population and group quarters population are then summed to establish the projection of total population. Persons per household (PPH) is projected to the five-year projection date based on a conservative projection of the 2010 to 2017 estimated change in PPH. Household projections are then derived as the projection of household population divided by PPH. Housing units and family households

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are then projected by applying 2010 census housing/household and family/household ratios to the five-year projections of total households.

ZIP Code Estimates and Projections

Estimates and projections for ZIP Codes are aggregations of estimates already prepared for block groups. As such, there is not a distinct ZIP Code methodology. However, it is important to understand the process used to build ZIP Code estimates as well as the complications involved in analyzing ZIP Code data.

ZIP Code demographic data is widely used, but involves complications not encountered with other geographic areas. ZIP Codes are defined by the USPS for the delivery of mail, not for the presentation of data. They lack definitive boundaries, and change frequently at the determination of postal officials. In addition, ZIP Codes do not conform to the boundaries of other geographies such as counties, cities, census tracts, or census blocks.

Further complicating the specification of ZIP Code demographics is the imperfect relationship between where people live and where they get their mail. Some people live in rural areas where there is no mail delivery and pick up their mail at a specified location such as a post office in a nearby town. The boundaries of such general delivery and P.O. Box ZIP Codes (there are about 5,000 of them) are not formally defined. Also, some urban residents elect to pick up some or all of their mail at a P.O. Box—perhaps near their place of work. They reside in one ZIP Code, but receive mail in another. Such ZIP Codes often consist exclusively of P.O. boxes at a post office in a nonresidential area. They have no definable boundaries, as the people receiving mail there may reside in neighborhoods scattered across a wide area.

Census Data for ZIP Codes

Contrary to common belief, ZIP Codes have not been a standard geography for the reporting of census data. The Census Bureau did release 1980 and 1990 census ZIP Code products, but these products were non-standard and not widely used. Beginning with the 2000 census, the Census Bureau has provided data for what it calls ZIP Code tabulation areas (ZCTAs). ZCTAs approximate ZIP Code areas based on the allocation of whole census blocks. The Census Bureau points out that ZCTAs are not ZIP Codes, and users need to understand that ZCTA data does not constitute official ZIP Code estimates. Furthermore, because the Census Bureau updates ZCTA definitions only infrequently, these definitions often are out of date.

ZIP Code Data from the Claritas Demographic Update

Claritas ZIP Code estimates and projections are aggregations of Claritas estimates for block groups. The process used is similar to that for retrieving data for circles and polygons. Census data, including estimates and projections, already exists for block groups, and is aggregated to the current roster of ZIP Codes reflecting current definitions. Data for all years (including Census 2000 and Census 2010) is aggregated the same way to maintain a consistent reference to current ZIP Code definitions.

All Claritas products provide spatial definition ZIP Code data. Spatial definition ZIP Codes are based on a block group-to-ZIP Code correspondence, which is updated one or more times each year. This correspondence is based on the location of block centroids (latitude/longitude points) within current ZIP Code boundaries estimated by TomTom®. If a block's centroid falls within a ZIP Code boundary, it is allocated to that ZIP Code. These block-to-ZIP Code allocations determine the block groups that are included in a given ZIP Code. For block

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groups allocated to more than one ZIP Code, percent inclusion factors determine the percent of the block group allocated to each ZIP Code. Inclusion factors are updated annually based on the most recent distribution of addresses on the Claritas Master Address File. For all spatial ZIP Codes, the resulting block group-to-ZIP Code relationship establishes a geographic definition that is used to aggregate block group data to current ZIP Codes.

Claritas products do not provide demographic data for rural P.O. Box or general delivery ZIP Codes. These ZIP Codes serve residents in rural areas where there is no mail delivery; residents pick up their mail at a central location such as a post office. Although included in the roster, these ZIP Codes have no clearly defined spatial dimension, and therefore have no demographic data associated with them. Instead, the data for these ZIP Codes is included in the spatially defined ZIP Code (or multiple ZIP Codes) covering the area near the post office. These are sometimes known as parent ZIP Codes.

It is not unusual to find spatial definition ZIP Code data that appears to be discrepant with deliverable address counts. For example, spatial definition data might indicate no data for a rural P.O. Box ZIP Code for which the post office reports 600 residential deliveries. Furthermore, spatial definition estimates for parent ZIP Codes are often higher than delivery counts since they also include the populations served by P.O. Box ZIP Codes.

Enhanced Aggregation of Estimates to ZIP Codes

ZIP Code correspondence files, which define how block group data are aggregated to ZIP Codes, are highly accurate following a census, but they often need updating in areas where post-census population change has been substantial. When this happens, ZIP Code population growth can be underestimated even when the relevant block group estimates reflect the growth. For example, growth that should have been allocated to ZIP Code A might be allocated to adjacent ZIP Code B, thus underestimating growth in ZIP Code A. To guard against such estimation errors, Claritas updates block group-to-ZIP Code correspondence files to reflect estimated redistribution of population at the census block level. This enhanced aggregation provides more up-to-date factors by which to identify the percent of block group growth in ZIP Code A versus ZIP Code B.

Note: This enhancement did not involve a change to the estimation method, but rather to the process used to aggregate block group estimates to ZIP Codes. For a more detailed discussion of how ZIP Code estimates are built, please see the previous section "Zip Code Estimates and Projections".

POPULATION CHARACTERISTICS

Population by Age/Sex

Population by age/sex composition is estimated and projected using cohort survival methods. Cohort survival is a major factor in changing age structures, and is driven by the reality that, for example, persons age 35 in 2010 who survive another five years, will be age 40 in 2015. Accordingly, a population with a large proportion of 35 year olds in 2010 can expect to have large proportions of 40 year olds in 2015. It is this process that has swelled the U.S. age structure at progressively older age categories as the baby boom generation (or birth cohort) has aged.

The Claritas cohort survival method is executed first at the county level, and then for block groups, with the block group estimates controlled to the county level results. To enhance consistency with Census Bureau

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estimates, the county estimates begin with the most recent Census Bureau county age/sex estimates. The 2017 county age/sex estimates were built from the Census Bureau's county age/sex estimates for July 2014, which were the most recent available at the time. Block group age/sex estimates start with age/sex distributions from the 2010 census.

At all levels, the method starts with five-year age/sex categories—separating persons in households from those in group quarters. Where census data do not provide full age/sex detail for household versus group quarters populations, Claritas estimates the detail required to execute the cohort survival method.

The cohort survival process is set into motion with the application of age/sex-specific five year survival rates to the census age/sex data described above. Each round of cohort survival ages the population of each block group ahead five years. For example, the process projects the number of 30-34 year olds in a block group who will survive to become 35-39 years old by 2015 (and so on for all five-year age categories). The initial survival data from Census 2010 yields projections of age/sex composition for April 2015, which is short of the January 2016 estimation date. A second application of the survival rates ages the population to April 2020, and those results are interpolated to the January 1, 20176 estimation date.

Accounting for Births

As part of each round of cohort survival, the population less than age five is survived to age 5-9, so an estimate of births is required to fill the vacated 0-4 category. Births are estimated using the child/woman ratio—defined as the population age 0-4 divided by females age 15-44 (childbearing age).

The child/woman ratio is an indirect measure of fertility specific for each area, but more important, it is sensitive to projected changes in the number of women of child bearing age—itself a byproduct of the cohort survival process. An increase in the number of child bearing women will result in an increased number of births even if fertility rates (or child-woman ratios) remain constant. The child/woman ratios applied in the Claritas age/sex estimates and projections are derived from Census 2010, but modified slightly in some updates to increase consistency with national level Census Bureau projections of the population age 0-4.

Exceptions to Cohort Survival

The cohort survival process is at work in all areas, but in some areas its effects on age composition are overridden by migration. In the absence of authoritative age-specific migration data for small areas, the Claritas method defaults to the assumption that the age/sex composition gained or lost through migration is similar to the area's "survived" population.

However, because of migration, the cohort survival process is often not applicable to populations living in group quarters facilities such as dormitories, military quarters, prisons, and nursing homes. These facilities have high turnover rates, resulting in age/sex compositions that tend to be stable as a reflection of the nature of the facility. For this reason, cohort survivals are applied only to the population living in households. Group quarters populations are estimated separately and their age/sex compositions held constant with those measured in the census.

Claritas also identifies segments of the household population (such as concentrations of college students in off-campus housing) for which cohort survival is not applicable. Concentrations of these "hidden group

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quarters" populations are identified through their distinctive imprint on small area age compositions, and are similarly exempted from the cohort survival process.

Five-Year Projections

Five-year projections of age/sex composition are produced with the same method used for the current year estimates. In the 2017.1 update, the 2017 estimates of population by age/sex were the starting point for five-year survivals to 2022. As with the current year estimates, age/sex projections are produced first for counties, then for block groups, with the block group projections controlled to the county results.

Population by Race and Ethnicity

There are no universally accepted definitions of race and Hispanic ethnicity. The Census Bureau currently defines "Hispanic or Latino" as an ethnicity, not a race. Race and Hispanic ethnicity are separate census questions, so in census tabulations, persons of Hispanic ethnicity can be of any race. Hispanics are included in each race category, and the race categories alone sum to total population.

The census allows persons to mark "one or more" boxes when responding to the race question. For example, one person might mark only the box for "Black or African American," while another might mark that box and also the box for "Asian." In reporting data on race, one option is to indicate the number of persons identifying with each race category and no others (race alone), while another option is to report the number of persons identifying with that race either by itself or along with other categories (race alone or in combination). Census data and Claritas estimates are reported for the "race alone" and "race alone or in combination" options.

For more information about Ethnic Classifications, see the "Additional Terminology" section.

Estimates and Projections of Race and Hispanic Ethnicity

Starting with "race alone" tabulations, estimates and projections of population by race and Hispanic ethnicity are produced first at the county level, and then for block groups, with the block group estimates and projections controlled to the county level totals. The method focuses on percent distribution of race and ethnicity, which are applied to previously established estimates and projections of total population.

County-level estimates of race and Hispanic ethnicity are based on the most recent Census Bureau estimates of population by race and ethnicity at that level. The most recent Census Bureau county race and ethnicity estimates available for the 2016 update were those for July 2014. And because the Census Bureau estimates reflect a "modified" definition of race, the method uses rates of change in these estimates as a way to estimate the 2010 census race and ethnicity data forward to the current year.

Race/ethnicity estimates for block groups are based on 2000-2010 census trends in the percent of population in each race/ethnicity category. The method focuses on the percent of population in each category, and controls to both total population for the block group and population by race and ethnicity at the county level. Effective with the 2016 Update, the block group method also examines change in race/ethnicity composition based on change in consumer database surnames in the area. The names-based distributions are based on a file noting the race/ethnicity distribution of persons with specific surnames in the 2000 census applied to consumer database name/address records for two points in time. The trends are especially useful in identifying dramatic shifts in race/ethnic distribution.

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Five-Year Projections

Five-year projections of race/ethnicity are produced with methods similar to those used for the current year estimates—projecting the current year estimates (of percent race/ethnicity) to the five-year projection date. Again, projections are made for percent race/ethnicity distributions, and applied to previously completed projections of population. Counties are projected first, followed by block groups, with adjustments maintaining consistency between geographic levels.

All-Inclusive Race

Estimates and projections for all-inclusive race/ethnicity (race alone or in combination) are produced as derivatives of the single-classification (race alone) estimates and projections. For each race/ethnicity category, the Census 2010 ratio of all-inclusive race/single-classification race is applied to the estimate or projection of single-classification race—with adjustments made in some areas to provide consistency with the number of persons estimated (or projected) to be of two or more races. Because the all-inclusive estimates and projections are derived from data already adjusted to county controls, the all-inclusive estimates and projections are produced only at the block group level, and summed to higher levels.

Population by Age/Sex by Race/Ethnicity

Estimates and projections also are provided for the cross-tabulation of population by age/sex by race/ethnicity. These estimates start with the completed estimates of population by age/sex and population by race/ethnicity at the block group level. Census-based seed values are adjusted to the age/sex and race/ethnicity estimates to produce estimates of the full cross-tabulation. Because the 2010 census did not provide age/sex by race/ethnicity detail at the block group level, age/sex by race/ethnicity distributions for census tracts are used as "seed values" for component block groups. This application of iterative proportional fitting (IPF) produces block group estimates consistent with estimated age/sex and race/ethnicity, as well as the statistical relationship between these characteristics observed for the census tract in Census 2010. The IPF is executed with age/sex data in the standard 5-year age breaks, and splits to single years of age are made as a final step.

HOUSEHOLD CHARACTERISTICS

Households by Income

All Claritas income estimates are expressed in current year dollars using the money income definition reported in the American Community Survey. The estimates and projections reflect household income, which includes the income earned by all persons living in a housing unit (i.e., all household members). In contrast to the ACS, which reports income earned in the 12 months prior to ACS response, Claritas income estimates are for the calendar year relevant to each set of estimates and projections. For example, the 2017 estimates reflect 2017 income for 2017 households.

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The method starts by establishing ACS "launch distributions" – the distributions from which the income estimates are built. When income was reported by the census, the launch distributions all reflected the census year, but ACS data are not that simple. Depending on its population size, an area might have only 5-year ACS data, or it might have new 5-year data and 1-year data. Always working with the most recent "vintage" of ACS data, the Claritas method combines the multiple years of ACS data where relevant, and establishes an effective launch date for the ACS data. For block groups where the ACS sample is especially small, the data also are enhanced with data from neighboring block groups in a process described in the "American Community Survey Enhanced Data" section below.

Once the ACS launch distributions are established, rates of change in median household income are estimated for each area. Based on these rates of change, the ACS income launch distributions are advanced to current (or projection) year.

Rates of change are produced first at the county level, and then for block groups. Aggregate, average, and median income numbers were derived from the resulting income distributions.

Claritas standard household income ranges extend beyond the "$200,000 or more" category reported by ACS, to the following income ranges:

- $200,000 to $249,999
- $250,000 to $499,999
- $500,000 or more

The extended income categories were estimated for the ACS launch distributions, which are the starting point for the estimates and projections of income distribution. Pareto methods, which involve an assumption of exponential decay, were applied to the ACS launch distributions to estimate the number of households in each of the extended income categories. For more information about Pareto methods, see the "Additional Terminology" section.

Income Estimation Method

Income change at the national level is estimated based on national estimates of income change from the Current Population Survey (CPS) and the ACS. The CPS provides two measures: change in median household income reflected in the Annual Social and Economic Supplement, and a more timely measure of change in median family income released each month. The final estimates reflect an average of estimates based on these sources, projected to current year to reflect recent income change.

County income rates of change are based on recent rates of change in ACS income estimates, as well as rates of change in income data from the Bureau of Economic Analysis (BEA) and Internal Revenue Service (IRS). The final estimated rates of change reflect the average of rates based on IRS, BEA, and ACS data. These rates are modified, as needed, to produce estimated county income distributions that conform with the target median income estimate at the national level.

Income change at the block group level is estimated based on recent change in ACS median income estimates, enhanced to compensate for small samples, and projected to reflect the time from launch date to estimation date. Until usable post-census trends from consumer database estimates are once again available, the ACS-

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based rates are averaged with relevant county rates to establish estimated rates of change in median income for block groups.

At both the county and block group levels, the estimated rates of income change are used to advance, or shift, the ACS launch distributions of households by income forward to current year. This procedure involves the estimation of the number of households advancing from one income category to another—based on the area's estimated rate of income change.

The county level distributions are estimated first, followed by the block group distributions, and the block group distributions are adjusted to conform with the final county distributions.

Five-Year Projections

Five-year projections of income are produced with a similar process. Rates of growth or decline based on change from ACS launch medians to current year estimated median income are used to advance the current year income distributions to the five-year projection date. As with the current year estimates, the five-year projections are produced first at the county level, and then for block groups, with the block group distributions adjusted to conform with the county level results.

Household Effective Buying Income

Effective Buying Income (EBI) reflects income after taxes. Because EBI is not provided by the ACS, the estimates are computed as derivatives of household income, based on the correspondence between before-tax and after-tax income identified for each state from the Census Bureau's Current Population Survey (CPS). For each state, three-year combinations of CPS data identify the mean before-tax income of households within the income in ranges estimated for the Claritas Demographic Update. The CPS also identifies mean income for these same households after deductions for federal income taxes, state taxes, FICA, annual property taxes, and federal retirement payroll deductions. Where relevant, earned income credits were added to refine the measure of after-tax income.

The CPS data provides before-tax to after-tax income rates of change specific to households with before-tax income in selected income ranges—and specific to each state. These rates of change are applied to the current year-estimated and five-year-projected distributions of households by before-tax income (the standard Claritas income estimates and projections) to estimate the movement of households to lower income ranges after deductions for taxes. The resulting distribution of households by after-tax income provides the basis for computing mean, median, and aggregate EBI.

Income by Age of Householder

The cross-tabulation of household income by age of householder is valuable because income and life cycle stage, when combined, are so strongly associated with consumer needs and behavior. The Claritas income by age updates are produced after the estimates of population by age and households by income have been completed. The data constitutes a 128 cell table defined by 16 categories of household income and 8 categories of householder age. The row and column totals from these tables (the income and age totals) are commonly referred to as the marginal totals.

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The estimates of households by income serve as the income marginals, but population by age estimates must be converted to householder by age for use as the age marginals. For each area estimated, 2010 census data is used to determine age-specific headship rates, or the percent of persons in specific age categories who are householders. These headship rates are then applied to estimated population by age to produce estimated householders by age. A final adjustment to total households provides consistency with that critical base count.

With the income and age (row and column) marginal totals estimated, the final step is to estimate the full cross-tabulation of income by age of householder. In other words, values must be determined for each of the 128 income by age categories, or cells. Block group level income by age cell values from the most recent ACS provide the initial input (or seed values). Because the ACS provides only four categories of householders by age, CPS separation factors are applied to expand to the eight age-of-householder categories in the estimated table. The ACS distributions also are enhanced in block groups with small numbers of ACS responses.

Within each age category, ACS income distributions are advanced to reflect the block group's (previously) estimated rate of income growth. This adjustment expresses ACS income by age distribution in current dollar values. The resulting table is then adjusted to conform with both the income and age of householder totals estimated for current year. These adjustments are accomplished through iterative proportional fitting, which adjusts the ACS table to conform simultaneously with the household income and householder by age estimates, while preserving the block group specific statistical relationship between income and age reflected in ACS income by age data.

Five-year projections are produced using similar methods. Projected households by income serve as the income marginal totals, and Census 2010 headship rates again are used to convert projected population by age to projected householders by age. The income by age table is then advanced to projection year dollar values, and iteratively adjusted to the projected income and age marginal totals.

Income by Race and Ethnicity of Householder

Estimates and projections of households by the race and ethnicity of the householder are produced by applying the estimated/projected rates of change in income for each area to the income distribution for each race/ethnicity group in the area. The rates of change are used to project each distribution forward to the current (or projected) year, and the resulting distributions are adjusted to conform with the householder by race/ethnicity estimates and projections described below.

Householders by Race and Ethnicity

Estimates and projections of householders by (single assignment) race and Hispanic ethnicity are based on the estimates and projections of population by race/ethnicity.

For each block group, the Census 2010 ratio of householders by race/Hispanic to population by race/ethnicity is identified, and applied to the current year estimate of population by race/ethnicity. This ratio indicates the percent of persons in each race/ethnicity category who were householders in Census 2010. The final ratio is modified somewhat through the adjustment of householders by race to total households for each area, and it is the final current year ratio that is applied to the five-year projections.

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Households by Size

Working at the block group level, estimates of households by size (number of persons) are produced for the following categories:

- 1 person
- 2 persons
- 3 persons
- 4 persons
- 5 persons
- 6 persons
- 7 or more persons

The distribution of households by size from Census 2010 serves as the base from which the current year estimates are derived. The 2010 distribution is advanced to current year based on estimated change in persons per household (average household size). Iterative proportional fitting is then used to provide consistency with estimated household totals and average household size.

Projections of households by size are based on the Census 2010 and current year estimated distribution of households by size. The current year distribution is shifted to reflect the growth or decline in average household size during the projection interval. Iterative proportional fitting is then used to provide consistency with projected household totals and average household size.

Households by Year Moved Into Unit

Survival probabilities for "Year moved in" are computed from 2010 and 2013 1-year ACS data (in this case reflecting the loss of residents of specific lengths of residence). These national level probabilities are applied to the most recent ACS distribution of households by "Year Moved In" to establish estimated and projected distributions. Households in excess of those surviving (staying in place) to longer lengths of residence are estimated to have moved in during the most recent time period launch date. Thus, areas with rapid household growth will show the greatest concentrations of new movers.

The method is executed at the block group level, and summed to larger areas.

HOUSING UNIT CHARACTERISTICS

Housing Value

Housing value (often referred to as home value) is estimated and projected for all owner-occupied housing units, and is based on the ACS measure, which reflects census respondents' estimates of how much their dwellings would sell for, or the asking price of units currently for sale. Median value is estimated and projected, as is the distribution of units among the **24 categories** of value reported by the ACS.

The total number of owner-occupied housing units is estimated by applying Census 2010 ownership percentages to the completed estimate of total occupied housing units for all block groups. The results are adjusted to county level census-based estimates of owner and renter-occupied housing.

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Housing value estimates are produced first at county level (with adjustments to the national estimate of median value), and next at block group level, with the block group results adjusted to conform with the county level estimates.

The basic rate of change in value is estimated first, and is used to advance the ACS launch distribution of units by value to reflect this rate of change. At the national level, the rate of change in home value is estimated based on change in the House Price Index data from the Federal Housing Finance Agency (FHFA), the Case-Shiller Home Price Index, median sales price data from the National Association of Realtors, as well as home value estimates from the ACS.

County rates of change in home value are derived from two sources at the metropolitan area level. The first is data indicating the change in median sales price from the National Association of Realtors (NAR). Changes in sales price reflect only units sold during the time in question, but are strongly associated with overall change in home value. The second source is change in the FHFA House Price Index. The ACS is now contributing estimates of median home value for counties. ACS data provide input to housing value rates of change directly at the county level.

Housing value change at the block group level is estimated based on recent change in ACS median value estimates, enhanced to compensate for small samples, and projected to reflect the time from launch date to estimation date. Until post-census trends from consumer database estimates are once again available, the ACS-based rates are averaged with relevant county rates to establish estimated rates of change in median value for block groups.

Five-Year Projections

Five-year projections of value are based on rates of change derived from change in median value from ACS launch data to the current year estimate.

For each area, the estimated rate of change is used to advance the current year estimated distribution to the five-year projection date. Projections are produced first at county level (with rates adjusted to improve consistency with the national median value projection), then at block group level, with the block group results adjusted to conform with the county level estimates.

Contract Rent

Contract rent is estimated and projected for all renter-occupied housing units, and is based on the ACS measure, which reflects the monthly rent agreed to or contracted for. Median rent is estimated and projected, as is the distribution of units among the 22 categories of rent reported by the ACS. Units that are renter-occupied without payment of rent are classified as "No cash rent."

The total number of renter-occupied housing units is estimated by applying Census 2010 ownership percentages to the completed estimate of total occupied housing units for all block groups. The results are adjusted to county level census-based estimates of owner and renter-occupied housing.

Rent estimates are produced first at county level (with adjustments for consistency with the national estimate of median rent), and next at block group level, with the block group results adjusted to conform with the county level estimates.

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The basic rate of change in rent is estimated first, and is used to advance the ACS launch distribution of units by rent to reflect this rate of change. At the national level, the rate of change in rent is estimated based on trends in ACS estimates. County rates of change in rent are derived from trends in ACS rent data, and trends in the Department of Housing and Urban Development's Fair Market Rent data.

Rates of change at the block group level are estimated based on recent change in ACS median rent estimates, enhanced to compensate for small samples, and projected to reflect the time from launch date to estimation date. The block group rates also are averaged with relevant county rates to enhance consistency with market trends.

Five-Year Projections

Five-year projections of contract rent are based on rates of change derived from change in rent from ACS launch data to the current year estimate.

For each area, the estimated rate of change is used to advance the current year estimated distribution to the five-year projection date. Projections are produced first at county level (with rates adjusted to improve consistency with the national median rent projection), then at block group level, with the block group results adjusted to conform with the county level estimates.

Housing Units by Year Built

Estimates and projections of housing units by year built start with the most recent ACS launch distributions. These distributions are advanced to current year (and five-year) targets based on housing loss patterns exhibited between ACS 2010 and ACS 2013 data. For example, the number of units built between 1960 and 1969 surviving in 2013 is lower than the number of such units surviving in 2010, and suggests a survival probability for units of that age. The method establishes a set of such probabilities at the national level, and applies them to ACS launch housing data to generate the current year estimates and five-year projections. In most areas, surviving units are fewer than total units (estimated separately), and the excess units are assigned to the most recent year built period. Thus, areas with rapid housing growth will show the greatest concentrations of new housing.

The method is executed at the block group level, with results summed to higher geographic levels.

AMERICAN COMMUNITY SURVEY ENHANCED DATA

The ratio-adjusted data items (once referred to as "smoothed" data) are now based on ACS data at the block group level. These items formerly reflected static block group level decennial census data ratio-adjusted to current year base counts, but now they benefit from annual ACS estimates with controls at county level – thus giving them an important element of update.

For block groups where the ACS sample is small (and ACS data is at risk of substantial error), Claritas produces enhanced distributions. The enhanced distribution blends the ACS distribution for the block group in question with the distribution of neighboring block groups – thus drawing from a larger number of ACS responses.

Note that this approach to enhancing ACS block group data is also applied to ACS data contributing to estimates including household income, housing value, and rent.

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The list of ratio-adjusted ACS data items is as follows. Note that a few, such as Hispanic by specific origin, have ACS data only at tract level, and thus do not eligible for the block-group based ACS enhancements.

- Hispanic or Latino population by specific origin
- Asian population by category of Asian
- Persons by ancestry
- Households by household size, household type, and presence of own children
- Households with unmarried-partners by sex of partner
- Households by presence of persons under 18 years and household type
- Persons 5+ by language spoken at home
- Population by age, language, and ability to speak English
- Hispanic population age 5+ by ability to speak English
- Persons 15+ by sex and marital status
- Females who gave birth in past year by marital status
- Working population 16+ by means of transportation to work
- Working population 16+ by travel time to work
- Population 25+ by educational attainment
- Hispanic or Latino population 25+ by educational attainment
- Population 3+ by type of school and enrollment level
- Persons 16+ by sex and employment status
- Employed civilian population 16+ by industry
- Employed civilian population 16+ by occupation
- Employed civilian population 16+ by class of worker
- Families by poverty status, family type, and presence of related children under age 18
- Housing units by units in structure
- Households by tenure, ethnicity and race
- Owner-occupied housing units by mortgage status
- Vacant housing units by vacancy status
- Occupied housing units by tenure and vehicles available

With the implementation of the ACS-Enhanced data development method, there may be situations where data values from independently built ACS-Enhanced tables are not consistent with each other. Because these tables are built independently of each other, the inconsistencies inherent in the independent Census ACS tables are occasionally propagated within our demographic updates.

ADDITIONAL TERMINOLOGY

2000 Census Data

Claritas products continue to provide data from the 2000 census, but the 2000 data have been converted to 2010 census geography. The 2000 census was the last to provide long form data – data now provided by the ACS. Because the 2000 long form data (from SF3) are weighted sample data, their population and household totals often differ by modest amounts from the complete count totals reported by SF1. For example, a census tract with 1,200 SF1 households might have SF3 tables summing to 1,206 or 1,197 households. Differences of this type also are observed in the 2000 census data converted to 2010 geography.

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Adjustment Techniques

The adjustment process is essential to the production of estimates that use input data at various geographic levels, and are consistent across all levels of geography. The Claritas updates are geographically consistent, meaning that for each data item, block group data always sums to tract totals, which always sums in turn to county, state, and national totals. Adjustment techniques also assure that characteristic distributions sum to base count totals (e.g., households by income always sums to total households). The simultaneous adjustment of characteristics to higher level control totals and to total persons or households within each smaller area is achieved with IPF. The basic techniques are described below.

Ratio Adjustment

Ratio adjustment is used to bring small area data into conformity with large area totals. For example, if preliminary block group population estimates sum to a tract total of 552, but the independent tract estimate is 561, the preliminary block group estimates are adjusted upward by 1.63% (561/552) to achieve the target tract total. Similar adjustments are made to bring preliminary distributions (such as age and race) into conformity with population totals for each geographic unit.

Iterative Proportional Fitting

IPF methods are an elaborate form of ratio-adjustment, and are used when estimates must be adjusted to conform simultaneously to two sets of marginal control totals—often referred to as the dimensions of a two-dimensional table. Income by age of householder is a good example. The estimates must sum to both households by income and householders by age.

IPF methods begin with a table with target row and column totals, referred to as the row and column marginal totals. For example, one might have 12 categories of households by income as the row totals and 11 categories of householders by age as the column totals established for a 132 cell (12 by 11) table. The objective is to produce estimates for the table's 132 cells that sum to both the row and column marginals.

The execution of IPF methods requires initial or seed cell values. In the case of income by age of householder, seed values are obtained from the census. This matrix of cell values reflects an intricate set of probabilities defining the relationship between income and age—as measured for the specific geography in the census. However, these census figures sum to neither estimated households by income nor estimated householders by age.

Iterative proportional fitting achieves this conformity through a series of ratio adjustments to the row and column marginal totals. Each round (or iteration) of row and column adjustments brings the seed values closer to conformity with the marginal totals. The number of iterations required varies by area, but the values eventually converge on a result that sums, within rounding error, to the marginal totals. The resulting estimates not only sum to the desired marginal totals, but preserve the statistical relationship between the two variables (income and age) measured for the area by the census.

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Ethnic Classifications

The race definitions used by Census 2010 and Claritas estimates include the following basic categories:

- White
- Black or African American
- American Indian and Alaska Native
- Asian
- Native Hawaiian and Other Pacific Islander
- Some other race

However, because the current race standards permit respondents to mark one ***or more*** race categories, there are actually 63 categories—the six basic races plus 57 possible combinations of two or more races. When cross-tabulated by Hispanic/non-Hispanic, there are 126 race-by-Hispanic categories.

Short of presenting data for all 63 race categories, there are two basic tabulation options—single classification and all-inclusive.

Single Classification

The single classification option includes the following categories:

- White alone
- Black or African American alone
- American Indian and Alaska Native alone
- Asian alone
- Native Hawaiian and Other Pacific Islander alone
- Some other race alone
- Two or more races

This option identifies the number of persons marking each race category by itself, and then provides a seventh category identifying the number marking two or more races. The tabulation is similar to those used prior to Census 2000, and sums to total population. However, it provides no information about the race of persons in the "two or more" category, so it is not possible to determine the total number of persons identifying with a given race.

All-inclusive Classification

The total number of persons marking a given race category is revealed by the following all-inclusive categories:

- White alone or in combination
- Black or African American alone or in combination
- American Indian and Alaska Native alone or in combination
- Asian alone or in combination
- Native Hawaiian and Other Pacific Islander alone or in combination
- Some other race alone or in combination

This option identifies the total number of persons marking each race category—either by itself or as part of a combination of two or more races. However, because persons marking two or more races are counted two or more times, the table sums to totals larger than total population.

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Extended Income and Pareto Interpolation

Income tabulations from the ACS top out at the "$200,000 or more" category. However, higher income breaks are important in affluent areas, so Claritas has extended ACS income distributions to include categories of "$200,000 to $249,999;" "$250,000 to $499,999;" and "$500,000 and over."

Vilfredo Pareto (1848-1923) is credited for creating a method used to approximate the upper end of an income distribution. Pareto's distribution is an exponential decay curve. The Pareto distribution is typically used to extend income ranges for very large areas, such as whole countries, where income distributions are smooth. The application of Pareto methods for small areas, where distributions can be irregular, requires some care.

The Pareto extensions are applied to the ACS income data. Estimated and projected income for the extended categories was produced with standard methods applied to the extended ACS data.

Inflation and Income

A common question is how the effect of inflation is accounted for in the Claritas income estimates. Inflation, as commonly measured by the Consumer Price Index, reflects changing prices, and a corresponding change in the value of a dollar. For example, items that would have cost $100 in 1983, would have cost about $147 by 1993—a 47% inflation in prices. Thus, $100 was not the same in 1993 as it was in 1983.

Inflation is not a measure of income change, but the two are related. Some income sources (such as Social Security and some union contracts) are indexed by inflation, and workers typically require and demand more pay to cover the increased costs of living. Although income tends to follow inflation, it does not move at the same rate. There are periods when income growth outpaces inflation, and periods when it lags behind. These income changes relative to inflation are referred to as real income growth.

The Claritas income estimates and projections are expressed in current dollar values, which reflect how many dollars are being received at the relevant year. As such, they reflect both real income growth (or decline) and the change due to the effect of inflation. Rather than estimating the effects separately, Claritas measures the combined or net effect through input sources (such as the Bureau of Economic Analysis income estimates, IRS income data, and ACS income estimates), all of which reflect income change in current dollars. The inflation effect in these data sources is implicitly incorporated into the Claritas estimates. Note that accounting for inflation in this manner is different from controlling for inflation, which requires removing the effect of inflation, to produce estimates in constant dollar values.

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KNOWN DISCREPENCY

For standard five-year age breaks (0 to 4, 5 to 9, and so on), the estimates of population by age/sex are consistent with the estimates of population by age/sex summed across race/Hispanic categories. However, users might find differences for single years of age or age ranges other than the standard five–year categories. For example, the estimate of males age 60 to 62 might be different from the estimate of males age 60 to 62 summed across all race/Hispanic categories.

The differences trace to the fact that the estimates of population by age/sex and population by age/sex/race/ethnicity are produced for the standard five-year categories, and then split to single years of age. For the 2016 Update, the split of age/sex to single year categories was enhanced by applying separate split factors for persons in households and those living in group quarters of various types. For example, the percent of persons age 20 to 24 who are age 20 can be different in areas with large college dormitory populations compared to those with persons living in households. The enhancement was applied to the estimates of total population by age/sex, where the method separates by household versus group quarters population, but the enhancement is not feasible for the estimates of population by age/sex/race/ethnicity, which are not produced separately for persons in households and group quarters.

CONTACT INFORMATION

For more information regarding the Claritas Demographic Update, please contact your account team or the Claritas Solution Center between 9:00 a.m. and 8:00 p.m. (Monday through Friday, EST) at 800.866.6511 or visit www.claritas.com.

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Attachment K:
Drive Time Analysis

Departure Location[2]	Nexton Boulevard		MUSC Medical Center, 171 Ashley Avenue, Charleston, SC 29425				Total Time Difference Range (Downtown - Nexton Parkway)
	Miles	Driving Time (min)	Miles	Driving Time (min)	Total MUSC Time with Parking/ Wayfinding Time of 10 minutes[1]	Total MUSC Time with Parking/ Wayfinding Time of 20 minutes[1]	
29483 - Summerville	5.0	13	27.1	34	44	54	31-41
29486 - Summerville	6.7	12	25.4	31	41	51	29-39
29406 - North Charleston	11.1	12	13.6	16	26	36	14-24
29461 - Moncks Corner	13.2	19	29.8	34	44	54	25-35
29445 - Goose Creek	15.3	25	20.3	30	40	50	15-25
29414 - West Ashley	20.1	29	10	19	29	39	0-10
29403 - Peninsula Charleston	22.3	24	1.4	4	14	24	(10)
29464 - East Cooper	29.3	34	8	15	25	35	(9) - 1
29412 - James Island	31.6	41	7.8	16	26	36	(15)-(5)
29488 - Colleton	40.5	55	53	67	77	87	22-32
29115 - Orangeburg	51.9	55	73.4	78	88	98	33-43
29440 - Georgetown	64.0	79	65.3	77	87	97	8-18
29910 - Beaufort	99.1	110	91.7	110	120	130	10-20
29501 - Florence	107.4	95	129.3	116	126	136	31-41
29526 - Horry	108.2	129	103.8	120	130	140	1-11

Notes: *Assumes an average range of 10- 20 additional minutes for parking/way-finding at MUSC downtown. Refer to attached Maps with locations identified in Blue.

****Sorted by Closest Proximity of Departure Location to Nexton Parkway.**

Source: MapPoint

ROA 004607

Attachment L:
Nexton Development Plans
Nexton Overview

AMENDED AND RESTATED
PD-MU DEVELOPMENT PLAN

FOR

NEXTON (FORMERLY THE PARKS OF BERKELEY)
BERKELEY COUNTY, SOUTH CAROLINA

Date
May 27, 2015

Approved by County Council

APPLICANT:

MWV – Parks of Berkeley, LLC
201 Sigma Drive
Suite 400
Summerville, SC 29483

DESIGNED BY:
SEAMON, WHITESIDE & ASSOCIATES, INC.
501 WANDO PARK BOULEVARD, SUITE 200
MOUNT PLEASANT, SC 29464
(843) 884-1667

nexton™

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J.: Conceptual Storm Drainage Plan

K: Archeological Survey Report

L: Threatened and Endangered Species Report

M: Phase I Environmental Site Assessment

N: Nexton Traffic Study Summary

May 27, 2015

PLANNED DEVELOPMENT SUBMITTAL FOR
NEXTON (FORMERLY THE PARKS OF BERKELEY)
BERKELEY COUNTY, SOUTH CAROLINA

I. STATEMENT OF INTENT

(A) INTRODUCTION

This statement of intent is to describe in detail the proposed Development Plan of a 4501-acre site located northeast of I-26 generally between Sheep Island Road and U.S. Highway 176, and west of Sheep Island Road on the northern and southern sides of Wild Game Road, herein referred to as the "Project" or "Property." The proposed Project is shown on Tax Map Nos.195-00-00-046 (3,402.2 acres) and 221-00-00-133 (1099 acres), and is depicted on the plats included as Exhibit A (certain sheets of the plats were excluded for clarity). The community is located adjacent to the Town of Summerville, Carnes Crossroads, and other neighboring businesses. Development surrounding the community is scattered with numerous vacant property in the immediate area. The Property is owned MWV – Parks of Berkeley, LLC (the Property Owner).

In 2006, Crescent Resources, LLC and Parks of Berkeley, LLC received approval from Berkeley County for a PD-MU and Development Agreement for the 4501 acre property to be developed as The Parks of Berkeley. Since this approval, the Property Owner purchased the property from Crescent Resources, LLC and Parks of Berkeley, LLC in 2008 and proposes minor modifications to the plan, mainly due to the new location of the I-26 Sheep Island Interchange and resulting route of the main circulatory roads through the development, now to be named Nexton. The maximum development potential and requirements for green or open space, civic use sites, and school sites remain unchanged.

The Property is to be developed into a mixed-use, self-sufficient community offering area opportunities to live, work, worship, recreate and shop within one master-planned community. The Development Plan as submitted and in conjunction with the Statement of Intent indicates a variety of land uses that are described in this document.

The development requires an amendment to the current Planned Development Mixed Use (PD-MU) zoning classification in order to allow for innovative and creative design techniques incorporating open-space, passive and active amenities, diverse architectural product, low-impact development techniques, supporting commercial activities and creative land planning. The Development Plan designates approximately 1246 acres or 28% of the Project as green space (parks, wetlands, and buffers) as indicated on the Land Use Chart included as Exhibit C.

(B) EXISTING ZONING AND SITE CONDITIONS

The Project is currently zoned PD-MU, but no development has commenced. The property has been managed by the Property Owner as a pine plantation for the purpose of lumber and paper production, thus the site is primarily a pine forest. As a result of well-managed timber operations, there is an extensive open ditch drainage system that runs throughout the Property. This drainage system will be very helpful in the future development process of this Project. There are no existing structures on this Project site other than one hunting camp that includes a trailer and miscellaneous equipment. Timber on the site will continue to be harvested as in the past until construction begins on any particular tract of the Project.

(C) TRANSPORTATION CONSIDERATIONS

Long-term planning is essential to assuring safe and convenient ingress and egress for the Project. It is equally essential that this plan may be done on a regional basis, which includes other significant developments that are either underway, or soon to commence on both sides of I-26 in Berkeley and Dorchester Counties, as well as within the Town of Summerville (for example: Cane Bay, Hillwood, Carnes Crossroads, Whitfield, Salisbury, etc. properties). The Property Owner is working with appropriate planning agencies of Berkeley County, along with the Berkeley-Charleston-Dorchester Council of Governments (BDCOG), and the South Carolina Department of Transportation (SCDOT) on regional transportation planning.

The known development plans for the region, including the Project, will require a new interchange with I-26 to be constructed west of the existing interchange with Alt. US 17. A new parkway will connect the new interchange to the Project and extend through the Project to U. S. Highway 176 (Parkway). The Property Owner will construct two lanes of the Parkway on its property. Berkeley County will construct an additional two lanes when warranted and funds are available, as well as the offsite portions of the Parkway. The Property Owner will provide all required right of way for the Parkway on their property.

The initial access to the Project will be from a frontage road which is being constructed through the Sheep Island Phase IA PD-MU to connect with U. S. Highway 17A across from Sangaree Parkway (Brighton Park Blvd). An access management plan will be prepared by the Property Owner to be approved by the Administrative Officer indicating access requirements for the Parkway, Brighton Park Blvd., U. S. Highway 176 and other interior roadways. "Administrative Officer," as used in this document, shall be the Berkeley County Staff member that County Council has delegated authority of review/approval of the particular action. Developments adjacent to the U. S. Highway 176 must be designed to accommodate future widening.

Kimley Horn prepared a traffic study for this area of Berkeley County on which the County's Transportation Impact Fee ordinance was based. Since that time, several additional studies have been prepared for the Property Owner by both Kimley Horn

and Bihl Engineering, LLC. The latest summary dated January 15, 2013 is included as Exhibit N.

Transportation considerations for each Phase within the Project will be addressed by traffic studies as may be requested and engineering design satisfactory to Berkeley County Engineering Department and/or SCDOT as applicable under the Current Regulations, as defined in the Development Agreement. These studies will address internal roadway and intersection geometry and design within that Phase and extending to where it first connects to an internal Major Collector Street. A Phase for this requirement will be considered any development within the Project meeting the thresholds for a Traffic Impact Study per the guidelines in the SCDOT Access and Roadside Management Standards, latest edition (with the exception of shopping centers where the threshold shall be 12,000 sf GLA).

(D) UTILITIES AND DRAINAGE CONSIDERATIONS

Utilities are provided by various governmental agencies. Sewer and water are provided by Berkeley County Water and Sanitation (BCWS). The Property Owner is coordinating with BCWS on regional improvements to the water and sewer systems to serve all properties in the area. Berkeley County and other governmental agencies provide other essential services such as volunteer fire protection and police protection. Berkeley County will maintain the public roadways and drainage systems (with exception of ponds, pond outfall structures, swales and other facilities typically not maintained by the County), once dedicated to and accepted by the County.

Storm drainage, set forth in Exhibit J, will be accommodated according to local requirements. The storm drainage system will be designed to meet or exceed local, state, and federal regulations involving storm flow, siltation, and erosion control. Drainage outlets from the Project will be designed to consider all storm frequencies up to and including the 100-year storm. The Development Plan accommodates designated flood zones. The planned open space should allow for accommodation of storm water detention utilizing low-impact discharge techniques. Any detention facility could be constructed providing an aesthetic amenity including ponds incorporated into the community's common area. The maintenance of any detention facilities will be the responsibility of a Property Owner's Association that will be established in recorded Covenants and Restrictions.

The entire property has an approved wetlands delineation from the U.S. Army Corps of Engineers (Corps). Permission to fill certain wetlands has been permitted by the Corps to allow access to all portions of the property. Wetlands enhancements and buffers will provide the mitigation for the wetlands impacts.

(E) ENVIRONMENTAL ISSUES

1. Establishment and Dedication of Green Space. There are approximately 858 acres of jurisdictional freshwater wetlands to remain within the Project, as determined by the Corps. The determinations are described in two letters from the Corps dated February 18, 2005 and April 25, 2005, which are attached as Exhibit I to this document as well as permits from the Corps for wetlands impacts. In addition, the

Property Owner plans to establish and maintain approximately 388 acres (9% of gross property acreage) of community parks and buffers. The parks, buffers and easements along with the freshwater wetlands comprise approximately 1,246 acres (Green Space) which is approximately 28% of the Property and will be permanently restricted from residential or commercial development by the recording of various plats within the Development Plan. The Property Owner may convey portions of the Green Space to one or more qualified organizations under 26 U.S.C Section 501(c)(3) in a form required by state or federal law, and may subsequently transfer all or portions of such Green Space to the community association. The Property Owner will at all times reserve to itself, its successors and assigns easements for access and infrastructure purposes (roads, walkways, paths, utility easements, rights of way, etc.) necessary or desirable for development of the permitted uses set forth in Exhibit D. A summary of the Green Space areas is indicated in the Land Use Chart.

2. Archeological Studies. In accordance with the provisions of Section 6-31-80, the Property Owner commissioned an Archeological Cultural Resources Assessment; a Phase I Management Summary Draft Report; and a final report – *Intensive Cultural Resources Summary of Sheep Island Tract, Berkeley County, South Carolina*. These reports were submitted to the State Historic Preservation Office (SHPO) of the South Carolina Department of Archives and History, which determined that "there will be no effects to significant cultural resources by the proposed Project." A summary of the report and correspondence from the SHPO dated May 25, 2005, are together with archeological site maps attached as Exhibit K. The Property Owner agrees, however, that in the event that archeologically significant elements are discovered during the development of the Project, SHPO will be contacted, and such action as may be directed by the SHPO will be undertaken by the Property Owner.

3. Threatened and Endangered Species. An assessment was conducted for the Project to determine whether any recognized threatened or endangered species are present. The assessment concluded that none were observed during the study, and "...it is unlikely that any such species are present within the property based on the available habitat." A copy of this assessment is attached as Exhibit L.

4. Hazardous Materials. In order to determine the likelihood of the Property containing hazardous materials or dangerous environmental conditions, a Phase I Environmental Site Assessment was commissioned by the Property Owner. Based on a review of Federal and State records of recognized environmental conditions and an on-site investigation, zero adverse conditions were identified, and no further assessment was deemed necessary. A copy of the assessment is attached as Exhibit M.

(F) CONVEYANCE OF LAND FOR PUBLIC USES

Pursuant to the Development Agreement, land has been reserved for school and civic uses.

(G) PROPERTY OWNERS ASSOCIATION

Prior to the sale of any property, one or more Property Owners Associations (POAs) will be established and such property shall be submitted to the jurisdiction of a POA by recorded covenants. Membership in a POA will be mandatory for each property owner. Each POA will be funded by assessments to be established pursuant to its recorded covenants. Each POA shall be responsible for administering its recorded documents and for the maintenance and operation of those common areas, if any, which are designed to benefit of the properties subject to its jurisdiction. Common Areas for the benefit of residential properties will include both passive park space as well as areas for pools, playgrounds, and other active amenities. There may be additional property owners associations (POAs) established for individual development tracts which have their own common areas. The recorded covenants of each applicable POA shall also establish architectural controls requiring review and approval of plans for all new construction (residential and commercial) and any additions or improvements such as fences, pools, etc. prior to commencement of construction. This review will be for aesthetic purposes only and does not replace the building permit or other required reviews by the County. A letter from the Nexton Architectural Review Board (ARB) shall accompany any application for a building permit submitted to the County evidencing that the applicable plans have been approved by the ARB.

(H) SIGNAGE PROGRAM

Signage requirements are contained in the document "Nexton Signage Guidelines - Berkeley County", which has been provided to the Administrative Officer for his approval. This document may be amended upon mutual agreement between the Property Owner and the Administrative Officer.

(I) DEVELOPMENT PROGRAM

1. GREEN SPACE

The Conceptual Land Use Plan (Exhibit B) indicates three zoning districts. The Green Space district comprises approximately 1066.47 acres and contains wetlands, wetlands buffers and parks and power easements. In order to achieve the requirement of 1246 acres, an additional 179.53 acres of Green Space will be required within the Developable Area. Permitted uses include Open Space, Wetlands Buffers, Outdoor Recreation Uses and Communication Towers (as a Conditional Use).

2. DEVELOPABLE AREA

(a) Acreage Requirements: The Developable Area (3434.53 acres) is comprised of two development districts: the Village District and the Rural Residential District as further described below (see Exhibit C):

- Development Tracts 3255.00 acres (max.)
  - Rural Residential District
  - Village District

- Balance of Green Space 179.53 acres (min.)
- Total 3434.53 acres

The Rural Residential District contains 468.84 acres of developable area not included in wetlands and wetlands buffers. Development in this area shall be subject to the Rural/Conventional Current Regulations as defined by the Development Agreement. The Village District contains 2965.69 acres of developable area. The final acreage calculations of development tracts within these two districts will be determined by the final location of the balance of green space.

The Conceptual Land Use Plan indicates 455.73 acres in the Village District as "Potential Conventional Development District." The Property Owner may elect for certain Nexton design guidelines and architectural review requirements to not apply to all or portions of this area. If so, guidelines for the Village District will not apply to applicable development tracts in this district, and those described herein for Conventional Development District will apply. In addition, all other requirements of the Rural/Conventional Current Regulations as defined in the Development Agreement (such as buffers) and standard County roadway construction requirements will apply to areas developed in this manner. In addition, single family detached residential development phases following this development pattern must contain a minimum of 40 (+/-) acres and have its primary access from the Parkway or U. S. Highway 176 or a roadway connecting these two roadways. These areas must be separated from standard Village District areas by an undisturbed buffer with a minimum width of 200 feet, and the homes with vinyl siding must not be visable from any area within the Village District. Should vinyl siding be utilized in the Conventional Development District, it is acknowledged that there may be issues with damage to the siding due to reflected sunlight. This acknowledgement shall be placed on all Preliminary Plats and Final Plats for residenetial subdivisions in this District utilizing vinyl siding. This buffer shall be located on the land comprising the homes with vinyl siding and may include wetlands and wetlands buffers. Existing vegetation within this undisturbed buffer shall not be removed except to: a) remove unhealthy or dead trees or limbs; b) remove exotic, evasive or poisonous plants; c) to remedy conditions constituting a safety or health hazard. Infrastructure crossings of this buffer must be at as close as 90 degrees as possible. The Property Owner must notify the County in writing when the Conventional Development District is elected, and this document must be recorded. Once recorded, the property may not be developed in accordance with Village District standards.

(b) Permitted Uses within the Development Tracts include those listed in the Permitted Uses Chart included as Exhibit D. Uses may be located at anywhere within the Developable Area, subject to the conditions included in the Permitted Use Chart. More than one type of use shall be permitted in mixed use buildings and sites in the Village District.

(c) Maximum Development Intensities within the Development Tracts are limited to the following:

- Residential Dwelling Units 13,271 (Maximum of 447 in the Rural Residential District)
  Non-residential Uses 5,800,000 sq. ft.

(d) Building Development Standards. The Lot Criteria set forth in Exhibit E shall apply with respect to minimum lot area, width, depth, height, coverage, setback and yard requirements.

(e) Proposed Roadway Standards

i. Roadway standards for the Village District are set forth in Exhibit F. The standards indicated are minimum standards and are applicable to both public and private roadways (private drives in parking lots not included). Prior to the submission of a Preliminary Plan for any properties developed in the Village District, the Property Owner will meet with Berkeley County staff to review the proposed development plans. Sufficient planning will be required to determine how the applicable Phase relates in context to other areas of Nexton. Preliminary trip generation calculations and traffic volumes will be reviewed and discussed, and minimum design criteria will be established for each roadway. Through this process, the Administrative Officer may also approve, on a case by case basis for residential yield streets and local streets in the Village District, relief from the Current Regulations related to street intersection design (angle and number of intersecting roadways) and street intersection separation, based on use and application and traffic and safety considerations, as well as easement widths for ingress-egress easements utilized for subdivisions with private roadways.

ii. The Administrative Officer may also approve relief from the Current Regulations for side slopes and maximum depths of temporary ditches. Side slopes shall be no steeper than 1 ½:1, and maximum depths shall be 10 feet. Standard easement widths for permanent ditches must be provided, and the temporary ditches must be functional, maintainable and stabilized. Temporary ditches shall not be maintained by the County. Temporary ditches shall be protected from developed areas by a minimum 100' undisturbed buffer.

iii. Existing ditches may be utilized in their unimproved condition. However, easement widths per standard County requirements for permanent ditches shall be provided for the ditches. Unimproved ditches shall not be maintained by the County. Unimproved ditches shall be protected from developed areas by a minimum 100' undisturbed buffer.

iv. For areas developed in the Rural Development District and the Conventional Development District, applicable standards in the Current Regulations as defined in the Development Agreement will apply.

v. Financial guarantees, naming the County as payee, may be posted to secure the actual construction and installation of required site improvements to allow Final Plats to be recorded for subdivisions involving both public and private roadways, subject to the approval of the Administrative Officer. No Certificates of Occupancy shall be issued for lots on these Final Plats until the roadways are constructed, inspected and approved, with the exception of when the County allows the final asphalt surface to be bonded and deferred.

(f) Bufferyards/Landscaping

i. Development Bufferyards between adjacent land uses shall apply between single family detached lots and non-residential land uses (live/work units not included), as well as where required by conditions in the Permitted Use Chart. In these cases, a 25' Bufferyard "B" per section 17.7 of the Berkeley County Zoning Ordinance shall be placed on the non-residential land use property adjacent to the single family detached lots, or as described in the conditions. This bufferyard may be reduced to 10' if a 6' tall (min.) wood, brick or masonry wall is constructed.

ii. Street Bufferyards apply only to Brighton Park Blvd.and the Parkway. The required minimum area for bufferyards shall be measured toward the interior of the property from the public road right-of-way of streets (measured outside the utility easements if applicable see (v.) below) and will be 20 feet in width. Four (4) understory trees, two (2) canopy trees, and twelve (12) shrubs will be planted per 100 linear feet of road frontage. Trees and shrubs may be appropriately aggregated to provide view corridors into the development. All trees must be a minimum of six feet tall and two inches in caliper measured one foot from ground level at installation. Street bufferyard requirements can be waived or adjusted at the discretion of the Administrative Officer in areas where the building fronts the street and enhances the public realm.

iii. The revised Conceptual Land Use Plan indicates a connector roadway between the Parkway and U. S. Highway 176 through the Potential Conventional Development District. Bufferyards shall also apply to this roadway. The minimum width adjacent to single family residential (attached and detached) uses shall be 50 feet. Adjacent to commercial and multi-family uses, the minimum width shall be 25 feet. Bufferyards are not required adjacent to POA uses such as ponds, wetlands, or preserved open spaces. Planting requirements shall be as required for Brighton Park Blvd. and the Parkway. Bufferyard planting shall be installed concurrently with development of adjacent parcels.

iv. A Bufferyard adjacent to U. S. Highway 176 will be required. The required minimum area for bufferyards shall be measured toward the interior of the property from the public road right-of-way (current or planned, measured outside of utility easements if applicable, see (v.) below) and will be 25 feet in width adjacent to non- residential developments (including mixed use). Four (4) understory trees, two (2) canopy trees, and twelve (12) shrubs will be planted per 100 linear feet of road frontage. Trees and shrubs may be appropriately aggregated to provide view corridors into the development. All trees must be a minimum of six feet tall and two inches in caliper measured one foot from ground level at installation. Bufferyard requirements can be waived or adjusted at the discretion of the Administrative Officer where existing vegetation provides buffering qualities equal to or greater than the indicated landscaping. Adjacent to residential developments, the bufferyard shall be 100 feet in width and shall be undisturbed. Existing vegetation within undisturbed buffers shall not be removed except to: a) remove unhealthy or dead trees or limbs; b) remove exotic, invasive, or poisonous plants; or c) to remedy conditions constituting a safety or health hazard.

v. Maintenance – Required buffers will not be disturbed for any reason except for permitted signs, driveways, sidewalks, or other pedestrian or bicycle paths, walls, fences, or required landscaping, and landscaping maintenance and replacement.

vi. Utility easements may be allowed within proposed bufferyards if mutually agreed upon by the utility and Administrative Officer. The utility must provide a written statement indicating its permission to allow plant material in the easement, and the Property Owner must submit an agreement to replant vegetation removed by the utility. For easements that are located in proposed bufferyards, replacement of required buffer landscaping due to utility maintenance will be the responsibility of the Property Owner's Association. Trees removed inside the buffer that are greater than 6" shall be replaced by trees that are a minimum size of 6" unless otherwise allowed in the sole discretion of the Administrative Officer. In no event shall any improvement within the buffer prevent the replacement of trees as contemplated herein.

(g) Security Gates. The Property Owner may establish certain residential communities within the Project as limited access communities, with ingress/egress controlled by manned or unmanned security checkpoints. Responsibility for operation and maintenance of such security checkpoints may be transferred by the Property Owner to a POA. All roads behind security gates will remain private and not be maintained by the County.

3. FLEXIBILITY OF USES AND TRACTS, PROJECT MASTER PLANS

The development of the Property must maintain flexibility to accommodate specific soil conditions, environmental concerns, physical constraints, and market conditions and design parameters. As such, the exact locations of boundary lines between development tracts, the locations and sizes of land uses in the development areas, and the preliminary planning concepts for the tracts and uses are not indicated on the Conceptual Land Use Plan. Over the life of the Project, specific development plans for each development tract within Nexton will be submitted to the County for review by the Administrative Officer as described below. The maximum intensities and allowable land uses set forth in this document shall be strictly adhered to.

Pursuant to that certain Development Agreement by and between the Property Owner and Berkeley County recorded within the Berkeley County Register of Deeds Office (ROD) on April 21, 2006, in Volume 5549 at page 2 ("Development Agreement"), upon transfer of the Property, or any portion thereof, to a third party, the Property Owner by contract and covenant running with the land, shall assign the precise number of residential units, commercial square footage and/or civic square footage along with the specific permitted land uses that may be constructed on the subject property. Additionally, if the Property Owner transfers any portion of the Property on which the Property Owner is required to provide and/or construct certain services or pay certain fees pursuant to the PD-MU or Development Agreement, then the Property Owner shall obtain a written agreement from the transferee expressly assuming all such responsibilities and obligations. In either circumstance described above, the Property Owner shall

notify the County within fifteen (15) days of the conveyance of the property, provide the County the applicable documents assigning the development rights/obligations to the transferee and record the same in the ROD.

4. PARKING REQUIREMENTS

Off-street parking shall be provided in accordance with Exhibit G.

(J) DEVELOPMENT SCHEDULE

The Project will be developed in multiple phases as described in Exhibit H.

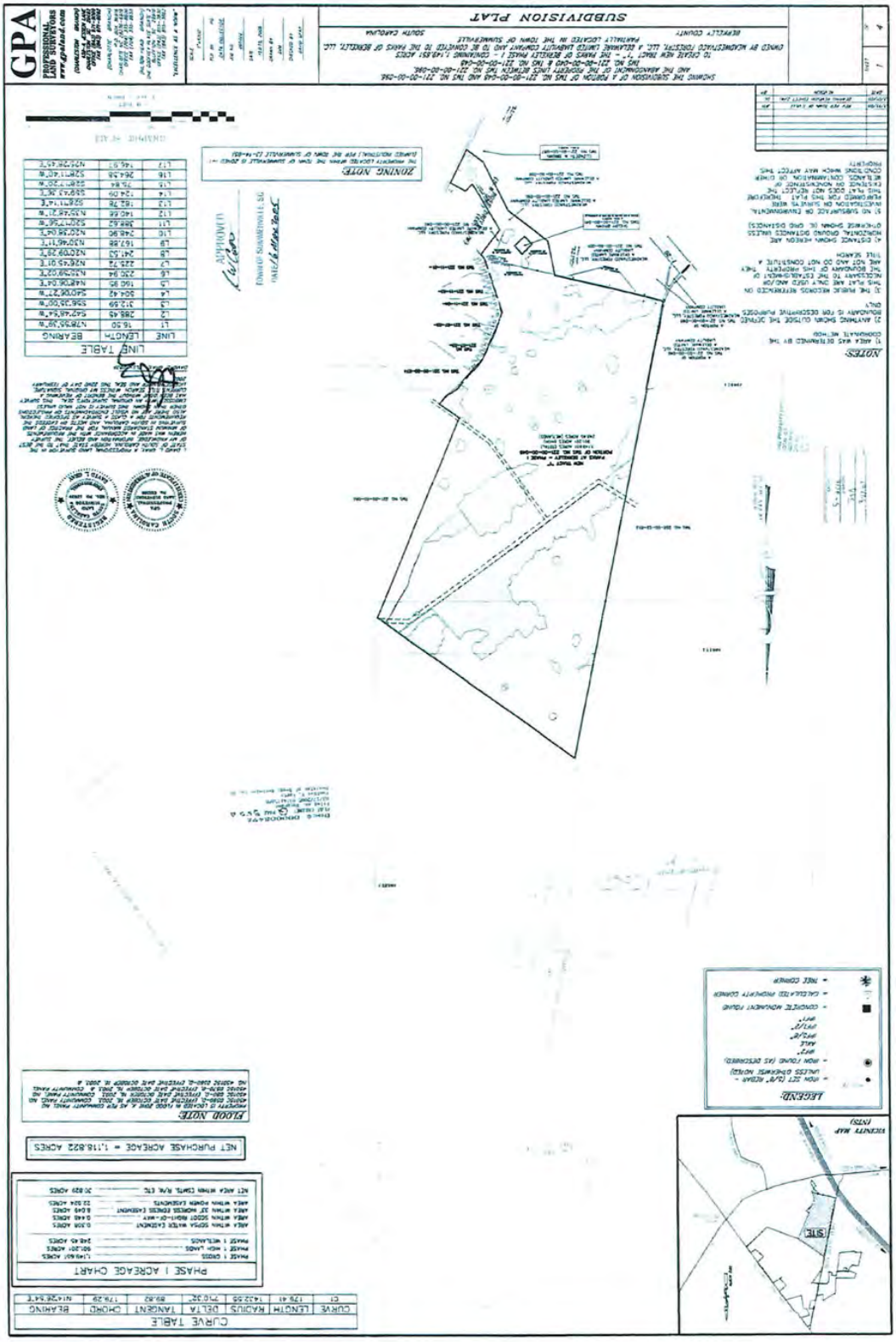
II. DEVELOPMENT PLAN

The Development Plan is included herein as Exhibit B.

Exhibit A:

Boundary Plats

Joint Exh. 1-0309



DHEC CON 000309

Joint Exh. 1-0310

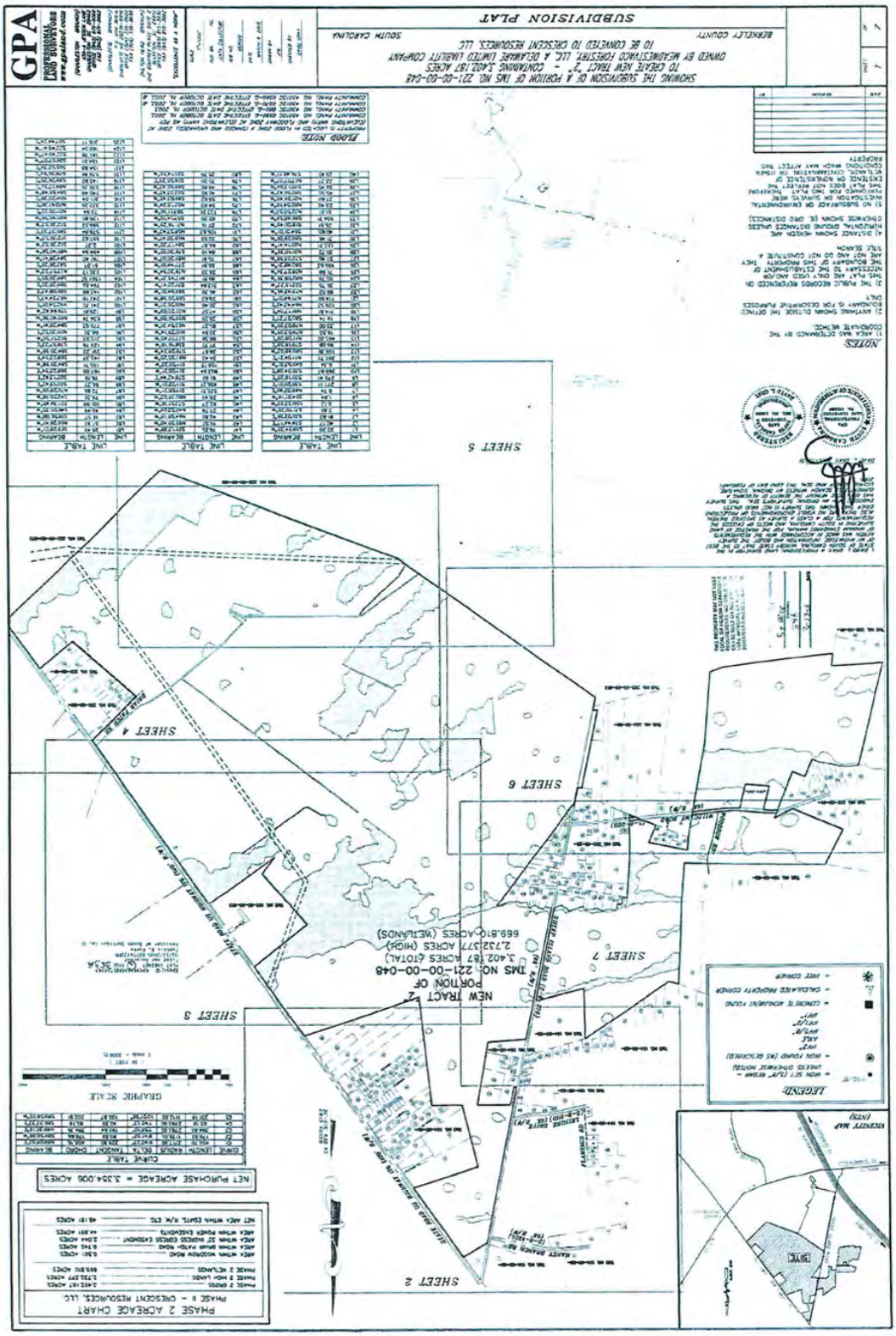


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Exhibit B:

Conceptual Land Use Plan

Joint Exh. 1-0312

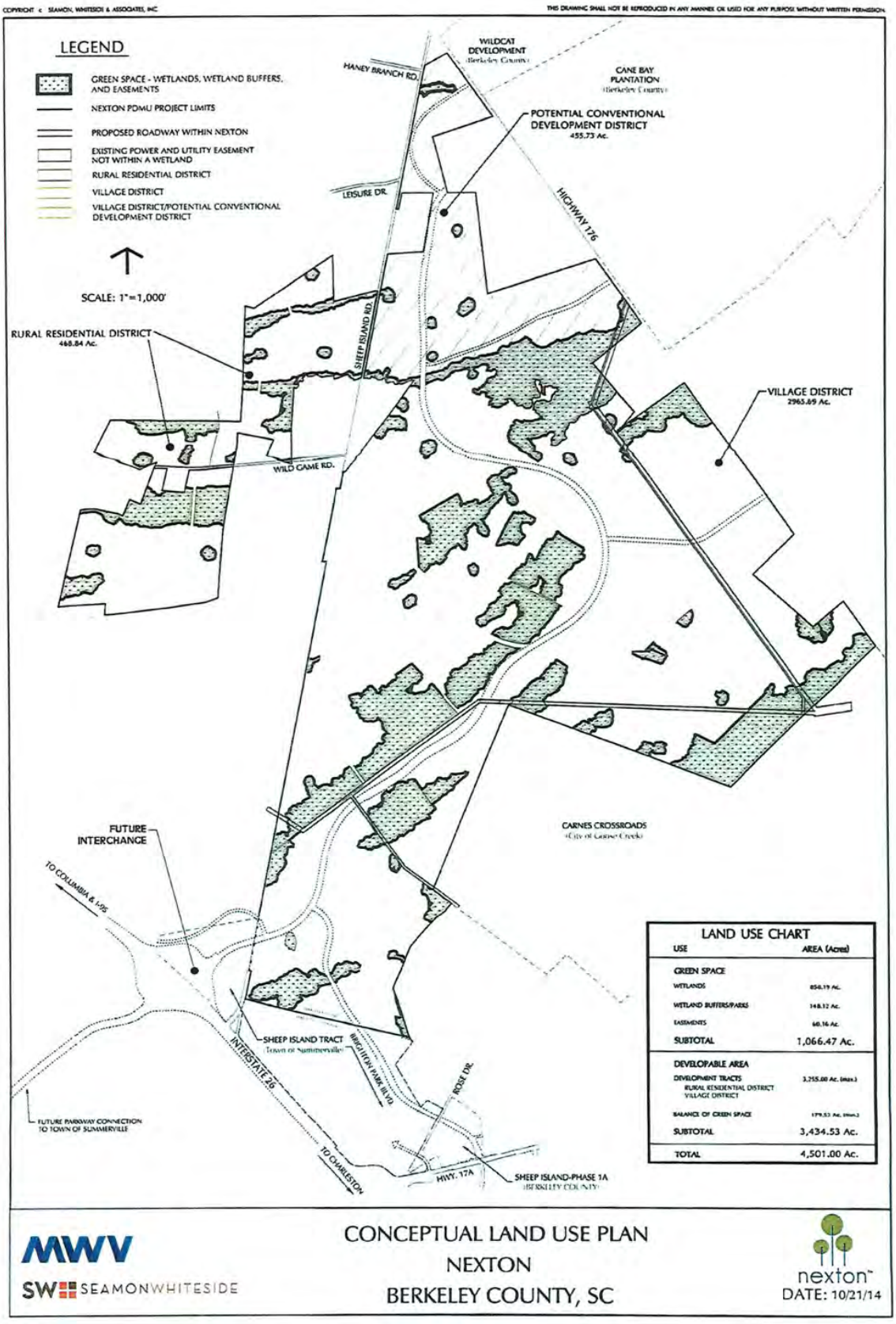

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Exhibit C:

Land Use Chart

USE	AREA (acres)
Green Space • Wetlands • Wetlands Buffers/Parks • Easements	 858.19 148.12 60.16
Subtotal	1066.47
Developable Area • Development Tracts • Rural Residential District • Village District • Balance of Green Space	 3255.00 (max.) 179.53 (min.)
Subtotal	3434.53
Total	4501.00

Exhibit D:

Permitted Uses Chart

Permitted Uses Chart

Notes:
1. Uses designated with a (*) are not included in the Use Table in the Current Regulations, and a definition is indicated. All other uses are defined in the Use Table (See Section 4.3.1 of the Current Regulations). Clarifications to land uses defined in the Use Table are indicated as applicable.
2. Conditional use requirements contained in the Current Regulations for are referred to by paragraph number. Additional conditions are also included as applicable.

Rural Residential District

Permitted Uses

❒ **Agricultural Uses**
- Agriculture, Crop
- Crop Production (*). The use of land for the production of row crops, field crops, bees, apiary products, or aquaculture. These community agricultural areas must be owned and managed by a POA not for a profit organization.
- Forestry. Temporary encroachment permits must be obtained to access public roadways.

❒ **Recreation Uses**
- Outdoor Recreation (*). Leisure-time activities, usually of a formal nature and often performed with others, requiring equipment and taking place at prescribed places, sites or fields. Active recreational uses and supporting services include swimming, tennis, baseball and other field sports, track, playground facilities, golf courses including ancillary facilities, and ecotourism. Passive recreational uses such as trails, paths, picnic areas, natural areas and other passive recreation-oriented parks are also included.

❒ **Institutional Uses**
- Assembly and Worship
- Neighborhood and Community Schools

❒ **Residential Uses**
- Single-Family Detached
- Accessory Structure (*). A structure subordinate to the primary residence and may be free standing or connected to the primary residence. Accessory Structures shall comply with all setback requirements. A maximum of one Accessory Structure per single family lot may have a kitchen and bath separate from those contained in the primary residence. In cases where the Accessory Structure contains a separate kitchen and bath and functions as a complete living unit, the unit will not count towards the maximum number of living units permitted, and one additional off-street parking space shall be provided on the lot.

Conditional Uses

❒ **Agricultural Uses**
- Agriculture, Home Horses only (Conditional Use, Paragraph 11.3.2)

- Boarding Facility (Conditional Use, Paragraph 11.3.3)

❒ **Industrial Uses**
- Mining/Resource Extraction. Access shall not be from or through a residential area.

❒ **Communications Towers (Conditional Use, Paragraph 11.7.1)**
- Locating antennas on existing structures
- Locating antennas on existing towers with tower modifications
- Locating new towers constructed with monopole and guyed construction

Village District

Permitted Uses

❒ **Agricultural Uses**

- Crop Production (*). The use of land for the production of row crops, field crops, bees, apiary products, or aquaculture. These community agricultural areas must be owned and managed by a POA or a not for profit organization.
- Forestry. Temporary encroachment permits must be obtained to access public roadways.

❒ **Commercial Uses**

- Commercial Lodging (hotel and motel)
- Bed & Breakfast
- Retail Sales (No minimum separation between uses required)
- Convenience Retail and/or Gas Station
- Commercial, Professional Services (Research and development facilities including showroom area and assembly of pre-manufactured parts is an allowable use)
- Office
- Commercial, Personal Services
- Commercial, General Services (includes kennels, landscape nurseries, farmers markets)
- Wholesale Services
- Restaurant (including drive-thru)
- Bar (No minimum separation between uses required)
- Outdoor Sales, Other

❒ **Industrial Uses**

- Transportation (limited to bus or other public transit terminal)

❒ **Recreation Uses**

- Campground (No stay beyond two weeks without a minimum interruption of one week)
- Commercial, Indoor Recreation
- Indoor Recreation
- Outdoor Recreation (*). Leisure-time activities, usually of a formal nature and often performed with others, requiring equipment and taking place at prescribed places, sites or fields. Active recreational uses and supporting services include swimming, tennis, baseball and other field sports, track, playground facilities, golf courses including ancillary facilities, and ecotourism. Passive recreational uses such as trails, paths, picnic areas, natural areas and other passive recreation-oriented parks are also included.

❒ **Institutional Uses**

- Assembly and Worship
- Cemetery
- Funeral Home (Crematorium allowed as an accessory use)
- College and Professional Schools (including student housing)
- Neighborhood and Community Schools
- Assisted Living Facilities
- Commercial Daycare Center
- Government Offices, Public Services, and Local Utilities

❒ **Storage Uses**
- Business Storage (Indoor Storage)

❒ **Residential Uses**
- Single-Family Detached
- Multifamily
- Townhouse/Single-Family Attached (2 or more attached units)
- Accessory Structure (*). A structure subordinate to the primary residence and may be free standing or connected to the primary residence. Accessory Structures shall comply with all setback requirements. A maximum of one Accessory Structure per single family lot (attached or detached) may have a kitchen and bath separate from those contained in the primary residence. In cases where the Accessory Structure contains a separate kitchen and bath and functions as a complete living unit, the unit will not count towards the maximum number of living units permitted, and one additional off-street parking space shall be provided on the lot.

Note: Acceptable materials for exterior siding for residential structures include the following:
- Painted or stained wood and fiber-cement in clapboard, lap, butt jointed, board and batten, shingle and flat panel applications
- Brick
- Painted Brick
- Tabby
- Stucco
- Metal used as an accent or secondary material
- Other materials of equal or greater stability and durability as reasonably approved by the Administrator Officer.

Conditional Uses

❒ **Commercial Uses**
- Office/Warehouse/Assembly (*). Establishment containing both office and warehouse uses. Assembly of pre-manufactured parts is allowed in the warehouse area, and the office must comprise a minimum of 5% of the building square footage. Garage doors shall not be visible from either a public roadway or residential land uses, and metal siding shall only be visible from a public roadway or residential land use when it is used as an architectural component and integrated with other materials.
- Car Wash (Shall be located adjacent to Commercial, General Services uses only.)

❒ **Industrial Uses**
- Light Manufacturing (Incidental to a retail operation only. Retail square footage must be equal to or greater than the Light Manufacturing square footage of the building (warehousing space not included)
- Mining/Resource Extraction (Access shall be from Collector Streets only and not from Village District Streets.)

❒ **Recreation Uses**
- Commercial, Outdoor Recreation (Uses must be located a minimum of 500 feet from any residential use. A 25' Development Bufferyard shall be required adjacent to any use.)

❒ **Communications Towers (Conditional Use; Paragraph 11.7.1)**
- Locating antennas on existing structures

- Locating antennas on existing towers with tower modifications
- Locating new towers constructed with monopole and guyed construction

❒ **Storage Uses**

- Mini-warehouse (Conditional Use; Paragraph 11.8.1) (Garage doors, metal siding and outdoor storage areas shall be adequately screened from any public roadway or residential land use. A 25' Development Bufferyard shall be required adjacent to any other land use.)
- Boat and RV Storage (*). Structure or outdoor area for the leasing of storage space for boats or recreational vehicles. Facilities must contain a rental office and may not be visable from Collector Streets or residential land uses. A 25' Development Bufferyard is required adjacent to any land use.

❒ **Residential Uses**

- Single-Family Detached with garages for front loaded houses with garage doors facing the street and extending beyond the principal structure. Residential areas utilizing garages for front loaded housed with garage doors facing the street and extending beyond the principal structure must comply with the lot criteria in the CDSF District as shown in Exhibit "E". Single family detached residential projects developed in this manner must contain a minimum of 500 lots within a specific planned development tract within Nexton. These projects shall be separated from standard Village District areas by an undisturbed buffer with a minimum width of 100 feet. Narrower buffers incorporating either vegetated berms or fences with landscaping may be approved by the Administrative Officer. A Conceptual Plan for areas utilizing garage doors extending beyond the principal structure must be approved by the Administrative Officer prior to the submission of a Preliminary Plan for the area.
- Home Occupation (Conditional Use; Paragraph 11.9.1) (Home occupations are limited to professional services. Retail operations are not allowed.)

Conventional Development District

Permitted Uses

❒ All Areas

- Crop Production (*). The use of land for the production of row crops, field crops, bees, apiary products, or aquaculture. These community agricultural areas must be owned and managed by a POA or a not for profit organization.
- Forestry. Temporary encroachment permits must be obtained to access public roadways.
- Outdoor Recreation (*). Leisure-time activities, usually of a formal nature and often performed with others, requiring equipment and taking place at prescribed places, sites or fields. Active recreational uses and supporting services include swimming, tennis, baseball and other field sports, track, playground facilities, golf courses including ancillary facilities, and ecotourism. Passive recreation uses such as trails, paths, picnic areas, natural areas and other passive recreation-oriented parks are also included.
- Assembly and Worship
- Neighborhood and Community Schools

❒ CDSF (Single Family)

- Single Family Detached
- Accessory Structure (*). A structure subordinate to the primary residence and may be free standing or connected to the primary residence. Accessory Structures shall comply with all setback requirements. A maximum of one Accessory Structure per single family lot (attached or detached) may have a kitchen and bath separate from those contained in the primary residence. In cases where the Accessory Structure contains a separate kitchen and bath and functions as a complete living unit, the unit will not count towards the maximum number of living units permitted, and one additional off-street parking space shall be provided on the lot.

❒ CDMF (Multi-Family)

- Multifamily
- Townhouse/Single-Family Attached (2 or more attached units)

❒ CDGC (General Commercial)

❒ **Commercial Uses are restricted to contiguous areas adjacent to U. S. Highway 176 and must comply with Nexton design guidelines. Some separation of commercial uses may be allowed by the Administrative Officer provided that a cohesive development is maintained.**

- Bed & Breakfast
- Retail Sales (No minimum separation between uses required)
- Convenience Retail and/or Gas Station
- Commercial, Professional Services
- Office
- Commercial, Personal Services
- Commercial, General Services (includes kennels, landscape nurseries, farmers markets)
- Wholesale Services
- Restaurant (including drive-thru)

❒ **Institutional Uses**
- Assembly and Worship
- Cemetery (Funeral Home and Crematorium allowed as an accessory use)
- College and Professional Schools (including student housing)
- Assisted Living Facilities
- Commercial Daycare Center
- Government Offices, Public Services, and Local Utilities

❒ **Storage Uses**
- Business Storage (Indoor Storage)

Conditional Uses

❒ All Areas
- Mining/Resource Extraction (Access shall be from Collector Streets only and not from residential areas)

❒ **CDSF (Single Family)**
- Boarding Facility (Conditional Use, Paragraph 11.3.3)

❒ CDGC (General Commercial)

❒ **Commercial Uses**
- Office/Warehouse/Assembly (*). Establishment containing both office and warehouse uses. Assembly of pre-manufactured parts is allowed in the warehouse area, and the office must comprise a minimum of 5% of the building square footage. Garage doors shall not be visible from either a public roadway or residential land uses, and metal siding shall only be visible from a public roadway or residential land use when it is used as an architectural component and integrated with other materials.
- Car Wash (Shall be located adjacent to Commercial, General Services uses only.)

❒ **Communications Towers (Conditional Use; Paragraph 11.7.1)**
- Locating antennas on existing structures
- Locating antennas on existing towers with tower modifications
- Locating new towers constructed with monopole and guyed construction

❒ **Storage Uses**
- Mini-warehouse (Conditional Use; Paragraph 11.8.1) (Garage doors, metal siding and outdoor storage areas shall be adequately screened from any public roadway or residential land use. A 25' Development Bufferyard shall be required adjacent to any other land use.)
- Boat and RV Storage (*). Structure or outdoor area for the leasing of storage space for boats or recreational vehicles. Facilities must contain a rental office and may not be visable from Collector Streets or residential land uses. A 25' Development Bufferyard is required adjacent to any land use.

Exhibit E:

Lot Criteria

Lot Criteria (Revised June 26, 2015)

Land Use	Min. Lot Size	Min. Lot Frontage		Building Setbacks							Max. Impervious Surface Area	Maximum Bldg Height
		Std. Lot	Corner Lot	Min. Front Yd.	Minimum Garage Front Yard: Front Entry	Minimum Garage Front Yard: Side Entry	Min. Side Yard	Min. Rear Yard	Min. Side Street	Rear or Side Alley		
Rural Residential District	0.5 Ac.	20 ft.	40 ft.	30 ft.	20 ft.	20 ft.	10 ft.	30 ft.	30 ft.	10 ft.	35%	45 ft.
Village District												
• Cottage Lot	2500 s.f.	20 ft.	25 ft.	5 ft.	20 ft.	5 ft.	2 ft.	5 ft.	5 ft.	5 ft.	80%	45 ft.
• Single Family Detached												
• Rear Access	3500 s.f.	20 ft.	25 ft.	5 ft.	N/A	N/A	2 ft.	5 ft.	5 ft.	5 ft.	75%	45 ft.
• Front Access	3500 s.f.	20 ft.	25 ft.	5 ft.	20 ft.	5 ft.	2 ft.	5 ft.	5 ft.	5 ft.	75%	45 ft.
• Single Family Attached												
• Rear Access	N/A	15 ft.	20 ft.	5 ft.	N/A	N/A	0 ft.	5 ft.	5 ft.	5 ft.	80%	45 ft.
• Front Access	N/A	15 ft.	20 ft.	5 ft.	20 Ft.	5 ft.	0 ft.	5 ft.	5 ft.	5 ft.	80%	45 ft.
• All Other Uses	N/A	N/A	N/A	0 ft. (7)	N/A	N/A	0 ft.	0 ft.	0 ft	0 ft.	85% (see Note 15)	N/A, see Note 16
• Conventional Development District												
• CDSF	4000 s.f.	20 ft.	40 ft.	20 ft. (20)	20 ft.	5 ft.	5 ft.	20 ft.	20 ft (20)	5 ft.	80%	45 ft.
• CDMF	N/A	16 ft.	30 ft.	20 ft.	20 ft.	N/A	10 ft.	20 ft.	20 ft.	10 ft.	80%	45 ft.
• CDGC	N/A	N/A	N/A	20 ft.	N/A	N/A	10 ft.	20 ft.	20 ft.	N/A	80%	N/A, See Note 16

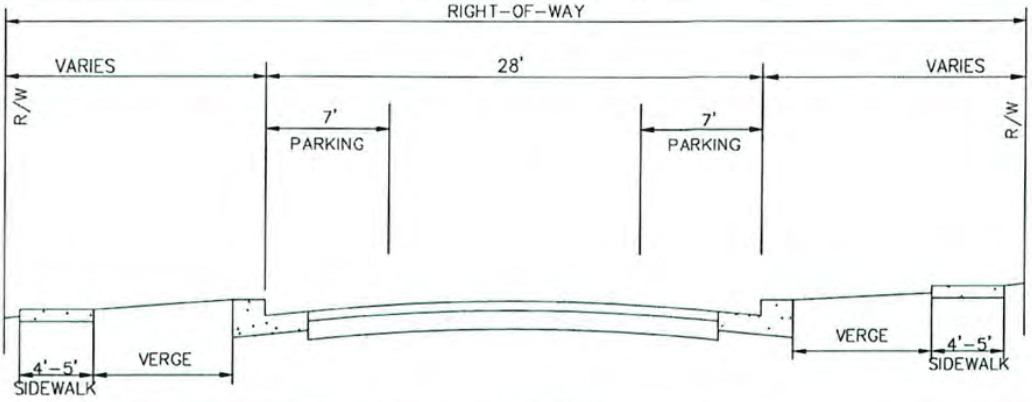
1. All building separations must meet applicable building codes.
2. Separation between detached single family houses and between end units of attached single family structures shall be a minimum of 10 feet.
3. Building setbacks shall be measured to the exterior vertical wall.
4. Steps may encroach into minimum building setbacks but may not encroach into easements and right of ways.
5. Garages adjacent to an alley (rear access) in the Village District shall be placed so the side of the building containing garage doors are placed at either the Minimum Building Setback or at a minimum of 15 feet from the alley property line. Garages for front loaded houses subject to Village District lot criteria with garage doors facing the street may not extend beyond the principal structure. Within the Village District, Single-Family Detached Residential Uses with garages for front loaded houses with garage doors facing the street and extending beyond the principal structure are permitted conditional uses (see Village District Conditional Uses for specific requirements) and must comply with the lot CDSF district lot criteria. Garages adjacent to alleys in the Conventional Development District shall be placed at a setback of either 5 feet or 15 feet from the alley line.
6. Eaves of residential buildings may not extend beyond property lines.
7. Eaves or balconies of commercial buildings that extend beyond the front property line or ingress-egress easement must be at least 12 feet above the immediately adjacent finished exterior grade. Encroachments are limited to a maximum of 4 feet. Village District only.
8. Building heights are measured to the highest point at the structure. Architectural features such as bell towers, cupolas, chimneys, etc. shall be exempt from height restrictions.
9. There shall be a 25 ft. setback from open drainage easements for the primary structure. Detached garages and alleys are permitted within these setbacks.
10. Garages as an Accessory Structure may be located in front of the primary structure. In these cases, garage doors may not face the street.
11. Single family detached lots with front or side entry access from a street (not alley) must contain a minimum of two offstreet parking spaces not contained within a garage or in any portion of a roadway right of way.
12. On-grade patios on which a vertical structure could be constructed must meet building setback requirements.
13. Driveways for front access corner lots in the Village District and Conventional Development District must be located a minimum of 40 feet from the travel way of the intersecting road.
14. For single family attached dwellings with front access on a publicly maintained street, common parking areas (parking spaces and drive aisles) shall be located outside of the roadway right-of-way, or the minimum separation between adjacent driveways shall be 25 feet. Parked vehicles may not protrude into the roadway right-of-way.
15. Maximum impervious coverage applies to the developable area (dedicated roads, wetlands and ponds not included) of each subdivided lot. Should lots be subdivided where a lot will contain the proposed building only, and parking will be provided on an adjacent POA or common property, the Administrative Officer may approve an increase to the maximum impervious coverage for the lot with the building provided that the coverage may not exceed 90% based upon the design and landscaping of adjacent lots and uses.
16. Building height for uses other than single family uses will be governed by the current adopted building codes of Berkeley County. After the height limitations are reviewed, the building and/or zoning official may impose additional restrictions. During the required planning and code review, the official will give consideration to the structure design and the County's abilities to gain adequate access for firefighting personnel, and that such building is designed or is equipped to provide adequate protection against the dangers of fire, and/or that such building is served by an internal fire service organization.
17. Cottage lots shall be located adjacent to or within 200 feet of a park or open space area. Cottage lots are limited to a maximum of 10% of lots depicted on a Preliminary Plat. Village District only.
18. Non-residential uses within the Rural Residential District must comply with applicable lot, setback and buffer criteria in the Current Regulations.
19. Flag lots are allowed on a case by case basis. County will not maintain the common drive areas. Flag portions of lots do not count towards minimum lot size. Village District only.
20. Minimum front yard and side street setbacks may be reduced to 10 ft. where appropriate in a traditional neighborhood application as approved through coordination and discussion with the Administrative Officer. This shall be depicted on the final development plan submittals for the applicable subdivision.

ROA 004638

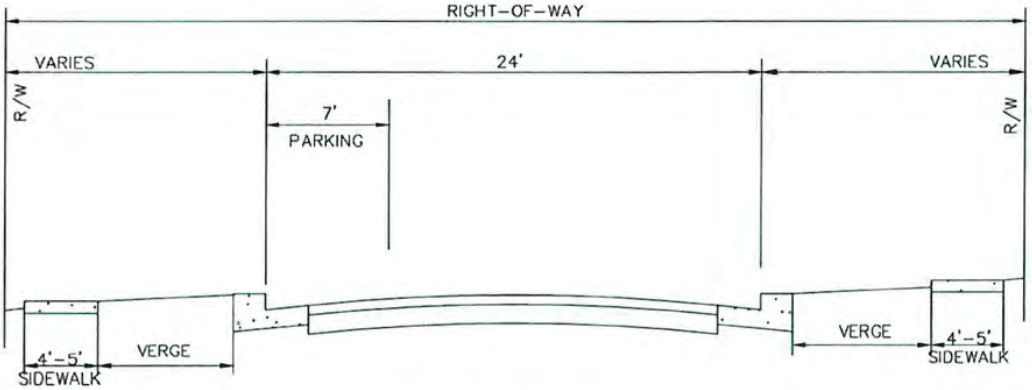
Exhibit F:

Proposed Roadway Standards

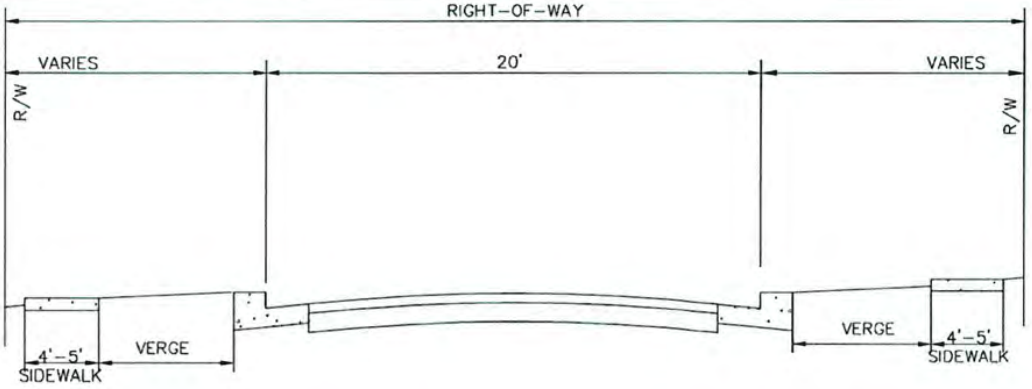
Joint Exh. 1-0326



28 FT STREET PARKING ON BOTH SIDES (TWO-WAY)



24 FT STREET PARKING ON ONE SIDE (TWO-WAY)



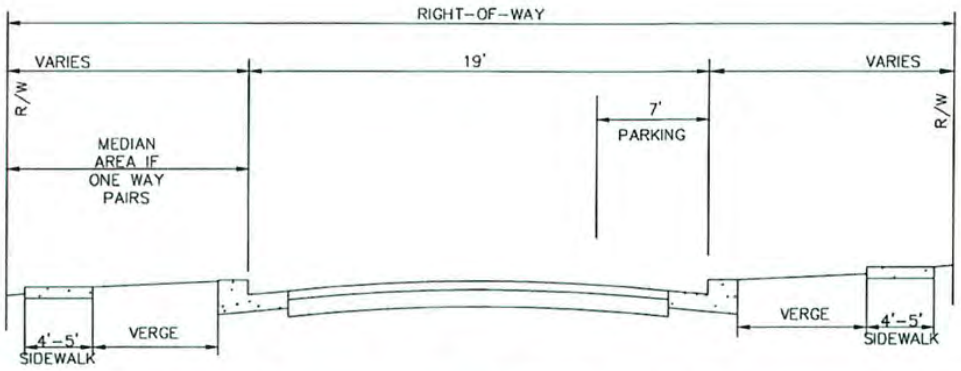
20 FT STREET NO ON STREET PARKING ALLOWED (TWO-WAY)

NOTES:
1. RIGHT OF WAY WIDTH SHALL BE BASED ON SIDEWALK AND VERGE WIDTHS AND UTILITY REQUIREMENTS.
2. SEE ATTACHED NOTES.

SWA

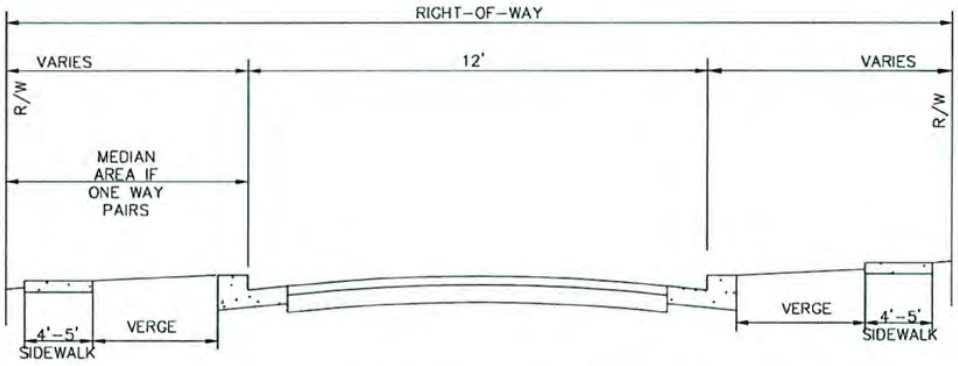
DESIGN CRITERIA FOR RESIDENTIAL YIELD STREETS
PBMW018 (LESS THAN 500 ADT)
DATE: 1.13.2013
SCALE: NOT TO SCALE

DHEC CON 000326



19 FT STREET PARKING ON ONE SIDE (ONE-WAY)

NOTE:
SECTION TO BE UTILIZED IN LIMITED LOCATIONS. ALTERNATE ROUTES SHALL BE AVAILABLE IN CASES OF VEHICLE BREAKDOWNS.



12 FT STREET NO ON STREET PARKING ALLOWED (ONE-WAY)

NOTES:
1. RIGHT OF WAY WIDTH SHALL BE BASED ON SIDEWALK AND VERGE WIDTHS AND UTILITY REQUIREMENTS.
2. SEE ATTACHED NOTES.

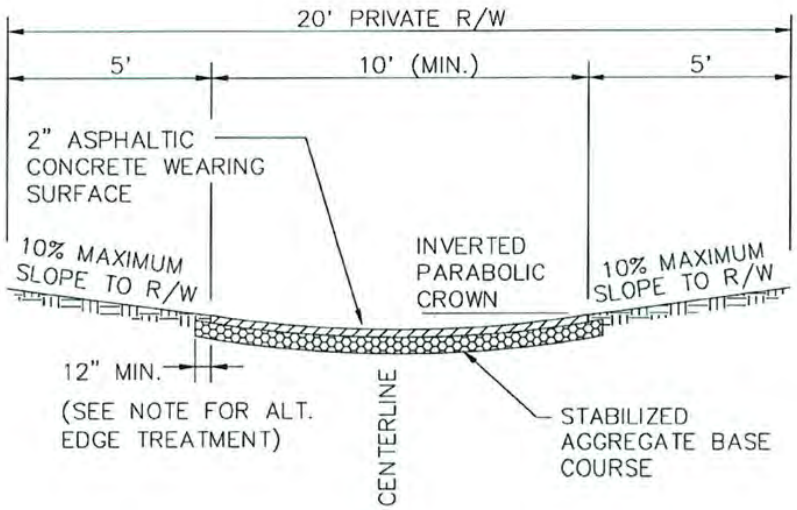
SWA

DESIGN CRITERIA FOR RESIDENTIAL YIELD STREETS
PBMW018 (LESS THAN 500 ADT)
DATE: 1.13.2013
SCALE: NOT TO SCALE

Notes to Residential Yield Streets

Residential yield streets are designed so that moving cars must occasionally yield between parked cars before moving forward. This permits the development of narrower streets and encourages vehicles to move at a slower speed, while continuing to address the operational needs of the streets. In conjunction with a connected street network and sidewalks, these streets result in a more livable community. Specific requirements for these streets are as follows:

1. These design criteria are for low volume residential streets with ADT's less than 500 and block lengths generally approximately 600 feet or less in length.
2. Dimensions are to the face of curb. Allowable curb and gutter types include 14", 18", and 24" straight curb and gutter, and 18" and 24" roll curb. Lane widths for streets with roll curb are measured to the edge of asphalt. Parallel parking is not allowed with streets with roll curb. Type and width of curb and gutter shall be approved by the Berkeley County Engineer
3. In situations where a street abuts wetlands, buffers, parks or other open areas, the curb and gutter adjacent to these areas may be eliminated as approved by the Berkeley County Engineer.
4. Sidewalks shall be located on one or two sides of the roadway and shall comply with ADA regulations. Sidewalks may be eliminated if a multi-use trail is constructed as approved by the Administrative Officer on a case by case basis pursuant to the Development Agreement. Sidewalks and/or multi-use trails shall be maintained by the POA.
5. Minimum verge widths for public roadways shall be 5' for palm trees, 5' for understory trees, and 8' for canopy trees. See Attachment 1 for street tree requirements including spacing, species, locations in verges, submittal requirements, etc. Street Trees shall be maintained by the POA.
6. See Attachment 2 for intersection radii requirements.
7. Low impact development (LID) drainage facilities may be allowed within public roadways on a case by case basis as approved by the Berkeley County Engineer. Such facilities will not be maintained by Berkeley County.
8. Allowable parking areas shall be properly marked and/or signed.
9. On a case by case basis, the County Engineer may approve modifications to the Village District yield street design standards when warranted by development plans with unique site features and design elements. Modifications may include super-elevated roads, roads without curb & gutter, and other non-standard road sections acceptable to the County. Development plans proposing the use of non-standard yield street road sections must be reviewed and approved with County staff as part of the site plan/work session meeting prior to submission of the preliminary plan.



NOTES:

1. ALTERNATE ALLEY SECTION DESIGNS MAY BE APPROVED ON A CASE BY CASE BASIS BY THE ADMINISTRATIVE OFFICER.

2. UTILITY EASEMENTS ALLOWED IN ALLEY R/W.

3. FLUSH CURBS ALLOWED AS ALTERNATE EDGE TREATMENT. CURB WIDTHS INCLUDED IN 10' MINIMUM WIDTH FOR ALLEYS.

NOTE: STORMWATER INFRASTRUCTURE SERVING PUBLIC INFRASTRUCTURE IS ALLOWED IN ALLEYS WITH ASSOCIATED PUBLIC DRAINAGE EASEMENTS. MAINTENANCE AGREEMENTS SHALL BE EXECUTED AS APPLICABLE. SHOULD THE COUNTY NEED TO REPAIR THE DRAINAGE FACILITIES, WITHIN PUBLIC EASEMENTS, THE P.O.A. WOULD BE RESPONSIBLE FOR REPAIRS TO THE ALLEY.

SWA

DESIGN CRITERIA FOR ALLEYS
PBMW018
DATE: 1.13.2013
SCALE: NOT TO SCALE

DHEC CON 000329

Roadway Design Criteria for Curb and Gutter Roadways (1) (2) (3)

	Village District Streets			Major Collector or Arterial
Design Criteria	**Local**	**Sub-Collector**	**Collector**	
Typical Traffic Volume (ADT)	500-2500	2500-5000	5000+	5,000-30,000
Posted Speed Limit (mph)	15-25	20-30	25-35	30-50
Traveled Way (3)				
Minimum Lane Width – One Way	12'	12'	14' single lane, 12' multi-lane	14' single lane, 12' multi-lane
Minimum Lane Width – Two Way	10'	11'	12' (See Note 10)	12' (See Note 10)
Parallel On-Street Parking Width (Optional)	7'	7'	8'	8'
45° Diagonal Parking Depth (Optional) (4)	18.5'	18.5'	N/A	N/A
Minimum Median Width (Optional) (5)	6'	6'	6'	6'
Bike Lane Width (Optional)	4'	4'	4'	5'
Streetside				
Sidewalk Requirements (6)	Both Sides (6)	Both Sides (6)	Both Sides (6)	Both Sides (6)
Minimum Sidewalk Width	4'	4'	5'	5'
Minimum Verge Width (7)				
Minimum for Palm Trees	5'	5'	5'	5'
Minimum for Understory Trees	5'	5'	5'	8'
Minimum for Canopy Trees	8'	8'	8'	12'

(1) Dimensions indicated in the table above are minimum dimensions. Final dimensions shall be based on type and location of roadway and expected traffic volume and speed and will be approved by the Berkeley County Engineer. Typical traffic volumes (ADT's) are not the over-riding criteria for lane widths for local streets. Lane widths wider than the minimums indicated may be required depending on the location and function of the street. Total right-of-way widths shall be based on Traveled Way and Streetside widths as well as utility requirements. Dimensions apply to both public and private streets.

(2) Allowable curb and gutter types include 14", 18" and 24" straight curb and gutter, 24" roll curb and gutter, and 6", 8" and 12" flush curb. Streets with flush curb will be private and not maintained by the County. Curb and gutter selection shall be based on type of roadway and traffic volumes and will be approved by Berkeley County Engineer.

(3) Lane widths and bike lane widths are based on width of asphalt paving (gutter pan not included). Parallel parking width shall be measured to face of curb

(4) Minimum travel lane widths adjacent to 45° parking shall be 11 feet for 2-way roads and 15 feet for 1-way roads. Wider lanes may be required based on traffic considerations. Diagonal parking may be allowed within public roadway right-of-ways on a case by case basis depending on use and application, and traffic and safety considerations.

(5) Median widths can vary. For larger medians, interior area may be subdivided outside of the roadway right of way and dedicated to the POA.

(6) Sidewalks and/or multi-use trails shall be maintained by the POA. Multi-use trails may be substituted for sidewalks on a case by case basis pursuant to the Development Agreement as approved by the Administrative Officer. Sidewalk requirements may be reduced on a case by case basis by the Administrative Officer. Sidewalks must comply with ADA regulations.

(7) Verge widths shall be increased to accommodate underdrain requirements. See Attachment 1 for street tree requirements for public roadways including spacing, species, locations in verges, submittal requirements, etc. Street trees shall be maintained by the POA.

(8) See Attachment 2 for intersection radii requirements.

(9) Low impact development (LID) drainage facilities may be allowed within public roadways on a case by case basis as approved by the Berkeley County Engineer. Such facilities will not be maintained by Berkeley County.

(10) County may approve 11 ft. lanes on a case by case basis for certain roads depending on context and traffic volumes and for 4 lane roadways.

(11) Parking shall be adequately marked and/or signed.

ROA 004644

Attachment 1: Street Tree Requirements

Street Tree Requirements
Village District

x.1.0 Required locations

1.1 Street trees shall be required along all Village District streets, except as noted:

a. Street trees are not required along roadways with a required 20' buffer (i.e. Brighton Park Blvd. and the Parkway).
b. Street trees are not required on private alleys or where there will not be adjacent development to the road.
c. On a case by case basis, the Administrative Officer may approve relief from the street tree requirements for plans with unique design elements provided the plan meets the overall landscape intent of the Village District Standards.

x.2.0 Allowable street tree types

2.1 Allowable tree types for canopy street trees shall be:

'Allee' elm
'Bosque' elm
'High Beam' Overcup oak
'Highrise' live oak
'Highpoint' nutall oak
'Hightower' willow oak
Live oak
Willow oak
Nutall Oak
Magnolia
Shumard Oak
Red Maple

2.2 Allowable tree types for understory street trees shall be single stem varieties as follows:

crape myrtle
ironwood
savannah holly
sweetbay magnolia
sabal palm
Red Bud
Magnolia (Little Gem)
Dogwood

Notes:

1. Understory trees may comprise no more than 30% of the required street trees. Trees in excess of the required street trees may be either canopy or understory. If developed in phases, the 30% will be calculated per phase. Areas considered urban/commercial or mixed-use may exceed the 30%

understory tree maximum whenever the streetscape and architectural design limit the available space for larger trees. In higher density single family areas within the Village District, the use of all understory trees is allowed on a case by case basis as approved by the Administrative Officer.

2. Tree species not listed may be used if approved by the Administrative Officer.
3. Modifications to the required percentages of understory and canopy trees may be approved by the Administrative Officer.

x.3.0 Tree form

Single stem variety trees shall have a dominant leader and adhere to proper form as set forth by the American Nurseryman's Standards.

x.4.0 Minimum tree size at time of planting

4.1 Canopy trees shall be a minimum of 2" caliper at time of planting.

4.2 Understory trees shall be a minimum of 1.5" caliper at time of planting.

x.5.0 Tree spacing

5.1 Canopy trees shall be typically spaced between 30' on center to 55' on center. Spacing should be as consistent as possible given that flexibility in spacing will be provided to accommodate site, infrastructure, and utility constraints. Spacing may be in staggered or aligned configurations.

5.2 The average of the amount of trees per linear foot of roadway may be used to meet the minimum street tree requirements, with the minimum amount of trees required being no less than a 55' average unless approved by the Administrative Officer.

5.3 Understory trees shall be typically spaced between 15' on center to 30' on center. Spacing should be as consistent as possible given that flexibility in spacing will be provided to accommodate site, infrastructure, and utility constraints.

Note: aligning trees on property line intersections is both allowed and encouraged where utilities are not located.

x.6.0 General allowable street tree locations in Rights of Way

6.1 The following requirements are for public roadways only. Minimum verge widths and tree spacing dimensions are not applicable to private roadways and drives.

6.2 In order to be permitted within a **Village District** Street Right of Way, proposed canopy and understory tree locations must meet the following criteria:

A. Canopy trees must be located a minimum of 5' from the back of curb.

B. If a canopy tree is to be planted within an urban planter cut-out, the minimum separations must be maintained, as well as an unobstructed sidewalk.

C. Canopy trees should be located such that the tree trunk is a minimum of:

a. 5' separation from any water and sewer utility lines that are shallower than 5' deep
b. 5' separation from a stormwater pipe (for stormwater pipes parallel to the roadway, a 3' separation with root barrier located between the tree and pipe is permitted)
c. 10' separation from a stormwater structure
d. 10' separation from a fire hydrant
e. 10' separation from a street light
f. 5' separation from driveway edges

D. Separation requirements for canopy street trees relative to roadway intersections for Village District Roadways with posted speed limits of 25 mph or less shall be as follows:

- At 4-way stop intersections, canopy street trees shall be a minimum of 15 feet from the nearest edge of pavement of the intersecting road. (see attached diagram)
- At intersections with stop control on side street, canopy street trees on the free flow roadway shall be a minimum of 30 feet from the nearest edge of pavement of the intersecting road, and a minimum of 15' for the side streets. (see attached diagram)

E. Root barrier shall be installed along the street curb/underdrain for canopy trees located less than 8 feet from the back of curb at a minimum of 3' deep and shall be a minimum of 30 linear feet long, and positioned as to be centered on the tree.

Note: Root barrier must be a ribbed & interlocking polypropylene product such as DeepRoot Barriers or equal. All barriers shall be installed in accordance with manufactured recommended instructions.

F. Understory trees must be located a minimum of 2.5' from the back of curb within 5' verges. For verges 6' and wider, the understory trees must be a minimum of 3' from the back of curb.

G. If an understory tree is to be planted within an urban planter cut-out, the minimum separations must be maintained, as well as an unobstructed sidewalk.

H. Understory trees should be located such that the tree trunk is a minimum of:

a. 4' separation from any water and sewer utility lines that are shallower than 4' deep
b. 3' separation from a stormwater pipes
c. 7' separation from a stormwater structure
d. 7' separation from a fire hydrant
e. 7' separation from a street light
f. 5' separation from driveway edges

g. 30' separation from intersections, measured from the point of intersection of the nearest right of way lines

6.3 In order to be permitted within **Arterial or Major Collector Street** Rights of Way, proposed canopy and understory tree locations must meet the following criteria:

A. Canopy trees must be located a minimum of 8' from the back of curb.

B. If a canopy tree is to be planted within an urban planter cut-out, the minimum separations must be maintained, as well as an unobstructed sidewalk.

C. Canopy trees should be located such that the tree trunk is a minimum of:

a. 5' separation from any water and sewer utility lines that are shallower than 5' deep
b. 5' separation from a stormwater pipe
c. 10' separation from a stormwater structure
d. 10' separation from a fire hydrant
e. 10' separation from a street light
f. 5' separation from driveway edges
g. 30' separation from intersections, measured from the point of intersection of the nearest right of way lines

D. Understory trees must be located a minimum of 5' from the back of curb

E. If an understory tree is to be planted within an urban planter cut-out, the minimum separations must be maintained, as well as an unobstructed sidewalk.

F. Understory trees should be located such that the tree trunk is a minimum of:

h. 4' separation from any water and sewer utility lines that are shallower than 4' deep
i. 3' separation from a stormwater pipes
j. 7' separation from a stormwater structure
k. 7' separation from a fire hydrant
l. 7' separation from a street light
m. 5' separation from driveway edges
n. 30' separation from intersections, measured from the point of intersection of the nearest right of way lines

x.7.0 Street tree care

7.1 General

A. Trees shall be maintained by the Developer and/or Property Owner's Association. Trees that die due to natural causes, neglect, or utility/road maintenance repair shall be replanted by the Developer and/or Property Owner's Association.

B. Maintenance responsibilities shall be clearly defined in all encroachment permits and covenants and restrictions.

7.2 Water

A. Trees shall be provided adequate water during their 1 year establishment period.

B. Watering may occur via irrigation, hand watering or gator bags.

7.3 Pruning

A. Trees with limbs protruding over roadways shall be pruned to maintain a 14' high clear zone over the roadway.

B. Trees with limbs protruding over sidewalks or trails shall be pruned to maintain a 7' high clear zone over the sidewalk or trail.

7.4 Mulch

A. Canopy trees will require a minimum of 18 sq. ft. mulch area at the base of each tree. The mulch area shall be a minimum of 2" deep. Mulch must remain for a minimum of two years from time of planting.

B. Understory trees will require a minimum of 12 sq. ft. mulch area at the base of each tree. The mulch area shall be a minimum of 2" deep. Mulch must remain for a minimum of two years from time of planting.

x.8.0 Landscaping/Street tree submittal requirements

8.1 Landscaping /Street Tree Plan must be drawn and submitted to Berkeley County for review and approval as part of the Preliminary Plan Submittal. The Landscaping/Street Tree Plan shall include:

A. Label existing and proposed right of ways, lot lines, streets, curbs, buildings, sidewalks, existing trees, drainage features, utilities, light fixtures, ponds, etc.

B. Drainage structures and pipes as well as water and sewer lines shall be shown as a line type that clearly delineates their location on the plan.

C. Dimensions for road and lane widths, verge widths, sidewalk widths, median widths, swales, planter cut-outs, curbs, etc.

D. A chart for the current phase that indicates the number of canopy and understory trees required, number provided, and the associated percentages of each.

E. A street tree schedule that includes tree type, size, and quantity

F. A tree planting, mulching, and watering detail that meets the requirements of this ordinance

x.9.0 Required Tree Planting Times

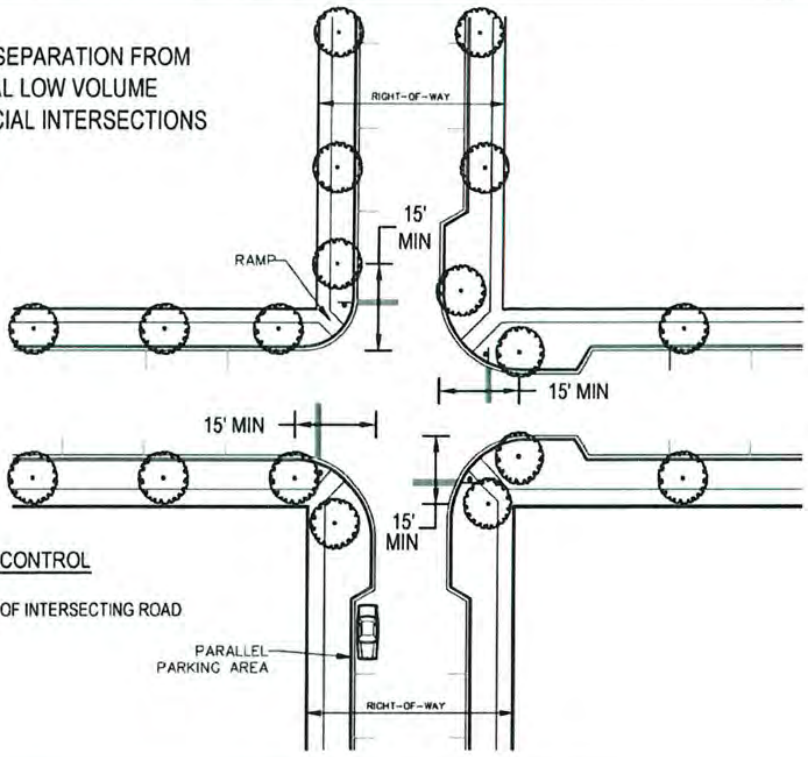
A. Trees may be planted as each lot finalizes construction. In order to obtain the Certificate of Occupation for each home and associated lot, the developer / builder must first plant any and all required street trees located within 10' of the aforementioned lot. The Administrative Officer may grant flexibility on a case by case basis.

B. Trees must be planted per the approved Landscape / Street Tree Plan.

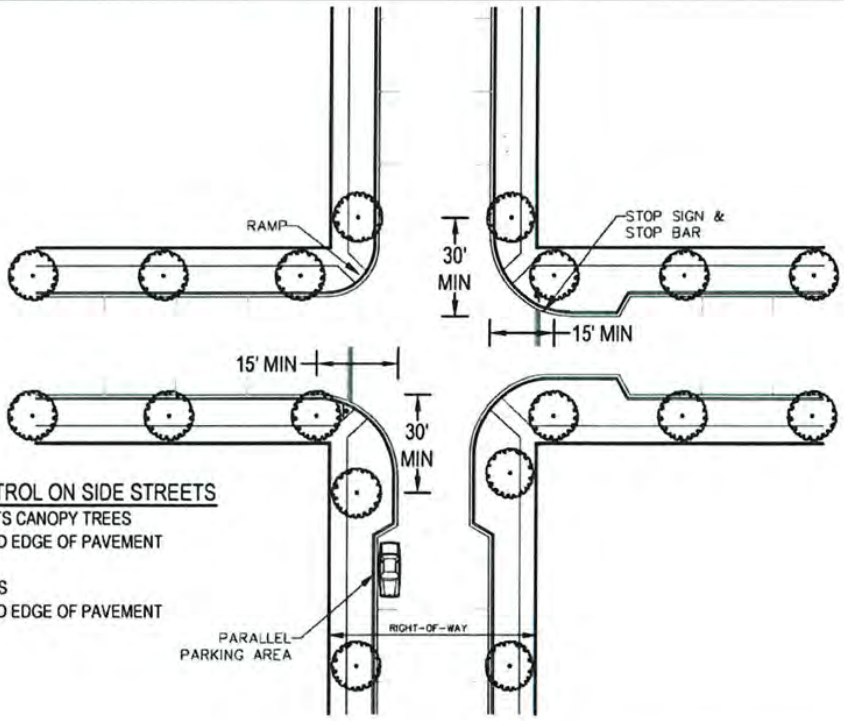
C. Sidewalks and Street Trees adjacent to all Common / Property Owner's Association owned areas shall be installed or bonded prior to final plat approval. Planting is not encouraged during the summer months and bonds will be accepted on a case by case basis.

Joint Exh. 1-0338

VILLAGE DISTRICT
ALLOWABLE CANOPY TREE SEPARATION FROM INTERSECTIONS FOR TYPICAL LOW VOLUME RESIDENTIAL AND COMMERCIAL INTERSECTIONS 25 MPH OR LESS (POSTED)



INTERSECTION W/ 4 WAY STOP CONTROL
-CANOPY TREES TO BE A MIN. OF 15' FROM PROJECTED EDGE OF PAVEMENT OF INTERSECTING ROAD



INTERSECTION W/ STOP CONTROL ON SIDE STREETS
-ON STOP CONTROLLED SIDE STREETS CANOPY TREES TO BE A MIN. OF 15' FROM PROJECTED EDGE OF PAVEMENT OF INTERSECTING ROAD
-FREE FLOW STREETS CANOPY TREES TO BE A MIN. OF 30' FROM PROJECTED EDGE OF PAVEMENT OF INTERSECTING ROAD

SWA

VILLAGE DISTRICT ALLOWABLE TREE SEPARATION FROM INTERSECTIONS
PBMW081
DATE: 10/1/2014
SCALE: NOT TO SCALE

DHEC CON 000338

Street Tree Requirements
Conventional District

x.1.0 Required locations

1.1 Street trees shall be required along all Conventional District streets, except as noted:

a. Street trees are not required along roadways with a required 20' buffer (i.e. North Creek Drive and the Parkway).
b. Street trees are not required on private alleys or where there will not be adjacent development to the road.

x.2.0 Allowable street tree types

2.1 Allowable tree types for canopy street trees shall be:

'Allee' elm
'Bosque' elm
'High Beam' Overcup oak
'Highrise' live oak
'Highpoint' nutall oak
'Hightower' willow oak
Live oak
Willow oak
Nutall Oak
Magnolia
Shumard Oak
Red Maple

2.2 Allowable tree types for understory street trees shall be single stem varieties as follows:

crape myrtle
ironwood
savannah holly
sweetbay magnolia
sabal palm
Red Bud
Magnolia (Little Gem)
Dogwood

Notes:

1. Understory trees may comprise no more than 30% of the required street trees. Trees in excess of the required street trees may be either canopy or understory. If developed in phases, the 30% will be calculated per phase. Areas considered urban/commercial or mixed-use may exceed the 30% understory tree maximum whenever the streetscape and architectural design limit the available space for larger trees.
2. Tree species not listed may be used if approved by the Administrative Officer.
3. Modifications to the required percentages of understory and canopy trees may be approved by the Administrative Officer.

x.3.0 Tree form

Single stem variety trees shall have a dominant leader and adhere to proper form as set forth by the American Nurseryman's Standards.

x.4.0 Minimum tree size at time of planting

4.1 Canopy trees shall be a minimum of 2" caliper at time of planting.

4.2 Understory trees shall be a minimum of 1.5" caliper at time of planting.

x.5.0 Tree spacing

5.1 Canopy trees shall be typically spaced between 30' on center to 55' on center. Spacing should be as consistent as possible given that flexibility in spacing will be provided to accommodate site, infrastructure, and utility constraints. Spacing may be in staggered or aligned configurations.

5.2 The average of the amount of trees per linear foot of roadway may be used to meet the minimum street tree requirements, with the minimum amount of trees required being no less than a 55' average unless approved by the Administrative Officer.

5.3 Understory trees shall be typically spaced between 15' on center to 30' on center. Spacing should be as consistent as possible given that flexibility in spacing will be provided to accommodate site, infrastructure, and utility constraints.

Note: aligning trees on property line intersections is both allowed and encouraged where utilities are not located.

x.6.0 General allowable street tree locations in Rights of Way

6.1 The following requirements are for public roadways only. Minimum verge widths and tree spacing dimensions are not applicable to private roadways and drives.

6.2 In order to be permitted within a minimum **50'** Right of Way, proposed canopy and understory tree locations must meet the following criteria:

A. The posted speed limit shall be equal to or below 30 miles per hour.

B. Canopy trees must be located a minimum of 5' from the back of curb.

C. The canopy tree must be located a minimum of 3' from the edge of a sidewalk.

D. If a canopy tree is to be planted within an urban planter cut-out, the minimum separations must be maintained, as well as an unobstructed minimum 5' sidewalk.

E. Canopy trees should be located such that the tree trunk is a minimum of:

a. 5' separation from any water and sewer utility lines that are shallower than 5' deep
b. 5' separation from a stormwater pipe (for stormwater pipes parallel to the roadway, a 3' separation with root barrier located between the tree and pipe is permitted)
c. 10' separation from a stormwater structure
d. 10' separation from a fire hydrant
e. 10' separation from a street light
f. 5' separation from driveway edges
g. 30' separation from intersections, measured from the point of intersection of the nearest right of way lines

F. Root barrier shall be installed along the street curb/underdrain for canopy trees located less than 8 feet from the back of curb at a minimum of 3' deep and shall be a minimum of 30 linear feet long, and positioned as to be centered on the tree.

G. Root barrier shall be installed along sidewalks at a minimum of 2' deep and shall be a minimum of 30 linear feet long, and positioned as to be centered on the tree.

Note: Root barrier must be a ribbed & interlocking polypropylene product such as DeepRoot Barriers or equal. All barriers shall be installed in accordance with manufactured recommended instructions.

See street tree diagrams and details for further explanation.

6.3 In order to be permitted within a minimum **60'** Right of Way, proposed canopy and understory tree locations must meet the following criteria:

A. The posted speed limit of the right of way shall be equal to or below 30 miles per hour. (Note: Street trees are permitted along Collector and Arterial roadways with a posted speed limit higher than 30 miles per hour provided the road is constructed with

straight curb and gutter, or meets SCDOT Access and Roadside Management Standards).

B. Canopy trees must be located a minimum of 8' from the back of curb.

C. The canopy tree must be located such that the tree trunk is a minimum of 4' from the edge of a sidewalk.

D. If a canopy tree is to be planted within an urban planter cut-out, the minimum separations must be maintained, as well as an unobstructed minimum 5' sidewalk.

E. Canopy trees should be located such that the tree trunk is a minimum of:

a. 5' separation from any water and sewer utility lines that are shallower than 5' deep
b. 5' separation from a stormwater pipe
c. 10' separation from a stormwater structure
d. 10' separation from a fire hydrant
e. 10' separation from a street light
f. 5' separation from driveway edges
g. 30' separation from intersections, measured from the point of intersection of the nearest right of way lines

See street tree diagrams and details for further explanation.

6.4 In order to be permitted within the Right of Way, proposed understory tree location must meet the following criteria:

A. The posted speed limit of the right of way shall be equal to or below 30 miles per hour. (Note: Street trees are permitted along Collector and Arterial roadways with a posted speed limit higher than 30 miles per hour provided the road is constructed with straight curb and gutter, or meets SCDOT Access and Roadside Management Standards).

B. Understory trees must be located a minimum of 5' from the back of curb.

C. Understory trees must be located a minimum of 3' from the edge of a sidewalk.

D. If an understory tree is to be planted within an urban planter cut-out, the minimum separations must be maintained, as well as an unobstructed minimum 5' sidewalk.

E. Understory trees should be located such that the tree trunk is a minimum of:

a. 4' separation from any water and sewer utility lines that are shallower than 4' deep
b. 3' separation from a stormwater pipes
c. 7' separation from a stormwater structure
d. 7' separation from a fire hydrant
e. 7' separation from a street light
f. 5' separation from driveway edges

g. 30' separation from intersections, measured from the point of intersection of the nearest right of way lines

See street tree diagrams and details for further explanation.

x.7.0 Street tree care

7.1 General

A. Trees shall be maintained by the Developer and/or Property Owner's Association. Trees that die due to natural causes, neglect, or utility/road maintenance repair shall be replanted by the Developer and/or Property Owner's Association.

B. Maintenance responsibilities shall be clearly defined in all encroachment permits and covenants and restrictions.

7.2 Water

A. Trees shall be provided adequate water during their 1 year establishment period.

B. Watering may occur via irrigation, hand watering or gator bags.

7.3 Pruning

A. Trees with limbs protruding over roadways shall be pruned to maintain a 14' high clear zone over the roadway.

B. Trees with limbs protruding over sidewalks or trails shall be pruned to maintain a 7' high clear zone over the sidewalk or trail.

7.4 Mulch

A. Canopy trees will require a minimum of 18 sq. ft. mulch area at the base of each tree. The mulch area shall be a minimum of 2" deep. Mulch must remain for a minimum of two years from time of planting.

B. Understory trees will require a minimum of 12 sq. ft. mulch area at the base of each tree. The mulch area shall be a minimum of 2" deep. Mulch must remain for a minimum of two years from time of planting.

x.8.0 Landscaping/Street tree submittal requirements

8.1 Landscaping /Street Tree Plan must be drawn and submitted to Berkeley County for review and approval as part of the Preliminary Plan Submittal. The Landscaping/Street Tree Plan shall include:

A. Label existing and proposed right of ways, lot lines, streets, curbs, buildings, sidewalks, existing trees, drainage features, utilities, light fixtures, ponds, etc.

B. Drainage structures and pipes as well as water and sewer lines shall be shown as a line type that clearly delineates their location on the plan.

C. Dimensions for road and lane widths, verge widths, sidewalk widths, median widths, swales, planter cut-outs, curbs, etc.

D. Proposed location of each street tree as well as the standard details provided in this ordinance.

E. A chart for the current phase that indicates the number of canopy and understory trees required, number provided, and the associated percentages of each.

F. A street tree schedule that includes tree type, size, and quantity

G. A tree planting, mulching, and watering detail that meets the requirements of this ordinance

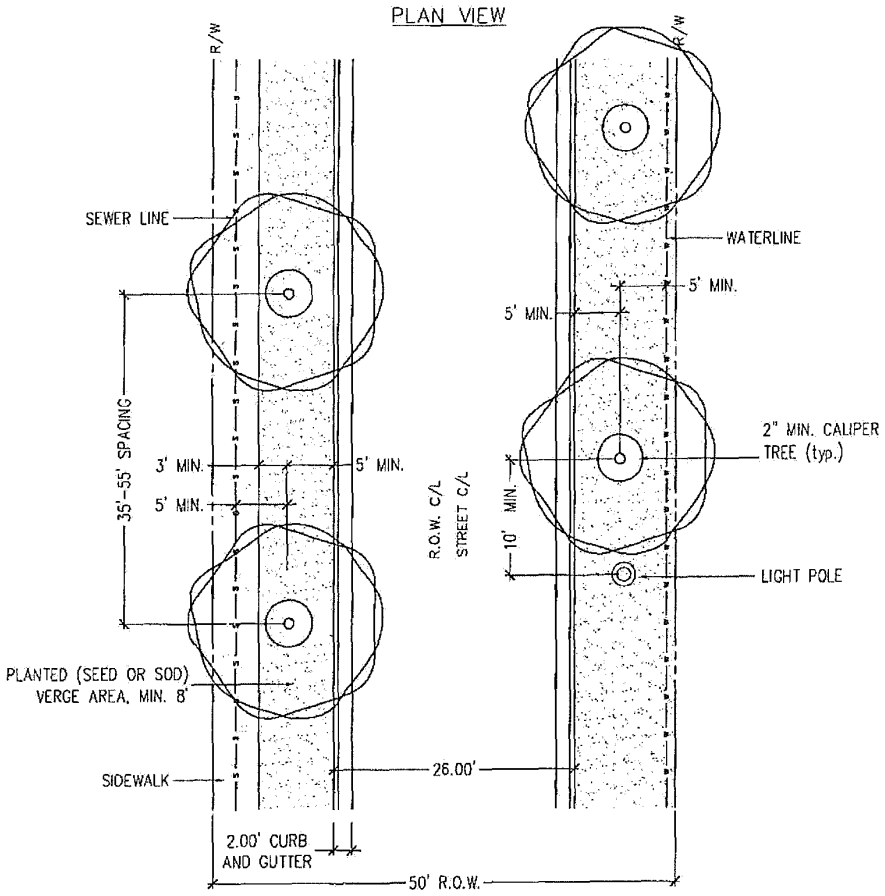
x.9.0 Required Tree Planting Times

A. Trees may be planted as each lot finalizes construction. In order to obtain the Certificate of Occupation for each home and associated lot, the developer / builder must first plant any and all required street trees located within 10' of the aforementioned lot. The Administrative Officer may grant flexibility on a case by case basis.

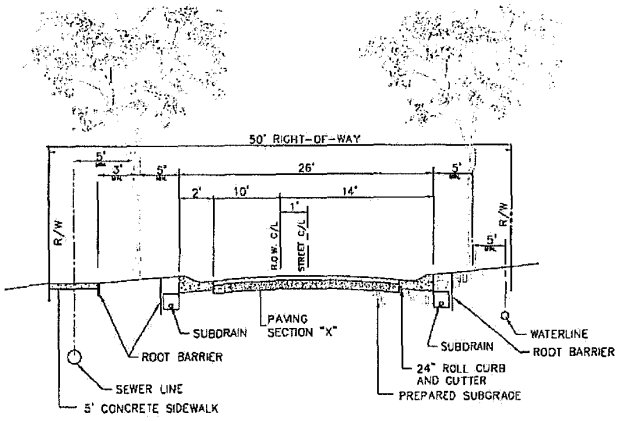
B. Trees must be planted per the approved Landscape / Street Tree Plan.

C. Sidewalks and Street Trees adjacent to all Common / Property Owner's Association owned areas shall be installed or bonded prior to final plat approval. Planting is not encouraged during the summer months and bonds will be accepted on a case by case basis.

PLAN VIEW



NOTES:
1. TREE SPACING MAY BE IN FORMAL OR INFORMAL ARRANGEMENTS..
2. SEE CANOPY STREET TREE W/ ROOT BARRIER DETAIL
3. LATERAL SEPARATIONS FROM WATER AND SEWER LINES MAY BE REDUCED WHEN THE LINES ARE A MINIMUM OF 5' DEEP.
4. SEE STREET TREE PLANTING DETAIL.



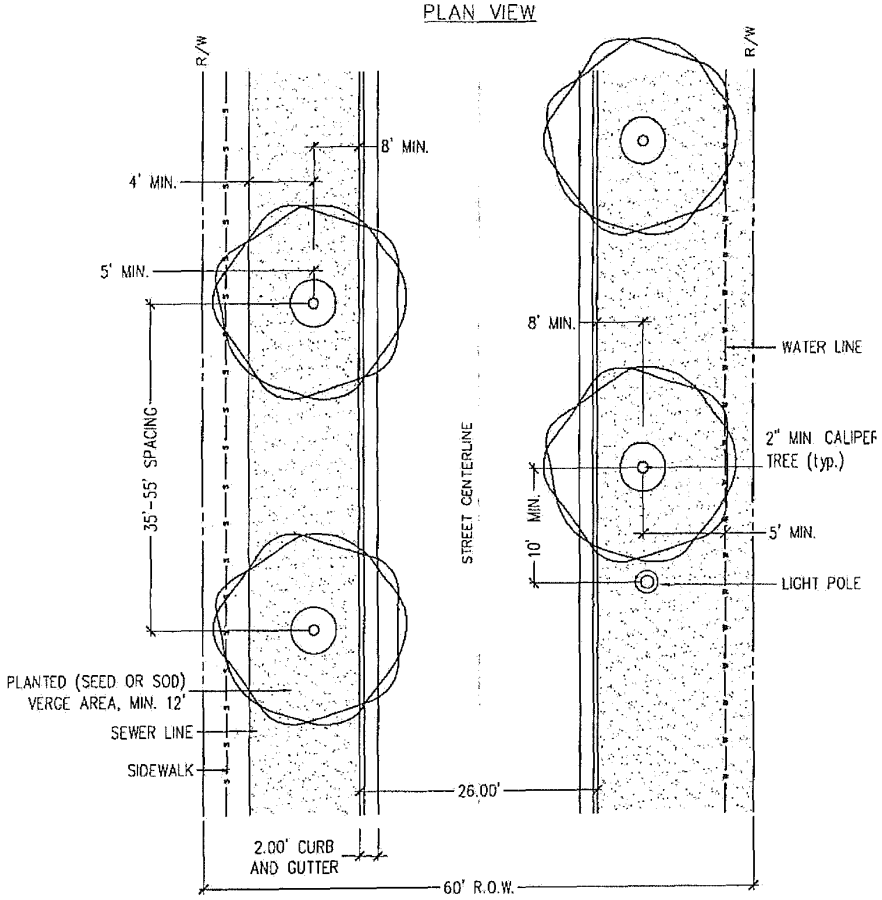
SECTION

TYPICAL 50' R.O.W.
CANOPY STREET TREE PLANTING

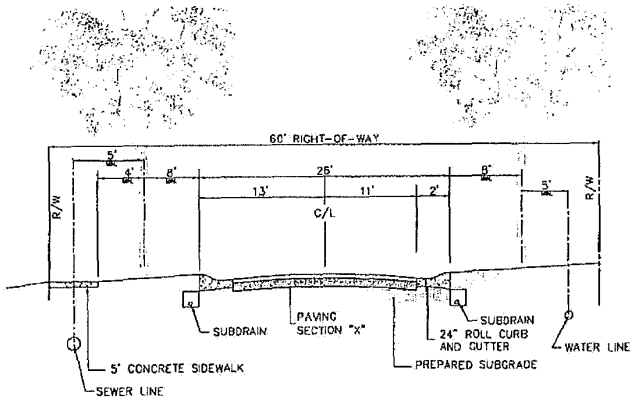
NOT TO SCALE

DHEC CON 000345

PLAN VIEW



NOTES:
1. TREE SPACING MAY BE IN FORMAL OR INFORMAL ARRANGEMENTS.
2. ROOT BARRIER NOT REQUIRED PROVIDED THAT ABOVE MINIMUM LATERAL SEPARATIONS ARE MET.
3. LATERAL SEPARATIONS FROM WATER AND SEWER LINES MAY BE REDUCED WHEN THE LINES ARE A MINIMUM OF 5' DEEP.
4. SEE STREET TREE PLANTING DETAIL.



SECTION

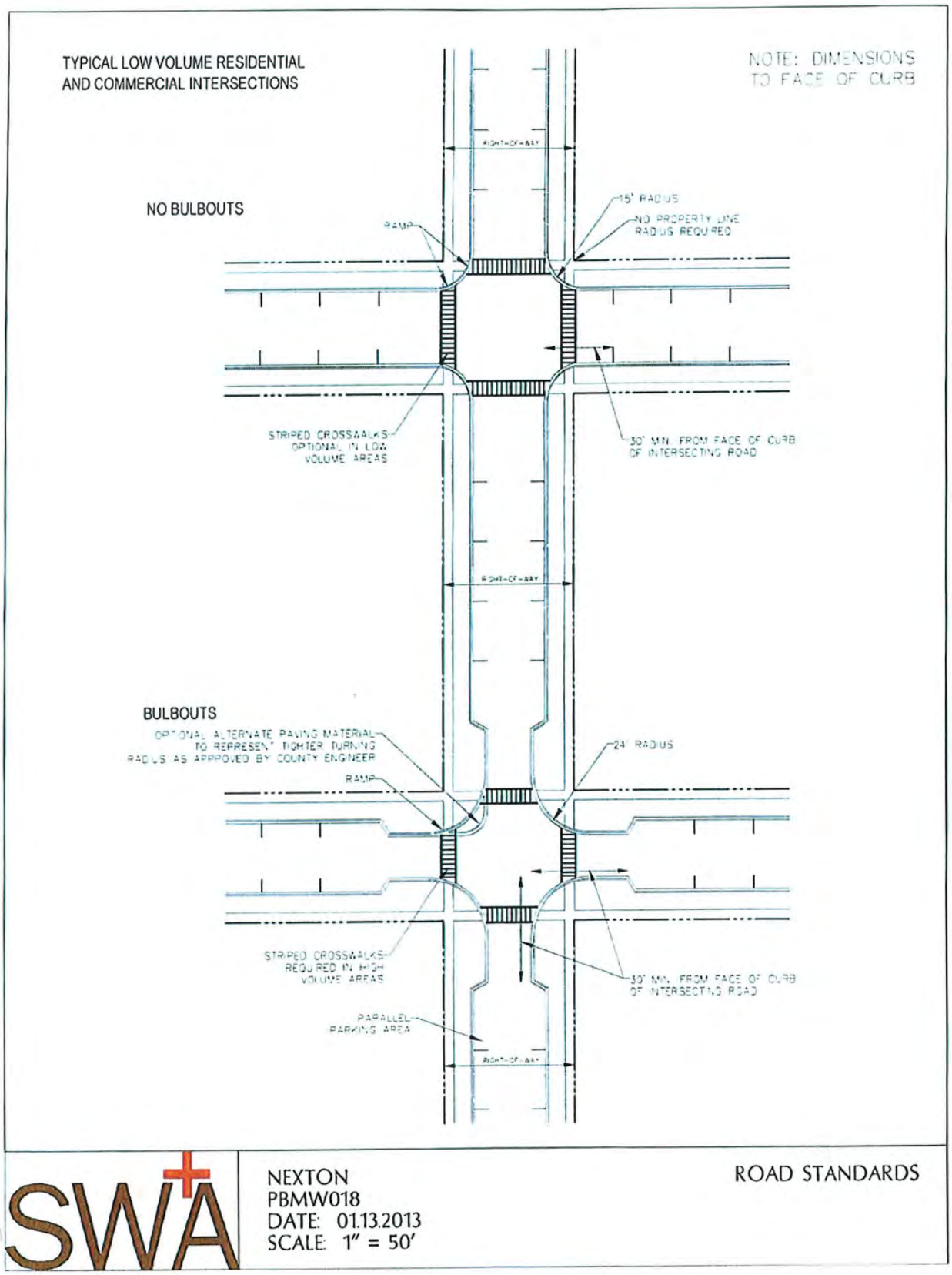
TYPICAL 60' R.O.W. CANOPY STREET TREE PLANTING

NOT TO SCALE

DHEC CON 000346

Attachment 2: Intersection Radii Requirements

Joint Exh. 1-0348



DHEC CON 000348

Exhibit G:

Parking Requirements

Off Street Parking Requirements

Off-street parking shall be provided in accordance with the following requirements. Should specific requirements not be addressed, they will be subject to the Current Regulations at the time of plan submittal.

(a) Definitions - For the purpose of these regulations, an off-street parking space is an asphalt or concrete area, not in a street, alley, or in front of a garage entrance, permanently reserved for the temporary storage of one automobile and connected with a street or alley by an asphalt or concrete driveway which affords ingress and egress. Alternative engineered porous paving surfaces may be approved by the Administrative Officer.

(b) Dimensions - Off street parking stalls shall not be less than 9 feet by 18 feet. The dimensions of all parallel parking stalls will not be less than 8 feet by 22 feet. For parking areas with twenty (20) or more parking spaces, up to 20% of required parking spaces may be compact spaces (8 feet by 16 feet), as allowed by the Administrative Officer. "Compact Space" will be painted on the pavement of each compact space. Handicapped parking stalls shall comply with federal ADA guidelines. All parking spaces will be located so as to insure adequate off-street maneuvering space.

(c) Access Identification/ Separation - Approved barriers will be provided along boundaries to control entrance and exit of vehicles or pedestrians. Off-street parking spaces will be appropriately separated from walkways, sidewalks, streets, alleys and required yards.

(d) Landscaping/ Maintenance - Ten percent of the developed area (paved, gravel, building areas) will be open and landscaped in a manner as to divide and break up the expanse of paving with islands and barriers. These areas must be located throughout the parking area and cannot be placed around the parking lot perimeter unless approved by the Administrative Officer.

Landscaping is encouraged between the building and the parking lot.

For every twelve required off-street parking spaces, a minimum of one tree and three shrubs (or grasses), 18 inches in height at installation, must be planted within the required islands and barriers of the parking area. All trees will be a minimum of six feet tall and two inches in caliper, measured one foot from ground level at installation.

Off-street parking areas will be maintained in a clean, orderly, dust-free and weed-free condition at the expense of the owner or lessee and not used for the sale, repair or dismantling or servicing of any vehicles or equipment, except for service and auto repair stations.

(e) Lighting - Adequate lighting will be provided if off-street parking spaces are to be used at night. Equipment for lighting parking facilities will be arranged so that light does not interfere with traffic, is shielded or directed away from adjoining residences, and

produces no glare across residential property boundaries. Parking lot lighting should be one to three foot candles and should not spill over onto adjacent properties.

(f) Marking - Parking spaces will be marked by painted lines to indicate individual spaces. Signs or pavement markings, as approved by the Administrative Officer, will be used as necessary to insure efficient traffic operation of the lot. All parking facilities will be designed so that all existing movements onto a public street are in a forward motion.

(g) Loading docks and dumpsters - Loading docks and dumpsters will be screened from the view of the arterial traffic flow.

(h) On-street Parking - On-street or offsite parking can be counted towards parking requirements if they are located within 600' of the subject property and provide a pedestrian link to the proposed use that does not exceed a reasonable walking distance. Site plan submittals utilizing on-street parking shall include parking charts indicating compliance with all parking requirements including Shared Parking as applicable.

(i) The following minimum parking ratios shall apply:

Proposed Use	Minimum Parking Ratio
Residential – Single Family	2 spaces per dwelling
Multi-Family	1.5 spaces per dwelling unit
Lodging	1 space per bedroom
Occupations – Live/Work Buildings	1.5 spaces per dwelling unit plus spaces as required for other uses
Schools – Kindergarten, Elementary and Middle	1 space per every classroom and administrative office
High School, trade or business school	1 space per every classroom and administrative office plus 1 space for every 20 students
Office (Professional, Medical, etc.)	1 space for every 300 square feet
Retail Business, including financial services	One space per each 250 square feet of gross retail floor space not used for storage
Restaurant	One space per 100 square feet of indoor seating area
Bar or Lounge	One space per 100 square feet of indoor seating area
Theater, night club and similar places of assembly	One space per each four seating accommodations plus one space per each three employees on shift of greatest employment
Church and other places of worship, recreation and places of public assembly	One space per each five fixed seats in the main assembly hall or five spaces per classroom, whichever is greater
Places of public assembly or recreation not containing fixed seats in the main assembly room	One space per 100 square feet of gross floor area in the main assembly room
Nursing home, sanitarium, inpatient clinic, home	One space per each five patient beds plus

for the aged, and similar institutions	one space per each employee in single shift
Adult or child day care facility	One space per employee plus one space per five children/adults
Uses not specifically mentioned	Recommended requirements per ULI or other regulation accepted by the Administrative Officer.

(k) Shared Parking - When an individual block or lot within its boundaries has more than one use, shared parking may be considered in establishing the appropriate amount of parking. The Shared Parking factors below for two Functions, when divided into the sum of the two minimum parking requirements identified above, produces the Effective Parking needed for each site involved in sharing. Conversely, if the Sharing factor is used as a multiplier, it indicates the amount of building that could be accommodated on each site given the parking available. Each function or use can only be utilized once in calculations. Should the function or use change, the parking requirements shall be recalculated. Should Shared Parking result in inadequate parking, the Administrative Officer may require additional spaces.

Shared Parking Factors

		FUNCTION				
		Residential	Lodging	Office	Retail	Restaurant, Theatre, Night Clubs
Function	Residential	1.0	1.1	1.4	1.2	1.1
	Lodging	1.1	1.0	1.7	1.3	1.0
	Office	1.4	1.7	1.0	1.2	1.7
	Retail	1.2	1.3	1.2	1.0	1.3
	Restaurants, Theaters, Night Clubs	1.1	1.0	1.7	1.3	1.0

For example if a Lot has 6,000 square feet of office space and 3,000 square feet of retail space, the parking requirement would be calculated as follows:

Use	Program	Parking Requirements	Spaces Required
Office	6,000 SF	1 space per 300 SF	20 spaces
Retail	3,000 SF	1 space per 200 SF	12 spaces
Totals			**32 spaces**
Sharing Factor			1.2
Effective parking Calculation			26.7spaces
Effective Parking Requirement			**27 spaces**

Exhibit H:

Development Schedule

Nexton
Development Schedule

Phases of Construction and Development

Nexton will have a build-out program which should last 20 to 30 years. The timing of development within the Development Agreement and adjoining lands will be very much affected by the health of the national and local economies, as well as the demand for various housing types for the region. It is extremely difficult, if not impossible, to accurately project timing of future phases of development and lot demand. The property owner has provided the following estimates which are based on information believed to be reasonable at this time. The estimates are subject to change substantially, from time to time, based on market conditions, the supply of competing lots within the area, and other factors not under the control of the Developer.

Initial Construction 2013-2014

During this initial phase of development, the actual construction of infrastructure will begin on the southeastern portion of the property. Pending various approvals, the construction of various infrastructure improvements is scheduled to begin in the second quarter of 2013. Various mixed uses of land parcels should be available for sale by 2014. A park and nature trail system will begin and expanded from time to time to accommodate and link future phases of development. Single family lot development during this period should be in the range of 40 to 60 per year.

2015-2018

The development should continue during this period. Major infrastructure improvements, including the new Sheep Island Interchange, will be under construction and completed during this time period. As infrastructure is completed, development should begin in the northwestern portion of the property. A continuation of certain land uses such as, civic resources, retail and commercial uses may become more favorable as the market demand for such uses becomes greater.

2019-2030

A large percentage of the various land uses should come under development during this period. The market demand will determine actual land use needs as well as the quantity of these different uses.

2031-2040

This period should be the close-out period where a majority of uses will be available and major infrastructure complete.

Exhibit I:

Wetland Verification Letter from the U. S. Army Corps of Engineers for Sheep Island Phases I and II. Wetlands Fill Permits from U. S. Army Corps of Engineers.

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A Hagood Avenue
CHARLESTON, SOUTH CAROLINA 29403-5107

REPLY TO
ATTENTION OF

February 18, 2005

Regulatory Division

Mr. Derrick Myers
Newkirk Environmental, Inc.
P.O. Box 746
Mt. Pleasant, South Carolina 29465-0746

Re: SAC 81-2004-0135(Y)

Dear Mr. Myers:

This is in response to your letter received January 14, 2004, requesting a wetland determination, on behalf of Triven Properties, LLC, for a 1,154.96 acre tract (Phase I) located off of the east side of Sheep Island Road near the intersection of U.S. I-26 and U.S. Highway 17-A in the Summerville community, Berkeley County, South Carolina. The project area is depicted on the survey plat you submitted which was prepared by GPA Professional Land Surveyors, dated January 14, 2005, and entitled "Wetlands Map Phase I – Wetlands of the Parks of Summerville Owned by Westvaco Corporation Prepared For: Crescent Properties, Inc. Berkeley County South Carolina".

This plat depicts surveyed boundaries of wetlands or other waters of the United States as established by your office. You have requested that this office verify the accuracy of this mapping as a true representation of wetlands or other waters of the United States within the regulatory authority of this office. The property in question contains 196.95 acres of jurisdictional freshwater wetlands or other waters of the United States subject to the jurisdiction of this office. In addition, the property contains 51.50 acres of federally defined freshwater wetlands or other waters that are not considered to be subject to the jurisdiction of this office due to a recent decision by the U.S. Supreme Court. The location and configuration of these areas, as well as their status relative to jurisdiction, are reflected on the plat referenced above.

It should be clearly noted that the decision of the U.S. Supreme Court to exclude certain waters and wetlands from federal jurisdiction under the Clean Water Act has no effect on any state or local government restrictions or requirements concerning aquatic resources, including wetlands. You are strongly cautioned to ascertain whether such restrictions or requirements exist for the area in question before undertaking any activity which might destroy or otherwise impact these wetland resources.

Based on an on-site inspection and a review of aerial photography and soil survey information, it has been determined that the surveyed jurisdictional boundaries shown on the referenced plat are an accurate representation of jurisdictional areas within our regulatory authority. This office should be contacted prior to performing any work in these areas.

If a permit application is forthcoming as a result of this delineation, a copy of this letter, as well as the verified survey plat, should be submitted as part of the application. Otherwise, a delay could occur in confirming that a delineation was performed for the permit project area.

Please be advised that this determination is valid for five (5) years from the date of this letter unless new information warrants revision of the delineation before the expiration date. All actions concerning this determination must be complete within this time frame, or an additional delineation must be conducted. This **approved** jurisdictional determination is an appealable action under the Corps of Engineers administrative appeal procedures defined at 33 CFR 331. The administrative appeal options, process and appeals request form is attached for your convenience and use.

In future correspondence concerning this matter, please refer to SAC 81-2004-0135(Y). You may still need state or local assent. Prior to performing any work, you should contact the South Carolina Department of Health and Environmental Control, Bureau of Ocean and Coastal Resource Management. A copy of this letter is being forwarded to them for their information.

If you have any questions concerning this matter, please contact me at 843-329-8044 or toll free at 1-866-329-8187.

Respectfully,

W. David Chamberlain
Biologist

Enclosures:
Basis for Jurisdiction
Notification of Appeal Options

Copy Furnished:

S.C. Department of Health
and Environmental Control
Bureau of Ocean and Coastal Resource Management
1362 McMillan Avenue, Suite 400
Charleston, South Carolina 29405

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A Hagood Avenue
CHARLESTON, SOUTH CAROLINA 29403-5107

REPLY TO
ATTENTION OF

April 25, 2005

Regulatory Division

Mr. Derrick Myers
Newkirk Environmental, Inc.
P.O. Box 746
Mt. Pleasant, South Carolina 29465-0746

Re: SAC 81-2005-0708(Y)

Dear Mr. Myers:

This is in response to your letter received April 4, 2005, requesting a wetland determination, on behalf of Crescent Resources, LLC, for a 3,402.187 acre tract (Phase II) located off of the east side of Sheep Island Road near the intersection of U.S. I-26 and U.S. Highway 17-A in the Summerville community, Berkeley County, South Carolina. The project area is depicted on the survey plat you submitted which was prepared by GPA Professional Land Surveyors, dated March 29, 2005, and entitled "Preliminary Wetland Survey – 1 Various Parcels Located in the Sheep Island Area Near Summerville Owned by Westvaco Corporation Prepared For: Crescent Properties, Inc. Berkeley County South Carolina (sheets 4-22)".

This plat depicts surveyed boundaries of wetlands or other waters of the United States as established by your office. You have requested that this office verify the accuracy of this mapping as a true representation of wetlands or other waters of the United States within the regulatory authority of this office. The property in question contains 627.67 acres of jurisdictional freshwater wetlands or other waters of the United States subject to the jurisdiction of this office. In addition, the property contains 58.56 acres of federally defined freshwater wetlands or other waters that are not considered to be subject to the jurisdiction of this office due to a recent decision by the U.S. Supreme Court. The location and configuration of these areas, as well as their status relative to jurisdiction, are reflected on the plat referenced above.

It should be clearly noted that the decision of the U.S. Supreme Court to exclude certain waters and wetlands from federal jurisdiction under the Clean Water Act has no effect on any state or local government restrictions or requirements concerning aquatic resources, including wetlands. You are strongly cautioned to ascertain whether such restrictions or requirements exist for the area in question before undertaking any activity which might destroy or otherwise impact these wetland resources.

Based on an on-site inspection and a review of aerial photography and soil survey information, it has been determined that the surveyed jurisdictional boundaries shown on the referenced plat are an accurate representation of jurisdictional areas within our regulatory authority. This office should be contacted prior to performing any work in these areas.

If a permit application is forthcoming as a result of this delineation, a copy of this letter, as well as the verified survey plat, should be submitted as part of the application. Otherwise, a delay could occur in confirming that a delineation was performed for the permit project area.

Please be advised that this determination is valid for five (5) years from the date of this letter unless new information warrants revision of the delineation before the expiration date. All actions concerning this determination must be complete within this time frame, or an additional delineation must be conducted. This **approved** jurisdictional determination is an appealable action under the Corps of Engineers administrative appeal procedures defined at 33 CFR 331. The administrative appeal options, process and appeals request form is attached for your convenience and use.

In future correspondence concerning this matter, please refer to SAC 81-2005-0708(Y). You may still need state or local assent. Prior to performing any work, you should contact the South Carolina Department of Health and Environmental Control, Bureau of Ocean and Coastal Resource Management. A copy of this letter is being forwarded to them for their information.

If you have any questions concerning this matter, please contact me at 843-329-8044 or toll free at 1-866-329-8187.

Respectfully,

W. David Chamberlain
Biologist

Enclosures:
Basis for Jurisdiction
Notification of Appeal Options

Copy Furnished:

S.C. Department of Health
and Environmental Control
Bureau of Ocean and Coastal Resource Management
1362 McMillan Avenue, Suite 400
Charleston, South Carolina 29405

D H E C
PROMOTE PROTECT PROSPER
C. Earl Hunter, Commissioner
Promoting and protecting the health of the public and the environment

October 28, 2005

JOHN ROACH
PARKS OF BERKELEY LLC
400 S TRYON ST
STE 1300
CHARLOTTE NC 28202

Re: THE PARKS OF BERKELEY
BERKELEY County
Stormwater - 08-05-06-06

Dear JOHN ROACH:

The staff of the Office of Ocean and Coastal Resource Management (OCRM) certifies that the plans submitted for the above referenced project, dated October 28, 2005, meet the minimum requirements of the S.C. Storm Water Management and Sediment Reduction Act. This project is also found to be consistent with the S. C. Coastal Zone Management Program.

(a) **Included with the engineer's copy of this permit is an initiation of construction notice to be completed and returned to the appropriate OCRM staff person. Once this initiation of construction notice is received by OCRM, a construction placard will be issued. This placard must be placed in a conspicuous place at the construction site. No work can commence until the placard is posted.**

(b) The responsible day-to-day contact must have an OCRM stamped set of plans on site at all times.

(c) **Prior to final project approval, a registered professional responsible for construction will submit a statement certifying that construction is complete and in accordance with approved plans and specifications. The permit number must be referenced on this request. OCRM staff will then conduct a final site inspection for design compliance.**

(d) The person responsible for maintenance shall perform or cause to be performed preventive maintenance of all completed storm water management practices to ensure proper functioning. OCRM will conduct periodic maintenance inspections.

(e) Approved plans remain valid for five (5) years from the date of an approval. Extensions or renewals of the plan approvals may be granted by the OCRM upon written request by the person responsible for the land disturbing activity.

(f) This approval is only applicable for the plans that were submitted and approved for this project. Any additional construction or grading beyond the scope of these plans is not authorized.

(g) This permit and coastal zone consistency certification are issued in reliance on the wetland delineation prepared by Newkirk Environmental Inc and approved by the U.S. Army Corps of Engineers

on February 18, 2005. This permit and coastal zone consistency certification are not intended to authorize any direct or indirect impacts to the freshwater wetlands except for the 15.27 acre impacts indicated on the plans dated October 28, 2005. Any unauthorized direct or indirect impacts to freshwater wetlands shall be considered a violation of this permit and certification, and are subject to enforcement and possibly fines.

(h) No Critical Areas as determined by OCRM shall be disturbed or altered without the Agency authorization.

(i) If unanticipated cultural materials (i.e., large, intact artifacts or animal bones; large clusters of artifacts or animal bones; large soil stains or patterns of soil stains; buried brick or stone structures; clusters of brick or stone) or human skeletal remains are discovered on the property during land altering or construction activities, then the property owner will temporarily halt those activities and immediately notify the OCRM and the SHPO of the late discoveries. A reasonable 50 to 100 foot buffer shall be immediately established around the cultural materials by the construction project manager. The buffer will be flagged by appropriate personnel. All project personnel will be notified by the property owner. No land altering activities will be allowed within this buffer zone until the course of action herein described has been established. The halt will afford the OCRM and the SHPO the opportunity to assess the situation and recommend a course of action within two (2) business days of such notification. Should a course of action not be recommended within two (2) business days then land disturbance activities may proceed.

The South Carolina Department of Health and Environmental Control's Office of Ocean and Coastal Resource Management reserves the right to impose additional conditions on this permit to respond to unforeseen, specific problems that might arise and to take any enforcement action necessary to ensure compliance with State Coastal Zone and Stormwater Management standards.

Failure to comply with any of the conditions of this permit may result in enforcement actions and/or penalties. The receipt of this permit does not relieve you of the responsibility of acquiring any other state, federal or local permits that may be required. Interested parties are provided thirty (30) days from receipt of this letter to appeal the action of the OCRM.

Sincerely,

RICHARD V GEER
Engineer Associate
Regulatory Programs Division

cc: Ann Clark
US Army Corp of Engineers
STUART D WHITESIDE - SEAMON WHITESIDE & ASSOCIATES INC
Amy E. Armstrong – South Carolina Environmental Law Project

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Ocean and Coastal Resource Management
Charleston Office · 1362 McMillan Avenue, Suite 400 · Charleston, SC 29405
Phone: 843-744-5838 · Fax: 843-744-5847 · www.scdhec.gov

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

Notice of Appeal Procedure

This decision may be appealed to the Administrative Law Court (ALC) by complying with the following requirements of the ALC:

1. File a request for a contested case hearing with the Clerk of the Administrative Law Court at the following address within 30 days after notice of this decision:

   Clerk's Office
   South Carolina Administrative Law Court
   Edgar A. Brown Building
   1205 Pendleton Street, Suite 224
   Columbia, SC 29201
   803-734-0550

   The ALC has a Notice of Request for Contested Case Hearing form that may be used, but is not required. The form and the Rules of the ALC can be found at the ALC's website: http://www.scalc.net.

   A request for a contested case hearing must contain the following information pursuant to ALC Rule 11:

   1. The name of the party requesting the hearing and the issue(s) for which the hearing is requested;
   2. The caption or other information sufficient to identify the decision, order, letter, determination, action, or inaction which is subject to the hearing;
   3. A copy of the written agency decision, order, letter or determination, if any, which gave rise to the request;
   4. The relief requested.

2. Submit a filing fee to the Administrative Law Court in the amount of $250. The filing fee is required by ALC Rule 71.

3. Serve a copy of the request for a contested case hearing on DHEC and any other parties at the same time the request is filed with the ALC. A copy of the request for a contested case hearing must be delivered or mailed to DHEC at the following address:

   Clerk of the Board
   SC DHEC
   2600 Bull Street
   Columbia, SC 29201

The above information is provided as a courtesy; parties before the Administrative Law Court are responsible for complying with all applicable requirements of the Court.

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Ocean and Coastal Resource Management
Charleston Office · 1362 McMillan Avenue, Suite 400 · Charleston, SC 29405
Phone: 843-744-5838 · Fax: 843-744-5847 · www.scdhec.gov

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69-A Hagood Avenue
CHARLESTON, SOUTH CAROLINA 29403-5107

REPLY TO
ATTENTION OF

November 13, 2007

Regulatory Division

Crescent Resources, LLC
c/o Mr. John Roach
400 S. Tryon St., Ste 1300
Charlotte, North Carolina 28201

Dear Mr. Tryon:

This is in response to your application requesting a Department of the Army permit.

Enclosed is your Department of the Army Permit #2006-419-2IG. It authorizes you to perform the work specified on the attached drawings. This permit is issued under the provisions of the Federal laws for the protection and preservation of the navigable waters of the United States.

Please notify this office promptly, in writing, when you start and complete the work. The enclosed cards may be used for that purpose. You should also be aware that a special condition has been included in this permit which requires that a copy of the permit and drawings must be available at the work site during the entire time of construction.

Respectfully,

for Tina B. Hadden
Chief, Regulatory Division

Enclosures

DEPARTMENT OF THE ARMY PERMIT

Permittee: CRESCENT RESOURCES, LLC
c/o MR. JOHN ROACH

400 S. TRYON ST, STE 1300
CHARLOTTE, NC 28201

Permit No: 2006-419-2IG

Issuing Office: CHARLESTON DISTRICT

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:
The work consists of placing fill material in wetlands to create a mixed-use development consisting of residential, commercial, office, light industrial, institutional development, open space, and public use areas to construct a flexible, economically viable, long term, master planned mixed-use community in accordance with the attached drawings entitled: Activity: Community Development; Project: The Parks of Berkeley; Location: Berkeley County, SC: Applicant: Crescent Resources, LLC, 400 South Tryon Street, Ste. 1300, Charlotte, NC 28201-1003. Sheets 1 thru 57 and sheets 59 thru 60 of 61 dated November 29, 2005 and sheets 58 and 61 of 61 revised March 5, 2007.

Project Location:
This project is located on a 3,860.81 acre tract of land adjacent to Sheep Island Road, Berkeley County, South Carolina.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on 31 December 2037. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

SEE PAGES 4 & 5.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

☒ Section 404 of the Clean Water Act (33 U.S.C. 1344).

☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

John W. Roach — 11.13.07

(PERMITTEE) — (DATE)

CRESCENT RESOURCES, LLC
MR. JOHN ROACH

John W. Roach
PRINT NAME

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

(DISTRICT ENGINEER) — (DATE)

J. RICHARD JORDAN III, LTC
or his Designee
Tina B. Hadden
Chief, Regulatory Division

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) — (DATE)

A. SPECIAL CONDITIONS FOR PERMIT #: 2006-419-2IG

a. That the permittee agrees to provide all contractors associated with construction of the authorized activity a copy of the permit and drawings. A copy of the permit will be available at the construction site at all times.

b. That the permittee shall submit a signed compliance certification to the Corps within 60 days following completion of the authorized work and any required mitigation. The certification will include:
   1. A copy of this permit;
   2. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;
   3. A statement that any required mitigation was completed in accordance with the permit conditions;
   4. The signature of the permittee certifying the completion of the work and mitigation.

c. That the permittee recognizes that its commitment to perform and implement the following conditions was a deciding factor towards the favorable and timely decision on this permit and that the permittee recognizes that a failure on its part to both actively pursue and implement these conditions may be grounds for modification, suspension or revocation of this Department of the Army authorization.

   1. That as compensatory mitigation for the impacts to aquatic resources, the permittee agrees implement and carry out the mitigation plan entitled "The Parks of Berkeley Phase 2 Compensatory Mitigation Plan, Berkeley County, SC, Revised March 12, 2007", wherein the permittee agrees to preserve 583.20 acres of unaltered wetlands, preserve 106.66-acres of enhanced wetlands, restore and preserve 76.72 acres of wetlands, and preserve 106.66 acres of upland buffers. Preservation shall be by means of either deed restrictive covenants or conservation easement. The covenants or easement documents and surveyed plat of the mitigation area must be submitted to the District Engineer or his designee for review and approval prior to execution. Sample language for restrictive covenants and easement documents are enclosed for your consideration.

   2. That the permittee must submit evidence of execution and recording of the preservation easements or covenants and surveyed plat of the mitigation area to both the Corps of Engineers and DHEC not later than 60 days from the effective date of this authorization, or prior to commencement of the authorized work, whichever is later. Your responsibility to complete the required compensatory mitigation as set forth in this Special Condition will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers.

   3. That the permittee agrees that no work will commence in waters of the United States until stormwater studies have been reviewed and approved by SCDHEC, and, if necessary, Berkeley County and the Town of Summerville. A copy of the approval documents from the state, County, and/or City and a letter from the Professional Engineer (PE) responsible for the stormwater study attesting to the fact that the data substantiates that no increase in flooding will occur as a result of the development will be provided to this office.

4. That the permittee understands and agrees that portions of the project site and the adjacent upstream and downstream properties are located within the 100-year floodplain and are subject to flooding. The permittee must take all necessary measures to ensure that the proposed project will not increase flows on downstream properties or back water onto upstream properties. All flow conveyance structures to be placed in road crossings of wetlands and/or waters of the United States must be designed to accommodate future stormwater flows.

5. That the permittee agrees that all clearing of wetlands associated with the construction and maintenance of boardwalks berms shall be done by selective hand cutting and that use of pesticides/herbicides shall be prohibited.

6. That the permittee understands and agrees that the road alignments shown on the attached permit drawings have been reviewed and approved by this office. Prior to initiating each phase of construction, the permittee must submit appropriate documentation and obtain written authorization from this office for any modification to these road alignments.

7. That the permittee understands and agrees that they have voluntarily provided advance compensatory mitigation for potential modifications to the road alignments. All requests for modification will be evaluated by this office based on their individual merit. Avoidance and minimization must be demonstrated prior to considering compensatory mitigation.

1 M. Hagood
nan
awin H. Cooper, III
ice Chairman
Steven G. Kisner
Secretary

C. Earl Hunter, Commissioner
Promoting and protecting the health of the public and the environment

BOARD:
Henry C. Scott
Paul C. Aughtry, III
Glenn A. McCall
Coleman F. Buckhouse, MD

November 7, 2006

Crescent Resources LLC
400 S Tryon St Ste 1300
Charlotte NC 28202

Re: Certification in Accordance with Section 401 of the Clean Water Act, as amended and the Coastal Zone Management Program (48-39-10 et. seq., and 15 CFR 93)

Crescent Resources LLC
placement of fill material
Freshwater Wetlands
Berkeley County
P/N SAC 2006-419-2IG

Dear Sir,

The Bureau of Water and Ocean and Coastal Resource Management have reviewed plans for this project and determined there is a reasonable assurance that the proposed project will be conducted in a manner consistent with the Certification requirements of Section 401 of the Federal Clean Water Act, as amended, and the Coastal Zone Management Act (48-39-10 et. seq., and 15 CFR 93).

In accordance with the provisions of Section 401, we certify that this project, subject to the indicated conditions, is consistent with applicable provisions of 303 of the Federal Clean Water Act, as amended. We also certify that there are no applicable effluent limitations under Sections 301(b) and 302, and that there are no applicable standards under Sections 306 and 307.

This certification is subject to the following conditions:

1. The applicant must implement best management practices that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices should include the use of appropriate grading and sloping techniques, mulches, hay bales, silt fences, or other devices capable of preventing erosion, migration of sediments and bank failure. All disturbed land surfaces and sloped areas must be stabilized and sloped with a minimum 3/1 slope upon project completion.

2. All necessary measures must be taken to prevent oil, tar, trash, debris and other pollutants from entering the adjacent waters or wetlands.

3. Only clean earthen material free of all potential sources of pollution must be used as fill.

4. If sediment basins are used, they must be cleaned out when they lose their effectiveness; and all materials removed from the basins must be hauled off site or placed on high land and properly contained and stabilized.

5. Once the project is initiated, it must be carried to completion in an expeditious manner in order to minimize the period of disturbance to the environment. Upon project completion, all disturbed areas must be permanently stabilized with a vegetative cover or other erosion control methods as appropriate.

6. Culverts and/or pipes, of sufficient size and number must be added at the same elevation as the flood plain to maintain and/or enhance sheetflow characteristics of the area, prevent erosion and allow unrestricted aquatic life passage.

7. Land disturbing activities must avoid encroachment into any wetland areas outside the permitted impact area. Wetlands that are unintentionally impacted must be appropriately mitigated.

8. In the event that archaeological or paleontological remains are found during the course of the work, the applicant should notify the South Carolina Archives and History Center (Nancy Brock at 803-896-6169) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and the regulations codified at 36CFR800. Archaeological remains consist of any materials made or altered by man which remain from past historic or prehistoric times (i.e, older than 50 years). Examples include old pottery fragments, metal, wood, arrowheads, stone implements or tools, human burials, historic docks, structures, or non-recent vessel remains. Paleontological remains consist of old animal remains, original or fossilized, such as teeth, tusks, bone, or entire skeletons.

9. As proposed in "The Parks of Berkeley Phase 2 Compensatory Mitigation Plan" (Mitigation Plan), dated February 17, 2006, the applicant must provide compensatory mitigation for wetlands impacts associated with the proposed work by preserving the 689.97 acres of remaining wetlands on the project site with 105.37 acres of undisturbed upland buffer with an average width of 25 feet adjacent to the single-family units, and an average width of 40 feet adjacent to multifamily areas, and an average width of 50 feet adjacent to single-family units. Also, as proposed in the Mitigation Plan, 76.72 acres of bottomland hardwood forest previously impacted by historic and ongoing silvicultural activities must be restored and monitored. A declaration of restrictive covenants must be reviewed and approved by the Department prior to recording. A stamped, recorded copy of the declaration of restrictive covenants must be submitted to the Department within 60 days of 404-permit issuance.

10. The applicant must monitor the success of restoration activities at permanently established station. Monitoring should include, at a minimum, the success of revegetation, as well as cross-sections of width/depth ratio, bankfull area, and a longitudinal profile. The applicant must provide SCDHEC with monitoring reports including photographic documentation at yearly intervals for a total of five years. The applicant should develop a contingency plan to address any necessary hydrological modifications and/or vegetation replanting if the restored system is not at least 70 percent successful and comparable in species composition and density to the reference ecosystem.

11. Upon completion of construction activities, all disturbed areas which are not paved must be restored to their original contours and must be permanently stabilized with a vegetative cover. This may include sprigging, trees, shrubs, vines, or ground cover.

12. OCRM must be notified, in writing, prior to initiation of construction. OCRM will then issue an "authorization to commence work" placard. The placard must be placed in a conspicuous place at the site. No authorized work can commence until the placard is posted and all required permits have been issued and is not valid until all other required federal, state and local permits have been issued for the activity.

The SC Department of Health and Environmental Control reserves the right to impose additional conditions on this Certification to respond to unforeseen, specific problems that might arise and to take any enforcement action necessary to ensure compliance with State water quality standards.

Sincerely,

Heather Preston

Heather Preston, Director
Division of Water Quality
Bureau of Water

cc: U.S. Army Corps of Engineers,
Charleston District Office
SC DHEC, District Office

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69-A Hagood Avenue
CHARLESTON, SOUTH CAROLINA 29403-5107

REPLY TO
ATTENTION OF

REGULATORY DIVISION

TO WHOM IT MAY CONCERN:

In issuing this permit, this office has acted with reliance on the plans which submitted. As you proceed with your project, please exercise every caution to ensure the work is performed exactly as shown on the approved plans and specifications, as deviations of any nature are expressly prohibited without the **prior** authorization of this office.

With this in mind, you will find this office cooperative in authorizing minor deviations if they are clearly within the scope of the original permit; however, you are place on any **"unauthorized"** deviation from the approved plans will be constructed as a violation of Federal law and, at a minimum, you will be required to submit as-built plans of any deviations. These as-built plans will have to be prepared by a registered land surveyor. You will not be required to submit as-built drawings unless and **"unauthorized"** deviation is detected by this office or such submittals are required by a special condition in the permit (i.e., certified as-built plans are commonly required for utility crossings and structures adjacent to Federal channels.) If, upon demand, you fail to provide this office with such drawings in the requisite format, this office will request the U.S. Attorney to seek appropriate civil or criminal sanctions in order to maintain the integrity of the Department of the Army permit program.

Please be assured that you will find the Corps of Engineers receptive to minor deviations from the approved plans as long as such deviations are approved **prior** to commencement of work.

OF WORK AUTHORIZED BY PERMIT

_____
DATE

WORK AUTHORIZED BY DEPARTMENT OF THE ARMY PERMIT 2006-419-216

DATED _____

PERFORM WORK IN _____
(WATERBODY NAME)

WAS COMMENCED
ON _____
WAS COMPLETED (DATE)

(check appropriate box)

_____
SIGNATURE

FL 130
5 MAR. 79

NOTICE OF COMMENCEMENT OR COMPLETION
OF WORK AUTHORIZED BY PERMIT

_____
DATE

WORK AUTHORIZED BY DEPARTMENT OF THE ARMY PERMIT 2006-419-216

DATED _____

PERFORM WORK IN _____
(WATERBODY NAME)

WAS COMMENCED
ON _____
WAS COMPLETED (DATE)

(check appropriate box)

_____
SIGNATURE

FL 130
5 MAR. 79

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69-A Hagood Avenue
CHARLESTON, SOUTH CAROLINA 29403-5107

REPLY TO
ATTENTION OF

August 14, 2009

Regulatory Division

Mr. Ken Hance
Newkirk Environmental, Inc.
Post Office Box 746
Mount Pleasant, South Carolina 29465-0746

Dear Mr. Hance:

This is in response to your letter dated January 22, 2009, (with additional information received March 20, 2009, and revised drawings received August 4, 2009), requesting that the permit originally issued to Crescent Resources and subsequently transferred to MeadWestvaco Corporation numbered 2006-419-2IG issued on November 13, 2007, be modified to reflect the changes on the attached drawings (Sheets 1-76 of 76, with sheets 1, 1A, and 62-76 revised June 24, 2009, and sheets 2-61 of 76 dated November 29, 2005). It is noted that the purchase of the Sheep Island Tract (aka The Parks of Berkeley) from Crescent Resources by MeadWestvaco Corporation included the Phase II standard permit area #2006-419-2IG as well as the adjacent Phase I, wherein isolated, non-jurisdictional wetland impacts were previously certified and permitted by the South Carolina Department of Health and Environmental Control (SCDHEC) under their stormwater regulations (#08-05-06-06-NJW).

The impacts currently proposed by MeadWestvaco Corporation include impacts to 0.14 acres of jurisdictional wetland 1-36 and 0.19 acres of jurisdictional wetland 1-2 for a total of 0.33 acres of impacts to jurisdictional wetlands in the former Phase I area for relocation of the access/entrance road. Additional impacts to non-jurisdictional wetlands include an increase in impacts to Phase I non-jurisdictional wetland 1-9 by 0.03 acres for widening of a road. In addition the permittee proposes to remove Phase I non-jurisdictional wetland 1-17 (2.41 acres of wetland and 0.88 acres of upland buffer) from the onsite preservation area from Phase I to provide flexibility in anticipation of future public road infrastructure projects. Finally, the permittee wishes to combine the former Phase I and Phase II areas into one permit area and has provided one complete set of permit drawings for the new permit area. This is requested since the impacts to the Phase I area did not require a Department of the Army permit and as such a SCDHEC permit only was issued for this area. The relocation of the entrance road now requires Department of the Army approval for impacts to 0.33 acres of jurisdictional wetlands that are located in the Phase I area. Mitigation will continue to be provided through the preservation of the remaining 790.28 acres of onsite wetlands enhanced by the preservation of 126.39 acres of upland buffer and the enhancement/restoration of 76.72 acres of onsite wetlands. The primary purpose of the proposed modification is to construct a safer and more efficient access/entrance road that will better serve the longer term traffic needs of the community.

This is to inform you that your request for modification is granted. Please attach this letter with the modified drawings to the original permit. All of the conditions to which the work is made subject remain in full force and effect. It is noted that the South Carolina Department of Health and Environmental Control, has no objections to these changes per their letter dated May 4, 2009.

Respectfully,

for: Jason A. Kirk, P. E.
Lieutenant Colonel, U.S. Army
Commander and District Engineer

Tina B. Hadden
Chief, Regulatory Division

Enclosure

BOARD:
Paul C. Aughtry, III
Chairman
Edwin H. Cooper, III
Vice Chairman
Steven G. Kisner
Secretary

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner
Promoting and protecting the health of the public and the environment

BOARD:
Henry C. Scott
M. David Mitchell, MD
Glenn A. McCall
Coleman F. Buckhouse, MD

May 4, 2009

Newkirk Environmental
Attn: Ken Hance
1887 Clements Ferry Road
Charleston, South Carolina 29492

RE: Revision to 2006-419-2IG Crescent Resources

Dear Mr. Hance:

The South Carolina Department of Health and Environmental Control (SCDHEC) received a request for a project revision dated January 23, 2009. The revision will increase impacts to wetland 1-9 by 0.03 acre and remove wetland 1-17 (2.41 acres of wetland and 0.88 acres of upland buffer) from the onsite preservation area. Mitigation will be provided through the preservation of the remaining 790.28 acres of on-site wetland along with 126.39 acres of upland buffer and the enhancement/restoration of 76.72 acres of onsite wetland.

Due to the revision the Department will add the following condition to the original Section 401 permit and Coastal Zone Consistency (CZC) issued November 7, 2006:

A copy of the signed recorded plat and restrictive covenants for the on-site mitigation areas and proof of the initial restoration of the onsite wetlands must be submitted to this office prior to the beginning of work on the project.

The Bureau of Water has no objection to the proposed revisions per the packet from Ken Hance, dated January 22, 2009, with attached drawings. Additionally, all conditions of the original Section 401 and CZC issued on November 7, 2006, and any subsequent revisions/modifications must be adhered to. Should you have questions, contact Erin Jones at (803) 898-4243.

Sincerely,

Erin Jones, Project Manager
Bureau of Water
South Carolina Department of Health and Environmental Control

Cc:

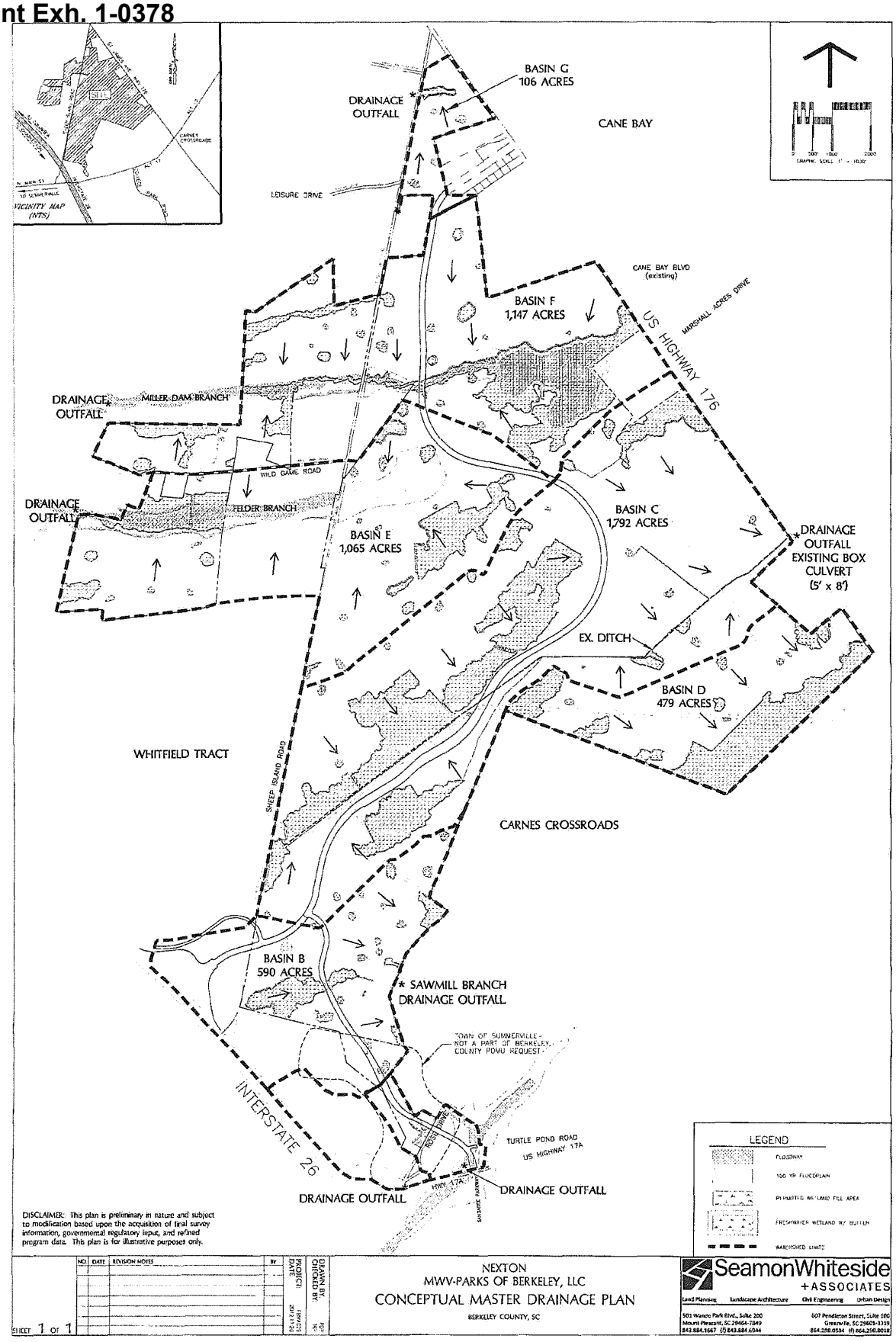
Mary Hope Glen USACOE

Jeff Thompson OCRM

Exhibit J:

Conceptual Storm Drainage Plan

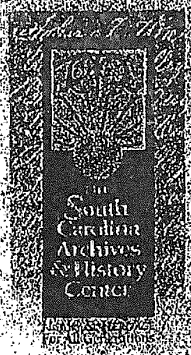
Joint Exh. 1-0378



DHEC CON 000378

Exhibit K:

Archaeological Survey Report



May 25, 2005

Mr. Ralph Bailey
Brockington and Associates, Inc.
1051 Johnnie Dodds Boulevard, Suite F
Mt. Pleasant, SC 29464

RE: Draft Report, *Intensive Cultural Resources Survey of the Sheep Island Tract, Beaufort County, South Carolina*

Dear Ralph:

We have reviewed the above referenced archaeological survey report. The report meets both State and Federal standards for the identification, documentation, and evaluation of cultural resources. Concerning the report's recommendations that archaeological sites 38BK2074 and 38BK2076 are not eligible for the National Register of Historic Places. Furthermore, sites 38BK2077 and 38BK2078 remain potentially eligible because they have not been evaluated, but they are outside of the project tract. Therefore, there will be no effects to significant cultural resources by the proposed project. No further work is recommended.

Because we are requesting no changes to the report, we can accept the two draft copies you have sent us as finals. SCIAA, however will still need their copies, which can either be sent through us or directly to them. Please notify our office of what you do. Thank you.

These comments are being provided to assist you with your responsibilities under pertinent state and federal laws. I can be contacted at (803) 896-6173 if you have any questions or comments.

Sincerely,

Valerie Marcil
Staff Archaeologist
State Historic Preservation Office

cc: Keith Derting, SCIAA

K

BROCKINGTON AND ASSOCIATES, INC.

CONSULTING ARCHAEOLOGISTS, HISTORIANS, AND CULTURAL RESOURCES PLANNERS

April 22, 2005

Valerie Marcil
State Historic Preservation Office
8301 Parklane Road
Columbia, South Carolina 29223

Re: Draft Report, *Intensive Cultural Resources Survey of the Sheep Island Tract, Berkeley County*

Dear Valerie:

I have enclosed two copies of the draft report for the recent survey we did of the Sheep Island Tract in Berkeley County. This report is a follow-up to the Phase I Management Summary you recently reviewed and documents our survey of the entire tract.

In the Phase I parcel, we recorded site 38BK2074. This site is not eligible for the NRHP. We recorded one additional site, 38BK2076 in the remaining portion of the tract. This site consists of a surface scatter of Pre-Contact artifacts located in a firebreak. We recommend 38BK2076 not eligible for the NRHP. We also recorded two sites, 38BK2077 and 38BK2078 that we later determined to be just outside the current APE. We did not assess either site for NRHP eligibility, therefore these resources should be considered potentially eligible for the NRHP.

I will be happy to address and questions or comments you may have about this project. Please let me know if you need anything else.

Sincerely,

Ralph Bailey Jr.

Ralph Bailey, Jr.
Project Manager

cc: [redacted] Crescent Resources, Charlotte, NC (with one report copy)

ATLANTA
6611 Bay Circle, Suite 220
Norcross, Georgia 30071
770-662-5807 • Fax 770-662-5824

RALEIGH
1803 Garner Station Boulevard
Raleigh, North Carolina 27603
919-779-9975 • Fax 919-779-7955

CHARLESTON
1051 Johnnie Dodds Boulevard, Suite F
Mt. Pleasant, South Carolina 29464
843-881-3128 • Fax 843-849-1776

Intensive Cultural Resources Survey of the Sheep Island Tract Berkeley County, South Carolina

Draft Report

Prepared for

Crescent Resources, LLC
Charlotte, North Carolina

Prepared by

Suzanne Johnson
Archaeologist

and

Charles Phillips
Historian

under the direction of

Ralph Bailey Jr.
Principal Investigator

Brockington and Associates, Inc.
Atlanta Charleston Raleigh
April 2005

Site 38BK2078

Cultural Affiliation -Post-Contact, late 19th-early 20th century
Site Type -Post-Contact artifact scatter
Site Dimensions - approximately 110 meters N/S by 60 meters E/W
UTM Coordinates -E 580065, N 3664837
Soil Type -loamy sand (Goldsboro-Lynchburg-Rains)
Elevation -80ft above mean sea level (amsl)
Nearest Water Source - Sawmill Branch Tributary
Present Vegetation - Pines/conifers
NRHP Recommendations - unassessed

Site 38BK2078 is a subsurface scatter of Post-Contact artifacts located in the triangle formed by the intersection of Sheep Island Road and US Route 176. It is just outside the Sheep Island Tract. The planting and harvesting of pines have disturbed the soils. Soils at 38BK2078 generally consist of a gray brown loamy sand 0-25 centimeters below surface (bs), light grayloamy sand 25-40 centimeters bs, and then white sand 40+ centimeters bs. The majority of the artifacts were recovered from 0-35 centimeters bs. Two consecutive negative shovel tests at 15 meter intervals were used to define the boundaries of the site.

We excavated 39 shovel tests at 15 meter intervals in and around 38BK2078; nine tests produced artifacts. Artifacts consist of undecorated ironstone, six pieces of clear bottle glass, burned glass, amber bottle glass, cobalt blue bottle glass, two pieces of undecorated whiteware, one brass cuff link, four unidentifiable nails, and 87.75g of unglazed brick fragments. The site dates from the late nineteenth century to early twentieth century. Figure 13 is the site plan for 38BK2078.

Site 38BK2078 was not formally assessed for eligibility to the NRHP, due to the fact that it lies outside the project boundaries for the Sheep Island Tract. Development within the project tract should not affect this site.

Project Summary and Recommendations

During the cultural resource survey of the Sheep Island Tract, archaeologists recorded two sites (38BK2074 and 38BK2076) and two isolated finds within the APE. The sites and isolated finds located on the tract are recommended not eligible for the NRHP. The SHPO concurred with our recommendation that 38BK2074 be nominated as not eligible to the NRHP following Phase I of the project survey. Site 38BK669, located within one mile of the APE, is eligible for the NRHP. 38BK669 is well outside the APE, and will not be affected by development of the tract. We

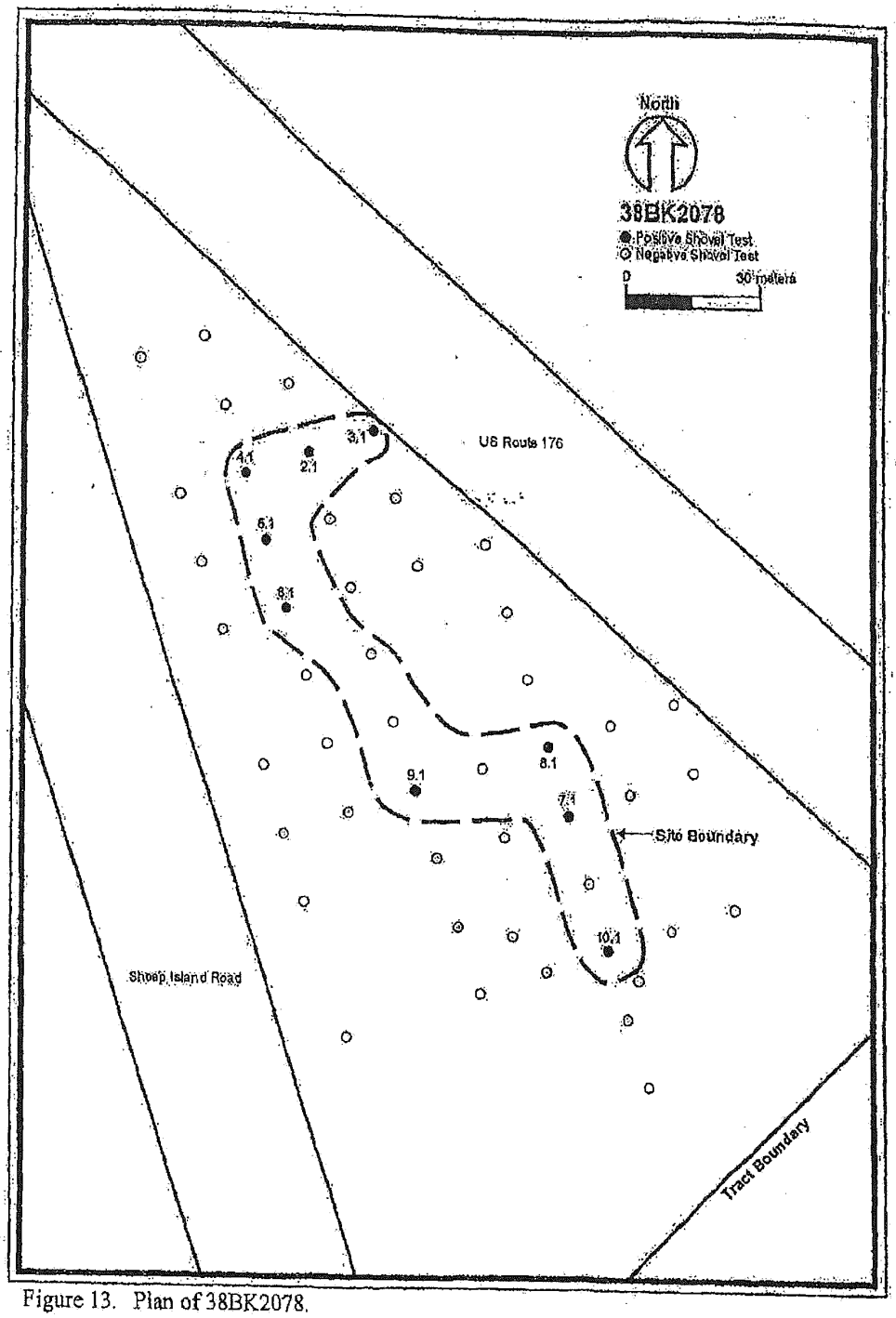


Figure 13. Plan of 38BK2078.

recorded sites 38BK2077 and 38BK2078 just outside the APE. These resources were not assessed for NRHP eligibility during the current investigations, and should therefore be considered potentially eligible. Both sites are outside the APE, and will not be affected by development within the APE.

April 11, 2005

Mr. Ralph Bailey
Brockington and Associates, Inc.
1051 Johnnie Dodds Boulevard, Suite F
Mt. Pleasant, SC 29464

RE: Phase I Management Summary Draft Report, *Cultural Resources of the Sheep Island Tract, Berkeley County, South Carolina*

Dear Ralph:

We have reviewed the above referenced archaeological management summary report and find it acceptable. This report, combined with the previous Cultural Resources Assessment, provides adequate information to allow us to recommend permitting for Phase I of the Sheep Island Tract without further cultural resource work. We concur with the report's recommendation that archaeological site 38BK2074 is not eligible for the National Register of Historic Places. There will be no effects to significant cultural resources by the proposed project.

We understand that the full draft report for the survey in this permitting phase, along with survey for the remainder of the Sheep Island Tract, is almost complete and will be forwarded to our office for review shortly. We look forward to the receipt of that report and remind your client that final certification for Phase I of the project by OCRM cannot occur until the full report is reviewed and approved by our office.

These comments are being provided to assist you with your responsibilities under pertinent state and federal laws. I can be contacted at (803) 896-6173 if you have any questions or comments.

Sincerely,

Valerie Marcil
Staff Archaeologist
State Historic Preservation Office

cc: Keith Derting, SCIAA
Richard Geer, OCRM

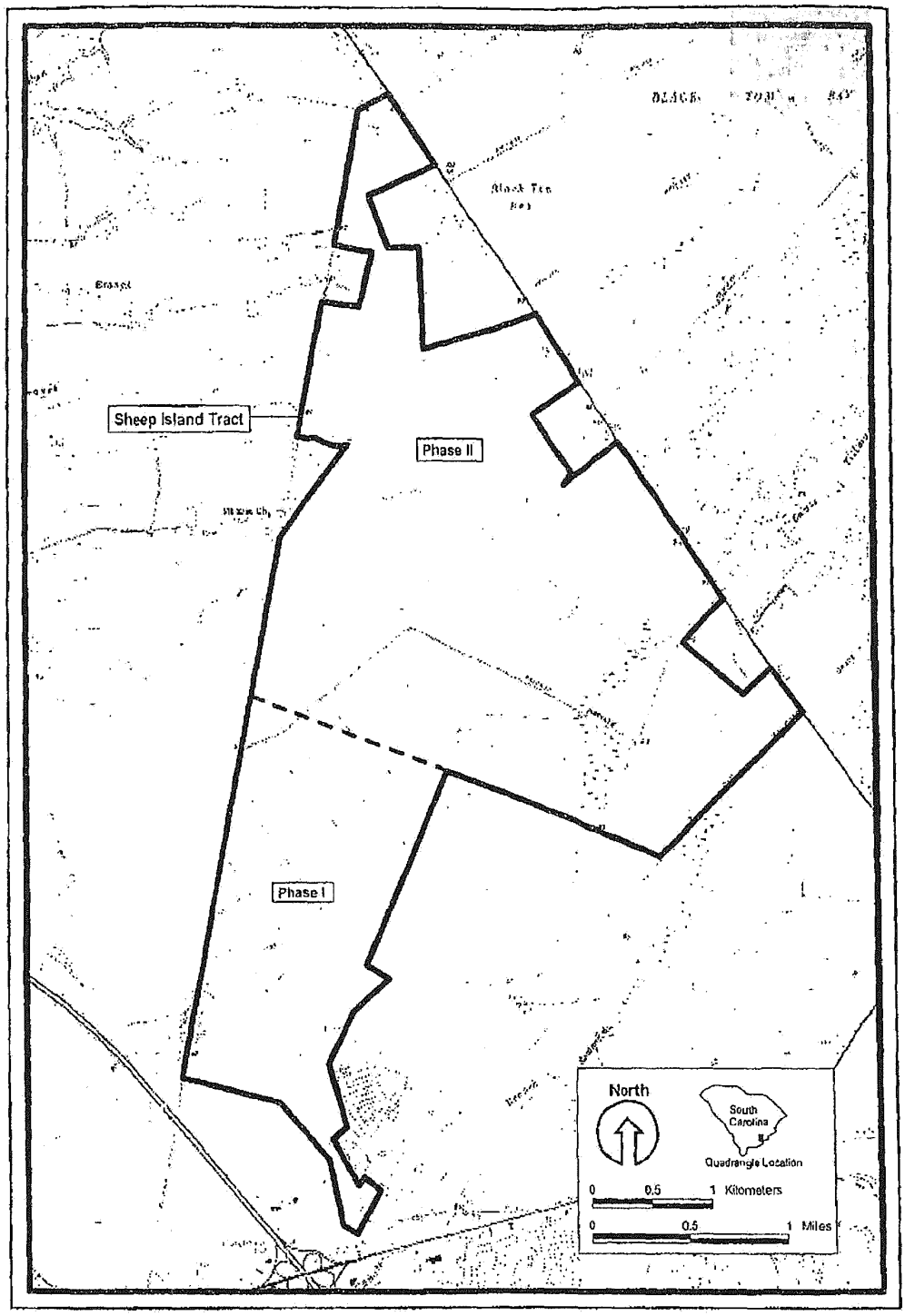


Figure 1. Location of the Sheep Island Tract in Berkeley County, South Carolina (USGS 1990 *Summerville* and 1979 *Mt. Holly, SC* quadrangles).

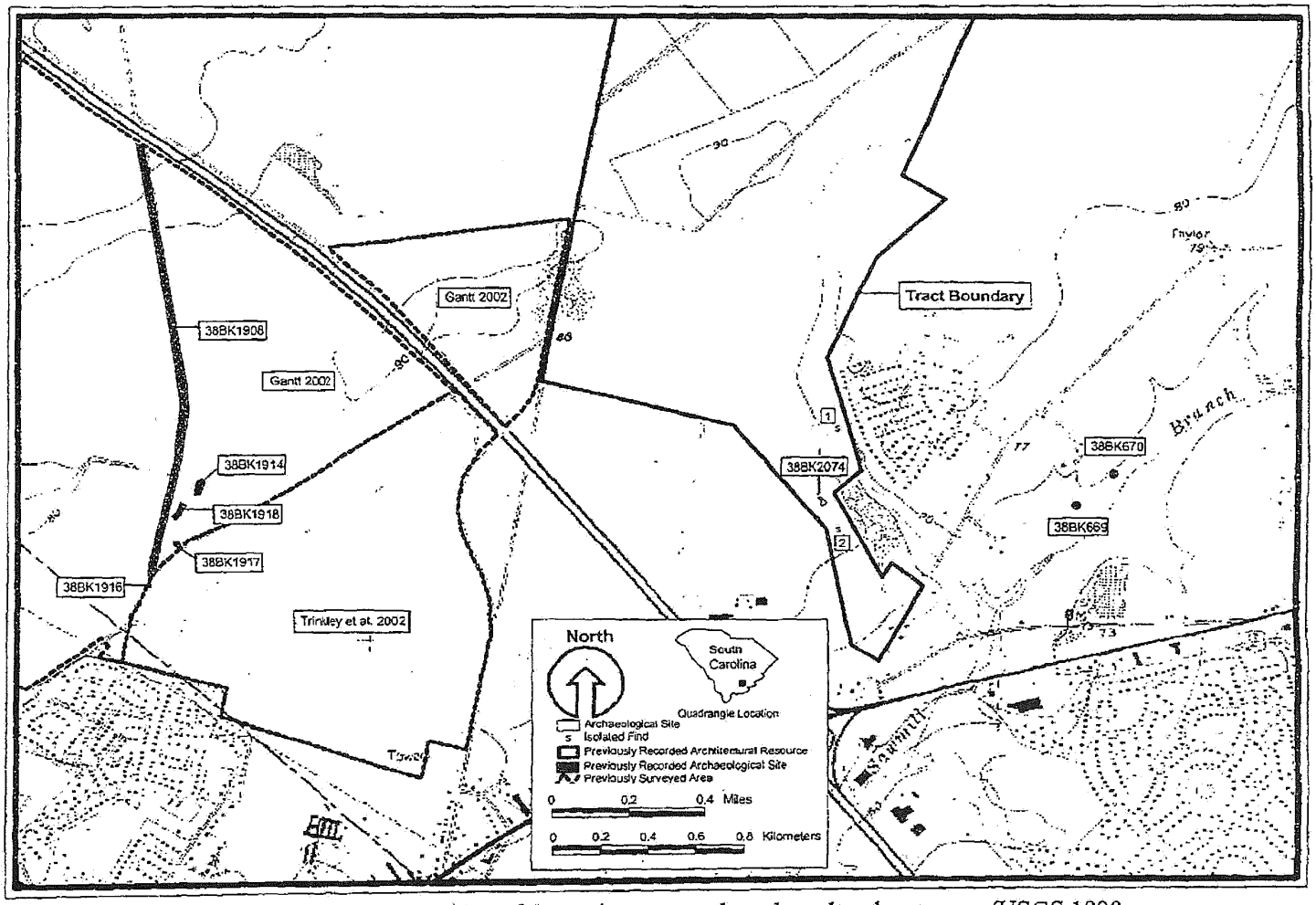


Figure 2. The location of the southern portion of the project tract and nearby cultural resources (USGS 1990 *Summerville, SC* quadrangle).

ROA 004702

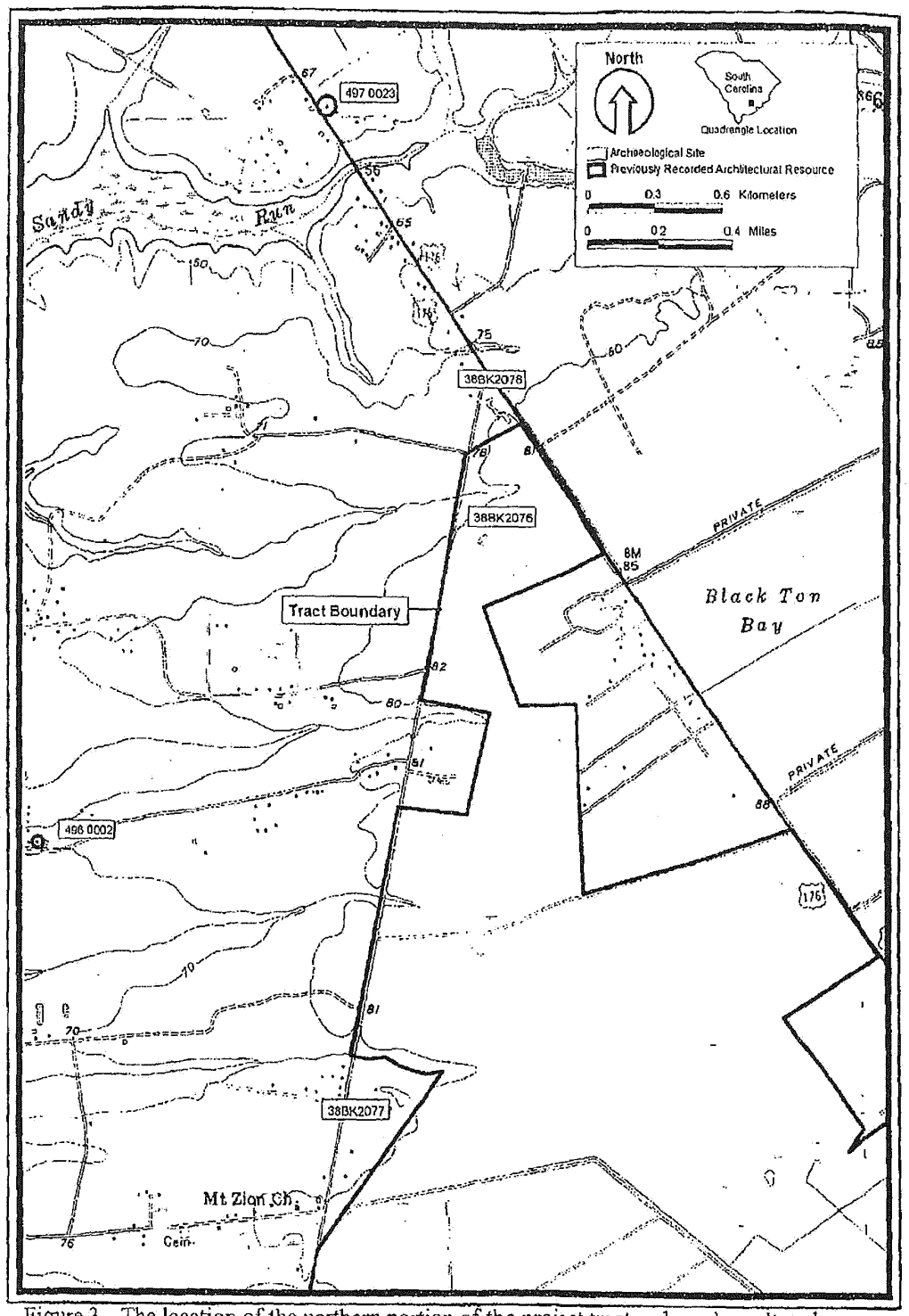


Figure 3. The location of the northern portion of the project tract and nearby cultural resources (USGS 1990 *Summerville* and *Summerville NW, SC* quadrangles.)

Exhibit L:

Threatened and Endangered Species Report

Threatened and Endangered Species Assessment
For the
Sheep Island Tract
Berkeley County
March 2004

Prepared For:
Judson Stringfellow
Triven Properties, LLC
Charlotte, NC 28233-3304

Prepared By:
Newkirk Environmental, Inc.
1887 Clements Ferry Road
Charleston, SC 29492

4.5 **Canby's dropwort** is a medium sized shrub found in the coastal plain of South Carolina where it occupies pond savannahs, the shallow edges of cypress/pond pine sloughs and wet pine savannahs. These sites are characterized by open conditions with savannah like herbaceous layers and are almost always associated with a sandy loam or loam soil underlain with a clay layer. Additionally, these sites require that the groundwater regime remain stable and that the sites must be protected from adverse alterations such as ditching, dams, etc.

The white flower of this species is noted as occurring from May through August, although past surveys indicate blooming in this region occurs during late July-October. There is no habitat for this species within the subject property.

4.6 **Pondberry** is a small fragrant shrub found in and around small depressional wetlands and sinks with a semi-open canopy. Surveys for this species and its habitat were completed in concert with the surveys for Canby's dropwort. No occurrences of this species were noted during the surveys, nor was suitable habitat identified.

4.7 **Chaffseed** is an upland herbaceous species indigenous to open fire maintained pine forest that also typically contain blackjack oak (*Quercus marilandica*) and goat's rue (*Tephrosia virginiana*) as dominates and indicator species. No occurrences of this species were noted during the surveys nor was suitable habitat identified.

5.0 CONCLUSION

No threatened and endangered species were observed during this survey and it is unlikely that any such species are present within the property based upon the available habitat. Nonetheless, it is the opinion of Newkirk Environmental, Inc. that additional surveys for the documented RCWs be executed to verify their absence.

It should be noted that because of the transitory nature of some of the listed threatened and endangered plants and animals, it is possible that endangered species populations and locations may change over time. Therefore any potential findings at a later date should be fully investigated.

Exhibit M:

Phase I Environmental Site Assessment

PHASE I ENVIRONMENTAL SITE ASSESSMENT
Sheep Island Tract
Berkeley County, South Carolina

Prepared for:

Mr. John Roach
Crescent Resources, LLC
400 South Tryon Street, Suite 1300
Charlotte, North Carolina 28202

31 March 2004
Updated: 27 September 2004

Prepared by:

Newkirk Environmental, Inc.
Post Office Box 746
Mt. Pleasant, South Carolina 29465-0746
(843) 388-6585
(843) 388-6580 Fax

AUTHORIZATION AND ACCESS

Written authorization to conduct a Phase I Environmental Site Assessment was given by Mr. Judson Stringfellow of Triven Properties, LLC, prospective buyer of the property, to Newkirk Environmental, Inc., by signatory acceptance of Proposal for Work, dated 1 December 2003.

The ESA was assigned Project Number 01-1331P1.

Update conducted on 27 September 2004, Phase I valid until 27 March 2005.

SIGNATURES

This Phase I Environmental Site Assessment was prepared and reviewed in accordance with ASTM standards by the undersigned:

Prepared by:

Edward G. Oswald
Project Biologist

Reviewed and Approved by:

Stephen A. Nichols
Principal Biologist

I. EXECUTIVE SUMMARY

As requested by Mr. Judson Stringfellow, Newkirk Environmental, Inc. has conducted a Phase I Environmental Site Assessment (ESA, Phase I) of the approximately 4900 (+/-) acre parcel (TMS#: 221-000-0048) located between Highway 176, Highway 17A and Interstate 26 in Berkeley County, South Carolina (see Appendix A, Vicinity Map). At the time of this Phase I, the project site consisted of predominantly rural, undeveloped land maintained and used for the purpose of pulpwood production. The results of this Phase I can be relied upon for exactly six months from the issue date of this report.

This ESA was conducted according to ASTM standards (ASTM E2247-02) and consists of three basic parts: 1) review of federal and state records; 2) on-site inspection; and 3) owner/operator interview. A Phase I is designed to identify recognized environmental conditions either on the property, directly adjacent to the property and/or within a specified search radius of the property. As defined by the ASTM standards, a recognized environmental condition is defined as the "presence or likely presence of any hazardous substances or petroleum products under conditions which indicate an existing release, past release, or material threat of release into structures on the property, into the ground, groundwater, or surface water of the property."

Federal and State Records Review:

A review of federal and state records for the existence of known recognized environmental conditions was conducted by FirstSearch Technology Corporation on 30 March 2004. Based on information from the federal and state database review, one federal site (Section IV, Table IV.1) and several state sites (Section IV, Table IV.2) were identified within 1 mile of the project site's boundaries as being potential recognized environmental conditions. For unknown reasons, some sites were listed more than once. This may be due to changes in business names, ownership, etc.

After conducting this Phase I, Newkirk Environmental, Inc. believes the federal site and the state sites do not represent recognized environmental conditions to the project site. For additional information, see Section IV, Records Review and Appendix C, Federal and State Database.

On-Site Inspection:

The on-site inspection was conducted by Edward Oswald on 22 March 2004. The on-site investigation did not visually or physically identify any recognized environmental conditions on the project site or on immediately adjacent properties that were visually apparent within practical limitations.

Owner Interview(s):

Due to internal company policy of MeadWestvaco Forestry, LLC, an owner/operator interview was not conducted for purposes of this Phase I.

Conclusions and Opinions:

Based on the information obtained during this Phase I Environmental Site Assessment, Newkirk Environmental, Inc., has identified zero (0) recognized environmental conditions in association with the project site. Furthermore, at this time, Newkirk Environmental, Inc. does not suggest further assessment, i.e. Phase II Environmental Site Assessment, of the project site.

Exhibit N:

Nexton Traffic Study Summary

BIHL ENGINEERING

Memorandum

To: Eric Greenway
Berkeley County Planning

From: Jennifer T. Bihl, PE, President
Bihl Engineering, LLC

Date: January 15, 2013

Subject: Nexton Traffic Study Summary

Introduction

The Nexton development has had a series of transportation studies performed to ascertain the impacts of the development on the existing and future transportation networks. The studies have been coordinated with Berkeley County, the Town of Summerville and the South Carolina Department of Transportation (SCDOT). This memo summarizes the studies performed to date, background data, trip generation for the studies and a summary of the results.

History

The original traffic impact sensitivity analysis for the Parks of Berkeley development was performed in March 2005. This study addressed the approximately 1,200 acre site that included 2,879 residential units and 85,000 square feet of neighborhood/specialty commercial.

Subsequently, the Parks of Berkeley was approved with 13,271 households and 5,800,000 square feet of non-residential uses.

More recently, the following studies have been completed: Sheep Island Phase 1a Traffic Impact Analysis (December 2009) and subsequent May 2010 follow-up memo, Parks of Berkeley Sheep Island Tract Traffic Impact Analysis (November 2010), Parks of Berkeley Sheep Island Tract Phase 1 Traffic Impact Analysis (March 2011) and the Berkeley County memo entitled "Additional requested information regarding the Parks of Berkeley traffic studies" (May 2011). The following discusses the purposes of each study.

Sheep Island Phase 1a Traffic Impact Analysis (December 2009) and subsequent May 2010 follow-up memo addressed the Phase 1a area of the project. Phase 1a is located in Berkeley County between Rose Drive and US 17A. The study reviewed the existing and future projected impacts of the proposed Phase 1a development on US 17A at Rose Drive and US 17A at Sangaree Parkway as well as the site driveways.

12 Park Square North, Beaufort, SC 29907 P: 843-637-9187

The follow-up memo also addressed the existing and future projected operations of the US 17A at the Interstate 26 ramps.

Parks of Berkeley Sheep Island Tract Traffic Impact Analysis (November 2010) addressed the traffic impact of overall land use planned in the Sheep Island Tract. The Sheep Island Tract is adjacent to the Parks of Berkeley Tract and extends from Sheep Island Parkway to US 17A in the Town of Summerville. The report addresses the existing and future projected operations at the major intersections on US 17A and Sheep Island Parkway including operations at the I-26 ramps.

The Parks of Berkeley Sheep Island Tract Phase I Traffic Impact Analysis (March 2011) was performed at the request of SCDOT to review the potential impacts of the Sheep Island Tract land uses if the proposed Sheep Island interchange was delayed and access to US 17A served as primary access for the site. This study reviewed the impacts at US 17A at Sangaree Parkway, Rose Drive, I-26 WB ramps, and I-26 EB ramps.

The memo entitled, "Additional requested information regarding the Parks of Berkeley traffic studies" (May 2011) to Berkeley County was a subarea study for the Phase I area, reviewing the specific operations of intersections on Frontage Road and Business Blvd..

Background Data

Historic growth and model growth were used to develop the background conditions for the studies. The Berkeley Dorchester Charleston Council of Governments (BCDCOG) transportation model was used to develop future projected for the analysis. The model included the following developments in the immediate area as background data – Parks of Berkeley, Cane Bay, Wildcat, and the Jedburg Warehouses/Distributing area.

Major future transportation network changes include: the new Sheep Island Interchange with I-26 and Brighton Park Blvd. from US 17A to the future Parkway (originally named Sheep Island Parkway). .

Trip Generation

Phase 1a included the trip generation for the area in Berkeley County for the buildout year of 2014 shown in **Table 1**.

Table 2 shows the trip generation for the year 2018 Parks of Berkeley Sheep Island Tract.

Table 3 shows the trip generation for the year 2028 buildout of Parks of Berkeley Sheep Island Tract.

BELL ENGINEERING

Table 1: Phase 1a Proposed Trip Generation[1]						
Land Use Code	Land Use	Intensity	AM Peak Hour Trips		PM Peak Hour Trips	
			In	Out	In	Out
710	General Office	73,000 sf	128	18	27	134
720	Medical-Dental Office	106,000 sf	193	51	80	217
770	Business Park	53,000 sf	65	12	19	65
814	Specialty Retail	64,000 sf	72	46	77	98
931	Quality Restaurant	9,000 sf	4	4	45	22
932	High-Turnover Restaurant	7,000 sf	42	39	46	32
932	High-Turnover Restaurant	7,000 sf	42	39	46	32
310	Hotel	100 Rooms	21	17	18	22
311	All Suites Hotel	100 Rooms	25	16	31	28
710	General Office*	28,000 sf	60	8	19	91
814	Specialty Retail	28,000 sf	45	28	39	50
Subtotal			*697*	*278*	*447*	*791*
Internal Capture Trip Reduction[2]			*0*	*0*	*-197*	*-197*
Pass-By Trip Reduction[2]			*0*	*0*	*-18*	*-18*
Net New External Traffic			697	278	232	576

Source [1] Institute of Transportation Engineers. *Trip Generation*, 8th Edition. 2008.
[2] Institute of Transportation Engineers. *Trip Generation Handbook*, 2nd Edition. 2004.
Note * Adjusted for MeadWestvaco employees

Table 2: 2018 Interim Year Proposed Trip Generation[1]						
Land Use Code	Land Use	Intensity	AM Peak Hour Trips		PM Peak Hour Trips	
			In	Out	In	Out
210	Eastern Single-Family Residential	189 DU	36	106	117	69
220	Eastern Apartment	250 DU	25	101	101	54
710	Eastern General Office	375,000 sf	475	65	85	414
220	Western Apartment	250 DU	25	101	101	54
710	Western General Office	62,000 sf	113	15	26	124
820	Western Shopping Center	160,000 sf	124	79	427	445
Subtotal			*798*	*467*	*857*	*1,160*
Internal Capture[2]			*0*	*0*	*-119*	*-119*
External Driveway Volumes			798	467	738	1,041
Pass-by Trips[2]			*0*	*0*	*145*	*151*
Net New External Traffic			798	467	593	890

Source: [1] Institute of Transportation Engineers. *Trip Generation*, 8th Edition. 2008.
[2] Institute of Transportation Engineers. *Trip Generation Handbook*, 2nd Edition. 2004.
Note sf = square feet, DU = dwelling units

Table 3: 2028 Buildout Proposed Trip Generation[1]						
Land Use Code	Land Use	Intensity	AM Peak Hour Trips		PM Peak Hour Trips	
			In	Out	In	Out
210	Eastern Single-Family Residential	189 DU	36	106	117	69
220	Eastern Apartment	250 DU	25	101	101	54
710	Eastern General Office	400,000 sf	500	69	90	437
220	Western Apartment	316 DU	32	127	124	67
310	Western Hotel	250 Rooms	85	55	78	70
710	Western General Office	400,000 sf	500	69	90	437
720	Western Medical-Dental Office	63,500 sf	115	31	51	138
820	Western Shopping Center	500,000 sf	243	155	916	954
Subtotal			*1,536*	*713*	*1,567*	*2,226*
Internal Capture[2]			*0*	*0*	*-251*	*-251*
External Driveway Volumes			1,536	713	1,316	1,975
Pass-by Trips[2]			*0*	*0*	*232*	*234*
Net New External Traffic			1,536	713	1,084	1,741

Source [1] Institute of Transportation Engineers. *Trip Generation*, 8th Edition. 2008.
[2] Institute of Transportation Engineers *Trip Generation Handbook*, 2nd Edition. 2004.
Note sf = square feet, DU = dwelling units

Summary of Results

The Phase 1a analysis identified intersection improvements to the intersection of US 17A at Sangaree Parkway. As a part of the development, the western leg will be added to the intersection of US 17A at Sangaree Parkway, Brighton Park Blvd. (originally named Frontage Road). Brighton Park Blvd. will extend from US 17A to the future Parkway.

Based on the Parks of Berkeley Sheep Island Tract study, 2018 background traffic conditions are projected to operate acceptably with improvements beyond what was previously recommended in 2014. Beyond intersection signal timing improvements, there are turn lane improvements to the intersections of the future Parkway at Business Blvd. and Sheep Island Parkway at Brighton Park Blvd.

2018 total traffic conditions are projected to operate acceptably with additional improvements beyond what was previously recommended in 2014 and 2018 background conditions. Beyond intersection signal timing improvements, there are turn lane improvements to the intersections of Sheep Island Parkway at Business Blvd., the future Parkway at Brighton Park Blvd., and US 17A at Brighton Park Blvd.

2028 background traffic conditions include the intersection improvements (beyond intersection signal timing improvements) to the future Parkway at I-26 Eastbound off-ramp and US 17A at Brighton Park Blvd. Also, the future Parkway is projected to need to be widened to a six-lane arterial with turn lanes

BIHL ENGINEERING

from I-26 to Brighton Park Blvd. and US 17A will need to be extended to six lanes from existing six-lane section to north of Brighton Park Blvd.

2028 total traffic conditions include intersection improvements beyond the 2028 background improvements and intersection signal timing improvements to the following intersections:

- Future Parkway and I-26 Eastbound off-ramp
- Future Parkway and Business Blvd.
- Future Parkway and Brighton Park Blvd.
- US 17 Alternate and Brighton Park Blvd.
- US 17 Alternate and Rose Drive

Subarea internal traffic analysis studies are being performed as each phase of the development is designed in more detail. Additional analysis and timing of the improvements above and improvements to specific areas are identified in these studies.

the urban hub where everyone wants to work

THE OPPORTUNITY

Colliers International is pleased to present this opportunity to purchase 79.5 acres of commercial land in Summerville, South Carolina. Located in Nexton, a 4,500-acre master planned community managed by Newland Communities, the property is ideal for commercial development. Nexton provides the opportunity for the user or developer to locate their business in an environment that provides logistic, productivity and collaborative solutions benefiting everyone in the company.

Nexton is located at the I-26/Highway 17A interchange, the gateway to Charleston, and in the pathway of Charleston's growth. At full build-out Nexton will be comprised of nearly 8,000 residents, and 6 million square feet of commercial space, carefully planned and with well-thought infrastructure; making Nexton a sustainable and desirable urban hub to live, work and play.

Charleston's population is growing by approximately 48 people per day. The city's historic charm, quality of life and strong economy continues to attract more and more residents and businesses to the region. Charleston's office market is strong with Class "A" vacancies staying below 10% over the last 5 years.

LOCATION

- Gateway location approximately 25 minutes to downtown Charleston
- Visibility, frontage along I-26 and easily accessible via two interchanges
- Surrounded by growing talented workforce
- Proximate to Boeing, Volvo and Charleston International Airport

AMENITIES

- Walking distance to hotels, gyms, restaurants, coffee, and childcare
- Adjacent to an array of amenities at One Nexton, a 1.5 MSF retail/mixed-use development
- 5 minute drive to an abundance of amenities in Summerville

LIFESTYLE

- Beautifully landscaped green spaces
- Parks, walking/bike trails throughout connecting areas together
- Organized community events
- Best of the best amenities at your fingertips

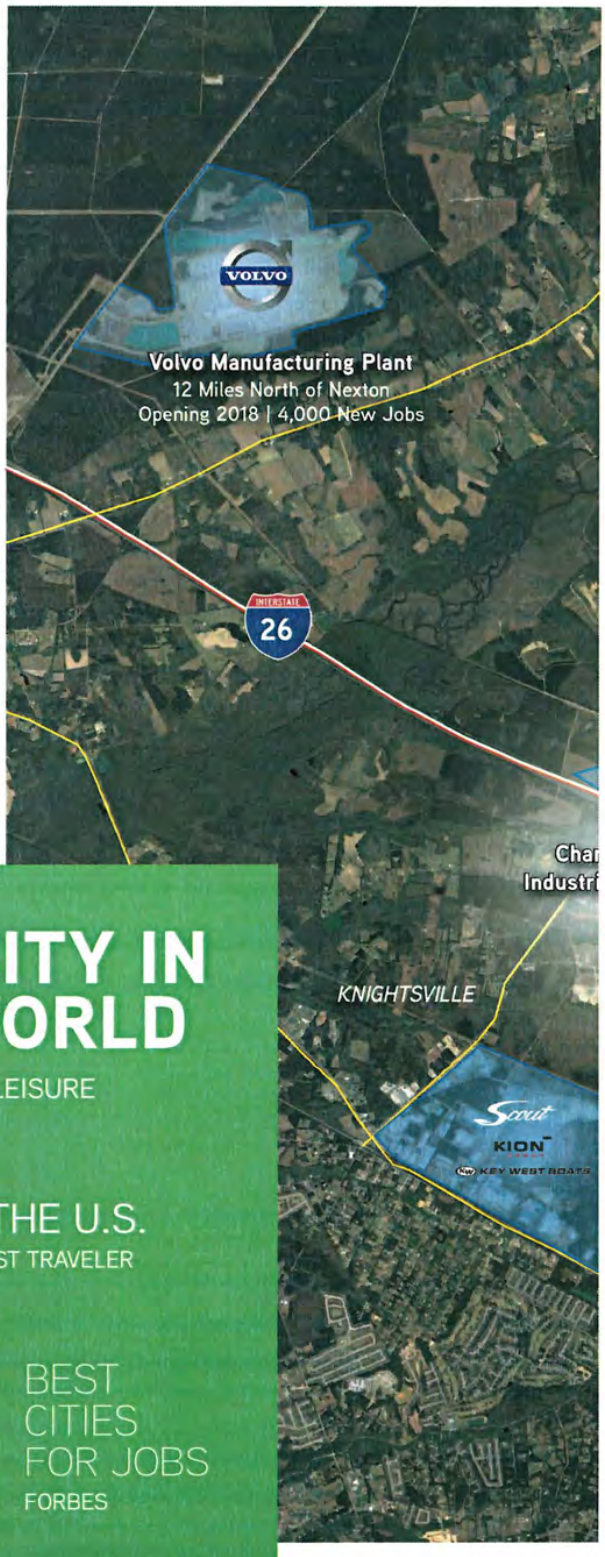
**Conceptual on opposite page represents part of Nexton Master Plan.*

charleston: where business is headed

Charleston's strong diversified economy, beautiful coastal setting, and vibrant culture of food, music and entertainment are attracting companies to the region and growing right up the I-26 corridor.

Nexton is in the pathway of Charleston's explosive job growth and surrounded by companies such as Volvo, Boeing, Daimler and Google and is accessible to a large and talented workforce; creating a new employment hub. Nexton provides the world-class technology a business needs with the convenience of the best-of-the-best amenities within walking distance.

Nexton has a location that puts the entire region at your fingertips. It's strategic location just off the interstate allows you to get to where you are going in Charleston quickly.



CHARLESTON'S LABOR FORCE IS GROWING

4X

THE U.S. AVG

BEST CITY IN THE WORLD

TRAVEL + LEISURE

#1 SMALL CITY IN THE U.S.

5TH YEAR IN A ROW | CONDE NAST TRAVELER

48

PEOPLE MOVE TO CHARLESTON **EVERYDAY**

#3 BEST CITIES FOR JOBS

FORBES

DHEC CON 000406

Joint Exh. 1-0407

COLLIERS INTERNATIONAL
DHEC CON 000407

79.5 ACRES
For Commercial
Development
Nexton Parkway
Future Interchange
Exit 197 | Opening 2018
INTERSTATE
26
BAKER
MOTOR COMPANY
Sigma Drive
TARGET
BEST BUY
KOHL'S
Pier 1 imports
DICK'S
SPORTING GOODS
JOS A. BANK
Palmetto Moon
T.J.maxx
Newk's
mellow MUSHROOM
smashburger
Chick-fil-A
Panera
ZAXBY'S
McALISTER'S
STAPLES
US
17A
REGAL
CINEMAS
North Main Street
EARTH
FARE
PETCO
Where the pets go
DUNKIN'
DONUTS
orangetheory
Walmart
Hallmark
LOWE'S
belk
ups
Hampton Inn
DHEC CON 000408

amenities at your fingertips

RESTAURANTS

- Boxcar Betty's
- Carolina Ale House
- Chicken Salad Chick
- Chick-fil-A
- Chipotle
- Cracker Barrel
- Dunkin Donuts
- Five Guys
- Five Loaves
- Hall's Chophouse (coming soon)
- Jersey Mike's
- Logan's Roadhouse
- McAlister's Deli
- Mellow Mushroom
- Moe's
- Newk's Eatery
- Noodle Nerd
- Panera Bread
- Smashburger
- Sol
- Sticky Fingers
- Starbucks
- Taco Boy (coming soon)
- TCBY
- Tijuana Flats
- Wasabi
- Zaxby's

GROCERY

- EarthFare
- Harris Teeter

HOTELS

- Comfort Suites
- Courtyard Marriott
- Hampton Inn
- Holiday Inn Express
- Quality Inn
- Residence Inn (construction)

RETAIL

- Belk
- Best Buy
- BJ's Wholesale Club
- Burke's
- Dicks Sporting Goods
- EarthFare
- GNC
- Hallmark
- JoAnn's Fabrics
- Jos. A. Bank
- Kay Jewelers
- Kohl's
- Home Depot
- Lowe's
- Palmetto Moon
- Petco
- PetSmart
- Pier 1 Imports
- Ross
- Sprint
- Staples
- Target
- TJ Maxx
- UPS Store
- Verizon
- Walgreens
- Walmart
- World Market

OTHER

- Baker Motor Company
- Orange Theory
- Rainbow Child Care
- CPM Federal Credit Union

COLLIERS INTERNATIONAL

nexton

welcome to nexton

Nexton is a 4,500-acre master-planned community located in Summerville, South Carolina. Designed to live and work like a town, Nexton mixes together apartments, entertainment, homes, hotels, offices, parks, restaurants, shops, and schools. Tying everything together with a network of trails and path-ways. Creating a walkable, bikeable, and golf-cartable place for residents and businesses alike.

8,500 RESIDENCES

6MSF COMMERCIAL

1.5 MILES INTERSTATE FRONTAGE

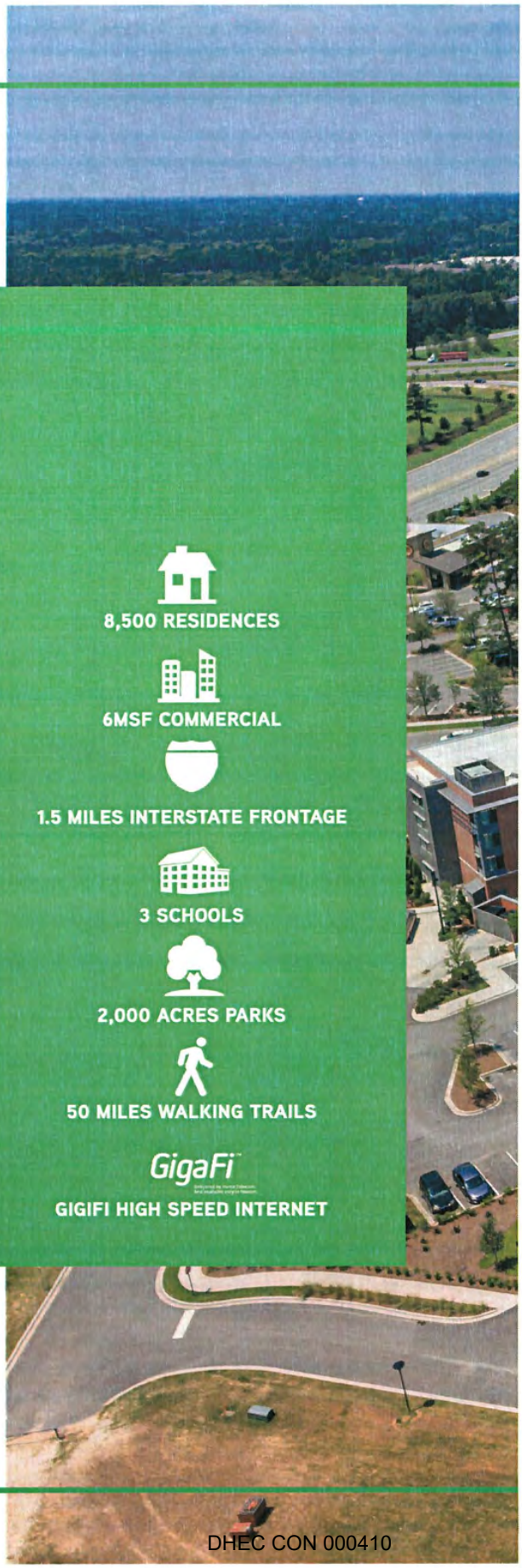
3 SCHOOLS

2,000 ACRES PARKS

50 MILES WALKING TRAILS

GigaFi

GIGIFI HIGH SPEED INTERNET



› 2016 Best Community
The Post and Courier

› 2015 Rockstar Award
Charleston Metro Chamber of Commerce

COLLIERS INTERNATIONAL

DHEC CON 000410

Joint Exh. 1-0411

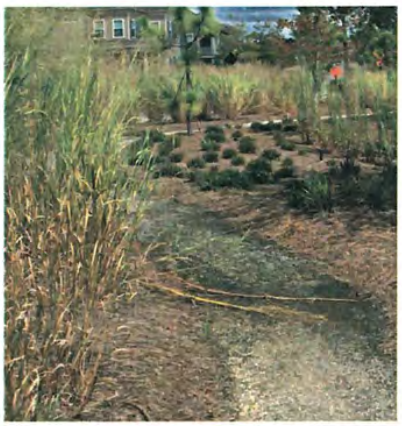
DHEC CON 000411

COLLIERS INTERNATIONAL

DHEC CON 000412

EVERYTHING'S CLOSE TO EVERYTHING ELSE - CONNECTED BY TRAILS, NATURE AND WIFI

DHEC CON 000413



walkable
bikeable
scooterable
golf-cartable

DHEC CON 000414

Joint Exh. 1-0415

nexton: redefining the workplace

Nexton is redefining the workplace. it's creating a new business environment that you cannot find anywhere else in Charleston. Blending suburban with urban, Nexton is forward-thinking and designed to be more intelligent and efficient.

Nexton provides a lifestyle to businesses and their employees. It's a place that enhances productivity - giving you spaces to collaborate and generate best ideas and places to get those everyday errands done. Achieving that work-life balance.

WHY NEXTON FOR BUSINESS?

- Within walking distance to a variety of conveniences businesses need to thrive: coffee houses, hotels, dining, green space, and entertainment venues.
- Surrounded by a talented workforce means your employees most likely live near Nexton. Bonus: they would save time not sitting in traffic!
- Easily accessible via two interstate interchanges and abundant parking for employees and visitors.
- Adjacent to Charleston's newest entertainment destination, ONE Nexton, an outdoor venue with approximately 1.5MSF of shops, restaurants, residences and office space.
- Benefit from the fastest internet speeds available with Gigabit technology throughout the community.

A QUALITY OF LIFE THAT NO OTHER DEVELOPMENT IN CHARLESTON PROVIDES BENEFITING BOTH BUSINESS & EMPLOYEES

DHEC CON 000415

FORGET THE COMMUTE
Imagine eliminating the commute from your employees. Nexton's location in Summerville is easily accessible and visible from I-26. Two interchanges will service the development in addition to multiple entrances on major thoroughfares.

DINING VARIETY
Plenty of restaurants will be within walking distance from the office. From coffee to fine dining, Nexton will feature a variety of Lowcountry cuisine.

OUTDOOR SPACES
Nearly half of Nexton is dedicated to parks, walking trails and green space; calling you to come outside to take a break or work from a different perspective.

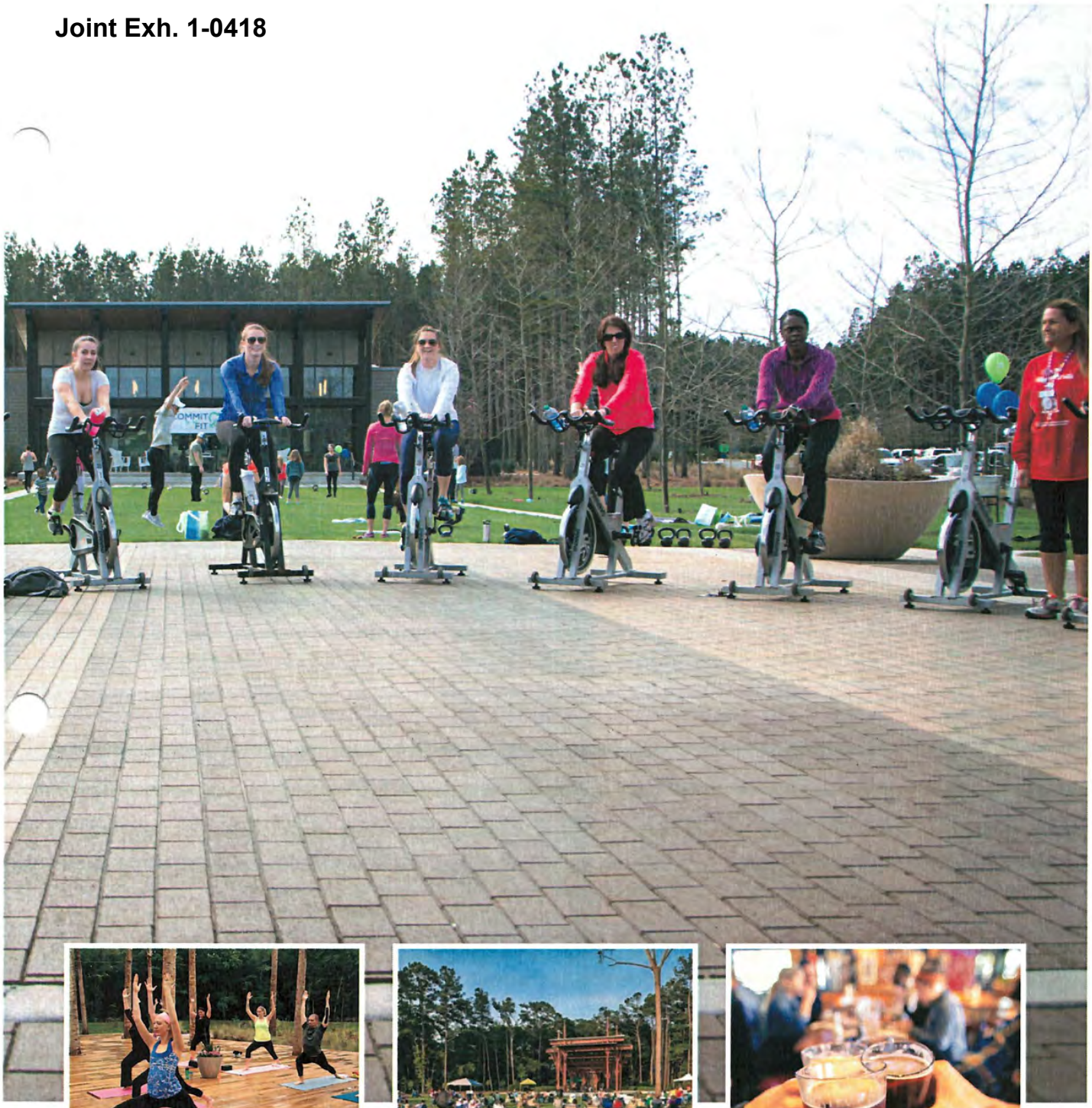
EVERYDAY CONVENIENCES RIGHT THERE
Because it's just nice to have Starbucks, a gym, daycare, banks and a grocery store all within minutes of where you work. Making it easier to get everything else in life checked off your list.

INSPIRING A DIFFERENT CORPORATE CULTURE
Business ready and people friendly, Nexton provides all the elements of a small town community that brings people together. Spaces to take your meeting outside or network after hours.

creating an environment where people want to work

DHEC CON 000416

where work + community mingle



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*Conceptual renderings provided by JWA.

nexton

Newland COMMUNITIES

NASH
NORTH AMERICA SEKISUI HOUSE

The Nexton community is owned by a business entity of North America Sekisui House, LLC (NASH), and is being developed by Newland Communities, the master developer of the community. NASH and Newland share a deep commitment to sustainable development practices, have strengthened their intentional focus together in all communities they are creating across the country. Nexton is one of 30 assets the NASH-Newland partnership owns or manages together, in 14 states across the US. www.newlandcommunities.com | www.nashcommunities.com

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EXCLUSIVELY MARKETED BY:

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Attachment M:
MUSC Acute Care Capacity Trends

Joint Exh. 1-0423

MUSC Acute Units Historical Midnight Census		
Month, Year	Midnight Census	Capacity
July 2014	539.1	76%
August 2014	548.8	77%
September 2014	560.2	79%
October 2014	562.5	79%
November 2014	566.1	79%
December 2014	565.0	79%
January 2015	588.3	83%
February 2015	589.1	83%
March 2015	576.0	81%
April 2015	557.3	78%
May 2015	564.1	79%
June 2015	564.9	79%
July 2015	577.7	81%
August 2015	562.8	79%
September 2015	570.4	80%
October 2015	556.9	78%
November 2015	571.2	80%
December 2015	596.8	84%
January 2016	653.1	92%
February 2016	658.3	92%
March 2016	643.2	90%
April 2016	637.1	89%
May 2016	634.3	89%
June 2016	635.6	89%
July 2016	626.3	88%
August 2016	652.2	91%
September 2016	620.6	87%
October 2016	620.0	87%
November 2016	629.8	88%
December 2016	638.3	90%
January 2017	652.2	91%
February 2017	665.6	93%
March 2017	659.3	92%
April 2017	636.1	89%
May 2017	658.6	92%
June 2017	658.1	92%

Attachment N:
Assumed MUSC Patient Redirection Zip Code Categories

Joint Exh. 1-0425

ZIP	Miles	Drive Time	County 1	Market Area	Tri-County Sub Areas	% Shift
29483	7.5		11 DORCHESTER	Tri-County	Summerville	65%
29486	6.7		13 BERKELEY	Tri-County	Summerville	65%
29423	10.6		13 CHARLESTON	Tri-County	North Charleston	65%
29456	8.0		13 DORCHESTER	Tri-County	North Charleston	65%
29484	5		15 DORCHESTER	Tri-County	Summerville	55%
[illegible]	15.5		19 CHARLESTON	Tri-County	North Charleston	55%
[illegible]	9.4		20 DORCHESTER	Tri-County	Summerville	55%
[illegible]	13.9		22 CHARLESTON	Tri-County	North Charleston	55%
[illegible]	14.7		22 CHARLESTON	Tri-County	North Charleston	55%
[illegible]	18.3		23 CHARLESTON	Tri-County	North Charleston	55%
[illegible]	24.6		24 DORCHESTER	Tri-County	Summerville	55%
[illegible]	15.4		24 BERKELEY	Tri-County	North Charleston	55%
[illegible]	19.6		25 CHARLESTON	Tri-County	West Ashley	55%
29407	22.7		27 CHARLESTON	Tri-County	West Ashley	35%
29445	12.3		27 BERKELEY	Tri-County	North Charleston	35%
29472	21.5		27 DORCHESTER	Tri-County	Summerville	35%
29420	17.6		28 DORCHESTER	Tri-County	North Charleston	35%
29404	16.7		28 CHARLESTON	Tri-County	North Charleston	35%
29405	20.8		28 CHARLESTON	Tri-County	North Charleston	35%
29417	23.7		29 CHARLESTON	Tri-County	West Ashley	35%
29059	30.5		31 ORANGEBURG	Secondary	Outside Tri-County	35%
29414	25.4		32 CHARLESTON	Tri-County	West Ashley	35%
29403	23.4		34 CHARLESTON	Tri-County	Peninsula Charleston	35%
29413	24.8		34 CHARLESTON	Tri-County	Peninsula Charleston	35%
29425	24.8		34 CHARLESTON	Tri-County	Peninsula Charleston	35%
29461	16.3		35 BERKELEY	Tri-County	Moncks Corner	35%
29437	26.5		36 DORCHESTER	Tri-County	Summerville	35%
29409	24		36 CHARLESTON	Tri-County	Peninsula Charleston	35%
29424	25.3		38 CHARLESTON	Tri-County	Peninsula Charleston	35%
29470	22.3		39 CHARLESTON	Tri-County	West Ashley	35%
29401	25.7		39 CHARLESTON	Tri-County	Peninsula Charleston	35%
29477	33.1		40 DORCHESTER	Tri-County	Summerville	35%
29469	22.5		40 BERKELEY	Tri-County	Moncks Corner	35%
29464	29.4		40 CHARLESTON	Tri-County	East Cooper	35%
29402	25.3		41 CHARLESTON	Tri-County	Peninsula Charleston	30%
29457	28.7		42 CHARLESTON	Tri-County	Sea Islands	30%
29431	28.3		43 BERKELEY	Tri-County	Moncks Corner	30%
29492	30		43 BERKELEY	Tri-County	East Cooper	30%
29447	34.2		43 DORCHESTER	Tri-County	Summerville	30%
29435	28.3		44 COLLETON	Secondary	Outside Tri-County	30%
29048	35.4		44 ORANGEBURG	Secondary	Outside Tri-County	30%
29436	34.9		44 BERKELEY	Tri-County	Moncks Corner	30%
29465	32.5		44 CHARLESTON	Tri-County	East Cooper	30%
29476	32		45 BERKELEY	Tri-County	Moncks Corner	30%
29433	37.3		45 COLLETON	Secondary	Outside Tri-County	30%
29142	44.3		45 ORANGEBURG	Secondary	Outside Tri-County	30%
29163	42.4		45 ORANGEBURG	Secondary	Outside Tri-County	30%
29430	32.8		46 BERKELEY	Tri-County	Moncks Corner	30%
29434	29.7		46 BERKELEY	Tri-County	Moncks Corner	30%

Joint Exh. 1-0426

ZIP	Miles	Drive Time	County 1	Market Area	Tri-County Sub Areas	% Shift
29479	32.1	46	BERKELEY	Tri-County	Moncks Corner	30%
29426	28.3	46	CHARLESTON	Tri-County	West Ashley	30%
29482	31.8	46	CHARLESTON	Tri-County	East Cooper	30%
29471	46.5	46	DORCHESTER	Tri-County	Summerville	30%
29018	44.1	47	ORANGEBURG	Secondary	Outside Tri-County	30%
29466	34.3	48	CHARLESTON	Tri-County	East Cooper	30%
29412	32	49	CHARLESTON	Tri-County	Sea Islands	30%
29422	33.5	50	CHARLESTON	Tri-County	Sea Islands	30%
29429	32.9	50	CHARLESTON	Tri-County	East Cooper	30%
29115	53.6	53	ORANGEBURG	Secondary	Outside Tri-County	30%
29450	37.7	54	BERKELEY	Tri-County	East Cooper	30%
29455	35.7	54	CHARLESTON	Tri-County	Sea Islands	30%
29439	35.7	54	CHARLESTON	Tri-County	Sea Islands	30%
29452	37.9	54	COLLETON	Secondary	Outside Tri-County	30%
29030	56	54.5	CALHOUN	Tertiary	Outside Tri-County	30%
29474	34	55	COLLETON	Secondary	Outside Tri-County	30%
29047	50.7	55	ORANGEBURG	Secondary	Outside Tri-County	30%
29468	41.6	56	BERKELEY	Tri-County	Moncks Corner	10%
29116	55.4	56	ORANGEBURG	Secondary	Outside Tri-County	10%
29133	50.9	56	ORANGEBURG	Secondary	Outside Tri-County	10%
29117	56.8	57	ORANGEBURG	Secondary	Outside Tri-County	10%
29432	54.6	57	ORANGEBURG	Secondary	Outside Tri-County	10%
29453	43.9	59	BERKELEY	Tri-County	East Cooper	10%
29481	61.6	59	COLLETON	Secondary	Outside Tri-County	10%
29449	38.8	60	CHARLESTON	Tri-County	West Ashley	10%
29451	39.5	60	CHARLESTON	Tri-County	East Cooper	10%
29118	60.3	60	ORANGEBURG	Secondary	Outside Tri-County	10%
29041	62.6	61	CLARENDON	Tertiary	Outside Tri-County	10%
29148	59.9	61	CLARENDON	Tertiary	Outside Tri-County	10%
29135	65.5	63	CALHOUN	Tertiary	Outside Tri-County	10%
29056	48.1	63	WILLIAMSBURG	Tertiary	Outside Tri-County	10%
29475	68.2	65	COLLETON	Secondary	Outside Tri-County	10%
29493	66.2	65	COLLETON	Secondary	Outside Tri-County	10%
29488	41.7	66	COLLETON	Secondary	Outside Tri-County	10%
29125	68.2	66	SUMTER	Tertiary	Outside Tri-County	10%
29039	61.6	67	ORANGEBURG	Secondary	Outside Tri-County	10%
29102	69.1	67	CLARENDON	Tertiary	Outside Tri-County	10%
29438	44.7	68	CHARLESTON	Tri-County	Sea Islands	10%
29487	45.9	68	CHARLESTON	Tri-County	Sea Islands	10%
29564	50.5	69	WILLIAMSBURG	Tertiary	Outside Tri-County	10%
29590	50.9	69	WILLIAMSBURG	Tertiary	Outside Tri-County	10%
29446	51.3	70	COLLETON	Secondary	Outside Tri-County	10%
29038	63.5	70	ORANGEBURG	Secondary	Outside Tri-County	10%
29001	74.8	70	CLARENDON	Tertiary	Outside Tri-County	10%
29051	80.5	70	CLARENDON	Tertiary	Outside Tri-County	10%

Attachment O:
Trident Health Updates and Extension Requests

Article #: 9214896900999790140838699 1

May 17, 2017

VIA EMAIL AND CERTIFIED MAIL
William R. Thomas
Parker Poe
1221 Main Street, Suite 1100
Columbia, SC 29201

Re: Request for an Extension of Certificate of Need No. SC-16-19
Project: Construction of a new 50 bed acute care hospital to include an MRI and CT scanner.
Berkeley Medical Center

Dear Mr. Thomas:

The South Carolina Department of Health and Environmental Control ("Department") has reviewed your request for an extension of the above referenced Certificate of Need ("Certificate" or "CON"). A Certificate is valid for one year from the date of issuance. SC Code § 44-7-230(D). If a project is not completed before the expiration of that year, or if progress on the project does not comply with the timetable set forth in the CON application, then the Department may revoke the Certificate. The holder of a CON may apply to the Department for an extension of the Certificate's expiration period pursuant to S.C. Code Regs. 61-15 sections 601 through 603. Initially, Department staff may grant up to two extensions of as long as nine months apiece upon a proper showing that substantial progress has been made in implementing the project. Subsequent extensions may only be granted by the Department's Board. SC Code § 44-7-230(D).

Based on the material you provided in support of your request, it is the decision of the Department to **grant you a nine (9) month initial extension** for Certificate No. SC-16-19. The Department's decision is based on the following findings:

- You have demonstrated that circumstances beyond the control of the applicant have prevented compliance with the Project's approved timetable, and
- You have provided the Department with reasonable assurance that the Project will be under construction or implemented within the requested extension period.

A copy of the Department's Guide to Board Review is enclosed for your convenience. Should you require further information, please contact me at (803) 545-3652.

Sincerely,

Louis Eubank
Director, Certificate of Need Program

Enclosures: Guide to Board Review.
CON SC-16-19-EXT-1

South Carolina Board of Health and Environmental Control

Guide to Board Review

Pursuant to S.C. Code Ann. § 44-1-60

The decision of the South Carolina Department of Health and Environmental Control (Department) becomes the final agency decision fifteen (15) calendar days after notice of the decision has been mailed to the applicant, permittee, licensee and affected persons who have requested in writing to be notified, unless a written request for final review accompanied by a filing fee in the amount of $100 is filed with Department by the applicant, permittee, licensee or affected person.

Applicants, permittees, licensees, and affected parties are encouraged to engage in mediation or settlement discussions during the final review process.

If the Board declines in writing to schedule a final review conference, the Department's decision becomes the final agency decision and an applicant, permittee, licensee, or affected person may request a contested case hearing before the Administrative Law Court within thirty (30) calendar days after notice is mailed that the Board declined to hold a final review conference. In matters pertaining to decisions under the South Carolina Mining Act, appeals should be made to the South Carolina Mining Council.

I. Filing of Request for Final Review

1. A written Request for Final Review (RFR) and the required filing fee of one hundred dollars ($100) must be received by Clerk of the Board within fifteen (15) calendar days after notice of the staff decision has been mailed to the applicant, permittee, licensee, or affected persons. If the 15th day occurs on a weekend or State holiday, the RFR must be received by the Clerk on the next working day. RFRs will not be accepted after 5:00 p.m.
2. RFRs shall be in writing and should include, at a minimum, the following information:
   - The grounds for amending, modifying, or rescinding the staff decision;
   - a statement of any significant issues or factors the Board should consider in deciding how to handle the matter;
   - the relief requested;
   - a copy of the decision for which review is requested; and
   - mailing address, email address, if applicable, and phone number(s) at which the requestor can be contacted.
3. RFRs should be filed in person or by mail at the following address:
   South Carolina Board of Health and Environmental Control
   Attention: Clerk of the Board
   2600 Bull Street
   Columbia, South Carolina 29201
   Alternatively, RFR's may be filed with the Clerk by facsimile (803-898-3393) or by electronic mail (boardclerk@dhec.sc.gov).
4. The filing fee may be paid by cash, check or credit card and must be received by the 15th day.
5. If there is any perceived discrepancy in compliance with this RFR filing procedure, the Clerk should consult with the Chairman or, if the Chairman is unavailable, the Vice-Chairman. The Chairman or the Vice-Chairman will determine whether the RFR is timely and properly filed and direct the Clerk to (1) process the RFR for consideration by the Board or (2) return the RFR and filing fee to the requestor with a cover letter explaining why the RFR was not timely or properly filed. Processing an RFR for consideration by the Board shall not be interpreted as a waiver of any claim or defense by the agency in subsequent proceedings concerning the RFR.
6. If the RFR will be processed for Board consideration, the Clerk will send an Acknowledgement of RFR to the Requestor and the applicant, permittee, or licensee, if other than the Requestor. All personal and financial identifying information will be redacted from the RFR and accompanying documentation before the RFR is released to the Board, Department staff or the public.
7. If an RFR pertains to an emergency order, the Clerk will, upon receipt, immediately provide a copy of the RFR to all Board members. The Chairman, or in his or her absence, the Vice-Chairman shall based on the circumstances, decide whether to refer the RFR to the RFR Committee for expedited review or to decline in writing to schedule a Final Review Conference. If the Chairman or Vice-Chairman determines review by the RFR Committee is appropriate, the Clerk will forward a copy of the RFR to Department staff and Office of General Counsel. A Department response and RFR Committee review will be provided on an expedited schedule defined by the Chairman or Vice-Chairman.
8. The Clerk will email the RFR to staff and Office of General Counsel and request a Department Response within eight (8) working days. Upon receipt of the Department Response, the Clerk will forward the RFR and Department Response to all Board members for review, and all Board members will confirm receipt of the RFR to the Clerk by email. If a Board member does not confirm receipt of the RFR within a twenty-four (24) hour period, the Clerk will contact the Board member and confirm receipt. If a Board member believes the RFR should be considered by the RFR Committee, he or she will

respond to the Clerk's email within forty-eight (48) hours and will request further review. If no Board member requests further review of the RFR within the forty-eight (48) hour period, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Final Review Conference. Contested case guidance will be included within the letter.
NOTE: If the time periods described above end on a weekend or State holiday, the time is automatically extended to 5:00 p.m. on the next business day.

9. If the RFR is to be considered by the RFR Committee, the Clerk will notify the Presiding Member of the RFR Committee and the Chairman that further review is requested by the Board. RFR Committee meetings are open to the public and will be public noticed at least 24 hours in advance.
10. Following RFR Committee or Board consideration of the RFR, if it is determined no Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Conference. Contested case guidance will be included within the letter.

II. Final Review Conference Scheduling

1. If a Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, informing the Requestor of the determination.
2. The Clerk will request Department staff provide the Administrative Record.
3. The Clerk will send Notice of Final Review Conference to the parties at least ten (10) days before the Conference. The Conference will be publically noticed and should:
   - include the place, date and time of the Conference;
   - state the presentation times allowed in the Conference;
   - state evidence may be presented at the Conference;
   - if the conference will be held by committee, include a copy of the Chairman's order appointing the committee; and
   - inform the Requestor of his or her right to request a transcript of the proceedings of the Conference prepared at Requestor's expense.
4. If a party requests a transcript of the proceedings of the Conference and agrees to pay all related costs in writing, including costs for the transcript, the Clerk will schedule a court reporter for the Conference.

III. Final Review Conference and Decision

1. The order of presentation in the Conference will, subject to the presiding officer's discretion, be as follows:
   - Department staff will provide an overview of the staff decision and the applicable law to include [10 minutes]:
     - Type of decision (permit, enforcement, etc.) and description of the program.
     - Parties
     - Description of facility/site
     - Applicable statutes and regulations
     - Decision and materials relied upon in the administrative record to support the staff decision.
   - Requestor(s) will state the reasons for protesting the staff decision and may provide evidence to support amending, modifying, or rescinding the staff decision. [15 minutes] *NOTE: The burden of proof is on the Requestor(s)*
   - Rebuttal by Department staff [15 minutes]
   - Rebuttal by Requestor(s) [10 minutes]
     Note: Times noted in brackets are for information only and are superseded by times stated in the Notice of Final Review Conference or by the presiding officer.
2. Parties may present evidence during the conference; however, the rules of evidence do not apply.
3. At any time during the conference, the officers conducting the Conference may request additional information and may question the Requestor, the staff, and anyone else providing information at the Conference.
4. The presiding officer, in his or her sole discretion, may allow additional time for presentations and may impose time limits on the Conference.
5. All Conferences are open to the public.
6. The officers may deliberate in closed session.
7. The officers may announce the decision at the conclusion of the Conference or it may be reserved for consideration.
8. The Clerk will mail the written final agency decision (FAD) to parties within 30 days after the Conference. The written decision must explain the basis for the decision and inform the parties of their right to request a contested case hearing before the Administrative Law Court or in matters pertaining to decisions under the South Carolina Mining Act, to request a hearing before the South Carolina Mining Council.. The FAD will be sent by certified mail, return receipt requested.
9. Communications may also be sent by electronic mail, in addition to the forms stated herein, when electronic mail addresses are provided to the Clerk.

The above information is provided as a courtesy; parties are responsible for complying with all applicable legal requirements.

South Carolina Department of Health and Environmental Control

Certificate of Need

SC-16-19-EXT-1

IS HEREBY ISSUED TO FACILITY: Berkeley Medical Center

FACILITY LOCATION: Moncks Corner, South Carolina
Berkeley County

LICENSEE: Trident Medical Center, LLC

AGENT: Jim Rardin

FOR: Construction of a new 50 bed acute care hospital to include an MRI and CT scanner.

TOTAL PROJECT COST: $115,000,000

This Certificate is being issued in accordance with the Code of Laws of South Carolina.

In determining the need for this project, the South Carolina Department of Health and Environmental Control has taken into consideration the "Criteria for Project Review" and the South Carolina Health Plan as established in the "State Certification of Need and Health Facility Licensure Act," S.C. Code Ann. 44-7-110 et seq. and Regulation 61-15, "Certification of Need for Health Facilities and Services."

This Certificate of Need is valid until February 26, 2018 which is a period of nine (9) months from the date of prior Certificate of Need expiration unless the applicant receives an additional extension from the Department in accordance with applicable regulations.

Witness to this Certificate is confirmed by my signature and the seal of the Department of Health and Environmental Control this 17th day of May.

Louis W. Eubank
Director, Certificate of Need Program

dhec
Healthy People. Healthy Communities

Parker Poe

William R. Thomas
Partner
Telephone: 803.253.8658
Direct Fax: 803.255.8017
willthomas@parkerpoe.com

Atlanta, GA
Charleston, SC
Charlotte, NC
Columbia, SC
Greenville, SC
Raleigh, NC
Spartanburg, SC

April 24, 2017

SCDHEC Received: APR 24 2017 Certificate of Need Program

VIA HAND DELIVERY

Louis W. Eubank, MSW, MPH
Director, Certificate of Need Program
Bureau of Health Facilities and Services Development
SC Department of Health and Environmental Control
301 Gervais Street
Columbia, South Carolina 29201

Re: SC-16-19; Application No. 1803
Trident Medical Center, LLC d/b/a Berkeley Medical Center
Construction of New 50 Bed Hospital to Include an MRI and CT Scanner

FIRST EXTENSION REQUEST AND QUARTERLY PROGRESS REPORT

Dear Mr. Eubank:

On behalf of Trident Medical Center, LLC d/b/a Berkeley Medical Center ("|BMC") and pursuant to S.C. Reg. 61-15, Sections 601, 602, and 607, we are submitting our first request for an extension and quarterly progress report in connection with the above-referenced Certificate of Need. As required, we are forwarding this extension request more than thirty (30) days prior to the expiration date of the Certificate of Need, and we are providing the information required under Section 602(2) and Section 607(2).

a. A detailed description of any changes in the configuration, costs, services, or scope of the project.

RESPONSE: Thus far, there have been no deviations from the submitted application. However, because of recently discovered wetlands issues, the actual placement of the hospital on the site may change, as well as the facility configuration on the site. To date BMC has incurred approximately $25,000 in costs representing the Department's fees, land surveying and wetland's study costs, and has purchased the property site for approximately $2,150,000.

b. A detailed description and documentation of any progress on the project including preparation of construction drawings, the securing of necessary funds and building permits, and commencement of any construction.

RESPONSE: Conceptual site plans have been drawn for the proposed hospital. However, BMC has incurred delays due to the discovery of a wetlands ditch during site review. This ditch will need to be

relocated to the back of the property site in order to build on the property. In connection with the wetlands ditch relocation, BMC is currently in the design and permitting stages, and working with the Corp of Engineers. BMC anticipates site work involving the ditch to begin after May 2017 and completed in early fall of 2017.

c. An estimated timetable for commencement and completion of all remaining components of the project.

RESPONSE: Once the wetlands issue has been resolved, BMC will begin working with its corporate construction and engineering teams, as well as outside architects to value engineer the hospital project and prepare construction drawings. BMC anticipates that this phase of the project to begin towards the end of 2017, with construction beginning in Spring of 2018.

d. Documentation of compliance with the approved timetable or documented evidence that extenuating circumstances beyond the control of the applicant if the timetable was not met.

RESPONSE: This project has been delayed due to a wetland's issue which is currently being addressed. As mentioned in earlier progress reports, BMC has expended $2.15 million to acquire the land for the project.

Accordingly, BMC respectfully requests that the Department issue a nine-month extension of the May 26, 2017 expiration date of CON SC-16-19.

Should you have any questions, please do not hesitate to contact me.

With best regards, I am

Sincerely,

William R. Thomas

WRT/ccq

Parker Poe

William R. Thomas
Partner
Telephone: 803.253.8658
Direct Fax: 803.255.8017
willthomas@parkerpoe.com

Atlanta, GA
Charleston, SC
Charlotte, NC
Columbia, SC
Greenville, SC
Raleigh, NC
Spartanburg, SC

July 28, 2017

SCDHEC Received JUL 31 2017 Certificate of Need Program

VIA EMAIL AND U.S. MAIL

Margaret P. Murdock
Senior Consultant, Certificate of Need
SC Department Of Health And Environmental Control
301 Gervais Street
Columbia, South Carolina 29201

Re: SC-16-19; Application No. 1803
Trident Medical Center, LLC d/b/a Berkeley Medical Center
Construction of a New 50 Bed Hospital to Include an MRI and CT Scanner
QUARTERLY PROGRESS REQUEST

Dear Ms. Murdock:

On behalf of Trident Medical Center, LLC d/b/a Berkeley Medical Center ("BMC") and pursuant to S.C. Code of Regulations 61-15, §607, we are submitting a progress report for your records in connection with the above-referenced Certificate of Need.

1. **Costs incurred on the project.** To date BMC has incurred approximately $25,000 in costs representing the Department's fees, land surveying and wetland's study costs, and has purchased the property site for approximately $2,150,000.

2. **Construction activity.** There has been no construction to date. Conceptual site plans have been drawn for the proposed hospital. However, BMC continues to incur delays due to the discovery of a wetlands ditch during site review. As mentioned in the previous report, this ditch will need to be relocated to the back of the property site in order to build on the property. In connection with the wetlands ditch relocation, BMC is still waiting to receive the permits to move the wetlands ditch.

3. **Program or service activity.** No services are being offered at this time.

4. **Any deviations from the submitted application with supporting documentation.** There have been no deviations from the submitted application aside from the project being delayed due to the wetlands issue mentioned above. However, given Roper St. Francis' construction of a 50 bed hospital just a few miles away from Trident's proposed Moncks Corner location, and Roper's recent CON application submissions to the Department for catheterization and radiation therapy services at its Goose Creek hospital site, Trident continues to explore ways to optimize its project in the Moncks Corner community. Roper's addition of catheterization and radiation therapy services further complicates Trident's assessment of the overall operational and financial impact that Roper's Berkeley County hospital project will have on its proposed Moncks Corner hospital, and its existing operations. Roper applied for a 50 bed community hospital, but is now adding services that are indicative of a tertiary care hospital, well before its hospital construction is complete.

Should you have any questions, please do not hesitate to contact me. With best regards, I am

Sincerely,

William R. Thomas

WRT/ccq

Parker Poe

William R. Thomas
Partner
Telephone: 803.253.8658
Direct Fax: 803.255.8017
willthomas@parkerpoe.com

Atlanta, GA
Charleston, SC
Charlotte, NC
Columbia, SC
Greenville, SC
Raleigh, NC
Spartanburg, SC

August 29, 2016

SCDHEC Received
AUG 31 2016
Certificate of Need Program

VIA EMAIL
Louis W. Eubank, MSW, MPH
Director, Certificate of Need Program
Bureau of Health Facilities and Services Development
SC Department of Health and Environmental Control
301 Gervais Street
Columbia, South Carolina 29201

Re: SC-16-19; Application No. 1803
Trident Medical Center, LLC d/b/a Berkeley Medical Center
Construction of a New 50 Bed Hospital to Include an MRI and CT Scanner
QUARTERLY PROGRESS REQUEST

Dear Mr. Eubank:

On behalf of Trident Medical Center, LLC d/b/a Berkeley Medical Center ("BMC") and pursuant to S.C. Code of Regulations 61-15, §607, we are submitting a progress report for your records in connection with the above-referenced Certificate of Need.

1. **Costs incurred on the project.** To date, approximately $25,000 in costs representing the DHEC fees, land surveying and wetland's study costs have been incurred on the project.

2. **Construction activity.** There has been no construction activity to date.

3. **Program or service activity.** No services are being offered at this time.

4. **Any deviations from the submitted application with supporting documentation.** There have been no deviations from the submitted application.

Should you have any questions, please do not hesitate to contact me. With best regards, I am

Sincerely,

William R. Thomas

WRT/ccq

Parker Poe

William R. Thomas
Partner
Telephone: 803.253.8658
Direct Fax: 803.255.8017
willthomas@parkerpoe.com

Atlanta, GA
Charleston, SC
Charlotte, NC
Columbia, SC
Greenville, SC
Raleigh, NC
Spartanburg, SC

October 20, 2017

SCDHEC Received
OCT 20 2017
Certificate of Need Program

VIA HAND DELIVERY

Margaret P. Murdock, Esquire
Director, Certificate of Need Program
Bureau of Healthcare Planning and Construction
SC Department of Health and Environmental Control
301 Gervais Street
Columbia, South Carolina 29201

Re: SC-16-19; Application No. 1803
Trident Medical Center, LLC d/b/a Berkeley Medical Center
Construction of a New 50 Bed Hospital to Include an MRI and CT Scanner
QUARTERLY PROGRESS REQUEST

Dear Ms. Murdock:

On behalf of Trident Medical Center, LLC d/b/a Berkeley Medical Center ("BMC") and pursuant to S.C. Code of Regulations 61-15, §607, we are submitting a progress report for your records in connection with the above-referenced Certificate of Need.

1. **Costs incurred on the project.** To date BMC has incurred approximately $25,000 in costs representing the Department's fees, land surveying and wetland's study costs, and has purchased the property site for approximately $2,150,000.

2. **Construction activity.** There has been no construction to date. As stated in our July report, conceptual site plans have been drawn for the proposed hospital. However, BMC continues to incur delays in starting construction due to the discovery of a wetlands issue during site review. In connection with the wetlands issue, BMC is working with the Department of the Army. *See* also Department of the Army's September 22, 2017 correspondence attached hereto.

3. **Program or service activity.** No services are being offered at this time.

4. **Any deviations from the submitted application with supporting documentation.** There have been no deviations from the submitted application aside from the project being delayed due to the wetlands issue mentioned above. However, given Roper St. Francis' construction of a 50 bed hospital just a few miles away from Trident's proposed Moncks Corner location, and Roper's recent CON application submissions to the Department for catheterization and radiation therapy services at its Goose Creek hospital site, Trident continues to explore ways to optimize its project in the Moncks Corner community. Roper's addition of cath and radiation therapy services further complicates Trident's

assessment of the overall operational and financial impact that Roper's Berkeley County hospital project will have on its proposed Moncks Corner hospital, and its existing operations. Roper applied for a 50 bed community hospital, but is now adding services that are indicative of a tertiary care hospital, well before its hospital construction is complete.

Should you have any questions, please do not hesitate to contact me.

With best regards, I am

Sincerely,

William R. Thomas

WRT/ccq
Enclosure

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

SEP 22 2017

Regulatory Division

Mr. Bret Davis
S&ME, Inc.
620 Wando Park Boulevard
Mt. Pleasant, South Carolina 29464

Dear Mr. Davis:

This letter is in response to a Department of the Army (DA) permit application (SAC-2016-00782) dated August 7, 2017, which was received by our office on August 7, 2017. The work affecting waters of the United States is part of an overall project known as Trident Site, to construct a new health care facility and associated infrastructure. The project involves impacts to not more than 825 linear feet of intermittent/perennial streams. The project is located at 401 North Live Oak Drive, at the intersection of U.S. Highway 52, in Moncks Corner, Berkeley County, South Carolina (Latitude: 33.2035 °N, Longitude: -79.9931 °W).

The project as proposed does not meet the terms and conditions of a Nationwide Permit and therefore must be evaluated as an Individual Permit. Additional information is required for this proposed project to inform our review. Please submit the following:

1. A list of all adjacent property owners and their addresses. If there are more than fifteen (15) adjacent property owners, please provide mailing labels.

2. Direction of stream flow must be clearly indicated on the detailed plan.

3. Please provide both the acreage and linear footage of the proposed impacts to waters of the United States.

4. Impacts to Waters of the U.S. must be avoided to the maximum extent practicable and unavoidable impacts must be minimized. In the case of the proposed project, such steps may include, but may not be limited to, utilizing the upland portions of the site to the west of the existing facility or constructing a culverted stream crossing to access the upland areas of the site. Please provide the avoidance and minimization steps that were evaluated for this project.

5. The applicant should provide an alternatives analysis which demonstrates that there are no practicable alternatives to the proposed discharge which would have less adverse impact on the aquatic ecosystem.

6. A compensatory mitigation plan that is in compliance with the 2008 Compensatory Mitigation Rule and the Charleston District SOP. Please visit our website at

www.sac.usace.army.mil for more information regarding mitigation. The applicant currently proposes to reroute an existing stream on the project site, however no mitigation is proposed. To support this request, the applicant should provide mitigation worksheets that demonstrate the required number of credits based on the stream channel in its current state. In addition, the applicant should provide mitigation worksheets that demonstrate the number of credits that the rerouted, new stream channel would generate.

It is requested that you provide this office with the above information by **October 9, 2017**. If we do not hear from you by this date, we will consider your application to be withdrawn from further processing.

In all future correspondence concerning this matter, please refer to file number SAC-2016-00782. If you have any questions concerning this matter, please contact me at (843) 329-8027.

Sincerely,

Courtney M. Stevens
Project Manager

Copy Furnished:

Mr. Ron Woods
HCA Corporate Real Estate
One Park Plaza
Nashville, Tennessee 37203

Parker Poe

William R. Thomas
Partner
Telephone: 803.253.8658
Direct Fax: 803.255.8017
willthomas@parkerpoe.com

Atlanta, GA
Charleston, SC
Charlotte, NC
Columbia, SC
Greenville, SC
Raleigh, NC
Spartanburg, SC

December 15, 2016

SCDHEC Received: DEC 15 2016 Certificate of Need Program

VIA HAND DELIVERY

Louis W. Eubank, MSW, MPH
Director, Certificate of Need Program
Bureau of Health Facilities and Services Development
SC Department of Health and Environmental Control
301 Gervais Street
Columbia, South Carolina 29201

Re: SC-16-19; Application No. 1803
Trident Medical Center, LLC d/b/a Berkeley Medical Center
Construction of a New 50 Bed Hospital to Include an MRI and CT Scanner
QUARTERLY PROGRESS REQUEST

Dear Mr. Eubank:

On behalf of Trident Medical Center, LLC d/b/a Berkeley Medical Center and pursuant to S.C. Code of Regulations 61-15, §607, we are submitting a progress report for your records in connection with the above-referenced Certificate of Need.

1. **Costs incurred on the project.** To date, approximately $25,000 in costs representing the DHEC fees, land surveying and wetland's study costs have been incurred on the project.

2. **Construction activity.** There has been no construction activity to date. However, as of December 6, 2016, Trident has closed on the property where the project is to be located.

3. **Program or service activity.** No services are being offered at this time.

4. **Any deviations from the submitted application with supporting documentation.** There have been no deviations from the submitted application. However, given Roper St. Francis' construction of a 50 bed hospital just a few miles away from Trident's proposed Moncks Corner location, Trident is exploring ways to optimize the project for the Moncks Corner community while decreasing the obvious operational and financial impact that Roper's Berkeley County project will have.

Should you have any questions, please do not hesitate to contact me. With best regards, I am

Sincerely,

William R. Thomas

WRT/ccq

Attachment P:
Trident Articles and Wetlands Permit

https://www.journalscene.com/archives/court-hospitals-can-be-built-in-berkeley-county/article_64d49050-f903-59c9-9873-cdea1064aa28.html

Court: 2 hospitals can be built in Berkeley County

Dan Brown Sep 26, 2012

A South Carolina Law Administrative Law Court ruling that Berkeley County can support two hospitals was announced Wednesday, and is a victory for Roper St. Francis Healthcare, which wants to build a hospital near Goose Creek.

The ruling is a setback for Trident Health System, which has planned to build a 50-bed facility in Moncks Corner, and has maintained that Berkeley County could not support two such facilities.

The two hospitals have been battling in the press and courts for more than three years. The ruling favors Roper St. Francis, which plans to move forward with construction on its long-awaited hospital in the Carnes Crossroads community in Goose Creek. The judgment upheld an earlier Department of Health and Environmental Control (DHEC) decision allowing for two hospitals to be built in Berkeley County.

In the order provided by Judge John D. McLeod, the judge agreed with the DHEC decision.

"I find that Berkeley's population size is well able to support two 50-bed hospitals," McLeod said. "Trident's position that both hospitals will financially fail if both are approved is inconsistent with Trident's financials and its application.

"I find the overwhelming evidence admitted at trial proved that both hospitals are needed and both hospitals in Berkeley County will be financially successful."

In a statement released after the ruling, Roper St. Francis reiterated its position about the Berkeley County market being able to support two hospitals.

"Roper St. Francis is very pleased that the court has upheld DHEC's 2009 decision to allow both hospitals, but it is the residents of Berkeley County who have won," said David Dunlap, president and CEO of Roper St. Francis Healthcare. "Roper St. Francis has fought hard for Berkeley County for more than three years on this issue. We have not wavered in the position that both hospitals, proposed for two different areas, are needed and would be supported."

In a release Wednesday, Trident expressed its disappointment in the ruling.

"Under this scenario, Trident cannot build a hospital in Moncks Corner," said Trident CEO Todd Gallati. "We do not want to be a part of a process which promotes unnecessary spending of healthcare dollars to duplicate services."

Roper disagrees with Trident's assessment and hopes both healthcare providers will put the legal wrangling behind them and get on with the process of building long overdue hospitals in Berkeley County.

"We hope that all sides will respect the court's decision and that there will be no further legal delays in bringing a Roper St. Francis hospital to Carnes Crossroads and a hospital in Monck's Corner as promised by Trident Health System," Dunlap said. "Berkeley County continues to be one of the fastest growing counties in South Carolina, and is currently the largest county in the state without a hospital.

"It is time to put the legal fighting behind us, and move forward."

As part of the legal process, Trident now has 10 days to reply to the decision by requesting a reconsideration if desired. According to Wednesday's statement, Trident plans to appeal the ruling: "Trident will continue to work for what's best for the residents of Berkeley County and intends to appeal the Administrative Law Court's decision to a higher court."

Dunlap expressed similar support for Berkeley County residents, citing 2011 figures stating Roper doctors and medical teams provided more than 70,000 medical treatments to Berkeley residents who came to a Roper hospital.

"They reached out to Roper St. Francis asking that we build a hospital closer to their homes," Dunlap said. "We listened. Now we look forward to getting started on building the hospital they want and need."

https://www.postandcourier.com/business/trident-buys-site-of-planned-moncks-corner-hospital-no-immediate/article_cfe15028-bc9a-11e6-a67c-3b79a20d1e4c.html

TOP STORY

Trident buys site of planned Moncks Corner hospital; no 'immediate' plans

By John McDermott jmcdermott@postandcourier.com Dec 7, 2016

The 21-acre tract that Trident Health bought is next to its existing Moncks Corner Medical Center. File/Staff

Buy Now

Trident Health has acquired a 21-acre tract in Moncks Corner where the medical provider had been weighing plans for years for a full-service hospital.

The $2.15 million sale closed Dec. 2. The deed was recorded with Berkeley County on Tuesday.

"We have no immediate plans to build on the site," Trident CEO Todd Gallati said in a written statement Wednesday.

Company spokesman Rod Whiting elaborated only slightly, saying the land purchase "is connected with looking at what our future needs are in that rapidly growing area."

Trident Medical Center LLC bought the undeveloped property near U.S. Highway 17-A and Highway 52 from Cooper Investors LLC. It is next to the health care system's Moncks Corner Medical Center, which opened in 1983.

This summer, Trident asked the Army Corps of Engineers for a determination about the type of wetlands on the newly acquired property.

It all suggests that Trident is seriously leaning toward construction of a hospital in Berkeley County, almost a year after it ran out of legal options to block a rival project.

Last December, the state Supreme Court declined to review a decision allowing Roper St. Francis and Trident to each build full-blown medical centers in the county. The ruling allowed both projects to go forward.

The legal scuffle began in mid-2009, after Trident and Roper each proposed new 50-bed hospitals offering similar services 12 miles apart to serve a fast-growing part of the Charleston region.

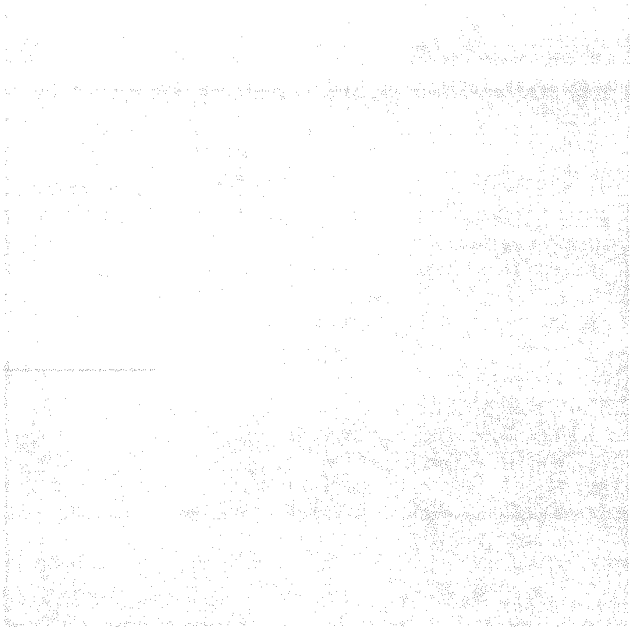
Trident, which is part of Nashville-based HCA Corp., was first to file its paperwork. It argued the county could support only one of the projects.

Roper submitted its rival proposal a few months later, saying it would move 50 beds to its planned site in the Carnes Crossroads area from downtown Charleston.

State health regulators approved both deals in June 2009, prompting Trident to start the lengthy and ultimately unsuccessful appeals process. It has not commented publicly since then about whether it would move ahead with the Moncks Corner expansion.

Roper already has started work on its new hospital campus. It plans to be treating patients in 2019.

Contact **John McDermott** at 843-937-5572 or follow him on Twitter at @byjohnmcdermott



Todd Gallati, president of Trident Health. Photo provided.

Buy Now

John McDermott

https://www.postandcourier.com/business/filing-outlines-new-trident-health-hospital-in-moncks-corner-company/article_ef59262c-d9ce-11e7-ad54-075ae2f221d3.html

TOP STORY

Filing outlines new Trident Health hospital in Moncks Corner; company says there are no immediate plans

By David Wren dwren@postandcourier.com Dec 5, 2017 Updated Dec 5, 2017

Trident Health filed a permit application this week with the Army Corps of Engineers that states the health care company proposes a 140-bed hospital adjacent to its current Moncks Corner Medical Center. Company officials say there are no immediate plans for such a facility. Provided/Trident Health

Trident Health has filed an application with federal regulators that proposes a full-service hospital adjacent to its existing Moncks Corner Medical Center, but company officials say the only work planned at this time is drainage improvements.

"While we don't have any plans at this time to build a hospital on this site, we believed it necessary to improve the drainage plan should we develop the land in the future," said Todd Gallati, CEO of Trident Medical Center.

Trident Health is asking the Army Corps of Engineers for permission to fill 0.02 acres of freshwater wetlands and about 824 feet of a stream on the property near the intersection of U.S. Highways 17-A and 52.

The company, part of Nashville-based HCA Corp., bought the 21-acre site a year ago for $2.15 million.

"The project purpose is to provide additional healthcare facilities in the growing Moncks Corner and Berkeley County areas," Trident Health's application states, adding the project would include a hospital with about 140 beds, a 480-vehicle parking area and access roads.

However, Gallati said the application is only intended to put Trident Health in a better position should it one day decide to build a hospital.

"We want to be prepared for the future," he said.

The Army Corps is taking public comments on the proposal through Dec. 18. The state's Department of Health and Environmental Control also must give its approval.

The permit application comes roughly two years after Trident Health ran out of legal options to block a rival project in Berkeley County.

The state's Supreme Court in 2015 declined to review a lower court's ruling allowing Roper St. Francis and Trident Health to each build full-service medical centers in the county. That decision allowed both projects to go forward.

The legal dispute began in mid-2009 after Trident Health and Roper St. Francis each proposed 50-bed hospitals offering similar services 12 miles apart to serve the fast-growing area. Trident Health, which filed its paperwork first, argued the county's population could only support one of the projects.

State health regulators approved both hospitals in June 2009, prompting Trident Health to begin the lengthy and ultimately unsuccessful appeals process.

Trident Health also wouldn't confirm plans for a new hospital when it first purchased the Moncks Corner site from Cooper Investors LLC in December 2016.

"We have no immediate plans to build on the site," Gallati said at the time.

Roper St. Francis has already started work on its $113 million hospital in Berkeley County, which is scheduled to open in 2019 in the Carnes Crossroads area along U.S. Highway 17-A — about 12 miles from the Trident Health site. That hospital will include 50 beds, an emergency department and several specialty departments.

The Post and Courier staff writer **Lauren Sausser** contributed to this report.

Reach David Wren at 843-937-5550 or on Twitter at @David_Wren_

Wetlands permit

To view the public notice for Trident Health's application for a wetlands permit, visit: https://tinyurl.com/yahu2fn6

To comment on Trident Health's application for a wetlands permit, write to: Army Corps of Engineers; Regulatory Division; 69-A Hagood Ave.; Charleston, S.C.; 29403

David Wren

JOINT
PUBLIC NOTICE

CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A Hagood Avenue
Charleston, South Carolina 29403-5107
and
THE S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Water Quality Certification and Wetlands Section
2600 Bull Street
Columbia, South Carolina 29201

REGULATORY DIVISION
Refer to: P/N SAC-2016-00782 December 4, 2017

Pursuant to Sections 401 and 404 of the Clean Water Act (33 U.S.C. 1344) and the South Carolina Coastal Zone Management Act (48-39-10 et.seq.), an application has been submitted to the Department of the Army and the S.C. Department of Health and Environmental Control by

Mr. Ron Woods
HCA Corporate Real Estate
One Park Plaza
Nashville, Tennessee 37203

for a permit to expand an existing healthcare facility in freshwater wetlands of

the Cooper River/Trail Race Canal

at the corner of U.S. Highway 17A and U.S. Highway 52, Berkeley County, South Carolina (Latitude: 33.2035 °N, Longitude: -79.9931 °W), Cordesville Quadrangle.

In order to give all interested parties an opportunity to express their views

NOTICE

is hereby given that written statements regarding the proposed work will be received by the **Corps** until

15 Days from the Date of this Notice,

and **SCDHEC** will receive written statements regarding the proposed work until

30 Days from the Date of this Notice

from those interested in the activity and whose interests may be affected by the proposed work.

The proposed work consists of the expansion of an existing healthcare facility to include a medical building and associated infrastructure. In detail, the proposed project would include the placement of fill material in 0.02 acres of freshwater wetlands and 824.33 linear feet of perennial tributary for the construction of a healthcare building with approximately 140 beds, a parking area with 480 parking spaces, and associated access roads. The applicant has proposed to re-route and replace the perennial tributary onsite with a feature similar in purpose, profile, and drainage

capacity totaling 828.89 linear feet to maintain current stormwater drainage needs. The applicant stated that the proposed relocation of the tributary replicates the function and drainage capabilities of the existing feature and should be considered self-mitigating, as no loss of function or habitat is occuring. In addition, the applicant has not proposed to mitigate for impacts to 0.02 acre of freshwater wetlands. The project purpose is to provide additional healthcare facilities in the growing Moncks Corner and Berkeley County areas.

NOTE: This public notice and associated plans are available on the Corps' website at: http://www.sac.usace.army.mil/Missions/Regulatory/PublicNotices .

The District Engineer has concluded that the discharges associated with this project, both direct and indirect, should be reviewed by the South Carolina Department of Health and Environmental Control in accordance with provisions of Section 401 of the Clean Water Act. As such, this notice constitutes a request, on behalf of the applicant, for certification that this project will comply with applicable effluent limitations and water quality standards. The work shown on this application must also be certified as consistent with applicable provisions of the Coastal Zone Management Program (15 CFR 930). This activity may also require evaluation for compliance with the S. C. Construction in Navigable Waters Permit Program. State review, permitting and certification is conducted by the S. C. Department of Health and Environmental Control. The District Engineer will not process this application to a conclusion until such certifications are received. The applicant is hereby advised that supplemental information may be required by the State to facilitate the review.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. Implementation of the proposed project would impact 0.02 acres and 828.89 linear feet of freshwater wetlands and other waters, upstream of estuarine substrates and emergent wetlands utilized by various life stages of species comprising the shrimp, and snapper-grouper management complexes. The District Engineer's initial determination is that the proposed action would not have a substantial individual or cumulative adverse impact on EFH or fisheries managed by the South Atlantic Fishery Management Council and the National Marine Fisheries Service (NMFS). The District Engineer's final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

Pursuant to the Section 7 of the Endangered Species Act of 1973 (as amended), the Corps has reviewed the project area, examined all information provided by the applicant, and the District Engineer has determined, based on the most recently available information that the project will have no effect on any Federally endangered, threatened, or proposed species and will not result in the destruction or adverse modification of designated or proposed critical habitat. This public notice serves as a request to the U.S. Fish and Wildlife Service and the National Marine Fisheries Service for any additional information they may have on whether any listed or proposed endangered or threatened species or designated or proposed critical habitat may be present in the area which would be affected by the activity.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), this public notice also constitutes a request to Indian Tribes to notify the District Engineer of any historic properties of religious and cultural significance to them that may be affected by the proposed undertaking.

In accordance with Section 106 of the NHPA, the District Engineer has consulted South Carolina ArchSite (GIS), for the presence or absence of historic properties (as defined in 36

C.F.R. 800.16(*l*)(1)), and has initially determined that no historic properties are present; therefore, there will be no effect on historic properties. To ensure that other historic properties that the District Engineer is not aware of are not overlooked, this public notice also serves as a request to the State Historic Preservation Office and any other interested parties to provide any information they may have with regard to historic properties. This public notice serves as a request for concurrence within 30 days from the SHPO (and/or Tribal Historic Preservation Officer).

The District Engineer's final eligibility and effect determination will be based upon coordination with the SHPO and/or THPO, as appropriate and required and with full consideration given to the proposed undertaking's potential direct and indirect effects on historic properties within the Corps-identified permit area.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state, with particularity, the reasons for holding a public hearing.

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the activity on the public interest and will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency (EPA), under authority of Section 404(b) of the Clean Water Act and, as appropriate, the criteria established under authority of Section 102 of the Marine Protection, Research and Sanctuaries Act of 1972, as amended. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the project must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the project will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production and, in general, the needs and welfare of the people. A permit will be granted unless the District Engineer determines that it would be contrary to the public interest. In cases of conflicting property rights, the Corps cannot undertake to adjudicate rival claims.

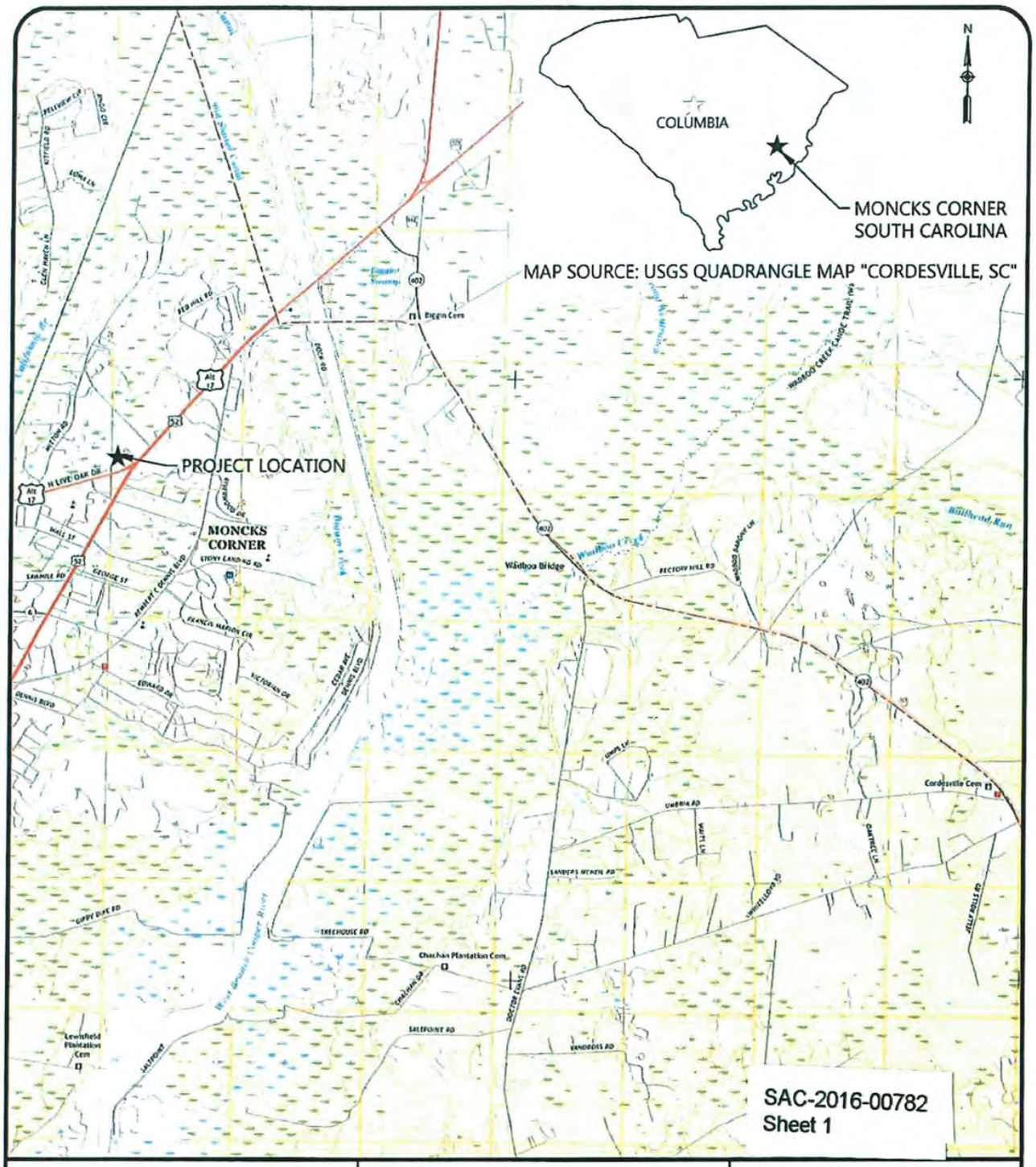
The Corps is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this project. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity. **Please submit comments in writing, identifying the project of interest by public notice number, to the following address:**

U.S. Army Corps of Engineers
ATTN: REGULATORY DIVISION
69A Hagood Avenue
Charleston, South Carolina 29403-5107

REGULATORY DIVISION
SAC-2016-00782

December 4, 2017

If there are any questions concerning this public notice, please contact Courtney M. Stevens, Project Manager, at (843) 329-8027 or toll free at 1-866-329-8187.



1615 EDGEWATER DRIVE, SUITE 200, ORLANDO, FLORIDA 32804 T 407.975.1273 F 407.975.1278 www.smeinc.com	PROJECT: MONCKS CORNER DRAINAGE & REGRADING Moncks Corner, SC	TITLE: LOCATION MAP	
		PROJ # 527116069	EXHIBIT NO. 1
		DATE: 10/19/2017	

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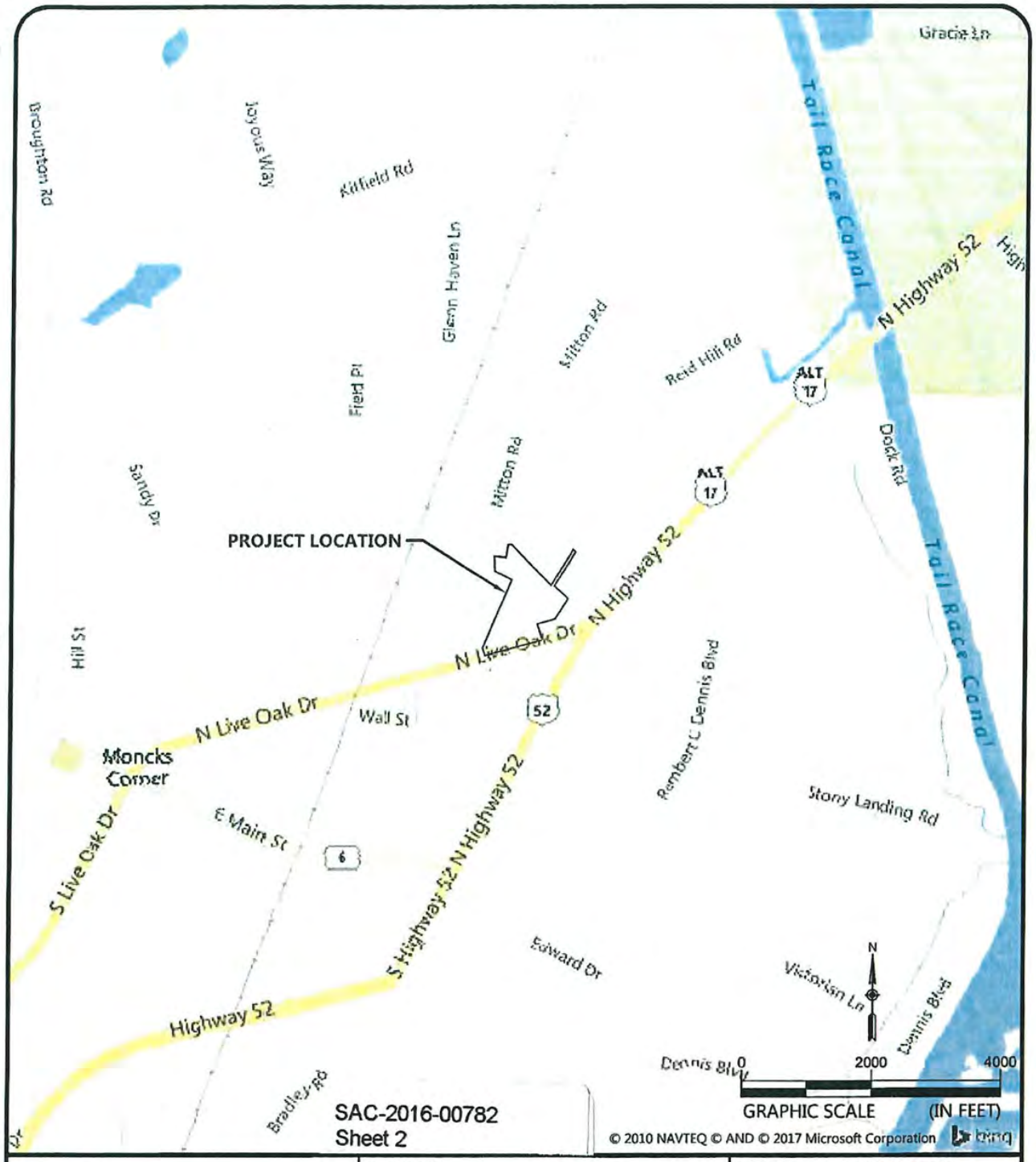
DHEC CON 000453



1615 EDGEWATER DRIVE,
SUITE 200.
ORLANDO, FLORIDA 32804
T 407.975.1273
F 407.975.1278
www.smeinc.com

PROJECT:
MONCKS CORNER
DRAINAGE & REGRADING
Moncks Corner, SC

TITLE: VICINITY MAP

PROJ # 527116069

EXHIBIT NO. 2

DATE: 10/19/2017

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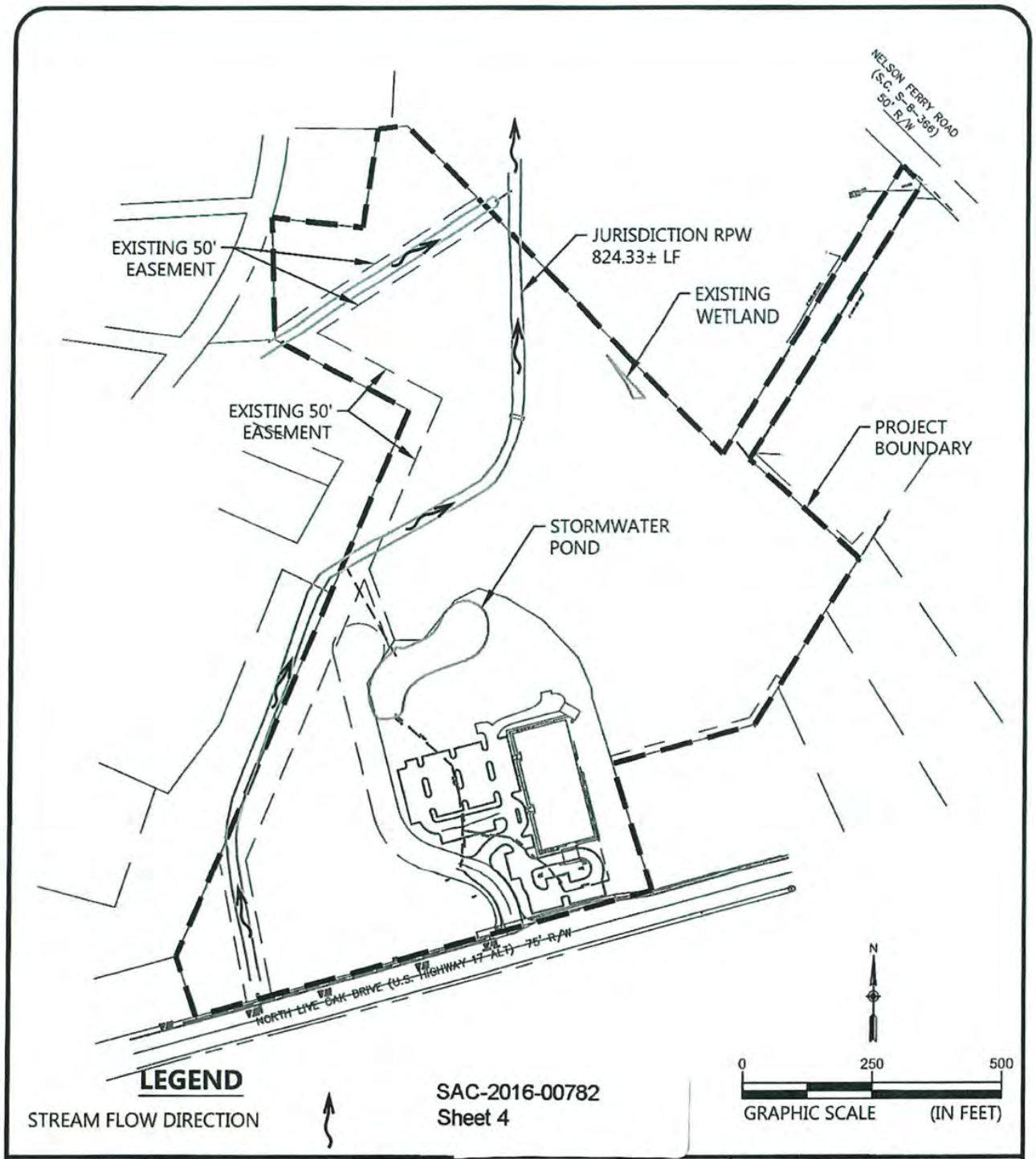

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Moncks Corner, SC

TITLE: EXISTING CONDITIONS

PROJ # 527116069

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DATE: 10/19/2017

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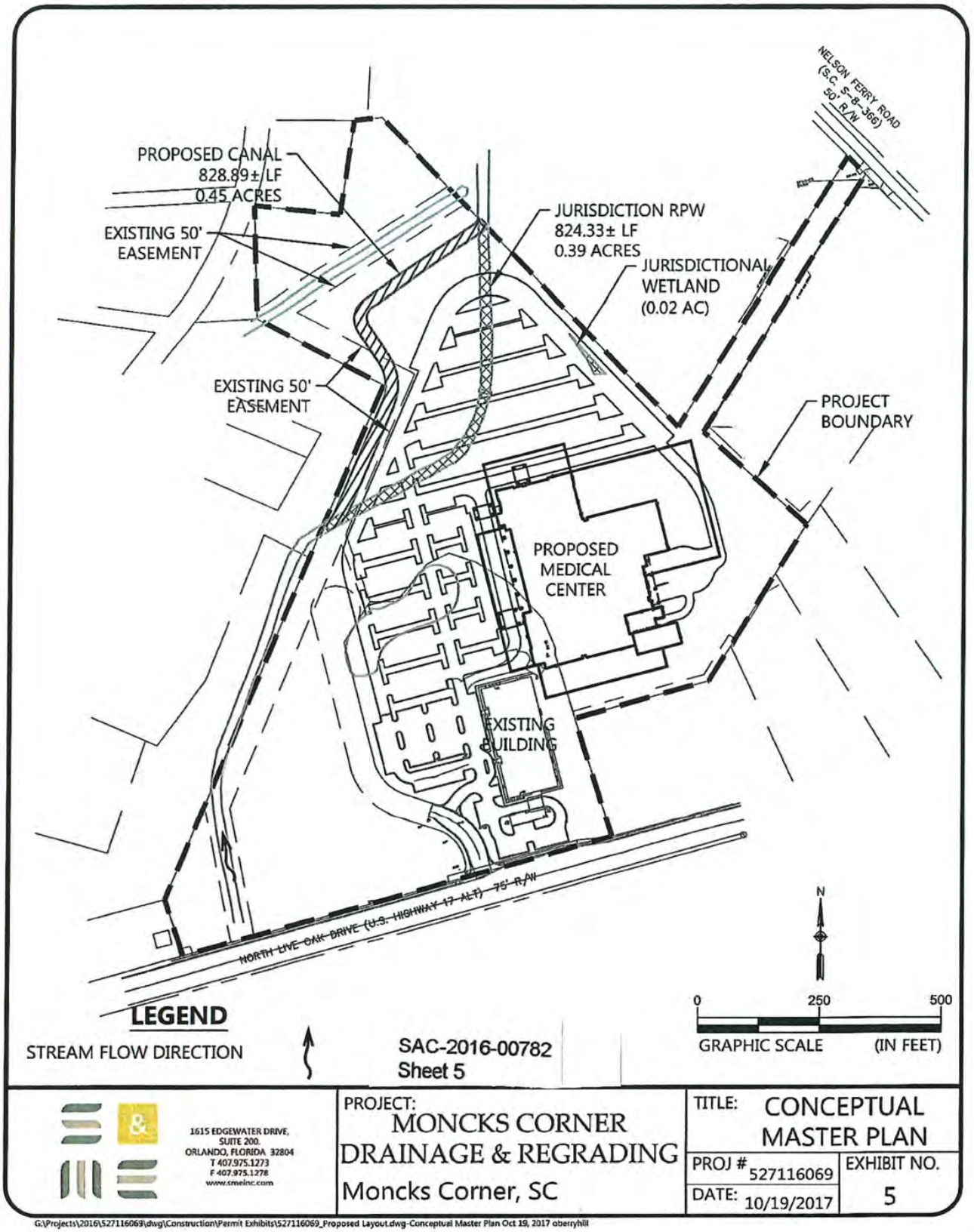

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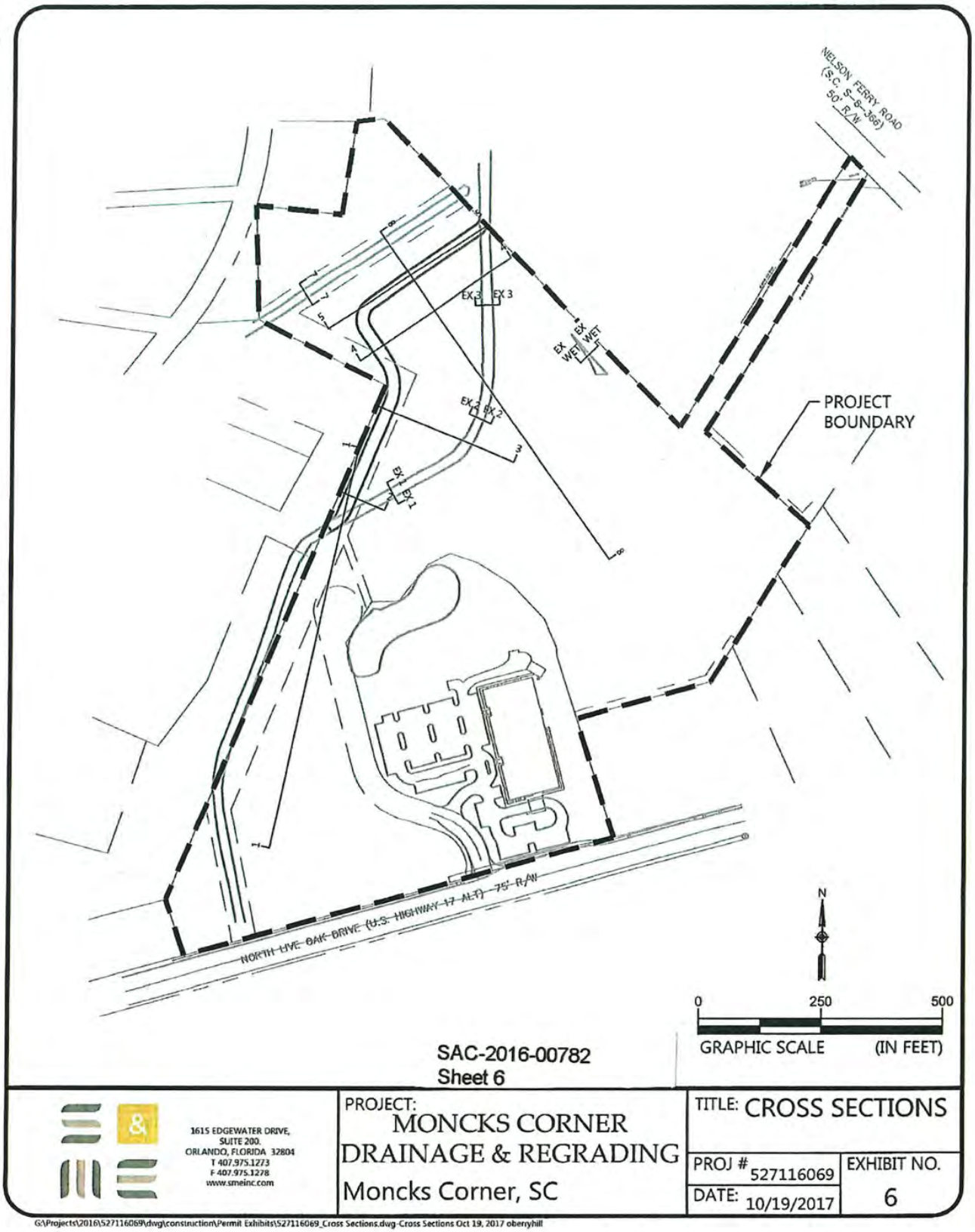

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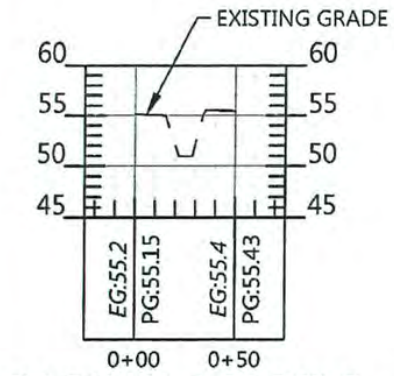

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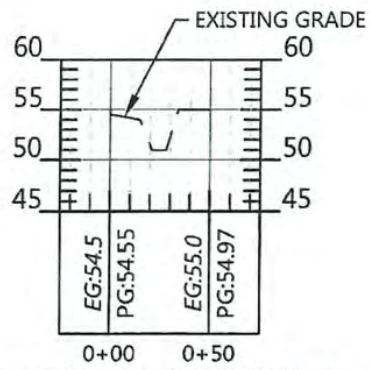

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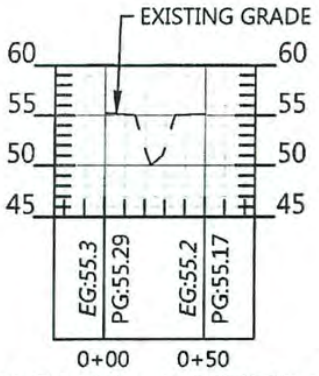

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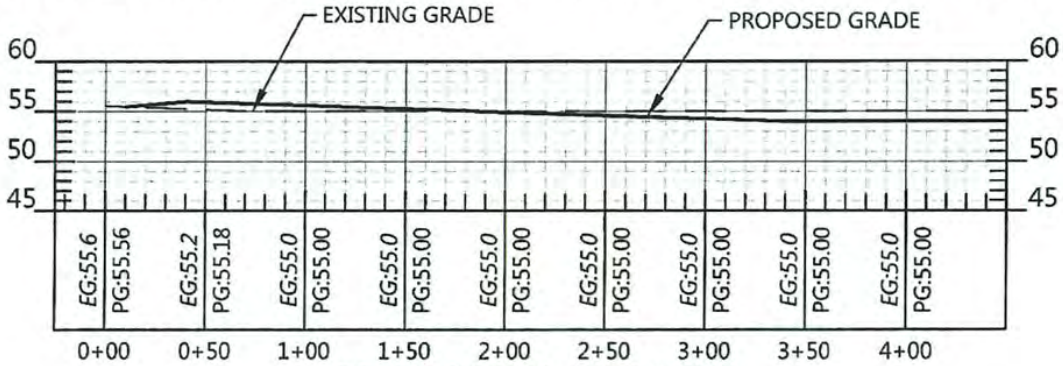

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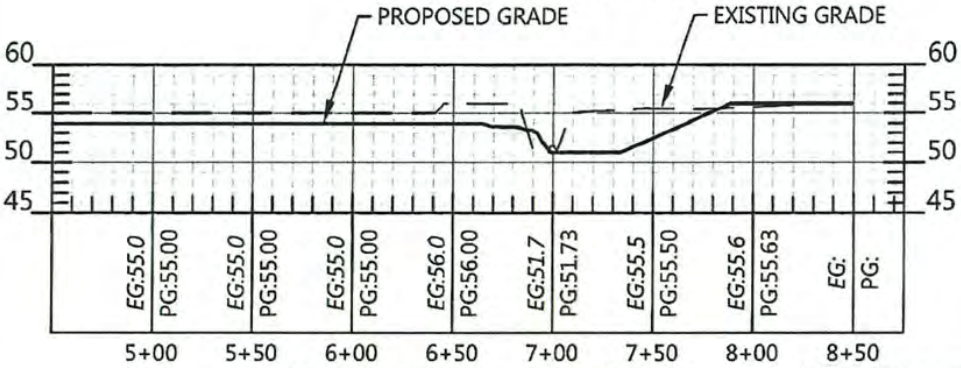

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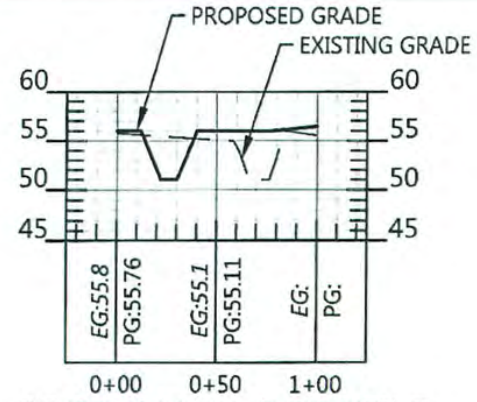

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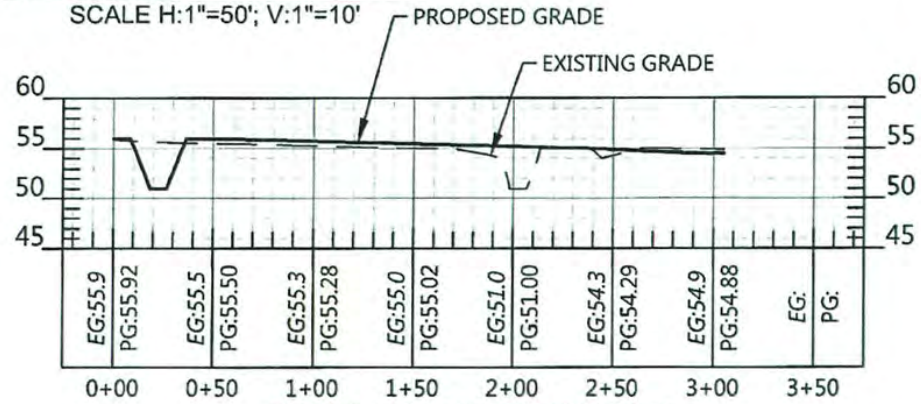

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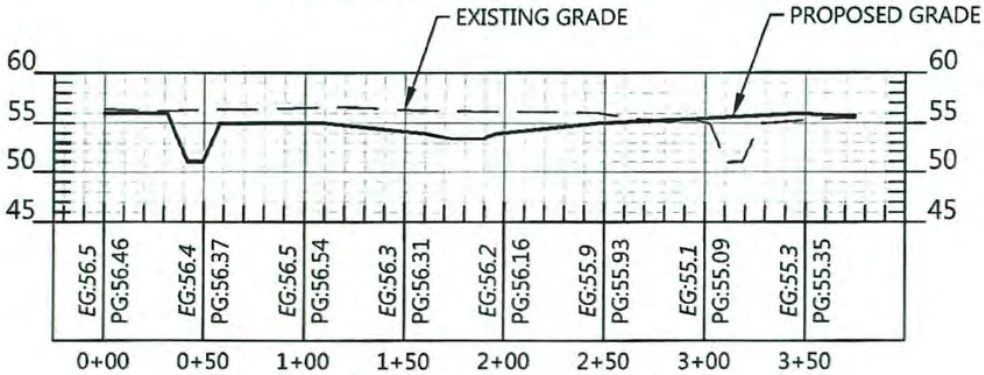

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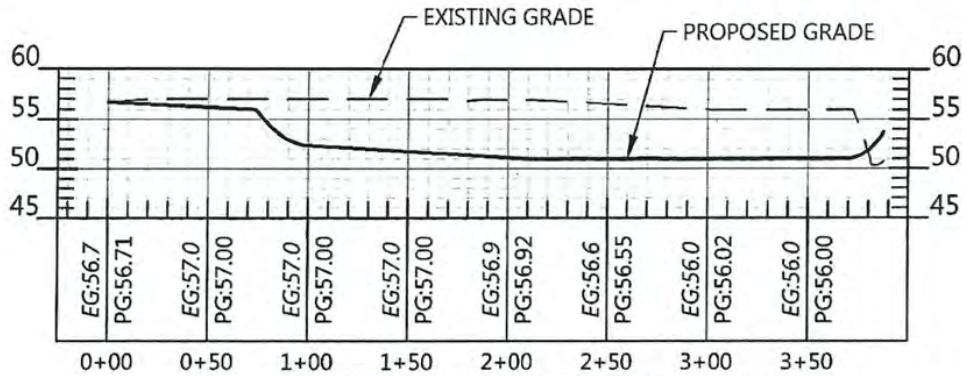

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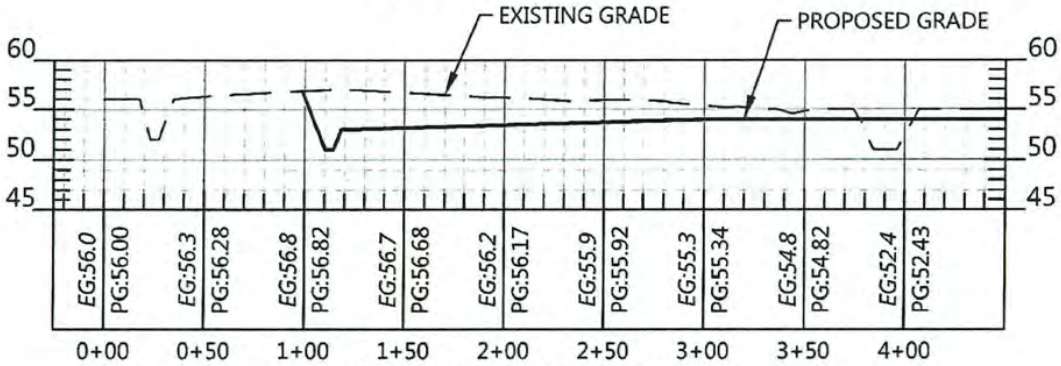

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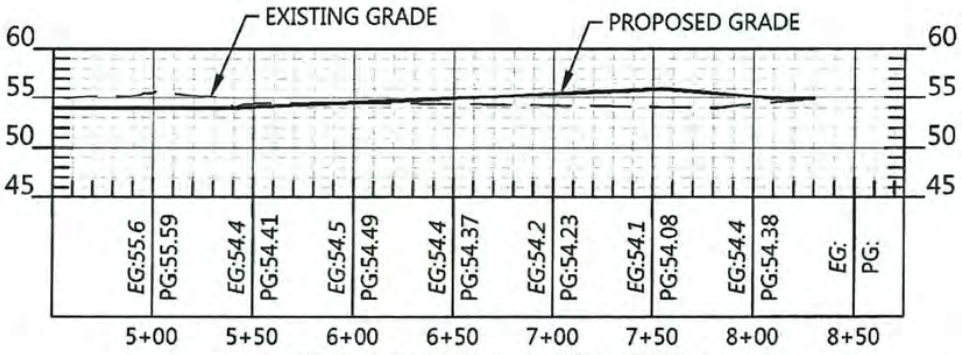

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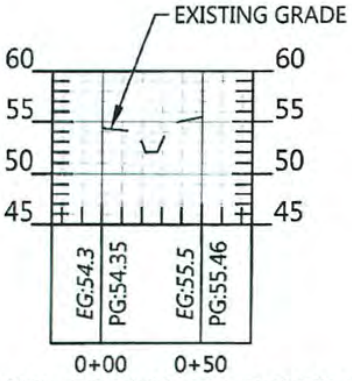

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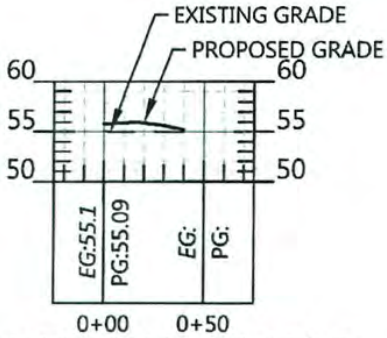

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Attachment Q:
Post and Courier Article MUSC Project

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https://www.postandcourier.com/features/musc-approves-new--bed-million-hospital-project-to-move/article_c582d5c8-dc30-11e7-9f30-738b25318981.html

TOP STORY

MUSC approves new 128-bed, $325 million hospital project to move forward

By Mary Katherine Wildeman mkwildeman@postandcourier.com Dec 8, 2017 Updated 36 sec ago

The MUSC Board of Trustees, led by Chairman Dr. Don Johnson, meets on campus roughly six times a year. File/Wade Spees/Staff

Wade Spees

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After 30 seconds of discussion during a Board of Trustees meeting Friday morning, the Medical University of South Carolina agreed to move forward with plans to build a new $325 million hospital somewhere in the Tri-County area. Hospital leaders have not been specific about where the new facility will be located, though if approved, it will rival the new MUSC Shawn Jenkins Children's Hospital in cost.

No board members asked questions or voiced an opinion about the 128-bed hospital project before unanimously agreeing to move forward Friday.

The board's approval on Friday morning is a preliminary step that allows MUSC to apply for a Certificate of Need, which hospitals must obtain through the Department of Health and Environmental Control before adding beds, buying any pricey equipment or building facilities.

"The state health plan has clearly identified that MUSC has a need for 147 additional beds to serve the Charleston area based on current hospital occupancy and fill rates," said Dr. Patrick Cawley, MUSC Health CEO, in a statement. "This new hospital will serve to meet many of those growing health care demands, delivering our consistent, high quality and compassionate care."

The board also gave hospital leaders permission on Friday to seek approval from the State Fiscal Accountability Authority to buy a plot of land for the project at a cost of $10 million.

MUSC attorney Annette Drachman confirmed through a spokeswoman that the Board of Trustees discussed contract negotiations related to the project during a closed-door executive session Thursday. The confidentiality of those discussions is protected under state law.

Heather Woolwine, an MUSC spokeswoman, said there are no other details available about where the hospital will be located or what kinds of services it will provide.

MUSC's biggest competitors, Trident Health and Roper St. Francis, each said they didn't have enough information to react to the news.

"It's hard to speculate after a 30-second discussion," Todd Gallati, Trident Health CEO, said.

Trident Health has six expansion projects underway, he said. Three are still in the Certificate of Need process. Gallati said he has "growing confidence" in the process, though Trident leaders have been critical of the regulation before.

Andy Lyons, spokesman for Roper St. Francis, declined to comment on MUSC's potential new hospital.

The new MUSC Shawn Jenkins Children's Hospital, slated to be completed by March 2019, is expected to cost about $389.1 million, up from a prior $385 million estimate. It is under construction at Calhoun Street and Courtenay Drive.

Meanwhile, in Berkeley County, Roper St. Francis is constructing 50-bed, $113 million hospital at Carnes Crossroads, and Trident Health recently filed an application that proposes to build a hospital adjacent to the existing Moncks Corner Medical Center. Trident Health leaders say the only work planned at this time on the site is drainage improvements.

Reach Mary Katherine Wildeman at 843-937-5594. Follow her on Twitter @mkwildeman.

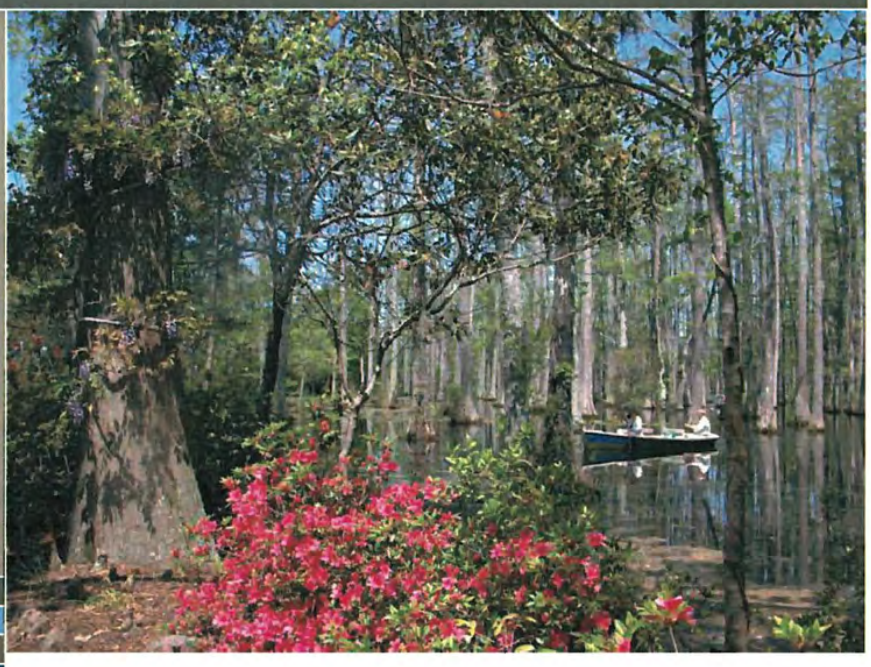
Mary Katherine Wildeman

Attachment R:
Berkeley County Comprehensive Plan

2010

Berkeley County

Comprehensive Plan



Planning the Future while Preserving the Past

Introduction

Since the passage of Berkeley County's 2004 Comprehensive Plan Update, continued growth and development has led to a changing set of issues, goals and needs for the jurisdiction. The 2010 Comprehensive Plan is a document intended to both identify the important positive attributes and components which continue to define Berkeley County, while guiding the growth and development of Berkeley County for the next fifteen to twenty years. It is, in essence, a new blueprint for the County's future.

The Plan is comprehensive in that it relates long-range objectives to a number of interdependent elements and incremental changes, including population trends and characteristics, housing, economic development, transportation networks, land use, natural environment, and many other factors that impact the quality of life for Berkeley County residents.

The Plan was created through a collaborative effort involving the Berkeley County Planning Commission, interested officials and entities, citizen input, and data research and analysis. An in-depth summary of the public process and input garnered, which serves as the basis for this Plan, is provided as Appendix J.

Purpose

The purpose of the Plan is to provide a snapshot of where the County is currently, and to set forth goals for future land use and development with specific policies and recommended strategies for achieving these goals. The plan will guide decision-makers when making decisions, policies and laws regarding the future development of land, provision of essential community facilities, and preservation of natural and cultural resources. It is intended to generate local pride and enthusiasm about the future of the community, thereby ensuring that citizens are involved with the implementation of the Plan.

The goals in this Plan do not supersede those adopted by individual jurisdictions, however identifies areas where coordinated planning should be done on inter-jurisdictional issues that affect both the County and its municipalities.

The result is a concise, user-friendly document intended to operate in conjunction with adopted and amended zoning and land use regulations, in that issues identified in the Plan may be addressed through the development of suitable regulations and ordinances consistent with the policies identified in the Comprehensive Plan. The purpose of the 2010 Comprehensive Plan is to serve as a mechanism for which future land use and development decisions can be made that will help shape the future of Berkeley County.

Vision

Throughout the planning process, Planning Commission and citizen input has consistently come back to the same basic ideas or principles of how Berkeley County is envisioned. This includes concerns over issues such as rapid growth, adequate infrastructure and quality of life; and hopes such as better planning, more jobs and preservation.

Based on the information gathered, the following overall vision has been expressed and embraced:

Berkeley County is a vibrant community that embraces its history while promoting economic growth and development. The County will continue to promote sustainability and livability by implementing the following five guiding principles of the adopted comprehensive plan:

- *Protect and promote distinctive, diverse communities;*
- *Manage infrastructure systems effectively and expand them efficiently;*
- *Respect and enhance historical and natural resources and expand their public accessibility;*
- *Make recreational opportunities – both active and passive – available county-wide; and*
- *Draft a clear, fair plan to be implemented through simplified costs and streamlined processes.*

This vision will be achieved through a planning process that ensures all development is consistent with the Comprehensive Plan and does not diminish the quality of life for future generations of Berkeley residents.

Acknowledgements

Appointed by elected officials, members of the Berkeley County Planning Commission are both residents and stakeholders of Berkeley County who serve without remuneration. In the spring of 2008, the Berkeley County Planning Commission began the comprehensive planning process. The planning process constituted a complete replacement of the County's 2004 Comprehensive Plan Update to keep the County in compliance with the requirements of South Carolina Planning Enabling Act of 1994. Over the following several months, the Planning Commission, interested officials, entities, and citizens created the Comprehensive Plan described on the following pages. After adoption by the Commission, the document is forwarded to County Council for final approval.

Berkeley County Council

Daniel W. Davis, Supervisor, Chairman of County Council

Robert O. Call, Jr.

Timothy J. Callanan

Cathy S. Davis

Steve C. Davis

Phillip Farley

Dennis Fish

Caldwell Pinckney, Jr.

Jack H. Schurlknight

Berkeley County Planning Commission

Kenneth W. Day

Thomas Evans

Norman Harris

Gena Glaze

Lynn Hoover

Jake Serrano

Edward L. Southard

Marion Turner

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Acronyms Used in This Plan

BCDCOG	Berkeley-Charleston-Dorchester Council of Governments	N/A	Not Available
BMP	Best Management Practices	NHL	National Historic Landmarks
CARTA	Charleston Area Regional Transit Authority	OCRM	South Carolina Office of Ocean and Coastal Resources Management
CHATS	Charleston Area Transportation Study	ORS	South Carolina Office of Research and Statistics
CIP	Capital Improvements Program	PD	Planned Development
DHEC	South Carolina Department of Health and Environmental Control	PGA	Principle Growth Area
DMP	Disaster Mitigation Plan	PIA	Priority Investment Area
EMS	Emergency Medical Services	RID	Residential Improvement District
FEMA	Federal Emergency Management Agency	SCDAH	South Carolina Department of Archives and History
FHWA	Federal Highway Administration	SCDHEC	South Carolina Department of Health and Environmental Control
FLUM	Future Land Use Map	SCDNR	South Carolina Department of Natural Resources
FSRS	Fire Suppression Rating Schedule	SCDOT	South Carolina Department of Transportation
HUD	Housing and Urban Development	SCDPRT	South Carolina Department of Parks, Recreation, and Tourism
ISO	Insurance Services Office	SET	Selective Enforcement Team
LHT	Lowcountry Housing Trust	SRT	Special Response Team
LRTP	Long-Range Transportation Plan	TDR	Transfer of Development Rights
LQ	Location Quotient	TIP	Transportation Improvements Program
MPO	Metropolitan Planning Organization	TTC	Trident Technical College
MU	Mixed Use	USBLS	United States Bureau of Labor Statistics
MWV	Mead Westvaco	USC	University of South Carolina

Section 1: Issues and Opportunities

Overview

This section organizes the various issues and opportunities discussed during preparation of the Comprehensive Plan, in relationship to existing conditions in Berkeley County, the future vision and adopted Guiding Principles of this Plan. Along with a summary of these issues and opportunities, are goals, policies and implementation strategies related to each Guiding Principle. These issues and goals were identified as part of the comprehensive planning process during the public participation phase, which included discussions of existing conditions and future scenarios. The goals are intended to attain an ultimate vision for the County, one that achieves a balance between managing growth while protecting and preserving the character and quality of life for Berkeley County residents.

Following goals and policies are tables of implementation strategies for achieving each guiding principle, along with a suggested time frame and a list of agencies responsible for implementation. Short term projects are to be completed in one to five years, while long term projects are to be completed in five to ten years. Ongoing projects are either already occurring or should be occurring on a regular basis.

Guiding Principle 1

Berkeley County will protect and promote the existence of distinctive and diverse, sustainable communities within its boundaries.

Summary of Issues

Experiencing significant growth over the past sixty years, Berkeley County has seen a population increase of 83.2 percent just between 1980 and 2009. With this growth comes development pressures that have resulted in single family residences on large lots that, should this pattern continue, will quickly consume the County's agricultural and forested land.

In addition, protection of rural Berkeley County's historic communities, such as Pringletown, Cross, Lebanon and Honey Hill, along with its natural resources, including the Cooper River and Lake Moultrie, is becoming increasingly important due to these development pressures.

It is also important that as the population becomes more prevalent and diverse, the County strives to find the balance between continued growth while maintaining the level of quality of life for its residents. This includes continuing to provide diverse housing options and businesses in order to meet various needs of its population.

During the public participation phase of the planning process, participants repeatedly expressed their concerns regarding the loss of character and quality of life of their communities. In addition, preservation of community character and quality of life was one of their greatest hopes for the future of Berkeley County. Growth or density of development was also of great concern to participants, meaning they were concerned about the **type** of development taking place throughout the County.

Goals and Policies

G1.1 Berkeley County will support the provision of community services, essential for all population groups.

1. The County will promote land use regulations that provide appropriate locations for quality health care, day and elderly care, and other services.
2. The County will encourage the establishment of social services by institutions or community groups.
3. The County will encourage allocation and efficient management of educational facilities that provide opportunities for residents to enjoy the same, or better, standard of living.
4. The County will ensure residents in new development are provided with adequate public safety services and facilities.

G1.2 Berkeley County will support the development of affordable housing and diverse housing types.

1. The County will encourage the provision of diverse housing types within planned developments.
2. The County will provide incentives for creative housing developments that provide affordable housing or workforce housing in close proximity to existing and future employment centers.
3. The County will promote housing availability for low to moderate income households and special needs populations.

G1.3 Berkeley County will plan and implement mitigation strategies to protect existing communities and neighborhoods from physical deterioration due to natural hazards and/or neglect.

1. The County will protect the quality of existing communities and neighborhoods through increased code enforcement and regulations.
2. The County will support redevelopment or enhancement of existing communities and neighborhoods that have suffered from physical deterioration.

G1.4 Berkeley County will promote the development of complete communities within the Principal Growth Area (PGA) as designated on the Future Land Use Map (FLUM).

1. The County will make decisions on new development based on their contribution to the community's character and sense of place.
2. The County will support creation of walkable, safe and attractive neighborhoods with a mix of uses, where appropriate, throughout the Principal Growth Area.

GP 1 Strategies	Implementation	
	Partners	Timeline
Serve existing communities and support the location of accessible institutions, including appropriate school and social services siting.	County Council, Planning Commission	Ongoing
Work to identify and reduce regulatory barriers to affordable housing.	County Council, Planning Commission, Planning Staff, Lowcountry Housing Trust	Short-Term
Consider developing an affordable/workforce housing master plan.	County Council, Planning Commission, HUD, BCDCOG	Short-Term
Promote community housing partnerships and home buyer education programs.	County Council, Planning Commission, Lowcountry Housing Trust	Ongoing

GP 1 STRATEGIES (CONTINUED)	IMPLEMENTATION	
	PARTNERS	TIMELINE
Enforce standard building codes and FEMA flood hazard regulations.	County Building and Code Enforcement Department	Ongoing
Provide incentives for maintenance and renovation of older structures.	County Council, Planning Commission, Planning Staff, Lowcountry Housing Trust, Berkeley County Historic Society	Ongoing
Work with private, non-profit and other government organizations to offer housing options.	County Council, Planning Commission, Lowcountry Housing Trust, Developers	Ongoing
Coordinate with or establish a County housing agency to serve as central point of contact for assistance in the rehabilitation of substandard housing units.	County Council, Planning Commission, Planning Staff, Lowcountry Housing Trust	Short-Term
Explore ways to educate citizens regarding vulnerability to natural hazards so that the community may be more resilient should a disaster occur.	Berkeley County Emergency Preparedness Division	Ongoing
Ensure County's DMP addresses mitigation of development in known areas of unstable soils or geologic features.	County Building and Code Enforcement Department	Short-Term
Ensure new developments are complete and integrated communities with a mix of uses, ample open space, and network of mobility options.	County Council, Planning Commission, Planning Staff, Developers	Ongoing
Ensure implementation of strategies in its DMP to assure the resiliency of all communities in the County.	County Council, Planning Commission, Planning Staff, Developers	Ongoing

Guiding Principle 2

Berkeley County will manage development and expansion of infrastructure systems efficiently in order to effectively serve residents and employees within Berkeley County.

Summary of Issues

As growth and development pressures continue, Berkeley County must consider the cost of providing facilities and services for new developments, particularly as it relates to gaps in service provision. Inadequate public facilities, longer response times for emergency services, lack of local employment opportunities, potential impact on existing communities, and longer travel and commuting times for residents are all issues to consider when evaluating the feasibility of a new project or development.

One of the greatest concerns coming out of the visioning workshops was the lack of infrastructure "concurrency," meaning that the capacity and availability of roads, sewer and water lines, schools, and the like should keep pace with demand for service.

Quality of life often requires economic prosperity; therefore, there is a need to promote economic well being within the County and to provide diverse employment opportunities. By doing so, residents have employment options within the County rather than commuting to neighboring jurisdictions for employment purposes. This leads to decreased mobility and less traffic congestion on the roadways.

The creation of wealth is important not only for individuals and households, but also for the community as a whole, in terms of quality and range of facilities and services available, and for the maintenance of the built and natural environment.

Goals and Policies

G2.1 Berkeley County will guide population growth to areas where supporting infrastructure exists or can efficiently be expanded.

1. The County will make efficient use of existing infrastructure and public facilities in order to minimize the need for costly new/expanded facilities and services.
2. The County will plan infrastructure ahead of growth in identified growth areas, and direct intense land uses to areas where infrastructure and carrying capacity already exist.
3. The County will not support the extension of infrastructure to areas that are outside of the Principal Growth Area (PGA) and areas specified for resource protection.

G2.2 Berkeley County will encourage the provision of infrastructure as needed to support economic and workforce development initiatives.

1. The County will consider impacts on infrastructure and natural resources when making decisions on economic and workforce development projects.
2. The County will identify and promote development of manufacturing/industrial corridors and employment/technology corridors where infrastructure exists.
3. The County will increase recruitment efforts and support the establishment of industries that generate economic development.
4. The County will support workforce development programs that provide skilled labor for existing and recruited industries from County population base.
5. The County will promote establishment and expansion of port-related industries.
6. The County will support the local agricultural industry.

G2.3 Berkeley County will improve the operation and efficiency of its transportation network to serve residents and employers.

1. The County will prioritize transportation improvements that support desired development patterns, better serve residents and employers, and promote connectivity while accommodating multiple functions.
2. The County will continue to support a strategic transportation plan for system improvements addressing existing and projected demand for all modes of transportation countywide.
3. The County will encourage connectivity by expanding the number of alternative routes throughout the County road network for local traffic.

GP 2 Strategies	Implementation	
	Partners	Timeline
Identify potential linkages between housing and jobs during development review process.	Planning Commission, Planning Staff	Ongoing
Require developers to provide, or provide access to, public amenities.	Planning Commission, Planning Staff, Developers	Ongoing
Participate in regional efforts to strengthen economic impact of the port and related industries.	County Council, Planning Commission, South Carolina Ports, Berkeley Chamber, Charleston Metro Chamber	Ongoing
Continue development of Clements Ferry Road as a manufacturing corridor.	Planning Commission, Berkeley Economic Development Department, SCDOT	Ongoing
Develop US 52 as a technology corridor.	Planning Commission, Berkeley Economic Development Department, SCDOT	Short-Term
Build a permanent farmers market.	Berkeley Economic Development Department, Berkeley Chamber	Short-Term
Encourage the County school district to serve student lunches comprised of products grown locally and/or regionally.	County Council, Berkeley County School District	Short-Term
Improve the effectiveness of existing major collector roads through adoption and implementation of a complete streets policy, addition of sidewalks and/or bike lanes.	Planning Commission, Berkeley County Engineering, Roads and Bridges, SCDOT	Ongoing
Study the existing sidewalk network and develop an overall sidewalk improvement plan based on gaps.	Planning Commission, Berkeley County Engineering	Short-Term
Participate in regional efforts to establish commuter rail, including a line from Moncks Corner to Charleston.	Planning Commission, CHATS, CARTA	Long-Term
Adopt consistent standards for provision of various community facilities for each new development.	County Council, Various Public Agencies	Short-Term
Consider using public transit as a development incentive to organize the arrangement of higher density land uses, such as multi-family housing, and to provide equitable access to jobs and amenities.	County Council, Planning Commission	Long-Term

Guiding Principle 3

Berkeley County will respect and enhance historic, cultural and natural resources, while providing expanded public access to them.

Summary of Issues

Berkeley County has an abundance of cultural and natural resources that provide many benefits to the community. These identify the County's unique character, help to foster civic pride, offer economic opportunities by helping attract new residents, businesses and visitors, and contribute to the overall quality of life for residents.

Many of the concerns expressed during citizen input revolved around the impact development has had or will have on the County's historic and cultural resources, as well as its agricultural lands. More specifically, citizens want to ensure: development is occurring in areas where suitable soil and geologic features exist; where impacts on the quality of wetlands and other water resources and natural habitats of site development, infrastructure, and/or structures can be mitigated; and such that air quality standards are maintained and industrial noise reduced or mitigated.

Sites that exemplify Berkeley County's character and landscape include, but are not limited to, the Francis Marion National Forest, Lakes Marion and Moultrie, Medway Plantation, and Cypress Gardens. Sites such as these provide scenic value, cultural and recreational opportunities, and natural habitats to be protected and enjoyed. Because these resources play such an important role, they should be protected and, where possible, shared with the greater community.

Goals and Policies

G3.1 Berkeley County will support local agricultural and forestry practices through the preservation of its rural areas.

1. The County will support the protection of agriculture and farmlands, including timberlands, from development pressures, recognizing the contributions of farming and the rural character of the community.
2. The County will support policies and programs that provide opportunities for agricultural activities to remain an integral part of the community.
3. The County will promote agri-tourism opportunities.
4. The County will support the aquaculture industry through preservation of water quality.

G3.2 Berkeley County will develop and market heritage and eco-tourism opportunities based on its cultural and natural resources.

1. Protection and conservation of the County's cultural and natural resources will play a vital role in the decision-making process.
2. The County will promote and support the protection and enhancement of the County's unique historic resources.

G3.3 Berkeley County will adopt and apply land use principles and development practices which ensure development works in harmony with cultural and natural resources.

1. The County will encourage new development to locate in suitable locations in order to protect and preserve natural resources, environmentally-sensitive areas, or valuable historic or cultural resources from encroachment.
2. The County will adopt and implement policies and standards that minimize impacts of site development, including land disturbance, infrastructure and structures, on the quality of wetlands and other nonrenewable natural resources.

GP-3 Strategies	Implementation	
	Partners	Timeline
Increase local agricultural production and education programs by encouraging local farming cooperatives through Berkeley County Schools.	Berkeley County School District	Short-Term
Enhance the value and capacity of the aquaculture industry.	Berkeley Economic Development Department	Ongoing
Develop a plan to promote agri-tourism opportunities through educational programs, special events, festivals, farm tours, etc.	Planning Commission, Berkeley Economic Development Department, Berkeley Chamber	Short-Term
Consider provisions for voluntary establishment of agricultural preservation districts with special tax assessments.	County Council, Planning Commission, Planning Staff	Short-Term
Designate areas of sensitive natural and/or scenic and/or historic resources for conservation or resource protection.	County Council, Planning Commission, SCDNR, SCDHEC	Ongoing
Support promotion of the Blueways Trail System.	Planning Commission, Lowcountry Paddlers, SCDHEC-OCRM, SCDNR, South Carolina Sea Grant Consortium	Ongoing
Work with SCDAH to identify funding and professional resources to update existing inventory of historic and archaeological resources.	County Council, Planning Commission, SCDAH, Berkeley County Historical Society, South Carolina Historical Preservation Office	Short-Term
Promote and support enhancement of Cypress Gardens.	County Council, Berkeley Chamber	Ongoing
Market the County as a travel destination through the establishment of an interpretive center for the County's resources in conjunction with a visitor's center at a County Gateway Welcome/Visitor's Center.	County Council, Berkeley Economic Development Department, Berkeley Chamber	Long-Term
Designate Cainhoy Road and Highway 402 as scenic highway heritage corridors.	County Council, Planning Commission, SCDOT	Short-Term
Endorse efforts of preservation, civic and tourism groups to protect and interpret resources, such as the Cooper River Historic District.	County Council, Planning Commission, Planning Staff	Ongoing
Establish a heritage loop or corridor that provides accessibility to identified significant sites as a basis for ecotourism.	County Council, Planning Commission, SCDOT, Berkeley Chamber	Long-Term
Coordinate with community groups and private industries/property owners to establish managed public accessibility to resources under private ownership.	County Council, Planning Commission, Private Property Owners	Ongoing
Limit land uses or development patterns in conservation areas to low-impact residential and environmentally compatible recreational uses.	County Council, Planning Commission, Planning Staff, Developers	Short-Term
Consider density bonus incentives to developers in return for conservation of open spaces meeting specific criteria.	County Council, Planning Commission, Planning Staff, Developers	Short-Term

GP 3 Strategies (continued)	Implementation	
	Partners	Timeline
Evaluate establishment of a Transfer of Development Right (TDR) program to channel development into priority development areas and away from resources to be conserved.	County Council, Planning Commission, Planning Staff, SCDHEC	Short-Term
Support the establishment of collaborative partnership between private property owners and conservation nonprofits to promote placement of easements through tax incentives.	County Council, Planning Commission, Private Property Owners, Nonprofits, Lord Berkeley Land Trust	Ongoing
Review effectiveness of existing special area permit requirements in evaluating existence of sensitive resources prior to land development approvals.	County Council, Planning Commission, Planning Staff	Short-Term
Require BMP's for all developments to mitigate negative impacts of stormwater on the quality of the County's water resources.	County Council, Planning Commission, Planning Staff	Ongoing

Guiding Principle 4

Berkeley County will make sure that both active and passive recreational opportunities are available to its residents countywide.

Summary of Issues

Berkeley County has many recreational resources, most of which are commonly found in association with the area's natural and cultural resources. Examples of these include: recreational boating at Lions Beach on the shore of Lake Moultrie; recreational boating on Lake Marion; Richardson Landing boat-launching facility at Bonneau Beach; boating and fishing on the upper Cooper River and Santee River; and the Berkeley County Blueways paddling trail system.

Despite these resources, citizens who participated in the public workshops expressed concern over the lack of public recreation facilities, playgrounds, and ballparks, particularly in rural areas of the County. Berkeley County has many opportunities to enhance and promote existing facilities while developing new ones to meet the needs of the community.

An exercise conducted at the public workshops asked participants to review photographs of various community components and choose what they felt would be an appropriate addition to their communities. One of the most popular images chosen was that of a neighborhood playground. While these facilities may be provided within a planned community, they are not easily accessed by most rural residents. The need for these types of facilities was concentrated in two rural areas on maps at the community planning workshops: Wando-Huger and New Hope-Longridge.

Community recreation was also desired around Lake Moultrie, often near boat launches; on the west side of Moncks Corner, near existing public schools; and in or near the communities of Pringletown, Sangaree, Oakley, and Macedonia. Participants also expressed a need for access to water on the southwest side of Lake Moultrie, the Goose Creek Reservoir, the upper reaches of the Cooper River, the Wando River, and Four Holes Swamp. There were comments expressing a need for upgrades to existing facilities on the Lake as well.

Goals and Policies

G4.1 Berkeley County is committed to providing pleasant, accessible public gathering places and parks throughout the community.

1. The County will support initiation of a countywide park planning program, to include trails and blueways networks.
2. The County will promote a balance of recreation opportunities between identified growth areas and existing communities.
3. The County will invest in parks and open space to enhance the quality of life for its citizens.

G4.2 Berkeley County will increase public accessibility to recreation areas within the County.

1. The County will promote connectivity between existing recreational sites and cultural/scenic resources, and communities.
2. The County will explore opportunities for increased and enhanced public access to waterways.
3. The County will seek to establish public beach areas along lake shores to better serve residents.

GP 4 Strategies	Implementation	
	Partners	Timeline
Consider inclusion of open space protection in the Capital Improvements Program (CIP).	County Council, Planning Commission, County Finance Department	Short-Term
Work with state and federal agencies to establish linkages with existing trail facilities.	County Council, Planning Staff, SCPRT	Short-Term
Coordinate connectivity of parks with cultural and scenic resources.	Berkeley County Municipalities, County Council, Planning Commission	Long-Term
Develop a master recreational plan.	County Council, Planning Commission, Planning Staff	Short-Term
Consider establishment of County parks and recreation department to manage implementation of the developed plan.	County Council, Planning Staff	Short-Term
Establish a beach on the shore of Lake Moultrie (particularly southwest side).	County Council, Santee Cooper, MWV	Long-Term
Collaborate with nonprofits and private property owners to develop better accessibility to facilities and resources.	County Council, Planning Commission, Planning Staff, Private Property Owners, Nonprofits	Ongoing
Formalize relationships between the County and boat landings to better serve residents.	County Council, County Public Works	Ongoing

Guiding Principle 5

Berkeley County will adopt a clear, fair plan that can be implemented through simplified costs and streamlined processes.

Summary of Issues

One of the best ways to strengthen a community is to create opportunities for citizens to work collaboratively on the challenges that shape their community. The same applies to the development of a comprehensive plan. A comprehensive plan must be created from diverse public input in order to be successfully implemented.

It is through this public participation that the County was able to adequately define its vision for the future and identify goals and strategies for achieving that vision.

It is even more important for citizens to understand that the comprehensive plan is a document intended to guide all development, regardless of size or scope. Therefore, the County has created a comprehensive plan that establishes a clear intent and policy base which can be used to develop and interpret local regulations. The Plan should be used to assist local elected and appointed officials in making land use decisions that are fair, consistent and impartial.

This means that all development proposals and requests for changes in land use and zoning should be considered consistently and processed in a timely and fair manner.

It is also vital that as growth does occur, the County strive towards improved service delivery at all levels of public service. During the public workshops citizens expressed concern over the growth taking place and the burden on taxpayers to build the infrastructure to service this new growth. The County will need to explore new ways of funding these additional facilities and infrastructure in order to mitigate a decline in current levels of service.

Goals and Policies

G5.1 Berkeley County will encourage public participation in achieving goals to ensure that all communities have a voice.

1. The County will seek opportunities to share information and engage the public regarding issues that are likely to have an impact on the community.
2. The County will explore ways to increase public awareness with regards to public meetings and hearings.

G5.2 Berkeley County will make improvements to its service delivery.

1. The County will ensure that new development does not cause a decline in existing levels of service for the community's residents and employers.
2. The County will support sequential, phased extension of utilities and services to encourage rational expansion of development to areas immediately contiguous to already developed areas of the community.
3. The community will use planned infrastructure expansion to promote development in areas identified (in the comprehensive plan) as ready for development.
4. The County will explore ways in which infrastructure for new development does not cause a burden on current residents.

GP 5 Strategies	Implementation	
	Partners	Timeline
Encourage attendance at public meetings and hearings through various outreach avenues.	County Council, Planning Commission	Ongoing
Provide opportunities for meaningful public involvement in the decision-making process.	County Council, Planning Commission	Ongoing

GP 5 Strategies	Implementation	
	Partners	Timeline
Launch public education and outreach programs that serve to better engage residents and stakeholders.	County Council, Planning Commission	Ongoing
Coordinate with the City of Charleston on annexation of "donut holes" and establishment of municipal boundaries.	Berkeley County, City of Charleston	Short-Term
Ensure fair and equitable funding of public transportation improvements.	County Council, SCDOT	Ongoing
Coordinate major public investments with proposed development patterns.	County Council, Planning Commission	Ongoing
Utilize Residential Improvement Districts (RID's) to help pay for new infrastructure.	County Council, Planning Commission	Short-Term