

Town of Morrisville/Wake County
Public Works Facilities/Convenience Center #3 Project
Phase 2 - Schematic Design Plus Proposal
Scope of Services

December 23, 2020

PROJECT UNDERSTANDING

Wake County (County) and the Town of Morrisville (Town) intend to develop property on Aviation Parkway in Morrisville to accommodate a new Town Public Works facility and a County Solid Waste Convenience Center and facilities. The property, currently owned by the Town, is partially wooded and the Town's current Public Works facility occupies a portion of the site. Private cell towers and a Town of Cary sewer pump station are also located on the parcel of which the development cannot impact these facilities.

The County's current convenience center, Site #3, is located south of the Town property, is dated and needs expansion and improvement.

The NCDOT Aviation Parkway widening project will have significant impacts to both the Town and County facilities, therefore, new layout and design of these facilities is critical as well as integrating the new facilities with the widening project.

During Phase 1 of the project, we provided concept development and programming efforts that will be used in Phase 2 and subsequent phases of the project. The current concept is presented as **Attachment 1** and includes the following:

- The County facilities include a sawtooth 6-bay convenience center drop off wall with canopies; a canopy structure for multi-materials collection; a canopy structure with one (1) explosion-proof containment unit for HHW; a small office building similar to South Wake Landfill small office; a convenience center attendant hut; and directional and color-coded signage for each area.
- The Town facilities include an approximately 25,000 square foot combined 2-story Administrative Office/Workshop Building/Fleet Building; (2) 3-sided vehicle storage sheds; a Brine Station/Car Wash; (2) Salt/Sand Domes; parking and various flex space areas.

For this scope (Phase 2), SCS assumes that project work will be completed per the Wake County Facilities Design & Construction Schematic Design Submittal Checklist (typically 30% complete, see **Attachment 2**) as well as advancing the site civil portion to 40% complete in order to provide a more developed construction cost estimate. For clarity, we will refer to this level complete in this scope as



schematic design plus (SD+). Preliminary engineering services, including design and calculations, will be prepared to meet this percent complete.

Additionally, critical to project development will be a feasibility analysis and initial investigation into the realignment of the Lake Crabtree Flood Control Easement and the FEMA 100-year floodplain. Mitigation efforts will be explored and an outline of permitting requirements will be provided.

SCS assumes work duration discussed below to be 7 months.

1. SCOPE OF SERVICES TO BE PERFORMED:

Task 1 – Project Management/Meetings

SCS will manage the contractual components and monthly invoicing for the project. Monthly updates on scope, schedule and budget will be provided. SCS will coordinate and lead weekly conference calls with the County and Town to facilitate the project. A brief email recap of each weekly conference call will be provided to the County and Town. Additionally, SCS will coordinate and lead weekly conference calls with the design team to facilitate communication and progress.

Virtual Monthly Meetings

SCS will coordinate and lead up to seven (7) virtual monthly meetings over the course of the project. SCS will provide meeting minutes to document discussions and decisions.

In-person Tabletop Review Workshops

SCS will coordinate and lead up to two (2) in-person tabletop design review workshops at 25% and 40% complete. SCS will provide workshop minutes to document discussions and decisions.

Total Task 1 Fee (\$54,400) = Wake County (\$21,760) + Town of Morrisville (\$32,640)

Task 2 – Flood Storage and Floodplain Impact Mitigation

SCS will evaluate project impacts to Lake Crabtree protected flood storage and provide input on the overall stormwater grading and stormwater management plan for the above referenced project.

The site is located adjacent to Crabtree Creek (Basin 18, Stream 9) and is within a protected flood easement boundary for Lake Crabtree. Crabtree Creek effective models are available as paper copies of HEC-2 input and output files. The effective 100-year and 500-year floodplain boundaries encroach into the property. Preliminary HEC-RAS models are also available. It appears that there is not much difference between the effective and preliminary water surface elevations for this site. The Town of Morrisville allows for encroachment into the flood fringe therefore no modeling of Crabtree Creek has been included.

Encroachments into the flood boundary line will require an evaluation of impacts to the existing flood storage capacity of Lake Crabtree. The intent of this study will be to provide documentation that no changes to the flood storage of Lake Crabtree will occur with the proposed development. Impacts are anticipated within the boundary line for the proposed site. The preliminary models include a

HEC-HMS analysis with a reservoir element that models the function of Lake Crabtree. The stage-storage relationship for Lake Crabtree will be adjusted to any planned changes for the development. It is anticipated that the area filled can be compensated with proposed cut in other locations to maintain current storage function of the lake and no increase in water surface elevations. Three iterations of calculations have been included in this phase as the design is developed. Coordination time has been included for team and client meetings.

Objectives:

- Determine regulatory design parameters
- Explore alternative design options
- Evaluate impact to flood control capacity and floodplain

Deliverables:

- Documentation of no change to flood storage
- Mitigation solutions

Total Task 2 Fee (\$10,800) = Wake County (\$5,400) + Town of Morrisville (\$5,400)

Task 3 – Geotechnical Investigation

Geotechnical services will consist of performing soil test borings, soil test pit excavations, laboratory testing of soils, preparation of a preliminary geotechnical data report and preparation of a geotechnical engineering report. At the time of this proposal, a site grading plan was not available. Our assumptions and proposed tasks are discussed below.

Assumptions

This geotechnical investigation assumes the following conditions. If conditions vary from those assumed below, adjustments to the fee may be required:

- The site will be accessible by either ATV or truck mounted drill rig. If difficult access conditions (such as moving large downed trees) are encountered to access boring locations, additional fees will apply.
- Work can be performed during standard work hours (8am to 5pm) Monday through Friday.
- We assume the client will coordinate site access through any locked gates.
- The client will coordinate location of any private underground utilities that are currently located on site.

All plans and assumptions are based on our current understanding of the proposed project and plans provided at this time. Any changes to the plans that affect the scope outlined below could result in additional fees. We intend to perform the geotechnical test pit investigation earlier in the design process along with issuance of a preliminary geotechnical data report to better inform the Design Development and Construction Document phases. Later, toward the end of the SD Plus phase once a site plan is finalized and structural loads are known the geotechnical borings will be completed and a full geotechnical engineering report will be issued.

Field Exploration

The field exploration will consist of the following:

- Tree clearing (bulldozer, forestry mulcher or hand clearing) to gain access to soil boring locations with an ATV or truck-mounted drill rig.
- A geotechnical professional will perform a site reconnaissance and locate exploration locations using GPS equipment.
- Contact NC 811 to mark existing public underground utilities near boring locations.
- Perform Five to Ten (5 to 10) geotechnical test pits to a depth of approximately 10 feet below ground surface or until rock is encountered that cannot be removed with routine earth moving equipment (refusal).
- Perform twenty-five (25) Standard Penetration Test (SPT) borings in accordance with ASTM D1586 to a depth of 10 to 20 feet. Thirteen (13) borings will be performed in the proposed building areas to a depth of 20 feet. Five (5) borings will be performed in the proposed wall areas to a depth of 15 feet. Five (5) borings will be performed in the proposed pavement areas to a depth of 10 feet. Boring depths are referenced to the existing ground surface. Total drilling footage is expected to be 425 linear feet. Borings will be performed to indicated depths, or auger refusal, whichever occurs first.
- Within borings, split-spoon samples will be collected in conjunction with SPT testing. Split-spoon samples will be collected at 2-foot depth intervals in the top 10 feet and at 5-foot intervals thereafter. Upon completion of borings, borehole water levels will be recorded, and the boreholes will be backfilled with drill cuttings up to the original ground surface. Soil samples will be returned to our office for visual classification and laboratory testing. All excess spoils will be disposed of on site.
- Bulk soils samples will be collected from the borings and returned to our laboratory for testing.
- If shallow groundwater is encountered in borings (less than 5 feet from the ground surface), one (1) boring will be set with a standpipe for a 24-hour ground water measurement. It is important to realize that groundwater levels will fluctuate with changes in rainfall and evaporation rates. Groundwater measurements observed in borings do not represent seasonal high-water table readings.

Laboratory Testing

We will perform laboratory testing on representative soil samples for the purpose of classifying the soils and estimating geotechnical engineering properties. We plan to perform Atterberg limits, grain size analyses, natural moisture contents, Standard Proctor, and California Bearing Ratio (CBR) testing.

Preliminary Geotechnical Data Report

A preliminary geotechnical data report will be prepared based on performed test pit excavations. The report will include the following:

- Site plan showing test pit locations.
- Description of the exploration sampling methods as well as test pit logs.
- Water levels encountered in the test pits.
- Depths to rock, if encountered in the test pits.
- Depth and location of unsuitable materials, if encountered in test pits.

Geotechnical Engineering Report

A geotechnical engineering report will be prepared based on performed borings, laboratory testing, and our engineering analysis. The report will include the following:

- Site plan showing borings locations for the exploration
- Description of the exploration sampling methods as well as boring logs
- Water levels encountered in the borings
- Depths to rock, if encountered in the borings
- Laboratory test results
- Depth and location of unsuitable materials, if encountered in borings
- Foundation recommendations for proposed structure at the site. These recommendations will be based on anticipated loads provided by the structural engineer and foundation bearing capacity.
- General information regarding site preparation including re-use of on-site soils as fill, identification of deleterious soils encountered in the borings, impact of weather and construction equipment on grading, fill compaction recommendations, and preparation of soil subgrades.
- Pavement thickness recommendations
- Seismic Site Classification in accordance with the North Carolina Building Code
- Seasonal High Water Table determination by licensed soil scientist in proposed BMP location.

Objectives:

- Conduct a preliminary test pit investigation to evaluate the site for the presences of shallow rock and determine primary soil types encountered.
- Conduct soil investigation based on preferred layout (preliminary soil boring location diagram is shown as **Attachment 1**)
- Locate unsuitable soils, rock, groundwater and other subsurface conditions
- Provide design-level recommendations for pavement and foundation design
- Identify challenges for stormwater management design

Deliverables:

- Preliminary Geotechnical Data Report
- Geotechnical Engineering Report

Total Task 3 Fee (\$36,700) = Wake County (\$11,010) + Town of Morrisville (\$25,690)

Task 4 – Review/Selection of Building Design Options

SCS will provide schematic building designs for each County structure similar to previous County convenience center projects with layout adjustments for this site. SCS will provide up to three (3) schematic building design options for the combined Town Public Works building, and up to two (2) options for each additional structure. It is anticipated that the Town will select one (1) option for each structure from which to proceed after review and comments.

Total Task 4 Fee (\$39,600) = Wake County (\$5,940) + Town of Morrisville (\$33,660)

Task 5 – Schematic Design Plus (assumed 40% level as noted)

SCS will prepare SD+ level drawings based on the final, selected layout concept from Phase 1. The SD+ portion is assumed to be specifically regarding site civil portions of the design. The remaining work disciplines will adhere to the County's Schematic Design Submittal Checklist which is assumed to be 30% project complete. An outline of applicable technical specifications will be provided.

Task 5.1 – Site Layout/Landscape Architectural/Civil

- Site civil elements will be at 40% complete whereas other work disciplines will be at 30%.
- Preliminary Fire Flow Analysis – SCS will coordinate with local authority to perform a field fire flow test in the vicinity of the site and provide fire flow calculations for use in preliminary utility sizing and building fire protection if applicable.
- Preliminary Demolition Plans
 - Site features and structures to be removed and/or protected
 - Tree protection fencing layout
 - General demolition notes
- Preliminary Layout Plans
 - Proposed edge of pavement, including curb and gutter extents
 - Proposed structures, including new buildings
 - Hardscape areas such as sidewalk and paved vehicle areas
 - Extent of retaining walls and fencing/directional signage
 - General layout notes
- Preliminary Grading / Stormwater Plans
 - Contours at 1-foot intervals
 - Critical spot elevations
 - Stormwater inlet network
 - Preliminary stormwater management plans and stormwater control measures (for treatment and detention design)
 - Retaining walls and heights
 - General slope percentages
 - General grading notes
- Preliminary Utility Plans
- Preliminary Erosion Control Management Plan
- Preliminary Planting Plans
 - Location and notation of Town required buffers, streetscapes, parking lot and planting
 - Delineation of shade trees, understory trees, evergreen trees, shrubs, ground covers, along with list of suggested species
 - Preliminary calculations for required plantings per the Town's UDO
 - Preliminary tree conservation plan
 - General planting notes

Total Task 5.1 Fee (\$84,100) = Wake County (\$42,050) + Town of Morrisville (\$42,050)

Task 5.2 – Architectural/Structural/Mechanical, Electrical and Plumbing

- These work disciplines will be at 30% complete.
- Provide SD level documents as described in the County Schematic Design Checklist. SD documents typically include floor plans, elevations, building sections, typical wall sections, perspective drawings, preliminary furniture plans, structural drawings and MEP drawings
- Preliminary site lighting plan
- Preliminary signage for the County facilities
- A preliminary summary listing of required Furniture, Furnishings, and Equipment (FF+E) will also be provided with the preliminary furniture plans. (Furniture selection will occur in a future phase. This phase includes discussion about the open office furniture for Public Works as this has potential to impact the schematic building design options.)
- Provide a preliminary basic building code summary based on the options selected.
- Architectural models and drawings will be created in Revit Architecture
- Preliminary site lighting plans coordinated with layout plans

Total Task 5.2 Fee (\$78,600) = Wake County (\$15,720) + Town of Morrisville (\$62,880)

Task 5.3 – Sustainability

This project will not pursue LEED certification, but sustainability will be incorporated into the project.

- We understand Wake County encourages sustainable design and is open to implementing green strategies when they make sense for a project. Any fees associated with the County's sustainability elements are included in Tasks 5.1 and 5.2, however, we assume this effort to be minimal.
- We understand the Town of Morrisville is aiming for 'light green', and they have provided a list of sustainable features to implement or consider in this project.
- During Schematic Design, sustainable practices will be evaluated for the Town of Morrisville portions of the project. This sustainability task is only for the project described in this scope of work and does not include sustainability investigation for other Town projects. The design team will review the Town of Morrisville's list, and make recommendations for best practices related to those as well as additional opportunities for sustainability.

SCS will hold two (2) sustainability meetings during Phase 2 to discuss sustainability elements and options and develop recommendations with the Town. Recommendations will be based on applicability, viability, and financial feasibility for this project site only.

A memorandum will be developed documenting the options and recommendations that will be incorporated into the Phase 3 design. Some elements and possible options include:

- Solar power
- EV charging stations (at least 4)
- LED lighting
- Occupancy sensors
- Daylight/natural light

- Energy efficient systems
- Low water use plumbing
- Potential International Green Construction Code (IGCC) implementation
- Insulation
- Material selection
- Connection to building management systems (BMS)
- Battery storage for PV
- Oversize PV to supplement EV
- Green roof
- Rainwater harvesting

Total Task 5.3 Fee (\$13,300) = Wake County (\$0) + Town of Morrisville (\$13,300)

Total Task 5 Fee (\$176,000) = Wake County (\$57,770) + Town of Morrisville (\$118,230)

Task 6 – Opinion of Probable Construction Cost Estimates

SCS will provide two (2) opinion of probable construction cost estimates (OPCC). The first OPCC will be based on the final selected concept layout at the conclusion of Phase 1. The second OPCC will be utilizing the SD+ drawings.

Total Task 6 Fee (\$17,700) = Wake County (\$8,850) + Town of Morrisville (\$8,850)

2. SCHEDULE:

SCS presents the following attached schedule as **Exhibit 1**. Project starts on receipt of executed contract.

3. COMPENSATION:

SCS will be compensated for the services performed under this scope of services on a lump sum basis, per the Agreement. SCS will submit invoices on a monthly basis based on a percent complete of each task unless otherwise noted on as needed or as required basis. For invoice purposes only, the value of each task is presented as **Exhibit 2**.

The maximum amount payable to SCS for all tasks under this this scope of services is \$335,200.

Additionally, a breakdown of the fees is presented as **Exhibit 3**.

4. CONTRACT TERMS:

These services will be performed in accordance with the terms of the Basic Services Agreement between the parties.

Town of Morrisville/Wake County
Public Works Facilities/Convenience Center #3 Project
Phase 2 - Schematic Design Plus Proposal
Exhibit 1 - Schedule
December 2020

Tasks	Duration (Months)						
	1	2	3	4	5	6	7
Task 1 - Project Management/Meetings							
Task 2 - Flood Storage and Floodplain Impact Mitigation							
Task 3 - Geotechnical Investigation							
Task 4 - Review/Selection of Building Design Options							
Task 5 - Schematic Design Plus							
Task 6 - Opinion of Probable Construction Cost Estimates							

Project starts on receipt of executed contract.

Town of Morrisville/Wake County
Public Works Facilities/Convenience Center #3 Project
Phase 2 - Schematic Design Plus Proposal
Exhibit 2 - Fees
December 2020

Tasks	Fees	Wake County		Town of Morrisville	
		Percent	Fee	Percent	Fee
Task 1 - Project Management/Meetings	\$ 54,400	40%	\$ 21,760	60%	\$ 32,640
Task 2 - Flood Storage and Floodplain Impact Mitigation	\$ 10,800	50%	\$ 5,400	50%	\$ 5,400
Task 3 - Geotechnical Investigation	\$ 36,700	30%	\$ 11,010	70%	\$ 25,690
Task 4 - Review/Selection of Building Design Options	\$ 39,600	15%	\$ 5,940	85%	\$ 33,660
Task 5 - Schematic Design Plus					
Site Layout/Landscape Architectural/Civil	\$ 84,100	50%	\$ 42,050	50%	\$ 42,050
Architectural/Structural/Mechanical, Electrical and Plumbing	\$ 78,600	20%	\$ 15,720	80%	\$ 62,880
Sustainability	\$ 13,300	0%	\$ -	100%	\$ 13,300
Task 6 - Opinion of Probable Construction Cost Estimates	\$ 17,700	50%	\$ 8,850	50%	\$ 8,850
TOTAL	\$ 335,200		110,730		224,470

Town of Morrisville/Wake County
Public Works Facilities/Convenience Center #3 Project
Phase 2 - Schematic Design Plus Proposal
Exhibit 3 - Fee Breakdown
December 2020

Tasks	SCS	Wooten	Timmons	Huffman	Palacio	TOTAL
Task 1 - Project Management/Meetings	\$ 19,167	\$ 14,630	\$ 6,369	\$ 14,234	\$ -	\$ 54,400
Task 2 - Flood Storage and Floodplain Impact Mitigation	\$ 1,725	\$ -	\$ 9,075	\$ -	\$ -	\$ 10,800
Task 3 - Geotechnical Investigation	\$ 5,900	\$ -	\$ 30,800	\$ -	\$ -	\$ 36,700
Task 4 - Review/Selection of Building Design Options	\$ 1,722	\$ -	\$ -	\$ 37,879	\$ -	\$ 39,600
Task 5 - Schematic Design Plus						
Site Layout/Landscape Architectural/Civil	\$ 5,252	\$ 42,900	\$ 35,948	\$ -	\$ -	\$ 84,100
Architectural/Structural/Mechanical, Electrical and Plumbing	\$ 5,247	\$ 10,560	\$ -	\$ 62,794	\$ -	\$ 78,600
Sustainability	\$ 4,137	\$ 4,730	\$ -	\$ 4,433	\$ -	\$ 13,300
Task 6 - Opinion of Probable Construction Cost Estimates	\$ 2,465	\$ -	\$ -	\$ -	\$ 15,235	\$ 17,700
Total	\$ 45,614	\$ 72,820	\$ 82,192	\$ 119,339	\$ 15,235	\$ 335,200