

## ATTACHMENT A

### DURHAM COUNTY, NORTH CAROLINA NORTHERN CONVENIENCE CENTER CONSTRUCTION DOCUMENTS PHASE SERVICES

#### SCOPE OF SERVICES

##### I. PROJECT DESCRIPTION

HDR assisted the County with the preparation of a Master Plan and Site Plan and obtaining the Special Use Permit and Site Plan approval for the proposed Northern Convenience Center site located off of Route 501 (North Roxboro Road) on parcels that the County is acquiring. The proposed site is 23.45 acres, but is traversed by Mountain Creek, which restricts the developable portion of the properties. The project is further limited by a 6% impervious surface maximum. The proposed site plan is in compliance with the setback and impervious area requirements of the City/County Planning regulations. The County has requested the assistance of HDR Engineering, Inc. of the Carolinas (HDR) to prepare construction documents for the proposed facility. For this phase of the project, HDR will continue to engage MLA Design Group, Inc. (MLA) to assist with these efforts.

##### II. SCOPE OF SERVICES

HDR will complete the Construction Document Phase for the proposed improvements.

HDR's work shall include:

###### 2.1 Additional Basic Service

###### *2.1.1 Additional Design Related to Driveway Entrance Requirements*

- During preparation of site plan application documents, it was determined that a right turn lane would be required by NCDOT. Additional effort and survey work was required, resulting in additional services being provided than was included in the scope of work. Durham County has requested the additional costs be included with the fee for this phase of the work.

###### *2.1.2 Lot Recombination*

- In order to meet the impervious area restrictions for the proposed facility, the County proposed to combine the two lots into a single parcel. The lot recombination is a condition of the site plan approval. HDR will assist the County with preparation of a survey plan for lot recombination and recordation of the entrance and stormwater management access easements.

## 2.2 Construction Documents

### 2.2.1 *Geotechnical Investigation*

- Develop geotechnical recommendations for use in design and construction of the proposed project and subcontract the drilling and laboratory testing services for the project.
- Complete visual site reconnaissance and borings located in the field by referencing existing site features. Boring collar elevations will be interpolated from the existing conditions plan developed by HDR for the Site Plan application.
- HDR will contact the North Carolina One-Call Center to field mark public underground utilities and clear the proposed locations of the borings.
- Perform an estimated 10 soil test borings to depths of 10 to 20 feet, or auger refusal, whichever occurs first; a total drilling footage of 200 feet has been budgeted. Boring depths are referenced to the existing ground surface.
- Soil test boring locations will be field located via hand held GPS.
- Within borings, samples of subsurface soils will be taken at 2-1/2 foot intervals above a depth of 10 feet and at 5-foot intervals below 10 feet using a split-spoon sampler. Standard penetration tests will be conducted in conjunction with split-spoon sampling in general accordance with ASTM D 1586-99.
- Upon completion of the borings, initial and stabilized (after approximately 24 hours) measurements of water levels will be taken, and the boreholes will be backfilled up to the original ground surface with auger cuttings.
- Boreholes completed within areas proposed for bio-retention basins will be assessed for rate of infiltration and separation to groundwater surface to determine final design parameters for the basins.
- Collected soil samples will be returned to our office for visual classification by a geotechnical professional.
- Depending on the subsurface conditions encountered by the borings, we may perform limited laboratory testing consisting of natural moisture, grain size analysis, Atterberg limits, soaked California Bearing Ratio (CBR), and standard Proctor testing. The results of the laboratory tests will be used to confirm our visual classifications and provide correlation data for estimating soil and engineering properties for design analyses and recommendations. Laboratory testing will be performed in general accordance with applicable ASTM procedures.
- A geotechnical engineering report will be prepared based on the results of our fieldwork, laboratory testing, and engineering. The report will include the following information:
  - Description of the exploration and sampling methods.
  - General description of the site and subsurface soils.
  - Plan view showing approximate boring locations.
  - Boring logs and generalized subsurface profile(s) of the soil test borings.
  - Results of laboratory testing, if any.
  - Water depths encountered in completed borings at the time of drilling and after approximately 24 hours, and observed infiltration rates.
  - Depth and location of unsuitable materials or rock, if encountered in borings.
  - Recommendations for lateral earth pressures and allowable bearing pressures for design of any on-site retaining walls and building foundations.

- General information regarding site preparation including compaction recommendations and preparation of subgrades.
- Considerations for excavation of on-site materials and their suitability for use as structural fill.
- Recommended cut and fill slopes.
- Discussion of subgrade preparation and general considerations for construction of asphalt and/or concrete pavements, based on the estimated traffic volumes and vehicle types.
- Recommendations for construction observation and testing.

### ***2.2.2 Erosion and Sediment Control and Stormwater Management Permit Applications***

- Prepare application and supporting documentation for Erosion and Sediment Control and Stormwater Management permit applications for submittal to North Carolina Department of Environmental Quality (NCDEQ) and County Stormwater Development Review Section.
- Attend E&SC and Stormwater Pre-submittal meeting with County staff prior to submittal to NCDEQ and County.
- Finalize design calculations for the stormwater control measures for submittal including stage-storage relationship and inflow and outflow hydrographs.
- Submit Construction Plans for Erosion and Sediment Control and Stormwater Construction plan for approvals by NCDEQ and County Stormwater.
- Respond to County comments, as necessary.

### ***2.2.3 Final Design Drawings and Specifications***

- Prepare site demolition and restoration plans for existing Rougemont and Bahama convenience center sites.
- Prepare final existing condition and demolition plan, site plan, grading plan, drainage and construction details for the proposed site improvements.
- Prepare directional and informational signage plan.
- Utility profiles to be provided for proposed sewer and septic system, leachate sumps and storage tanks, water line and storm drainage lines, as applicable.
- Prepare structural site plan, foundation plan, and construction details for retaining wall and guard rail, canopy roof systems, concrete slabs, attendant building and attendant shelter.
  - Retaining walls to be designed to provide guard rail at drop-off locations, with steel protected surface, bumpers and rail along wall to protect concrete from roll-off container and enclosed container impact during loading and unloading
  - Concrete pads at retaining wall to include steel plates for protection of pad from roll-off container wheels and impacts during loading and unloading.
  - Canopy roof at drop-off shall be cantilever style, supported by columns attached to the retaining wall.
  - Canopy roof at used oil drop off area shall be similar construction as canopy roof at drop off. HDR and County to coordinate on final size and location of canopy and containment sump.
  - Special Inspections checklist to be prepared.
- Prepare electrical site plan, site lighting plan, building lighting, electric and communication plans and construction details for electrical improvements.

- Electrical site plan to include new primary and secondary service to the facility to accommodate new buildings and compactor loads.
- Design to include service to compactor locations, with disconnect and panel located on retaining wall for connection of compactor units. Design to incorporate two (2) existing MSW compactors to be relocated by Contractor from existing Rougemont and Bahama convenience sites and procurement and installation of two (2) new pre-crushers and compactor for recyclables and bulky waste and four (4) new hoppers to coordinate with the retaining walls.
- Building Power and Lighting plans to be provided. Building lighting to include LED fixtures and occupancy sensors. HDR will coordinate with County for locations for communication ports.
- Site Lighting shall conform to preliminary layout and fixtures depicted on approved site plans, with any modifications required to comply with City/County UDO Section 7.4 for illumination levels and height. Flood lights to be provided beneath drop off canopy to illuminate retaining wall area. Site lighting to be controlled by programmable clock and photoelectric sensor. HDR and County to coordinate for site lighting requirements for site security.
- Underground electric service to be provided to cantilever motor operated gate at entrance, attendant shelter and attendant building.
- Convenience outlets to be provided at upper side of retaining walls and at other locations of the site based on County input.
- Underground electric lines to be routed to underground storage tanks for monitoring of liquid levels and alarm conditions with panel location in attendant building.
- Prepare architectural drawings for the attendant building and attendant shelter.
  - Drawings to include floor plans, exterior and interior wall systems, glazing, ceiling plan, roof plan, exterior elevations, and room finish and door schedules.
  - Area classifications and code classification drawings to be prepared, and locations of smoke/CO detectors and fire extinguishers to be identified.
- Prepare mechanical drawings including plumbing, restroom fixtures, HVAC floor plans, schedules and details.
- Prepare final landscape layout plan, planting schedule, and construction details for landscape improvements, including entrance sign.
- Prepare final contract documents and technical specifications, suitable for bidding along with approved Construction Drawings.
  - Specifications shall be prepared using the Construction Specifications Institute 16 division format. Specifications for products, materials and equipment shall be written in full compliance with N. C. Gen. Stat. §133.3 and all other relevant laws and building codes. Brand names may be used to specify a particular product to be bid as an alternate only in accordance with State law.
  - HDR shall incorporate County Contract Documents as appropriate and develop and Special Conditions warranted and Bid Proposal Form and Measurement and Payment specifications. The resulting final Construction Document is to be a complete, fully coordinated, integrated package, suitable for bidding distribution, without any significant addenda or further clarification required.

#### ***2.2.4 Design Review Meetings***

- Design team Project Manager and Architect will lead to attend a kickoff meeting and site visit with the County staff in order to finalize design approach and desired programming and equipment to be specified. Other design discipline leads will participate via teleconference.
- Preliminary Design review meeting with County staff shall be attended by Project Manager with teleconference with other design leads.
  - HDR will Allow 5 working days for County's review of the preliminary design drawings prior to the review meeting
- 60 % and 100% Design review meeting with County staff shall be attended by Project Manager with teleconference with other design leads.
  - HDR will Allow 10 working days for County's review of 60% drawings and technical specifications prior to the review meeting.
  - After review and approval of the 60% Construction Documents and written notice to proceed to Final Construction Documents HDR will continue with preparation of final Construction Documents and Bid Documents, including final Specifications for all authorized work on the Project and shall incorporate in those final documents the comments and any modifications and changes desired by the County and any modifications required for compliance with all applicable codes, regulations, standards, the approved program, and prior written approvals and instructions of the County.
  - At the completion of the construction documents phase, HDR will coordinate for a final Construction Documents Phase review meeting with the County. HDR will allow for 10 days of County review prior to the meeting. Final comments will be incorporated into documents to be issued for bidding by the County.
- Meeting presentation to BOCC at completion of 100% design.

#### **Deliverables**

- HDR will prepare three (3) copies of the Geotechnical Engineering Report containing our findings, and conclusions/recommendations sealed by a North Carolina Registered Professional Engineer. Appendices will include a site vicinity map, boring location plan; computer formatted boring logs on 8 ½ x 11 size paper, generalized subsurface profiles, legend, and lab testing results.
- HDR will prepare and submit to the County six (6) hard copies (four (4) sets to be full size and two (2) sets to be half size) 22x34) of the Preliminary Construction Drawings, Contract Documents and Specifications. Electronic files will also be transmitted in PDF format.
- HDR will prepare and submit to the County six (6) hard copies (four (4) sets to be full size and two (2) sets to be half size) 22x34) of the 60% Construction Drawings, Contract Documents and Specifications. Electronic files will also be transmitted in PDF format.
- HDR will prepare and submit to the County six (6) hard copies (four (4) sets to be full size and two (2) sets to be half size) 22x34) of the 100% Construction Drawings, Contract Documents and Specifications. Electronic files will also be transmitted in PDF format.

**Key Understandings**

- HDR's scope of services assumes that there are no environmental contamination issues associated with this site. Environmental sampling of soil and groundwater is not included in this scope of work. Soil and/or groundwater contamination would require different procedures be followed during the subsurface exploration.
- HDR is not completing any right-of-way plans as all widening is anticipated to be completed within existing NCDOT right-of-way.
- HDR has not included any additional requests for rezoning, variances or appeals required to go before the zoning board of adjustment.
- All permit application fees will be paid by the County.
- The Construction Drawings will be developed to satisfy the following requirements:
  - General
    - Complete index of drawings
    - Vicinity plan
    - Building Code Summary
    - Life safety plans
    - Energy data
    - Accessibility summary
  - Civil / Landscaping
    - Existing Conditions Plan
    - Approved Site plan
    - Site demolition plan
    - Rougemont and Bahama site demolition and restoration plans
      - Drawing will utilize County GIS as base map and photographs to depict work required.
    - Staking plan
    - Erosion control plan
    - Grading plan
    - Site utility plan
    - Compactor layouts and hopper details
    - Storm drainage plan, details and schedule
    - Paving plans and details
    - Landscaping plans and details, plant schedule
  - Architectural
    - Demolition plans
    - Key plans with final room numbers as approved by County
    - Critical sections and details identified and drawn
    - Roof plan with all penetrations
    - Exterior elevations with control joints located
    - Toilet room layout with all fixtures and dimensions
    - Toilet room elevations
    - Reflected ceiling plan with all fixtures located and ceiling height identified
    - Bulkhead and lintel details
    - Finish plan and schedule
    - Door and hardware schedule, elevations, and head and jamb details
    - Masonry details
    - Roof details

- Stair details
- Casework elevations
- Structural
  - Demolition plans
  - Footing plans and details
  - Reinforcing steel plans
  - Structural steel plans
- Plumbing
  - Fixture schedule
  - Plumbing plans
  - Enlarged toilet room plans
  - Riser diagrams for waste and vent, water, storm drainage, and gas
  - Plumbing site plan
  - Plumbing details
- Mechanical
  - Ductwork and piping completely located and sized
  - Complete equipment schedules
  - Mechanical room enlarged plans and sections
  - Schematic control diagrams
  - Mechanical details
- Electrical
  - Demolition plan
  - Fixture schedule
  - Electrical site plan
  - Power plan with panels located and identified
  - Lighting plan
  - Complete plans for auxiliary systems including but not limited to, fire alarm, voice/data, intercom, and security
  - Riser diagrams for all systems
  - Panel schedule

### III. SERVICES TO BE PROVIDED BY THE COUNTY

To support HDR's efforts in this project, Durham County agrees to provide the following services:

- Provide access to the proposed site for completion of geotechnical work and survey.
- County will provide timely review of materials submitted in order to maintain project schedule and deliverables.
- Coordination with HDR Team for scheduling and attendance at design review meetings.

### IV. PROJECT TEAM

The proposed project team consists of the following key personnel:

Mike Plummer, PE	Project Director
Jeffrey Murray, PE	Sr. Project Manager
Tom Yanoschak, PE	Sr. Project Engineer
Patrick Brownson, PE	Civil Engineer

Tiffany Preddy, EIT	Engineering Intern
John Gaul	Sr. CADD Designer
Justin Raymond	CADD Technician
Brian Keaney, PE	Sr. Geotechnical Engineer
Robert Baysden, PE	Sr. Project Engineer – E&SC
Michael Tepedino, PE	Sr. Structural Project Engineer
Greg Astroth, PE	Sr. Electrical Engineer
John Tabor, FAIA	Sr. Project Architect
Chris Work, PE	Sr. Mechanical Engineer
Bud E. Baughman, PLS, CFS	Director of Surveying (MLA Design Group)
Paul Fidishun, RLA	Sr. Landscape Architect (MLA Design Group)
Geotechnical Drilling	Froehling & Robertson

MLA Design Group is a NC HUB Certified AA firm and Froehling & Robertson is a NC HUB Certified AI firm.

## V. SCHEDULE

We shall complete the above tasks in accordance with the following schedule assuming, receipt of Notice to Proceed by December 20, 2019.

Kickoff Meeting	Early January 2020
E&SC and Stormwater Submittal	Late February 2020
60% Design Review	Late February 2020
100% Design Review	Late March 2020
Final Construction Documents	Mid-April 2020

## VI. PAYMENTS TO PROVIDER:

HDR recommends a Not to Exceed budget of **\$230,000** for the Construction Document Phase Services of the project. A summary of the estimated budget is provided below and detailed budget estimates with level of effort and rates are attached. Actual costs will be invoiced on a time and materials basis in accordance with the Schedule of Fees. Travel and subsistence expenses, materials and supplies, and other direct costs will be invoiced at cost. Outside professional services, borings, surveying, and the purchase of specialized equipment required for a project will be billed at cost plus 10%. Mileage will be charged at the approved IRS reimbursable rate.

The proposed budget includes \$21,500 or 9.34% of W/MBE participation in this phase of the project.

The first phase of the project, Master Planning and Permitting Assistance (Schematic Design Phase), was completed for a total fee of \$134,462, and included \$40,564 of W/MBE participation.

With the addition of this second phase of the project the **Total Estimated Fee** will be **\$364,462** and includes an estimated \$62,064 or 17% W/MBE participation.

**Construction Document Phase Budget Summary**

<b>Task</b>	<b>Description</b>	<b>Estimated Fee</b>
1.0	Additional Basis Service	\$2,140
	(Lot Recombination)	\$1,500
2.0	Geotechnical Investigation	\$25,140
3.0	E&SC and Stormwater Permitting	\$38,810
4.0	60% Construction Documents	\$76,865
5.0	100% Construction Documents	\$70,075
6.0	Design Review Meetings	\$15,470
	<b>TOTAL</b>	<b>\$230,000</b>

HDR Engineering, Inc. of the Carolinas  
**Attachment B - North Convenience Center Construction Documents**

<i>Labor Category</i>	<b>Task</b>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<b>Total</b>	
	<b>Rate</b>	<i>Additional Basic Service</i>	<i>Geotechnical Investigation</i>	<i>E&amp;SC and Stormwater</i>	<i>60% Construction Documents</i>	<i>100% Construction Documents</i>	<i>Design Review Meetings</i>	Hours	Cost
	<b>\$/hr</b>								
<i>HDR Engineering Inc. of the Carolinas</i>									
Sr. Project Manager	\$ 220	8	9	44	45	42	28	176	\$ 38,720
Sr. Civil Project Engineer	\$ 210			32		6		38	\$ 7,980
Civil Project Engineer	\$ 115			46				46	\$ 5,290
Civil Engineering Intern	\$ 95		54	48	20	25	12	159	\$ 15,105
Sr. Civil CADD Technician	\$ 140			8		6		14	\$ 1,960
Civil CADD Technician	\$ 100		4	110	3	12		129	\$ 12,900
Geotechnical Engineer	\$ 150		36					36	\$ 5,400
Project Architect	\$ 145	2			90	94	22	208	\$ 30,160
Architectural CADD Technician	\$ 75				60	60		120	\$ 9,000
Sr. Structural Engineer	\$ 170		2		54	44	6	106	\$ 18,020
Structural CADD Technician	\$ 85				52	38		90	\$ 7,650
Sr. Electrical Engineer	\$ 180				54	54	6	114	\$ 20,520
Electrical CADD Technician	\$ 115				38	42		80	\$ 9,200
Sr. Mechanical Engineer	\$ 180				48	38	6	92	\$ 16,560
Mechanical CADD Technician	\$ 105				31	26		57	\$ 5,985
Clerical/Administrative Support	\$ 90	1	1	1	12	10		25	\$ 2,250
<b>Total Labor (hrs)</b>		<b>11</b>	<b>106</b>	<b>289</b>	<b>507</b>	<b>497</b>	<b>80</b>	<b>1490</b>	
<b>Labor Costs</b>		<b>\$ 2,140</b>	<b>\$ 13,340</b>	<b>\$ 38,460</b>	<b>\$ 70,315</b>	<b>\$ 68,775</b>	<b>\$ 13,670</b>		<b>\$ 206,700</b>
<b>Subconsultants</b>									
MLA Design Group (NC HUB AA)		\$ 1,500	\$ -	\$ -	\$ 6,250	\$ 1,000	\$ 1,250		\$ 10,000
F&R Geotechnical Drilling (NC HUB AI)		\$ -	\$ 11,500	\$ -	\$ -	\$ -	\$ -		\$ 11,500
<b>Other Direct Costs</b>									
Travel		\$ -	\$ 250	\$ 250	\$ -	\$ -	\$ 500		\$ 1,000
Copy/Mail		\$ -	\$ 50	\$ 100	\$ 300	\$ 300	\$ 50		\$ 800
<b>Total Direct</b>		<b>\$ 1,500</b>	<b>\$ 11,800</b>	<b>\$ 350</b>	<b>\$ 6,550</b>	<b>\$ 1,300</b>	<b>\$ 1,800</b>		<b>\$ 23,300</b>
<b>TOTAL COST</b>		<b>\$ 3,640</b>	<b>\$ 25,140</b>	<b>\$ 38,810</b>	<b>\$ 76,865</b>	<b>\$ 70,075</b>	<b>\$ 15,470</b>		<b>\$ 230,000</b>