



February 28, 2025 (Revised July 15, 2025)

Jerry F. Morrone, P.E.
Project Manager
Durham County Engineering and Environmental Services
Utilities Division
5926 NC Highway 55 East
Durham, North Carolina 27713

**Re: Proposal for Construction Materials Testing Services
Page Park, Slater and Chin Page Lift Stations**
Durham, North Carolina
F&R Proposal No. 2566-00047

Dear Mr. Morrone,

Froehling & Robertson, Inc. (F&R) is pleased to submit this proposal to provide Construction Materials Testing (CMT) services for the Page Park Lift Station Improvements, Slater Lift Station and Force Main, and Chin Page Lift Station projects. This proposal was prepared based on information provided in recent meetings, email correspondence, and the Slater Road PS/Page Park PS plans (50% Design GMP) dated October 22, 2024 and the Chin Page PS (30% Design Submittal) plans dated March 21, 2025. When updated plans and/or a construction schedule become available, F&R requests the opportunity to review and revise the proposal as needed.

PROJECT INFORMATION

The projects include improvements to three lift station sites located in Morrisville and Durham, North Carolina. The Page Park Lift Station is located near the intersection of Bear Creek Path and Wind River Parkway in Morrisville, the Slater Lift Station is located at 1211 Shiloh Glen Drive in Durham, and the Chin Page Lift Station is located at 4503 S. Miami Blvd in Durham. Based on our review of the project plans, site development activities will generally include: partial to full demolition of the existing lift station and surrounding infrastructure; construction of a new lift station, including pre-cast concrete structures, gravity sewer services, water services, electrical conduit banks, and concrete equipment pads; site concrete; and installation of off-site utilities (sewer mains and force mains).

SCOPE OF SERVICES

F&R will provide engineering technicians to perform the requested CMT services. The technicians will be working under the supervision of a project manager and/or professional engineer from F&R that is familiar with the project requirements. The following is our anticipated scope of services for this project:



- Obtaining samples of structural fill material for laboratory testing. Standard geotechnical index testing on proposed fill materials will include Standard Proctor compaction and soil classification testing (*i.e.*, natural moisture content, sieve analysis and Atterberg Limits).
- Evaluating foundation bearing grades to verify net allowable bearing capacity by performing hand probing and shallow hand auger borings with Dynamic Cone Penetrometer (DCP) testing.
- Observing proofrolls of subgrades prior to fill placement.
- Conducting field density testing (*i.e.*, compaction testing) of structural fill and backfill materials.
- Observe proofrolls and perform density testing of road subgrades, as well as thickness measurements and density testing of ABC stone base course materials.
- Observe asphalt placement, perform temperature testing on the asphalt at the time of placement, and perform random nuclear density tests on the asphalt, if requested.
- Obtain asphalt cores for thickness and density measurements, if requested.
- Conducting field observation and testing of ready-mixed concrete, and casting sample specimens for laboratory compressive strength testing.
- Wet Well coating inspections.
- Field inspection of bolted connections.

REPORTING

The results of F&R's observations and testing will be presented in Daily Field Reports that will be electronically provided to the project team. If non-conformities or discrepancies are noted during the testing and observations, a Discrepancy Notice will be documented in the Daily Field Report and listed on a Discrepancy Log. The Discrepancy Log will be used to track issues through their resolution, and will be issued electronically and updated as new discrepancies are listed. Laboratory testing reports will be issued upon completion of the laboratory test.

STAFFING ASSUMPTIONS

This proposal was prepared based on our review of the provided project plans and project construction schedule as well as the frequency and durations provided by Durham County in an email dated March 26, 2025. The following are our assumptions regarding construction activities:

PAGE PARK LIFT STATION

- **Parking Lot:** F&R has budgeted for a **Senior / Engineering Technician** to make 5 site visits averaging 6 hours per visit to observe backfill placement, and test ABC stone prior to asphalt placement.
- **Pump Station Structures:** F&R has budgeted for a **Special Inspector / Engineering Technician** to make 8 site visits averaging 4 hours per visit to sample and test concrete as well as transport the cylinders to the laboratory following initial curing.



- **Pump Station Backfill:** F&R has budgeted for **Senior / Engineering Technician** to be on site full-time for 4 weeks to observe and test backfill of the pump station structures.
- F&R has also included fees for laboratory testing of one (1) bulk soil sample.

SLATER LIFT STATION

- **Access Road:** F&R has budgeted for a **Senior / Engineering Technician** to make 5 site visits averaging 6 hours per visit to observe fill placement and evaluate soil subgrade prior to the gravel placement.
- **Retaining Walls:** F&R has budgeted for a **Senior / Engineering Technician** to make 4 site visits averaging 6 hours per visit to observe wall construction.
- **Pump Station Structures:** F&R has budgeted for a **Special Inspector / Engineering Technician** to make 8 site visits averaging 4 hours per visit to sample and test concrete as well as transport the cylinders to the laboratory following initial curing.
- **Truck Turnaround:** F&R has budgeted for an **Engineering Technician** to make 2 site visits averaging 4 hours per visit to sample and test concrete as well as transport the cylinders to the laboratory following initial curing.
- **Pump Station Backfill:** F&R has budgeted for **Senior / Engineering Technician** to be on site full-time for 4 weeks to observe and test backfill of the pump station structures.
- **Off-site Utility Backfill:** F&R has budgeted for a **Senior / Engineering Technician** to make 20 site visits averaging 6 hours per visit to observe and test backfill placement on Emperor and Miami Boulevard.
- F&R has estimated for a **Certified Welding Inspector** to make 4 visits, averaging 6 hours per visit, to provide inspect structural steel.
- F&R has budgeted for engineering site visits by a **Project Manager and/or Senior Professional Engineer** to observe and discuss construction issues that may arise, attend project meetings, check on work progress, and perform engineering inspections as needed, etc.
- F&R estimates a total of thirteen (13) sets of concrete cylinders (5, 4"x8" cylinders per set) will be cast for compressive strength testing.
- F&R has also included fees for laboratory testing of two (2) bulk soil samples.
- Please note, based on review of the plans, more specifically sheet 18, detail A/18, the lift station structures appear to be pre-cast.

CHIN PAGE LIFT STATION

- **Access Road:** F&R has budgeted for a **Senior / Engineering Technician** to make 5 site visits averaging 6 hours per visit to observe fill placement and evaluate soil subgrade prior to the gravel placement.



- **Pump Station Structures:** F&R has budgeted for a **Special Inspector / Engineering Technician** to make 8 site visits averaging 4 hours per visit to sample and test concrete as well as transport the cylinders to the laboratory following initial curing.
- **Pump Station Backfill:** F&R has budgeted for **Senior / Engineering Technician** to be on site full-time for 4 weeks to observe and test backfill of the pump station structures.
- **Electrical Building:** F&R has budgeted for a **Senior Engineering Technician / Special Inspector** to make 4 site visits averaging 4 hours per visit to evaluate footing bearing grades, inspect reinforcing steel, sample and test concrete placed for the building foundations as well as transport the cylinders to the laboratory following initial curing.
- F&R has estimated for a **Certified Welding Inspector** to make 2 visits, averaging 6 hours per visit, to provide inspect structural steel.
- F&R has budgeted for engineering site visits by a **Project Manager and/or Senior Professional Engineer** to observe and discuss construction issues that may arise, attend project meetings, check on work progress, and perform engineering inspections as needed, etc.
- F&R estimates a total of thirteen (13) sets of concrete cylinders (5, 4"x8" cylinders per set) will be cast for compressive strength testing.
- F&R has also included fees for laboratory testing of one (1) bulk soil sample.
- Based on the email correspondence on February 26th, 2025, no testing for the off-site gravity sewer/force main utility was included.
- Please note, due to the lack of information available at the time of this proposal, the Chin Page Lift Station estimate was based on the Slater Lift Station drawings, with quantities changed based on recent email correspondence.

As previously mentioned, F&R did not receive plans or a construction schedule for the Chin Page Lift Station. When plans and/or a construction schedule become available, F&R requests the opportunity to review and revise the proposal as needed. Based on the presented scope of services and review of the plans and specifications, F&R's fees for providing Construction Materials Testing services are as follows:

Lift Station Project	Budget Totals
Page Park	\$27,155.00
Slater	\$60,780.00
Chin Page	\$46,978.00
Total	\$124,913.00



The attached Budget Costs presents an itemized breakdown of the fees including unit rates and quantities. Please note that F&R's time on site is based heavily on the contractor's work schedule and other factors such as weather, postponements, and delays. Given these variables, the budget costs should be considered approximate.

CLOSURE

We appreciate the opportunity to submit this proposal for the Park Page, Slater, and Chin Page Lift Station projects. Please do not hesitate to contact us if you have any questions regarding this proposal or need additional information.

Sincerely,
FROEHLING & ROBERTSON, INC.

Willis Pesl
Project Manager I

Kyle L. Murphy, P.E.
CMT Department Manager/Senior Engineer

Attachment: Budget Costs



BUDGET COSTS
Construction Materials Testing Services
Page Park Lift Station Improvements
Morrisville, North Carolina
F&R Proposal No. 2566-00047

SERVICE CATEGORY	RATE /UNIT	ESTIMATED UNITS	ESTIMATED COST
Field Services*			
Senior Engineering Technician			
Regular Time	\$90.00 /hour	32	\$2,880.00
Overtime	\$115.00 /hour	0	\$0.00
Engineering Technician			
Regular Time	\$80.00 /hour	153	\$12,240.00
Overtime	\$95.00 /hour	17	\$1,615.00
Special Inspector			
Regular Time	\$105.00 /hour	20	\$2,100.00
Overtime	\$135.00 /hour	0	\$0.00
Certified Welding Inspector	\$145.00 /hour	0	\$0.00
Project Manager - Site Visit	\$150.00 /hour	4	\$600.00
Senior Professional Engineer - Site Visit	\$200.00 /hour	0	\$0.00
Nuclear Density Gauge	\$40.00 /day	20	\$800.00
Trip Charge	\$38.00 /trip	35	\$1,330.00
Subtotal - Field Services:			\$21,565.00
Laboratory Testing Services			
Standard Proctor	\$240.00 /test	1	\$240.00
Sieve Analysis	\$110.00 /test	1	\$110.00
Atterberg Limits	\$135.00 /test	1	\$135.00
Moisture Content	\$15.00 /test	1	\$15.00
Compressive Strength Cylinders (4x8" samples, 5 /set)	\$20.00 /cylinder	20	\$400.00
Subtotal - Laboratory Testing Services:			\$900.00
Office Services - Project Management & Geotech Recommendations			
Project Manager	\$150.00 /hour	20	\$3,000.00
Senior Professional Engineer	\$200.00 /hour	8	\$1,600.00
Clerical	\$90.00 /hour	1	\$90.00
Subtotal - Office Services:			\$4,690.00
Project Budget Total:			\$27,155.00

*Time is charged portal to portal.



BUDGET COSTS
Construction Materials Testing Services
Slater Lift Station and Force Main
Durham, North Carolina
F&R Proposal No. 2566-00047

SERVICE CATEGORY	RATE /UNIT	ESTIMATED UNITS	ESTIMATED COST
Field Services*			
Senior Engineering Technician			
Regular Time	\$90.00 /hour	40	\$3,600.00
Overtime	\$115.00 /hour	0	\$0.00
Engineering Technician			
Regular Time	\$80.00 /hour	284	\$22,720.00
Overtime	\$95.00 /hour	30	\$2,850.00
Special Inspector			
Regular Time	\$105.00 /hour	20	\$2,100.00
Overtime	\$135.00 /hour	0	\$0.00
Certified Welding Inspector	\$145.00 /hour	24	\$3,480.00
Project Manager - Site Visit	\$150.00 /hour	32	\$4,800.00
Senior Professional Engineer - Site Visit	\$200.00 /hour	12	\$2,400.00
Nuclear Density Gauge	\$40.00 /day	45	\$1,800.00
Trip Charge	\$34.00 /trip	75	\$2,550.00
Subtotal - Field Services:			\$46,300.00
Laboratory Testing Services			
Standard Proctor	\$240.00 /test	2	\$480.00
Sieve Analysis	\$110.00 /test	2	\$220.00
Atterberg Limits	\$135.00 /test	2	\$270.00
Moisture Content	\$15.00 /test	2	\$30.00
Compressive Strength Cylinders (4x8" samples, 5 /set)	\$20.00 /cylinder	65	\$1,300.00
Subtotal - Laboratory Testing Services:			\$2,300.00
Office Services - Project Management & Geotech Recommendations			
Project Manager	\$150.00 /hour	60	\$9,000.00
Senior Professional Engineer	\$200.00 /hour	15	\$3,000.00
Clerical	\$90.00 /hour	2	\$180.00
Subtotal - Office Services:			\$12,180.00
Project Budget Total:			\$60,780.00

*Time is charged portal to portal.



BUDGET COSTS
Construction Materials Testing Services
Chin Page Lift Station and Gravity Sewer
Durham, North Carolina
F&R Proposal No. 2566-00047

SERVICE CATEGORY	RATE /UNIT	ESTIMATED UNITS	ESTIMATED COST
Field Services*			
Senior Engineering Technician			
Regular Time	\$90.00 /hour	40	\$3,600.00
Overtime	\$115.00 /hour	0	\$0.00
Engineering Technician			
Regular Time	\$80.00 /hour	150	\$12,000.00
Overtime	\$95.00 /hour	16	\$1,520.00
Special Inspector			
Regular Time	\$105.00 /hour	32	\$3,360.00
Overtime	\$135.00 /hour	0	\$0.00
Certified Welding Inspector	\$145.00 /hour	12	\$1,740.00
Project Manager - Site Visit	\$150.00 /hour	16	\$2,400.00
Senior Professional Engineer - Site Visit	\$200.00 /hour	8	\$1,600.00
Nuclear Density Gauge	\$40.00 /day	25	\$1,000.00
Trip Charge	\$36.00 /trip	38	\$1,368.00
Subtotal - Field Services:			\$28,588.00
Laboratory Testing Services			
Standard Proctor	\$240.00 /test	1	\$240.00
Sieve Analysis	\$110.00 /test	1	\$110.00
Atterberg Limits	\$135.00 /test	1	\$135.00
Moisture Content	\$15.00 /test	1	\$15.00
Compressive Strength Cylinders (4x8" samples, 5 /set)	\$20.00 /cylinder	65	\$1,300.00
Subtotal - Laboratory Testing Services:			\$1,800.00
Office Services - Project Management & Geotech Recommendations			
Project Manager	\$150.00 /hour	30	\$4,500.00
Senior Professional Engineer	\$200.00 /hour	10	\$2,000.00
Clerical	\$90.00 /hour	1	\$90.00
Subtotal - Office Services:			\$6,590.00
Project Budget Total:			\$36,978.00

*Time is charged portal to portal.