

November 20, 2012

Mr. Peter Rascoe
Town of Southern Shores
Town Manager
5375 N. Virginia Dare Trail.
Southern Shores, NC 27949

333 Fayetteville Street
Suite 600
Raleigh, NC
27601

Re: Planning and Engineering Services for STIP Project B-5417
Replacement of Bridge # 17, South Dogwood Trail over Snow Goose Canal
Town of Southern Shores, Dare County, North Carolina

Dear Mr. Rascoe:

Kimley-Horn and Associates, Inc. ("KHA" or "The Consultant") is pleased to submit this agreement (the "Agreement") to the Town of Southern Shores, North Carolina ("the Client" or "the Town") for providing planning and engineering consulting services. Our project understanding and scope of services are below.

PROJECT UNDERSTANDING

The Consultant understands the Town of Southern Shores has entered into a Municipal Agreement with the North Carolina Department of Transportation (NCDOT) for the replacement of Bridge #17 as referenced above. The Municipal Bridge Program provides federal aid funds for bridges that are located on municipal streets and are not part of the state highway system. Bridge projects are funded using 80% Federal-Aid, Highway Bridge Program Funds with 20% matching Municipal funds required.

An original project scoping meeting was held on June 22, 2012. The original scope, as summarized in notes, has been simplified to include planning, preliminary and final design, and bidding phase services for the replacement of Bridge #17.

All work will follow the NC Department of Transportation's Program Development Branch procedures for Municipal Bridge Program Guidelines for Federal-Aid, Highway Bridge Program Projects, and dated March 5, 2012.

The following services are further defined in this scope of services document:

- Task 1 Coordination/Review Meetings/Administration
- Task 2 Data Collection and Review
- Task 3 Programmatic Categorical Exclusion
- Task 4 Environmental Permitting
- Task 5 Structural Design
- Task 6 Roadway Design and Plan Submittal
- Task 7 Hydraulic Design
- Task 8 Erosion Control Plans
- Task 9 Utility Conflict Plans / Water Line Design
- Task 10 Right-of-Way Negotiation and Acquisitions
- Task 11 Contract Documents and Specification
- Task 12 Opinion of Probable Cost
- Task 13 Bid Phase Services

SCOPE OF SERVICES

Task 1 – Coordination/Review Meetings/Administration

The Consultant will coordinate services rendered with the Town and NCDOT with respect to present and known future highway and site improvements which may affect or impact the proposed project plans. Upon receiving Notice to Proceed, the Consultant will establish a work plan and schedule. The schedule will be based on prior meetings with the Client and NCDOT representatives where project objectives and scheduled milestones were discussed. The project schedule will be submitted to the Client and NCDOT staff for use and comment and will be updated as necessary by the Consultant during the project life as necessary.

This project will require meetings with the Client and NCDOT at various times throughout the design and bid process. These meetings are defined in the various tasks that follow. The Consultant will compile notes of the meetings and provide copies to attendees.

Administrative tasks include monthly progress reports and invoicing for up to twenty-four (24) months, correspondence, transmittals, phone contacts, email, and other general project management tasks that will be performed. A written progress report from the Consultant project manager will accompany each monthly invoice.

Task 2 - Data Collection and Review

Survey and Base Mapping – Survey information and base mapping will be provided to the Consultant by Sub-Consultant (McKim & Creed).

All survey services for this project will be performed in accordance with, and will conform to, accepted Surveying and Engineering general practices and procedures with the detailed scope of work as set forth and described below.

Survey Limits - The survey limits are defined as 800' in length along South Dogwood Trail from before the intersection at Tall Pine Lane to just past Fairway Dr., with a corridor width of 200' (100' each side of South Dogwood Trail.).

Property Owner Notification – The Surveyor will notify all property owners along the limits of survey by mail of the proposed surveying effort. The letter will also ask the property owners if they are on either wells or septic tanks and if their locations are known.

Property Research/Document Retrieval - The Surveyor will obtain current deeds, maps, plats, and easement documents for all parcels adjacent to the project and for which right of way acquisition will be required.

Establish Horizontal and Vertical Control Network - The Surveyor will provide a horizontal and vertical traverse throughout the Project. Horizontal Control will be referenced to North Carolina Geodetic Survey datum, NAD83 adjustment. Control will consist of a "random baseline traverse" monumented by 24" lengths of #4 rebar with stamped caps set flush with the ground, or PK

pavement nails where appropriate. Each control point will have x, y, and z coordinate values.

Vertical Control will be based upon United States Geodetic Survey NAVD88 datum. The Surveyor will set benchmarks throughout the Project. Railroad spikes placed in the base of trees will be utilized where possible and will be placed outside of the proposed construction limits. The benchmark locations and descriptions will be shown on the final plans.

Pavement Digital Terrain Model - Sufficient horizontal and vertical data points will be collected throughout the project corridor to create a digital terrain model to accurately define topography and grades for all paved surfaces within the project limits as described above. For most areas within the project limits, data points will be collected in sufficient density to be equivalent to a fifty-foot grid; however, the data points may not be collected in a true grid pattern in order to facilitate locating trees and other existing features.

Planimetric Mapping - The Surveyor will field locate and map planimetric information throughout the project limits as described above. Said information will include, but is not limited to the following:

- ***Drives*** - location, type, and width
- ***Buildings*** - location, type, and size
- ***Vegetation*** - Landscape areas, woods lines, and all trees 8" dbh and ornamental trees 2" dbh and above
- ***Signs*** - location, type, and size
- ***Fences*** - location, type, and size
- ***Storm drainage*** - location, type, and size, top and invert elevations, inlet and outlet location both inside and one structure outside planimetric limits.
- ***Gravity sanitary sewer*** - location, type, and size, top and invert elevations.
- ***Septic tanks and drain fields*** - location as identified by property owner and/or County Public Health Department records.
- ***Water*** - location, valves (including top of nut elevations where accessible), meters, hydrants, wells (as surveyed and/or identified by Local records), and associated appurtenances.
- ***Gas*** - location, valves, meters, vents and associated appurtenances.
- ***Telephone*** - above ground appurtenances such as poles, pedestals, manholes and vaults.
- ***Overhead transmission*** - location, poles, guys, markers, pedestals, pole number, equipment, vertical clearance at grade crossings, and type to include power, telephone, cable TV, traffic signal and other telecommunications and communication lines.
- ***Sue Services*** - are not included in this scope of work. However, all above ground utility features within the survey limits will be collected and mapped.

Bulkhead & Snow Goose Canal Surveys - The Surveyor will collect sufficient horizontal and vertical data points along the top of existing bulkhead walls, fill face and stream face of bulkhead wall of existing ground, canal channel, and

centerline of the canal. A cross section of the canal will be surveyed at a minimum of 50' in each direction from the bridge and extend 100' upstream and downstream from the bridge.

Boundary Ties and Existing Boundary Mapping - Locate the existing right of way and recorded easements for all roadways within the project limits.

Perform sufficient fieldwork to complete boundary surveys for simultaneous conveyances and other small parcels, less than two (2) acre in area, within the project limits.

Larger parcels Two (2) acres in size and larger will be located by front corners and sufficient data to establish sidelines showing property corner ties.

Easement Staking and Plat Preparation – The Surveyor will stake all Easement points in the field and prepare a recordable plat for Easement acquisition.

Survey Delivery Items - The Surveyor will compile and plot all planimetric, subsurface utility information, and property line information at a scale of 1 inch equals 50 feet. This mapping will be delivered in MicroStation V8 file format for use in the development of final design plans. Drawing element symbology and text sizes will follow North Carolina Department of Transportation standards.

The Surveyor will provide Digital Terrain Model in a 3-D digital break-line survey format with x, y, and z digital coordinate information for each survey point, break-line, and a Geopak triangular irregular network (TIN) file.

Consultant Field Investigation - The Consultant will conduct a field investigation to verify surveyed physical features, conflicts, or constraints within the corridor that must be addressed during design. These physical features include existing roadway condition, driveway characteristics, right-of-way boundaries, structures and landscaping immediately adjacent to the proposed improvements, and other elements presenting constraints to design.

Geotechnical Investigations and Foundation Recommendations – Geotechnical investigations and foundation recommendations will be provided to the Consultant by Sub-Consultant (Catlin Engineers and Scientists).

All geotechnical services for this project will be performed in accordance with, and will conform to, accepted engineering general practices and procedures with the detailed scope of work as set forth and described below.

The scope of work proposed herein includes all engineering, drilling, field-testing, laboratory testing, surveying, and report preparation.

The proposed work will be performed as described below:

Safety - A safety meeting will be conducted prior to commencement of the project and will include all CATLIN personnel. Due to the location of the project, traffic control (signage) and temporary lane closure may be necessary. CATLIN will provide proper signage during the entire drilling process. Temporary lane closure will be provided by

others. A site specific Health and Safety Plan (HASP) will be completed by CATLIN prior to commencement of field activities. This document is to be reviewed and signed by all personnel involved with field activities prior to participating in field activities.

Drilling/Coring - The subsurface investigation is anticipated to be performed with a Diedrich D-50 trailer mounted drilling rig. Three borings are proposed for the project: One at each of the two end bents and one boring at the proposed interior bent. Borings depths are anticipated to be 100 feet below land surface (BLS).

All borings will be advanced utilizing conventional mud rotary drilling techniques in general accordance with American Society for Testing and Materials (ASTM) D-1586-84, "Penetration Test and Split Barrel Sampling of Soils" or American Association of State Highway and Transportation Officials (AASHTO) Standard Method T206-81.

Standard penetration testing (SPT) will be performed at five foot intervals beginning at land surface and continuing to boring termination. The field geologist will describe soil samples collected in the field in general accordance with AASHTO Designation M145-91, "The Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes." When mud rotary drilling methods are implemented, a Marsh funnel viscometer will be used to routinely check bentonite viscosity and density will be checked by use of a mud balance. Rock coring, if necessary, will be conducted using a NWD4 split-tube core barrel.

The field geologist will record all information on modified NCDOT field boring logs. Daily field activities will be recorded by the site supervisor on NCDOT approved Daily Activity Logs. All original field sheets will be submitted to Kimley-Horn for transmittal to NCDOT upon completion of the project.

Proposed load estimates will be provided by Kimley-Horn prior to commencement of drilling activities. Bearing capacity calculations will be conducted utilizing NCDOT provided Estimated Pile Tip Elevation worksheets. A foundation recommendation report will be prepared summarizing the results of the subsurface structure investigation, foundation recommendations, and relevant data to be used for design of the foundations.

Laboratory Testing – No Laboratory analysis of soils will be conducted as part of this investigation.

Surveying - CATLIN personnel will conduct surveying including boring locations with stations, offsets, and Northing/Easting Coordinates utilizing North Carolina State Plane (NCSP) North American Datum 1983 (NAD83) coordinate system. Horizontal and vertical control will be established utilizing a survey grade Geographical Positioning System (GPS). As per NCDOT Geotechnical Unit correspondence dated October 1, 2001, horizontal accuracy will be represented to the nearest foot, vertical depths will be represented to the nearest one-third of a foot (0.3ft), and depth of SPT drives will be recorded to the nearest one-tenth of a foot (0.1ft).

Borehole Abandonment - Borings will be backfilled with native material and bentonite chips to pre-existing ground elevation subsequent to collection of 24-hour ground water measurements. A protective cover such as sandbags or other suitable material will be placed over any open holes until they are backfilled.

The final deliverable shall consist of the following:



- One copy of a Structure Subsurface Investigation Report as outlined in Section 300-7 of NCDOT's *Geotechnical Unit Guidelines and Procedures Manual for Subsurface Investigations* (Guidelines) including all relevant plans (1), profiles (1), NCDOT boring logs (3), site photos, and core photos if necessary.
- Per NCDOT modification to the Guidelines, no written report is typically provided; however, for this project, one copy of a written foundation recommendation report will be submitted summarizing the structure subsurface investigation activities and results, foundation recommendations (including, but not limited to driven pile type/size, estimated pile length, minimum tip elevation, and preliminary point of fixity), a preliminary wave equation analysis to determine appropriate hammer properties and drivability, and other relevant data for the design of the foundations.
- One copy of Supportive Documents including Property Owner Contact Sheets, Boring Quantity Summation Sheets, Original Field Notes/Logs, Engineering Computation Sheets, and FHWA Checklist.

Task 3 – Programmatic Categorical Exclusion

The project is partially federally funded and is subject to the requirements of the National Environmental Policy Act of 1969, as amended (NEPA). It is our understanding based on discussions with NCDOT that this project requires a federal Programmatic Categorical Exclusion (PCE). The Consultant will provide the following services for the Town of Southern Shores and prepare the PCE document in accordance with current NCDOT procedures.

Data Collection - The Consultant will request and review a Bridge Inspection Report from NCDOT. The Consultant (at least two staff members, including one biologist and one engineer) will conduct a field review and review available aerial photography and mapping for the study area to gather information on existing roadway and environmental characteristics. (No traffic forecasting or capacity analysis efforts are anticipated or included in this scope of services.)

The Consultant will prepare a scoping (start of study) letter requesting environmental input along with a study area map for the project and mail the scoping letter to the appropriate local, State, and federal agencies. Comments received from agencies outside of NCDOT and responses (when appropriate) will be documented in the PCE. The Consultant will solicit input by phone and/or mail from appropriate agencies. The Consultant will maintain phone contact to entertain questions and comments from the public, local officials, and agencies. All conversations will be documented and copied to the Client. Any mail contact will be coordinated through the Client.

Project Documentation - The Consultant will provide the following services and prepare a Programmatic Categorical Exclusion (PCE) for the proposed bridge replacement project in accordance with current Federal Highway Administration (FHWA) and North Carolina Department of Transportation (NCDOT) policies and procedures for the preparation of the *Categorical Exclusion Action Classification Form*.

A. **Project Description** – The Consultant will summarize the project description and prepare Figure 1 showing the traffic detour route(s) if applicable during construction and the general project area.

B. Purpose and Need – The Consultant will summarize the project's Purpose and Need, including a brief discussion of the bridge sufficiency rating and superstructure condition (from the Bridge Inspection Report, provided by NCDOT).

C. Proposed Improvements – The Consultant will indicate the type of improvement(s) which apply to the proposed project.

D. Special Project Information – The Consultant will provide an estimate of probable costs based on 2012 prices and quantities estimated from functional roadway designs. If provided by NCDOT, the Consultant will report current and design year (2035 or 2040) estimated traffic. If traffic volumes are not available, the Consultant will omit this section of the PCE. The Consultant will note design exceptions for this project, if any. The Consultant will note the bicycle designation (if any) for this project. The Consultant will include a brief description of the bridge demolition practice. The Consultant will summarize alternatives, including the No Build Alternative and possibility of rehabilitation. The Consultant will note the traffic detour method (onsite or offsite) for this project. The Consultant will note comments provided by state and/or federal agencies for this project and responses to each comment. The Consultant will summarize the public involvement activities for the project.

E. Threshold Criteria – The Consultant will complete the following evaluation of threshold criteria as required for Type II actions:

Ecological – The Consultant will coordinate with environmental permitting agencies and review available databases to indicate the following in Section E:

- Whether the project will have a substantial impact on any unique or important natural resource
- Whether the project involves habitat where federally listed endangered or threatened species may occur
- Whether the project will affect anadromous fish
- If the project involves wetlands; if so, whether the amount of permanent and/or temporary wetland taking is less than one-tenth (1/10) of an acre and if all practicable measures to avoid and minimize wetland takings have been evaluated
- Whether the project will require the use of US Forest Service lands
- Whether the proposed construction activities will adversely impact the quality of adjacent water resources
- Whether the project involves waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)
- Whether the project requires fill in waters of the United States in any of the designated mountain trout counties
- Whether the project involves any known underground storage tanks (USTs) or hazardous materials sites

Permits and Coordination – The Consultant will coordinate with environmental permitting agencies and review available data to indicate the following in Section E:

- Whether the project (if located in a CAMA county) will significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)
- Whether the project involves Coastal Barrier Resources Act resources

- Whether a US Coast Guard permit will be required
- Whether the project will result in the modification of any existing regulatory floodway
- Whether the project requires any stream relocations or channel changes

Social, Economic, and Cultural Resources – The Consultant will coordinate with the appropriate agencies if necessary and review available databases to indicate the following in Section E:

- Whether the project will induce substantial impacts to planned growth or land use for the area
- Whether the project will require the relocation of any family or business
- Whether the project will have a disproportionately high and adverse human health and environmental effect on any minority or low-income population
- Whether the amount of right of way acquisition (if the project involves the acquisition of right of way) is considered minor
- Whether the project involves any changes in access control
- Whether the project substantially alters the usefulness and/or land use of adjacent property
- Whether the project will have an adverse effect on permanent local traffic patterns or community cohesiveness
- Whether the project is included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)
- Whether the project is anticipated to cause an increase in traffic volumes
- Whether traffic will be maintained during construction using existing roads, staged construction, or on-site detours
- Whether the bridge will be replaced at its existing location (along the existing facility) and whether all construction proposed in association with the bridge replacement project be contained on the existing facility
- Whether there is any substantial controversy on social, economic, or environmental grounds concerning the project
- Whether the project is consistent with all Federal, State, and local laws relating to the environmental aspects of the project
- Whether the project will have an “effect” on structures/properties eligible for or listed on the National Register of Historic Places
- Whether the project will affect any archaeological remains which are important to history or pre-history
- Whether the project will require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, historic sites, or historic bridges, as defined in Section 4(f) of the US Department of Transportation Act of 1966)
- Whether the project will result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Water Conservation Act of 1965, as amended
- Whether the project will involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the National System of Wild and Scenic Rivers

F. Additional Documentation Required for Unfavorable Responses in Part E – The Consultant will briefly elaborate on issues addressed in Section E requiring additional



documentation, indicated by an unfavorable response (yes or no answer outside of the provided box).

G. CE Approval – The Consultant will complete Section G of the document, including project numbers and the appropriate signature from a representative staff member of the Consultant. It is possible that this document will classify as a Type II (B) Categorical Exclusion due to anticipated permits needed. For Type II (B) projects, a signature is required from the Federal Highway Administration. The Consultant will attempt to obtain the NCDOT and FHWA signatures on this document.

The Consultant will submit two (2) copies of the PCE document to the Client for review and comment. Upon receiving one (1) set of comments, the Consultant will revise the document and submit two (2) copies of the report to NCDOT for review and comment. The Consultant will revise the document once per NCDOT comments.

Public Involvement - Using readily available tax mapping, a mailing list will be developed of property owners and residents likely to be impacted by the build alternative under study. The list will be maintained and updated as comments are received. A newsletter (one version) will be prepared by the Consultant and mailed to the addresses on the mailing list. The newsletter will be mailed in advance of the Citizens' Informational Workshop and will be used as an announcement for the workshop. In the event a workshop is not held, the newsletter will be prepared and mailed once the study alternative has been confirmed. A supply of newsletters will be provided to the Town for public availability. A Citizens' Informational Workshop may be conducted in proximity to the project upon completion of appropriate workshop map displays. The Consultant will coordinate a date, assist the Town in advertising the workshop, and notify members on the mailing list via a newsletter. The Consultant will prepare handouts and displays, assist the Town in workshop facilitation, attend the workshop, and prepare a summary of comments received. The Consultant will document and prepare necessary responses to any written responses received at or after the workshop.

Task 4 – Environmental Permitting

Preliminary Data Review and Data Collection – The Consultant will review available aerial photography and published data for the subject site, including topographic maps, National Wetlands Inventory (NWI) maps, waterway classification, soils mapping, threatened and endangered species occurrences, and cultural resource occurrences. Preliminary GIS maps will be prepared to assist with field work and for submittal to regulatory agencies.

Preliminary Conditions Assessment – The Consultant will prepare a Preliminary Conditions Assessment (PCA) summarizing the preliminary data review and anticipated environmental permits. Three (3) copies and one (1) electronic copy of the draft report will be submitted to the Client and NCDOT for review. The final report will be appended to the PCE.

Wetland and Stream Delineation - Jurisdictional boundaries of the Waters of the U.S. within the project study area will be identified in accordance with U.S. Army Corps of Engineers (USACE) national and regional guidelines. The boundaries will be field located with GPS units, and site-specific information will be gathered to complete data forms required by the USACE for approval of jurisdictional boundaries, and to assist with



Clean Water Act Section 401/404 permitting with the USACE and N.C. Division of Water Quality (NCDWQ). Information will also be gathered as required by the N.C. Division of Coastal Management (NCDCM) to establish the limits of the Area of Environmental Concern (AEC) within the project boundary, and to assist with the preparation of Coastal Area Management Act (CAMA) permitting requirements. Site data will also be gathered as required by the U.S. Coast Guard (USCG) to assist with preparation of Rivers and Harbors Act Section 9 permitting.

Agency Concurrence – The Consultant will contact the USACE, NCDWQ, NCDCM, and USCG to initiate necessary agency concurrence and approval/permitting procedures. This task will include communicating with these environmental regulatory agencies to determine specific permitting requirements and constraints. It is anticipated that on-site inspections may be required as part of this process and attempts will be made to coordinate meeting times, as dictated by the project schedule and flexibility of the agencies.

Permit Application Preparation, Submittal, and Tracking – The Consultant will prepare appropriate permit applications to the USACE, NCDWQ, NCDCM, and USCG and track the permit applications through the regulatory processes as outlined below:

- USACE – The Consultant will prepare a Preconstruction Notification Application and supporting materials to submit for Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act permit approval, if necessary. It is assumed that this project will qualify for authorization by Nationwide or Regional Permit. If an individual permit is required, the application can be prepared as an additional service.
- NCDWQ - The Consultant will prepare a Preconstruction Notification Application and supporting materials to submit for Section 401 permit approval. It is assumed that this project will qualify for a General Water Quality Certification. If an individual certification is required, the application can be prepared as an additional service. Additionally, as part of the 401 approval process NCDWQ may require the preparation of a stormwater management plans in accordance with coastal stormwater regulations. If so, these plans can be prepared as an additional service.
- NCDCM – Based on preliminary information, it is anticipated that the project will require authorization under a CAMA Major Permit. The Consultant will prepare the necessary information to submit to NCDCM for CAMA Major Permit approval. Depending on agency preference, this process may act as an umbrella permit process, in which case the USACE and NCDWQ permits will be applied for through the same application. The application requires notification of adjacent waterfront owners and preparation of detailed project plans and descriptions, an AEC Hazard Notice, as well as additional forms as required by NCDCM (e.g., form DCM-MP-2 for excavation and fill, form DCM-MP-4 for structures within public trust areas, and/or form DCM-MP-5 for bridges and culverts). If NCDCM determines that the project qualifies for a CAMA General Permit, documentation will be prepared as necessary to obtain approval by General Permit rather than submitting a Major Permit application.
- USCG – Based on preliminary information, it is assumed that the project will require authorization under Section 9 of the Rivers and Harbors Act. The Consultant will prepare the necessary information to submit for a Section 9 Bridge Permit from the USCG. It is assumed that the project will



qualify for the Advanced Approval Process. If the project does not qualify for Advanced Approval, additional services may be required to complete the Section 9 application process. If an environmental assessment beyond what is scoped and provided as part of task 3 is required as part of the permit application, the additional work will be considered additional services.

Preconstruction Consultation – The Consultant will attend preconstruction meetings with the applicant and contractor (up to two meetings total) to discuss permitted work limits and required permit conditions. This service is included in an effort to maintain permit compliance through the project and avoid potential violations and/or work stoppages associated with non-compliance.

The services mentioned above are limited to the preparation, submittal and tracking of permit applications/approvals for the specifically mentioned agencies. Other than those mentioned above, additional services, which are not included as part of this proposal, include public meetings and/or hearings associated with the permit processes, preparation of environmental documents such as environmental assessments or environmental impact statements, preparation of mitigation plans, consultation with the US Fish and Wildlife Service or National Marine Fisheries Service for impacts to threatened or endangered species, or consultation with the N.C. Department of Cultural Resources for impacts to cultural resources. If necessary, this work can be conducted as an additional service.

Task 5 – Structural Design

All Structural designs will be developed in accordance with the NCDOT Structure Design Unit Design Manual and other applicable guidelines as required.

Task 5A – Southern Dogwood Trail Bridge

Based on the foundation recommendations provided by Catlin Engineers and Scientists, The Consultant will design a replacement bridge for Bridge # 17 (Southern Dogwood Trail over Snow Goose Canal).

The following items shall be considered in determining bridge length:

- No decrease in the channel span or vertical clearance over the channel.
- No bulkhead walls under the bridge. Span length would be set based on 2:1 slope from the toe of bulkhead wall back to end bent.

Preferred structure is a two span bridge (estimated span lengths 45' - 65', to be determined).

Superstructure type: 33' width cored slab bridge, 29' clear roadway width (5' path + 2-11' travel lane + 2' shoulder), 2 bar metal rail on the East side and 42" concrete rail on the West side. Path will not be elevated above the roadway grade.

Substructure type: Prestressed pile end bents and interior bent.

NCDOT Standard Corcd Slab Bridge Plans shall be used with minor modifications for add 2 bar metal rail detail.

Preliminary bridge plans shall be submitted to the Town and NCDOT for review in accordance with the NCDOT Design Manual. These plans shall be submitted at the 25% construction documents phase. Final review bridge plans and design calculations shall be submitted at the 90% construction document phases.

After incorporating 90% Town and NCDOT review comments, two (2) sets of 100% bridge plans and design calculations shall be submitted.

Roadway will be closed for construction, no temporary roadway bridge or construction phasing of bridge is required or currently scoped for this project.

If NCDOT standard plans cannot be used for the bridge plans then the expanded service shall be scoped as an additional service.

Task 5b – Bulkhead Walls Design and Construction Documents (if required)

If the span arrangement can be worked out without bulkhead walls then this service shall be scoped as an additional service.

Task 6 – Roadway Design and Plan Submittal

The Consultant will conduct a design field investigation (independent of the environmental screening field investigation) to identify physical features, conflicts, or constraints that should be addressed during development of the roadway designs. These physical features include right of way boundaries, existing structures, drainage patterns, utilities immediately adjacent to the site, and other elements that need to be addressed as part of the horizontal designs.

The Consultant will develop design criteria to include information related to the proposed project. The design criteria will be in compliance with the current (2004) American Association of State Highway and Transportation Officials (AASHTO) Guidelines titled *A Policy on Geometric Design of Highways and Streets* and the NCDOT Roadway Design Manual. The design criteria will be submitted to the Town and NCDOT for review. Revisions to the design criteria (if required) will be addressed as design plans are developed.

25% Construction Plans (Included in PCE Process) - Using the base mapping information provided (ground survey and aerial photography); the Consultant will develop 25% roadway plans for the proposed improvements as described above. The 25% plan set will generally consist of a title sheet, typical sections, plan & profile sheets, existing utilities sheet and roadway cross-sections. Cross sections will be cut at 50' intervals along the proposed alignments. These cross sections, along with the typical sections will be used to identify the cut and fill limits and serve as the basis for determining earthwork volumes and construction limits.

The 25% plans will be developed in compliance with all Federal, State, and Local regulations. In accordance with NCDOT practices, the Consultant will use Microstation V8 for drafting and Geopak for Design. All designs will be prepared on 22" x 34" sheets and will include horizontal designs overlaid onto existing information.



25% Plan Deliverables – The Consultant will submit 6 sets of the 25% plans to the NCDOT Special Studies Unit for review. In addition, the Consultant will submit 2 sets of plans to the Town for review and comment.

25% Review Meeting with the Town – at the completion of the 25% designs, the Consultant shall make available responsible staff members to participate in one plan review meeting to be held at the Town office in Southern Shores.

75% Construction Plans - After approval of the 25% Construction plans (25%) and all applicable comments are received, the roadway plans shall be developed to a stage where they are approximately 75% complete. The Consultant shall produce the roadway design plans with a horizontal scale of 1" = 50' and a vertical scale of 1" = 10'. All existing roadways, structures, utilities and other items affected by the project, as provided by surveys, will be shown in addition to the proposed construction. The plans will include title sheet, vertical and horizontal geometrics, pavements, drainage designs, water main design, preliminary erosion control plans, cross sections, details, right-of-way and easements, property lines, existing topography, typical sections, and a parcel index information.

75% Plan Deliverables – The Consultant will submit 6 sets of the 75% plans to the NCDOT Special Studies Unit for review. In addition, the Consultant will submit 2 sets of plans to the Town for review and comment.

75% Review Meeting with NCDOT – at the completion of the 75% designs, the Consultant shall make available responsible staff members to participate in one plan review meeting to be held at the NCDOT Roadway Design unit office in Raleigh.

90% Construction Plans - Final design plans will include title sheet, vertical and horizontal geometrics, pavements, drainage designs, water main design, erosion control plans, cross sections, details, right-of-way and easements, property lines, existing topography, typical sections, parcel index information, traffic control plans, pavement markings and roadway material quantities. Final plans shall also include signing plans, structural design plans, and utility conflict plans.

90% Plan Deliverables – The Consultant will submit 6 sets of the 90% plans to the NCDOT Special Studies Unit for review. In addition, the Consultant will submit 2 sets of plans to the Town for review and comment.

90% Review Meeting with Town – at the completion of the 90% designs, the Consultant shall make available responsible staff members to participate in one plan review meeting to be held at the Town office in Southern Shores.

Once the 90% plans have been revised and approved by each NCDOT Unit, The Consultant will submit 2 sets of the approved 90% plans, calculation, of final quantities and a quantity estimate to the Special Studies Squad leader.

100% Construction Plans - After incorporating the Plan Checking Section review comments into the plans and updating the quantity estimate, The Consultant will submit to the Special studies Squad Leader, 2 half size sets of



100% final plans signed and sealed by a licensed North Carolina Professional Engineer, 2 copies of the contract documents, and 2 copies of the quantities estimate.

Task 7 – Hydraulic Design

In accordance with NCDOT requirements, the Consultant will develop a Bridge Survey Report (BSR) for the replacement of the South Dogwood Trail Bridge. The BSR will include Bridge sizing for the proposed 2-lane pavement typical section. Because the Town desires to widen the waterway, an extended bridge length will be used to develop the full impacts to streams and wetlands. Through discussions with NCDOT it is our understanding that hydraulic modeling (tidal or riverine) will not be required. It is anticipated that the current low steel elevation will be maintained and the bridge will be lengthened. The BSR will be submitted to the Town and NCDOT for approval.

In addition to the BSR, the Consultant will also perform drainage studies, designs and ground surveys required to properly treat and accommodate the bridge and roadway runoff. All hydraulic designs will be in accordance with the requirements of the Town and the latest revision of "Guidelines for Drainage Study and Hydraulic Design" by NCDOT.

The hydraulic designs will be submitted in accordance with the various roadway design submittals to NCDOT for review (25%, 75%, 90% and 100%).

Task 8 – Erosion Control Plans

As part of the 75% plans, the Consultant will design large erosion control measures that will require additional right-of-way or easements during construction. Primarily these measures will consist of sediment dams and sediment basins.

Following approval of the 75% plans, the Consultant will finalize the erosion control plan by specifying erosion control measures, which minimize erosion and limit off-site sedimentation during construction of the Project. The design will be in accordance with the requirements of the North Carolina Department of Environmental and Natural Resources (NCDENR).

The Consultant will show erosion control measures and special details as part of the construction plan set. Following an initial review by the Town, The Consultant will submit erosion control plans to the Regional Office of NCDENR as a courtesy. No land disturbance permit is expected to be required for this project, as the disturbed area is anticipated to be less than one acre.

Task 9 – Utility Conflict Plans/Waterline Design

The Consultant will coordinate with the Town and other utility companies regarding the relocation, burial, or planned upgrade of existing utilities within the project limits. Existing and proposed private utility locations will be shown on utility plan sheets and will be included with the construction plan set. Existing utility locations will be based on survey provided by McKim & Creed and information gathered from the individual utility owners.

Coordination - Following the completion of the 25% Design Phase of the Project, the Consultant will contact utilities and agencies whose facilities (both existing and proposed) may be affected by the design of the Project. The Consultant will furnish information pertaining to proposed construction to all involved utility companies and agencies. The Consultant will coordinate the resolution of utility conflicts into the proposed project with the respective owners. The design and adjustment of privately owned utilities will be the responsibility of the respective owners, with coordination provided by the Consultant. Compilation drawings of the relocations of the private utilities (Utilities by Others or UBO plans) will be compiled for informational purposes to illustrate the corresponding private utility upgrades/relocations within the bridge replacement area. These drawings will be provided for informational purposes only and not as signed and sealed documents to be used for construction.

Design - Services will be provided for the relocation design of approximately 300 linear feet of water main within the proposed limits of bridge replacement project. The water main is assumed to run within the street right-of-way. The Consultant will prepare and incorporate waterline relocation plans into the bridge replacement project to include the following:

- Preparation of required plan and profile sheets for inclusion into the overall bridge replacement plan set suitable for submission to the Town for review for conformance with project objectives.
- Horizontal and vertical design of the water main as required for permitting agency submittal (It is assumed that this will entail submittal to the State for review and approval).
- Preparation of required detail sheets as needed for the construction plan preparation and corresponding waterline permitting.
- Completion of appropriate waterline extension permitting applications to facilitate submission to the State and the provision of assistance in the Town submitting the permit applications.

Task 10 – Right-of-Way Negotiation and Acquisitions

Right-of-Way Negotiation and Acquisitions (if required) will be provided to the Consultant by Sub-Consultant (Carolina Land Acquisitions) not included in agreement.

Once the right-of-way and easement requirements for the project are determined and approved with the 70% plans submittal to the Town and NCDOT, preliminary plats will be developed. At this point, the affected property owners will be contacted and negotiations will begin.

Once the right-of-way and easement negotiations are complete, our surveyor will develop the final plats needed for legal recordation. The final step in this process will be to have an attorney draft the legal documents associated with the recordation's and file the paperwork with the local registrar of deeds. The Town's current attorneys, Robert Hobbs and Ben Gallop with Hornthal, Riley, Ellis, and Maland, LLP will be used for the legal filing.

Task 11 – Contract Documents and Specifications



The Consultant will prepare and assemble construction bidding documents, including specifications for the subject Work and the construction contract, based on Federal guidelines and procedures for federally funded projects.

Task 12 – Opinion of Probable Cost

Based on construction bidding documents, the Consultant will prepare an opinion of probable cost evaluation for the Town to assist planning for upcoming construction. This evaluation will include structural, roadway, hydraulic, erosion control, and utility elements as shown in Task 10.

Task 13 – Bid Phase Services

The Consultant will prepare bidding documents and assist the Town in the contractor selection. This will specifically include assistance with the pre-bid meeting, the bid opening and the evaluation of bids.

Services not Included

Any services not specifically provided for in the above scope, as well as any changes in the scope the Client requests, will be considered additional services. Any other services, including but not limited to the following, are not included in this Agreement:

- Utility Bridge Design
- Additional Meetings
- SUE Survey
- Construction Phase Services
- Testing of Materials During Construction
- All Permit Application Fees
- Tidal or Riverine Modeling
- Conditional Letter of Map Revision (CLOMR)
- Right-of-Way Negotiation (Subconsultant)

Information Provided By Client

The Consultant will rely upon the accuracy and completeness of all documents, surveys, reports, plans and specifications provided by the Client or by others for whom the Consultant is not legally responsible. The Client acknowledges that verifying the accuracy and completeness of such items is not part of the Consultant's scope of services other than expressly included in this scope of services.

Schedule. —

We will provide our services as expeditiously as practicable to meet a mutually agreed upon schedule.

Fee and Billing

KHA will perform the Scope of Services for a lump sum labor fee of \$248,731.21. All permitting, application, and similar project fees will be paid directly by the Client.



Kimley-Horn
and Associates, Inc.

Fees will be invoiced monthly based upon the percentage of services performed as of the invoice date. Payment will be due within 25 days of your receipt of the invoice.

Closure

In addition to the matters set forth herein, our Agreement shall include and be subject to, and only to, the terms and conditions in the attached Standard Provisions, which are incorporated by reference. As used in the Standard Provisions, the term "the Consultant" shall refer to Kimley-Horn and Associates, Inc., and the term "the Client" shall refer to the Town of ~~Belhaven~~, NC.

Southern Shores

Kimley-Horn, in an effort to expedite invoices and reduce paper waste, offers its clients the option to receive electronic invoices. These invoices come via email in an Adobe PDF format. We can also provide a paper copy via regular mail if requested. Please select a billing method from the choices below:

____ Please email all invoices to _____@_____.

____ Please email invoices to _____@_____ AND provide a hard copy to the address listed above (please note below if it should be to someone else's attention or an alternative address).

Please ONLY provide a hardcopy invoice to the address listed above (please note below if it should be to someone else's attention or an alternative address).

attention: Bonnie Swain, Finance officer

If you concur in all the foregoing and wish to direct us to proceed with the services, please have authorized persons execute both copies of this Agreement in the spaces provided below, retain one copy, and return the other to us. Fees and times stated in this Agreement are valid for sixty (60) days after the date of this letter.

We appreciate the opportunity to provide these services to you. Please contact me if you have any questions.

Very truly yours,

KIMLEY-HORN AND ASSOCIATES, INC.



By: Cecil L. Narron, P.E.
Project Manager
Senior Vice President



Stephanie L. Hachem, P.E.
Senior Vice President

Attachment – Standard Provisions

Agreed to this 27th day of February, 2013.

Town of Southern Shores, North Carolina
A Municipality

By:

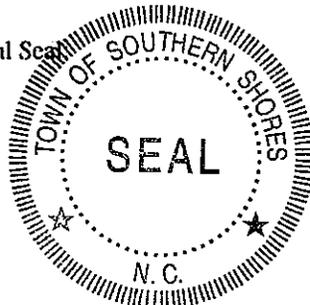

J. Peter Rascoe III, Town Manager
(Print or Type Name and Title)

prascoe@southernshores-nc.gov
(Email Address)

Carrie Gordon, Witness

CARRIE GORDON
(Print or Type Name)

Official Seal



This instrument has been preaudited in the manner required by The Local Government Budget and Fiscal Control Act.

Bonnie Swan
Finance Officer
Date: 2/27/13

COMPUTATION OF MANDAY REQUIREMENTS AND FEES

Prepared for the North Carolina Department of Transportation

PROJECT NO.: B-5417

DESCRIPTION: Brige #17 - Southern Dogwood Trail over Snow Goose Canal

COUNTY: Dare

ENGINEERING AGREEMENT
SUPPLEMENTAL AGREEMENT NUMBER
PROFESSIONAL SERVICES CONTRACT
LIMITED SERVICES CONTRACT

1

CONTENTS:

COVER	<u>1</u>
SUMMARY	<u>2</u>
GENERAL INFORMATION	<u>3</u>
MANDAY AND FEE BREAKDOWN	<u>4 to 13</u>
DIRECT EXPENSES	<u>14 to 15</u>
APPROVED FEE SCHEDULE	<u>16 to 17</u>

ENGINEERING FIRM: Kimley-Horn and Associates, Inc.

DATE: November 20, 2012

PROJECT NUMBER : B-5417
 COUNTY: Dare

SCOPE : Data Collection, Planning Document, Environmental Permitting, Design, and Contract Documents

ITEM		MD	COST
Task 1	Coordination / Review Meetings / Administration	12.1	\$ 12,200.08
	Direct Expenses		\$ -
Task 2	Data Collection and Review	5.0	\$ 4,887.99
	Direct Expenses		\$ 284.20
	Surveying - Subconsultant (McKim & Creed)	*	\$ 23,247.41
	Geotechnical Investigations - Subconsultant (Catlin)	*	\$ 25,309.05
Task 3	Programmatic Categorical Exclusion	38.0	\$ 29,882.27
	Direct Expenses		\$ 2,445.90
Task 4	Environmental Permitting	15.5	\$ 14,382.24
	Direct Expenses		\$ 488.40
Task 5	Structural Design	28.4	\$ 25,631.06
	Direct Expenses		\$ 298.00
Task 6	Roadway Design and Plan Submittal	43.2	\$ 31,779.86
	Direct Expenses		\$ 2,620.00
Task 7	Hydraulic Design	29.0	\$ 24,602.37
	Direct Expenses		\$ 693.30
Task 8	Erosion Control Plans	5.0	\$ 4,536.30
	Direct Expenses		\$ -
Task 9	Utility Conflict Plans / Water Line Design	34.5	\$ 25,850.66
	Direct Expenses		\$ 1,218.90
Task 10	Right-of-Way Negotiation and Acquisition	3.0	\$ 2,782.43
	Direct Expenses		\$ 0.00
Task 11	Contract Documents and Specifications	4.5	\$ 4,356.70
	Direct Expenses		\$ 156.00
Task 12	Opinion of Probable Cost	6.0	\$ 5,754.25
	Direct Expenses		\$ -
Task 13	Bid Phase Services	5.0	\$ 5,081.85
	Direct Expenses		\$ 242.00
Total		229.16	\$ 248,731.21

NOTE: * Surveying and Geotechnical Manhours are Presented in Appendix A and B
 Respectively.

ENGINEERING FIRM: Kimley-Horn and Associates, Inc.

PREPARED BY: Cecil L. Narron, P.E.

DATE: November 20, 2012

PROJECT NO. : B-5417 R/W DATE: FY 2014 PREPARED BY: Cecil Narron
COUNTY: Dare LET DATE: FY 2014 DATE: November 20, 2012
DESCRIPTION: Brigs #17 - Southern Dogwood Trail over Snow Goose Canal
SCOPE: Data Collection, Planning Document, Environmental Permitting, Design, and Contract Documents
CONSULTANT: Kimley-Horn and Associates, Inc. OVERHEAD: 193.23% FEE: 9% ALLOCATION 4.6% COST of CAPITAL: 1.31%

COORDINATION/REVIEW MEETINGS/ADMINISTRATION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
NO Kick-Off Meeting and Minutes								0.0	0.00
Develop Project Workplan and Schedule	4.0		4.0	1.0			2.0	11.0	1.38
Monthly Invoicing (24 months)	4.0		10.0	4.0			6.0	24.0	3.00
Monthly Progress Reports (24 months)	4.0		7.0	4.0			6.0	21.0	2.63
General Project Management and Coordination (24 months)	4.0		7.0	4.0				15.0	1.88
Coord. w/Surveyor, Geotech, & Right-of-Way SubConsultants	4.0		10.0	6.0			6.0	26.0	3.25
Total Hours	20.0	0.0	38.0	19.0	0.0	0.0	20.0	97.0	12.13
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$1,249.95	\$0.00	\$1,545.52	\$616.11	\$0.00	\$0.00	\$389.89		
Direct Labor Cost									\$3,801.47
Company Overhead								193.23%	\$ 7,345.58
Labor Subtotal									\$ 11,147.05
Company Fee								9%	\$ 1,003.23
Subtotal									\$ 12,150.28
Facilities Cost of Capital								1.31%	\$ 49.80
Total Labor Charges									\$ 12,200.08
Total									\$ 12,200.08

DATA COLLECTION AND REVIEW	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
Coordination with Survey	5.0			8.0	7.0			20.0	2.50
Coordination with Geotech	5.0			8.0	7.0			20.0	2.50
Total Hours	10.0	0.0	0.0	16.0	14.0	0.0	0.0	40.0	5.00
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$624.98	\$0.00	\$0.00	\$518.83	\$379.26	\$0.00	\$0.00		
Direct Labor Cost									\$ 1,523.07
Company Overhead								193.23%	\$ 2,943.02
Labor Subtotal									\$ 4,466.09
Company Fee								9%	\$ 401.95
Subtotal									\$ 4,868.04
Facilities Cost of Capital								1.31%	\$ 19.95
Total Labor Charges									\$ 4,887.99
Total									\$ 4,887.99

Programmatic Categorical Exclusion - Administration / Coordination	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
- Coordinate with Town of Southern Shores	8.0		8.0	2.0	6.0			24.0	3.00
- Coordinate with NCDOT - Bridge Unit	2.0		4.0	4.0	12.0		6.0	28.0	3.50
- Project Administration / Management of Files	2.0		2.0	2.0	2.0		24.0	32.0	4.00
Total Hours	12.0	0.0	14.0	8.0	20.0	0.0	30.0	84.0	10.50
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$749.97	\$0.00	\$569.40	\$259.41	\$541.81	\$0.00	\$584.84		
Direct Labor Cost									\$ 2,705.43
Company Overhead								193.23%	\$ 5,227.70
Labor Subtotal									\$ 7,933.13
Company Fee								9%	\$ 713.98
Subtotal									\$ 8,647.11
Facilities Cost of Capital								1.31%	\$ 35.44
Total Labor Charges									\$ 8,682.55
Total									\$ 8,682.55

Programmatic Categorical Exclusion - Data Collection and Project Documentation	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
- Request and Review Bridge Inspection Report from NCDOT					2.0			2.0	0.25
- Request and Review Available Accident Data from NCDOT					2.0			2.0	0.25
- Obtain Available GIS Data from NCCGIA and Review					4.0			4.0	0.50
- Conduct Field Review and Review Available Aerial Photos/Mapping				10.0	20.0			30.0	3.75
- Prepare Scoping Letter, Distribute, and Coordinate with Permitting Agencies				2.0	6.0		12.0	20.0	2.50
- Summarize Project Description and Prepare Figure				2.0		4.0		6.0	0.75
- Summarize Project Purpose and Need				2.0				2.0	0.25
- Indicate Type(s) of Project Improvements				2.0				2.0	0.25
- Summarize Estimate of Probable Cost				2.0				2.0	0.25
-Report Current and Design Year (2035) Estimated Traffic if Available				2.0				2.0	0.25
- Document Crash Data Summary if Available				2.0	2.0			4.0	0.50
- Note Design Exceptions, Bicycle Designation, Traffic Detour Method				2.0				2.0	0.25
- Summarize Bridge Demolition Practice				2.0				2.0	0.25
- Summarize Alternatives				2.0				2.0	0.25
- Note Comments Provided by State/Federal Agencies for the Project and Responses				2.0				2.0	0.25
- Summarize Public Involvement Activities				2.0				2.0	0.25
- Complete Section E. (Threshold Criteria) Checklist				6.0	6.0			12.0	1.50
- Elaborate on Issues Addressed in Section E Receiving an Unfavorable Response				2.0	2.0			4.0	0.50
- Complete Section G. (PCE Approval)				2.0				2.0	0.25
- QC Document		2.0	2.0	2.0				6.0	0.75
- Submit two (2) Copies of the Document to Client for Review				2.0			2.0	4.0	0.50
- Revise Document once per Client Comments		1.0		1.0	4.0			6.0	0.75
- Submit four (4) Copies of the Document to Client for Distribution to NCDOT							4.0	4.0	0.50
- Revise Document once per NCDOT Preliminary Comments		1.0	1.0		4.0			6.0	0.75
- Submit twelve (12) Copies of the Document to NCDOT Bridge Unit for Second Review							4.0	4.0	0.50
- Revise Document once per NCDOT Bridge Unit Comments		2.0			4.0			6.0	0.75
- Submit one (1) Copy of the Final Planning Document to NCDOT Bridge Unit							4.0	4.0	0.50
- Submit ten (10) Copies of the Final Planning Document to NCDOT Bridge Unit							8.0	8.0	1.00
Total Hours	0.0	6.0	3.0	49.0	56.0	4.0	34.0	152.0	19.00
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$0.00	\$332.55	\$122.01	\$1,588.91	\$1,517.06	\$93.46	\$662.81		
Direct Labor Cost									\$ 4,316.81
Company Overhead								193.23%	\$ 8,341.37
Labor Subtotal									\$ 12,658.18
Company Fee								9%	\$ 1,139.24
Subtotal									\$ 13,797.42
Facilities Cost of Capital								1.31%	\$ 56.55
Total Labor Charges									\$ 13,853.97
Total									\$ 13,853.97

Programmatic Categorical Exclusion - Public Involvement	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
- Prepare Mailing List					4.0			4.0	0.50
- Prepare Newsletter (one)				2.0	6.0			8.0	1.00
- Prepare for and Attend Community Informational Workshop		12.0		12.0	12.0			36.0	4.50
- Prepare Workshop Handouts				2.0	2.0			4.0	0.50
- Prepare Summary of Workshop Comments				2.0				2.0	0.25
- Prepare Mapping for Display at Workshop				2.0	12.0			14.0	1.75
Total Hours	0.0	12.0	0.0	20.0	36.0	0.0	0.0	68.0	8.50
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$0.00	\$665.11	\$0.00	\$648.53	\$975.25	\$0.00	\$0.00		
Direct Labor Cost									\$ 2,288.89
Company Overhead								193.23%	\$ 4,422.83
Labor Subtotal									\$ 6,711.72
Company Fee								9%	\$ 604.05
Subtotal									\$ 7,315.77
Facilities Cost of Capital								1.31%	\$ 29.98
Total Labor Charges									\$ 7,345.76
Total									\$ 7,345.76

ENVIRONMENTAL PERMITTING	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
Preliminary Data Review and Data Collection			2.0	2.0				4.0	0.50
Agency Concurrence			12.0					12.0	1.50
USACE/NCDWQ (404/401 Permit)		4.0	10.0	10.0	13.0	4.0		41.0	5.13
NCDCM		4.0	12.0	10.0	13.0	4.0		43.0	5.38
USCG		4.0	12.0	8.0				24.0	3.00
Total Hours	0.0	12.0	48.0	30.0	26.0	8.0	0.0	124.0	15.50
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$0.00	\$665.11	\$1,952.24	\$972.80	\$704.35	\$186.92	\$0.00		
Direct Labor Cost									\$4,481.42
Company Overhead								193.23%	\$ 8,659.44
Labor Subtotal									\$ 13,140.85
Company Fee								9%	\$ 1,182.68
Subtotal									\$ 14,323.53
Facilities Cost of Capital								1.31%	\$ 58.71
Total Labor Charges									\$ 14,382.24
Total									\$ 14,382.24

STRUCTURAL DESIGN	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
Bridge Design:									
Preliminary Bridge Concept Engineering	12.0		12.0	7.0		6.0		37.0	4.63
Preliminary Design/Plan Sheets (2)	4.0		10.0	8.0	6.0	20.0	2.0	50.0	6.25
Comments/Revisions	3.0		3.0	3.0	1.0	4.0	1.0	15.0	1.88
Final Bridge Design									
<i>Design</i>									
Calculations to Check Standard Plans	6.0		6.0	6.0	15.0			33.0	4.13
Incorporate Standard Drawings	1.0		3.0	2.0	4.0	10.0		20.0	2.50
Incorporate 2-Bar Rail into Standard Drawings	1.0		2.0	4.0	4.0	8.0		19.0	2.38
Quantities	2.0		2.0	3.0	6.0	8.0		21.0	2.63
OC/QA	4.0							4.0	0.50
FINAL Comments/Revisions	4.0		3.0	3.0	3.0	8.0	1.0	22.0	2.75
Specification/Special Provision	1.0		1.0	1.0	2.0		1.0	6.0	0.75
Total Hours	38.0	0.0	42.0	37.0	41.0	64.0	5.0	227.0	28.4
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$2,374.91	\$0.00	\$1,708.21	\$1,199.79	\$1,110.70	\$1,495.40	\$97.47		
Direct Labor Cost									\$ 7,986.48
Company Overhead								193.23%	\$ 15,432.27
Labor Subtotal									\$ 23,418.75
Company Fee								9%	\$ 2,107.69
Subtotal									\$ 25,526.43
Facilities Cost of Capital								1.31%	\$ 104.62
Total Labor Charges									\$ 25,631.06
Total									\$ 25,631.06

ROADWAY DESIGN	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
25% Plans									
Develop Design Criteria		0.5		2.0				2.5	0.31
Develop Typical Sections		0.5		0.5	2.0	1.0		4.0	0.50
Horizontal Alignments of -L- and -Y- Lines		1.0		5.5	1.0			7.5	0.94
Vertical Alignments of -L- and -Y- Lines		1.0		13.0	1.0			15.0	1.88
Plot profile and grade lines					2.0	2.0		4.0	0.50
Prepare plan and profile Sheets				6.0	4.0	2.0		12.0	1.50
Plot X-sections existing ground					4.0	1.0		5.0	0.63
Develop Proposed Cross Sections		0.5		12.0	4.0	2.0		18.5	2.31
Plot Construction Limits				0.5	4.0	2.0		6.5	0.81
Identify Preliminary Right-of-Way Needs		0.5		7.0	4.0			11.5	1.44
Run Earthwork Calculations				0.5	4.0	1.0		5.5	0.69
Attend 25% Design Review (Including Plotting)		5.0		5.0				10.0	1.25
Revise Design based on Review Comments				4.5	2.0	1.0		7.5	0.94
Prepare 25% design estimates		1.0		1.0	2.0			4.0	0.50
Submit 25% design and OPCC to Town		0.5					0.5	1.0	0.13
75% Plans									
Identify Right-of-Way and Easement Requirements					1.0	2.0		3.0	0.38
Plot and Submit 75% Plans					1.0	2.0	2.0	5.0	0.63
75% Plan Review Meeting (2 to attend)		5.0						5.0	0.63
Incorporate Agency Review Comments					1.0	2.0		3.0	0.38
Plot and Resubmit 75% Plans					1.0	2.0	2.0	5.0	0.63
90% Plans									
Pavement Marking and Signing Plans				2.0	8.0	10.0		20.0	2.50
Traffic Control Plans				7.0	8.0	10.0		25.0	3.13
Finalize 90% Plans				4.0	8.0	5.0		17.0	2.13
Quantities Estimate				7.5	6.0	8.0		21.5	2.69
Plot and Submit 90% Plans				0.5	6.0	5.0	2.0	13.5	1.69
90% Plan Review Meeting (2 to attend)		4.0		6.0				10.0	1.25
Incorporate Agency Review Comments				0.5	8.0	10.0		18.5	2.31
Plot and Resubmit 90% Plans				0.3	6.0	5.0	2.0	13.3	1.66
100% Plans									
Incorporate final comments		0.5		4.0	5.0	20.0		29.5	3.69
Final Quantities				5.0	5.0	20.0		30.0	3.75
Plot and Submit 100% Plans				0.5	2.0	8.0	1.0	11.5	1.44
Total Hours	0.0	20.0	0.0	94.8	100.0	121.0	9.5	345.3	43.2
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$0.00	\$1,108.51	\$0.00	\$3,072.43	\$2,709.04	\$2,827.24	\$185.20		
Direct Labor Cost									\$ 9,902.41
Company Overhead								193.23%	\$ 19,134.42
Labor Subtotal									\$ 29,036.83
Company Fee								9%	\$ 2,613.31
Subtotal									\$ 31,650.14
Facilities Cost of Capital								1.31%	\$ 129.72
Total Labor Charges									\$ 31,779.86
Total									\$ 31,779.86

HYDRAULIC DESIGN	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
Hydraulic Field Work			14.0	14.0	14.0			42.0	5.25
Bridge Survey Report (No Model, overtopping flow analysis required to perform scour calculations)		8.0	20.0	30.0	30.0	22.0		110.0	13.75
Approach Drainage			2.0	5.0	5.0			12.0	1.50
Wetland Permit and Buffer Drawings		1.0	4.0	10.0	10.0	9.0		34.0	4.25
Field Inspection		12.0						12.0	1.50
Cadd Work/Hydro Summary Sheet					2.0	6.0		8.0	1.00
Review and Rework		1.0	2.0	4.0	4.0	3.0		14.0	1.75
Total Hours	0.0	22.0	42.0	63.0	65.0	40.0	0.0	232.0	29.00
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$0.00	\$1,219.36	\$1,708.21	\$2,042.88	\$1,760.87	\$934.62	\$0.00		
	Direct Labor Cost								\$ 7,665.94
	Company Overhead							193.23%	\$ 14,812.90
	Labor Subtotal								\$ 22,478.85
	Company Fee							9%	\$ 2,023.10
	Subtotal								\$ 24,501.94
	Facilities Cost of Capital							1.31%	\$ 100.42
	Total Labor Charges								\$ 24,602.37
	Total								\$ 24,602.37

EROSION CONTROL PLANS	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
Identify Erosion Control Devices that will Affect R/W Requirements		2.0	2.0		2.0	2.0		8.0	1.00
Complete Erosion Control Plans		1.0	3.0		2.0	1.0		7.0	0.88
Complete Erosion Control Calculation Book		1.0	3.0			3.0		7.0	0.88
NCDENR Submittal			1.0	1.0			1.0	3.0	0.38
Revise based on Agency Comments		1.0	3.0	5.0		2.0		11.0	1.38
Submit for Final Approval		1.0	1.0			1.0	1.0	4.0	0.50
Total Hours	0.0	6.0	13.0	6.0	4.0	9.0	2.0	40.0	5.00
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$0.00	\$332.55	\$528.73	\$194.56	\$108.36	\$210.29	\$38.99		
	Direct Labor Cost								\$ 1,413.48
	Company Overhead							193.23%	\$ 2,731.28
	Labor Subtotal								\$ 4,144.76
	Company Fee							9%	\$ 373.03
	Subtotal								\$ 4,517.79
	Facilities Cost of Capital							1.31%	\$ 18.52
	Total Labor Charges								\$ 4,536.30
	Total								\$ 4,536.30

UTILITY CONFLICT PLANS / WATER LINE DESIGN	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
Public / Private Utility Coordination	5.0		15.0	35.0	45.0	50.0		150.0	18.75
Private Utility Compilation Drawing (Utilities By Others - UBO plans - *not sealed*)	2.0			13.0	23.0	31.0		69.0	8.63
Preliminary Waterline Design Concept			2.0	6.0		4.0		12.0	1.50
Horizontal and Vertical Design (Plan and Profile)			4.0	6.0		8.0		18.0	2.25
Detail Sheet Preparation			2.0			6.0		8.0	1.00
Final QC and signed/sealed plans		2.0	1.0	1.0		6.0		10.0	1.25
Waterline permitting assistance through NCDENR			1.0	2.0	3.0	3.0		9.0	1.13
Total Hours	7.0	2.0	25.0	63.0	71.0	108.0	0.0	276.0	34.50
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$437.48	\$110.85	\$1,016.79	\$2,042.88	\$1,923.41	\$2,523.48	\$0.00		
Direct Labor Cost									\$8,054.90
Company Overhead								193.23%	\$ 15,564.49
Labor Subtotal									\$ 23,619.39
Company Fee								9%	\$ 2,125.75
Subtotal									\$ 25,745.14
Facilities Cost of Capital								1.31%	\$ 105.52
Total Labor Charges									\$ 25,850.66
Total									\$ 25,850.66

Right-of-Way Negotiation and Acquisition	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
Coordination with R/W	3.0		5.0	8.0	8.0			24.0	3.00
Total Hours	3.0	0.0	5.0	8.0	8.0	0.0	0.0	24.0	3.00
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$187.49	\$0.00	\$203.36	\$259.41	\$216.72	\$0.00	\$0.00		
Direct Labor Cost									\$ 866.99
Company Overhead								193.23%	\$ 1,675.28
Labor Subtotal									\$ 2,542.27
Company Fee								9%	\$ 228.80
Subtotal									\$ 2,771.07
Facilities Cost of Capital								1.31%	\$ 11.36
Total Labor Charges									\$ 2,782.43
Total									\$ 2,782.43

CONTRACT DOCUMENTS AND SPECIFICATIONS	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
100% Design Review (QC/QA) and Revisions (All Disciplines)		2.0	4.0	4.0	2.0			12.0	1.50
Final NCDOT reviews and address Comments		1.0	4.0	4.0	2.0			11.0	1.38
Develop Project Contract Documents		2.0	5.0	4.0	2.0			13.0	1.63
CD of Project Files								0.0	0.00
Total Hours	0.0	5.0	13.0	12.0	6.0	0.0	0.0	36.0	4.50
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$0.00	\$277.13	\$528.73	\$389.12	\$162.54	\$0.00	\$0.00		
								Direct Labor Cost	\$1,357.52
								Company Overhead	193.23% \$ 2,623.14
								Labor Subtotal	\$ 3,980.66
								Company Fee	9% \$ 358.26
								Subtotal	\$ 4,338.91
								Facilities Cost of Capital	1.31% \$ 17.78
								Total Labor Charges	\$ 4,356.70
Total									\$ 4,356.70

OPINION OF PROBABLE COST	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
Structural Opinion of Probable Cost									
Main Bridge Design	1.0				3.0			4.0	0.50
Roadway Opinion of Probable Cost		4.0	5.0	3.0	4.0			16.0	2.00
Hydraulic Opinion of Probable Cost				2.0				2.0	0.25
Erosion Control Opinion of Probable Cost			1.0	1.0				2.0	0.25
Utility/Water Line Opinion of Probable Cost								0.0	0.00
Utility/Water Line			1.0	3.0				4.0	0.50
Utility Bridge	1.0				2.0			3.0	0.38
Overall Opinion of Probable Cost	2.0		5.0	5.0	5.0			17.0	2.13
Total Hours	4.0	4.0	12.0	14.0	14.0	0.0	0.0	48.0	6.00
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$249.99	\$221.70	\$488.06	\$453.97	\$379.26	\$0.00	\$0.00		
								Direct Labor Cost	\$1,792.99
								Company Overhead	193.23% \$ 3,464.59
								Labor Subtotal	\$ 5,257.58
								Company Fee	9% \$ 473.18
								Subtotal	\$ 5,730.77
								Facilities Cost of Capital	1.31% \$ 23.49
								Total Labor Charges	\$ 5,754.25
Total									\$ 5,754.25

BID PHASE SERVICES	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	JUNIOR ENGINEER	ANALYST	TECHNICIAN	CLERICAL	MANHOURS	MANDAYS
Issue Bid Packages		1.0	2.0				9.0	12.0	1.50
Conduct Pre-Bid Meeting and Prep	7.0	4.0	4.0	1.0				16.0	2.00
Issue Addendum		1.0	2.0				1.0	4.0	0.50
Tabulate Bids	2.0	4.0					2.0	8.0	1.00
Total Hours	7.0	10.0	8.0	1.0	0.0	0.0	12.0	40.0	5.0
Approved Rate	\$62.50	\$55.43	\$40.67	\$32.43	\$27.09	\$23.37	\$19.49		
Direct Labor Cost	\$437.48	\$554.25	\$325.37	\$32.43	\$0.00	\$0.00	\$233.93		
Direct Labor Cost									\$1,583.47
Company Overhead								193.23%	\$ 3,059.74
Labor Subtotal									\$ 4,643.21
Company Fee								9%	\$ 417.89
Subtotal									\$ 5,061.10
Facilities Cost of Capital								1.31%	\$ 20.74
Total Labor Charges									\$ 5,081.85
Total									\$ 5,081.85

Task 1 - Coordination/ Review Meetings/ Administration				
Travel: (Kick-Off Meeting)	0 Trip(s) @	440 miles @	\$0.555	\$0.00
		Subtotal		\$0.00
Task 2 -Data Collection and Review				
Travel: (Meeting)	1 Trip(s) @	440 miles @	\$0.555	\$244.20
Travel: (Meeting)	2 Roll(s) @		\$20.00	\$40.00
Meals	0 Meal(s) @	0 People(Lunch)	\$12.00	\$0.00
		Subtotal		\$284.20
Task 3 - Programmatic Categorical Exclusion				
Task 3B - Data Collection / Project Documentation (PCE)				
Travel: (Field Survey)	1 Trip(s) @	440 miles @	\$0.550	\$242.00
Film and Developing:	2 Roll(s) @		\$20.00	\$40.00
Meals	0 Meal(s) @	0 People(Lunch)	\$12.00	\$0.00
Scoping Letter Postage	30 Letters	postage (as of 5/2009) @	\$0.440	\$13.20
8.5 x 11" Color Copies (Figures)	2 Pages @	30 Copies	\$1.00	\$60.00
EDR (Hazardous Materials / UST Report)	1 Report			\$500.00
PCE Document				
8.5 x 11" B/W Copies	11 Pages @	30 Copies	\$0.04	\$13.20
8.5 x 11" Color Copies	1 Pages @	30 Copies	\$1.00	\$30.00
Covers and Bindings	1 1 Per Copy @	30 Copies	\$1.00	\$30.00
Task 3C - Public Involvement				
Newsletter (1)				
11 x 17" Color Copies	1 Pages @	400 Copies	\$1.50	\$600.00
Postage:	400 Newsletters	postage @	\$0.440	\$176.00
Color Presentation Boards	5		\$36.00	\$180.00
Travel: Community Informational Workshop (1)	1 Trip(s) @	440 miles @	\$0.550	\$242.00
Hotel	1 Night(s) @	3 People	\$71.500	\$214.50
Meals	1 Meal(s) @	3 People(3 meals)	\$35.00	\$105.00
		Subtotal		\$2,445.90
Task 4 - Environmental Permitting				
Travel:	2 Trip(s) @	440 miles @	\$0.555	\$488.40
Meals	0 Meal(s) @	2 People(Lunch)	\$10.45	\$0.00
		Subtotal		\$488.40

Task 5 - Structural Design					
Travel: (Included with Roadway)	0 Trip(s) @	0 miles @	\$0.555	\$0.00	
Plans: 22" x 34" Plots (Originals) (1 Sets)	20 Each - B/W Bond	1 Set	\$3.50	\$70.00	
Plans: 22" x 34" Copies (3 Sets)	20 Each - B/W Bond	3 Set	\$3.00	\$180.00	
Plans: 11" x 17" Plots (20 Sets)	20 Each - B/W Bond	20 Sets	\$0.10	\$40.00	
Design Calculations	2 reports	75 pages @	\$0.04	\$6.00	
covers and bindings	2 reports	1 covers per report @	\$1.00	\$2.00	
		Subtotal		\$298.00	
Task 6 - Roadway Design					
Travel: (Design Field Review)	1 Trip(s) @	440 miles @	\$0.56	\$244.20	
Meals	4 days(s) @	2 People	\$36.35	\$290.80	
Travel: (25% Review Meeting)	1 Trip(s) @	440 miles @	\$0.55	\$242.00	
Travel: (75% Review Meeting)	1 Trip(s) @	440 miles @	\$0.55	\$242.00	
Travel: (90% Review Meeting)	1 Trip(s) @	440 miles @	\$0.55	\$242.00	
Hotel	4 Night(s) @	2 People	\$71.50	\$572.00	
Plans: 22" x 34" Plots (Originals) (3 Sets)	44 Each - B/W Bond	3 Set	\$3.50	\$462.00	
Plans: 22" x 34" Copies (10 Sets)	10 Each - B/W Bond	10 Set	\$3.00	\$300.00	
Plans: 11" x 17" Plots (5 Sets)	10 Each - B/W Bond	25 Sets	\$0.10	\$25.00	
		Subtotal		\$2,620.00	
Task 7 - Hydraulic Design					
Travel: (Design Field Review)	2 Trip(s) @	440 miles @	\$0.555	\$488.40	
	1 Local Trips	40 miles @	\$0.555	\$22.20	
Meals	1 Meal(s) @	3 People(Breakfast & Dinner)	\$25.90	\$77.70	
BSR Plan: 22" x 34" Copies (3 Sets)	3 Each - Color Bond	7 sf / set	\$5.00	\$105.00	
		Subtotal		\$693.30	
Task 8 - Erosion Control Plans					
Included with Roadway Plans					
		Subtotal		\$0.00	
Task 9 - Utility Conflict Plans / Water Line Design					
Travel: (Design Field Review)	1 Trip(s) @	440 miles @	\$0.56	\$244.20	
Meals	4 days(s) @	3 People	\$36.35	\$436.20	
Hotel	1 Night(s) @	3 People	\$71.50	\$214.50	
Plans: 22" x 34" Plots (Originals) (1 Sets)	4 Each - B/W Bond	1 Set	\$3.50	\$14.00	
Plans: 22" x 34" Copies (25 Sets)	4 Each - B/W Bond	25 Set	\$3.00	\$300.00	
Plans: 11" x 17" Plots (25 Sets)	4 Each - B/W Bond	25 Sets	\$0.10	\$10.00	
		Subtotal		\$1,218.90	
Task 10 - Right-of-Way Negotiation and Acquisition					
Included with Roadway Plans					
		Subtotal		\$0.00	
Task 11 - Contract Documents and Specifications					
8.5 x 11" black/white copies	26 reports	100 pages @	\$0.04	\$104.00	
covers and bindings	26 reports	2 covers per report @	\$1.00	\$52.00	
		Subtotal		\$156.00	
Task 12 - Opinion of Probable Cost					
		Subtotal		\$0.00	
Task 13 - Bid Phase Services					
Travel: (Pre-Con Meeting)	1 Trip(s) @	440 miles @	\$0.550	\$242.00	
Meals	0 Meal(s) @	2 People(Lunch)	\$12.00	\$0.00	
		Subtotal		\$242.00	
		Total		\$8,446.70	

Kimley-Horn Salary Rates

PROJECT MANAGER		Salary	Averages
Project Manager			
PM		62.4976	
			62.4976
Senior Engineer			
SE1		62.4976	
SE2		60.815	
SE3		48.0751	
SE4		53.8441	
SE5		61.5416	
SE6		50.9664	
SE7		50.2385	
			55.42547143
Project Engineer			
PE1		44.4695	
PE2		41.585	
PE3		41.8254	
PE4		37.4986	
PE5		37.9794	
			40.67158
Junior Engineer			
JE1		35.5756	
JE2		32.6911	
JE3		32.4507	
JE4		32.2103	
JE5		31.7296	
JE6		29.9027	
			32.42666667
Analyst			
A1		28.3643	
A2		27.3067	
A3		25.3837	
A4		27.3067	
			27.09035
Technician			
T1		25.7255	
T2		17.5475	
T3		24.4703	
T4		25.1433	
T5		23.9414	
			23.3656
Office Assistant			
OA1		18.9897	
OA2		19.9993	
			19.4945

Direct Cost Items

Reproduction:	
Xerox copies	
8 1/2" x 11"	\$0.04
11" x 17"	\$0.10
Color Copies	
8 1/2" x 11"	\$1.00
11" x 17"	\$1.50
Bond Prints	
22" x 34"	\$3.00
34" x 68"	\$3.50
Vellums	\$3.00
Covers & Bindings	\$1.00
Mylars	\$5.90

Direct Cost Items

Other:		
Film Developing	\$ 20.00/roll	
Vehicle Rates		
Sedan	\$ 0.555/Mile	
Carryall	\$ 0.575/Mile	
Car Rental	\$ 45.00/Day	
Per Diem for Field Crew (Meals)	\$ 36.35/Day	
Per Diem for Field Crew (Lodging)	\$ 71.50/Day	
Company Fee		9%
Company Overhead		193.23%

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
LOCATION AND SURVEYS PEF COST ESTIMATE

DATE: 7/20/2012

FIRM: McKim & Creed

SUB: _____

PROJECT: _____

COUNTY: Currituck

TIP NO.: B-5417

LENGTH:

L-LINE: 800 FT
Y-LINE(S): 200 FT

RAMPS: _____ FT
RAILROADS: _____ FT

LS NO.: _____

PROJECT DESCRIPTION: Bridge replacement on South Dogwood Trail

MANHOURS BY CLASSIFICATION

TASKS & PARAMETERS	PE	PLS	SCA	ST	PC	IP	RP	TOTAL
1. Courthouse Research No. of Properties: 8+/-		1		8				9
2. Contacting Property Owners No. of Property Owners 8+/-				8				8
3. NG Grid Tie (Horiz.) to NAD 1983 Approx. Length:								
4. Vertical Control Tie to NGVD of 1929 Approx. Length:								
5. Baseline Traverse Approx. Length: 800'				2	8	8		18
6. Intermediate Staking of Baseline Approx. Length:								
7. Compute Best-Fit Alignment (Graphically) Approx. Length: 800'		1		4				5
8. Hub & Stake Design -L- & -Y- Alignments Approx. Length -L-: Approx. Length -Y-:								
9. Establish/Elevate Temp. Bench Marks No. of TBM's: 2				1	2	2		6
10. Pavement DTMs Approx. Length: 800'				2	8	8		18
11. Hydrographic Surveys & -T- Lines Approx. Length: 200'				2	4	4		10
12. Suppl. Info for DTM's (Obscured Areas) No. of Acres / Boundaries: 4 Acres				2	16	16		34
13. Field Property Ties and Recon No. of Properties: 8+/-					8	8		16
14. Property Analysis and Computations No. of Properties: 8+/-				8				8
15. Property Line Ties to Design Alignment No. of Properties:								
16. Property Strip Maps No. of Maps:								
17. Data for Appraisal Report No. of Properties:								

TASKS & PARAMETERS	PE	PLS	SCA	ST	PC	IP	RP	TOTAL
18. Classif. of Features on Aerial Maps No. of Maps: Scale:								
19. Field Loc. of Topo & Plan. Features (Dense, Med., or LT): Med				1	8	8		17
20. Loc. of Non-Gravity U/G Utilities (Dense, Med., or LT):				1	4	4		9
21. Loc. of Gravity Utilities & Pipe Inverts (Dense, Med., or LT): LT				1	4	4		9
22. Mapping Pre. Prop. from Tax Map Info. No. of Properties:								
23. Pole Data Sheets (Dense, Med., LT): LT				1	1	1		3
24. Setting Photo Con. Panels No. of Points:								
25. Photogrammetric Control No. of Points:								
26. Staking and Flagging R/W & Easements No. of ROW Points: No. of EASEMENT Points:		1		4	8	8		21
27. Production of Base Mapping No. of Sheets: 2		1		16				17
28. GPS Points No. of Points:								
29. Misc. Staking No. of Points: Plats		8		16				24
33. Travel Hrs.R.T 7		7			14	14		35
34. Project Mgmt. & Supervision		9						9
35. Traffic Control & Safety					6	6		12
TOTAL MANHOURS:		28		77	91	91		287

Classification	Hours	Rate	Cost
PROFESSIONAL ENGINEER		\$55.91	
PROFESSIONAL LAND SURVEYOR	28	\$46.31	\$1,296.68
SURVEY CONTROL ANALYST		\$34.87	
SURVEY TECHNICIAN	77	\$27.20	\$2,094.40
PARTY CHIEF	91	\$21.44	\$1,951.04
INSTRUMENT PERSON	91	\$18.82	\$1,712.62
ROD PERSON		\$15.15	

**TOTAL
MANHOURS**
287

**TOTAL DIRECT
SALARY COSTS**
\$7,054.74

INDIRECT SALARY COSTS

Total Dir. Salary Costs	\$7,054.74		
Overhead (%)	165.81		\$11,697.46
Fee (%)	9		\$1,687.70
Cost of Capt. (%)	0.4300		\$30.34
Total Indirect Salary Costs:			\$13,415.50

**TOTAL DIR. and
INDIR. SALARY COSTS**
\$20,470.24

DIRECT COSTS

Carry-all \$/Da	\$28.75	Days =	
or \$/Mi	\$0.575	Miles =	\$575.00
Sedan \$/Day	\$27.75	Days =	
or \$/Mi	\$0.555	Miles =	\$235.88
Misc. Survey Supplies =			\$25.00

TOTAL DIRECT COSTS
\$835.88

PER DIEM EXPENSES

(Meals: \$36.35 Max., Lodging \$65.90+ taxes - \$71.50 for lump sum jobs)
\$ / Day \$107.85 x 2 Persons

x 9 Days = **\$1,941.30**

Cost per Mi: **\$23.25**
Manhours per Mi: **0.29**

PROJECT ESTIMATE TOTAL: \$23,247.41

ESTIMATE BY: Tony Alford, PLS



Post Office Box 10279
Wilmington, North Carolina 28404-0279

Telephone: (910) 452-5861
Fax: (910) 452-7563

www.catlinusa.com

October 9, 2012

Kimley-Horn & Associates, Inc.
Attn: Mr. Cecil Lee Narron, PE, SE
Suite 600
333 Fayetteville Street
Raleigh, North Carolina 27601

Re: Revised Workplan and Cost Estimate to Perform Geotechnical Structure
Subsurface Investigation
NCDOT TIP No.: B-5417
County: Dare
Description: Replacement of Bridge #17 on South Dogwood Trail over Snow
Goose Canal
CATLIN Proposal No.: 212027.P

Dear Mr. Narron:

We appreciate the opportunity to provide the following Workplan and Cost estimate for performing the above-referenced project. All work will be done in English units (feet). The project is located in Dare County, North Carolina in the town of Southern Shores. Work will be conducted at the site of existing North Carolina Department of Transportation (NCDOT) Bridge Number 17 that is slated for replacement.

SCOPE OF WORK

The scope of work proposed herein includes all engineering, drilling, field-testing, laboratory testing, surveying, and report preparation.

The proposed work will be performed as described below:

- **Safety**

A safety meeting will be conducted prior to commencement of the project and will include all CATLIN personnel. Due to the location of the project, traffic control (signage) including temporary lane closure will be necessary. Temporary lane closure will be conducted by others and coordinated by CATLIN personnel. A site specific Health and Safety Plan (HASP) will be completed by CATLIN and provided as an attachment to this Workplan. This document is to be reviewed and signed by all personnel involved with field activities prior to commencement of field activities.

- **Drilling/Coring**

The subsurface investigation is anticipated to be performed with either a Diedrich D-50 trailer mounted drilling rig or a Central Mine Equipment (CME) 45B track mounted drilling rig. Three borings are proposed for the project: One at each of the two end bents and one at the proposed interior bent. Boring depths are anticipated to be 100 feet below land surface (BLS).

All borings will be advanced utilizing conventional mud rotary drilling techniques in general accordance with American Society for Testing and Materials (ASTM) D-1586-84, "Penetration Test and Split Barrel Sampling of Soils" or American Association of State Highway and Transportation Officials (AASHTO) Standard Method T206-81.

Standard penetration testing (SPT) will be performed at four intervals through the upper 10 feet of each boring then at five feet intervals to boring termination. The field geologist will describe soil samples collected in the field in general accordance with AASHTO Designation M145-91, "The Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes." When mud rotary drilling methods are implemented, a Marsh funnel viscometer will be used to routinely check bentonite viscosity and density will be checked by use of a mud balance. Rock coring, if necessary, will be conducted using a NWD4 split-tube core barrel.

The field geologist will record all information on modified NCDOT field boring logs. Daily field activities will be recorded by the site supervisor on NCDOT approved Daily Activity Logs. All original field sheets will be submitted to Kimley-Horn for transmittal to NCDOT upon completion of the project.

Proposed load estimates will be provided by Kimley-Horn prior to commencement of drilling activities. Bearing capacity calculations will be conducted utilizing NCDOT provided Estimated Pile Tip Elevation worksheets. A foundation recommendation report will be prepared summarizing the results of the subsurface structure investigation, foundation recommendations, and relevant data to be used for design of the foundations.

- **Laboratory Testing**

No laboratory analysis of soils will be conducted as part of this investigation.

- **Surveying**

CATLIN personnel will conduct surveying including boring locations with stations, offsets, and Northing/Easting Coordinates utilizing North Carolina State Plane (NCSP) North American Datum 1983 (NAD83) coordinate system. Horizontal and vertical control will be established utilizing a Real Time Kinematic (RTK) Global Positioning System (GPS). As per NCDOT Geotechnical Unit correspondence dated October 1, 2001, horizontal accuracy will be represented to the nearest foot, vertical depths will be represented to the nearest one-third of

a foot (0.3ft), and depth of SPT drives will be recorded to the nearest one-tenth of a foot (0.1ft).

- **Borehole Abandonment**

Borings will be backfilled with native material and bentonite chips to pre-existing ground elevation subsequent to collection of 24-hour groundwater measurements. A protective cover such as sandbags or other suitable material will be placed over any open holes until they are backfilled.

The final deliverable shall consist of the following:

- One copy of a Structure Subsurface Investigation Report as outlined in Section 300-7 of NCDOT's *Geotechnical Unit Guidelines and Procedures Manual for Subsurface Investigations (Guidelines)* including all relevant plans (1), profiles (1), NCDOT boring logs (3), site photos, and core photos if necessary.
- Per NCDOT modifications to the Guidelines, no written report is typically provided; however, for this project, one copy of a written foundation recommendation report will be submitted summarizing the structure subsurface investigation activities and results, foundation recommendations (including, but not limited to driven pile type/size, estimated pile length, minimum tip elevation, and preliminary point of fixity), a preliminary wave equation analysis to determine appropriate hammer properties and drivability, and other relevant data for the design of the foundations.
- One copy of Supportive Documents including Property Owner Contact Sheets, Boring Quantity Summation Sheets, Original Field Notes/Logs, Engineering Computation Sheets, Results of Static and Dynamic Analyses, and FHWA Checklist.

PROJECT SCHEDULE

It is estimated that the above work scope will require approximately three days of field time for completion. Fieldwork will commence within 14 days of receipt of signed Work Authorization and Notice to Proceed. A final report and supportive documents will be provided to Kimley-Horn within four weeks after completion of field work.

PROJECT PERSONNEL

Several key personnel are designated to the project team for work performed under this contract. Below is a listing of the employees name, role, and classification.

Personnel	Role	Position/ Classification
Steven V. Hudson, L.G., CWD	Project Manager/ Project Geologist	Geologist
Jacob C. Wessell, P.E.	Project Engineer	Engineer
Justin Heter	Field Supervisor	Geologist
D. Thompson Chalmers, CWC	Head Driller	Driller
Josh O'Connell	Drillers Assistant / Field Technician	Drillers Assistant

Additional personnel will be utilized in order to complete field and office operations; however, the above personnel have been identified to serve in a key capacity.

ASSUMPTIONS

The proposed fee estimate was based on the previously discussed conditions and the following assumptions:

- o Overnight accommodations that honor NCDOT approved rates will be available within 30 minutes travel time of the site.
- o All drilling sites may be accessed with a trailer mounted drilling rig.
- o Lane closure and flagmen will be necessary and provided by others (Estimated costs included with proposal).
- o The project may be completed with one mobilization.
- o No rock coring will be conducted.
- o Borings will be advanced twenty feet beyond depth at which estimated load bearings are achieved based on NCDOT field calculation sheets.
- o Electronic Preliminary General drawings and/or site drawing of existing conditions will be provided by client.
- o Factored axial pile loads will be provided by client.
- o No lateral pile analysis will be conducted.
- o Costs associated with response to 90% NCDOT Geotechnical Engineering Unit review comments are included in this proposal.

FEE ESTIMATE

Our proposed fee estimate for performing all engineering, drilling, field and laboratory testing, surveying, report preparation, project administration, etc. for completing this project as described is provided in an attachment.

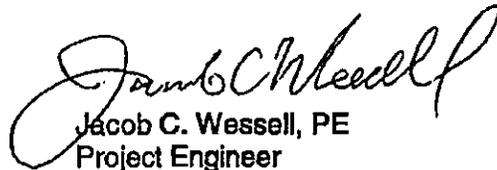
Upon your acceptance of our proposal, please provide your signature and return the attached *CATLIN Work Authorization and Services Agreement* Form. Keep one complete copy of our proposal package for your records. If you would like to expedite the project, please feel free to fax the signed Work Authorization form to our office prior to returning the original by mail.

If you have any questions or require any additional information, please do not hesitate to contact me at (910) 452-5861. CATLIN appreciates the opportunity to provide you with this proposal, and we look forward to assisting you with this project.

Sincerely,



Steven V. Hudson, PG, CWD
Project Manager



Jacob C. Wessell, PE
Project Engineer



WORK AUTHORIZATION AND SERVICES AGREEMENT

Client (Firm): Kimley-Horn and Associates, Inc
Attention: Mr. Cecil L. Narron, PE, SE
Address: Suite 600, 333 Fayetteville Street
City/State/Zip: Raleigh, North Carolina
Phone Number: 919-677-2094 **Fax:** 919-653-5847
Project Name: Replacement of Bridge #17
Project Location: Southern Shores, North Carolina
Proposal No.: 212027.P **Date:** October 9, 2012 (Rev)
E-Mail Address: Cecil.Narron@kimley-horn.com
Billing Address: _____
 (if different from above)

Scope of Services: Provide services in general accordance with the attached Scope of Work, Statement of Assumptions, and Cost Estimate.

Fee Agreement:	<input checked="" type="checkbox"/>	Lump Sum	<u>\$ 25,309.05</u>	See attached "Cost Estimate Worksheet". (Billed in accordance with attached "Fee Schedule")
	<input type="checkbox"/>	Not to Exceed	<u>\$ _____</u>	
	<input type="checkbox"/>	Fee Estimate	<u>\$ _____</u>	See attached "Cost Estimate Worksheet" (Time & Materials billed in accordance with attached "Fee Schedule")

Project Milestones or Completion Date: _____

Catlin Engineers and Scientists (CATLIN) appreciates this opportunity to provide you with engineering, environmental, and/or geotechnical services on the project referenced above. Please review the Terms and Conditions on Page Two of the agreement. As authorization to proceed with the proposed services, please review the information contained herein and provide us with your signature authorization in the space designated below.

By signing below, I (Client), state that I have read and agree to the terms & conditions on page two of this agreement.

Agreement Accepted By:

 Signature (Client)

 Print Name and Title

 Date

Agreement Authorized By:

 10/9/12
 Signature (CATLIN Corporate Officer) Date

P.O. Box 10279
 Wilmington, North Carolina 28404-0279
 phone: (910) 452-5861 fax: (910) 452-7563

TERMS AND CONDITIONS

CONTRACT DOCUMENTS - "Contract Documents" shall mean this document as well as the proposal attached hereto and together shall constitute the "Agreement". This contract is not valid without the authorized signature of a designated officer of CATLIN.

PROFESSIONAL SERVICES TO BE RENDERED - CATLIN will provide professional Services as an independent consultant to CLIENT as specified in the proposal attached hereto.

PAYMENT - CLIENT will pay CATLIN for services and expenses in accordance with the Contract Documents. CATLIN will submit progress invoices to CLIENT monthly and a final invoice upon completion of its Services. Each invoice, on presentation, is due and payable by CLIENT. Invoices are past due after 30 days. Past due amounts are subject to a service charge of one and one-half percent per month (18 percent per annum) on the outstanding balance. Attorney's fees and other costs incurred in collecting past due amounts shall be paid by CLIENT. CATLIN shall be paid in full for all Services under this Agreement, including any additional services as specifically authorized by CLIENT in excess of those stated in this Agreement. The CLIENT's obligation to pay for the Services contracted for is in no way dependant upon the CLIENT's ability to obtain financing, approval of governmental or regulatory agencies, or upon the CLIENT's successful completion of the Project. Payment should be submitted to the attention of Accounts Receivable, P.O. Box 10279, Wilmington, NC 28404-0279.

STANDARD OF CARE - CATLIN shall perform Services for CLIENT in a professional manner, using that degree of care and skill ordinarily exercised by and consistent with the standards of competent consultants practicing in the same or a similar locality as the Project Site. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES. NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IS MADE OR INTENDED BY THE PROPOSAL FOR CONSULTING SERVICES, BY FURNISHING AN ORAL REPORT OF THE FINDINGS MADE OR BY ANY REPRESENTATIONS MADE REGARDING THE SERVICES INCLUDED IN THIS AGREEMENT.

LIABILITY - IN NO EVENT SHALL CATLIN BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGES. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE AND THE TOTAL LIABILITY OF CATLIN ON ANY CLAIM WHETHER IN CONTRACT TORT (INCLUDING NEGLIGENCE WHETHER SOLE OR CONCURRENT), OR OTHERWISE ARISING OUT OF, CONNECTED WITH OR RESULTING FROM THE SERVICES PROVIDED PURSUANT TO THIS AGREEMENT SHALL NOT EXCEED THE TOTAL FEES PAID BY CLIENT. At additional cost, CLIENT may obtain a higher limit prior to commencement of services.

REPORTS - In connection with the performance of the Services, CATLIN shall deliver to CLIENT the agreed upon number of reports or other written documents reflecting Services provided, the results of such Services or CATLIN's evaluation of the results of such Services. All reports and written documents delivered to CLIENT are instruments reflecting the services provided by CATLIN pursuant to this Agreement and are made available for CLIENT's use subject to the limitations of this Agreement. All such reports, other written documents, all original data gathered by CATLIN and work papers produced by CATLIN in the performance of the Services are, and shall remain, the sole and exclusive property of CATLIN. The Services, and any data, recommendations, proposals, reports, design criteria, and similar information provided by CATLIN to CLIENT pursuant to this Agreement are provided for the exclusive use of CLIENT on the Project and are not to be used or relied upon in connection with other projects or by third parties.

SAFETY - With respect to the performance of the Services, CATLIN shall take safety precautions required by federal, state and local laws, rules, regulations, statutes or ordinances. Should CLIENT be conducting activities on the Site, CATLIN shall not be responsible for Site safety and shall have no right to direct or stop the work of CLIENT's contractors, agents, or employees.

CONFIDENTIALITY - Subject to any obligation CATLIN may have under applicable law or regulation, CATLIN agrees to release information relating to the Services only to its employees and subcontractors in the performance of the Services, to CLIENT's authorized representatives and to persons designated by the authorized representative to receive such information.

SAMPLES AND WASTE OR RECOVERED MATERIALS - Any and all samples, test specimens, waste materials, or recovered materials procured or retrieved from the Project Site shall remain at all times the property of the CLIENT (or the owner of the property where the Project Site is located if not the CLIENT). At all times, it is specifically agreed that CATLIN is acting as a bailee and at no time assumes any title or other ownership rights to said samples, test specimens, waste materials or recovered materials. If agreed to in writing, CATLIN will retain samples or test specimens for a mutually acceptable time of storage and charge for same.

INVENTIONS - Any and all inventions or discoveries relating to the Services, including improvements and modifications to existing product or processes made or conceived by CATLIN or its employees during the term of this Agreement are and shall remain the sole and exclusive property of CATLIN.

REPRESENTATION OF CLIENT - CLIENT warrants and covenants that sufficient funds are available or will be available upon receipt of CATLIN's invoice to make payment in full for the services rendered by CATLIN. CLIENT warrants that all information provided to CATLIN regarding the project and project location are complete and accurate to the best of CLIENT's knowledge. CLIENT further warrants and represents that it is the owner of the project and project location or has the authority of the owner and has the legal capacity to engage CATLIN to perform the services contemplated under this Agreement and to provide CATLIN with sufficient access and authority to perform the work contemplated herein.

PROJECT SITE - Reasonable precautions will be taken to minimize damage to the Project Site from CATLIN's activities and use of equipment. CLIENT recognizes that the performance of the services included in this Agreement may cause alteration or damage to the site. CLIENT accepts the fact that this is inherent in the work and will not look to CATLIN for reimbursement or hold CATLIN liable or responsible for any such alteration or damage. Should CLIENT not be the owner of the property, then CLIENT agrees to notify the owner of the aforementioned possibility of unavoidable alteration and damage and to indemnify, and defend CATLIN against any claims by the owner or persons having possession of the site through the owner which are related to such alteration or damage. CLIENT agrees to disclose the identity of all utilities serving the Project Site and the presence and accurate location of hidden or obscure man-made objects known to CLIENT relative to subsurface excavation or exploration locations. CATLIN will not be liable for damage or injury to subsurface structures (pipes, tanks, telephone cables, etc.) arising from the performance of CATLIN's services when the existence of such are not called to CATLIN's attention or the location correctly shown on the plans furnished CATLIN. CLIENT agrees to indemnify and hold harmless CATLIN from all claims, suits, losses, injuries, death and property liability resulting from unusual subsurface conditions and for damages to subsurface structures owned by CLIENT or third parties occurring in the performance of the proposed services, whose presence or locations were not revealed to CATLIN and to reimburse CATLIN for expenses in connection with any such claims or suits, including reasonable attorney's fees.

TERMINATION OF CONTRACT - This Agreement may be terminated by either party upon seven days' written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof. Such termination shall not be effective if that substantial failure has been remedied before expiration of the period specified in the written notice. In the event of termination, CATLIN shall be paid for Services performed to the termination date plus reasonable termination expenses.

UNFORESEEN OCCURRENCES - If, during the performance of services hereunder, any unforeseen hazardous substance, material, element or constituent or other, unforeseen conditions or occurrences are encountered which, in CATLIN's sole judgment significantly affect or may affect the services, the risk involved in providing the services, or the recommended scope of services, CATLIN will promptly notify CLIENT thereof. Subsequent to that notification, CATLIN may: (a) if practicable, in CATLIN's sole judgment and with approval of CLIENT, complete the original scope of services in accordance with the procedures originally intended in the Proposal; (b) Agree with CLIENT to modify the scope of services and the estimate of charge to include study of the previously unforeseen conditions or occurrences, such revision to be in writing and signed by the parties and incorporated herein; or (c) Terminate the services effective on the date of notification pursuant to the terms of TERMINATION OF CONTRACT.

FORCE MAJEURE - Should completion of any portion of the Services be delayed for causes beyond the control of or without the fault or negligence of CATLIN including force majeure, the time for performance shall be extended for a period equal to the delay and the parties shall mutually agree on the terms and conditions upon which the Services may be continued. Force majeure includes but is not restricted to, acts of God or the public enemy acts of the Government of the United States or of the several states, or any foreign country, or any of them acting in their sovereign capacity, acts of CLIENT's contractors or Agents, fire, floods, epidemics, riots, quarantine restrictions, strikes, civil insurrections, freight embargoes, and unusually severe weather.

INSURANCE - CATLIN shall maintain at its own expense the following insurance subject to normal industry exclusions: (1) Worker's Compensation Insurance; (2) Business Automobile Liability Insurance; (3) Commercial General Liability Insurance; and (4) Professional Liability Coverage. Certificates may be issued upon request identifying details and limits of coverage.

CAPTIONS AND HEADINGS - The captions and heading throughout this Agreement are for convenience and reference only, and the words contained therein shall in no way be held or deemed to define, limit, describe, modify, or add to the interpretation, construction, or meaning of any provision of or scope of intent of this Agreement.

SEVERABILITY - If any provision of this Agreement, or application thereof to any person or circumstance, shall in any extent be invalid, the remainder of this Agreement, or the application of such provision to persons or circumstances other than those as to which it is held invalid, shall not be affected thereby, and each provision of this Agreement shall be valid and enforced to the fullest extent permitted by law.

NO WAIVER - No waiver by either party of any default by the other party in the performance of any provision of this Agreement shall operate as or be construed as a waiver of any future default, whether like or different in character.

GOVERNING LAW - The validity, interpretation, and performance of this Agreement shall be governed by and construed in accordance with the laws of the state in which the Project Site is located.

ENTIRE AGREEMENT - This Agreement, including the Contract Documents, represents the entire understanding and agreement between the parties hereto relating to the Services and supersedes any and all prior agreements, whether written or oral, that may exist between the parties regarding same. This Agreement shall not be assigned by either CATLIN or CLIENT without the other's written permission. No amendment or modification to this Agreement or any waiver of any provisions hereof shall be effective unless in writing, signed by both parties.

CATLIN Agreement PAGE 2 of 2

COST ESTIMATE WORKSHEET



NCDOT TIP Number: B-5417 WBS Number: N/A
 PROJECT TITLE: Kimley-Horn - Southern Shores Bridge #17, Dare County
 PHASE: Geotechnical Structure Subsurface Investigation
 CATLIN PROJ. NO: 212027

Prepared By: Steven Hudson
 Project Manager: Steven Hudson
 Date: 10/9/2012 REV
 Approved By: Sheila Smith

PROPOSAL NO.: 212027.P

DESCRIPTION OF SERVICE	ESTIMATED FEE	NOTES
C1. Professional Services (Labor)	\$ 11,846.00	
C3. Mobilization and Travel	\$ 3,533.05	
C4. Drilling	\$ 4,530.00	
C5. Pavement Design Investigations	\$ -	
C6. Investigation Equipment	\$ -	
C7. Testing Equipment	\$ -	
C8. Geoenvironmental	\$ -	
C9. Geophysical	\$ -	
C10. Miscellaneous	\$ -	
C11. Laboratory Testing	\$ -	
C00. Other	\$ 5,400.00	
PHASE TOTAL	\$ 25,309.05	

PROFESSIONAL SERVICES (LABOR) WORKSHEET



NCDOT TIP Number: B-5417 WBS Number: N/A
 PROJECT TITLE: Kimley-Horn - Southern Shores Bridge #17, Dare County
 CATLIN PROJ. NO: 212027
 PHASE: Geotechnical Structure Subsurface Investigation

Prepared By: Steven Hudson
 Project Manager: Steven Hudson
 Date: 10/8/2012 REV
 Approved By: Sheila Smith

Task Description	Task Code	PERSONNEL CATEGORY												TOTAL HOURS
		Principal	Senior Eng	Proj Eng	Field Eng	Senior Geo	Proj Geo	Field Geo	Proj Sci	Drill Tech	Drill Help	CAD	Clerical	
		150.00	150.00	120.00	86.00	145.00	118.00	72.00	86.00	77.00	65.00	65.00	65.00	
Project Management														
Project Management							10						2	
Site/Boring Survey														
Boring Plan/Load GPS							1.5							
Field Layout								0.5						
Utility Coordination								0.5						
Site Survey								2.5						
Reduce GPS Survey							1.5							
Drilling / Site Supervision														
Mobilization								2						
Travel								13		3	3			
Site Supervision								24						
Coordination								4						
Report														
QC Field Logs								2						
Boring Logs (3)								4.5						
Site Vicinity (1)								2						
Plan Sheet (1)								4						
Profile								6						
Report Text								8						
Site Photos								2						
Engineering														
Report Text				6										
Calculations				16										
Client Coordination				6										
													0	
TOTAL HOURS		0	0	28	0	0	39.5	46.5	0	3	3	0	2	122
TOTAL AMOUNT		-	-	3,380.00	-	-	4,582.00	3,348.00	-	231.00	195.00	-	130.00	
PROFESSIONAL SERVICES TOTAL													\$ 11,846.00	

SPECIALIZED EQUIP/SERVICES WORKSHEET

NCDOT TIP Number: B-5417 WBS Number: N/A
 PROJECT TITLE: Kimley-Horn - Southern Shores Bridge #17, Dare County
 CATLIN PROJ. NO: 212027



Prepared By: Steven Hudson
 Project Manager: Steven Hudson
 Date: 10/9/2012 REV

Item Description	Unit	Quantity	Unit Price	Total
C3: MOBILIZATION and TRAVEL				
MOBILIZATION including 2 crew personnel:				
Local - within 50 miles of base				
Level 1: Truck Mounted Drill / ATV Drill	Event	1	\$ 400.00	\$ 400.00
Level 2: Track/CPT Rig	Event		\$ 450.00	\$ -
Level 3: Barge/Marsh Buggy including Drill	Event		\$ 500.00	\$ -
Greater than 50 Miles from base - (In addition to Local Mob)				
Level 1: Truck Mounted Drill / ATV Drill	Mile	380	\$ 4.00	\$ 1,520.00
Level 2: Track/CPT Rig	Mile		\$ 4.50	\$ -
Level 3: Barge/Marsh Buggy including Drill	Mile		\$ 5.00	\$ -
TRAVEL, PER DIEM & MILEAGE:				
Crew Travel Time (1 person: driller or helper)	Man Hour		(\$ 67.00)	\$ -
Per Diem				
Breakfast	Day	12	\$ 8.00	\$ 96.00
Lunch	Day	15	\$ 10.45	\$ 156.75
Dinner	Day	12	\$ 17.90	\$ 214.80
Hotel (Estimate)	Day	12	\$ 71.50	\$ 858.00
Mileage - Sedan	Mile		\$ 0.555	\$ -
Mileage - Truck/Carryall	Mile	500	\$ 0.575	\$ 287.50
C3 Mobilization & Travel Total:				\$ 3,533.05
C4: DRILLING RATES:				
Auger Borings w/o SPT	Foot		\$ 8.00	\$ -
SPT Borings w/SPT (0 - 60 ft)	Foot	180	\$ 10.00	\$ 1,800.00
SPT Borings w/SPT (60 ft +)	Foot	120	\$ 12.75	\$ 1,530.00
SPT Extra Drives - Interval <5feet - (0 - 60 ft)	Each		\$ 16.00	\$ -
SPT Extra Drives - Interval <5feet - (60 ft +)	Each		\$ 19.00	\$ -
Hard Drilling >100 BPF(0 - 60 ft)	Foot		\$ 12.00	\$ -
Rock Coring N (0 - 60 ft)	Foot		\$ 36.00	\$ -
Rock Coring N (60 ft +)	Foot		\$ 46.00	\$ -
Cross Sections (3)	Foot		\$ 41.00	\$ -
Rock Coring H (60 ft +)	Foot		\$ 57.00	\$ -
SPT Between Core Runs (0 - 60 ft)	Each		\$ 28.00	\$ -
SPT Between Core Runs (60 ft +)	Each		\$ 33.00	\$ -
GeoProbe Rig	Day		\$ 1,500.00	\$ -
Crew Time	Man Hour		(\$ 67.00)	\$ -
Back-fill borings w/bentonite	Foot	300	\$ 4.00	\$ 1,200.00
Grouting with Portland Cement Slurry	Foot		\$ 7.50	\$ -
Install 3" to 4" steel casing	Foot		\$ 5.00	\$ -
Collection of undisturbed sample	Each		\$ 80.00	\$ -
FOODAGE Multiplier:				
Track Borings	Percent		130%	\$ -
Barge including support boat	Percent		190%	\$ -
Marsh Buggy including Argo/ATV	Percent		196%	\$ -
C4 Drilling Rates Total:				\$ 4,530.00

SPECIALIZED EQUIP/SERVICES WORKSHEET

NCDOT TIP Number: B-5417

WBS Number: N/A

PROJECT TITLE: Kimley-Horn - Southern Shores Bridge #17, Dare County

CATLIN PROJ. NO: 212027



Prepared By: Steven Hudson
 Project Manager: Steven Hudson
 Date: 10/9/2012 REV

Item Description	Unit	Quantity	Unit Price	Total
C6: INVESTIGATION EQUIPMENT				
Coring Machine	Day		\$ 300.00	\$ -
Dilatometer	Day		\$ 200.00	\$ -
Vane Shear	Day		\$ 200.00	\$ -
<10 ft Work Boat	Day		\$ 200.00	\$ -
<10 ft Work Boat	Week		\$ 600.00	\$ -
<10 ft Work Boat	Month		\$ 2,000.00	\$ -
30 ft Work Boat	Day		\$ 500.00	\$ -
C6: Investigation Equipment Total				\$ -
C8: GEOENVIRONMENTAL				
55 Gallon Drum	Each		\$ 50.00	\$ -
Ball, Polyethylene Disposable	Each		\$ 10.00	\$ -
Decontamination Pad, Portable	Each		\$ 200.00	\$ -
Meter, Conductivity	Day		\$ 10.00	\$ -
Meter, Dissolved Oxygen	Day		\$ 50.00	\$ -
Meter, Explosimeter	Day		\$ 50.00	\$ -
Meter, Four Gas	Day		\$ 75.00	\$ -
Meter, Multimeter	Day		\$ 85.00	\$ -
Meter, pH	Day		\$ 10.00	\$ -
Meter, pH/Conductivity	Day		\$ 10.00	\$ -
Meter, pH/Conductivity/Temp	Day		\$ 10.00	\$ -
Meter, Turbidity	Day		\$ 35.00	\$ -
Personal Protection, Level C	Day		\$ 30.00	\$ -
Personal Protection, Level D	Day		\$ 15.00	\$ -
Portable Gas Chromatograph	Day		\$ 225.00	\$ -
Probe, Oil/Water Interface	Day		\$ 50.00	\$ -
Probe, Water Level	Day		\$ 10.00	\$ -
Pump, Pail	Day		\$ 55.00	\$ -
Pump, Peristaltic	Day		\$ 60.00	\$ -
Sampler, Bottom Grab	Day		\$ 60.00	\$ -
Sampler, Hand/Auger	Day		\$ 15.00	\$ -
Saw, Concrete/Asphalt	Day		\$ 100.00	\$ -
Steam Cleaner	Day		\$ 75.00	\$ -
Tank, Storage - 1,100 Gallon	Day		\$ 85.00	\$ -
Test Kit, Iron	Each		\$ 20.00	\$ -
Test Kit, Petroleum (Petroleum 10 Samples)	Each		\$ 625.00	\$ -
Vapor Analyzer, Flame Ionization	Day		\$ 100.00	\$ -
Vapor Analyzer, Photoionization	Day		\$ 100.00	\$ -
Monitoring Wells				
Concrete Pad/Well Head (Flush or Stickup with manway)	Each		\$ 250.00	\$ -
Type II 2" Diameter PVC	Foot		\$ 40.00	\$ -
Type II 4" Diameter PVC	Foot		\$ 55.00	\$ -
Type III 2" Diameter PVC Inner Casing	Foot		\$ 40.00	\$ -
Type III 4" Diameter PVC Inner Casing	Foot		\$ 55.00	\$ -
Type III 6" Diameter PVC Outer Casing	Foot		\$ 40.00	\$ -
Type III 8" Diameter PVC Outer Casing	Foot		\$ 70.00	\$ -
Well Abandonment 1" Diameter	Foot		\$ 8.00	\$ -
Well Abandonment 2" Diameter	Foot		\$ 9.00	\$ -
Well Abandonment 4" Diameter	Foot		\$ 11.00	\$ -
Well Abandonment 6" Diameter	Foot		\$ 14.00	\$ -
C8: Geoenvironmental Total				\$ -

SPECIALIZED EQUIP/SERVICES WORKSHEET

NCDOT TIP Number: B-5417

WBS Number: N/A

PROJECT TITLE: Kimley-Horn - Southern Shores Bridge #17, Dare County

CATLIN PROJ. NO: 212027



Prepared By: Steven Hudson
 Project Manager: Steven Hudson
 Date: 10/8/2012 REV

Item Description	Unit	Quantity	Unit Price	Total
C10: MISCELLANEOUS:				
Electric Generator (4KW or less) (CATLIN equip) (6KW)	Day		\$ 150.00	\$ -
Electric Generator (4KW or less) (CATLIN equip) (6KW)	Week		\$ 150.00	\$ -
Jack Hammer	Day		\$ 75.00	\$ -
GPS Backpack Submeter (Non-Allowable)	Day		\$ 100.00	\$ -
GPS Handheld Submeter (Non-Allowable)	Day		\$ 100.00	\$ -
GPS Survey Grade	Day		\$ 250.00	\$ -
Backhoe	Day		\$ 250.00	\$ -
Vibracore*	Day		\$ 2,000.00	\$ -
C10: Miscellaneous Total				\$ -
C11: LABORATORY/TESTING:				
Soil Classification (AASHTO T-11)	Each		\$ 125.00	\$ -
Materials Finer than No.200 Sieve by Washing (AASHTO T-11)	Each		\$ 55.00	\$ -
Sieve Analysis (AASHTO T-27)	Each		\$ 55.00	\$ -
Soil Moisture Content (AASHTO T-265)	Each		\$ 7.00	\$ -
C11: Laboratory/Testing Total				\$ -
C00: OTHER:				
Car Rental	Day		\$ 45.00	\$ -
Mileage for Rental Car	Mile		\$ 0.20	\$ -
Xerox Copies - 8 1/2" x 11"	Each		\$ 0.04	\$ -
Xerox Copies - 11" x 17"	Each		\$ 0.10	\$ -
Covers	Each		\$ 0.50	\$ -
Binding	Each		\$ 0.50	\$ -
Film and Developing	Roll		\$ 20.00	\$ -
Equipment Rental - At Cost, Pre-Approved, Documented				\$ -
Supplies and Materials - At cost, Justified, Documented				\$ -
Subcontract Services - At Cost, Pre-Approved, Documented				\$ 5,400.00
OTHER TOTAL				\$ 5,400.00

* **Vibracore Includes:** work platform (shallow draft +/- 8' x 24'), support boat, vibracore attachments, head & unit, operator (captain) and helper, daily mob from dockage to work platform, sampling tubes & misc. sampling equipment, pump rental.

Assumes: water depth 15 feet, current 1.5 knots, sampling site within 1.5 miles of dockage, benchmark within 200 yards of sampling site, five sampling points per day, sands to depth of 6 feet into sediments, silts/clays to depth of 15 feet into sediment, samples capped, sealed and transported to dockage.

Does not include: geologist/site supervisor, GPS equipment, sample splitting and loggings (+/- 5 min./ft.), mobilization of work platform and sampling equipment, dockage fee.

