



**Lockwood, Andrews  
& Newnam, Inc.**

A LEO A DALY COMPANY

March 16, 2023

Mr. Jeffrey Edmonds, P.E.  
Director of Engineering Services  
City of Corpus Christi  
PO BOX 9277  
Corpus Christi, Texas 78469-9277

**Re: Proposal for Professional Engineering Services – North Beach Drainage Improvements**

On June 24<sup>th</sup>, 2022, Lockwood, Andrews & Newnam, Inc. (LAN) received notification of selection for Project 22142 – North Beach Drainage Improvements. We are pleased to submit this cost proposal to provide preliminary, design, bid, and construction services related to the North Beach Drainage Improvements (Project# 22142). LAN will complete this work in accordance with City of Corpus Christi policies, guidelines, requirements, and specifications.

We propose to complete these services on a lump sum basis for a total amount not-to-exceed \$720,760.00. We propose to be complete with the preliminary engineering services in 5 months from Notice to Proceed and design of the improvements in an additional 6 months after our proposed Engineering Letter Report is approved (Total of 11 months to IFB).

Please feel free to contact me at 361-792-7225 or by email at [smharris@lan-inc.com](mailto:smharris@lan-inc.com) if you have any additional questions.

Sincerely,

A handwritten signature in blue ink, appearing to read 'S. Harris', is written over a light blue circular watermark.

Scott Harris, PE  
Regional Manager

Attachments: Exhibit A - Scope of Services  
Exhibit B – Summary of Fees  
Exhibit C – Man-Hour Breakdown  
Exhibit D – Schedule  
Exhibit E – Budget Worksheet

Cc: Ratna Pottumuthu, Assistant Director  
Bryan Carter, Project Manager



## North Beach Drainage Improvements (Project # 22142)

### Exhibit A - Scope of Services

#### 1. Background

In December 2019, the City of Corpus Christi City Council passed an ordinance (# 031970) authorizing a \$41 Million dollar project on North Beach in Corpus Christi, Texas to design and construct a navigable canal. In December 2020, LAN completed a drainage analysis of this project which advanced the concepts previously developed by the City and finalized the canal's scope and project limits. The ultimate objective was to investigate the project for its intended use of being navigable and a improve drainage for the North Beach area.

On January 26th, 2021, LAN briefed City Council on the results of the drainage analysis, and it was concluded that three options would be further investigated for cost. On February 4th, 2021, LAN met with the city staff to discuss three options that LAN would provide cost estimates for and receive direction from staff on how to proceed. The following options were approved:

- Option 1 – Stormwater Conveyance & Ditch Improvements
- Option 2 – Natural Channel / Linear Park Improvements
- Option 3 – Navigable Canal (2 Alternatives)
  - Alternative A – Canal Exit to Rincon
  - Alternative B – Canal Exit through Beach

In June 2021, LAN completed the cost estimates for the options above including conceptual layouts and GIS-based utilities research. Each Option included drainage, street, pedestrian, parks, and utility improvements. Additionally, each option included earthwork (cut and fill) required to raise elevations enough to improve drainage. It was noted that all options were conceptual and required detailed design and more investigation if the client wanted to consider them for future development.

On October 25, 2022, City Council approved the North Beach Strategic Development Plan (SDP), completed by MIG Consulting, LLC which included the recommendation to move forward with the **Linear Park Improvements (Option 2)**. The SDP recommended several measures to alleviate short and long-term flooding, including a coastal barrier (dune) system, elevating key access routes, upgrading storm water conveyance with a linear park canal, and installation of backflow prevention low-lying areas. It is intended that the measures be implemented over time as the area develops.

#### 2. Description of Project #22142:

North Beach Drainage Improvements Project (Project# 22142) focuses on long-term development and construction of drainage infrastructure to relieve ongoing flooding due to **tidal influences, backflow, groundwater seepage, and rainfall** at the North Beach area of Corpus Christi.

This project will align with the recommendations made in the Strategic Development Plan and begin to implement storm water conveyance improvements at the north end of North Beach including the proposed canal as part of the future linear park between Surfside Boulevard and Timon Boulevard. This project will include open channel improvements, roadside ditch improvements, and a new outfall near Timon Marsh.

It will also require two, two-lane single span low profile city street bridges, one at Gulf Spray Avenue and one at Beach Avenue, which will span the canal. Bridge approaches are anticipated to be less than 10-feet high and constructed with reinforced earthen embankments. The bridges and approaches will be subject to vehicular traffic and coordinated with Bond 2022 Street Improvement projects on Gulf Spray and Beach Avenues.

It is understood that this particular drainage project will be the first phase of long-term improvements and therefore must support future expansion to the drainage systems, expansion of the linear park to the south, connection to a future Eco-Park, and future street improvements (raising of elevations).



### **3. Project Goals & Objectives**

The design and construction of drainage improvements on North Beach will require a phased holistic approach. The following are the goals and objectives for this project:

- LAN will collaborate with City staff, community leaders, stakeholders, and partners **MIG Consulting LLC** on long-term needs and solutions and design improvements that support long-term growth and economic development for North Beach.
- To the best of our ability and keeping in mind the City's long-term vision, LAN will **utilize past recommendations** and previous studies to develop proposed improvements.
- LAN will design improvements that have the **most benefit** within the CIP budget; the largest benefit/cost ratio as possible.
- LAN will design improvements that **improve the health and safety** of the North Beach community.
- Knowing that it is highly likely that this one project will not answer all drainage concerns on North Beach, LAN will collaborate with City staff, community leaders, and stakeholders to **determine the best locations** for the proposed improvements.

### **4. Projects Area and Area of Influence**

North Beach is located on the far north end of the City, adjacent to the Downtown and SEA District areas. The area of influence for this project is generally bounded by the US-181 (TXDOT) Right-of-way on the west, the Rincon Barge Canal on the north, Corpus Christi Bay on the east, and the Corpus Christi Ship Channel on the south. The specific project area for this first phase of drainage improvements will be concentrated on the north end of North Beach, generally north of the Kiwanis and Surfside Parks locations. See Attachment 1 - Project Area Exhibit.

### **5. Basic Services:**

Lockwood, Andrews & Newnam, Inc. (LAN) will provide the following Basic Services: preliminary, detailed design (60%), final design (90% and 100%), bid, and construction phase services for this project. LAN will partner with MIG Consulting, LLC to ensure long-term needs and solutions are met and to assist with the proposed design improvements at North Beach.

#### **Task 1 – Preliminary Engineering Services**

Preliminary Engineering services will include the following tasks:

1. Kick-off Meeting – Attend one (1) virtual meeting with City staff to discuss the following: the project goals, objectives, scope, and schedule; discuss expectations of completed project and desired drainage criteria, and any ongoing developments that may influence design of proposed drainage improvements.
2. Site Visit – LAN will complete one (1) site visit to the project area to assess the terrain and conditions and determine constraints and limitations for consideration during design and construction.
3. Coordination with Surveyor – LAN will coordinate the services of a third-party surveyor to complete the scope of work detailed in Additional Services. LAN will receive the surveyor's data, interpret results, perform a quality control review of this data, and incorporate the data into the 30% construction plans.
4. Coordination with Geotechnical Engineer - LAN will coordinate the services of a third-party geotechnical engineer to complete the scope of work detailed in Additional Services. LAN will develop a boring plan/location map for the engineer showing locations for recommended soil borings, receive the engineers report, interpret results, perform a quality control review of this report, and incorporate the information from the report into the design and project manual. LAN will also prepare a scope of work for field exploration, laboratory and materials testing for the geotechnical engineer.
5. Utility Identification & Conflict Resolution – LAN will complete an 811 ticket and research City and Third-Party records and databases for the identification of utilities that may be within the project area. Once identified,



LAN will develop a utilities matrix and existing utility layouts. This task will include up to three (3) teleconferences or phone conversations with third-party utilities.

6. Coordination with Subsurface Utility Engineer - Following identification of utilities, LAN will develop a scope of work for Subsurface Utility Engineering (SUE) to be completed as an Additional Service. Under this task, LAN will continue coordination with the SUE firm to ensure all utilities in the project area are located. **It is assumed that the City of Corpus Christi will contract with a SUE firm that they already have a Master Services Agreement with.**
7. Existing Drainage Analysis – LAN will complete a Hydrological & Hydraulics (H&H) drainage analysis of the project area of influence (approximately 160 acres). Since the project site is less than 200-acres, LAN proposes to complete this analysis using a simple Rational Method to determine the runoff volumes. LAN will base this analysis on future land use / developed conditions.
8. Proposed Conditions Hydraulic Analysis – LAN will complete a proposed conditions hydraulic analysis for the linear canal and proposed stormwater conveyance improvements. LAN will utilize City’s Storm Water Master Plan Drainage Criteria Manual for sizing proposed drainage features and determining water surface elevations.
9. Drainage Area Maps - LAN will develop proposed drainage area maps and calculate the water surface elevation for the City’s desired storm period and criteria with recommendations for general information for roadside ditches, cross culverts, and roadway elevations.
10. Linear Park Canal Design (30%) – LAN will improve upon the results of the proposed hydraulic analysis and complete preliminary design calculations (size, shape, slope, alignment) for the open channel / linear park canal including 30% plans, cross sections, and crossings at Gulfspray and Beach Avenues.
  - a. In this task, LAN will partner with MIG Consulting LLC (MIG) and Gignac Landscape Architecture (GLA) to develop a conceptual layout of the proposed linear park and greenspace between Surfside and Timon Boulevards.
  - b. The intent of this conceptual layout is to provide the City of Corpus Christi a tool to discuss future linear park development that is consistent with the proposed drainage improvements and the Strategic Development Plan. It is not intended to advance the park design elements past this stage.
11. Drainage Improvements Design (30%) – LAN will complete preliminary design of the underground storm water conveyance systems, roadside ditches and cross culvert improvements in the project area including 30% plans and cross sections. This task also includes developing a typical section for future improvements to Gulfspray and Beach Avenue.
12. Opinion of Probable Project Costs – LAN will develop a Class 3 level opinion of probable project costs for the proposed project improvements.
13. Engineering Letter Report (ELR) – LAN will develop a draft engineering letter report that summarizes the existing conditions, confirms design criteria, and details the proposed drainage improvements to be completed under this project. Layouts of the proposed improvements (30% design) will be included as an attachment to this report. In addition, the report will include recommendations for future street improvements, utility relocations, opinions of probable costs and recommendations for future connections and phasing in support of the Strategic Development Plan. Sections of the ELR may include:
  - a. Executive Summary
  - b. Introduction / Project Background
  - c. Existing Conditions
    - i. Right-of-Way / Land-Use
    - ii. Topography



- iii. Summary of Existing Conditions Drainage Analysis
  - iv. Existing Utilities
  - d. Design Criteria
    - i. Area Plans & Land-Uses
    - ii. Infrastructure Design Manual (IDM)
    - iii. Drainage Criteria
    - iv. Utility Master Plans
  - e. Proposed Drainage Improvements
    - i. Summary of North Beach Drainage (Studies & Plans)
    - ii. Elements of Design
      - 1. Proposed Canal
      - 2. Typical Cross Section
      - 3. Storm Water Conveyance (Pipe & Ditches)
    - iii. Constraints & Limitations for Proposed Improvements
    - iv. Future Connections, Expansion of Drainage System, and Phasing
  - f. Recommendations for Street Improvements
  - g. Recommendations for Utility Relocations
  - h. Recommendations for Future Park Improvements
  - i. Environmental and Regulatory Considerations / Storm Water Pollution Prevention
  - j. Conceptual Level Opinion of Probable Construction Costs
14. Review Meeting and Final ELR – LAN will participate in one (1) 30% review meeting with City staff to deliver the results of the engineering letter report, 30% plans, and review comments from staff. LAN will incorporate City comments into a final / sign & sealed Engineering Letter Report.
15. Presentation to Council – LAN will complete one (1) presentation to Council to deliver the results of the preliminary engineering effort.

### **Task 2 – Detailed Design (60%)**

LAN will translate engineering designs completed in the preliminary stage into detailed construction documents, including the advancement of 30% plans to 60% level. Disciplines involved include Site Civil, Drainage, and SWPPP. Tasks include:

1. Technical Drawings - A draft submission will be made at the 60% design stage for client review and comment. All comments received will be tracked and addressed by the design team and necessary revisions will be included in the Contract Documents. The anticipated drawing list includes the following:
  - Title Sheet / Index
  - Legends & Symbols
  - General Notes / Summary of Quantities
  - Overall Site Plan
  - Topographic / Boundary / Location Survey
  - SWPPP
  - Existing Utility Maps
  - Drainage Area Maps
  - Linear Canal Plan & Profile
  - Linear Canal Sections
  - Storm Water Plans & Profiles
  - Storm Water Details
  - Proposed Street Cross Sections
2. Technical Specifications - LAN will prepare a list of technical specifications, using City of Corpus Christi standard format, that define the project standards for materials, workmanship, and testing for client review and



comment. All comments received will be tracked and addressed by the design team and necessary revisions will be included in the Contract Documents.

3. Opinion of Probable Project Costs – LAN will develop a Class 2 level opinion of probable project costs for the proposed project improvements.
4. Project Executive Summary – LAN will develop a draft construction project executive summary in accordance with City of Corpus Christi guidelines and specifications.
5. Client Review Meeting - LAN will participate in one (1) review meeting with the client for the purposes of reviewing the 60% project deliverables and receive comments from the client.

### **Task 3 – Final Design (90%)**

LAN will advance detailed construction documents developed at 60% to the 90% level. Disciplines involved include Site Civil, Drainage, Structural, and SWPPP. Tasks include:

1. Technical Drawings - A draft submission will be made at the 90% design stage for client review and comment. All comments received will be tracked and addressed by the design team and necessary revisions will be included in the Contract Documents. In addition to the drawings delivered in the 60% submittal, the following will be included:
  - Gulfspray and Beach Avenue Bridge Crossings
  - Structural Details
  - Utility Relocation Plans
2. Technical Specifications - LAN will prepare draft technical specifications, using City of Corpus Christi standard format, that define the project standards for materials, workmanship, and testing for client review and comment. All comments received will be tracked and addressed by the design team and necessary revisions will be included in the Contract Documents.
3. Contract Documents – LAN will prepare City standard front-end documents (in Track Changes format) including Bid Form, Agreement, Supplementary Conditions, Summary of Work, Alternates, Measurement & Payment, Submittal Register, Temporary Facilities, and Temporary Controls, using City of Corpus Christi standard format. All comments received will be tracked and addressed by the design team and necessary revisions will be included in the Contract Documents.
4. Opinion of Probable Project Costs – LAN will develop a Class 1 level opinion of probable project costs for the proposed project improvements.
5. Project Executive Summary – LAN will develop a final construction project executive summary in accordance with City of Corpus Christi guidelines and specifications.
6. Client Review Meeting - LAN will participate in one (1) review meeting with the client for the purposes of reviewing the 90% project deliverables and receive comments from the client.

### **Task 4 – Final Design (Pre-ATA, 100%)**

LAN will finalize construction documents developed at 90%, address comments, and deliver a final unsealed set to the client. Tasks include:

1. Technical Drawings - A final submission will be made at the 100% design stage for client review and comment. All comments received will be tracked and addressed by the design team and necessary revisions will be included in the Contract Documents.



2. Technical Specifications - LAN will prepare final technical specifications, using City of Corpus Christi standard format, that define the project standards for materials, workmanship, and testing for client review and comment. All comments received will be tracked and addressed by the design team and necessary revisions will be included in the Contract Documents.
3. Contract Documents – LAN will prepare final City standard front-end documents (in Track Change format) including Bid Form, Agreement, Supplementary Conditions, Summary of Work, Alternates, Measurement & Payment, Submittal Register, Temporary Facilities, and Temporary Controls, using City of Corpus Christi standard format. All comments received will be tracked and addressed by the design team and necessary revisions will be included in the Contract Documents.
4. Opinion of Probable Project Costs – LAN will finalize the Class 1 level opinion of probable project costs for the proposed project improvements.
5. Client Review Meeting - LAN will participate in one (1) review meeting with the client for the purposes of reviewing the 100% project deliverables and receive comments from the client.
6. Issued for Bid Documents – LAN will incorporate all client review comments and prepare final, signed & sealed issued for bid (IFB) documents in accordance with City standards including Project Manual (Contract Documents, Standard Specifications, Technical Specifications), Project Drawings, Bid Form, Executive Summary, OPCC, and CIVCAST form.

#### **Task 5 – Bid Phase Services**

LAN will assist the client with limited bid and procurement phase services. Tasks include:

1. Pre-Bid Meeting - LAN will attend one (1) Pre-Bid meeting with the client to present the project to potential qualified contractors.
2. Respond to Requests for Information (RFI's) - LAN will monitor CIVCAST during the City's standard two-week question and answer period and respond to routine questions as necessary via email to the City Project Manager. Answers to RFI's are intended to clarify plans, specifications, or design criteria and not make significant changes to the design of the project.
3. Contract Addenda - Significant revisions to the plans or specifications during procurement will be issued through addenda prior to submittal of proposals. LAN will prepare one (1) contract addenda, if required.

#### **Task 6 – Construction Phase Services**

LAN will assist the client with limited construction phase services. We assume the duration of construction for North Beach Drainage Improvements is approximately 56 weeks or approximately 14 months. A more detailed timeframe for construction will be developed following the 30% design. Tasks include:

1. Conformed Construction Documents - LAN will prepare one (1) set of conformed construction documents for the client prior to start of construction.
2. Pre-Construction Meeting - Once a qualified contractor is selected and under contract with the client, LAN will participate in one (1) pre-construction meeting with the selected contractor to review the project, specifications, and requirements during construction.
3. Respond to Contractor Requests for Information - During the course of construction (14 months), LAN will respond to contractor requests for information. LAN assumes a total of ten (10) formal requests for information (RFI) as part of this task. LAN considers a "formal" RFI as one that takes more than one working day to provide an answer.





4. Review and Approve Submittals - LAN will review and approve contractor submittals as required in the contract bid documents. LAN assumes up to a total of fifteen (15) contractor submittals as part of this task. Any park or landscaping submittals will be reviewed by MIG or GLA, as appropriate.
5. Limited Construction Observations - LAN will provide limited construction observations of the project, necessary to answer RFI's. We assume one-hour (1) per week for a duration of fifty-six (56) weeks. This scope of work does not include a Resident Project Representative (RPR) or full-time construction inspector on the project.
6. Substantial & Final Completion Inspections - LAN will complete one (1) substantial completion inspection with the contractor and client and develop a punch list of items for the contractor to address prior to final completion. Once punch list is complete, LAN will perform one (1) final inspection of the project.
7. Prepare Record Drawings - LAN will prepare one (1) set (hardcopy and PDF) of record drawings for the client using the contractor mark-ups/redlines during construction. No additional survey or data collection will be performed as part of this task.

## 6. **Additional Services**

The following additional services will be necessary to support the development and completion of the Basic Services above:

### **Task 1 – Topographic and Boundary Surveys**

As part of LAN's study in 2020, we collected survey data using LIDAR technology. For this project, more detailed data will be collected for the purposes of designing drainage improvements.

A topographic survey will be conducted on a 200-foot grid and major grade breaks in the project area. Additional survey data will be collected on the following:

- Existing Roads – Crown & Edge of Pavement, Ditch (100 ft Cross-Section Intervals)
- Existing Ditches – 50 ft Cross-Section Intervals
- Drainage Features & Culverts with Inverts
- Topographic Survey 200 ft Grid
- Existing Above Ground Improvements
- ROW Boundaries for City Roads (Information Provided By Client)
- Existing Utilities Above Ground
- Manholes & Cleanouts – Inverts on All Pipes

The horizontal datum for this survey will be State Plane Coordinate System (NAD 83, Texas South Zone). The vertical datum will be NAVD 88 in US Feet.

*Note: This additional service will be performed on a lump sum basis, necessary for the completion of the preliminary phase engineering.*

### **Task 2 – Geotechnical Investigation & Engineering**

As part of LAN's study in 2020, Tolunay-Wong Engineers, Inc. collected soils data at four locations for the purposes of assessing groundwater and structural requirements for a proposed concrete bulkhead. For this project, additional soils borings will be completed for determining conditions along the proposed linear canal, at the street crossings and outfall location. Specific tasks will include:

1. Field Program – Explore the subsurface conditions at the site by performing five (5) test borings strategically located along the route of the canal. The proposed test boring locations are presented on the attached TWE Preliminary Boring Location Plan. A summary of the proposed test borings is presented in the table below:





Boring Location	Test Boring Nos.	Proposed Boring Depths (ft.) <sup>1</sup>
Proposed Canal Profile	B-1 and B-2	15
Proposed Bridge Structures	B-3 and B-4	100
Proposed Outfall Structure	B-5	75

Note: (1) Depth of borings referenced to existing grade at the boring locations.

**Table 1 – Proposed Geotechnical Borings**

Geotechnical drilling and sampling will be performed in accordance with ASTM International standards. Samples will be obtained at 2.5-ft depth intervals to a depth of 10-ft, at the 13-ft to 15-ft depth interval, and at 5-ft depth intervals thereafter until the boring completion depths are reached.

2. Laboratory Testing - Selected samples from the test borings will be used for geotechnical laboratory testing. The geotechnical laboratory testing program will include properties such as moisture content, unit weight, various types of compressive strength, Atterberg Limits, and grain size distribution. One-dimensional consolidation tests will also be completed to characterize the compressibility characteristics of cohesive soils in the site soil profile(s) for consolidation settlement analyses of the bridge approach embankments.
3. Engineering Analysis / Report Preparation – Engineering analysis will be conducted utilizing the information collected during our field program and laboratory testing services. Analyses will include preliminary canal slope stability and analysis of foundation systems for support of the bridges and approach embankments as well as outfall structure. We will also provide earthwork discussions for the project. The geotechnical engineer will present the results and findings in a written report to be included as an appendix to the preliminary phase engineering letter report.

*Note: This additional service will be performed on a lump sum basis, necessary for the completion of the preliminary phase engineering.*

### **Task 3 – Environmental & Permitting**

As part of our scope of work from 2020, LAN led initial coordination efforts with the United States Army Corps of Engineers (USACE) to discuss potential regulatory requirements for the proposed project. BIO-WEST, Inc. (BIO-WEST) completed desktop assessments to determine potential impacts to Waters of the United States (WOTUS), wetlands, threatened and endangered species, and cultural resources, located in or near the project area.

Based on previous project experiences with the USACE, an Individual Permit would like to be required under Section 404 of the Clean Water Act (CWA). This permit may take between 18 and 23 months to obtain and would require public and interagency input and coordination. Our initial assessments documented minimal impacts to wetlands, endangered species, or cultural resources; however, the permitting process will determine if further requirements are needed to mitigate impacts.

This task provides for LAN and Compass Environmental Solutions, LLC (formally BIO-WEST) to continue coordination with the USACE and develop a permit application for this project. Permitting assistance will also include any compensatory mitigation modeling and scoring required for potential impacts, agency coordination regarding threatened and endangered species and cultural resources, additional resource specific surveys (i.e., marine cultural resources, shorebirds, etc.), document preparation, indirect/direct/cumulative impact assessments, and water quality evaluations under Sections 401 and 402 of the CWA.



1. Initial USACE Coordination – COMPASS will coordinate one in-person, pre-application meeting with LAN and the USACE Galveston District, Corpus Christi Field Office during either a Joint Evaluation Meeting (JEM) with the entire Interagency Review Team (IRT) in Galveston, Texas or a pre-application meeting with USACE personnel in the Corpus Christi Field Office to kick-off the project, solicit initial feedback, and navigate potential permitting approvals. COMPASS will provide all necessary paperwork, maps, and exhibits to assist in USACE understanding the project's goals and objectives. COMPASS will also coordinate up to three teleconference meetings internally for this project between COMPASS, LAN, and the end client to ask questions, solicit feedback, and receive project information and updates for the necessary USACE permits.

*Note: This additional service will be performed on a lump sum basis, necessary for the completion of the preliminary phase engineering.*

2. Waters of the US Delineations – COMPASS proposes to evaluate the project site for the presence of potential jurisdictional waters of the U.S., including wetlands, and other special aquatic life (oyster reefs, seagrass beds, tidal flats, etc.) as defined in Section 404 of the CWA and Section 10 of the RHA.

For terrestrial and tidally influenced areas, our evaluation will be designed to identify the presence or absence of potentially jurisdictional waters of the U.S. within the project site, document site conditions, and where possible, provide guidance for avoidance of jurisdictional waters. Our methods will include:

- Review of recent aerial photography and U.S. Geological Survey (USGS) 7.5-minute Topographic Quadrangle maps of the property to evaluate the potential for waters of the U.S.
- Review of Natural Resources Conservation Service (NRCS) soil survey maps and hydric soils lists
- Field reconnaissance of the property for identification of wetlands and other water bodies
- Use of a Trimble® Global Positioning System (GPS) device with sub-meter accuracy to mark each sampling location and the extent of any waters of the U.S., including wetland, within the proposed property boundaries per USACE Galveston District standards

The delineations will identify and document the presence of waters of the U.S. within their respective areas and include a delineation of these resources as specified in the 1987 Corps of Engineers Wetlands Delineation Manual (Manual), the 2010 Regional Supplement to the USACE Wetland Delineation Manual: Atlantic and Gulf Coast Region – Version 2.0 (Supplement), Regulatory Guidance Letter 05-05 – Ordinary High Water Mark (OHWM) Identification, and other applicable industry guidance and standards.

*Note: This additional service will be performed on a lump sum basis, necessary for the completion of the preliminary phase engineering.*

3. Threatened and Endangered Species Assessment – COMPASS will assess the project area with regard to T&E species and their potential habitat. COMPASS will provide effects determinations for both state and federally listed species based on background research, including but not limited to, the USFWS Information for Planning and Conservation (IPaC) tool, USFWS Environmental Conservation Online System (ECOS) mapper, and TPWD Natural Diversity Database (NDD). COMPASS will also assess the and provide recommendations with regard to the Bald and Golden Eagle Protection Act (BGEPA), the Migratory Bird Treaty Act (MBTA), and Magnuson-Stevens Fishery Conservation and Management Act for Essential Fish Habitat (EFH) during proposed construction activities. Representative photographs will be taken to document existing T&E habitats within the project area. Following on-site investigations 3, COMPASS will draft our findings as an addendum to the USACE permit application referenced below in Task 4.

Based on COMPASS's extensive experienced in Corpus Christi Bay, existing relationships with regional TPWD, USFWS, and National Oceanic and Atmospheric Administration (NOAA) staff, and past experience with similar projects in the region, it is our opinion that the current project site has an extremely low probability of affected federally or state-listed threatened or endangered species. COMPASS proposes informal, verbal



coordination with USFWS, TPWD, and NOAA only if required based on the results of field surveys or by the USACE during permitting.

If formal consultations, a Biological Assessment (BA), and/or Biological Opinion (BO) are required from the USFWS or NOAA, COMPASS will provide this scope under a separate proposal and cost estimate.

*Note: This additional service will be performed on a lump sum basis, necessary for the completion of the preliminary phase engineering.*

4. Cultural Resource Surveys – For terrestrial components of the project, COMPASS will subcontract with a qualified archeological firm to complete pedestrian archeological surveys. COMPASS assumes that this project will require a Texas Antiquities Permit (TAP) will be required prior to fieldwork mobilization. Once the TAP number is received from the THC, the survey will consist of pedestrian (visual) survey and shovel test excavation and will be designed to identify landforms and other areas within the Area of Potential Effect (APE) that have a higher probability to contain buried and previously unidentified archaeological deposits. Background research will be used to guide fieldwork efforts, and archives will be updated to obtain current site files information. In addition, with the aid of historical aerial imagery and period maps, land use history and development of the property will be used to identify areas likely to have been disturbed by prior construction, channelization, or land alteration.

Intensive pedestrian archaeological survey will be restricted to those areas that appear to have retained a high degree of integrity and will include the excavation of shovel tests to a maximum depth of three feet. Shovel testing will be conducted along a single transects and shovel tests will be excavated every 100 to 200 feet in areas of higher potential, depending on topography and soil characteristics. The shovel test interval will be increased within those sections of the APE that exhibit signs of prior disturbance, and photographs will be taken of the general characteristics of the surrounding landscape to document the survey effort. All newly identified archaeological sites will be mapped and delineated within the APE. Due to the previously developed nature of the project site, no deep trenching is proposed as part of this scope.

A report discussing the findings of research and fieldwork, a preliminary assessment of National Register significance, and recommendations for the project will be prepared for review within three weeks following the completion of all fieldwork. The report will be composed in accordance with standards set forth by the Texas Council of Archeologists, developed in consultation with the THC.

*Note: This additional service will be performed on a lump sum basis, necessary for the completion of the preliminary phase engineering.*

5. Permitting and Coordination (**Allowance**) – Based on previous project discussions, the project may either fall under one of several Nationwide Permits (NWP) including:
  - #7 for Outfall Structures and Associated Intake Structures
  - #13 for Bank Stabilization, #33 for Temporary Construction, Access, and Dewatering
  - #41 for Reshaping Existing Drainage Ditches
  - #43 for Stormwater Management Facilities

No matter which NWP is utilized, this permitting strategy is herein referred to as “**Strategy A**”. If project descriptions should change or be altered in such a way as to meet different permitting requirements, COMPASS assumes the project as described will be approved under a separate but wholly inclusive Standard Individual Permit (SIP), herein referred to “**Strategy B**”.

For either permitting strategy, COMPASS proposes to draft a permit application pursuant of USACE guidelines and Section 404 of the CWA and Section 10 of the RHA for all proposed impacts to potentially jurisdictional waters of the U.S., including wetlands. Individual cost estimates for each strategy are provided. The following



basic scope of work is applicable to both strategies; the major difference in price rests in the level of coordination with the USACE – Corpus Christi Field Office.

- a. USACE Permitting - COMPASS will prepare a permit application for submittal to the USACE. Prior to preparing the application, COMPASS will coordinate with LAN to obtain all engineering information in order to create figures depicting proposed layouts and impacts. COMPASS cannot complete the permit application without this information. Anticipated timelines for the completion of the project are contingent on project plans and engineering drawings being relayed to COMPASS in a timely manner.
- b. Compensatory Mitigation Plan - As part of the standard permitting process, compensatory mitigation for proposed impacts to jurisdictional waters of the U.S. may be required. COMPASS's professional experience with similar projects under similar circumstances indicates that compensatory mitigation is generally requested if impacts to potentially jurisdictional wetlands or waters of the U.S. exceed 0.10 acres. To account for potential mitigation for unavoidable impacts as part of the Section 404 permitting process, the end client may be required to submit a CMP for all proposed impacts to demonstrate compliance with the 2008 Compensatory Mitigation for Losses of Aquatic Resources (40 CFR 230).
  - i. To assist the client, COMPASS will perform ecological modeling on all delineated features within the project site deemed jurisdictional by the USACE. Currently, the USACE Galveston District utilizes the interim Hydrogeomorphic Model (iHGM) to model wetlands and the Interim SWG Stream Condition Assessment Standard Operating Procedure (Galveston iSCA) to model streams and tributaries. The USACE Galveston District does not currently utilize an ecological model for impoundments, lakes, or other lacustrine environments. Each model produces a score used to determine the appropriate number of credits required for compensatory mitigation by aquatic feature type. For the purposes of this scope and based on a cursory review of available aerial imagery, COMPASS assumes that only wetland communities exist on the site and/or will be impacted. No stream ecological modeling is proposed as part of this effort.
  - ii. COMPASS will perform one site visit to collect all necessary field data and complete this assessment. COMPASS will input the required variables into the iHGM model and produce the requisite functional capacity index (FCI). The FCI will then be multiplied by the individual wetland acreages to produce functional capacity units (FCUs) for determining mitigation requirements. COMPASS assumes that each wetland community will require one Wetland Assessment Area (WAA) observation point to complete the iHGM. COMPASS will provide site photographs, field notes, and appropriate iHGM Model worksheets to the client as part of the permit application. In an effort to be cost-conscious, COMPASS will not produce a report for this item, but will incorporate the results into a final CMP.
  - iii. Once fieldwork is complete and an appropriate site of mitigation scheme is selected, COMPASS will draft a CMP for any proposed wetland impacts within the project footprint. The mitigation plan will specifically adhere to 33 Code of Federal Regulations (CFR) Parts 325 and 332, and 40 CFR Part 230 regarding Compensatory Mitigation (Final Rule issued April 10, 2008) and include an Introduction, Goals and Objectives, Credit Determination, Baseline Information, Site Selection, Mitigation Work Plan, Site Protection and Maintenance, Ecological Performance Standards, Monitoring Plan, Long-term Management, Adaptive Management, Financial Assurances and Reporting, and Figures and Exhibits.
  - iv. COMPASS will facilitate one field meeting with USACE staff and the project team either at the project site, in the Corpus Christi metro area, or via tele-conference to discuss the results of the iHGM assessment, the Compensatory Mitigation Plan, assist with permitting, or provide guidance on any other project related issues.



- c. Response to Comments and Decision Document/Statement of Findings - As part of the permitting process, the permit application will be posted on Public Notice by the USACE to solicit comments from regulatory agencies regarding the proposed project. Once the comment period is over, the USACE will compile the comments into one document and submit them to LAN for review. COMPASS, acting on behalf of LAN and the end client, will provide a response to all comments within 30 days of receiving them from the USACE. Following completion of the response to comments document, COMPASS will submit a copy to LAN for review and approval. Once all revisions are incorporated, COMPASS will submit a final version to the USACE for inclusion in the permitting record.

Additionally, the USACE requires a Decision Document/Statement of Findings to finalize any and all permitting actions. To expedite the permit process, COMPASS process to “ghost-write” the Decision Document/Statement of Findings for the USACE permit manager and submit a word version for USACE use in approval the final permit decision.

*Note: Item 5, under Task 3 of Additional Services will be performed on a Time & Materials basis, based on the level of permitting and coordination necessary.*

#### **Task 4 – State / TXDOT Coordination & Permitting (Allowance)**

This task will provide for an allowance to coordinate with TXDOT or other State agencies for review and approval of this project within their jurisdictions. This project could include drainage improvements at North Beach connecting to or involving TXDOT infrastructure in the ROW of US 181. For that reason, this allowance will include coordination and preparation of TXDOT utility installation request and coordination of any traffic control plans necessary for this project.

*Note: This Additional Services Task will be performed on a Time & Materials basis, based on the level of permitting and coordination necessary with State & Local officials, like TXDOT.*

#### **Task 5 – Right-of-Way / Property Acquisition Services (Allowance)**

This task will provide for an allowance to assist the city’s engineering department, right-of-way / real estate specialist with easement or property acquisition services that may be required for the installation of the proposed drainage improvements. This would include preparation of exhibits, meetings, coordination, management, appraisal, title work, negotiations, and preliminary condemnation support (if necessary).

*Note: This Additional Services Task will be performed on a Time & Materials basis, based on the level of services requested by the City of Corpus Christi.*

#### **Task 6 – Detailed (2D) Hydrology & Hydraulic Modeling (Allowance)**

Basic Services includes a drainage assessment and analysis using the Rational Method in accordance with City standard drainage design criteria. The proposed conditions model completed in 2020 was focused on the proposed development of a navigable canal with two outfalls to Corpus Christi Bay. **The canal associated with the linear park approved by Council as part of the Strategic Development Plan has not been modeled.**

Under this task, if it becomes necessary after completing the Basic services to perform detailed H&H modeling to better understand the situation at North Beach, LAN will modify the proposed conditions model developed in 2020 to reflect the alignment and cross section of the proposed open channel system and roadside ditch improvements. This task will only be performed if necessary and after authorization from the Director of Engineering.

*Note: This Additional Services Task will be performed on a Lump Sum basis, but only if determined necessary and approved by Engineering Services, following the drainage analysis performed in the preliminary design.*



**Task 7 – Public Meetings (Allowance)**

This task will provide for an allowance to assist the City in the completion of public or stakeholder meetings associated with this project. Public meetings may occur at the 30% stage, design, final design or during construction. They will require LAN attendance, presentation preparation, and exhibits.

This task also would provide for MIG, LLC to develop design visualizations for the linear park.

These meetings are not intended to duplicate city required meetings or the proposed briefing to Council following the preliminary phase. LAN assumes up to four (4) public meetings under this task.

*Note: This Additional Services Task will be performed on a Time & Materials basis, based on the level of services requested by the City of Corpus Christi.*

**Attachments:**

1. Project Area Exhibit





**CITY OF CORPUS CHRISTI  
NORTH BEACH DRAINAGE IMPROVEMENTS**



CITY OF CORPUS CHRISTI  
1201 LEOPARD ST  
CORPUS CHRISTI, TX 78401



**Lockwood, Andrews  
& Newnam, Inc.**  
A LEO A DALY COMPANY

Date 11/21/2022

Exhibit



**North Beach Drainage Improvements (Project # 22142)**

**Exhibit B - Summary of Fees**

<b>Basic Services</b>	
Task 1 – Preliminary Engineering Services	\$ 185,715.00
Task 2 – Detailed Design (60%)	\$ 96,810.00
Task 3 – Final Design (90%)	\$ 75,030.00
Task 4 – Final Design (Pre-ATA, 100%)	\$ 27,345.00
Task 5 – Bid Phase Services	\$ 9,280.00
Task 6 – Construction Phase Services	\$ 55,420.00
<b>Total Basic Services</b>	<b>\$ 449,600.00</b>
<b>Additional Services</b>	
Topographic and Boundary Surveys	\$ 93,400.00
Geotech Investigation & Engineering	\$ 24,890.00
Environmental & Permitting	\$ 80,545.00
State / TXDOT Coord / Permitting (Allowance)	\$ 9,980.00
ROW / Property Acq (Allowance)	\$ 8,600.00
Detailed H&H Modeling (Allowance)	\$ 30,545.00
Public Meetings (Allowance)	\$ 23,200.00
<b>Total Add Services</b>	<b>\$ 271,160.00</b>
<b>Total Basic + Add Services</b>	<b>\$ 720,760.00</b>

**Table 2 – Summary of Fees**



**North Beach Drainage Improvements (Project # 22142)**

**Exhibit D – Schedule**

	Task	Duration (Weeks)	Start Week	End Week
Preliminary Phase				
City	Notice to Proceed	0	0	0
Both	Kickoff Meeting	1	0	1
Engineer	Site Visit	1	0	1
Engineer	Topographic Survey	8	1	9
Engineer	Geotechnical Investigation	8	1	9
Engineer	Utilities Investigation	4	1	5
Enviro	Initial USACE Coord, Wetland, T&E, and Cultural Assessments	6	2	8
City	Subsurface Utility Engineering	4	5	9
Engineer	Existing Drainage Analysis	1	9	10
Engineer	Proposed Conditions Analysis	1	10	11
Engineer	30% Design, OPCC, Draft ELR	6	9	15
Enviro	Permit Application	4	15	19
City	Client Review	3	15	18
Engineer	Finalize ELR	2	18	20
Both	Presentation to Council	1	20	21
Design Phase				
Engineer	Detailed Design (60%)	8	20	28
Both	Client Review	3	28	31
Engineer	Final Design (90%)	4	31	35
Both	Client Review	3	35	38
Engineer	Final Design (Pre-ATA, 100%)	2	38	40
Both	Client Review	2	40	42
Engineer	Deliver Issued for Bids	1	42	43

**Table 9 – Proposed Schedule of Key Milestones**

Design: LAN will be complete with the preliminary phase engineering in 5 months from Notice to Proceed (NTP) and will complete design and deliver Issued For Bid (IFB) documents within 11 months from NTP.

Permitting: Given the potential complexity and location of the project, our team estimates that a Nationwide Permit (NWP) with the USACE would take approximately 4 to 6 months while an Individual Permit (SIP) for all potential impacts may take approximately 18 to 24 months.



**North Beach Drainage Improvements (Project # 22142)**

**Exhibit E – Budget Worksheet**

Expenditures	Fiscal Years =	2023	2024	2025	Total
Construction			1,387,500	4,162,500	5,550,000
Preliminary Engineering		300,000			300,000
Detailed Design		100,000	400,000		500,000
Eng/ Admin Reimbursables		\$216,000	\$216,000	218,000	650,000