

WORK ORDER NUMBER 33
43RD AVENUE BRIDGE REPLACEMENT OVER S. RELIEF CANAL PROJECT
Project Number: IRC-2014

This Work Order Number 33 is entered into as of this ___ day of _____, 2020, pursuant to that certain Continuing Consulting Engineering Services Agreement for Professional Services entered into as of this 17th day of April, 2018 (collectively referred to as the "Agreement"), by and between INDIAN RIVER COUNTY, a political subdivision of the State of Florida ("COUNTY") and KIMLEY-HORN AND ASSOCIATES, INC. ("Consultant").

The COUNTY has selected the Consultant to perform the professional services set forth on Exhibit A (Scope of Work), attached to this Work Order and made part hereof by this reference. The professional services will be performed by the Consultant for the fee schedule set forth in Exhibit B (Fee Schedule), attached to this Work Order and made a part hereof by this reference. The Consultant will perform the professional services within the timeframe more particularly set forth in Exhibit C (Time Schedule), attached to this Work Order and made a part hereof by this reference all in accordance with the terms and provisions set forth in the Agreement. Pursuant to paragraph 1.4 of the Agreement, nothing contained in any Work Order shall conflict with the terms of the Agreement and the terms of the Agreement shall be deemed to be incorporated in each individual Work Order as if fully set forth herein.

EXHIBIT A – SCOPE OF WORK

The County has requested that Kimley-Horn and Associates, Inc. (Consultant) design the vehicular bridge replacement on 43rd Avenue over Indian River Farms Water Control District (IRFWCD) South Relief Canal (Bridge No. 880045). The existing bridge was constructed in 1951 and consists of four equal 15-foot spans. Based upon the Florida Department of Transportation (FDOT) bridge inspection report, the structure has been designated as functionally obsolete.

The County desires that a replacement structure be designed to accommodate a 3-lane roadway section with 8' shoulders, along with an 8' sidewalk along the west side. The replacement structure will need to be designed to allow for expansion to accommodate a future 43rd Avenue 5-lane roadway configuration. It is anticipated that 43rd Avenue will be permitted to be temporarily closed to accommodate the replacement structure construction.

Task 1 – Topographic Design Survey:

The Consultant will provide topographic design survey services necessary to support and facilitate contemplated design and permitting activities associated with this project. This task will consist of the preparation of digital base map topographic surveys in accordance with the Florida Minimum Technical Standards set forth by the Florida Board of Professional Surveyors in

Chapter 61G17-6, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.
The survey will include:

The survey will include:

1. Establishment of a project wide Horizontal Control Network within the PROJECT LIMITS. A Design Survey Baseline will be established and monumented. A minimum of three Design Survey Baseline monuments will be installed.
2. Establishment of a project wide Vertical Control Network within the PROJECT LIMITS. All elevations will be referenced to NAVD 1988 datum.
3. Research and analysis of existing right-of-way information, right-of-way maps and plats.
4. The limits of the topographic design survey are as follows:

43rd Avenue - beginning 500-feet south of the IRFWCD S. Relief Canal intersection thence northerly along the roadway corridor to a point 500-feet north of the S. Relief Canal. Cross section topographic survey data will be collected at 100-foot increments within the corridor limits. Topographic survey data will be collected 25 feet beyond the existing roadway right-of-way along the entire corridor.

S. Relief Canal – Topographic survey data will be collected along the Canal right of way extending 200 feet east and west of 43rd Avenue corridor. Cross section topographic survey data will be collected at 25-foot increments within the survey limits.

5. In addition to the digital base map (Autocad platform), the surveyor will prepare four (4) signed and sealed design level surveys on 24"x36" sheets.

Task 2 - Geotechnical Investigation:

The proposed field program will include conducting two Standard Penetration Test (SPT) borings, one at each end of the existing bridge to a depth of 80 feet. The SPT borings may be completed to shallower (or deeper) depths depending on the soil conditions encountered during the performance of the borings. The SPT borings will be drilled using a procedure similar to the Standard Penetration Test outlined in ASTM D-1586 and will be sampled at 18-inch or 24-inch intervals to 10 feet deep and at 5-foot intervals below 10 feet.

Each sample will be removed from the sampler in the field and then examined and visually classified by our crew chief. Representative portions will be sealed and packaged for transportation to our laboratory for further analysis as required. Water level observations will be made in the boreholes during the drilling operation.

Prior to the mobilization of our drilling equipment, we will notify Sunshine State One-Call of Florida, Inc. (SSOCOF) of our planned exploration to allow affected utility companies the opportunity to mark the location of buried utility lines in the proposed exploration areas. The locating process will require a lead time of 2 to 4 business days.

LABORATORY TESTING

We preliminarily estimate that only routine laboratory visual classification of the recovered samples will be required for this project. However, gradation tests and organic content tests on select samples will be performed if deemed necessary. The number of laboratory tests will be determined upon completion of the soil borings and will depend on the nature of the encountered soils. All laboratory tests will be performed in accordance with applicable ASTM standards.

ENGINEERING ANALYSIS AND REPORT

Engineering analysis of all data obtained will be made to evaluate general subsurface conditions and to develop geotechnical engineering recommendations to guide site preparation and foundation design criteria for the bridge. Our recommendations as discussed above, together with all the data developed during the exploration will be submitted in a written report upon conclusion of the exploration.

Task 3 – Utility Coordination:

The Consultant will contact all known franchise utility companies having installations in the immediate vicinity of the proposed work and consider relocation of franchise utilities, if necessary. The Consultant will provide the County with necessary information relative to required franchise utility adjustments, relocations and installations and will show all known existing franchise utilities within the construction plans.

Task 4 – Roadway Analysis and Plans:

Roadway set of plans shall consist of the following:

	30%	60%	90%	100%
Cover Sheet	P	C	C	F
Summary of Pay Items		P	C	F
Typical Sections	P	C	C	F
Summary of Quantities & General Notes	P	C	C	F
Project Layout	P	C	C	F
Plan and Profile Sheets (40 scale)	P	C	C	F
Special Details		P	C	F
Cross Sections at 100 ft intervals		P	C	F
Stormwater Pollution Prevention Plans		P	C	F
Traffic Control Plans		P	C	F
Signage & Pavement Marking Plans (40 scale double plan)	P (pavement markings)	C	C	F
Structure Plans		P	C	F
Construction Cost Estimate and Quantities	P	C	C	F

Notes: P – Preliminary, C – Complete, but subject to change, F - Final

The plans will be prepared based upon English units. Design will be conducted in MicroStation and Geopak.

The following additional data shall be utilized for development of the plans:

1. The PROFESSIONAL will develop and submit Typical Section Packages associated with the proposed bridge replacement and roadway improvement for review and approval by the County prior to developing the 30% plan Construction Documents.
2. The bridge and roadway plans sheets will be drawn at a scale of 1" = 40' prepared on

11" x 17" sheets.

2. Plan sheets shall depict existing right-of-way, section lines, property lines, temporary construction easements, and centerline of construction. Horizontal control points with state plane coordinates for all PC's, PT's, curve radius, curve length and horizontal PI's shall be included on the Plan or summarized in an alignment table.
3. Plans shall include spot grades adequate to describe any proposed grading.
4. Match lines shall not be located within the limits of an intersection.
5. If applicable, soil boring information shall be plotted on cross sections with soil classification and high season water table.
6. All quantities shall reference FDOT Pay Item Numbers.
7. All details shall reference FDOT Index Numbers.
8. All specifications shall reference to FDOT Specifications for Road and Bridge Construction. Any deviations are special specifications not included in FDOT Specifications are required in the Technical Specifications.
9. Initial, interim and Final Plan Submittal shall include the following:
 - i. Three (3) Sets of Signed and Sealed Plans.
 - ii. One (1) Opinion of Probable Construction Cost
 - iii. One (1) CD with drawings in PDF format.
 - iv. The ENGINEER will provide construction documents and calculations in sufficient quantity as required by the various reviewing agencies.

Task 5 – Structural Analysis and Plans:

This scope of services is to provide structural design and contract plans for the new roadway bridge along 43rd Avenue crossing over the S. Relief Canal. As part of this scope, the bridge tasks will include a Bridge Development Report (BDR), 30% Plans, 90% Plans and Final Plans.

1. 30% Bridge Plans:

Based on the selected bridge alternative by the County, 30% Bridge Plans will be developed and submitted to the County for review which will include the following sheets:

- | | |
|--|----------------------|
| A. General Notes | D. End Bent Layouts |
| B. Plan and Elevations | E. Pile Bent Layouts |
| C. Foundation Layouts and
Pile Data Table | F. Framing Plans |
| | G. Typical Section |

The Bridge Plans will be produced in CADD format and placed on 11"x17" sheets and provided in PDF format.

2. 90% Bridge Plans:

In this phase the bridge plans will be brought up to 90% complete and submitted to the County for review concurrent with the 90% roadway plans. The 90% Bridge Plans will consist of the following type of sheets:

- | | |
|----------------------------|---------------------------|
| A. General Notes | I. Framing Plans |
| B. Plan and Elevations | J. Typical Sections |
| C. Foundation Layouts | K. Superstructure Layouts |
| D. End Bent Layouts | L. Superstructure Details |
| E. End Bent Details | M. Beam Data Sheets |
| F. Pile Bent Layouts | N. Approach Slabs |
| G. Pile Bent Details | O. Bar Reinforcing List |
| H. Finish Grade Elevations | |

Along with this submittal the Bridge Design Calculations and the Bridge Load Rating Calculations will be submitted based on the 90% Plans. The Designs and Load Rating Calculations will utilize the Florida Department of Transportation (FDOT) Structures Design Manual. The 90% Plan Quantities will also be provided along with a Probable Opinion of Construction Cost based on FDOT statewide averages. The 90% Bridge will be produced in CADD format and placed on 11"x17" sheets and provided in PDF format. The design and load rating calculations will also be provided in PDF format. The Bridge Specifications will be based on the FDOT Standard Specifications for Road and Bridge Construction.

3. Final Bridge Plans:

For this phase we will submit the Final Signed and Sealed Bridge Plans, Design Calculations, Load Rating Calculations, Quantities and the Probable Opinion of Construction Cost based on FDOT statewide averages.

Final Plans will be signed and sealed (2 sets) along with a PDF document that is not signed and sealed. The Final Design and Load Rating Calculations will also be signed and sealed (2 sets) along with a PDF document that is not signed and sealed.

Task 6 - Permitting:

The Consultant shall prepare stormwater permit applications to St. Johns River Water Management District (SJRWMD), Indian River Farms Water Control District (IRFWCD) and Army Corp of Engineers (ACOE) for submittal by the County. This will consist of all required evaluation, design, coordination, and follow-up work necessary to support permit applications. The County will review the permit applications as necessary. The Consultant shall assemble and be responsible for the final submittal.

The Consultant shall prepare permit sketches for submission by the County to ACOE and SJRWMD for dredge and fill activities, if necessary. The Consultant shall submit all permit sketches on 8.5" x 11" sheets. Sketches shall be neatly scaled, signed and sealed, and reproducible.

1. Environmental Resource Permitting/Section 404 Permitting

The Consultant will have a pre-application meeting with the SJRWMD and the ACOE to discuss the proposed improvements. The Consultant will prepare and submit the Environmental Resource Permit (ERP) application packages to the SJRWMD and the ACOE. The application includes the ERP standard forms and a compilation of supplemental materials such as permit sketches, Vegetation (FLUCFCS), soils, quadrangle and FEMA-FIRM maps.

The Consultant will coordinate on the behalf of the County with each agency identified in this task. This may include up to one (1) meeting with the agencies to discuss requests for additional information (RAI), and written responses to one (1) request for additional information (RAI) including plan modifications. This scope assumes that mitigation measures will not be necessary or required. This scope assumes that coordination with US Fish and Wildlife Service through the preparation of Biological Assessments or Biological Opinions will not be required.

Permit application submittals will be made subsequent to the 60% plan set submittal approval by the County. The Consultant has included permit application fees associated with SJRWMD and IRFWCD within the fee schedule. Any fees beyond application fees shall be paid for by the County.

EXHIBIT C – TIME SCHEDULE

Upon authorization to proceed by the COUNTY, final design documents are expected to take approximately nine (9) months from the Notice to Proceed (NTP).

NTP	contingent upon BOCC approval
Initial Submittal (40% Design Drawings)	5 months following NTP
Interim Submittal (80% Design Drawings)	7 months following NTP
Final Submittal (100% Design Drawings)	9 months following NTP

(THE REMAINDER OF THIS PAGE IS INTENTIONALLY BLANK)

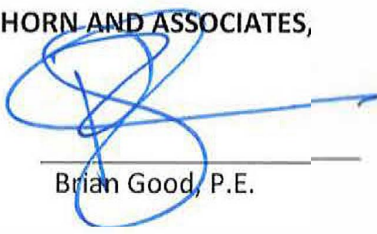
The COUNTY has selected the Consultant to perform the professional services set forth on Exhibit A (Scope of Work), attached to this Work Order and made part hereof by this reference. The professional services will be performed by the Consultant for the fee schedule set forth in Exhibit B (Fee Schedule), attached to this Work Order and made a part hereof by this reference. The Consultant will perform the professional services within the timeframe more particularly set forth in Exhibit C (Time Schedule), attached to this Work Order and made a part hereof by this reference all in accordance with the terms and provisions set forth in the Agreement. Pursuant to paragraph 1.4 of the Agreement, nothing contained in any Work Order shall conflict with the terms of the Agreement and the terms of the Agreement shall be deemed to be incorporated in each individual Work Order as if fully set forth herein.

IN WITNESS WHEREOF, the parties hereto have executed this Work Order as of the date first written above.

CONSULTANT:

**KIMLEY-HORN AND ASSOCIATES,
INC.**

By:



Brian Good, P.E.

Title:

Senior Vice President

**BOARD OF COUNTY COMMISSIONERS
OF INDIAN RIVER COUNTY**

By:

Susan Adams, Chairman

BCC Approved Date: _____

Attest: Jeffrey R. Smith, Clerk of Court and Comptroller

By:

Deputy Clerk

Approved:

Jason E. Brown, County Administrator

Approved as to form and legal sufficiency:

Dylan T. Reingold, County Attorney