

TASK ORDER NO. 8

Geotechnical Services – Intercoastal Waterway Crossing

THIS TASK ORDER (“Task Order”) is made on _____, 2022, between the **City of Lake Worth Beach**, a Florida municipal corporation located at 7 North Dixie Highway, Lake Worth Beach, Florida 33460 (“City”) and **RADISE International, L.C.**, a Florida corporation (“Consultant”).

1.0 Project Description:

The City desires the Consultant to provide those services as identified herein and generally described as: **Lake Worth Beach Intercoastal Waterway Crossing - HDD Project** (the “Project”).

2.0 Scope

Under this Task Order, the Consultant will provide professional services to the City as detailed in the **Consultant’s Proposal, dated May 11, 2022, attached hereto and incorporated herein as Exhibit “1”**.

3.0 Schedule

The services to be provided under this Task Order shall be completed within 90 calendar days 120 calendar days from the City’s approval of this Task Order or the issuance of a Notice to Proceed.

4.0 Compensation

This Task Order is issued for a unit price, not to exceed amount of \$95,506.00. The attached proposal identifies all costs and expenses included in the unit price, not to exceed amount.

5.0 Project Manager

The Project Manager for the Consultant is Andrew Nixon, P.E., phone: (561) 841-0103; email: andrew.nixon@radise.net; and, the Project Manager for the City is Paul Nicholas, phone: (561) 533-7353; email: pnicholas@lakeworthbeachfl.gov.

6.0 Progress Meetings

The Consultant shall schedule periodic progress review meetings with the City Project Manager as necessary but every 30 days as a minimum.

7.0 Authorization

This Task Order is issued in compliance with the Consultants’ Competition Negotiation Act, section 287.055, Florida Statutes, and pursuant to the First Amendment to Agreement for Professional Services between the City of Lake Worth Beach and the Consultant, dated March 11, 2020 (“Agreement” hereafter). If there are any conflicts between the terms and conditions of this Task Order and the Agreement, the terms and conditions of the

Agreement shall prevail; however, the specific scope of services set forth in this Task Order shall take precedence over any other more general description of services.

IN WITNESS WHEREOF the parties hereto have made and executed this Task Order on the day and year first above written.

CITY OF LAKE WORTH BEACH, FLORIDA

By: _____
Betty Resch, Mayor

ATTEST:

By: _____
Deborah M. Andrea, City Clerk

APPROVED AS TO FORM AND
LEGAL SUFFICIENCY:

APPROVED FOR FINANCIAL
SUFFICIENCY

By: _____
Glen J. Torcivia, City Attorney

By: _____
Bruce T. Miller, Financial Services Director

Consultant: **RADISE International, LC**

By: _____
Print Name: Panneer Shanmugam, PE

Title: President

[Corporate Seal]

STATE OF Florida)
COUNTY OF Palm Beach)

THE FOREGOING instrument was acknowledged before me by means of physical presence or online notarization on this 16th day of MAY 2022, by Panneer Shanmugam as the President [title] of _____ Radise International L.C, a _____ [corporate description], who is personally known to me or who has produced _____ as identification, and who did take an oath that he or she is duly authorized to execute the foregoing instrument and bind the CONTRACTOR to the same.

Notary Seal:



Deborah Bestor
Notary Public Signature

EXHIBIT "1"
(Consultants Proposal)



May 11, 2022

City of Lake Worth Beach
1900 2nd Avenue North
Lake Worth Beach, FL 33461

Attention: Paul Nicholas
Phone: 561-876-3610
Email: pnicholas@lakeworthbeachfl.gov

**RE: Geotechnical Engineering Services Proposal
Lake Worth Beach HDD Project
Palm Beach County, Florida**

Dear Mr. Nicholas,

RADISE International, L.C. (RADISE) is pleased to submit this proposal for the above referenced project. It is our understanding that it is proposed to install a 12-inch diameter watermain, an 8-inch electrical conduit and a 4-inch fiber conduit across the Lake Worth Lagoon, approximately 1,000 feet south of the Lake Avenue bridge. The conduits will be installed using the horizontal directional drill (HDD) method. The purpose of our scope of work described herein is to obtain general subsurface soil information along the utility alignment. This proposal presents our proposed scope of work and establishes our schedule and fee for performing the work.


SCOPE OF SERVICES

The proposed scope of work for the project consists of the following:

1. Visit the site to field mark and record the planned boring locations, observe existing site conditions and coordinate site access. Borings are to be performed at least 100 ft. off the proposed HDD alignment.
2. Contact Sunshine 811 to request field location and clearance of underground utilities in the areas of the borings as per Florida Statutes.
3. Mobilize barge-mounted and truck-mounted drilling equipment along with associated support boats and vehicles.



 561.841.0103

 4152 W. Blue Heron Blvd. Suite 1114,
Riviera Beach, FL 33404

 www.RADISE.com

4. Perform five (5) Standard Penetration Test (SPT) borings in general accordance with the procedures described in ASTM D-1586. Intervals of the SPT shall be continuous to 15 feet then 5 feet thereafter. No boring shall terminate in soft soil, defined by a SPT result of 5 bpf or less, fill or organic material. One (1) SPT boring will be performed to a depth of 25 feet on each side of the HDD crossing using a truck-mounted drill rig for a total of two (2) borings. Three (3) SPT borings will be performed to depths of 100 feet below the mudline within the Lake Worth Lagoon using a barge-mounted drill rig. Following completion of the drilling operations, the boreholes will be backfilled with grout and the physical location will be recorded with a GPS. Should rock be encountered before reaching the specified depth of the boring, rock coring will be performed in accordance with ASTM D2113. An allowance for 5 feet of rock coring per boring has been included in the budget. Rock materials will be described in the sequence described below and in accordance with standard geologic nomenclature, including:
 - Type
 - Relative Hardness
 - Density
 - Texture
 - Color
 - Weathering
 - Bedding
 - Fractures, Joints, Beddings Planes, and Cavities
 - Rock Quality Designation
 - Percent recovery
 - Start and stop time of Core run
 - Length of Core Run
 - Other Descriptive Features (fossils, pits, crystals, etc.)
 - Rock mass rating
5. Collect one (1) bulk sample of the surficial soils on each side of the HDD crossing using shovels for a total two (2) bulk samples. The samples will be subjected to Modified Proctor tests (ASTM D-1557) to determine the maximum dry density value of the material. The samples will also be analyzed by RADISE's laboratory for thermal resistivity in conformance with IEEE 442 and ASTM D-5334.
6. SPT sampling methodology does not produce sufficient sample (10 pounds) to conduct thermal resistivity testing on a single sample. Therefore, a few samples from adjacent intervals from each water-based SPT boring will be combined to create a suitable sample for thermal resistivity in conformance with IEEE 442 and ASTM D-5334. A total of three (3) samples will be tested, one from each boring.
7. Conduct one (1) soil resistivity test on each side of the HDD crossing for a total of two (2) tests. The tests will be conducted using the Wenner Four Electrode Method in accordance with ASTM G-57 using "a" spacing, which is as follows:

- 1.25', 2.5', 5.0', 7.5', 10', 15', 20', 25', 30', 40', 50', 60', 80', 100', 125', 150', 175', 200', 250', 300', 400', 600', 800', 1,000', 1,250', and 1,500'

Please note that the spacing will be limited to the diagonal distance of the site.

8. Visually classify the collected soil samples in the field with laboratory confirmation/QC verification of classifications using the Unified Soil Classification System (USCS).
9. Assign and perform a series of laboratory test to ascertain soil index properties for the soils encountered in the borings and provide design parameters for the trenchless designs. Two (2) bulk samples will be subjected to a Modified Proctor test (ASTM D-1557) and five (5) samples will be subjected to a thermal resistivity test (IEEE 442 & ASTM D-5334). For trenchless installation the following design parameters will be provided:
 - Unit weight of the soil (in-situ, saturated and dry), in (pcf).
 - Cohesion (c), in (psf) for cohesive soils.
 - Angle of Internal Friction (ϕ), in degrees, for cohesionless soils.
 - Coefficient of passive earth pressure (K_p) for the top and bottom of the soil layer
 - Coefficient of active earth pressure (K_a) for the top and bottom of the soil layer
 - At rest earth pressure coefficient (K_o) for the top and bottom of the soil layer
 - Hydraulic conductivity
 - Shear modulus
10. Prepare a Geotechnical Engineering Report including the following:
 - Overall site map showing the locations of soil borings.
 - Overall site and surface conditions.
 - Results of field exploration and soil laboratory testing.
 - Soil borings profiles showing soil identifications, depth, groundwater, and standard penetration "N-values", and soil description. A final boring log for each boring will be provided, to scale not less than 1" = 10', on 8.5" x 11" paper suitable for good reproduction. The Boring Log shall show:
 - Project name, boring location, date drilled, drill crew members, name of company performing the soil tests.
 - Each soil strata, classified by its corresponding USCS identification, along with the location of the strata changes and the depth of the water table (at the highest anticipated level for any season of the year).
 - The location and results of each SPT Test.
 - The location of each soil sample taken.
 - All of the design parameters for each soil layer.
 - All data regarding rock coring
 - Soil classification per United Soil Classification System (USCS).
 - Ground water level elevations (including seasonal fluctuation).

- The electrical results will be provided in a tabular form with resistivity values expressed as resistivity (in Ohms) and with calculated apparent resistivity values in Ohm-ft.
- Design parameters and recommendations for trenchless installations.
- Engineering recommendations for the following parameters: USCS, unit weight, dry unit weight, shear modulus, cohesion and internal friction angle, soil bearing capacity, and unconfined compressive strength.
- A CAD version of the soil borings logs should be provided with the Geotechnical Engineering Report.

Please note that some damage could occur to the lawn/grass during field work. We will take all precautions to minimize damage. However, we assume that landscape damage, if any, will be repaired by others.

We assume that access to the boring locations is readily available to our drilling equipment. In addition, we assume that permission from land owners, if different than the City, has been received to allow us to conduct our studies. We have also assumed that all drilling permits or access permits have been obtained by the City.

SCHEDULE/DELIVERABLES

Upon receiving written authorization to proceed, we will commence with field marking of the boring locations, preparation of the utility locate request, and coordination of the field work. Mobilization for the drilling operations will occur soon after these upfront items have been secured. These upfront activities are expected to require about 4-8 weeks depending on equipment availability.

The specified field drilling work is expected to require 1-2 weeks to complete. Laboratory visual classification of the soils and report preparation will require about 3 weeks to complete following completion of field work. We expect to provide the final report signed and sealed by a registered professional engineer within 9 to 13 weeks of notice to proceed; however, accelerations of this schedule may be facilitated if needed.

COMPENSATION & TERMS

Based upon our understanding of the project and interpretation of your requirements, we propose to perform the scope of work outlined previously for a Lump Sum of **\$95,506.00**, as detailed in Attachment A - Fee Breakdown. Our work will be performed in accordance with the terms and conditions of our service contract with the City.

Soil samples obtained from the drilling operations will be retained by RADISE for a period of 90 days from the date of drilling and then they will be discarded unless alternate terms are agreed to in writing with the client

CLOSURE

RADISE appreciates the opportunity to provide our services for this project, and trust that the scope of work and fee presented in this proposal are clear and understandable. This proposal is valid for a period of 60 days from the proposal date. Should the proposal contents require any clarification or amplification, please feel free to contact us.

Sincerely,

RADISE International, L.C.

A handwritten signature in blue ink, appearing to read 'Andrew Nixon', is positioned above the typed name.

Andrew Nixon, P.E.
Operations Manager

Attachments: A – Fee Breakdown



**Attachment A - Fee Breakdown
Lake Worth Beach HDD Project
Palm Beach County, Florida**

1.0 FIELD EXPLORATION	Qty	Unit	Unit Price	Total
1.1 <u>Project Coordination</u>				
1.1.1 Project Engineer	24	Hour	\$ 135.00	\$ 3,240.00
1.1.2 Senior Project Engineer	6	Hour	\$ 155.00	\$ 930.00
1.2 <u>Land Borings - (2 to 25') Est. 1 day</u>				
1.2.1 Mobilization				
1.2.1.1 Mobilize Equipment - Truck Rig	1	Each	\$ 350.00	\$ 350.00
1.2.2 SPT Borings				
1.2.2.1 SPT Boring-0' to 50'	50	Foot	\$ 15.00	\$ 750.00
1.2.2.2 Installation and Removal of Flush-Joint Casing	50	Foot	\$ 6.00	\$ 300.00
1.2.2.3 Extra Samples	4	Sample	\$ 30.00	\$ 120.00
1.2.2.4 Grout Seal	50	Foot	\$ 5.00	\$ 250.00
1.3 <u>Marine Borings - (3 to 100') Est. 6 days</u>				
1.3.1 Mobilize Barge Equipment*	1	Each	\$ 13,500.00	\$ 13,500.00
1.3.2 Mobilize Support Boat*	1	Each	\$ 750.00	\$ 750.00
1.3.3 Daily Rate for Drilling*	6	Day	\$ 6,000.00	\$ 36,000.00
1.3.4 Daily Rate for Support Boat*	6	Day	\$ 500.00	\$ 3,000.00
1.3.5 Per Diem (3-man Crew)*	6	Day	\$ 450.00	\$ 2,700.00
1.3.6 Field Supervision: Staff Engineer	60	Hour	\$ 85.00	\$ 5,100.00
1.4 <u>Thermal Soil Resistivity Testing</u>				
1.4.1 Bulk Sample Collection (Engineering Technician)	4	hour	\$ 50.00	\$ 200.00
1.5 <u>Soil Resistivity Testing (Wenner Four Probe Method) - Est. 2 days</u>				
1.5.1 Project Engineer	20	hour	\$ 135.00	\$ 2,700.00
1.5.2 Senior Engineering Technician	20	hour	\$ 60.00	\$ 1,200.00
1.5.3 Equipment	1	day	\$ 850.00	\$ 850.00
		TOTAL FIELD WORK		\$ 71,940.00
2.0 LABORATORY SERVICES				
2.1 Laboratory Visual Classification QC/Verification (Staff Engineer)	10	Hour	\$ 85.00	\$ 850.00
2.2 Natural Moisture Test	6	Each	\$ 12.00	\$ 72.00
2.3 Full Grain Size Analysis	6	Each	\$ 88.00	\$ 528.00
2.4 Fine Content Determination	12	Each	\$ 42.00	\$ 504.00
2.5 Organic Content Test	6	Each	\$ 45.00	\$ 270.00
2.6 Modified Proctor	2	Each	\$ 135.00	\$ 270.00
2.7 Thermal Resistivity Test	5	Each	\$ 1,000.00	\$ 5,000.00
		TOTAL LABORATORY SERVICES		\$ 7,494.00
3.0 PROFESSIONAL ENGINEERING AND REPORTING SERVICES				
3.1 Senior Project Engineer	16	Hour	\$ 155.00	\$ 2,480.00
3.2 Project Engineer	40	Hour	\$ 135.00	\$ 5,400.00
3.3 Staff Engineer	80	Hour	\$ 85.00	\$ 6,800.00
3.4 Drafter / CADD	24	Hour	\$ 58.00	\$ 1,392.00
		TOTAL PROFESSIONAL SERVICES		\$ 16,072.00
				TOTAL AMOUNT \$ 95,506.00
ALLOWANCES				
A1 Truck - Rock coring (2.5-inch ID) - 5 feet/boring	TBD	Foot	\$ 45.00	\$TBD
A2 Barge - Rock coring (2.5-inch ID) - 5 feet/boring	TBD	Foot	\$ 80.00	\$TBD
B Compressive Strength Testing of Rock Cores - 1 test/core	TBD	Each	\$ 250.00	\$TBD

NOTES

*Provided by Amrill, Inc.