

Mr. Clece Aurelus, PE  
Manager, ECSD  
City of Hollywood – Public Utilities  
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Hollywood, FL 33022-9045

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Subject:  
Structural Upgrades Design – Risk and Resilience Assessments Initiatives  
Engineering Services Work Order Proposal

Water South

Dear Mr. Aurelus:

Date:  
June 28, 2021

In accordance with your request for professional services for the design of the structural improvements recommended in the 2020 Risk and Resilience Assessment (RRA), Arcadis US, Inc. (Arcadis) is pleased to provide you with this Work Order proposal for the design services related to spiractor supports, treatment equipment bases, and piping supports at the City of Hollywood's (City) Water Treatment Plant (WTP).

Contact:  
Tung Nguyen, PE

This Work Order proposal will be performed under the Professional Services Agreement (PSA) (Number 17-1324) executed by and between the City and Arcadis on November 11, 2017. The Terms and Conditions of the PSA shall apply to this Work Order.

Phone:  
954.246.0936

Email:  
[tung.nguyen@arcadis.com](mailto:tung.nguyen@arcadis.com)

## BACKGROUND

The City currently treats raw water from multiple wellfields in the Biscayne and Floridan aquifers using three major treatment processes which are lime softening (LS), membrane softening (MS), and reverse osmosis (RO). The treated water is blended, disinfected, and pumped into the service area. The LS system was originally constructed in 1967 with additional treatment capacity added in phases as the WTP was expanded. The major equipment/structures included in this train are lime silos, spiractors, and steel vessel filters which have provided reliable, high-quality water treatment for nearly 50 years. As part of City's RRA in 2020, Arcadis and the City documented potential improvements and modifications to the existing spiractor supports, the aerator fan bases located in the blend tanks area, the pipe supports for the three transfer pumps (TRP), and the baseplates for the elevated 42-inch diameter spiractor effluent main.

### Florida License Numbers

**Engineering**  
7917

Geology  
GB564

Surveying  
LB7062

Since the completion of the RRA, Arcadis completed a structural evaluation and developed conceptual repair methods and costs for the spiractors located at the WTP. The spiractor's structure was modeled using structural analysis software, and the analysis was based on Florida Building codes and ASCE 7-10 wind loads. This included examining the corrosion condition of all 72 spiractor support legs base plates, anchor bolts, nuts, and washers. The additional design required for the repairs of the elevated supports baseplates for the 42-inch diameter spiractor effluent main, the aerator fan bases and the 42-inch TRP pipe supports will be performed during the upcoming design phase.

## SCOPE OF WORK

The purpose of this project is to prepare construction documents for the improvements identified in the structural evaluation performed for the anchors and supports base plates at the spiractor units. The design documents will also include the repairs for the elevated pipe support baseplates, aerator fan bases, and TRP pipe supports which will be evaluated in detail during the design phase. The approach for this design is divided into tasks as follows:

- Task 1 – Kick-off Activities
- Task 2 – 90% Design (Permit Set)
- Task 3 – Permitting
- Task 4 – 100% Design (Bid Set)
- Task 5 – Bid Phase Services

### Task 1 – Project and Kick-off Activities

Arcadis shall coordinate, schedule, and complete the kick-off meeting to review the scope, schedule, budget, and roles and responsibilities for the project. The kick-off meeting will be scheduled within two weeks of receipt of Authorization to Proceed (ATP). A monthly project status report and schedule update will be submitted with each monthly invoice.

#### Deliverables

1. Kick-off Meeting Summary
2. Monthly project status report, schedule, and invoice

### Task 2 – 90% Design (Permit Set)

Arcadis shall prepare and submit to the City 90% design documents. As part of this task, Arcadis will conduct a site visit to evaluate the extent of repairs for the items mentioned above (excluding spiractors which was previously evaluated as part of a separate work order) and deliver the findings in a site visit report by email. The report is anticipated to be concise and less than two pages in length. After the site visit report is accepted by the City, the selected repairs and recommendations will be included in the structural design in the 90% design deliverable.

The 90% submittal will include the following:

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1. Electronic copy of Project Manual based on the CSI Master Format 50-Division format including Divisions 00 Procurement Requirements, Division 01 General Requirements, and all necessary technical specifications
2. Electronic copy of Project Drawings
3. Electronic copy of Engineer's Opinion of Probable Construction Cost (OPCC) (Class 1 level estimate - Definitive).

Arcadis shall coordinate a virtual 90% design review meeting with the City using Microsoft Teams. Meeting agenda and meeting summary will be provided via email.

It is assumed that the City will provide review comments within 2 weeks from receipt of submittal. Arcadis shall respond in writing to all review comments made by the City, within ten (10) days of their receipt, and will incorporate appropriate design adjustments resulting from the review exchange and submit for permitting in Task 3.

The following table provides a preliminary index of drawings expected for this project:

Sheet No.	Title
<b>S-01</b>	General Notes
<b>S-02</b>	Site Plan with Spiractor locations
<b>S-03</b>	Spiractor Repair Tables and Details
<b>S-04</b>	Typical Details and Sections - I
<b>S-05</b>	Aerator Fans, Pipe Support and Column base repairs details
<b>S-06</b>	Typical Details and Sections - II

#### Deliverables

1. Task 2 Items Nos. 1, 2 and 3
2. Site Visit Report (2-page)
3. Review meeting agenda and meeting summary
4. Written responses to City review comments

#### **Task 3 – Permitting**

It is anticipated that a City of Hollywood Building Division permit will be required for this project. Permit application will be prepared and submitted by Arcadis based on the 90% design documents after incorporating any City comments. The design documents submitted will be noted as "Permit Set" and will be signed and sealed as required.

Arcadis shall communicate with the City of Hollywood Building Division in response to Requests for Additional Information (RAIs). It is assumed that a maximum of one (1) RAI will be received and responded to by Arcadis.

Arcadis shall provide copies of correspondence and/or technical data supplied in support of the permit application. The City will pay fees for all permits. Arcadis shall notify the City a minimum of ten (10)

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working days in advance of permit submittal to allow for the preparation of payment of the application fee(s).

**Deliverable(s):**

1. City of Hollywood Building Division Permit Submittal (electronic submittal)
2. Responses to RAI from permitting agency (if applicable)

**Task 4 – 100% Design (Bid Set)**

Following approval of project permits, Arcadis shall prepare final bid documents that the City can use for the bidding process. These documents shall be used to obtain competitive bids for the construction of this project. The submittal will include the following:

1. Five (5), hardcopy sets of Final (100%) Project Manual/specifications on standard 8-1/2" X 11" size paper
2. Five (5), hardcopy sets of Final (100%) drawings will be supplied on full size (22" x 34") paper
3. Drawings and Project Manual/Specifications will be signed and sealed digitally in accordance with guidance from the Florida Board of Professional Engineers (FBPE) and Section 471.025, F.S (Florida Statue) regarding engineering seals.
4. Electronic specifications will be provided in a compiled PDF and Word 2019 or later on a CD/DVD.
5. Electronic copy of all drawings will be provided in compiled PDF and AutoCAD 2019 on a CD/DVD.

**Deliverable(s)**

1. Task 4 Items Nos. 1 through 5

**Task 5 - Bidding Phase Services**

1. Pre-Bid Meeting: Arcadis shall attend and participate in a Pre-Bid Meeting to provide background information on the project.
2. Respond to Bidder Requests for Information (RFI): Arcadis shall respond to written Bidder RFIs during the bid period. The City will receive the RFIs from the Contractors and send to Arcadis for review. Arcadis shall coordinate up to one (1) RFI response package with the City for responses to the Contractors. Responses will be provided by way of Addenda to be published by the City. Revisions to drawings and specifications will be made by text and figure updates and incorporated into the conformed documents under Task 5.4.
3. Review Bids: Arcadis shall assist the City in reviewing the qualifications of apparent lowest bidder and the responsiveness of the bid and shall make a recommendation for award to the City.
4. Post-Bid Award Services: Arcadis shall prepare the conformed contract documents incorporating addenda changes and deliver them to the City. Five (5) sets of conformed Project Manual/specifications and half-sized drawings will be compiled and delivered.

**Deliverable(s):**

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1. Bidder RFIs Responses / Addenda (up to one Addenda)
2. Conformed Documents:
  - Five (5), hardcopy sets of Final (100%) specifications on standard 8-1/2" X 11" size paper
  - Five (5), half-sized (11"x17") hardcopy sets of Final (100%) drawings
  - Electronic specifications will be provided in a compiled PDF and Word 2019 or later DOC
  - Electronic copy of all drawings will be provided in PDF and AutoCAD 2019 DWG.

### Assumptions and Limitations

1. Design and repair recommendations for the spiractors base plates and their structural elements, aerator fan bases, and the elevated supports baseplates for the 42-inch spiractor effluent main will be based on the data available from the City and the manufacturer.
2. Spiractor supports repair design calculations will be based on the assumption that the spiractor is half-filled with water and half-filled with saturated sand and the operating weight is provided by the manufacturer.
3. All the dimensions will be field verified by the selected contractor and submitted for review during construction and prior to implementing the work. Dimensions used for the design calculations and drawings are based on the Record Drawings and other available information.
4. It is assumed that two elevated pipe support baseplates for spiractor effluent main will be exposed by others for evaluation during the design phase site visit.

### SCHEDULE

Arcadis estimates that this work order scope will be completed in approximately 6 months from receipt of the City's ATP. Estimates for completion of key milestones are as follows:

Project Milestones	Estimated Duration to Completion from ATP
Task 1 – Project, Kick-off Activities, and Site Visit Report	2 weeks (Project Kick-off)
Task 2 – 90% Design (Permit Set)	10 weeks
City Review and Comment Responses	12 weeks <sup>1</sup>
Task 3 – Permitting	16 weeks <sup>2,3</sup>
Task 4 – 100% Design (Bid Set)	20 weeks <sup>4</sup>
Task 5 – Bid Phase Services	24 weeks <sup>5</sup>

Notes:

1. Task 2 – City Review is one week followed by one week by Arcadis to revise and finalize the permit set.
2. Task 3 allocates one month for permitting. Disclaimer: Per the City of Hollywood Building Division website, the processing of permits is performed within a maximum of 30 working days after the plans and / or specifications are submitted. This period does not include review time for Planning and Zoning, Engineering, and Fire Departments.

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Therefore, this work order schedule is contingent on permitting approval within the allotted time. Any delays or extended permitting time is beyond the control of Arcadis and will need to be added to the overall milestone.

3. Duration allocated for permitting is inclusive of time required for check issuance, payment processing, and permit issuance by the City.

4. Task 4 allocates 4 weeks after permitting approval

5. Task 5 allocates 4 weeks for bidding advertisement and response to RFIs . Time for bid review and post-bid award services will follow after the advertisement and RFI response period and coordinated with the City.

## COMPENSATION AND INVOICING

The proposed not to exceed fee for this project is \$69,326.00. A breakdown of this fee is enclosed as Attachment A. Arcadis shall invoice monthly in accordance with the terms and conditions of our PSA.

The task breakdown summary for the fee is as follows:

Task	Fee
Task 1 – Project, Kick-off Activities, and Site Visit Report	\$ 6,526.00
Task 2 – 90% Design (Permit Set)	\$ 37,320.00
Task 3 – Permitting	\$ 5,960.00
Task 4 – 100% Design (Bid Set)	\$ 13,360.00
Task 5 – Bidding Phase Services	\$ 6,160.00
Total	<b>\$69,326.00</b>

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Mr. Clece Aurelus, PE  
City of Hollywood – Public Utilities  
June 28, 2021

Arcadis is excited about this opportunity to assist the City in developing the detailed designs for critical modifications at the City's WTP as identified during the RRA. We understand that these elements are part of the critical processes that are essential to serving the City's customers and we have dedicated staff ready to start this important project. Should you have any questions regarding this work order proposal, please do not hesitate to contact me via email ([tung.nguyen@arcadis.com](mailto:tung.nguyen@arcadis.com)) or telephone (954.246.0936).

Sincerely,

Arcadis U.S., Inc.



Tung Nguyen, PE, PMP  
Senior Water and Wastewater Engineer

Copies:

Wilhelmina Montero, PE, MS (City of Hollywood)  
Plantation Files (Arcadis)

Enclosures:

1 Attachment A - Detailed Fee Breakdown

*This proposal and its contents shall not be duplicated, used, or disclosed — in whole or in part — for any purpose other than to evaluate the proposal. This proposal is not intended to be binding or form the terms of a contract. The scope and price of this proposal will be superseded by the contract. If this proposal is accepted and a contract is awarded to Arcadis as a result of — or in connection with — the submission of this proposal, Arcadis and/or the client shall have the right to make appropriate revisions of its terms, including scope and price, for purposes of the contract. Further, client shall have the right to duplicate, use or disclose the data contained in this proposal only to the extent provided in the resulting contract.*

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		Contract Labor Category	Hours	Billing Rate (\$ / hr)	Cost	Fee / Task	Total Fee
							\$ 69,326.00
Arcadis Labor						\$ 67,460.00	
Subconsultant Costs						\$ -	
Other Direct Expenses (REIMBURSABLE)						\$ 1,866.00	
Contingency						\$ -	
1	Project Management, Kick-off Activities						\$ 6,526.00
Labor Subtotal						\$ 5,660.00	
	Leah Richter	Company Officer	1	\$ 240.00	\$ 240.00		
	Housam Hobi, PE	Technical Expert	3	\$ 240.00	\$ 720.00		
	Jim Wood	Constructability Expert		\$ 220.00	\$ -		
	Tung Nguyen, PE	Project Manager	13	\$ 220.00	\$ 2,860.00		
	Shantanu Dandane	Project Engineer 2	8	\$ 130.00	\$ 1,040.00		
	Mindy Mondesir	Administrative 3	8	\$ 100.00	\$ 800.00		
	Andrea Guzman	Chief Technician		\$ 150.00	\$ -		
Subcontractor Labor Subtotal						\$ -	
Other Direct Expenses (REIMBURSABLE)						\$ 866.00	
	Travel			\$ -	\$ 866.00		
	Miscellaneous Expenses			\$ -	\$ -		
2	90% Design (Permitting)						\$ 37,320.00
Labor Subtotal						\$ 37,320.00	
	Leah Richter	Company Officer		\$ 240.00	\$ -		
	Housam Hobi, PE	Technical Expert	42	\$ 240.00	\$ 10,080.00		
	Jim Wood	Constructability Expert	16	\$ 220.00	\$ 3,520.00		
	Tung Nguyen, PE	Project Manager	12	\$ 220.00	\$ 2,640.00		
	Shantanu Dandane	Project Engineer 2	116	\$ 130.00	\$ 15,080.00		
	Mindy Mondesir	Administrative 3		\$ 100.00	\$ -		
	Andrea Guzman	Chief Technician	40	\$ 150.00	\$ 6,000.00		
Subcontractor Labor Subtotal						\$ -	
Other Direct Expenses (REIMBURSABLE)						\$ -	
	Travel			\$ -	\$ -		
	Miscellaneous Expenses			\$ -	\$ -		
3	Permitting						\$ 5,960.00
Labor Subtotal						\$ 5,960.00	
	Leah Richter	Company Officer		\$ 240.00	\$ -		
	Housam Hobi, PE	Technical Expert		\$ 240.00	\$ -		
	Jim Wood	Constructability Expert		\$ 220.00	\$ -		
	Tung Nguyen, PE	Project Manager	20	\$ 220.00	\$ 4,400.00		
	Shantanu Dandane	Project Engineer 2	12	\$ 130.00	\$ 1,560.00		
	Mindy Mondesir	Administrative 3		\$ 100.00	\$ -		
	Andrea Guzman	Chief Technician		\$ 150.00	\$ -		
Subcontractor Labor Subtotal						\$ -	
Other Direct Expenses (REIMBURSABLE)						\$ -	
	Travel			\$ -	\$ -		
	Miscellaneous Expenses			\$ -	\$ -		
4	100% Design (Bid Set)						\$ 13,360.00
Labor Subtotal						\$ 12,860.00	
	Leah Richter	Company Officer		\$ 240.00	\$ -		
	Housam Hobi, PE	Technical Expert	12	\$ 240.00	\$ 2,880.00		
	Jim Wood	Constructability Expert		\$ 220.00	\$ -		
	Tung Nguyen, PE	Project Manager	12	\$ 220.00	\$ 2,640.00		
	Shantanu Dandane	Project Engineer 2	38	\$ 130.00	\$ 4,940.00		
	Mindy Mondesir	Administrative 3		\$ 100.00	\$ -		
	Andrea Guzman	Chief Technician	16	\$ 150.00	\$ 2,400.00		
Subcontractor Labor Subtotal						\$ -	
Other Direct Expenses (REIMBURSABLE)						\$ 500.00	
	Travel			\$ -	\$ -		
	Miscellaneous Expenses			\$ -	\$ 500.00		
5	Bid Phase Services						\$ 6,160.00
Labor Subtotal						\$ 5,660.00	
	Leah Richter	Company Officer		\$ 240.00	\$ -		
	Housam Hobi, PE	Technical Expert	1	\$ 240.00	\$ 240.00		
	Jim Wood	Constructability Expert	4	\$ 220.00	\$ 880.00		
	Tung Nguyen, PE	Project Manager	14	\$ 220.00	\$ 3,080.00		
	Shantanu Dandane	Project Engineer 2	2	\$ 130.00	\$ 260.00		
	Mindy Mondesir	Administrative 3		\$ 100.00	\$ -		
	Andrea Guzman	Chief Technician	8	\$ 150.00	\$ 1,200.00		
Subcontractor Labor Subtotal						\$ -	
Other Direct Expenses (REIMBURSABLE)						\$ 500.00	
	Travel			\$ -	\$ -		
	Miscellaneous Expenses			\$ -	\$ 500.00		