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February 26, 2021

Mr. Tom Miles, P.E.  
Principal Engineer  
Lake County Public Works  
650 Winchester Road  
Libertyville, IL 60048

**Re: Proposal for Professional Engineering Services  
DPR WRF and NCT WRF Bar Screen Replacement Project**

Dear Mr. Miles:

Pursuant to your request, we are pleased to submit this proposal for preliminary design of the replacement Coarse Mechanical Bar Screen at the Des Plaines River Water Reclamation Facility and final design of the replacement of the Mechanical Bar Screens at both the Des Plaines River Water Reclamation Facility and New Century Town Water Reclamation Facility.

## Background

Screening at the Des Plaines River Water Reclamation Facility is currently provided by a WSG Solutions Envirex coarse mechanical bar screen and two (2) Headworks "Mahr" Model fine screens with JWC wash press grinders. The screens are located inside the raw wastewater pumping station Building 20. The coarse mechanical bar screen has rusted and experienced structural failure approximately six months ago. The other equipment is in operational condition, which was confirmed through the initial evaluation visit. LCPWD desires to conduct an investigation to determine appropriate replacement screen for the DPR WRF.

RHMG is currently performing an evaluation for the replacement of the headworks screen at the NCT WRF and upon completion of this investigation and the evaluation to be performed for the DPR Screen, the final design for the replacement of the screens at both plants will be performed.

## Scope of Services

Our proposed scope of services for the screen evaluation at DPR and for final design of the new screens at both plants will include the following tasks.

### 1. Screen Evaluation and Preliminary Design – DPR WRF

- 1.1 **Request Proposals from Screen Manufacturers** - Design criteria will be provided to screen manufacturers in order to solicit proposals.
- 1.2 **Review with LCPWD** - Responsive proposals for screen replacement will be presented to LCPWD staff for review. Based on the preliminary review of proposed screens, viable options will be selected for further evaluation.

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### **1.3 Evaluate Screening Options**

**1.3.1 Evaluation of Screen Proposals** - RHMG will review proposals from responsive manufacturers and provide commentary on the suitability of proposed screen designs. Screens will be evaluated for likely screen capture, long-term durability, fit within the facility, long term operational costs and burden on plant staff. Each type of screen proposed will be evaluated in terms of capital and operation and maintenance costs along with the non-cost advantages and disadvantages of each screen.

**1.3.2 Review References** - RHMG will contact the references provided by each screen manufacturer to establish the reputation and reliability of the manufacturer and the product.

**1.3.3 Evaluation of Required Channel or Facility Modifications** - RHMG will determine what facility modifications will be necessary for each proposed screen option along with the estimated costs of these modifications.

**1.3.4 Evaluation of Screen Controls** - RHMG will evaluate necessary modifications to the screen controls in order to install the new equipment.

**1.3.5 Evaluation of Installation Cost and Timeframes** - Estimated costs and a timeframe for installation will be developed for each screen. The installation plan will be phased to allow for one screen to remain in operation throughout construction.

**1.4 Manufacturer Presentations** - As part of this task selected manufacturer's will be invited to present their screening offerings either live or remotely to LCPWD and RHMG.

**1.5 Carbon Footprint Savings Review** - A review of the carbon footprint associated with the new versus old equipment will be evaluated. The energy efficiency of the equipment will be evaluated to determine the energy savings as compared to the existing equipment. Additional operational efficiencies will be reviewed as applicable.

**1.6 Prepare Draft Report** - A draft report summarizing the findings and recommendations of the study will be prepared. The report will include general arrangement drawings for each of the screen options and cost estimates will be prepared and submitted to LCPWD for review.

**1.7 Review Meeting with LCPWD and Final Report** - A review meeting will be held with key LCPWD engineering and operations staff. Based on feedback from this meeting, appropriate final revisions to the report will be made. The final report will include the following items:

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- Design Data and Design Criteria
- Recommended Equipment
- Required Facility Modifications
- General Arrangement Drawings
- Budgetary Project Costs
- Final Design and Construction Schedule

## **2. Final Design Phase - NCT WRF and DPR WRF Screens**

The final design for the new screens at both plants will prepare as one package and will be bid as one project.

### **2.1. Final Design and Prepare Plans** - Final design will be performed and plans prepared for the following elements of the project:

- Process Mechanical
- Structural
- Electrical
- Controls/P&IDS

The plans will illustrate all details necessary for permitting, bidding and construction of the project.

### **2.2. Project Specifications** - Technical specifications will be written for all equipment items, materials of construction and workmanship. The front-end bidding and contract documents will be prepared by LCPWD.

### **2.3. LCPWD Review** - Sets of design documents, plans and specifications will be submitted to LCPWD for review at the 60% and 90% completion level.

### **2.4. Perform Quality Control Review of Design** - As a final quality control measure, a final in-house review of the complete design will be performed by experienced senior level staff. The final review will address such issues as coordination between plans and specifications, coordination between drawings, design details, and constructability.

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- 2.5. Review Design with LCPWD and Finalize Documents** - A formal review meeting will be scheduled with appropriate LCPWD staff members to review and discuss the 90% completion submittal. Review comments from LCPWD will be addressed and incorporated into the final plans and specifications.
  - 2.6. Prepare Opinion of Probable Construction Cost** - After the completion of the final plans and specifications, a final cost estimate will be prepared. This cost estimate will be based on detailed quantity take-offs for all materials and equipment, together with quotes from manufacturers/suppliers and recent project bid prices.
  - 2.7. Permit Applications** - A construction permit will be required from the Illinois EPA. RHMG will complete and submit the IEPA construction permit.
  - 2.8. Coordination, Administration and Project Management** - RHMG will provide the required project coordination, administration and project management. Monthly status reports will be submitted to LCPWD on the first Monday of each month.
- 3. Bidding Services**
- 3.1. Bidder Inquiries/Addenda** - RHMG will field inquiries from prospective bidders and prepare addenda where required to make any necessary clarifications to the contract plans and specifications. It is assumed that the County Purchasing Department will distribute the bidding documents and addenda to the bidders.
  - 3.2. Pre-Bid Conference** - It is recommended that a pre-bid conference be conducted at the site in order to give the contractors an opportunity to inspect the site and existing facilities. RHMG will participate in this conference and prepare minutes of the meeting for incorporation into an addendum.
  - 3.3. Bid Review** - RHMG will assist the County with the review of bids and will provide a bid award recommendation to LCPWD.

## Engineering Fee

RHMG proposes to perform the above services on an hourly rate basis, using the rates included as Exhibit A, with a not-to-exceed fee limit of \$200,428.00. A detailed hour estimate illustrating the basis of the proposed fee is included as Exhibit B.

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## Schedule

Our schedule for this project is as follows and per the attached Exhibit C:

<u>Task</u>	<u>Date</u>
Notice to Proceed	4/19/2021
Screen Evaluation and Preliminary Design – DPR WRF	6/21/2021
Drawings & Bid Specifications	8/13/2021
Bidding Assistance and Award of Contract	10/8/2021

We appreciate this opportunity to be of continuing service to the Lake County Public Works Department. If you have any questions or comments, please contact me at our Mundelein office.

Sincerely yours,

RHMG ENGINEERS, INC.



William R. Rickert, P.E., BCEE, CFM  
President

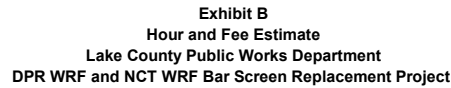
Attachments

cc: Brittany Sloan

## Exhibit A

### Billing Rates

<b><u>Classification</u></b>	<b><u>Billing Rate</u></b>
Senior Principal	\$180.00
Principal/Project Manager	\$157.00
Senior Project Engineer	\$150.00
Senior Designer	\$147.00
Project Engineer	\$122.00
Junior Engineer	\$108.00
Structural Engineer	\$157.00
Architect	\$124.00
Electrical Engineer	\$151.00
Field Engineer	\$128.00
Field Representative	\$108.00
Senior Drafter/Technician	\$96.00
Drafter/Technician	\$90.00
Junior Drafter/Technician	\$71.00
Clerical	\$69.00



						HOURS				
1.0 Screen Evaluation & Preliminary Design Phase - DPR	Principal / Proj. Manager	Senior Proj. Engineer	Electrical Engineer	Structural Engineer	Architect	Project Engineer	Senior Drafter	Clerical	Hours per Task	Fee per Task
1.1 Request Screen Manufacturer Information		4				2			6	\$ 844
1.2 Review with LCPWD	2	4				2			8	\$ 1,204
1.3 Evaluate Screen Options	8	24				12			44	\$ 6,504
1.4 Manufacturer Presentations (3 presentations)	6	12				6			24	\$ 3,612
1.5 Carbon Footprint Savings Review		4	2			2			8	\$ 1,146
1.6 Draft Report	8	40	2			16	24	4	94	\$ 12,274
1.7 Review with LCPWD and Final Report	4	8				8	4	4	28	\$ 3,556
Total Hours	28	96	4	0	0	48	28	8	212	
Billing Rate	\$ 180.00	\$ 150.00	\$ 151.00	\$ 157.00	\$ 124.00	\$ 122.00	\$ 96.00	\$ 69.00		
Labor Cost	\$ 5,040	\$ 14,400	\$ 604	\$ -	\$ -	\$ 5,856	\$ 2,688	\$ 552		\$ 29,140
Fee for Task 1.0										\$29,140
						HOURS				
2.0 Final Design Phase - NCT & DPR Screens	Principal / Proj. Manager	Senior Proj. Engineer	Electrical Engineer	Structural Engineer	Architect	Project Engineer	Senior Drafter	Clerical	Hours per Task	Fee per Task
2.1 Final Design & Prepare Plans	40	160	80	80	12	140	180		692	\$ 91,688
2.2 Prepare Specifications	8	48	24	8	8	32		32	160	\$ 20,624
2.3 Review Meeting with LCPWD	4	4				4			12	\$ 1,808
2.4 In-House QC Review	24								24	\$ 4,320
2.5 Finalize Plans & Specifications	8	40	16		4	40	40	4	152	\$ 19,348
2.6 Prepare Opinion of Probable Construction Cost	1	8	4			8			21	\$ 2,960
2.7 Permitting	2	8				8		4	22	\$ 2,812
2.8 Coordination, Project Management & Administration	40								40	\$ 7,200
Total Hours	127	268	124	88	24	232	220	40	1123	
Billing Rate	\$ 180.00	\$ 150.00	\$ 151.00	\$ 157.00	\$ 124.00	\$ 122.00	\$ 96.00	\$ 69.00		
Labor Cost	\$ 22,860	\$ 40,200	\$ 18,724	\$ 13,816	\$ 2,976	\$ 28,304	\$ 21,120	\$ 2,760		\$ 150,760
Fee for Task 2.0										\$150,760
						HOURS				
3.0 Bidding Services	Principal / Proj. Manager	Senior Proj. Engineer	Electrical Engineer	Structural Engineer	Architect	Project Engineer	Senior Drafter	Clerical	Hours per Task	Fee per Task
3.1 Bidder Inquiries/Addenda	8	32	8	4	4	24	4	8	92	\$ 12,436
3.2 Pre-Bid Conference		6				6			12	\$ 1,632
3.3 Bid Review	2	4							6	\$ 960
Total Hours	10	42	8	4	4	30	4	8	110	
Billing Rate	\$ 180.00	\$ 150.00	\$ 151.00	\$ 157.00	\$ 124.00	\$ 122.00	\$ 96.00	\$ 69.00		
Labor Cost	\$ 1,800	\$ 6,300	\$ 1,208	\$ 628	\$ 496	\$ 3,660	\$ 384	\$ 552		\$ 15,028
Fee for Task 3.0										\$15,028
<b>Total Labor Fee</b>										<b>\$194,928</b>
Direct Expenses										
RHMG - Reproductions, travel, rental equipment, etc.										\$ 5,500
<b>Total Project Fee Labor and Expenses</b>										<b>\$200,428</b>



**EXHIBIT C**  
**PROJECT SCHEDULE**  
**LAKE COUNTY PUBLIC WORKS DEPARTMENT**  
**DPR WRF & NCT WRF BAR SCREEN REPLACEMENT PROJECT**

Task	Months After Authorization To Proceed April 19, 2021																							
	April				May				June				July				August				September			
1. DPR - Screen Evaluation / Preliminary Design																								
2. Final Design Phase (NCT & DPR Screens)																								
IEPA Permits																								
3. Bidding and Award																								
Communication																								

◆ Indicates Formal Review Session with LCPWD