CHARLES TOWN UTILITY BOARD
AGENDA

WEDNESDAY, FEBRUARY 11, 2026

Regular Meeting | **661 South George Street, Charles Town, WV 25414** | **4:00 PM**

CALL TO ORDER

1. **APPROVAL OF MINUTES**
   a. Approval of January 28, 2026 Regular Meeting Minutes
      UB Minutes 01.28.26.pdf
   b. Approval of February 5, 2026 Special Meeting Minutes
      UB Minutes 02.05.26.pdf

2. **PUBLIC COMMENT**
   This portion of the agenda is designed for members of the general public to share thoughts on items of interest in the community. By law, Board members may ask clarifying questions or discuss procedural matters but are not permitted to discuss the policy merits of any issue unless it is scheduled for discussion.

   The public is invited to attend this meeting in person or via webcast (www.ctubwv.com- Board Meeting - Meeting Agendas and Minutes 2026) or by accessing the following zoom link:

   https://us06web.zoom.us/j/87848558989?pwd=Yz3I9teXI9RYW9XbukUooRZ7Bn8KE3.1&jst=1

   Meeting ID: 878 4855 8989
   Passcode: 034251
   (301)715-8592

3. **UNFINISHED BUSINESS**
   a. Update on WV PSC Case 25-1000-LRR-WS-C - Possible Executive Session under the provision of W. VA Code §6-9a-4(b)(12) - To discuss any matter which, by express provision of federal law or state statute or rule of court is rendered confidential, or which is not considered a public record within the meaning of the freedom of information act as set forth in article one, chapter twenty-nine-b of the code.
   b. Draft Burns Farm Extension Agreement Renewal - Possible Executive Session Under the provision of W. Va Code §6-9A-4(b)(9) - To consider matters involving or affecting the purchase, sale or lease of property, advance construction planning, the investment of public funds or other matters involving commercial competition, which if made public, might adversely affect the financial or other interest of the state or any political

subdivision and involving contract matters.

c. Summit Point Motorsports Park Funding Update
   Proforma.pdf
   Debt Service.pdf
   Water & Sewer Feasibility Study June2025.pdf
   Summit Point Rates.pdf

d. Utility Manager Posting - Possible Executive Session under the provision of W. VA Code §6-9A-4(b)(2)(A)- Matters arising from the appointment, employment, retirement, promotion, transfer, demotion, disciplining, resignation, discharge, dismissal or compensation of a public officer or employee, or prospective public officer or employee unless the public officer or employee or prospective public officer or employee requests an open meeting.

4. **NEW BUSINESS**
   a. Rate Study Request for Proposals
      RFP Proposal - Quantum.pdf
      RFP Proposal - Willdan Financial Services.pdf
   b Steptoe and Johnson Engagement Letter
      Engagement Letter.pdf
   c. GDF - Wastewater Plant Agreement between Owner and Engineer for Professional Services
      Engineer Owner Agreement.pdf
   d. Tuscawilla Plant Membrane Replacement Request for Proposals
      Tuscawilla Membrane Task Order.pdf
   e. Cantor Hollow Additional Engineering Proposal
      Cantor Hollow Additional Engineering Proposal 02.02.26.pdf

5. **MANAGER REPORTS**
   a. Utility Manager Report
      UM Report.pdf
   b. Chairman Report

6. **APPROVAL OF BILLS**
   a. February 11, 2026

7. **ADJOURNMENT**

8. **INFORMATION ONLY**
   a. Next Meeting - February 25, 2026 at 4:00 P.M.

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting **661 South George Street**
Charles Town, WV 25414

Approval of January 28, 2026 Regular Meeting Minutes

Attachments:

UB Minutes 01.28.26.pdf

Charles Town Utility Board
Regular Board Meeting
January 28, 2026

The Charles Town Utility Board held a regular meeting on January 28, 2026 at 4:00 P.M. Members of the Board present were; John Maxey, Vice Chairman; Heidi Parker, Board Member and Patrick Kratovil, Board Member. Also present were Kristen Stolipher, Utility Manager; April Shultz, Assistant Utility Manager; Ashley Stottlemyer, Secretary; Cindy Wilson, Legal Counsel (Zoom) and County Commission Liaison, Commissioner Mike Mood.

Chairman, Brent Manuel, and Treasurer, Duke Pierson, were absent from the meeting.

CALL TO ORDER

The Vice Chairman called the meeting to order at 4:00 P.M.

APPROVAL OF MINUTES

Approval of January 14, 2026 Regular Meeting Minutes

The Vice Chairman called for changes or corrections to the January 14, 2026 regular meeting minutes.

Action: **Motion made by Mrs. Parker, second by Mr. Kratovil, the Board unanimously approved the January 14, 2026 regular meeting minutes as presented.**

PUBLIC COMMENT

No public comment was received.

UNFINISHED BUSINESS

Update on WV PSC Case 25-1000-LRR-WS-C - Possible Executive Session under the provision of W. VA Code 6-9a-4(b)(12) - To discuss any matter which, by express provision of federal law or state statute or rule of court is rendered confidential, or which is not considered a public record within the meaning of the freedom of information act as set forth in article one, chapter twenty-nine-b of the code.

This item was moved to the end of the meeting.

Action: **Motion made by Mrs. Parker, second by Mr. Kratovil, the Board unanimously approved moving this item to the end of the meeting to discuss in Executive Session.**

WV-002 Charles Town Road Tank – Possible Executive Session under the provision of W. VA Code 6-9a-4(b)(7) - To plan or consider an official investigation or matter relating to crime prevention or law enforcement.

This item was moved to the end of the meeting.

Action: **Motion made by Mrs. Parker, second by Mr. Kratovil, the Board unanimously approved moving this item to the end of the meeting to discuss in Executive Session.**

Draft Maintenance Agreement Kings Crossing Subdivision

This item was moved to the end of the meeting.

Action: **Motion made by Mrs. Parker, second by Mr. Kratovil, the Board unanimously approved moving this item to the end of the meeting to discuss in Executive Session.**

GDF Wastewater Preliminary Engineering Report

Last month Chris Eckenrode provided the Board with a draft Preliminary Engineering Report (PER). Mrs. Stolipher requested the Board provide comments on the report by February 6th. She mentioned Mr. Eckenrode will prepare an Engineering Services agreement for the wastewater plant expansion and the Tuscawilla plant membrane replacement proposal for the next meeting. The Board provided discussions. Mrs. Parker had questions on the report which she will summarize in an email to Mr. Eckenrode. Mr. Eckenrode addressed Mr. Maxey's questions relating to a projected schedule.

Action: **No action required by the Board.**

Jefferson County Parks and Recreation – Request for Sewer Service for Hite Road Park

Mrs. Stolipher provided as follow-up from last meeting, staff has prepared an exhibit to illustrate the sewer extension to the Hite Road Park and a high-level cost estimate. Also included is the potential connection to the North Jefferson Elementary School. Mrs. Stolipher has not reached out to the School Board yet as she wanted to bring it to the Board first. She will provide the information to Parks and Recreation and reach out to the School Board to see if they are interested. The Board provided discussions. Mrs. Stolipher mentioned an estimated 12% cost for engineering services for a project.

Action: **No action required by the Board.**

NEW BUSINESS

GDF - Collection System Project – Change Order #3

Mrs. Stolipher included Change Order #3 which includes items relating to the Augustine Avenue boring and Jetts Farm pump station for a decrease of $36,183.50.

Action: **Motion made by Mrs. Parker, second by Mr. Kratovil, the Board unanimously approved Change Order #3.**

South George Street Property Information for Consideration for Future CTUB Expansion

Mrs. Stolipher included the property listing for a parcel of land on the opposite side of City National Bank next to the existing wastewater treatment plant as discussed last meeting. She mentioned if the Board decides to utilize the existing plant site for the expansion, this parcel would be recommended to be expanded upon for storage, etc. The Board provided discussions and once they decide on a site for a future plant, they will consider the need for the property at that time.

Action: **No action required by the Board.**

Cooley Public Strategies Update and 1st Quarter Approach

Mrs. Stolipher recommended discussing this item in Executive Session under WV Code Section §6-9A-4(b)(9). Mrs. Wilson stated the Board may discuss this item in Executive Session as there is a provision to discuss matters of commercial competition.

Action: **Motion made by Mrs. Parker, second by Mr. Kratovil the Board unanimously approved moving this item to the end of the meeting to discuss in Executive Session.**

Draft Burns Farm Extension Agreement Renewal - Possible Executive Session Under: WV State Code Section §6-9A-4(b)(9) - To consider matters involving or affecting the purchase, sale or lease of property, advance construction planning, the investment of public funds or other matters involving commercial competition, which if made public, might adversely affect the financial or other interest of the state or any political subdivision and involving contract matters.

Mrs. Stolipher provided the current agreement expires on March 31, 2026 and with the death of one of the owners listed in the agreement, the other owner preferred to revise the agreement removing the deceased and renew until March 31, 2027 with a provision for a one-year extension until March 31, 2028 if he did not opt to continue with the land application. The Board provided discussions.

Action: **Motion made by Mr. Maxey, second by Mrs. Parker, the Board unanimously directed the attorney to review the agreement for alignment with the current Biosolids Application Policy and bring it back for approval at the next meeting.**

Summit Point Motorsports Park Funding Update

Mrs. Stolipher provided the grant application for $10.6 million for the onsite water and wastewater facility was submitted to the State, but has come back with only approving a grant for $4 million. She suggested looking into creative funding options available by working with Region 9 and the County Commission to cover the shortfall without effecting existing rate payers. Edwina Benites, County Administrator, provided that the JCDA will partner with West Virginia American Water if CTUB is unable to provide water and sewer to the site, but JCDA will partner with CTUB if funding could be worked out.

The Board provided discussions and requested staff explore funding options, including exploring a TIFF, and bring back for discussion at the next meeting. Rachel Miller provided that Region 9 can request the State hold the $4 million for this project until the funding package is final.

Action: **Motion made by Mr. Maxey, second by Mr. Kratovil, the Board unanimously requested staff to evaluate financial possibilities for making up the $6 million difference for the Summit Point project, including TIFF districts and other options the JCDA may recommend or the County Commission may assist with as well as possible bonding and providing projections of future revenue and present back at the next meeting.**

Tuscawilla PEW Pump Quotes

Mrs. Stolipher included two quotes for a new PEW pump for the Tuscawilla plant, the lesser being from iM Motors for $31,478.00. The Board provided discussions.

Action: **Motion made by Mrs. Parker, second by Mr. Kratovil, the Board unanimously approved the lesser quote for a new pump at Tuscawilla.**

MANAGER REPORTS

Utility Manager Report

Mrs. Stolipher provided her report on this month's sewer and water efforts including the snow clearing by staff, several water main breaks, water freeze-ups and pump station issues. Mrs. Shultz mentioned the December 2025 Revenue and Expense report will be provided at the next meeting. She provided in the packet the Compiled Financial Statement for FY2025 that will be audited by March 13th.

Action: **No action required by the Board.**

Chairman Report

The Chairman was absent from the meeting.

Action: **No action required by the Board.**

APPROVAL OF BILLS

January 28, 2026

Action: **Motion made by Mrs. Parker, second by Mr. Kratovil, the Board unanimously approved the payment of the bills.**

EXECUTIVE SESSION

Update on WV PSC Case 25-1000-LRR-WS-C - Possible Executive Session under the provision of W. VA Code 6-9a-4(b)(12) - To discuss any matter which, by express provision of federal law or state statute or rule of court is rendered confidential, or which is not considered a public record within the meaning of the freedom of information act as set forth in article one, chapter twenty-nine-b of the code.

WV-002 Charles Town Road Tank – Possible Executive Session under the provision of W. VA Code 6-9a-4(b)(7) - To plan or consider an official investigation or matter relating to crime prevention or law enforcement.

Draft Maintenance Agreement Kings Crossing Subdivision

Cooley Public Strategies Update and 1st Quarter Approach

Action: **Motion made by Mrs. Parker, second by Mr. Kratovil, the Board unanimously approved convening into Executive Session at 5:02 P.M. to discuss the four items noted earlier in the meeting.**

The Board convened back into public session at 6:04 P.M.

Action: **Motion made by Mr. Kratovil, second by Mrs. Parker, the Board unanimously approved the draft maintenance agreement with Kings Crossing Subdivision on the condition that CTUB receives payment for the outstanding invoices and authorize the Chairman to sign the agreement at that time.**

Action: **Motion made by Mrs. Parker, second by Mr. Maxey, the Board unanimously approved the Cooley Public Strategies with alterations as recommended by the Attorney.**

Mrs. Stolipher also included in the packet the letter sent to the Bureau for Public Health notifying them of the Corrosion Control Inhibitor Conversion at the Water Plant in March for better quality water and reduced costs.

ADJOURNMENT

There being no further business at this time, the Board adjourned the meeting.

Action: **Motion made by Mr. Kratovil, second by Mrs. Parker, the Board unanimously approved to adjourn the meeting at 6:11 P.M.**

INFORMATION ONLY

The next meeting is scheduled for Wednesday, February 11, 2026 at 4:00 P.M. at 661 S. George Street.

_____	_____
John Maxey	Ashley Stottlemyer
Vice Chairman	Secretary

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting **661 South George Street**
Charles Town, WV 25414

Approval of February 5, 2026 Special Meeting Minutes

Attachments:

UB Minutes 02.05.26.pdf

Charles Town Utility Board
Regular Board Meeting
February 5, 2026

The Charles Town Utility Board held a special meeting on February 5, 2026 at 4:00 P.M. Members of the Board present were; Brent Manuel, Chairman; John Maxey, Vice Chairman; Heidi Parker, Board Member and Patrick Kratovil, Board Member. Also present were Kristen Stolipher, Utility Manager; April Shultz, Assistant Utility Manager; Ashley Stottlemyer, Secretary; and Cindy Wilson, Legal Counsel (Zoom).

County Commission Liaison, Commissioner Mike Mood absent from the meeting.

CALL TO ORDER
The Chairman called the meeting to order at 4:00 P.M.

PUBLIC COMMENT
No public comment was received.

NEW BUSINESS
Utility Manager Posting - Possible Executive Session Under: WV State Code Section 6-9A-4(b)(2)(A) - Matters arising from the appointment, employment, retirement, promotion, transfer, demotion, disciplining, resignation, discharge, dismissal or compensation of a public officer or employee, or prospective public officer or employee unless the public officer or employee or prospective public officer or employee requests an open meeting.
Mrs. Stolipher did not wish to go into Executive Session for any discussions. The Chairman provided the Board with the Utility Manager's resignation letter which requested consideration for a two-week notice as opposed to 30 days as listed in her employment contract. The Board provided discussions and requested the Utility Manager finish out the 30 days since the date the letter of resignation was submitted.

Action: **Motion made by Mr. Maxey, second by Mrs. Parker, the Board unanimously accepted Mrs. Stolipher' s letter of resignation with the caveat the 30-days' notice requirement per the employee contract.**

The Board provided discussions and asked Mrs. Shultz if she would accept being the Interim Utility Manager until the position is filled. Mrs. Shultz accepted and will work with staff and outside consultants, including Chris Eckenrode, to continue to run the daily operations. Mrs. Parker suggested a possible stipend for employees who take on additional duties in the interim, but Mr. Maxey suggested reviewing that with the Attorney first. The Board and the Attorney will review the job posting and job description for next meeting so posting may proceed. The Chairman will reach out to the firm performing the Class and Compensation study to see if they have reviewed the Utility Manager position description.

The Chairman also presented the Board with a statement drafted by the PR firm to be released to the public. The Chairman and Mrs. Parker thanked Mrs. Stolipher for her service.

Action: **Motion made by Mrs. Parker, second by Mr. Maxey, the Board unanimously appointed Mrs. Shultz as the Interim Utility Manager, specially with staff and the Board will assume any leadings of meetings or outreach to the public.**

The Board provided more discussions and Mr. Maxey suggested for next meeting the Board also draft a list of advertising avenues for the job posting. Mr. Pierson suggested possibly using a 3rd party for posting the job position. The Board will discuss next meeting.

ADJOURNMENT

There being no further business at this time, the Board adjourned the meeting.

Action: Motion made by Mr. Pierson, second by Mr. Maxey, the Board unanimously approved to adjourn the meeting at 4:22 P.M.

INFORMATION ONLY

The next meeting is scheduled for Wednesday, February 11, 2026 at 4:00 P.M. at 661 S. George Street.

_____	_____
Brent Manuel	Ashley Stottlemyer
Vice Chairman	Secretary

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting

661 South George Street
Charles Town, WV 25414

Update on WV PSC Case 25-1000-LRR-WS-C - Possible Executive Session under the provision of W. VA Code §6-9a-4(b)(12) - To discuss any matter which, by express provision of federal law or state statute or rule of court is rendered confidential, or which is not considered a public record within the meaning of the freedom of information act as set forth in article one, chapter twenty-nine-b of the code.

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Draft Burns Farm Extension Agreement Renewal - Possible Executive Session Under the provision of W. Va Code §6-9A-4(b)(9) - To consider matters involving or affecting the purchase, sale or lease of property, advance construction planning, the investment of public funds or other matters involving commercial competition, which if made public, might adversely affect the financial or other interest of the state or any political subdivision and involving contract matters.

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting **661 South George Street**
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Summit Point Motorsports Park Funding Update

Attachments:

Proforma.pdf
Debt Service.pdf
Water & Sewer Feasibility Study June2025.pdf
Summit Point Rates.pdf

Charles Town Utility Board

Analysis of Debt Service Coverage - Actual and Pro Forma with Summit Point $ 3,000,000 Bond Issuance (Existing Summit Point Customers)

For the year ended June 30, 2025

As of February 3, 2025

	Actual					Pro Forma	
	Water Department	Sewer Department	Total	Adjustment for Maximum DS Existing Debt	Maximum DS Coverage	Summit Point Pro Forma Adjustments	Pro Forma After Summit Point
Revenues	$ 8,660,950	$ 11,220,242	$ 19,881,192				
Modification to Revenues:							
Interest	(572,191)	(432,597)	(1,004,788)				
Rental income	(448,821)	-	(448,821)				
Rental receipts	535,918	-	535,918				
Gain/loss on sale of assets	(8,160)	180,406	172,246				
Miscellaneous non-operating income	(76,587)	(6,400)	(82,987)				
CIF & CAC Revenues	(2,176,454)	(3,602,877)	(5,779,331)				
Operating Revenues	5,914,655	7,358,774	13,273,429	$ -	$ 13,273,429	$ 68,927	$ 13,342,356
Expenses	5,628,225	7,937,579	13,565,804				
Modifications to Expenses:							
Depreciation and amortization expense	(1,495,396)	(3,083,464)	(4,578,860)				
Rental payments on office lease	15,300	15,300	30,600				
Pension expense	(46,664)	(50,796)	(97,460)				
Pension contractual payments	109,179	107,557	216,736				
OPEB expense	(3,678)	13,523	9,845				
OPEB contractual payments	7,137	5,670	12,807				
Interest on long- term debt	(435,606)	(660,269)	(1,095,875)				
Bond issuance costs	-	(40,650)	(40,650)				
Administrative and service fees	5,294	50,224	55,518				
Operating Expenses Net of Non-cash Items and Interest Expense	3,783,791	4,294,674	8,078,465	-	8,078,465	44,803	8,123,268
Operating Income Available for Debt Service	2,130,864	3,064,100	5,194,964	$ -	5,194,964	24,124	5,219,088
Debt Service Expenditures:							
Principal payments on bond issues	1,013,647	1,292,549	2,306,196				
Interest payments on bond issues	358,161	587,148	945,309				
Total Debt Service Expenditures	1,371,808	1,879,697	3,251,505	5,588	3,257,093	170,363	3,427,456
Operating Income Available After Bond Debt Service	$ 759,056	$ 1,184,403	$ 1,943,459	$ (5,588)	$ 1,937,871	$ (146,239)	$ 1,791,632
Debt Service Coverage Ratio	155.33%	163.01%	159.77%		159.50%		152.27%
Required Debt Service Coverage Ratio	115.00%	115.00%	115.00%		115.00%		115.00%
Amount of Coverage in Excess of 130%	$ 347,514	$ 620,494	$ 968,008		$ 960,743		$ 763,396

Financial Observations

The Summit Point Project is financially feasible.

The potential project would require the use of about $ 150,000 of annual operating reserves.

The potential project would reduce debt service coverage by approximately 7%.

Projected customer increases would mitigate the use of annual operating reserves and debt service coverage.

Charles Town Utility Board

Analysis of Debt Service Coverage - Actual and Pro Forma with Summit Point $ 6,000,000 Bond Issuance (Existing Summit Point Customers)

For the year ended June 30, 2025

As of February 3, 2025

	Actual					Pro Forma	
	Water Department	Sewer Department	Total	Adjustment for Maximum DS Existing Debt	Maximum DS Coverage	Summit Point Pro Forma Adjustments	Pro Forma After Summit Point
Revenues	$ 8,660,950	$ 11,220,242	$ 19,881,192				
Modification to Revenues:							
Interest	(572,191)	(432,597)	(1,004,788)				
Rental income	(448,821)	-	(448,821)				
Rental receipts	535,918	-	535,918				
Gain/loss on sale of assets	(8,160)	180,406	172,246				
Miscellaneous non-operating income	(76,587)	(6,400)	(82,987)				
CIF & CAC Revenues	(2,176,454)	(3,602,877)	(5,779,331)				
Operating Revenues	5,914,655	7,358,774	13,273,429	$ -	$ 13,273,429	$ 68,927	$ 13,342,356
Expenses	5,628,225	7,937,579	13,565,804				
Modifications to Expenses:							
Depreciation and amortization expense	(1,495,396)	(3,083,464)	(4,578,860)				
Rental payments on office lease	15,300	15,300	30,600				
Pension expense	(46,664)	(50,796)	(97,460)				
Pension contractual payments	109,179	107,557	216,736				
OPEB expense	(3,678)	13,523	9,845				
OPEB contractual payments	7,137	5,670	12,807				
Interest on long- term debt	(435,606)	(660,269)	(1,095,875)				
Bond issuance costs	-	(40,650)	(40,650)				
Administrative and service fees	5,294	50,224	55,518				
Operating Expenses Net of Non-cash Items and Interest Expense	3,783,791	4,294,674	8,078,465	-	8,078,465	44,803	8,123,268
Operating Income Available for Debt Service	2,130,864	3,064,100	5,194,964	$ -	5,194,964	24,124	5,219,088
Debt Service Expenditures:							
Principal payments on bond issues	1,013,647	1,292,549	2,306,196				
Interest payments on bond issues	358,161	587,148	945,309				
Total Debt Service Expenditures	1,371,808	1,879,697	3,251,505	(20,665)	3,230,840	376,525	3,607,365
Operating Income Available After Bond Debt Service	$ 759,056	$ 1,184,403	$ 1,943,459	$ 20,665	$ 1,964,124	$ (352,401)	$ 1,611,723
Debt Service Coverage Ratio	155.33%	163.01%	159.77%		160.79%		144.68%
Required Debt Service Coverage Ratio	115.00%	115.00%	115.00%		115.00%		115.00%
Amount of Coverage In Excess of 130%	$ 347,514	$ 620,494	$ 968,008		$ 994,872		$ 529,514

Financial Observations

The Summit Point Project is financially feasible.

The potential project would require the use of about $ 350,000 of annual operating reserves.

The potential project would reduce debt service coverage by approximately 16%.

Projected customer increases would mitigate the use of annual operating reserves and debt service coverage.

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
														(Public Mkt)
FY Ending June 30	Prior Bonds	Series 1988 B-1 Bonds	Series 1988 B-2 Bonds	Series 1989 B Bonds	Series 2002 A Bonds	Series 2002 B Bonds	Series 2010 A Bonds	Series 2010 B Bonds	Series 2010 C Bonds	Series 2010 D Bonds	Series 2011 A Bonds	Series 2013 A Bonds	Series 2014 A Bonds	Series 2016 A Bonds
2018	$1,767,236	$7,588	$14,308	$3,012	$72,268	$93,506	$55,468	$6,080	$41,668	$16,668	$250,373	$21,262	$145,781	$428,631
2019	$1,593,148	$7,588	$14,308	$3,012	$72,235	$93,506	$55,466	$6,078	$41,668	$16,668	$250,373	$21,263	$145,783	$430,431
2020	$1,393,058	$7,588	$14,308	$3,012	$72,199	$93,506	$55,467	$6,078	$41,668	$16,668	$250,373	$21,261	$145,781	$432,791
2021	$932,653	$7,588	$14,308	$3,012	$72,162	$93,506	$55,467	$6,079	$41,668	$16,668	$250,373	$21,263	$145,782	$429,731
2022	$573,622	$7,588	$14,308	$3,012	$72,122	$93,506	$55,468	$6,079	$41,668	$16,668	$250,373	$21,261	$145,782	$431,331
2023	$10,885	$7,588	$14,308	$3,012	$72,079	$93,506	$55,467	$6,079	$41,668	$16,668	$250,373	$21,262	$145,783	$432,569
2024	$10,885	$7,588	$14,308	$3,012	$72,036	$93,506	$55,466	$6,080	$41,668	$16,668	$250,373	$21,262	$145,782	$428,429
2025	$10,885	$7,588	$14,308	$3,012	$71,988	$93,506	$55,466	$6,079	$41,668	$16,668	$250,373	$21,262	$145,782	$429,019
2026	$10,885	$7,588	$14,308	$3,012	$71,938	$93,506	$55,467	$6,079	$41,668	$16,668	$250,373	$21,262	$145,782	$428,469
2027	$10,885	$7,588	$14,308	$3,012	$71,886	$93,506	$55,466	$6,078	$41,668	$16,668	$250,373	$21,261	$145,783	$432,769
2028		$7,588	$14,308	$3,012	$71,831	$93,506	$55,466	$6,078	$41,668	$16,668	$250,373	$21,263	$145,782	$429,769
2029		$7,572	$14,296	$3,012	$71,772	$93,506	$55,466	$6,079	$41,668	$16,668	$250,373	$21,261	$145,782	$431,569
2030				$3,012	$71,710	$93,506	$55,467	$6,079	$41,668	$16,668	$250,373	$21,262	$145,781	$432,969
2031					$71,643	$93,506	$41,601	$4,559	$41,667	$16,667	$250,373	$21,262	$145,781	$432,844
2032					$71,573	$93,506			$41,664	$16,664	$250,373	$21,262	$145,782	$432,269
2033					$71,500	$93,506			$41,664	$16,664	$250,373	$21,262	$145,783	$431,244
2034					$71,422	$93,506			$41,664	$16,664	$250,373	$21,262	$145,781	$429,769
2035					$71,339	$93,506			$41,664	$16,664	$250,373	$21,262	$145,781	$432,844
2036					$71,252	$93,506			$41,664	$16,664	$250,373	$21,261	$145,782	$430,244
2037					$71,160	$93,506			$41,664	$16,664	$250,373	$21,262	$145,782	$432,194
2038					$71,062	$93,506			$41,664	$16,664	$250,373	$21,262	$145,782	$431,519
2039					$70,959	$93,506			$41,664	$16,664	$250,373	$21,261	$145,782	$430,494
2040					$70,849	$93,506			$41,664	$16,664	$250,373	$21,262	$145,783	$429,119
2041						$93,506			$41,665	$16,665	$250,373	$21,262	$145,781	$432,394
2042						$93,495						$21,261	$145,782	$430,144
2043												$21,262	$145,782	$432,094
2044												$21,262	$145,782	$428,500
2045												$5,316	$145,782	$429,544
2046													$109,337	$430,044
2047														
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2065														
Totals	$6,314,141	$91,040	$171,684	$39,160	$1,648,983	$2,337,651	$762,667	$83,584	$999,992	$399,992	$6,008,949	$579,384	$4,191,229	$12,493,733

Note: Debt Service <u>*Does Not*</u> *Include Administrative Expenses or DSRF Deposit Requirements as are Operating Expenses.*

(A)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)	(X)	(U)
	(Public Mkt)		*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*			*(Public Mkt)*	
FY Ending June 30	Series 2016 B Bonds	Series 2018 A1-A7 Bonds	Series 2018 B Bonds	Series 2020 A Bonds	Series 2022A REF Bonds	Series 2022BC Bonds	Series 2024A Bonds	Series 2024B Bonds	Series 2026 EST Bonds	Total Payments
2018	$127,825	$194,204								$3,245,878
2019	$127,825	$194,201	$39,970							$3,113,523
2020	$152,825	$202,550	$268,438							$3,177,570
2021	$157,450	$202,550	$264,500	$261,927						$2,976,687
2022	$257,000	$202,550	$265,125	$260,219	$21,951					$2,739,634
2023	$174,400	$202,550	$265,625	$441,919	$534,281	$274,826				$3,064,848
2024	$173,400	$202,550	$265,538	$439,919	$613,606	$390,495				$3,252,570
2025	$172,325	$202,549	$265,313	$442,819	$608,259	$392,635				$3,251,505
2026	$176,250	$202,549	$269,463	$440,519	$599,325	$389,555				$3,244,666
2027	$179,050	$202,549	$268,313	$363,119	$599,456	$426,475	$39,252	$7,628	$170,363	$3,427,456
2028	$206,650	$202,550	$267,013	$512,119	$404,800	$386,635	$78,504	$15,257	$189,363	$3,420,202
2029	$248,050	$202,553	$265,563	$338,019	$445,188	$403,035	$78,504	$15,256	$192,363	$3,347,555
2030	$247,650	$188,480	$283,413	$217,219	$211,125	$453,475	$78,504	$15,257	$180,113	$3,013,731
2031	$247,050	$179,021	$290,450	$238,719	$203,166	$446,275	$78,504	$15,257	$173,363	$2,991,707
2032	$246,250	$159,773	$311,350	$209,219	$204,956	$458,025	$78,504	$15,257	$181,863	$2,938,290
2033	$250,250	$140,525	$331,200	$205,281	$206,666	$458,675	$78,504	$15,257	$179,863	$2,938,216
2034	$248,850	$140,525		$101,344		$478,775	$78,504	$15,257	$227,863	$2,361,559
2035	$247,250	$140,524		$99,656		$482,225	$78,504	$15,257	$223,363	$2,360,212
2036	$245,450	$140,524		$102,969		$484,850	$78,503	$15,256	$223,863	$2,362,162
2037	$248,450	$140,526		$95,869		$481,988	$78,505	$15,256	$229,113	$2,362,310
2038	$247,900	$140,525		$98,900		$481,050	$78,504	$15,257	$229,650	$2,363,617
2039	$247,200	$68,806		$101,800		$434,675	$78,504	$15,257	$239,975	$2,256,921
2040	$246,350	$35,391		$104,569		$469,831	$78,504	$15,258	$239,663	$2,258,784
2041	$250,350	$35,391		$167,206		$433,019	$78,503	$15,257	$234,138	$2,215,510
2042	$249,050	$35,391		$168,138		$407,300	$78,504	$15,256	$243,613	$1,887,934
2043	$247,600	$35,391		$153,938		$427,238	$78,504	$15,258	$252,450	$1,809,515
2044	$246,000	$35,390				$511,838	$78,504	$15,258	$230,250	$1,712,783
2045	$249,250	$35,390				$527,638	$78,504	$7,592	$233,725	$1,712,740
2046	$247,200	$8,845				$567,238	$78,504		$271,750	$1,712,917
2047						$509,638	$78,504		$287,250	$875,391
2048						$513,638	$78,504		$286,000	$878,142
2049						$511,313	$78,504		$289,250	$879,066
2050						$513,369	$78,504		$286,750	$878,623
2051						$509,600	$78,504		$288,750	$876,854
2052						$510,213	$78,504			$588,717
2053							$78,503			$78,503
2054							$78,505			$78,505
2055							$78,506			$78,506
2056							$78,503			$78,503
2057							$78,504			$78,504
2058							$78,506			$78,506
2059							$78,505			$78,505
2060							$78,503			$78,503
2061							$78,505			$78,505
2062							$78,504			$78,504
2063							$78,504			$78,504
2064							$78,504			$78,504
2065							$39,252			$39,252
Totals	$6,365,150	$4,074,324	$3,921,270	$5,565,403	$4,652,779	$13,735,537	$2,983,155	$274,589	$5,784,700	$83,479,097
								MAX P&I:		$3,427,456

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
														(Public Mkt)
FY Ending June 30	Prior Bonds	Series 1988 B-1 Bonds	Series 1988 B-2 Bonds	Series 1989 B Bonds	Series 2002 A Bonds	Series 2002 B Bonds	Series 2010 A Bonds	Series 2010 B Bonds	Series 2010 C Bonds	Series 2010 D Bonds	Series 2011 A Bonds	Series 2013 A Bonds	Series 2014 A Bonds	Series 2016 A Bonds
2018	$800,509		$14,308	$3,012	$72,268	$93,506	$55,468	$6,080						$428,631
2019	$805,045		$14,308	$3,012	$72,235	$93,506	$55,466	$6,078						$430,431
2020	$802,032		$14,308	$3,012	$72,199	$93,506	$55,467	$6,078						$432,791
2021	$487,316		$14,308	$3,012	$72,162	$93,506	$55,467	$6,079						$429,731
2022	$434,921		$14,308	$3,012	$72,122	$93,506	$55,468	$6,079						$431,331
2023	$10,885		$14,308	$3,012	$72,079	$93,506	$55,467	$6,079						$432,569
2024	$10,885		$14,308	$3,012	$72,036	$93,506	$55,466	$6,080						$428,429
2025	$10,885		$14,308	$3,012	$71,988	$93,506	$55,466	$6,079						$429,019
2026	$10,885		$14,308	$3,012	$71,938	$93,506	$55,467	$6,079						$428,469
2027	$10,885		$14,308	$3,012	$71,886	$93,506	$55,466	$6,078						$432,769
2028			$14,308	$3,012	$71,831	$93,506	$55,466	$6,078						$429,769
2029			$14,296	$3,012	$71,772	$93,506	$55,466	$6,079						$431,569
2030				$3,012	$71,710	$93,506	$55,467	$6,079						$432,969
2031					$71,643	$93,506	$41,601	$4,559						$432,844
2032					$71,573	$93,506								$432,269
2033					$71,500	$93,506								$431,244
2034					$71,422	$93,506								$429,769
2035					$71,339	$93,506								$432,844
2036					$71,252	$93,506								$430,244
2037					$71,160	$93,506								$432,194
2038					$71,062	$93,506								$431,519
2039					$70,959	$93,506								$430,494
2040					$70,849	$93,506								$429,119
2041						$93,506								$432,394
2042						$93,495								$430,144
2043														$432,094
2044														$428,500
2045														$429,544
2046														$430,044
2047														
2048														
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2061														
2062														
2063														
2064														
2065														
Totals	$3,384,247	$0	$171,684	$39,160	$1,648,983	$2,337,651	$762,667	$83,584	$0	$0	$0	$0	$0	$12,493,733

Note: Debt Service <u>*Does Not*</u> *Include Administrative Expenses or DSRF Deposit Requirements as are Operating Expenses.*

(A)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)	(X)	(U)
	(Public Mkt)		*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*			*(Public Mkt)*	
FY Ending June 30	Series 2016 B Bonds	Series 2018 A-7 Bonds	Series 2018 B Bonds	Series 2020 A Bonds	Series 2022A REF Bonds	Series 2022BC Bonds	Series 2024A Bonds	Series 2024B Bonds	Series 2026 EST Bonds	Total Payments
2018		$35,391								$1,509,172
2019		$35,390								$1,515,471
2020		$35,390								$1,514,784
2021		$35,391		$123,106						$1,320,078
2022		$35,391		$122,303	$16,039					$1,284,481
2023		$35,391		$207,702	$414,941					$1,345,940
2024		$35,390		$206,762	$457,956					$1,383,830
2025		$35,390		$208,125	$453,208					$1,380,986
2026		$35,390		$207,044	$445,270					$1,371,369
2027		$35,389		$170,666	$446,634				$87,513	$1,428,112
2028		$35,391		$240,696	$314,086				$107,263	$1,371,406
2029		$35,390		$158,869	$317,656				$111,013	$1,298,628
2030		$35,391		$102,093	$131,872				$104,513	$1,036,612
2031		$35,390		$112,198	$124,046				$98,263	$1,014,049
2032		$35,391		$98,333	$127,071				$107,263	$965,406
2033		$35,390		$96,482	$128,032				$105,763	$961,917
2034		$35,391		$47,632					$129,263	$806,982
2035		$35,390		$46,838					$126,513	$806,430
2036		$35,390		$48,395					$128,763	$807,550
2037		$35,391		$45,058					$130,763	$808,072
2038		$35,391		$46,483					$128,000	$805,961
2039		$35,390		$47,846					$130,238	$808,433
2040		$35,391		$49,147					$132,263	$810,275
2041		$35,391		$78,587					$124,075	$763,953
2042		$35,391		$79,025					$126,100	$764,154
2043		$35,391		$72,351					$142,913	$682,748
2044		$35,390							$123,638	$587,528
2045		$35,390							$125,038	$589,971
2046		$8,845							$151,213	$590,101
2047									$140,750	$140,750
2048									$140,250	$140,250
2049									$144,500	$144,500
2050									$143,250	$143,250
2051									$141,750	$141,750
2052										$0
2053										$0
2054										$0
2055										$0
2056										$0
2057										$0
2058										$0
2059										$0
2060										$0
2061										$0
2062										$0
2063										$0
2064										$0
2065										$0
Totals	$0	$999,775	$0	$2,615,739	$3,376,811	$0	$0	$0	$3,130,863	$31,044,897
								MAX P&I:		$1,428,112

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
														(Public Mkt)
FY Ending June 30	Prior Bonds	Series 1988 B-1 Bonds	Series 1988 B-2 Bonds	Series 1989 B Bonds	Series 2002 A Bonds	Series 2002 B Bonds	Series 2010 A Bonds	Series 2010 B Bonds	Series 2010 C Bonds	Series 2010 D Bonds	Series 2011 A Bonds	Series 2013 A Bonds	Series 2014 A Bonds	Series 2016 A Bonds
2018	$966,727	$7,588							$41,668	$16,668	$250,373	$21,262	$145,781	
2019	$788,103	$7,588							$41,668	$16,668	$250,373	$21,263	$145,783	
2020	$591,026	$7,588							$41,668	$16,668	$250,373	$21,261	$145,781	
2021	$445,337	$7,588							$41,668	$16,668	$250,373	$21,263	$145,782	
2022	$138,701	$7,588							$41,668	$16,668	$250,373	$21,261	$145,782	
2023		$7,588							$41,668	$16,668	$250,373	$21,262	$145,783	
2024		$7,588							$41,668	$16,668	$250,373	$21,262	$145,782	
2025		$7,588							$41,668	$16,668	$250,373	$21,262	$145,782	
2026		$7,588							$41,668	$16,668	$250,373	$21,262	$145,782	
2027		$7,588							$41,668	$16,668	$250,373	$21,261	$145,783	
2028		$7,588							$41,668	$16,668	$250,373	$21,263	$145,782	
2029		$7,572							$41,668	$16,668	$250,373	$21,261	$145,782	
2030									$41,668	$16,668	$250,373	$21,262	$145,781	
2031									$41,667	$16,667	$250,373	$21,262	$145,781	
2032									$41,664	$16,664	$250,373	$21,262	$145,782	
2033									$41,664	$16,664	$250,373	$21,262	$145,783	
2034									$41,664	$16,664	$250,373	$21,262	$145,781	
2035									$41,664	$16,664	$250,373	$21,262	$145,781	
2036									$41,664	$16,664	$250,373	$21,261	$145,782	
2037									$41,664	$16,664	$250,373	$21,262	$145,782	
2038									$41,664	$16,664	$250,373	$21,262	$145,782	
2039									$41,664	$16,664	$250,373	$21,261	$145,782	
2040									$41,664	$16,664	$250,373	$21,262	$145,783	
2041									$41,665	$16,665	$250,373	$21,262	$145,781	
2042												$21,261	$145,782	
2043												$21,262	$145,782	
2044												$21,262	$145,782	
2045												$5,316	$145,782	
2046													$109,337	
2047														
2048														
2049														
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2056														
2057														
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2061														
2062														
2063														
2064														
2065														
Totals	$2,929,894	$91,040	$0	$0	$0	$0	$0	$0	$999,992	$399,992	$6,008,949	$579,384	$4,191,229	$0

Note: Debt Service <u>*Does Not*</u> *Include Administrative Expenses or DSRF Deposit Requirements as are Operating Expenses.*

(A)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)	(X)	(U)
	(Public Mkt)		*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*			*(Public Mkt)*	
FY Ending June 30	Series 2016 B Bonds	Series 2018 A1-A7 Bonds	Series 2018 B Bonds	Series 2020 A Bonds	Series 2022A REF Bonds	Series 2022BC Bonds	Series 2024A Bonds	Series 2024B Bonds	Series 2026 EST Bonds	Total Payments
2018	$127,825	$158,813								$1,736,705
2019	$127,825	$158,811	$39,970							$1,598,051
2020	$152,825	$167,160	$268,438							$1,662,786
2021	$157,450	$167,160	$264,500	$138,821						$1,656,609
2022	$257,000	$167,160	$265,125	$137,916	$5,912					$1,455,153
2023	$174,400	$167,160	$265,625	$234,217	$119,340	$274,826				$1,718,908
2024	$173,400	$167,160	$265,538	$233,157	$155,650	$390,495				$1,868,740
2025	$172,325	$167,160	$265,313	$234,694	$155,052	$392,635				$1,870,519
2026	$176,250	$167,160	$269,463	$233,475	$154,055	$389,555				$1,873,297
2027	$179,050	$167,160	$268,313	$192,453	$152,823	$426,475	$39,252	$7,628	$82,850	$1,999,344
2028	$206,650	$167,160	$267,013	$271,423	$90,714	$386,635	$78,504	$15,257	$82,100	$2,048,797
2029	$248,050	$167,164	$265,563	$179,150	$127,531	$403,035	$78,504	$15,256	$81,350	$2,048,927
2030	$247,650	$153,090	$283,413	$115,126	$79,253	$453,475	$78,504	$15,257	$75,600	$1,977,119
2031	$247,050	$143,631	$290,450	$126,521	$79,120	$446,275	$78,504	$15,257	$75,100	$1,977,658
2032	$246,250	$124,383	$311,350	$110,886	$77,885	$458,025	$78,504	$15,257	$74,600	$1,972,885
2033	$250,250	$105,135	$331,200	$108,799	$78,634	$458,675	$78,504	$15,257	$74,100	$1,976,299
2034	$248,850	$105,135		$53,712		$478,775	$78,504	$15,257	$98,600	$1,554,577
2035	$247,250	$105,135		$52,818		$482,225	$78,504	$15,257	$96,850	$1,553,782
2036	$245,450	$105,135		$54,573		$484,850	$78,503	$15,256	$95,100	$1,554,612
2037	$248,450	$105,135		$50,810		$481,988	$78,505	$15,256	$98,350	$1,554,238
2038	$247,900	$105,135		$52,417		$481,050	$78,504	$15,257	$101,650	$1,557,657
2039	$247,200	$33,416		$53,954		$434,675	$78,504	$15,257	$109,738	$1,448,488
2040	$246,350			$55,421		$469,831	$78,504	$15,258	$107,400	$1,448,510
2041	$250,350			$88,619		$433,019	$78,503	$15,257	$110,063	$1,451,557
2042	$249,050			$89,113		$407,300	$78,504	$15,256	$117,513	$1,123,779
2043	$247,600			$81,587		$427,238	$78,504	$15,258	$109,538	$1,126,768
2044	$246,000					$511,838	$78,504	$15,258	$106,613	$1,125,255
2045	$249,250					$527,638	$78,504	$7,592	$108,688	$1,122,768
2046	$247,200					$567,238	$78,504		$120,538	$1,122,816
2047						$509,638	$78,504		$146,500	$734,641
2048						$513,638	$78,504		$145,750	$737,892
2049						$511,313	$78,504		$144,750	$734,566
2050						$513,369	$78,504		$143,500	$735,373
2051						$509,600	$78,504		$147,000	$735,104
2052						$510,213	$78,504			$588,717
2053							$78,503			$78,503
2054							$78,505			$78,505
2055							$78,506			$78,506
2056							$78,503			$78,503
2057							$78,504			$78,504
2058							$78,506			$78,506
2059							$78,505			$78,505
2060							$78,503			$78,503
2061							$78,505			$78,505
2062							$78,504			$78,504
2063							$78,504			$78,504
2064							$78,504			$78,504
2065							$39,252			$39,252
Totals	$6,365,150	$3,074,549	$3,921,270	$2,949,663	$1,275,968	$13,735,537	$2,983,155	$274,589	$2,653,838	$52,434,200
								MAX P&I:		$2,048,927

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
														(Public Mkt)
FY Ending June 30	Prior Bonds	Series 1988 B-1 Bonds	Series 1988 B-2 Bonds	Series 1989 B Bonds	Series 2002 A Bonds	Series 2002 B Bonds	Series 2010 A Bonds	Series 2010 B Bonds	Series 2010 C Bonds	Series 2010 D Bonds	Series 2011 A Bonds	Series 2013 A Bonds	Series 2014 A Bonds	Series 2016 A Bonds
2018	$1,767,236	$7,588	$14,308	$3,012	$72,268	$93,506	$55,468	$6,080	$41,668	$16,668	$250,373	$21,262	$145,781	$428,631
2019	$1,593,148	$7,588	$14,308	$3,012	$72,235	$93,506	$55,466	$6,078	$41,668	$16,668	$250,373	$21,263	$145,783	$430,431
2020	$1,393,058	$7,588	$14,308	$3,012	$72,199	$93,506	$55,467	$6,078	$41,668	$16,668	$250,373	$21,261	$145,781	$432,791
2021	$932,653	$7,588	$14,308	$3,012	$72,162	$93,506	$55,467	$6,079	$41,668	$16,668	$250,373	$21,263	$145,782	$429,731
2022	$573,622	$7,588	$14,308	$3,012	$72,122	$93,506	$55,468	$6,079	$41,668	$16,668	$250,373	$21,261	$145,782	$431,331
2023	$10,885	$7,588	$14,308	$3,012	$72,079	$93,506	$55,467	$6,079	$41,668	$16,668	$250,373	$21,262	$145,783	$432,569
2024	$10,885	$7,588	$14,308	$3,012	$72,036	$93,506	$55,466	$6,080	$41,668	$16,668	$250,373	$21,262	$145,782	$428,429
2025	$10,885	$7,588	$14,308	$3,012	$71,988	$93,506	$55,466	$6,079	$41,668	$16,668	$250,373	$21,262	$145,782	$429,019
2026	$10,885	$7,588	$14,308	$3,012	$71,938	$93,506	$55,467	$6,079	$41,668	$16,668	$250,373	$21,262	$145,782	$428,469
2027	$10,885	$7,588	$14,308	$3,012	$71,886	$93,506	$55,466	$6,078	$41,668	$16,668	$250,373	$21,261	$145,783	$432,769
2028		$7,588	$14,308	$3,012	$71,831	$93,506	$55,466	$6,078	$41,668	$16,668	$250,373	$21,263	$145,782	$429,769
2029		$7,572	$14,296	$3,012	$71,772	$93,506	$55,466	$6,079	$41,668	$16,668	$250,373	$21,261	$145,782	$431,569
2030				$3,012	$71,710	$93,506	$55,467	$6,079	$41,668	$16,668	$250,373	$21,262	$145,781	$432,969
2031					$71,643	$93,506	$41,601	$4,559	$41,667	$16,667	$250,373	$21,262	$145,781	$432,844
2032					$71,573	$93,506			$41,664	$16,664	$250,373	$21,262	$145,782	$432,269
2033					$71,500	$93,506			$41,664	$16,664	$250,373	$21,262	$145,783	$431,244
2034					$71,422	$93,506			$41,664	$16,664	$250,373	$21,262	$145,781	$429,769
2035					$71,339	$93,506			$41,664	$16,664	$250,373	$21,262	$145,781	$432,844
2036					$71,252	$93,506			$41,664	$16,664	$250,373	$21,261	$145,782	$430,244
2037					$71,160	$93,506			$41,664	$16,664	$250,373	$21,262	$145,782	$432,194
2038					$71,062	$93,506			$41,664	$16,664	$250,373	$21,262	$145,782	$431,519
2039					$70,959	$93,506			$41,664	$16,664	$250,373	$21,261	$145,782	$430,494
2040					$70,849	$93,506			$41,664	$16,664	$250,373	$21,262	$145,783	$429,119
2041						$93,506			$41,665	$16,665	$250,373	$21,262	$145,781	$432,394
2042						$93,495						$21,261	$145,782	$430,144
2043												$21,262	$145,782	$432,094
2044												$21,262	$145,782	$428,500
2045												$5,316	$145,782	$429,544
2046													$109,337	$430,044
2047														
2048														
2049														
2050														
2051														
2052														
2053														
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2061														
2062														
2063														
2064														
2065														
Totals	$6,314,141	$91,040	$171,684	$39,160	$1,648,983	$2,337,651	$762,667	$83,584	$999,992	$399,992	$6,008,949	$579,384	$4,191,229	$12,493,733

Note: Debt Service ***Does Not*** *Include Administrative Expenses or DSRF Deposit Requirements as are Operating Expenses.*

(A)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)	(X)	(U)
	(Public Mkt)		*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*			*(Public Mkt)*	
FY Ending June 30	Series 2016 B Bonds	Series 2018 A1-A7 Bonds	Series 2018 B Bonds	Series 2020 A Bonds	Series 2022A REF Bonds	Series 2022BC Bonds	Series 2024A Bonds	Series 2024B Bonds	Series 2026 EST Bonds	Total Payments
2018	$127,825	$194,204								$3,245,878
2019	$127,825	$194,201	$39,970							$3,113,523
2020	$152,825	$202,550	$268,438							$3,177,570
2021	$157,450	$202,550	$264,500	$261,927						$2,976,687
2022	$257,000	$202,550	$265,125	$260,219	$21,951					$2,739,634
2023	$174,400	$202,550	$265,625	$441,919	$534,281	$274,826				$3,064,848
2024	$173,400	$202,550	$265,538	$439,919	$613,606	$390,495				$3,252,570
2025	$172,325	$202,549	$265,313	$442,819	$608,259	$392,635				$3,251,505
2026	$176,250	$202,549	$269,463	$440,519	$599,325	$389,555				$3,244,666
2027	$179,050	$202,549	$268,313	$363,119	$599,456	$426,475	$39,252	$7,628	$349,275	$3,606,368
2028	$206,650	$202,550	$267,013	$512,119	$404,800	$386,635	$78,504	$15,257	$376,525	$3,607,365
2029	$248,050	$202,553	$265,563	$338,019	$445,188	$403,035	$78,504	$15,256	$377,275	$3,532,468
2030	$247,650	$188,480	$283,413	$217,219	$211,125	$453,475	$78,504	$15,257	$367,775	$3,201,393
2031	$247,050	$179,021	$290,450	$238,719	$203,166	$446,275	$78,504	$15,257	$388,525	$3,206,869
2032	$246,250	$159,773	$311,350	$209,219	$204,956	$458,025	$78,504	$15,257	$398,025	$3,154,453
2033	$250,250	$140,525	$331,200	$205,281	$206,666	$458,675	$78,504	$15,257	$396,775	$3,155,129
2034	$248,850	$140,525		$101,344		$478,775	$78,504	$15,257	$445,275	$2,578,971
2035	$247,250	$140,524		$99,656		$482,225	$78,504	$15,257	$441,025	$2,577,874
2036	$245,450	$140,524		$102,969		$484,850	$78,503	$15,256	$441,525	$2,579,824
2037	$248,450	$140,526		$95,869		$481,988	$78,505	$15,256	$446,525	$2,579,723
2038	$247,900	$140,525		$98,900		$481,050	$78,504	$15,257	$447,388	$2,581,355
2039	$247,200	$68,806		$101,800		$434,675	$78,504	$15,257	$462,825	$2,479,771
2040	$246,350	$35,391		$104,569		$469,831	$78,504	$15,258	$457,200	$2,476,322
2041	$250,350	$35,391		$167,206		$433,019	$78,503	$15,257	$446,363	$2,427,735
2042	$249,050	$35,391		$168,138		$407,300	$78,504	$15,256	$460,525	$2,104,846
2043	$247,600	$35,391		$153,938		$427,238	$78,504	$15,258	$468,625	$2,025,690
2044	$246,000	$35,390				$511,838	$78,504	$15,258	$445,125	$1,927,658
2045	$249,250	$35,390				$527,638	$78,504	$7,592	$447,075	$1,926,090
2046	$247,200	$8,845				$567,238	$78,504		$488,350	$1,929,517
2047						$509,638	$78,504		$516,250	$1,104,391
2048						$513,638	$78,504		$511,000	$1,103,142
2049						$511,313	$78,504		$515,000	$1,104,816
2050						$513,369	$78,504		$512,750	$1,104,623
2051						$509,600	$78,504		$514,500	$1,102,604
2052						$510,213	$78,504			$588,717
2053							$78,503			$78,503
2054							$78,505			$78,505
2055							$78,506			$78,506
2056							$78,503			$78,503
2057							$78,504			$78,504
2058							$78,506			$78,506
2059							$78,505			$78,505
2060							$78,503			$78,503
2061							$78,505			$78,505
2062							$78,504			$78,504
2063							$78,504			$78,504
2064							$78,504			$78,504
2065							$39,252			$39,252
Totals	$6,365,150	$4,074,324	$3,921,270	$5,565,403	$4,652,779	$13,735,537	$2,983,155	$274,589	$11,121,500	$88,815,897
								MAX P&I:		$3,607,365

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
														(Public Mkt)
FY Ending June 30	Prior Bonds	Series 1988 B-1 Bonds	Series 1988 B-2 Bonds	Series 1989 B Bonds	Series 2002 A Bonds	Series 2002 B Bonds	Series 2010 A Bonds	Series 2010 B Bonds	Series 2010 C Bonds	Series 2010 D Bonds	Series 2011 A Bonds	Series 2013 A Bonds	Series 2014 A Bonds	Series 2016 A Bonds
2018	$800,509		$14,308	$3,012	$72,268	$93,506	$55,468	$6,080						$428,631
2019	$805,045		$14,308	$3,012	$72,235	$93,506	$55,466	$6,078						$430,431
2020	$802,032		$14,308	$3,012	$72,199	$93,506	$55,467	$6,078						$432,791
2021	$487,316		$14,308	$3,012	$72,162	$93,506	$55,467	$6,079						$429,731
2022	$434,921		$14,308	$3,012	$72,122	$93,506	$55,468	$6,079						$431,331
2023	$10,885		$14,308	$3,012	$72,079	$93,506	$55,467	$6,079						$432,569
2024	$10,885		$14,308	$3,012	$72,036	$93,506	$55,466	$6,080						$428,429
2025	$10,885		$14,308	$3,012	$71,988	$93,506	$55,466	$6,079						$429,019
2026	$10,885		$14,308	$3,012	$71,938	$93,506	$55,467	$6,079						$428,469
2027	$10,885		$14,308	$3,012	$71,886	$93,506	$55,466	$6,078						$432,769
2028			$14,308	$3,012	$71,831	$93,506	$55,466	$6,078						$429,769
2029			$14,296	$3,012	$71,772	$93,506	$55,466	$6,079						$431,569
2030				$3,012	$71,710	$93,506	$55,467	$6,079						$432,969
2031					$71,643	$93,506	$41,601	$4,559						$432,844
2032					$71,573	$93,506								$432,269
2033					$71,500	$93,506								$431,244
2034					$71,422	$93,506								$429,769
2035					$71,339	$93,506								$432,844
2036					$71,252	$93,506								$430,244
2037					$71,160	$93,506								$432,194
2038					$71,062	$93,506								$431,519
2039					$70,959	$93,506								$430,494
2040					$70,849	$93,506								$429,119
2041						$93,506								$432,394
2042						$93,495								$430,144
2043														$432,094
2044														$428,500
2045														$429,544
2046														$430,044
2047														
2048														
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2057														
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2059														
2060														
2061														
2062														
2063														
2064														
2065														
Totals	$3,384,247	$0	$171,684	$39,160	$1,648,983	$2,337,651	$762,667	$83,584	$0	$0	$0	$0	$0	$12,493,733

Note: Debt Service <u>*Does Not*</u> *Include Administrative Expenses or DSRF Deposit Requirements as are Operating Expenses.*

(A)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)	(X)	(U)
	(Public Mkt)		*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*			*(Public Mkt)*	
FY Ending June 30	Series 2016 B Bonds	Series 2018 A-7 Bonds	Series 2018 B Bonds	Series 2020 A Bonds	Series 2022A REF Bonds	Series 2022BC Bonds	Series 2024A Bonds	Series 2024B Bonds	Series 2026 EST Bonds	Total Payments
2018		$35,391								$1,509,172
2019		$35,390								$1,515,471
2020		$35,390								$1,514,784
2021		$35,391		$123,106						$1,320,078
2022		$35,391		$122,303	$16,039					$1,284,481
2023		$35,391		$207,702	$414,941					$1,345,940
2024		$35,390		$206,762	$457,956					$1,383,830
2025		$35,390		$208,125	$453,208					$1,380,986
2026		$35,390		$207,044	$445,270					$1,371,369
2027		$35,389		$170,666	$446,634				$187,263	$1,527,862
2028		$35,391		$240,696	$314,086				$216,013	$1,480,156
2029		$35,390		$158,869	$317,656				$218,263	$1,405,878
2030		$35,391		$102,093	$131,872				$195,263	$1,127,362
2031		$35,390		$112,198	$124,046				$213,263	$1,129,049
2032		$35,391		$98,333	$127,071				$220,263	$1,078,406
2033		$35,390		$96,482	$128,032				$221,763	$1,077,917
2034		$35,391		$47,632					$253,013	$930,732
2035		$35,390		$46,838					$247,513	$927,430
2036		$35,390		$48,395					$252,013	$930,800
2037		$35,391		$45,058					$251,013	$928,322
2038		$35,391		$46,483					$250,700	$928,661
2039		$35,390		$47,846					$250,175	$928,370
2040		$35,391		$49,147					$249,438	$927,450
2041		$35,391		$78,587					$238,488	$878,365
2042		$35,391		$79,025					$242,750	$880,804
2043		$35,391		$72,351					$261,588	$801,423
2044		$35,390							$238,938	$702,828
2045		$35,390							$236,963	$701,896
2046		$8,845							$264,763	$703,651
2047									$280,500	$280,500
2048									$279,500	$279,500
2049									$278,000	$278,000
2050									$281,000	$281,000
2051									$278,250	$278,250
2052										$0
2053										$0
2054										$0
2055										$0
2056										$0
2057										$0
2058										$0
2059										$0
2060										$0
2061										$0
2062										$0
2063										$0
2064										$0
2065										$0
Totals	$0	$999,775	$0	$2,615,739	$3,376,811	$0	$0	$0	$6,106,688	$34,020,722
								MAX P&I:		$1,527,862

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)
														(Public Mkt)
FY Ending June 30	Prior Bonds	Series 1988 B-1 Bonds	Series 1988 B-2 Bonds	Series 1989 B Bonds	Series 2002 A Bonds	Series 2002 B Bonds	Series 2010 A Bonds	Series 2010 B Bonds	Series 2010 C Bonds	Series 2010 D Bonds	Series 2011 A Bonds	Series 2013 A Bonds	Series 2014 A Bonds	Series 2016 A Bonds
2018	$966,727	$7,588							$41,668	$16,668	$250,373	$21,262	$145,781	
2019	$788,103	$7,588							$41,668	$16,668	$250,373	$21,263	$145,783	
2020	$591,026	$7,588							$41,668	$16,668	$250,373	$21,261	$145,781	
2021	$445,337	$7,588							$41,668	$16,668	$250,373	$21,263	$145,782	
2022	$138,701	$7,588							$41,668	$16,668	$250,373	$21,261	$145,782	
2023		$7,588							$41,668	$16,668	$250,373	$21,262	$145,783	
2024		$7,588							$41,668	$16,668	$250,373	$21,262	$145,782	
2025		$7,588							$41,668	$16,668	$250,373	$21,262	$145,782	
2026		$7,588							$41,668	$16,668	$250,373	$21,262	$145,782	
2027		$7,588							$41,668	$16,668	$250,373	$21,261	$145,783	
2028		$7,588							$41,668	$16,668	$250,373	$21,263	$145,782	
2029		$7,572							$41,668	$16,668	$250,373	$21,261	$145,782	
2030									$41,668	$16,668	$250,373	$21,262	$145,781	
2031									$41,667	$16,667	$250,373	$21,262	$145,781	
2032									$41,664	$16,664	$250,373	$21,262	$145,782	
2033									$41,664	$16,664	$250,373	$21,262	$145,783	
2034									$41,664	$16,664	$250,373	$21,262	$145,781	
2035									$41,664	$16,664	$250,373	$21,262	$145,781	
2036									$41,664	$16,664	$250,373	$21,261	$145,782	
2037									$41,664	$16,664	$250,373	$21,262	$145,782	
2038									$41,664	$16,664	$250,373	$21,262	$145,782	
2039									$41,664	$16,664	$250,373	$21,261	$145,782	
2040									$41,664	$16,664	$250,373	$21,262	$145,783	
2041									$41,665	$16,665	$250,373	$21,262	$145,781	
2042												$21,261	$145,782	
2043												$21,262	$145,782	
2044												$21,262	$145,782	
2045												$5,316	$145,782	
2046													$109,337	
2047														
2048														
2049														
2050														
2051														
2052														
2053														
2054														
2055														
2056														
2057														
2058														
2059														
2060														
2061														
2062														
2063														
2064														
2065														
Totals	$2,929,894	$91,040	$0	$0	$0	$0	$0	$0	$999,992	$399,992	$6,008,949	$579,384	$4,191,229	$0

Note: Debt Service <u>*Does Not*</u> *Include Administrative Expenses or DSRF Deposit Requirements as are Operating Expenses.*

(A)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)	(X)	(U)
	(Public Mkt)		*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*	*(Public Mkt)*			*(Public Mkt)*	
FY Ending June 30	Series 2016 B Bonds	Series 2018 A1-A7 Bonds	Series 2018 B Bonds	Series 2020 A Bonds	Series 2022A REF Bonds	Series 2022BC Bonds	Series 2024A Bonds	Series 2024B Bonds	Series 2026 EST Bonds	Total Payments
2018	$127,825	$158,813								$1,736,705
2019	$127,825	$158,811	$39,970							$1,598,051
2020	$152,825	$167,160	$268,438							$1,662,786
2021	$157,450	$167,160	$264,500	$138,821						$1,656,609
2022	$257,000	$167,160	$265,125	$137,916	$5,912					$1,455,153
2023	$174,400	$167,160	$265,625	$234,217	$119,340	$274,826				$1,718,908
2024	$173,400	$167,160	$265,538	$233,157	$155,650	$390,495				$1,868,740
2025	$172,325	$167,160	$265,313	$234,694	$155,052	$392,635				$1,870,519
2026	$176,250	$167,160	$269,463	$233,475	$154,055	$389,555				$1,873,297
2027	$179,050	$167,160	$268,313	$192,453	$152,823	$426,475	$39,252	$7,628	$162,013	$2,078,506
2028	$206,650	$167,160	$267,013	$271,423	$90,714	$386,635	$78,504	$15,257	$160,513	$2,127,209
2029	$248,050	$167,164	$265,563	$179,150	$127,531	$403,035	$78,504	$15,256	$159,013	$2,126,590
2030	$247,650	$153,090	$283,413	$115,126	$79,253	$453,475	$78,504	$15,257	$172,513	$2,074,031
2031	$247,050	$143,631	$290,450	$126,521	$79,120	$446,275	$78,504	$15,257	$175,263	$2,077,820
2032	$246,250	$124,383	$311,350	$110,886	$77,885	$458,025	$78,504	$15,257	$177,763	$2,076,047
2033	$250,250	$105,135	$331,200	$108,799	$78,634	$458,675	$78,504	$15,257	$175,013	$2,077,212
2034	$248,850	$105,135		$53,712		$478,775	$78,504	$15,257	$192,263	$1,648,239
2035	$247,250	$105,135		$52,818		$482,225	$78,504	$15,257	$193,513	$1,650,444
2036	$245,450	$105,135		$54,573		$484,850	$78,503	$15,256	$189,513	$1,649,024
2037	$248,450	$105,135		$50,810		$481,988	$78,505	$15,256	$195,513	$1,651,401
2038	$247,900	$105,135		$52,417		$481,050	$78,504	$15,257	$196,688	$1,652,694
2039	$247,200	$33,416		$53,954		$434,675	$78,504	$15,257	$212,650	$1,551,401
2040	$246,350			$55,421		$469,831	$78,504	$15,258	$207,763	$1,548,872
2041	$250,350			$88,619		$433,019	$78,503	$15,257	$207,875	$1,549,370
2042	$249,050			$89,113		$407,300	$78,504	$15,256	$217,775	$1,224,042
2043	$247,600			$81,587		$427,238	$78,504	$15,258	$207,038	$1,224,268
2044	$246,000					$511,838	$78,504	$15,258	$206,188	$1,224,830
2045	$249,250					$527,638	$78,504	$7,592	$210,113	$1,224,193
2046	$247,200					$567,238	$78,504		$223,588	$1,225,866
2047						$509,638	$78,504		$235,750	$823,891
2048						$513,638	$78,504		$231,500	$823,642
2049						$511,313	$78,504		$237,000	$826,816
2050						$513,369	$78,504		$231,750	$823,623
2051						$509,600	$78,504		$236,250	$824,354
2052						$510,213	$78,504			$588,717
2053							$78,503			$78,503
2054							$78,505			$78,505
2055							$78,506			$78,506
2056							$78,503			$78,503
2057							$78,504			$78,504
2058							$78,506			$78,506
2059							$78,505			$78,505
2060							$78,503			$78,503
2061							$78,505			$78,505
2062							$78,504			$78,504
2063							$78,504			$78,504
2064							$78,504			$78,504
2065							$39,252			$39,252
Totals	$6,365,150	$3,074,549	$3,921,270	$2,949,663	$1,275,968	$13,735,537	$2,983,155	$274,589	$5,014,813	$54,795,175
								MAX P&I:		$2,127,209

SANITARY SURVEY AND FUTURE WATER/SEWER SERVICE FEASIBILITY STUDY

FOR

CHARLES TOWN UTILITY BOARD
SUMMIT POINT MOTORSPORTS PARK

JUNE 2025

GD&F
GWIN DOBSON & FOREMAN ENGINEERS

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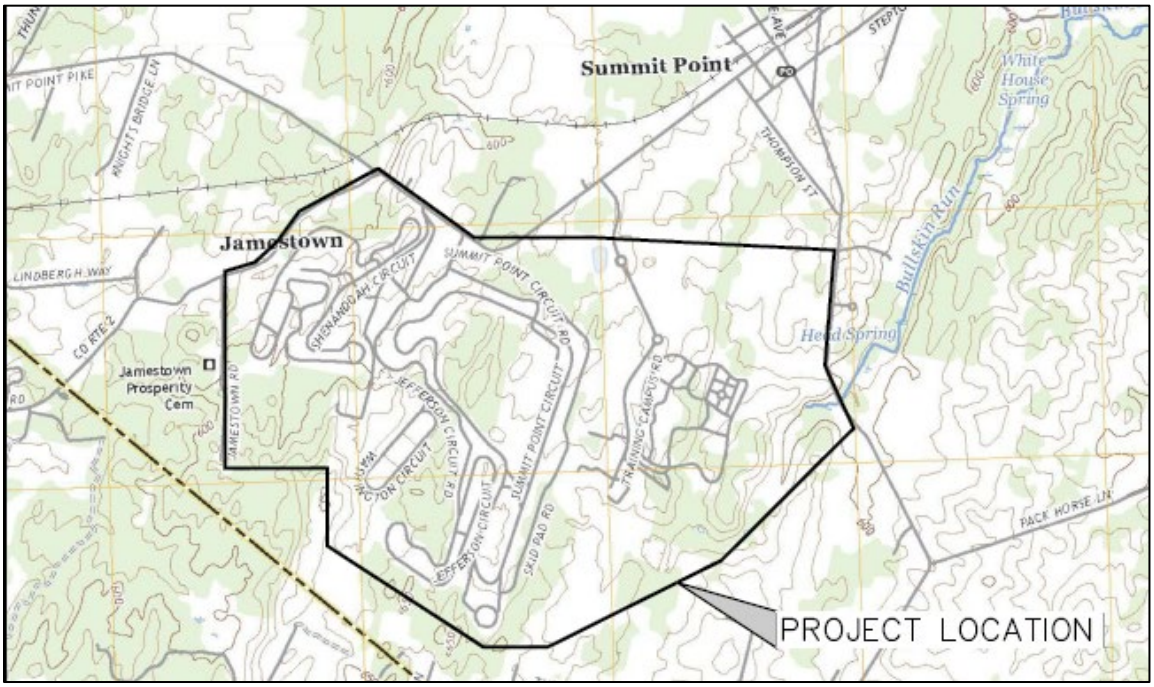
A. BACKGROUND

Gwin, Dobson & Foreman, Inc. (GD&F) has been retained by the Charles Town Utility Board (CTUB), in collaboration with Summit Point Motorsports Park (SPMP), to prepare this Sanitary Survey and evaluate future utility service for the area. Summit Point Motorsports Park and the Summit Point Training Facility (SPTF) operate jointly on the same campus and serve a dual-purpose mission - supporting both commercial motorsports and U.S. Government national security programs.

The primary purpose of this study is to establish the number, type, and current condition of on-lot disposal systems and to identify potential sources of contamination to existing and proposed drinking water systems throughout the campus. The findings will also support the feasibility assessment for developing new centralized water and wastewater treatment systems to serve current and future needs reliably.



This survey was initiated due to concerns regarding the reliability and sustainability of the existing individual well and septic systems supporting a diverse set of facilities across the property. These facilities include racetrack amenities, administrative buildings, and secure training environments. SPMP/SPTF management has emphasized the strategic importance of ensuring long-term dependable utility infrastructure - not only for public-facing motorsports operations but also for the many government contractor tenants who occupy the site to conduct training, research, testing, and national security mission support activities.

B. HISTORY AND DESCRIPTION OF SUMMIT POINT MOTOR SPORTS

The Summit Point facility originally opened in October 1969 as Summit Point Raceway and has since evolved into a nationally recognized campus integrating motorsports with critical U.S. Government training and testing functions. In 2018, the site was acquired by Xator Corporation, which maintained its motorsports legacy while expanding national security-focused operations.

In 2022, following Xator's acquisition by a U.S. Government organization, Summit Point Raceway Associates Inc. was divested and retained by Xator's two founding members as an independent small business. Today, the property operates under two synergistic divisions—Summit Point Motorsports Park (SPMP) and Summit Point Training Facility (SPTF) - from the same location.

The 785-acre campus supports a dual-purpose mission: delivering premier motorsports events and serving as a secure site for U.S. Government and contractor-led research, development, testing, evaluation (RDT&E), and mission readiness training. The facility averages 600 to 1,000 personnel on-site daily - including employees, customers, and government staff - making it a vital place of performance for national security and commercial operations alike.

In addition to its operational role, the site serves as a major economic hub for Jefferson County, generating local employment, tourism revenue, and contracting opportunities tied to motorsports, logistics, and federal programming.

Currently, all activity is supported by decentralized well and septic systems. Given the growing demands and strategic nature of the work conducted on-site, there is a critical need to transition to a centralized, modern utility infrastructure that ensures reliability, environmental protection, and support for continued economic and mission growth.

C. EXISTING WATER/SEWER SYSTEM CONFIGURATION & ASSESSMENT

1. Inventory of Existing Wells & Septic Systems

Based on information provided by SPMP management there are approximately 25 identified wells on the property. These wells vary significantly in terms of depth, reported yield, age and the specific facilities they serve. A summary of the existing wells and the sanitary systems they serve is included in Appendix A. Reported well depths range from approximately 100 feet to over 1,400 feet and approximate yields vary from a few gallons per minute (gpm) to as high as 50 gpm for individual wells. The age of these wells also varies, with some in operation for over 30 years and others being more recent installations. Several wells are not used for drinking water and as such, receive no treatment.

Sanitary Systems appear to have been installed as the enterprise continued to expand throughout the years. The sizes of septic tanks are generally adequate for typical occupancies for the individual buildings; however, several systems appear to have been expanded after the septic system installation as the maximum tank size is 1,500 gallons. Based on the *EPA Onsite Wastewater Treatment Systems Manual*, tanks of this size are acceptable for approximately 500 gallons per day, translating to an occupancy of approximately thirty-five (35) persons. Peak occupancies in excess of this are listed in Appendix A; however, these peaks are based on events when temporary sanitary facilities are brought on-site.

Maps of both water and sewer facilities have been included in Appendix B.

2. Water Quality Assessment

A sampling program was developed to identify failing septic systems that threaten the existing water systems. The program consisted of a general inspection of each well source, running the system at approximate maximum (running sinks, toilets, etc.) for an extended period of time to simulate drawdown condition, injecting tracer dye into the drainage system, and sampling the water for Fecal Coliform, E. coli, Nitrate and Nitrite. The subsurface infiltration areas were then inspected for any signs of pooling or other failures of the system.

The results of this sampling program showed that of the twenty-one (21) sources sampled, only two (2) show bacterial contamination. Some sources contain noticeable levels of Nitrate/Nitrite, but all were below the drinking water standards. The analytical results are summarized in Table 1 and included in Appendix C.

Table 1: Water Source Analytical Sampling Summary

Location	Total Coliform, MPN/100 mL	E. Coli., MPN/100 mL	Nitrate, mg/L	Nitrite, mg/L
Classroom	<1	<1	0.47	<0.20
Concession	15	7.5	2.59	<0.20
Maintenance	<1	<1	4.8	<0.20
EMS	<1	<1	4.82	<0.20
Range K	<1	<1	4.86	<0.20
Range B	<1	<1	1.01	<0.20
Washington	<1	<1	1.23	<0.20
Jefferson	<1	<1	7.27	<0.20
Main Office	<1	<1	6.21	<0.20
SBR 565	4.2	<1	3.1	<0.20
Bldg 55	<1	<1	2.59	<0.20
Bldg 53	<1	<1	2.58	<0.20
Bldg 73	<1	<1	2.58	<0.20
Bldg 65	<1	<1	2.49	<0.20
Bldg 45	<1	<1	2.51	<0.20
Bldg 60	<1	<1	2.5	<0.20
Bldg 860	<1	<1	2.5	<0.20
Bldg 785	<1	<1	2.5	<0.20
Bldg 73	<1	<1	2.5	<0.20
Bldg 53	<1	<1	2.5	<0.20
SCCA	<1	<1	0.41	<0.20

Similarly, the above ground inspection of each infiltration area during the high-flow sampling period did not indicate any failures in septic systems (i.e. no dye or pooling was observed).

3. Hydrogeological Assessment

A Stage 1 Hydrogeologic Study was undertaken to better understand the underlying geological conditions and how they may factor into contamination sources and source water quality. The study notes karst terrain which has the potential to rapidly transmit contamination throughout aquifers. The study additionally identified the known wells and compiled additional information. The full report may be found in Appendix D.

D. SANITARY SURVEY AND ALTERNATIVES EVALUATION

1. Summary of Sanitary Survey

While the Sanitary Survey identified some sources of contamination, most existing facilities operate as intended and within reasonable design standards. The nature of the facility demands a very wide range of potential occupancy demands. In the past, SPMS has addressed these swings with temporary facilities during high-occupancy events (race days, etc.). Despite the additional facilities, management has observed major stresses on the existing systems. Additionally, the decentralized nature of the individual systems creates difficulties in general upkeep and maintenance to ensure water quality.

The results of the sampling and inspection program show the majority of on-lot systems in acceptable working order. However, two (2) of the drinking water sources sampled were positive for bacteria. Almost all of the sources sampled had measurable levels of Nitrate, but none above drinking water standards. A malfunctioning on-lot septic system is more likely the source of the bacteria. However, an outside contamination source is possible due to the Karst geology in the area. The geology is also likely the cause of the elevated Nitrate levels, which can pose safety risks. The surrounding area served by on-lot systems is likely to have similar water quality regardless of individual well construction.

2. Future Alternatives for Source Water Protection

To ensure high quality source water in the SPMS, three (3) main alternatives exist:

- Alternative 1: Improvement of Existing Individual Systems (Water & Sewer),
- Alternative 2: Connection to Existing Regional Systems
- Alternative 3: Development of Centralized Facilities

2.a. Alternative 1: Improvement of Existing Individual Systems

Further investigation and improvement of the existing individual systems is a technically feasible option. A more thorough inspection of each septic system could be performed through camera inspection, test pitting, air testing, etc. to identify malfunctioning systems. This approach would be extremely cost prohibitive and would leave complexity in operations, maintenance. It would also do little to address the current reliability concerns in a timely manner. Further, the SPMS Facility would be unable to continue to expand using the current system of individual systems. SPMS has received multiple inquires to develop in areas currently used by the septic drain fields. Assuming the space to continue to build

on-lot systems existed, development of them would continue to pose a threat to th source water quality of the surround areas. For these reasons, this Alternative was not considered further.

2.b. Alternative 2: Connection to Existing Regional Systems

Connection of the SPMP to existing regional public water and wastewater utility systems was considered as a potential alternative. However, based on current information, the area immediately surrounding SPMP does not presently have access to such regional public utilities. Based on the WVIJDC GIS System, the nearest water system connection would be to CTUB's existing system on Summit Point Road. The waterline would be approximately 5 miles long and be an estimated $6.6-million to construct. Even if connection of this line were feasible, the overall length would drastically increase water age and lead to degraded water quality over time. Connection to a sewerage system would be similar and require a substantial pumping system. The total estimated cost to connect to exiting utilities is $13-million.

2.c. Alternative 3: Development of Centralized Facilities

Development of centralized facilities would provide great benefits for the water and sewerage systems in this area. This approach would provide a reliable, high-quality water supply and an environmentally sound wastewater management solution, capable of meeting both current operational demands and future growth. Centralized systems would also provide the potential for future service expansion to the surrounding areas.

Based on the Stage 1 Hydrogeologic Study, the potential for developing high-yield wells on the property is likely, with some already existing. Wells #17 and #18 specifically hold promise to initially support the entire SPMS demands. These wells along with any additional wells developed based on proposed need would provide water to a treatment facility and storage tank located centrally to the Facility. If this alternative is pursued, further testing would inform the treatment requirements and subsequent capability. A water distribution system could be easily implemented throughout the existing system with minimal disruptions, as the existing systems could continue to operate until final connections are made to each building.

Similarly, a wastewater collection system could be relatively easily implemented. Conceptually, the site could be divided into two (2) main gravity systems with pump stations to convey all flow to a wastewater treatment facility discharging to Bullskin Run. GD&F has developed a conceptual design layout for the distribution and collection system, included in Appendix E.

A centralized system would not only be able to handle the existing demands of the SPMS Facility, but also be easily expanded to meet its future demands and those of the surrounding area. More than fifty (50) acres are currently undeveloped on the existing site. These areas are zoned for General Commercial, at an estimated usage of 2,000-gallons/acre day, there is the potential to require

an additional 100,000-gallons per day of water supply and an equal amount of generated waste. Without construction of an easily expandable system, any proposed development of reasonable scale would be unreasonably hindered from becoming reality.

Of the three (3) alternatives presented here, only Alternative 3 addresses all the current issues identified by SPMS and this Sanitary Survey. A blend of Alternative 1 and 3 could be further identified in the future in order to bridge the time to initiate a full-scale centralized system project.

E. CONCLUSIONS

The SPMS Facility consists of numerous on-lot systems spread over the area. These systems are in various states of use and condition which makes operation and maintenance difficult. Additionally, the increased demands on the systems have compounded other issues. Several alternatives exist to address the long-term needs of the facility and surrounding areas, but the most cost effective and reliable option is to begin the process to develop centralized facilities for both Water and Wastewater. A planning level cost estimate for these facilities is shown in Table 2 and an implementation schedule is shown in Table 3. As time progresses, these estimates should be revisited for accuracy and inclusion of additional requirements.

Table 2: Centralized Facility Construction Cost Estimates

Water Treatment Facility/Storage Tank	$2,500,000
Well Development/Rehab	$200,000
Wastewater Treatment Facility/Pump Stations	$1,750,000
Distribution/Collection System	$2,750,000
Site Work/Miscellaneous	$500,000
Potential Expansion	$2,000,000-$3,000,000
Total Budgetary Construction Cost	**$7,700,000-$10,700,000**

Table 3: Preliminary Implementation Schedule

Hydrogeological Investigations	1 Year
Design/Permitting	2 Years
Funding Acquisition/Legal	6 months - 1 Year
Bidding/Construction	3 Years

The majority of the implementation schedule will be dependent on where funding is obtained, who the end operator/customers are to be, and permitting requirements throughout. Of particular note is the preliminary location for a Wastewater Treatment Facility.

The final recommendation of this report is to further consider local sources of contamination to the existing drinking water system. As time goes on, the condition of the existing facilities will continue to degrade unless given significant attention at high costs compared to constructing centralized facilities to replace them. Continuation of the existing on-lot generation and disposal method holds the very real potential to impact regional water quality die to the karst topography. To address the long-term solution of water supply and treatment, planning efforts should be undertaken to begin implementation of centralized facilities.

APPENDIX A

EXISTING WELLS AND SANITARY SYSTEMS

Existing Water and Sanitary Systems Summary

System	Building Served	Peak Occupancy	Typical Occupancy	Sanitary	Well						
				Septic Tank Size	Wells Serving	Storage	Well Depth	Years in Operation	Aprox. Flow	Water Quality	Pipe Diameter
1	Security Office	40	20	1000	1		260	20	20	U/V	6"
2	Admin HQ	100	30	1000	2,3	500	150	30	24	PWS Cl2	6"
3	Circuit Paddock SPC	3000	80	1500	6		290	20	20	Cl2	6"
4	Circuit Paddock 2 S.C	3000	80	1000	7,8	400	1200	1	6	Non Potable	6"
5	Facility Maint.	30	30	1500	22,23	400	1200	1	6	Non Potable	6"
6	Range K	30	20	1000	10		256	25	50	U/V	6"
7	Stone House	10	10	1000	11						
8	Range B	40	20	1500	12		396	23	15		6"
9	Washington Circuit Paddock	40	30	1000	12		396	23	15		6"
10	Fairfax Restroom	60	60	1000	2	500	150	30	24	PWS Cl2	6"
11	Gasoline Alley	70	50	1500	1		260	20	20	U/V	6"
12	SCCA Reg Bldg	40	30	1000	3	500	150	30	24	PWS Cl2	6"
13	Jefferson Co. Circuit Paddock	500	40	1000	14		200	30	25	U/V	6"
14	Summit Point Circuit Paddock	3000	30	1500	19,20			50	30	PWS Cl2	6"
15					5						
16	Shenandoah pump house				4				22		6"
17	Race Control & Obs Tower	20	5	1000	20				25		6"
18	Orchard Building		30	1000	22,23	11000		20			
19	Bldg 50	40	30	1500	22,23			20			
20	Bldg 93	40	40	1500	22,23			20			
21	Bldg 73	40	40	1500	22,23			20			
22	Bldg 53	40	40	1500	22,23			20			
23	Bldg 33	30	30	1500	22,23			20			
24	Bldg 55	40	40	1500	22,23			20			
25	Bldg 80	40	40	1500	22,23			20			
26	Bldg 90	40	40	1500	22,23			20			
27	Bldg 860	60	40	1500	22,23			20			
28	Bldg 65	40	40	1500	22,23			20			
29	Bldg 60	60	40	1500	22,23			20			
30	Bldg 45	60	40	1500	22,23			20			
31	Bldg 785	50	50	1500	22,23			20			

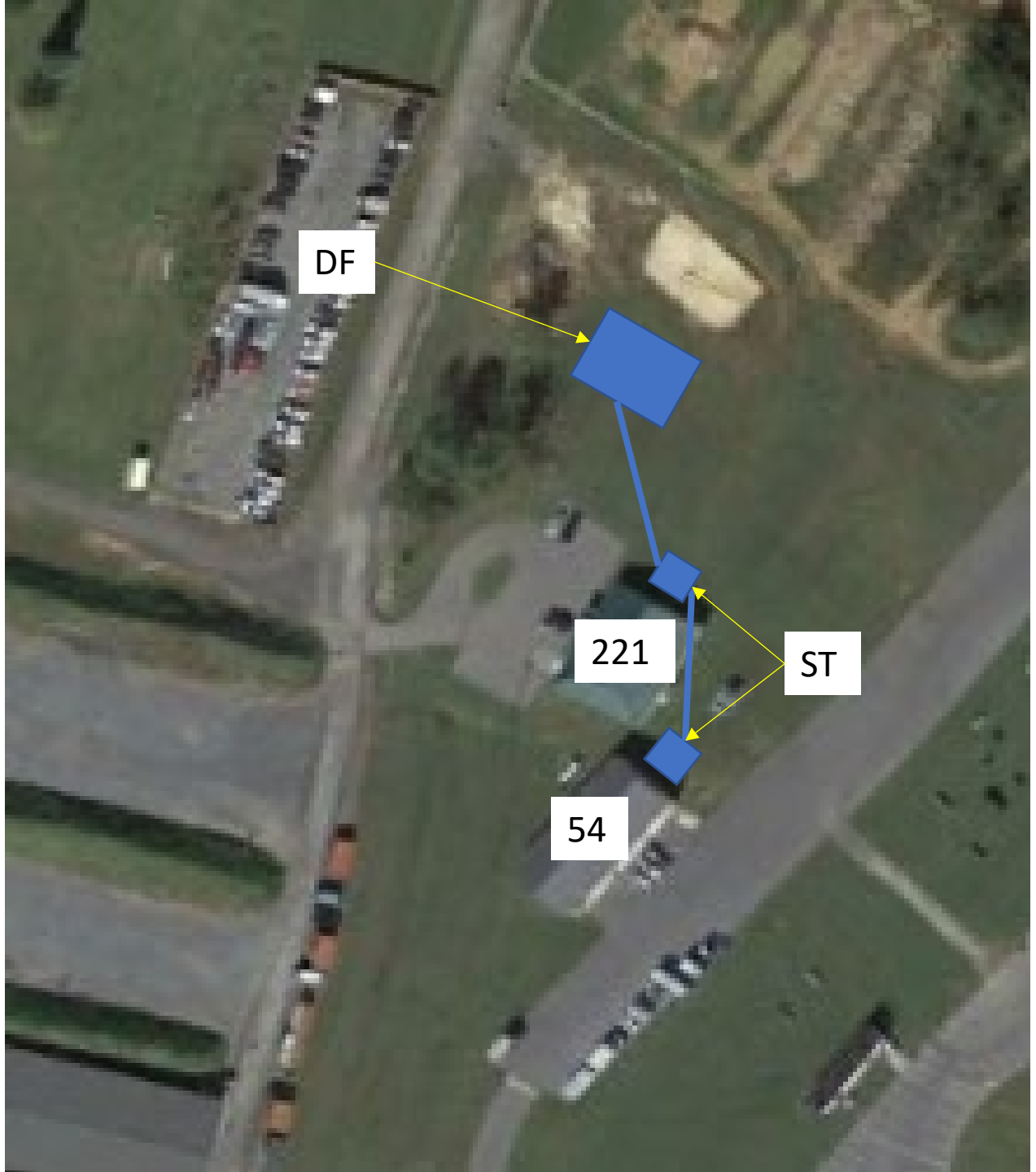
APPENDIX B

SUMMIT POINT MOTOR SPORTS MAPPING



Shenandoah Circuit
Range K
Administration Buildings

- ST = Septic Tank
- DF = Drain Field
- IP = Influent Pump



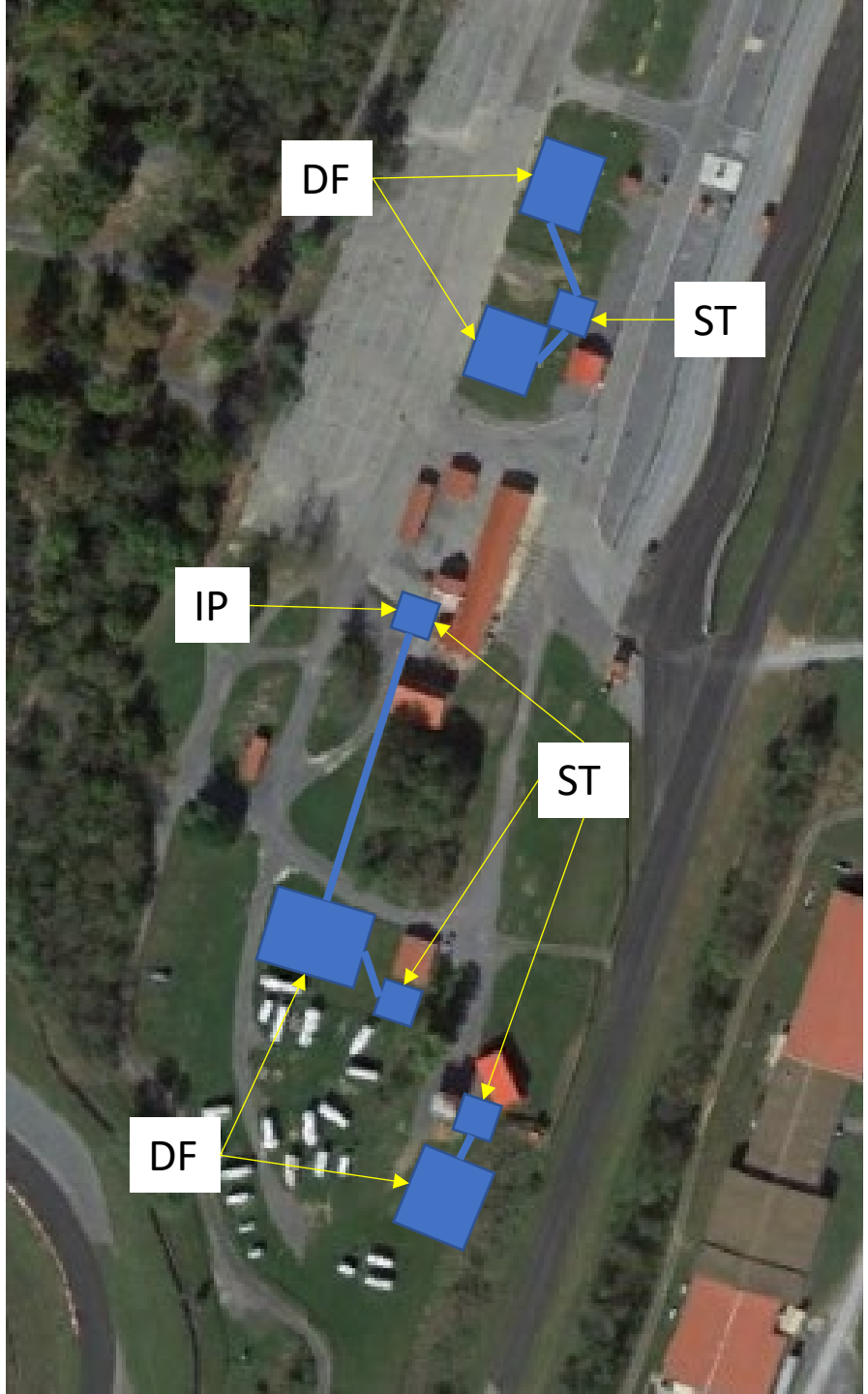
221 Kackley Range Road
54 Washington Circuit Road

- ST = Septic Tank
- DF = Drain Field



99 Summit Point Circuit Road

- ST = Septic Tank
- DF = Drain Field



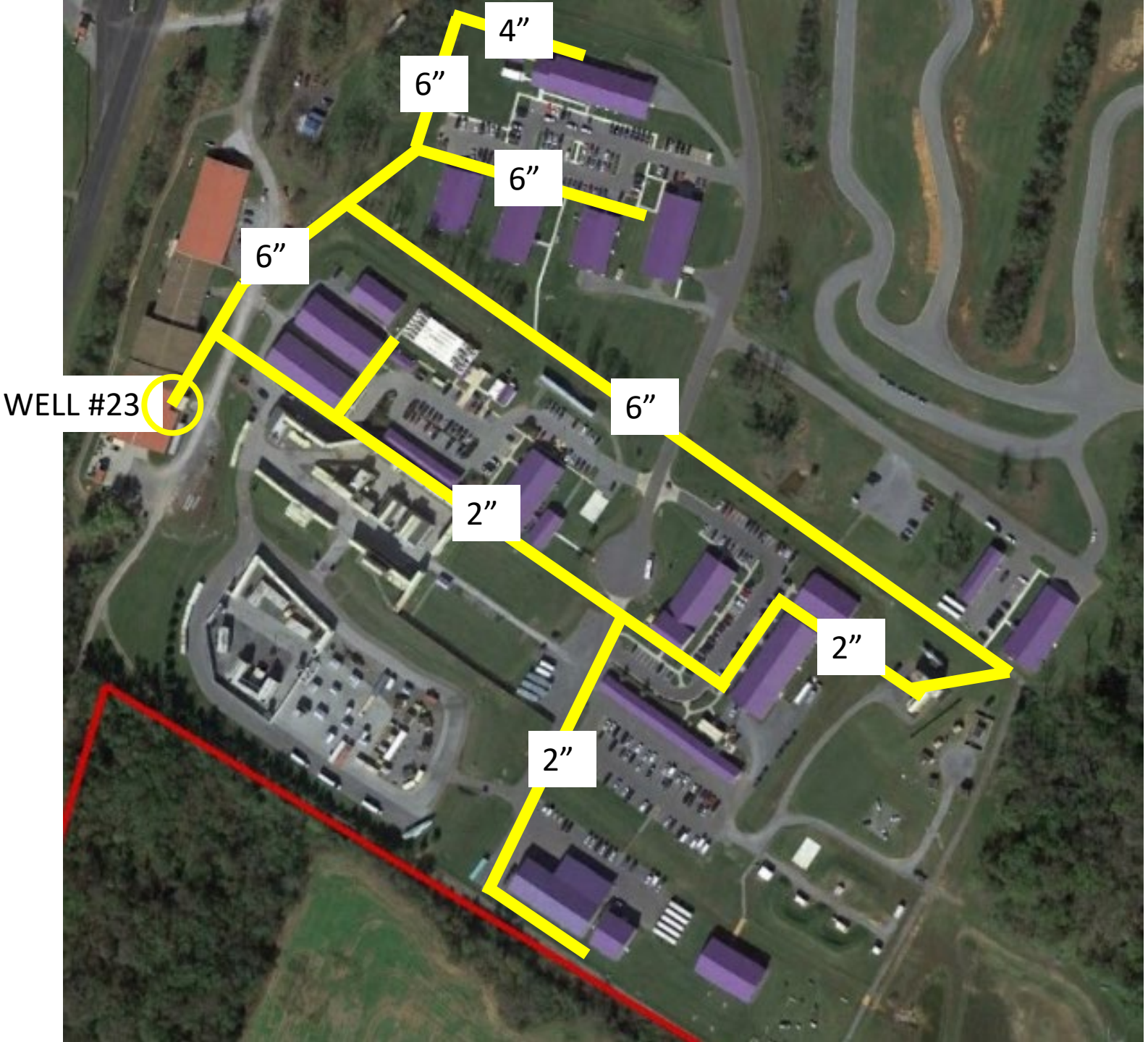
Summit Point Circuit

- ST = Septic Tank
- DF = Drain Field
- IP = Influent Pump



Training Campus

- ST = Septic Tank
- DF = Drain Field
- IP = Influent Pump



Training Campus

- 6” = Pipe Diameter
- 4” = Pipe Diameter
- 2” = Pipe Diameter

APPENDIX C

SAMPLING PROGRAM RESULTS

3020 VENTRIE COURT
MYERSVILLE, MD 21773

FREDERICKTOWNE LABS ENVIRONMENTAL TESTING

(301) 293-3340
INFO@FTLLAB.COM

Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

1 - Classroom

FZB0623-01 (Drinking Water)(Grab) **Date Collected: 02/19/25 11:20**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	0.47	mg/L	0.20	10	2/19/25 19:09	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 19:09	NM		EPA 300.0

Sara E. Randall, President

Fredericktowne Labs, Inc. is a State Certified Water Quality Laboratory
Maryland Cert. No. 116 Virginia Cert. No. 00444
West Virginia Cert. 415 MDOT WBE Cert. No.: 91-158

3020 VENTRIE COURT
MYERSVILLE, MD 21773

FTL LABS
FREDERICKTOWNE LABS ENVIRONMENTAL TESTING

(301) 293-3340
INFO@FTLLAB.COM

Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

2 - Concession

FZB0623-02 (Drinking Water)(Grab) **Date Collected: 02/19/25 11:25**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	**15**	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	**7.5**	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is unsafe for human consumption. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.59	mg/L	0.20	10	2/19/25 23:35	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 23:35	NM		EPA 300.0

Sara E. Randall, President

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West Virginia Cert. 415 MDOT WBE Cert. No.: 91-158

3020 VENTRIE COURT
MYERSVILLE, MD 21773

FTL LABS
FREDERICKTOWNE LABS ENVIRONMENTAL TESTING

(301) 293-3340
INFO@FTLLAB.COM

Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

3 - Maintenance

FZB0623-03 (Drinking Water)(Grab) **Date Collected: 02/19/25 11:35**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	4.80	mg/L	0.20	10	2/19/25 23:18	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 23:18	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

4 - EMS

FZB0623-04 (Drinking Water)(Grab) **Date Collected: 02/19/25 11:40**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	4.82	mg/L	0.20	10	2/19/25 22:28	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 22:28	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

5 - Range K

FZB0623-05 (Drinking Water)(Grab) **Date Collected: 02/19/25 11:45**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1 [1]	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD	M2	SM9223-B
Bacteria - E coli	<1 [1]	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD	M2	SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	4.86	mg/L	0.20	10	2/19/25 22:45	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 22:45	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

6 - Range B

FZB0623-06 (Drinking Water)(Grab) **Date Collected: 02/19/25 12:45**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	1.01	mg/L	0.20	10	2/19/25 21:55	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 21:55	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

7 - Washington

FZB0623-07 (Drinking Water)(Grab) **Date Collected: 02/19/25 12:50**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	1.23	mg/L	0.20	10	2/19/25 22:12	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 22:12	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

8 - Jefferson

FZB0623-08 (Drinking Water)(Grab) **Date Collected: 02/19/25 12:55**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	7.27	mg/L	0.20	10	2/19/25 17:29	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 17:29	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

9 - Main Office

FZB0623-09 (Drinking Water)(Grab) **Date Collected: 02/19/25 13:05**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	6.21	mg/L	0.20	10	2/19/25 17:46	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 17:46	NM		EPA 300.0

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INFO@FTLLAB.COM

Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

10 - SBR 565

FZB0623-10 (Drinking Water)(Grab) **Date Collected: 02/19/25 13:35**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	**4.2**	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is unsafe for human consumption. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	3.10	mg/L	0.20	10	2/19/25 18:02	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 18:02	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

11 - 55
FZB0623-11 (Drinking Water)(Grab)

Date Collected: 02/19/25 13:40

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1 [1]	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD	M2	SM9223-B
Bacteria - E coli	<1 [1]	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD	M2	SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.59	mg/L	0.20	10	2/19/25 18:19	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 18:19	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

12 - 53
FZB0623-12 (Drinking Water)(Grab)

Date Collected: 02/19/25 13:45

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.58	mg/L	0.20	10	2/19/25 18:36	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 18:36	NM		EPA 300.0

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(301) 293-3340
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Certificate of Analysis

Work order: **FZB0623**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/19/25 14:45
Temp: 13.80 deg. C
Reported: 2/21/25 8:29

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

13 - 73
FZB0623-13 (Drinking Water)(Grab)

Date Collected: 02/19/25 13:45

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B
Bacteria - E coli	<1	MPN/100 mL	1	1	2/19/25 16:03	2/20/25 16:40	JD		SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.58	mg/L	0.20	10	2/19/25 18:52	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/19/25 18:52	NM		EPA 300.0

Notes and Definitions

Item	Definition
M2	Sample volume < 100 mL

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CHAIN OF CUSTODY

FREDERICKTOWNE LABS, INC.
3020 VENTRIE CT., PO BOX 245, MYERSVILLE, MD 21773
301-293-3340 OR FAX 301-293-2366

Phone Number: 814-943-5214
Email: dsantelli@gdfengineers.com
dpedersen@gdfengineers.com

FZB0623

FTL Acct. No.:

Project: Name & Address
24080

Collected By: (Please Print)
Dave Santelli

Affiliation: Gwin, Dobson + Foreman, Inc.

Analyses To Be Performed

Field Sample ID	Site Description	Collection Date	Collection Time	Matrix DW/WW	pH	Res. Cl	DO	Temp	Grab/Comp	Fecal Coliform	Nitrate / Nitrite					Preservation
1	Classroom	2/19/25	11:20							X	X					
2	Concession		11:25													
3	Maintenance		11:35													
4	EMS		11:40													
5	Range K		11:45													
6	Range B		12:45													
7	Washington		12:50													
8	Jefferson		12:55													
9	Main Office		13:05													
10	SBR 565		13:35													

Relinquished By: (Print): Dave Santelli (Signature): [signature] Date/Time 2/19/25 14:45

Received By: (Print): Cassie Jinks (Signature): Date/Time 2.19.25 1445

Relinquished By: (Print): (Signature): Date/Time

Received By: (Print): (Signature): Date/Time

Relinquished By: (Print): (Signature): Date/Time

Received By: (Print): (Signature): Date/Time

Treatment Devices Present: Yes ☐ No ☐

DescribeTreatment Device(s):

Lead & Copper Samples - Water Last Used:
Date: Time:

Method of Shipment: **Iced:** Yes ☒ No ☐

Condition of Sample(s) upon Receipt:
13.8 (T2)

CHAIN OF CUSTODY

FREDERICKTOWNE LABS, INC.
3020 VENTRIE CT., PO BOX 245, MYERSVILLE, MD 21773
301-293-3340 OR FAX 301-293-2366

Phone Number: 814-943-5214

Email: dsantelli@gdfengineers.com
dpedersen@gdfengineers.com

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FZB0623

FTL Acct. No.:

Project: Name & Address 24080

Collected By: (Please Print)
Dave Santelli

Affiliation:
Gwin, Dobson & Foreman, Inc.

Analyses To Be Performed

Field Sample ID	Site Description	Collection Date	Collection Time	Matrix DW/ WW	pH	Res. Cl	DO	Temp	Grab/ Comp	Fecal coliform	Nitrate/Nitrite					Preservation
11	55	2/19/25	13:40							X	X					
12	53	↓	13:45													
13	73	↓	13:45													

Relinquished By: Date/Time 2/19/25 14:45
(Print): Dave Santelli
(Signature):

Received By: Cassie Tilley Date/Time 2.19.25 1445
(Print):
(Signature):

Relinquished By: Date/Time
(Print):
(Signature):

Received By: Date/Time
(Print):
(Signature):

Relinquished By: Date/Time
(Print):
(Signature):

Received By: Date/Time
(Print):
(Signature):

Treatment Devices Present: Yes ☐ No ☐

DescribeTreatment Device(s):

Lead & Copper Samples - Water Last Used:
Date: Time:

Method of Shipment: **Iced:** Yes ☒ No ☐

Condition of Sample(s) upon Receipt:

3020 VENTRIE COURT
MYERSVILLE, MD 21773

FREDERICKTOWNE LABS ENVIRONMENTAL TESTING

(301) 293-3340
INFO@FTLLAB.COM

Certificate of Analysis

Work order: **FZB0754**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/26/25 13:36
Temp: 9.20 deg. C
Reported: 2/28/25 8:59

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

1 - 65
FZB0754-01 (Drinking Water)(Grab) **Date Collected: 02/26/25 10:15**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B
Bacteria - E coli	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.49	mg/L	0.20	10	2/26/25 14:10	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/26/25 14:10	NM		EPA 300.0

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INFO@FTLLAB.COM

Certificate of Analysis

Work order: **FZB0754**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/26/25 13:36
Temp: 9.20 deg. C
Reported: 2/28/25 8:59

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

2 - 45
FZB0754-02 (Drinking Water)(Grab) **Date Collected: 02/26/25 10:20**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B
Bacteria - E coli	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.51	mg/L	0.20	10	2/26/25 14:26	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/26/25 14:26	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0754**

Client:
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3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/26/25 13:36
Temp: 9.20 deg. C
Reported: 2/28/25 8:59

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

3 - 60
FZB0754-03 (Drinking Water)(Grab) **Date Collected: 02/26/25 10:30**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B
Bacteria - E coli	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.50	mg/L	0.20	10	2/26/25 14:43	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/26/25 14:43	NM		EPA 300.0

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Work order: **FZB0754**

Client:
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3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/26/25 13:36
Temp: 9.20 deg. C
Reported: 2/28/25 8:59

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

4 - 860
FZB0754-04 (Drinking Water)(Grab)

Date Collected: 02/26/25 10:35

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B
Bacteria - E coli	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.50	mg/L	0.20	10	2/26/25 15:00	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/26/25 15:00	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0754**

Client:
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3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/26/25 13:36
Temp: 9.20 deg. C
Reported: 2/28/25 8:59

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

5 - 785
FZB0754-05 (Drinking Water)(Grab)

Date Collected: 02/26/25 10:40

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B
Bacteria - E coli	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.50	mg/L	0.20	10	2/26/25 15:16	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/26/25 15:16	NM		EPA 300.0

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Certificate of Analysis

Work order: **FZB0754**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/26/25 13:36
Temp: 9.20 deg. C
Reported: 2/28/25 8:59

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

6 - 73
FZB0754-06 (Drinking Water)(Grab)

Date Collected: 02/26/25 10:45

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B
Bacteria - E coli	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.50	mg/L	0.20	10	2/26/25 15:33	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/26/25 15:33	NM		EPA 300.0

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INFO@FTLLAB.COM

Certificate of Analysis

Work order: **FZB0754**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/26/25 13:36
Temp: 9.20 deg. C
Reported: 2/28/25 8:59

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

7 - 53

FZB0754-07 (Drinking Water)(Grab) **Date Collected: 02/26/25 10:50**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B
Bacteria - E coli	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	2.50	mg/L	0.20	10	2/26/25 15:50	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/26/25 15:50	NM		EPA 300.0

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MYERSVILLE, MD 21773

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(301) 293-3340
INFO@FTLLAB.COM

Certificate of Analysis

Work order: **FZB0754**

Client:
Gwin, Dobson & Foreman, Inc.
3121 Fairway Drive
Altoona, PA 16602

Project: Drinking Water Sampling
24080

Received at lab: 2/26/25 13:36
Temp: 9.20 deg. C
Reported: 2/28/25 8:59

PWSID:
Treatment: N/A
Collected by: Dave Santelli
Well Tag: N/A

8 - SCCA

FZB0754-08 (Drinking Water)(Grab) **Date Collected: 02/26/25 11:45**

Field Results

	Result	Units
Temperature	N/A	deg. C
pH	N/A	
Res. Chlorine	N/A	mg/L
Chlorine, Total	N/A	mg/L

Microbiology

	Result	Units	MRL	MCL	Date Prepared	Date Analyzed	Analyst	Qual	Method
Bacteria - Total Coliform	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B
Bacteria - E coli	<1 [1]	MPN/100 mL	1	1	2/26/25 15:05	2/27/25 9:40	JD	18	SM9223-B

Bacteriological analysis of this sample indicates the water is safe for human consumption and meets federal, state and local requirements. Analysis was performed according to the 23rd edition of Standard Methods

Inorganic

	Result	Units	MRL	MCL	Date Analyzed	Analyst	Qual	Method
Nitrate	0.41	mg/L	0.20	10	2/26/25 16:56	NM		EPA 300.0
Nitrite	<0.20	mg/L	0.20	1	2/26/25 16:56	NM		EPA 300.0

Notes and Definitions

Item	Definition
18	Sample started using 18 hour media.

Sara E. Randall
Sara E. Randall, President

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CHAIN OF CUSTODY

FREDERICKTOWNE LABS, INC.
3020 VENTRIE CT., PO BOX 245, MYERSVILLE, MD 21773
301-293-3340 OR FAX 301-293-2366

Phone Number: 814-943-5214
dsantelli@gdfengineers.com
Email: dpedersen@gdfengineers.com

FZB0754

FTL Acct. No.:

Project: Name & Address
24080

Collected By: (Please Print)
Dave Santelli

Affiliation:
Gwin, Dobson + Foreman, Inc.

Field Sample ID	Site Description	Collection Date	Collection Time	Matrix DW/ WW	pH	Res. Cl	DO	Temp	Grab/ Comp	Analyses To Be Performed: Fecal Coliform	Nitrate/Nitrite					Preservation
	65	2/26/25	10:15							X	X					
	45	↓	10:20							↓	↓					
	60		10:30													
	860		10:35													
	785		10:40													
	73		10:45													
	53		10:50													
	[redacted]		—													
	SCCA		11:45													
		↓								↓	↓					

Relinquished By: Date/Time 2/26/25 1336
(Print): Dave Santelli
(Signature):

Received By: Cassie Jones Date/Time 2.26.25 1336
(Print):
(Signature):

Relinquished By: Date/Time
(Print):
(Signature):

Received By: Date/Time
(Print):
(Signature):

Relinquished By: Date/Time
(Print):
(Signature):

Received By: Date/Time
(Print):
(Signature):

Treatment Devices Present: Yes ☐ No ☐

DescribeTreatment Device(s):

Lead & Copper Samples - Water Last Used:
Date: Time:

Method of Shipment: **Iced:** Yes ☒ No ☐

Condition of Sample(s) upon Receipt:
9.2 T2

APPENDIX D

PHASE 1 HYDROGEOLOGIC STUDY

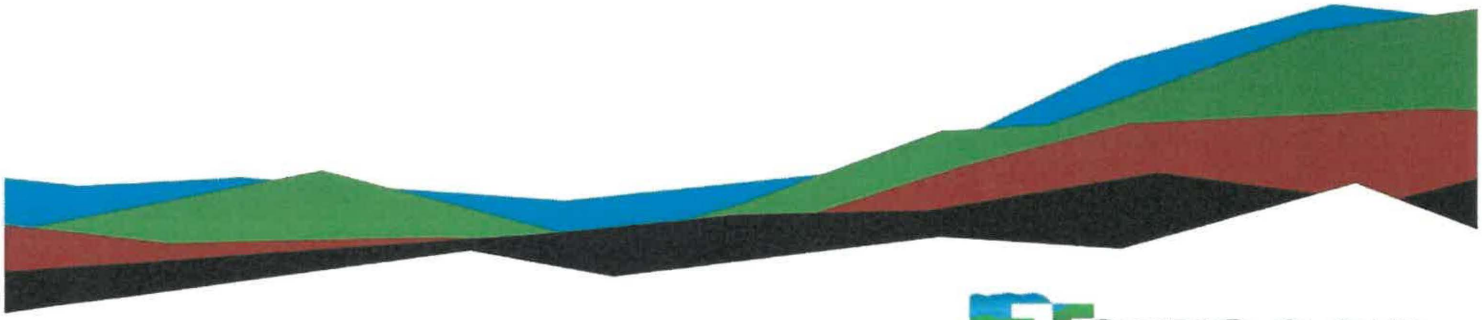
Summit Point Motor Sports Facility Water System

Stage 1 Hydrogeologic Study

April 16, 2025 | Terracon Project No. JD245325

Prepared for:

Gwin, Dobson and Foreman, Inc.
3121 Fairway Drive
Altoona, Pennsylvania 16602



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April 16, 2025

Gwin, Dobson and Foreman, Inc.
3121 Fairway Drive
Altoona, Pennsylvania 16602

Attn: David Santelli
P: 412-289-6875
E: dsantelli@gdfengineers.com

Re: Stage 1 Hydrogeologic Study
Summit Point Motor Sports Facility Water System
201 Motorsports Park Circle
Summit Point, West Virginia
Terracon Project No. JD245325

Dear Mr. Santelli:

We have completed the scope of Stage 1 Hydrogeologic Study for the above-referenced project in general accordance with Terracon Proposal No. PJD245325 dated March 10, 2025. This Stage 1 Hydrogeologic Study has been prepared for the proposed Summit Point Motor Sports Facility Water System in Summit Point, West Virginia.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

Robert K. Denton Jr., CPG, LPSS, LRS
Senior Geologist

For
Rebecca-Smith Zakowicz, PG, PE
Senior Principal

Table of Contents

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ATTACHMENTS

Appendix A – SITE LOCATION PLANS

Site Location & Topography Map

Geology Map

Fracture Trace Map

Proposed Well Locations

Appendix B – Well Data Table

Appendix C – References Cited

Note: Refer to each individual Attachment for a listing of contents.

1.0 Project Information

This project assessed the feasibility of developing two water wells to supply the water system at the Summit Point Motorsports Facility and Training Campus (SPMF), located in Summit Point, Jefferson County, WV.

2.0 Scope of Services

The scope of services for the project were as follows:

- Terracon performed a desktop hydrogeological study in compliance with accepted and standard practices for developing two water wells with a combined capacity of 100 gallons per minute (gpm) yield,
- Terracon compiled this summary report which combines the results of the desktop hydrogeological study.

2.1 Methods and Procedures

Desktop Hydrogeologic Study

A desktop hydrogeological study was performed for possible well sites within the boundaries of the SPMF. The data review included the following:

1. United States Geological Survey (USGS) and Jefferson County geologic and topographic information, including fracture trace analysis and well testing data available from the USGS,
2. Property plats and aerial photographs,
3. Existing Jefferson County Health Department well data or descriptive statistical summary of the same (e.g., minimum, maximum, and mean of well data, etc.) if available,
4. Geologic maps and data reports (well logs, water quality analysis, geologic information including karst features, bedrock outcrops, etc.).

The results of the desktop hydrogeologic study were incorporated into the final report.

Summary Report

This summary report contains the results of the desktop hydrogeological study. The report includes potential locations of proposed wells and the hydrogeological rationale for their placement. It also includes the possibility of repurposing existing wells that

were tested by the USGS and may have transmissivity and specific capacity levels which could satisfy the client's requirements. Proposed locations and any pertinent mapping data for existing or new test wells have also been transmitted to the client as a GIS dataset.

3.0 Geology and Terrain

3.1 Physiography

The proposed well location sites occur primarily within the Valley and Ridge Physiographic Province of West Virginia.

The Valley and Ridge consists of alternating ridges and valleys which form from the differential weathering of sedimentary rock from the Paleozoic Geologic Era. The Valley and Ridge Province is bordered on the east by the Blue Ridge Physiographic Province and on the west by the Appalachian Plateau Physiographic Province.

There are many bedrock types present in the Valley and Ridge, but in general, less resistant limestone, dolostone, and shale bedrock underlie the valleys while the more resistant sandstone and conglomerate bedrock underlie the ridges. The Valley and Ridge can be naturally divided into two sub-provinces: an eastern Great Valley and western Valley and Ridge. The project site falls within the eastern portion of the province (i.e., the Great Valley subprovince). This area is underlain predominantly by carbonate rock units (limestone and dolomite), and clastic rocks (sandstone, siltstone, and shale) dating to the Cambrian, Ordovician, and Silurian Geologic Periods. The western Valley and Ridge and Ridge subprovince consists of alternating linear mountain ridges that are supported by sandstone and conglomerate bedrock, separated by valleys underlain by limestone, dolostone, or shale bedrock. These units are generally younger than the bedrock units in the Great Valley, and date primarily to the Ordovician through Mississippian Geologic Periods.

3.2 Topography

Referencing the USGS 7.5-minute topographic quadrangle (Berryville, VA, 1968, photo-revised 1979, the entire site is located in the northwestern corner of the quadrangle. The site is a gently rolling upland, with elevations ranging from EL590 to EL650. There are no perennial surface water bodies located within the site boundaries. The closest significant perennial water body is Bullskin Run, the headspring of which is located 0.7 miles east of the facility. Opequon Creek is located 3.24 miles to the west of the site, forming the boundary between Jefferson County and Berkeley County. There are a few excavated farm ponds in the area surrounding the site, but none within the site itself.

Based on the historic topographic maps, much of the southern part of what is now the SPMF was originally occupied by an orchard which encompassed approximately 142 acres in Jefferson County, WV, and extended into Clarke County, VA to the south. The WV portion encompassed 70.4 acres, roughly half of the original orchard. The orchard was still present in 1990 based on historic aerial photographs but was in the process of being removed by 2003 and was completely removed by 2005. Subsequent construction of the SPMF was completed between 2006 and 2009, with the southeastern portion of the facility occupying the northern section of the former orchard.

Areas of forested land have been preserved within the northeastern, southeastern, and western parts of the site, essentially unchanged from prior to the current development of the SPMF.

(A map showing the general topography and location of the SPMF is included as Exhibit 1, Appendix A.)

3.3 Geological Setting

The geology of the Berryville, VA, WV Quadrangle has been revised several times since it was first mapped. In general, the properties comprising the survey area have undergone a significant amount of faulting and deformation has occurred. The bedrock underlying the survey area is mapped as having been folded, faulted, and overturned yet the strike of the bedrock trends generally northeast, similar to the regional trend. It is of note that all of the geological units in the study area date to the Ordovician Geologic Period of the Paleozoic Era, and range in age from approximately 485.4 to 443.8 million years before the present. (A map showing the geological units and structural features underlying the survey area is included as Exhibit 2, Appendix A).

The following bedrock units are mapped (Edmundson and Nunan, 1973; Dean, et al, 1990) within the survey area.

Conococheague Formation (OCc) – The Conococheague Formation is the oldest of the geological units underlying the site. Overall, it is present as a light to medium gray algal limestone with interbedded aphanitic (extremely fine-grained) and dolomite. Siliceous and dolomitic laminations and sandy beds are common throughout the unit. The lower part contains oolites, intraformational conglomerates and algal structures (stromatolites). The unit is approximately 2,400 feet thick in the site area. The lower part of the Conococheague is dated to the Late Cambrian Geological Period, and the upper part dated to the Early Ordovician Period on the basis of fossil content. This unit only underlies a small area of the easternmost part of the Training Campus area of the site.

Stonehenge Limestone (Os) – The Stonehenge Limestone of the Beekmantown Group directly overlies the Conococheague Formation and is dated to the Early Ordovician Geologic Period. Its lower part is mainly light gray algal limestone with algal structures

(stromatolites). The upper part is algal limestone with abundant trilobite fossil fragments. The unit is silty and argillaceous (clayey) in the upper part. The Stonehenge Limestone is approximately 625 feet thick in the project area. This unit underlies the eastern part of the Training Campus and the central part of the Motor Sports Facility.

Pinesburg Station Dolomite and Rockdale Run Formation undivided (Opr) – This unit overlies the Stonehenge Formation and is also dated to the Early to Middle Ordovician Geologic Period. It is comprised of approximately 2,200 feet of light gray, buff, and bluish dolostone and limestone, but the thickness ranges from 2,100 to 2,400 feet.

Structural Features – Significant structural features (faults and folds) have been mapped across the project area. Two thrust faults run from northeast to southwest across the site, and are shown (labeled "T") on the geological map included as Exhibit 2, Attachment A. The eastern fault marks the contact between the Conococheague Formation and the Stonehenge Formation at the area of the Training Campus track. The second fault is located near the center of the main SPMF and marks the contact between the Stonehenge Limestone and the Rockdale Run Formation to its west. These are both "reverse faults", where the hanging wall to the west has moved up relative to the footwall to the east. Both of these faults occurred during the Alleghenian Orogeny (mountain building event) between 325 and 260 million years ago. They are not considered active.

Significant folds have also been mapped across the project area. These include anticlines (upward folds) and synclines (downward folds), the majority of which have been overturned as a result of the aforementioned thrust faulting. The overturned folds, and their possible association with high-yielding wells in Jefferson County (McCoy et al, 2005) will be discussed in greater detail later in this report. A map of folds, faults, and fractures are included as Exhibit 3.

3.4 Hydrogeology

The entire SPMF project site is mapped as underlain by soluble carbonate bedrock forming a regional karst terrain (i.e. a landscape characterized by the presence of sinkholes, caves, sinking and losing streams, and a highly irregular "pinnacled" overburden/bedrock interface). The geological units vary in their karst feature development, however within the study area the greatest number of surface karst features (sinkholes) are found within the Pinesburg Station Dolomite and Rockdale Run Formation undivided due to it having the greatest areal coverage of all the geological units. The highest concentration of features lies west of the SPMF. Nevertheless, there is no direct correlation between the number or concentration of surface karst features and the extent or potential productivity of the karst aquifer within these units.

In general, the karst-forming units in the study area possess no primary porosity (i.e., void space within the grain structure), so all water is stored in primary fractures, solution-enlarged fractures, and conduits. The distribution of these water-bearing subsurface features is extremely heterogeneous and non-uniform, and varies by depth.

The karst aquifer is essentially divided into two units: a shallow "epikarst" aquifer, which contains air and sediment-filled fractures and conduits that can fill with water during times of high precipitation and can be nearly dry during droughty periods. The epikarst connects with a perennially water-filled deep "phreatic" aquifer below (Figure 1).

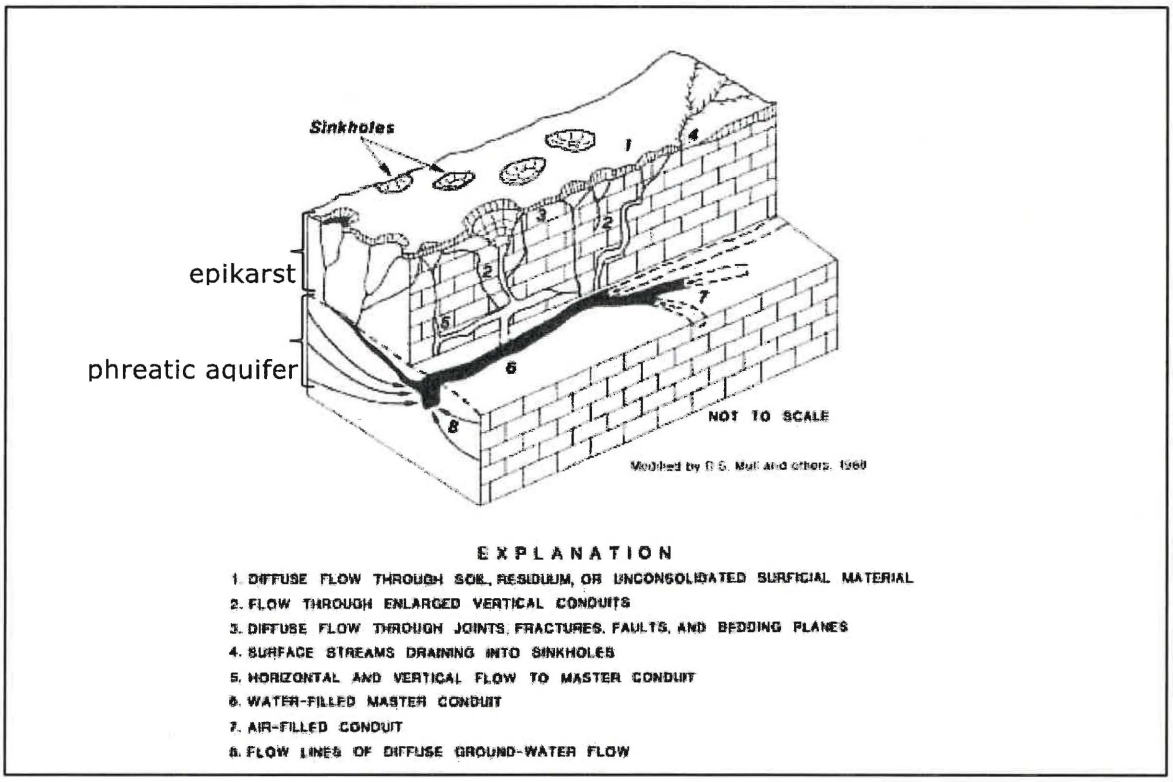


Figure 1. Components of ground-water flow through a cavernous carbonate aquifer (*from* Kozar, et al, 1991)

Unlike fractured bedrock systems in clastic rocks, where the fractures tend to decrease in size and extent with increasing depth, in karst systems, the fractures often remain consistent or can increase in size and relative storage with depth. A study by the United State Geological Survey (USGS) suggested that the phreatic aquifer in the Shenandoah Valley could reach depths of at least four kilometers (2.48 miles) below the surface (Figure 2), in particular where the bedding of the regional carbonate formations is steeply inclined along the western edge of the Blue Ridge Front (Yager, et al., 2008). It is of note that some of the highest yield wells in the Great Valley region are extremely deep (>1,000 feet below the surface), however, the cost of drilling wells to this depth is typically prohibitive for most jurisdictions.

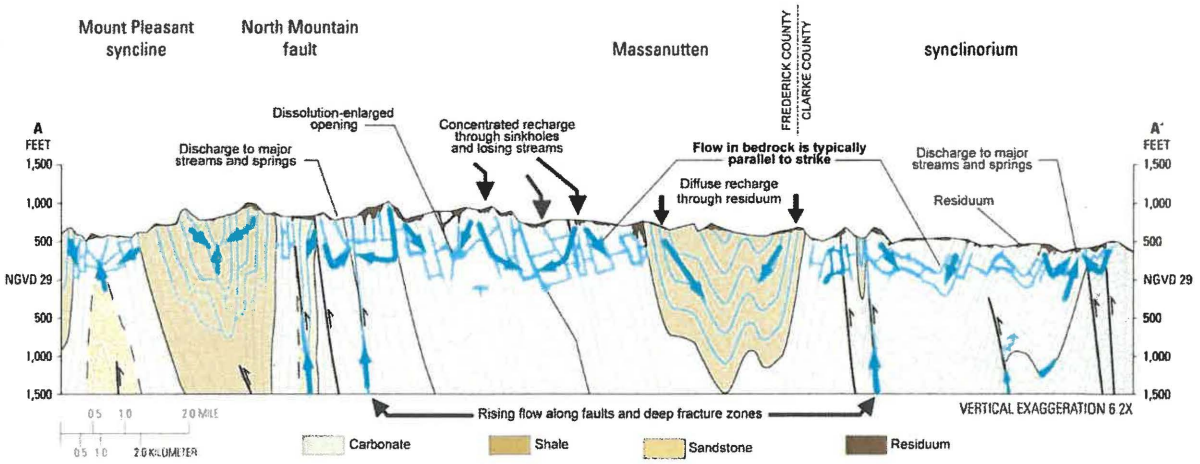


Figure 2. Model of deep circulation in the Shenandoah Valley (courtesy of Daniel Doctor, USGS)

4.0 Data Review and Desktop Analysis

4.1 Prior Well and Groundwater Studies

There have been a series of hydrological studies concerning the project area which included summaries of existing well data. The first of these was conducted by William Hobba for the West Virginia Geological Survey (WVGES) in 1978 and published in 1981. In his study, Hobba collected data on 218 wells and springs across Jefferson County, and using the data for static water level in the wells, was able to derive a groundwater contour map. His study also documented the locations of fracture traces from aerial photographs, lineaments from satellite data, geologic faults, cavernous zones, and areas of "losing" streams (i.e., streams that lose water along their channels into the subsurface). Within the current study area, Hobba's investigation suggested that the average groundwater elevation was approximately located at EL575 (an average of 25 feet below the surface in the central part of the site), with the highest groundwater elevation contour at EL600 in the eastern area of the site and dropping to EL550 in the western area.

A subsequent study conducted by the USGS (McCoy et al, 2005) documented fracture traces, structural geology, and transmissivity values for a series of wells and springs, in an attempt to show patterns of relationships between the structural geology and groundwater yield. The most interesting results of this study were the findings of a correlation between "cross-strike" fractures (i.e., fractures running perpendicular to the general southwest to northeast strike of the regional bedrock) and overturned folds, with

high-yield wells and springs. This study was followed in 2007 by a base flow[1] study by the USGS (Evaldi et al., 2007), which documented the measured base flow yields of watersheds based on stream and spring data across Jefferson County. This study suggested that the base-flow yield in the eastern part project area was approximately 160 gallons per day per acre (gpd/acre). Unfortunately, the base flow was not determined in the western part. It is of note that in the area northwest of the project site marked by the increase in number of sinkholes, the base flow was considered 0 gpd/acre.

4.2 Current Study

Fracture Trace Analysis - Based on the review of prior studies summarized in section 4.1, Terracon's geologists decided to locate potential high-yield well areas by analysis of the structural geology, specifically using prior fracture trace and fault analyses, and correlating the fracture trends with data on existing wells.

Methodology - Terracon completed a fracture trace within 2 miles of the SPMF. For this report, the fracture and lineament orientations are reported as strike, which is an azimuthal measurement (0° – 360°) where 0° is north (e.g., 45° = Northeast and 315° = Northwest). The fracture trace utilized existing geologic and geographic data sets, including:

- The USGS Fracture Trace Study for Jefferson County, WV (McCoy, et al., 2005);
- Two-foot and 4-foot contour interval maps derived from county level digital terrain models (DTMs), and 1- and 3-meter contour maps derived from state level digital elevation models (DEMs);
- Aerial photographs (both recent and historical);
- USGS Topographic 7.5-minute topographic quadrangles;
- Sinkhole and depression locations available from the USDA-NRCS soil survey of Jefferson County, and prior studies (and)
- LIDAR data.

Results – The analysis of identified fractures within 2 miles of the SPMF resulted in the identification of two major lineament families trending in the north-northeast (NNE), and west-southwest (WSW) directions. The longest lineaments follow the NNE direction

[1]Base Flow is typically defined as the portion of the streamflow that is sustained between precipitation events, fed to streams by delayed pathways.

which is parallel with the regional geologic strike and the second most common fracture were the WSW "cross fractures".

A map showing the current fracture trace analysis, fault locations, and rose diagram is included as Exhibit 3, Appendix A. The fractures were parsed into "major" and "minor" based on the topographic prominence of the lineament and whether it crosscut major geologic structures and contacts.

Analysis of Onsite Well Data – There are currently 25 wells located within the SPMF, which serve both the motorsports area and the training facility. Data on the wells was provided by John Wells, Director of Maintenance for the SPMF. Approximate well locations were sent as image files, and then mapped using GIS. The data provided by Mr. Wells included the well location, depth (feet), yield (gpm), status (in use/not in use), and comments on potability, decontamination method (e.g., UV, chlorination, etc.) and odor (if noted). These data are summarized in Table 1, Appendix B.

USGS Well Testing – The USGS undertook testing of wells across Jefferson County over a 6-month period starting in the Spring of 2004 (McCoy, et al, 2005). This testing included 5 of the wells located at the SPMF site. The USGS conducted short-term aquifer tests (30 minutes) at relatively low flow (2 to 15 gpm) at each site to determine specific capacity and transmissivity. At most sites, recovery data was recorded for 100 minutes following the pumping period. Data from the test wells were analyzed by the Theis (1935) curve matching method.

Our study attempted to correlate the USGS test wells with the locations of the existing onsite wells by comparing the USGS map locations with the location provided by Mr. Wells. Well depths (i.e., depth to bottom) were also used to correlate the tested wells, but in two cases, they did not compare well, with the USGS depths being significantly shallower than the data provided by Mr. Wells. It should be noted that Mr. Wells did inform us that much of the well data he provided us with was anecdotal and might not be accurate, especially for the older onsite wells. A comparison of the wells tested by the USGS and the correlative onsite wells is shown on Table 1, Appendix B. Locations of the onsite wells and the wells which were tested by USGS are shown on Exhibit 4, Appendix A.

5.0 Proposed Wells

Proposed well areas were identified for this study based on the following factors:

- Location within the SPMF boundaries,
- Presence of significant fractures and faults,
- Presence of the intersection of cross-strike fractures and strike parallel fractures,
- Transmissivity and Specific Capacity Date derived from the USGS study,

- Correlations of Jefferson County well data compiled by the USGS, including well depths, distance to nearest fracture, fold types, distance to thrust faults, and geological map units in which the wells were drilled.

The USGS study data suggested that the highest yielding wells in Jefferson County were all up to 300 feet in depth, with wells >300 feet having the lowest transmissivity values. The distance to the nearest fracture, thrust faults and geological units present within the study area was equivocal, with no significant difference noted. Interestingly, the structural geology of the well sites did seem to show a trend correlative with higher transmissivity, with the highest values in overturned anticlines, overturned synclines, and synclines. The lowest transmissivity was observed in wells located on or near anticlines.

Based on this data, two existing onsite wells (SPMF wells numbers 6 and 17) were measured by the USGS with extraordinarily high transmissivity values of 30,000 ft^2/day, and specific capacity values of 41 and 242 gpm/foot for wells 6 and 17, respectively. Wells 6 and 17 were identified as wells number 27 and 23 in the USGS study. These wells did not seem to correlate with any apparent structural geology features identified in our study (e.g., fractures, folds, or faults), but interestingly a line drawn from SPMF well 6 (USGS well 27) to SPMF well 17 (USGS well 23) was exactly parallel with the fracture trend WSW fractures identified in the fracture trace study. Several other SPMF wells (2,3,4, and 5) along this inferred cross-strike fracture had reported yield values ranging from 20 gpm to 40 gpm. This inferred well fracture can be found in Exhibit 4.

It is of note that two wells (SPMF well numbers 22 and 24) had reported yields of 50 gpm each. Both of these wells are located on or very near an overturned syncline mapped by the USGS, but they were not tested by the USGS for aquifer parameters. There also seemed to be no correlation between high yields of wells located along the thrust fault running from NNE to SSW near the center of the facility, which reflected the USGS observation that wells located on or near thrust faults did not have high yields.

6.0 Recommendations

In conformance with the project scope and to address various concerns of the client, Terracon would like to make the following recommendations.

Well Testing – The USGS data suggest that two of the existing site wells (SPMF 6 and 17) potentially have high transmissivity and are currently being underused. It would be extremely helpful to subject these wells to a formal aquifer parameter test involving a step-drawdown and long-term (24 to 48 hours) constant rate pumping test. Well Number 6 is currently in use as a source of potable water, but well 17 is classified as non-potable, so the latter may be the best well for testing. In addition, pump testing on the wells located on or near the overturned syncline (SPMF wells 22 and 24) would also be good candidates for analysis, as they were not tested by the USGS, and may have

high transmissivity values as well. These tests would be used to determine if any of the existing onsite wells can be used to obtain the desired 100 gpm combined capacity, without negatively impacting the other SPMF wells which are currently in use. It is important to understand that these tests would necessitate temporarily removing the existing submersible pumps in the wells designated for testing, and installing a high-capacity submersible pump, with a discharge pipe equipped with a gate valve to increase or decrease the flow rate, particularly for performing the step-drawdown test, which consists of pumping at three different, successively increasing rates to determine a safe rate for the 24 to 48 hours constant rate testing. Water levels in nearby wells can be used to determine if the increased pumping rate of the selected wells would impact nearby wells.

New Well Locations – Alternately, if the pump testing described above is not acceptable, or may be limited to only one or two wells, then we recommend a study using geophysics to identify possible locations for the drilling of new test wells. The geophysics method we recommend would be electrical resistivity tomography ERT, which is a method involving the measurement of the apparent electrical resistivity of subsurface materials. During an ERT survey, the electrical current is injected into the earth through a pair of current electrodes, and the potential difference is measured between a pair of potential electrodes. The current and potential electrodes are generally arranged in straight line arrays. Since the electrical resistivity of subsurface materials varies with their compositions (e.g., soil types, hard and soft bedrock, etc.) and water contents, the resistivity contour maps can be used to get a general background of the subsurface condition. ERT is also used to identify significant water-bearing fractures that have been identified in well studies using this method.

If the ERT survey identifies significant water-bearing fractures or zones, then test wells should be advanced in the identified locations. These test wells should be drilled using an air rotary drill rig. The boreholes should be equipped with a temporary casing to prevent caving, and a 6-inch borehole is recommended to allow satisfactory aquifer measurements. These aquifer measurements should include step drawdown and constant rate pumping tests to determine the well's specific capacity and transmissivity as described above. If any of the test wells are determined to be high yield, then they can be bored out to a 10-inch production well.

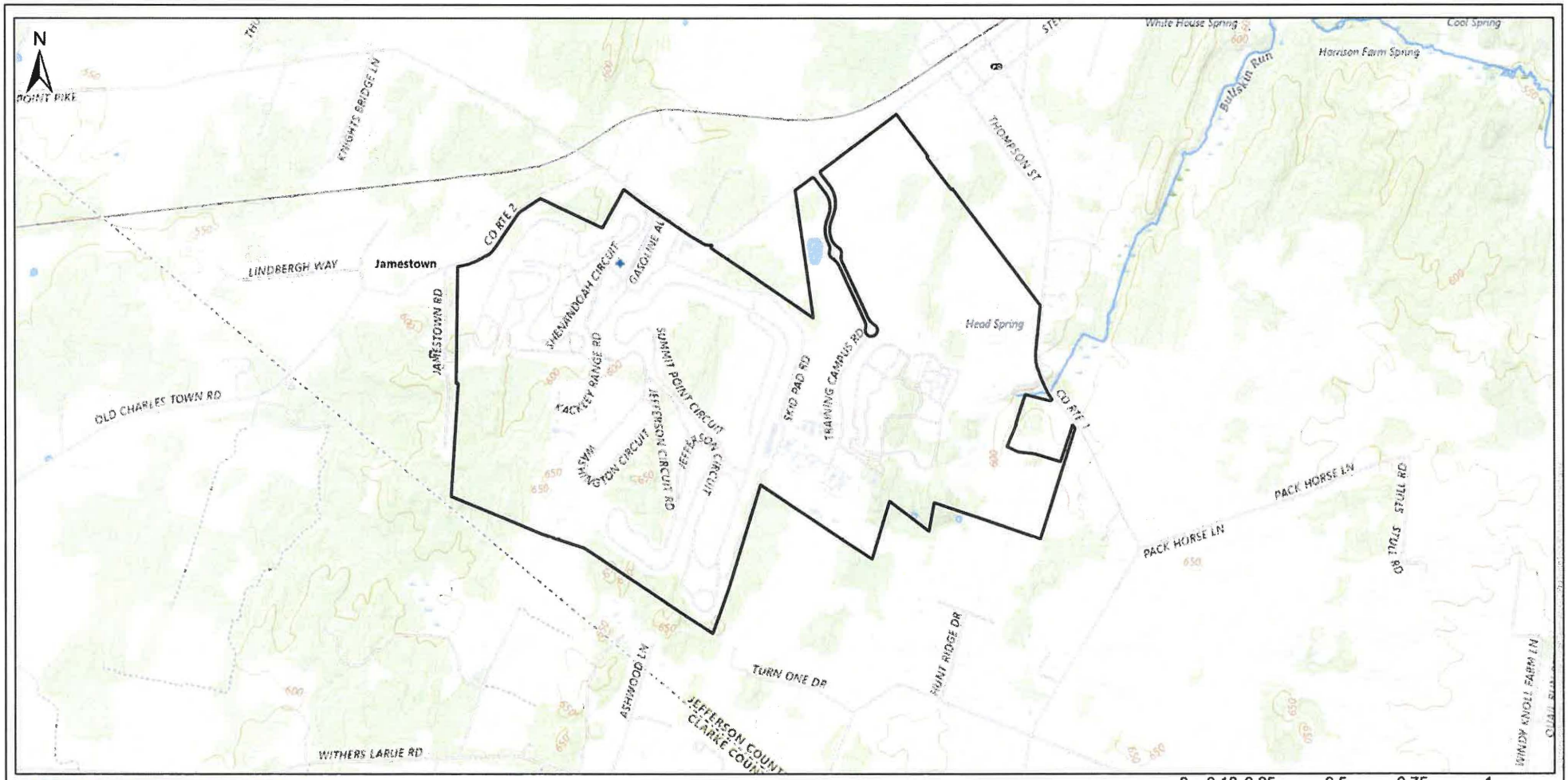
7.0 Limitations and Closure

The information presented herein has been based on the review of both proprietary and publicly available geologic information. Accordingly, Terracon should be engaged during the site characterization, pump testing of existing wells, and potential test well drilling phases of this project in order to confirm subsurface conditions are as indicated herein, and to verify the intent of the recommendations in this report are implemented.

Terracon has conducted these services in accordance with generally accepted geologic practices. No warranties, either expressed or implied, are made as to the professional services and recommendations presented herein.

Appendix A

Maps





Legend

Study Area

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	JD245325
Date:	4/10/2025
Drawn By:	NK
Reviewed By:	IE

terracon
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Ashburn, VA 20147
PH. (703) 726-8030
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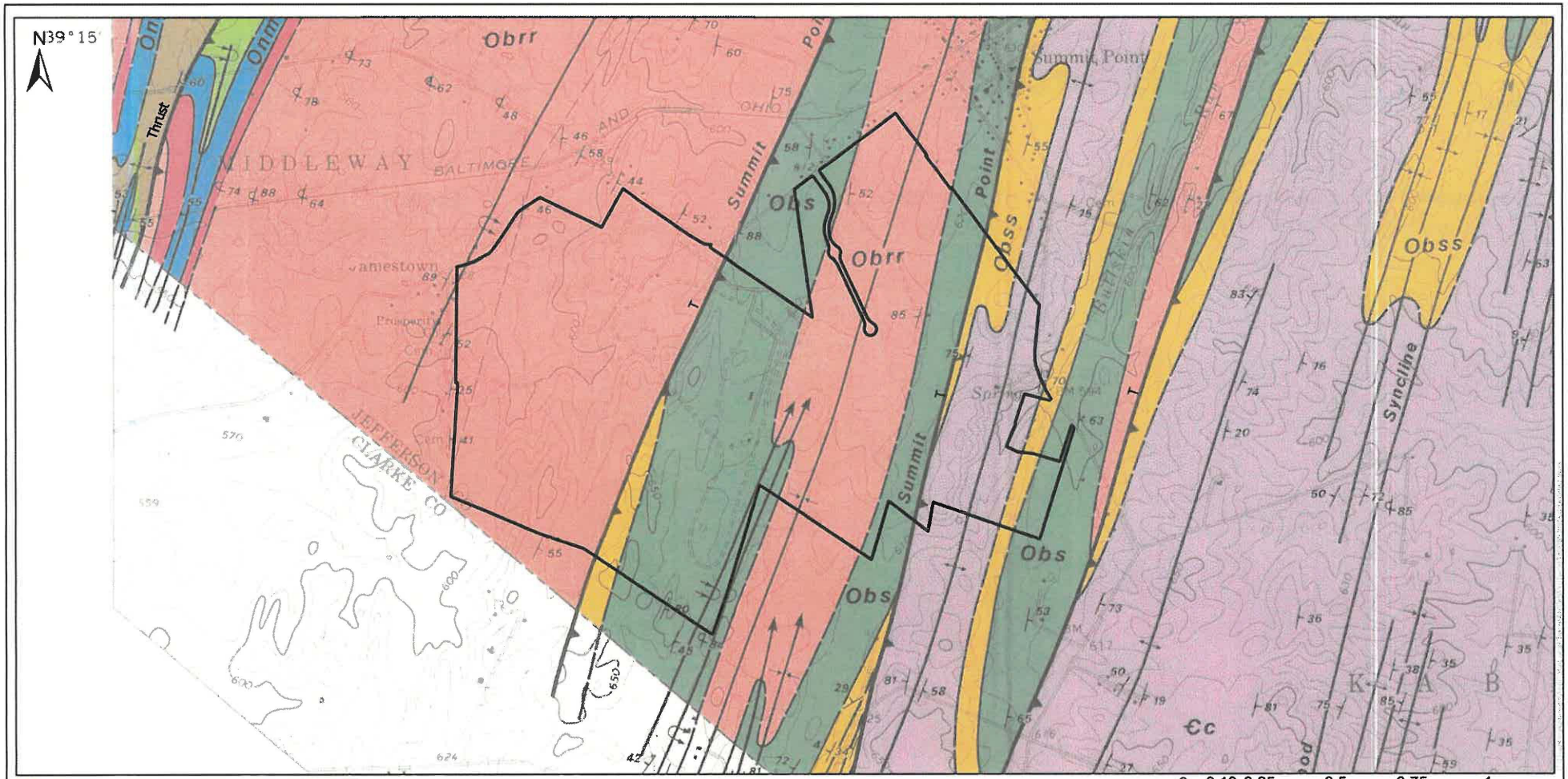
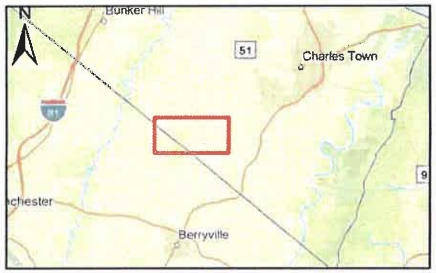
Site Location and Topography Map	Exhibit
Summit Point Motorsports Complex Water System Summit Point, Jefferson County, WV	1





Legend

- Study Area
- Chambersburg Limestone (Oc)
- Conococheague Formation (Cc)
- Elbrook Formation (Co)
- Martinsburg Formation (Om)
- New Market Limestone (Onm)
- Pinesburg Station Dolomite (Obps)
- Rockdale Run Formation (Obrr)
- Stongehenge Limestone (Obs)
- Stoufferstown Member (Obss)

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	JD245325
Date:	4/10/2025
Drawn By:	NK
Reviewed By:	IE

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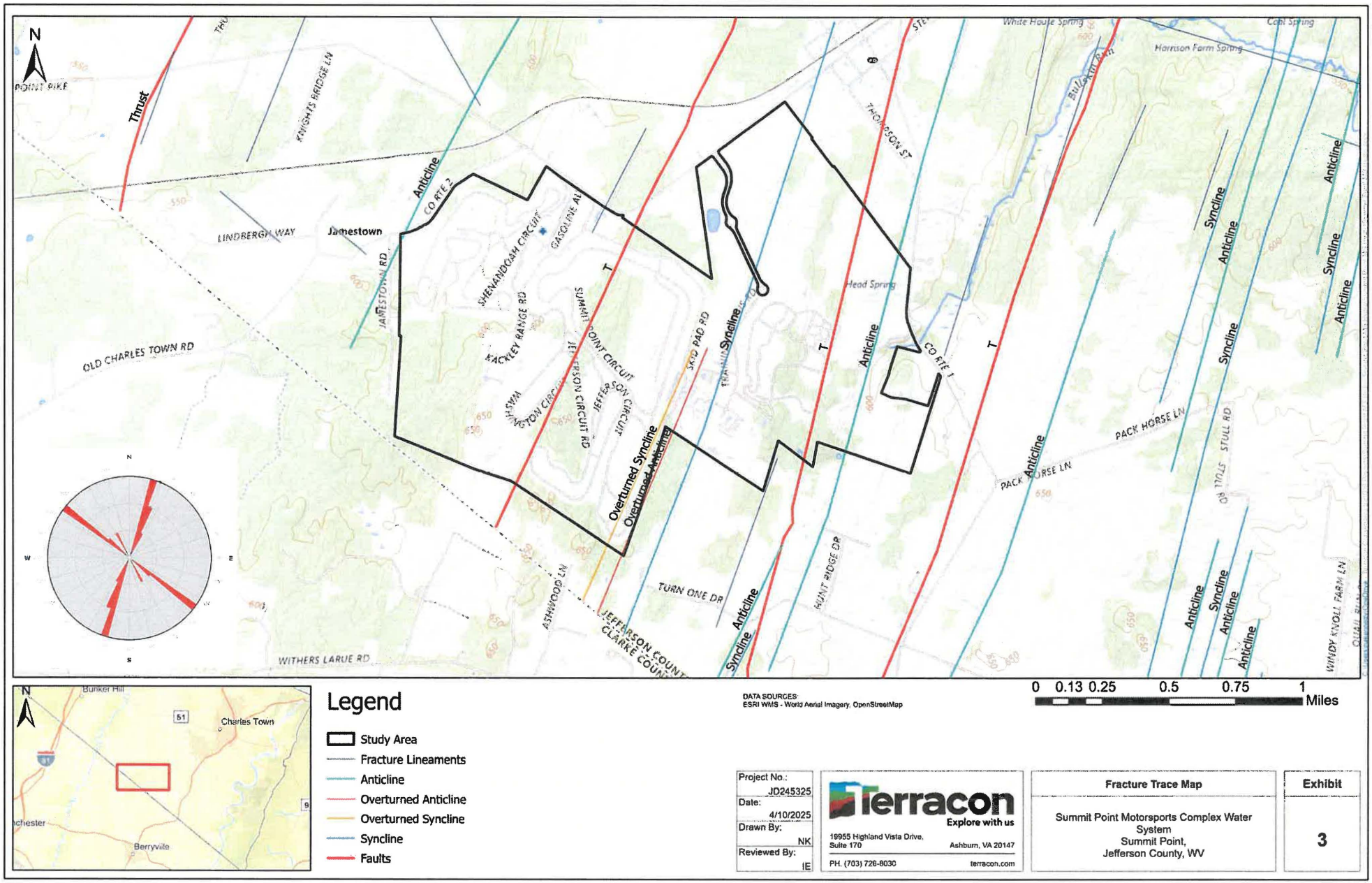
Geology Map	Exhibit
Summit Point Motorsports Complex Water System Summit Point, Jefferson County, WV	2



Legend

- Study Area
- Fracture Lineaments
- Anticline
- Overturned Anticline
- Overturned Syncline
- Syncline
- Faults

DATA SOURCES:
ESRI WMS - World Aerial Imagery, OpenStreetMap

0 0.13 0.25 0.5 0.75 1 Miles

Project No.:	JD245325
Date:	4/10/2025
Drawn By:	NK
Reviewed By:	IE

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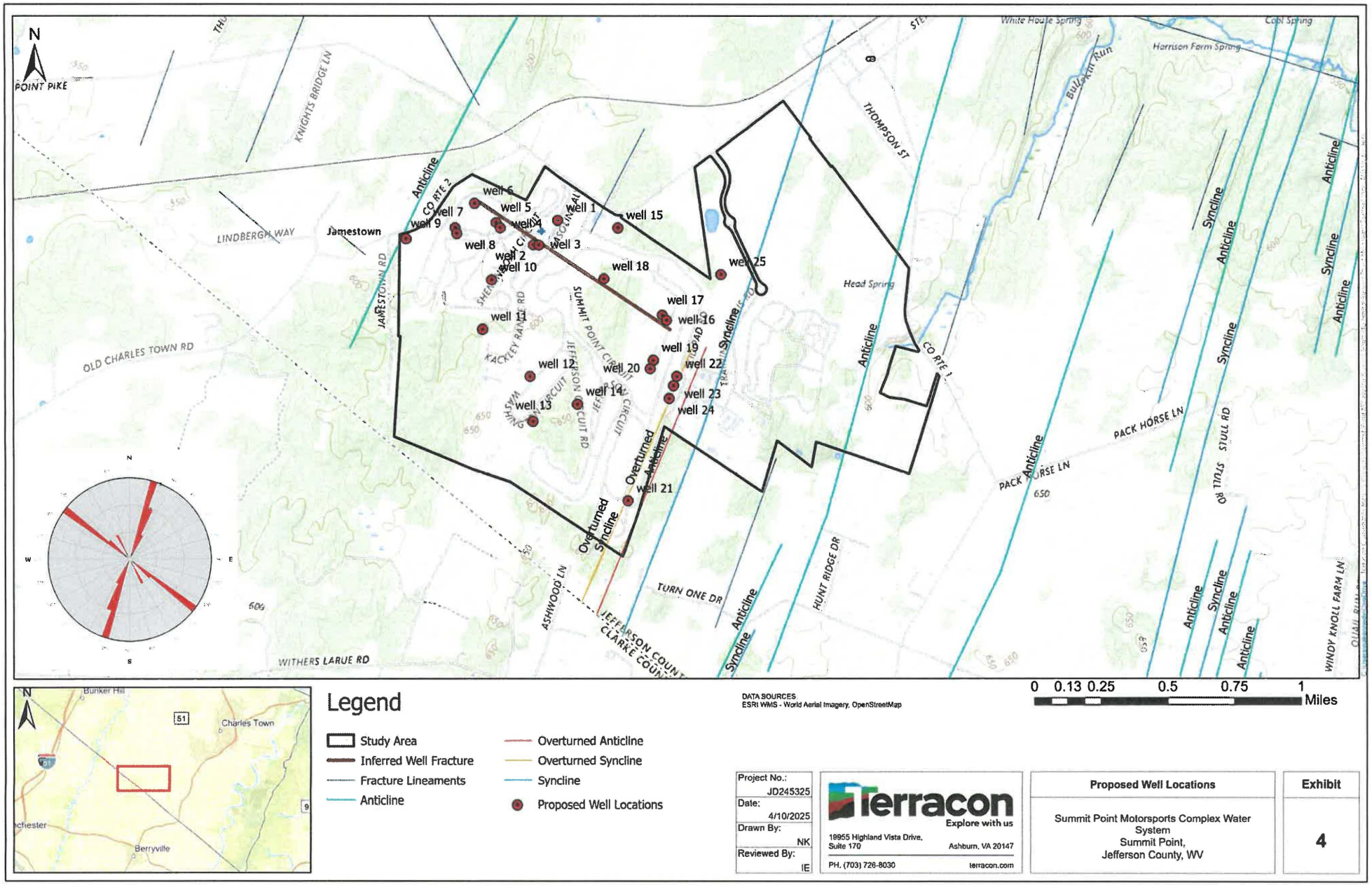
Fracture Trace Map

Summit Point Motorsports Complex Water System
Summit Point,
Jefferson County, WV

Exhibit

3



Legend

- Study Area
- Inferred Well Fracture
- Fracture Lineaments
- Anticline
- Overturned Anticline
- Overturned Syncline
- Syncline
- Proposed Well Locations

DATA SOURCES
ESRI WMS - World Aerial Imagery, OpenStreetMap

Project No.:	JD245325
Date:	4/10/2025
Drawn By:	NK
Reviewed By:	IE

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Proposed Well Locations	Exhibit
Summit Point Motorsports Complex Water System Summit Point, Jefferson County, WV	4

Appendix B

Well Data Table

Table 1. Well Data Summary

Well ID	Location	Depth*	Yield*	Status	Comments	USGS Well	DTB	SpCap	Trans	Duration	SWL	Discharge	Drawdown
		(ft)	(gpm)				(ft)	(gpm/ft)	(ft²/day)	(min)	(ft)	(gpm)	(ft)
1	security office	260	20	in use	UV sanitized								
2	Shenandoah circuit paddock	290	20	in use	chlorinated, light odor								
3	main office	150	24	in use	chlorinated								
4	Shenandoah circuit pump house	400	26	in use	non-potable								
5	Shenandoah circuit pump house	140	40	not in use									
6	Shenandoah circuit paddock	290	20	in use	chlorinated, light odor	27	150	41	30000	31	11.5	12	0
7	Shenandoah suites/classrooms	1400	6	in use	non-potable, light odor								
8	Shenandoah suites/classrooms	300	20	in use	non-potable								
9	Hardesty Road well	ND	ND	ND	no power to location								
10	range K	256	50	in use	odor	25	240	5.8	1000	26	8.8	4	1
11	stone house	ND	ND	not in use	none								
12	Washington circuit paddock	396	15	in use	UV sanitized, strong smell								
13	Jefferson circuit skid pad	800	8	in use	non-potable, skid pad use only								
14	Jefferson circuit paddock	499	20	in use	UV sanitized, good water quality	20	325	2.58	400	30	22.59	11	4
15	SCCA registration building	305	15	in use	UV sanitized, good water quality	26	305	0.35	10	30	14.16	8	23
16	summit point circuit paddock	ND	ND	not in use	well went dry								
17	summit point circuit paddock	385	6	in use	non-potable	23	385	242	30000	30	8.07	12	0
18	summit point circuit infield	ND	ND	not in use	old hand pump well								
19	summit point circuit	396	16	in use	chlorinated								
20	summit point circuit race control	100	30	in use	non-potable								
21	summit point circuit skid pad	800	50	in use	non-potable								
22	orchard building	300	50	in use	chlorinated								
23	orchard building	ND	ND	in use	chlorinated								
24	storage shed	100	50	not in use	groundwater under the influence								
25	Potomac skid pad	400	26	in use	non-potable								

Notes: *Depth and Yield data as reported by SPMF; correlative well data as measured and reported by the USGS: DTB=depth to bottom, SpCap=specific capacity, Trans=transmissivity, SWL=static water level

Appendix C

References Cited

REFERENCES CITED

Dean, S.L., B.R. Kulander, and P. Lessing. Geology of the Berryville, Charles Town, Harpers Ferry, Middleway, and Round Hill Quadrangles, Jefferson County, WV. WV Geological and Economic Survey: MAP-WV35. 1990.

Edmundson, R. S., and Nunan, W. E., 1973, Geology of the Berryville, Stephenson, and Boyce quadrangles, Virginia: Virginia Division of Mineral Resources Rept. Inv. 34, 112 p.

Evaldi, R. D., Paybins, K. S., and M. D. Kozar, 2009, Hydrogeologic Factors Affecting Base-Flow Yields in the Jefferson County Area, West Virginia, October – November 2007, USGS Scientific Investigations Report 2009-5145.

Hobba, Jr., W. A. Ground-Water Hydrology of Jefferson County, West Virginia. WV Geological and Economic Survey EGB-16. 1981.

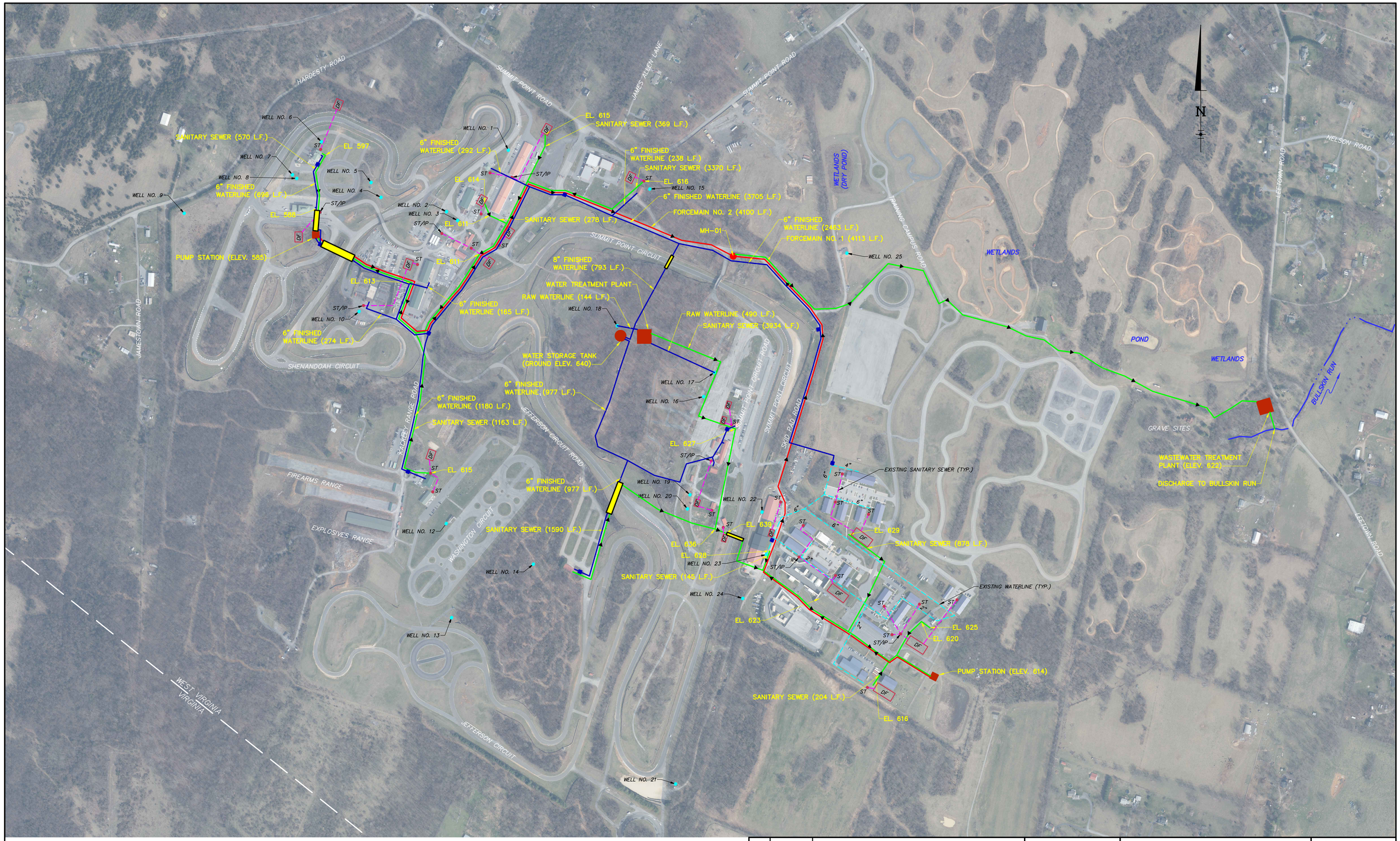
Kozar, Mark D., W. A. Hobba, Jr., and J. A. Macy. Geohydrology, Water Availability, and Water Quality of Jefferson County, West Virginia, with Emphasis on the Carbonate Area. USGS Water Resources Investigation Report 90-4118. 1991.

McCoy, K. J., Podwysocki, M. H., Crider, E. A., and D. J. Weary, 2005, Fracture Trace Map and Single-well Aquifer Test Results in a Carbonate Aquifer in Jefferson County, West Virginia, USGS, Open-File Report 2005-1407.

Yager, Richard M., Scott Southworth, and Clifford I. Voss. Simulation of Ground-Water Flow in the Shenandoah Valley, Virginia and West Virginia, Using Variable-Direction Anisotropy in Hydraulic Conductivity to Represent Bedrock Structure. USGS Scientific Investigations Report 2008–5002. 2008.

APPENDIX E

CONCEPTUAL SITE LAYOUT FOR PLANNING PURPOSES



LEGEND (EXISTING)

- STREAM
- SANITARY SEWER LINE
- WATERLINE
- ST — SEPTIC TANK
- IP — INFLUENT PUMP
- DF — DRAIN FIELD
- WELL

LEGEND (PROPOSED)

- SANITARY SEWER LINE
- FORCEMAIN
- WATERLINE
- HORIZONTAL BORING
- MANHOLE
- STRUCTURE/BUILDING
- FLOW DIRECTION
- FIRE HYDRANT

GRAPHIC SCALE

300 0 150 300 600 1200

1 inch = 300 ft.

NO.	DATE	DESCRIPTION
		REVISIONS

SEAL

FEASIBILITY STUDY

CHARLES TOWN UTILITY BOARD

SUMMIT POINT RACEWAY SANITARY SEWER AND WATERLINE FEASIBILITY STUDY

CHARLES TOWN
JEFFERSON COUNTY, WEST VIRGINIA

DATE:	JOB: 24080	SCALE: AS SHOWN
FILE:24080 – AERIAL	DRAWN BY: AJL	CHECKED BY:

GD&F
GWIN DOBSON & FOREMAN ENGINEERS
3121 Fairway Drive
Altoona, PA 16602
814.943.5214
gdfengineers.com

SHEET NO: 1

PLOT CREATED: 6/5/2025 8:30 AM

G:\24080\24080 – AERIAL

3121 Fairway Drive, Altoona, PA 16602
gdfengineers.com

Existing customers	482.00	70	33740	7	236180		944,720.00	11,336,640.00
	people	gal/day						

5 year projection	615.00	70	43050	7	301350		1,205,400.00	14,464,800.00
	people	gal/day						

10 year projection	947.00	70	66290	7	464030		1,856,120.00	22,273,440.00
	people	gal/day						

Current	Contract rate $6.08 per 1,000 gallons					
	944.72					
	5,743.90	Water	Current	Monthly	68,926.77	Annual
	5,743.90	Sewer	Current	Monthly	68,926.77	Annual

5 year projection	Contract rate $6.08 per 1,000 gallons					
	1,205.40					
	7,328.83	Water	Current	Monthly	87,945.98	Annual
	7,328.83	Sewer	Current	Monthly	87,945.98	Annual

5 year projection	Contract rate $6.08 per 1,000 gallons					
	1,856.12					
	11,285.21	Water	Current	Monthly	135,422.52	Annual
	11,285.21	Sewer	Current	Monthly	135,422.52	Annual

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting

661 South George Street
Charles Town, WV 25414

Utility Manager Posting - Possible Executive Session under the provision of W. VA Code §6-9A-4(b)(2)(A)- Matters arising from the appointment, employment, retirement, promotion, transfer, demotion, disciplining, resignation, discharge, dismissal or compensation of a public officer or employee, or prospective public officer or employee unless the public officer or employee or prospective public officer or employee requests an open meeting.

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting **661 South George Street**
Charles Town, WV 25414

Rate Study Request for Proposals

Attachments:

RFP Proposal - Quantum.pdf
RFP Proposal - Willdan Financial Services.pdf

Feb **2026**

Prepared for:

Charles Town Utility Board (CTUB)

Consulting Services for the Water and Wastewater Rate Study

Request for Proposal

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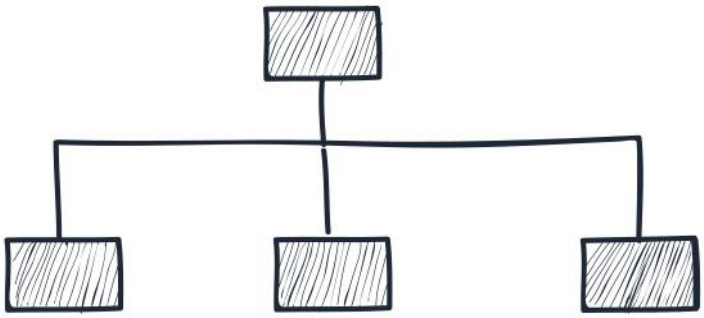


Company Profile and Portfolio

1. PRESENTATION LETTER

Subject: Quantum Request for Proposal: "Consulting Services for Water and Wastewater Rate Study for The Charles Town Utility Board"

Dear Ms. Stottlemyer,

We are writing to express our interest in submitting a proposal for the above-mentioned project. The objective of this assignment is to conduct a comprehensive Water and Wastewater Cost of Service and Rate Study for CTUB over the FY2027–FY2032 period, ensuring financial sustainability, rate stability, and minimized rate shock. QUANTUM's experience in water and wastewater rate studies and cost of service analyses positions the firm well to support CTUB in achieving these objectives.

QUANTUM is an international consulting firm specialized in the area of public utility regulation, with more than 25 years of experience and a strong presence in the Latin American market and expanding to the rest of the world. We have offices in the United States, Argentina, Brazil and Peru. Our team, formed by Engineers, Economists, Lawyers, Accountants and Administrators, researches the optimal forms of regulation; actively intervenes in the structural conception and design of incentive regulation mechanisms and creates models and methodologies to respond to the needs of its clients.

Our company is active in the drinking water and sanitation, natural gas, electricity sectors. We are also active in the telecommunications, public transportation, solid waste and hydrogen sectors. To date, QUANTUM has successfully completed more than 900 projects in America, Europe, Asia and some African countries.

It is worth mentioning that our company has experience in the development of consulting projects financed by Multilateral Credit Organizations and International Cooperation Associations such as the World Bank, IDB (Inter-American Development Bank), CAF (Development Bank of Latin America), Banco Fator S.A. and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

QUANTUM and the professionals proposed for this project have performed similar consulting services, some of which are detailed in the following sections of this document. Based on this experience, we have assembled an outstanding group of consultants, who have the confidence and the theoretical and practical knowledge necessary for the successful development of these services.

Finally, we express our gratitude in advance for giving us the opportunity to participate in this process. We are, and we express our willingness to better serve and collaborate with you for any additional information that may be required, through telephone the head office of QUANTUM in Córdoba, Argentina, (+54) 93512052299 (Phone) or email address fdamonte@Quantumamerica.com.

Yours faithfully,



Fernando José Damonte

List of Offices:

QUANTUM AMERICA

Address: 10885 NW 7th Street, #21, Miami, Florida 33172.

Mailing Adress: 4034 Cottingham Way, Augusta, GA 30909.

E-Mail: mail@quantumamerica.com

Website: www.quantumamerica.com

2. INTRODUCTION

This section presents Quantum, including its corporate profile, core service offerings, and most relevant project experience. It provides an overview of the firm's technical capabilities and multidisciplinary expertise in delivering economic, financial, regulatory, and engineering solutions across diverse contexts.

3. QUANTUM´S DESCRIPTION

QUANTUM is an international consulting firm specialized in the regulation of public utilities, with subsidiaries in the United States, Argentina, Brazil, Peru and Panama.

QUANTUM has extensive experience in the water and wastewater sector, with a strong focus on the preparation of Water and Wastewater Rate Studies and Cost of Service Studies for public utilities and municipal service providers. In addition, the firm has also developed projects in electricity and gas utilities, transportation, telecommunications, and energy markets.

QUANTUM's work in the water and wastewater sector focuses on the financial and regulatory sustainability of utility services, including revenue requirement analysis, cost allocation, tariff design and review, evaluation of tiered and block rate structures, assessment of miscellaneous fees and charges, and the mitigation of rate shock over multi-year planning horizons. These services are aimed at ensuring long-term financial self-sufficiency, operational efficiency, service quality, and affordability for customers.

The firm has significant experience developing multi-year financial and tariff models for combined water and wastewater systems, incorporating operating and maintenance costs, capital improvement programs, debt service, consumption trends, and growth projections. These models are designed to be fully transparent, adjustable, and transferable to utility staff, and are accompanied by training and capacity-building activities.

Our projects have been developed across North America, Europe, Asia, Latin America, Africa and Oceania. QUANTUM is recognized for its continuous contribution to the advancement of economic regulation and has successfully completed more than 900 projects, including numerous water and wastewater rate studies, cost of service analyses, and tariff reform assignments. These projects have supported utilities and public authorities in strengthening financial planning, improving cost recovery, enhancing transparency in rate setting, and promoting efficient and sustainable service provision.

With almost 30 years of experience, QUANTUM has supported public utilities operating in complex, evolving, and resource-constrained environments, assisting public authorities and utility boards in the definition and implementation of tariff policies, financial planning tools, and institutional arrangements required for effective utility management and regulation.

QUANTUM has also developed consulting projects financed by Multilateral Development Banks and International Cooperation Agencies, including the World Bank, the Inter-American Development Bank (IDB), CAF – Development Bank of Latin America, BNDES, and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

In addition to its advisory work, QUANTUM places strong emphasis on knowledge transfer and capacity building for utility staff and decision-makers, including the development of practical tools and training programs. To date, QUANTUM has developed 22 International Seminars on Utility Regulation and Tariff Calculation in Latin America, attended by more than 1,000 professionals, covering topics such as tariff modeling, cost of service analysis, financial sustainability, and regulatory best practices.

QUANTUM's consultants have diverse experience in utilities, consulting firms, law firms, regulatory agencies, financial institutions and governments. All of them have degrees in Engineering, Economics or Law, and most hold postgraduate degrees (M.Sc., MBA and/or PhD), with direct hands-on experience

in water and wastewater rate setting, financial modeling, and utility cost analysis, and proficiency in English, Spanish and Portuguese.

4. MAIN SERVICES



Utility Regulation

One of the central issues of economic policy is the regulation of public utilities, which have natural monopoly characteristics, so as to ensure the provision of the service at the minimum cost, allowing them to obtain a profitability compatible with the business risk. Quantum's objective is to assist both the regulated company and the regulator in the application of objective, coherent and rational rules that encourage efficiency, minimize regulatory risk and increase legal certainty. Quantum has extensive and outstanding experience in various Latin American regulatory scenarios. The main services provided are listed below:

- Regulatory Strategies;
- Rate services;
- Design and Reform of Regulatory Frameworks;
- Analysis of Income Requirements;
  - ✓ Historical (Backward Looking);
  - ✓ Projected (Forward Looking;
- Development of Tariff Policies;
- Cost of Service Studies
- Cost of Capital Calculation Methodologies;
- Operating Cost Calculation Methodologies;
- Tariff Design;
- Tariff and Charge Structure;
- Regulatory Accounting;
- Litigation and Testimony Support;
- Demand Side Management Techniques.



Economic and Financial Analysis

Businesses related to the electricity, natural gas, water, sanitation and transportation sectors are generally characterized by being capital-intensive natural monopolies, having exclusivity over a certain geographic region and being regulated by specialized agencies. This combination of attributes generates the need to study multiple aspects of the companies' activities in order to achieve the optimal use of the resources employed. The sunk investments made available to users must be recovered over their useful life while generating reasonable profits compared to activities of similar risk. Likewise, the costs generated by the efficient provision of services must be recovered in tariffs. The profound debate around the business related to public utilities produces sensitive effects on the companies, modifying their income, the value of their assets and the penetration of the service in the community.

Quantum has developed a deep understanding of the variables and effects that impact the market in order to support its clients in the following services:

- Financial sustainability;
- Multi-year projections;
- CAPEX / O&M / debt service;
- Tariff Structure and Charges;
- Regulatory and Tariff Services;
- Economic and Financial Analysis and Price Projection;
- Market Analysis and Demand Projection;
- Technical and Economic Feasibility Studies;
- Risk and Threat Assessment;
- Regulated Rate of Return Studies;
- Mergers and Acquisitions Support;
- Due Diligence for companies in different sectors.



Econometrics & Statistics

Economic theory makes qualitative statements and econometrics has the function of providing empirical content to economic theory. Research in the areas of planning, economics, finance, and other disciplines increasingly uses quantitative methods. Econometrics is defined as the science that applies tools of economic theory, mathematics and statistical inference to the analysis of economic phenomena. This discipline applies statistical mathematics to economic data to validate economic models. Utility companies, as well as regulatory and supervisory agencies, often have to make decisions based on econometric studies. Quantum supports companies and regulators in studies involving the application of econometric analysis and modeling.

Among the main studies, the following stand out:

- Global and Spatial Projection of Electricity, Gas, Drinking Water, Sanitation and Transportation Demands;
- Projection of Macroeconomic Variables;
- Consumption Curves Characterization Campaign;
- Best Practices and Service Standards;
- Identification of the Demand Structure according to the Final Use of the resource.



Benchmarking

Regulatory strategies should be oriented to encourage the improvement of the performance of Public Utilities providers. Benchmarking makes it possible to define the efficiency level of companies, providing useful information to officials, investors, users and regulators.

In order to evaluate performance and establish productivity improvement objectives, it is generally used to compare with other companies with similar characteristics. Benchmarking is a tool that allows defining and calculating performance, cost and financial indicators to evaluate the relative efficiency of the company. Quantum, based on the experience acquired in several companies in Latin America, offers to public utilities and regulators the Benchmarking analysis based on econometric studies to determine the efficient Operating Costs.



Business Management for Utilities

We work alongside the organization, providing the necessary tools to companies in their evolution and growth, thus facilitating the expansion of their potential in the most efficient way.

We propose a transformation in the organization that encompasses organizational, financial, management and decision-making practices.

We are committed to the execution of our clients' changes favoring the natural development of their organizations' competencies and skills to build self-managed companies that are not dependent on permanent consultancies.

We specialize in achieving for our clients an improvement in results, verifiable and measurable in:

- Cost reduction;
- Improved collection deadlines;
- Greater control of operations;
- Certainty in the uniform execution of processes.



Regulatory and Management Accounting

Regulatory Accounting is the mechanism by which Regulatory Entities can know the cost structure of their providers, measure their relative efficiency both at company and activity level, reducing information asymmetries and thus be able to determine a fair and equitable tariff to be paid by users. It helps companies to improve their cost management.

Regulatory Accounting is usually oriented towards an Activity Based Costing (ABC Costing) system which, unlike traditional accounting, allows the allocation of costs taking into account the activities or processes that originated them. The activity-based costing system leads to an improvement in cost management, as it is based on more rigorous allocations. Based on these concepts, both regulators and companies enjoy the benefits of knowing the true cost of the activities they perform, guiding the provider towards the path of efficiency and continuous improvement (Management Accounting).

Quantum has extensive experience in advising in the following areas:

- Implementation of Regulatory Accounting;
- Activity Based Costing (ABC Costing);
- Process analysis (ABM, Activity Based Management) "doing things right". Definition and improvement of the activities that add more value to the company;
- Budgeting by ABC (ABB Activity Based Budgeting);
- Implementation of the Balanced Scorecard to monitor in real time the efficiency of the company and compare it according to the objectives set;
- Benchmarking not only at the level of company costs, but also at the level of key processes of the different companies.



In-Company Training

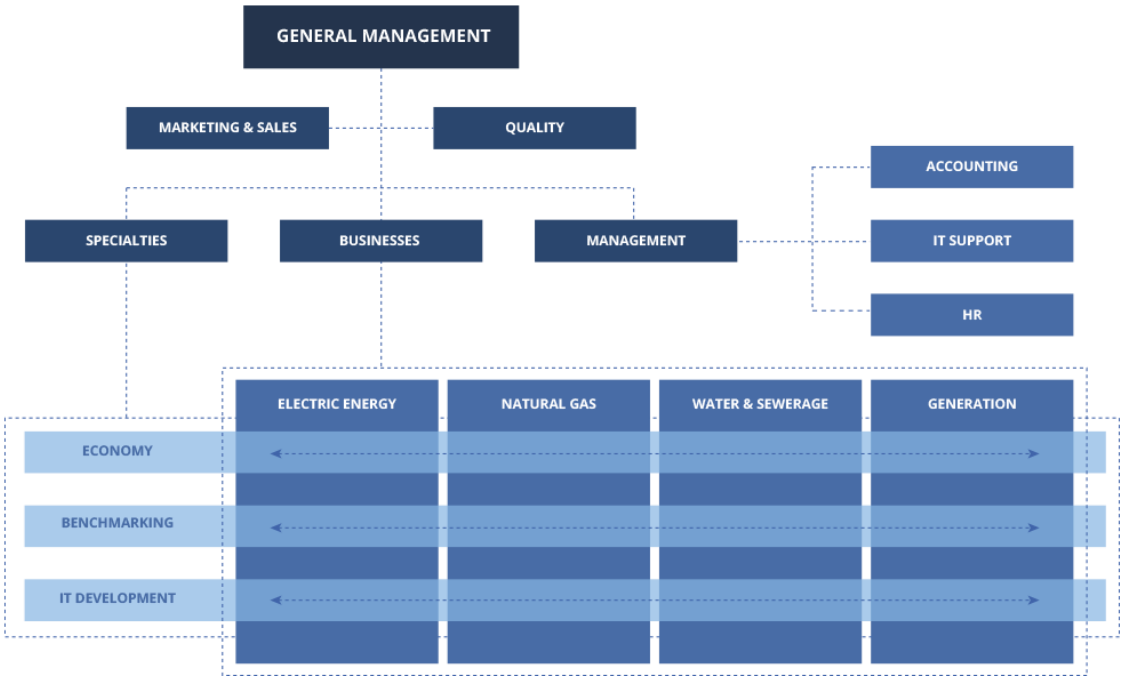
Quantum understands continuous improvement as a necessity for job growth, to maintain the high level demanded by clients on a daily basis and to help organizations achieve greater competitiveness. That is why Quantum offers regulatory training courses under the "In Company" modality.

Training includes topics such as:

- Microeconomic Fundamentals of Regulation: Demand, Supply, Market, Surplus, Optimal, Competition and Monopoly, The Marginalist Pricing Approach;
- Regulatory Strategies: Cost of Service Regulation, Incentive Regulation, Price Cap, Hybrid Approaches;
- Tariff Methodology: Cost Function, Welfare Maximization, Optimal Tariffs for Capacity Utilization, TOU Tariffs, Sustainability, Ramsey Tariffs, Average Cost Allocation by Responsibility for Use, Demand Projections, Load Characterization Study;
- Cost of Capital: Capital Base, Cost of Capital, Cost of Capital Rate, Donated Capital, New Replacement Value;
- Operating Costs and Non-Technical Losses: Cost Efficiency, Cost Indicators, Benchmarking, Optimization of Non-Technical Losses, Cost Projection;
- Optimal Tariff Structures: Cost Allocation, Annual and Seasonal Tariffs, Responsibility Factors, VAD Decomposition, Cost Curve, Optimal Tariff Blocks;
- Generation Whole Market Simulation: simulation of the behavior of agents of the markets (generators) within the electricity industry. Dispatches according to order of merit to cover the demand. Dispatch at minimum cost;
- Market Risk in the Price-Cap: Tariff Variation, Exogenous Variables, Efficiency Factor;
- Network Optimization and Technical Losses Study: Green Field Models and Top Down Models.

ORGANIZATION CHART

Quantum is organized as follows:



At Quantum we are organized by business, each led by an expert with extensive experience, who coordinates a work team composed of Project Managers and consultants. We also have specialty areas, which provide transversal support to all businesses.

In addition to working on consulting projects, the areas of specialization carry out intense research, development and training activities, which allow us to develop innovative solutions applied to our projects.

We have a marketing and commercial team that identifies consultancy opportunities, prepares proposals and manages the quality of the projects and the satisfaction of our clients. This area is also in charge of the institutional positioning and communication of the brand.

We have a Quality control area that guarantees the optimal execution of processes under international norms and standards.

Our Administration and Finance Department is in charge of all support activities for the organization, including HR management, accounting, IT support, invoicing and finance.

5. EXPERIENCE

6.1 EXPERIENCE SUMMARY BY SECTOR

Given the breadth of QUANTUM's project portfolio (over 900 assignments), the following table provides a high-level summary of the firm's most relevant experience for this assignment. It highlights key areas of expertise, geographic focus, number of projects, and years of experience, allowing for a clear and structured overview prior to the detailed project descriptions presented in the subsequent sections.

Focus Area	No. of Projects	Countries	Years of Experience	Relevant Clients
Water & Sanitation Utilities	33	Brazil, Argentina, Micronesia, Jamaica, Panama, Peru, Bolivia, Mozambique, Malawi	17	**Governments and public authorities** (e.g. Provincial Water Resources Administration – Argentina; Municipality of Belém, State of Pará, – Brazil; RIO-ÁGUAS, Municipal Water Authority of the City of Rio de Janeiro, – Brazil). **National and subnational water and sanitation regulators** (e.g. Public Services Regulatory Authority of Córdoba – Argentina; Espírito Santo Public Services Regulatory Agency – Brazil; AGENERSA, Energy and Basic Sanitation Regulatory Agency of the State of Rio de Janeiro, – Brazil; Regulation, Control and Supervision Agency of Public Services of Goiânia – Brazil; ARCE, Public Services Regulatory Agency of the State of Ceará, – Brazil; ASEP, National Authority of Public Services, – Panama; SUNASS, National Superintendence of Sanitation Services, – Peru; National Water Commission – Jamaica). **Water and sanitation utilities and service providers** (e.g. Companhia de Água e Esgoto do Ceará, Water and Sewerage Company of Ceará, – Brazil; CESAN,

Focus Area	No. of Projects	Countries	Years of Experience	Relevant Clients
				Espírito Santo Sanitation Company – Brazil; COPASA, Sanitation Company of the State of Minas Gerais, – Brazil; SANESUL, Sanitation Company of Mato Grosso do Sul – Brazil; COMPESA, Pernambuco Sanitation Company, – Brazil; Obras Sanitarias S.E. MGP, Municipal Sanitation Utility of Mar del Plata – Argentina; EPSAS, Public Social Water and Sanitation Company – Bolivia). **Multilateral Development Banks and international organizations** (World Bank, IDB, IFC, IICA).
Cost of Service & Rate Studies (Cross-Sector)	>250	Brazil, Argentina, Mexico, Malawi, Micronesia, Peru, Chile, Guatemala, Bolivia, Jamaica, Honduras, Mozambique, Cameroon, Ecuador, Panama, Spain, Colombia, Dominican Republic, Venezuela, India, El Salvador	30	**Governments and public authorities** (e.g. Secretariat of Economic Development of the State of Minas Gerais – Brazil; ProInversión, Private Investment Promotion Agency – Peru; National Electrification Institute – Central America; Municipal Superintendence of Transport and Traffic – Brazil). **National and subnational regulators** (e.g. Public Services Regulatory Authority of Córdoba – Argentina; Espírito Santo Public Services Regulatory Agency – Brazil; AGENERSA, Energy and Basic Sanitation Regulatory Agency of the State of Rio de Janeiro – Brazil; ARCE, Public Services Regulatory Agency of the State of Ceará – Brazil; ARESC, Public Services Regulatory Agency of the State of Santa Catarina – Brazil; ASEP, National Authority of Public Services – Panama; OSINERGMIN, Supervisory Agency for Investment in

Focus Area	No. of Projects	Countries	Years of Experience	Relevant Clients
				Energy and Mining – Peru; CRE, Energy Regulatory Commission – Mexico). **Utilities and service providers (energy and gas)** (e.g. COPEL, Paraná State Power Utility – Brazil; CELESC Distribuição – Brazil; Eletrobras – Brazil; Jamaica Public Service Company Limited – Jamaica; EDELAP, Electricity Distribution Company of La Plata – Argentina; CAMUZZI Gas – Argentina; COMGAS, Gas Distribution Company of São Paulo – Brazil; GASMIG, Gas Company of Minas Gerais – Brazil; Gujarat Gas Company Limited – India). **Multilateral Development Banks and international organizations** (World Bank, IDB, IFC, IICA).

6.2 DETAILED DESCRIPTION OF SELECTED ASSIGNMENT IN WATER & SANITATION

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
May 2022 - May 2023	**Water tariff reset proposal and performance targets: nwc's 5-year plan for sustainable service:** The objective of this assignment was to support the National Water Commission (NWC) in the preparation of a technically robust and defensible proposal to be submitted to the Office of Utilities Regulation (OUR) for a reset of water and wastewater tariffs and Quality of Service Standards for a five-year regulatory period (January 2022 to December 2026), grounded in a detailed Cost-of-Service analysis. The assignment also included the definition of operational and financial performance targets to ensure the long-term sustainability of service provision. A central component of the assignment was the development of a Cost-of-Service Study, complemented by related activities required to support tariff design and financial planning. The study provided the analytical basis for defining a tariff structure and a system of rates, fees, and charges that are fair, cost-reflective, and capable of enabling NWC to provide water supply and sewerage services on a self-supporting basis over the five-year tariff period. In parallel, a five-year Financial Plan was prepared, together with financial and decision-making tools to support NWC's tariff-setting and financial planning processes. **Description of actual services provided:** 1. **Review of background information:** Review of relevant operational, financial, and institutional documentation to	National Water Comission, Jamaica	343.600 US$ / 118.140 US$	Lead Firm. Associate firm: HYTSA Estudios y Proyectos S.A.	**Contact person:** Kirk Chambers **Electronic mail address:** **Telephone number**: 1 (876) 997-1860

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data

	develop a comprehensive understanding of NWC's operations, service delivery model, and general business practices.
	2. **Cost of Service Study to support tariff design:** Development of a Cost-of-Service analysis aimed at supporting tariff designs that are fair, cost-reflective, and responsive to customer needs. The analysis included:
	
	Revenue Requirement calculation, differentiating the economic cost of:
	• Water services, with costs disaggregated into:
	  • Production
	  • Catchment
	  • Treatment and distribution
	  • Customer services
	• Sewerage services, with costs structured around:
	  • Collection
	  • Treatment
	  • Final disposal
	  • Customer services
	
	The determination of revenue requirements was based on the assessment of key drivers, including:
	• Demand forecasting
	• Non-revenue water
	• Planned investments
	• Regulatory Asset Base
	• Cost of capital
	• Operating and maintenance expenditures
	• Efficiency factors (X-factor)
	• Non-manageable costs				

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	3. **Multi-year financial planning and modeling:** Preparation of a five-year Financial Plan and development of a financial model to assess financial sustainability, revenue adequacy, and tariff impacts over the regulatory period. 4. **Tariff study and reporting:** Preparation of a comprehensive tariff study report consolidating the results of the cost-of-service analysis, tariff design, and financial planning components. This project has a direct relationship with the scope of the present Water and Wastewater Rate Study, as it involved a multi-year tariff review based on a detailed cost-of-service analysis, the assessment of operating and capital costs, and the development of financial models and decision-support tools to inform tariff setting and ensure financial sustainability.				
October 2023 – October 2025	**Regulatory advisory services for COPASA and COPANOR, water and sanitation companies of Minas Gerais:** This assignment consisted of the provision of specialized regulatory advisory services to **COPASA MG** and **COPANOR** (COPASA Integrated Sanitation Services of the North and Northeast of Minas Gerais S/A), aimed at strengthening the technical capacity of utility staff and supporting the companies in tariff review processes and regulatory discussions with the Regulatory Agency. The services focused on the analysis, substantiation, and formulation of technical positions related to **tariff reviews, tariff adjustments, cost efficiency, and regulatory methodologies**, with particular emphasis on economic and financial components relevant to the determination of water and sanitation tariffs. **Description of actual services provided:**	Sanitation Company of Minas Gerais, Brazil	240.611 US$ / 240.611 US$	Lead Firm	**Contact person:** FABRICIA MATOS ALVES PENNA **Electronic mail address:** FABRICIA.MATOS@COPASA.COM.BR **Telephone number**: +55 (31) 3250-1875

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	1. **Determination of Efficient Operational Costs:** Conducted comparative benchmarking analyses of eligible operating costs against those of other sanitation companies and relevant sectors and assessed the efficiency level of the companies through comparative analysis of operational cost structures. 2. **Performance Indicators, Service Quality, and Water Losses:** Analyzed and assessed key performance indicators, service quality metrics, and water loss indicators relevant to regulatory evaluation and tariff setting. 3. **Capital Costs and Regulatory Asset Base:** Calculated the regulatory rate of return on investments and analyzed capital structure, determined the Regulatory Remuneration Base (BRR) and assessed regulatory depreciation and amortization criteria. 4. **Irrecoverable Revenues and Other Revenue Components:** Analyzed irrecoverable revenues and identified additional revenue streams relevant to tariff determination. 5. **Financial Components Affecting Tariff Determination:** Examined financial components influencing the calculation of tariffs and revenue requirements. 6. **Current Tariff Structure and Alternative Designs:** Evaluated the existing tariff structure and analyzed alternative tariff designs better aligned with regulatory and financial objectives. 7. **Adjustments to Tariff Adjustment Methodology**: Analyzed the existing tariff adjustment methodology and proposed technical adjustments to improve its application and consistency. 8. **Adjustments to COPANOR's Tariff Review Methodology:** Assessed COPANOR's tariff review methodology and				

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	formulated recommendations for methodological adjustments. 9. **Evaluation of the National Water and Sanitation Agency (ANA) Regulatory Agenda:** Reviewed ANA's regulatory agenda and its implications for sanitation services and tariff regulation. 10. **Adjustments to Internal Processes:** Proposed adjustments to internal company processes in line with ANA reference standards for the sanitation sector. 11. **Technical Documentation:** Prepared technical notes addressing all topics related to tariff reviews and adjustments to tariff adjustment methodologies. 12. **Regulatory Proposals and Recommendations:** Formulated technical proposals and recommendations to the Regulatory Agency concerning tariff setting and economic regulation.				
November 2025 – January 2027	**Second Tariff Review:** This assignment involved the implementation of the Second Tariff Review for water supply and sanitation services provided by CESAN, in accordance with the applicable regulatory framework and sectoral best practices. The objective of the review was to reassess the utility's tariff structure and revenue requirements in order to ensure economic and financial sustainability, adequate cost recovery, efficiency incentives, and affordability for users. Quantum supported the tariff review process through a comprehensive technical analysis of the main economic, financial, and operational components underlying tariff determination, with a particular focus on cost drivers and long-term sustainability of water and sanitation services. **Description of actual services provided:**	Companhia Espírito-santense de Saneamento (CESAN), Brazil	252.844 US$ / 252.844 US$	Lead Firm	**Contact person:** **Electronic mail address:** **Telephone number**:

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	1. **Revenue Requirement and Cost Analysis**: Analysis of operating and maintenance expenditures and capital expenditures to support the determination of revenue requirements consistent with regulatory principles. 2. **Demand Forecasting and Consumption Analysis**: Evaluation of demand projections and consumption patterns as inputs for tariff setting and multi-year financial planning. 3. **Regulatory Asset Base and Capital Cost Assessment**: Assessment of the Regulatory Asset Base and review of capital-related components relevant to tariff calculations. 4. **Tariff Design and Consumption Blocks**: Review of the existing tariff structure, including consumption blocks, and analysis of alternative tariff design options aligned with regulatory objectives. 5. **Tariff Scenarios and Impact Assessment**: Development of tariff scenarios and assessment of tariff impacts across different customer categories to evaluate affordability and distributional effects. 6. **Regulatory Process Support**: Technical support during regulatory consultations and public hearings, contributing to transparency, regulatory compliance, and stakeholder engagement. 7. **Alignment with Long-Term Service and Investment Objectives**: Technical assistance to ensure consistency between tariff outcomes, service quality objectives, and long-term investment plans in the water and sanitation sector. This project has a direct relationship with the scope of the present Water and Wastewater Rate Study, as it involved a comprehensive				

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	tariff review based on the assessment of operating and capital costs, demand projections, regulatory asset base, tariff structures and consumption tiers, as well as the evaluation of financial sustainability and tariff impacts over a multi-year horizon.				
January 2025 – May 2025	**A Study of Tariffs and Subsidies Mechanisms of the Federated States of Micronesia (FSM):** This assignment aimed to strengthen the efficiency, consistency, and long-term sustainability of tariff-setting and subsidy mechanisms for water and electricity services in the Federated States of Micronesia (FSM). The project focused on the assessment and improvement of existing tariff structures and subsidy schemes, with particular attention to cost recovery, affordability, and alignment with national sustainable development objectives. Quantum conducted a comprehensive review of existing tariff arrangements and subsidy mechanisms, including an assessment of previous electricity tariff and subsidy studies, with an emphasis on implementation status, identification of gaps, and opportunities for improvement. The analysis covered both interconnected grid systems and isolated service areas, allowing for a differentiated assessment of tariff and cost structures under diverse operating conditions. **Description of actual services provided:** 1. **Review of Existing Tariff Structures and Subsidy Schemes:** Assessment of current tariff arrangements for water and electricity services, including a review of previous tariff and subsidy studies and their level of implementation.	World Bank, Federated States of Micronesia (FSM)	138.130 US$ / 138.130 US$	Lead Firm	**Contact person:** Rome Chavapricha - Sr. Infrastructure Finance Specialist **Electronic mail address:** rome@worldbank.org **Telephone number**: +61292356446 / +61438757915

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	2. **Evaluation of Cost Recovery and Affordability:** Analysis of the alignment of existing tariffs with cost recovery principles and affordability criteria for different user groups. 3. **Tariff Framework for Water Utilities (Main Grids):** Development of a comprehensive tariff-setting framework for services provided by State Public Water Utilities Corporations (SPWUCs) through main grid systems, incorporating generation, network, and retail cost components and assessment of tariff compatibility with long-term sustainability objectives and the integration of variable renewable energy sources. 4. **Tariff Framework for Isolated and Mini-Grid Systems:** Design of a tailored tariff framework for mini-grid service delivery, taking into account demand patterns in remote locations, cost structures, cost allocation across consumer categories, and affordability constraints for off-grid users. 5. **Capacity Building and Institutional Strengthening:** Delivery of training activities on tariff methodologies and calculation procedures for government agencies, SPWUCs, mini-grid operators, and other relevant stakeholders, supporting effective implementation and institutional capacity building. The experience gained through this assignment is closely aligned with the requirements of the proposed Water and Wastewater Rate Study, as it involved the design and assessment of tariff frameworks grounded in cost recovery and affordability principles, the analysis of differentiated service areas and cost structures, and the development of sustainable tariff-setting approaches for water				

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	utilities operating under diverse institutional and operating conditions.				
March 2023 – September 2023	**Consultancy Services for Sanitation Tariff Study:** This assignment focused on the development of a comprehensive sanitation tariff study for Blantyre City, aimed at achieving an appropriate balance between financial sustainability, operational efficiency, and affordability for users. The work covered both sewerage services and on-site sanitation systems, addressing the specific cost and demand characteristics of each service modality. Quantum supported the design of a sustainable, cost-recovery, equitable, and efficient tariff model and tariff schedule, ensuring that sanitation services could be structured as a viable and rational business case while remaining affordable for households. The assignment emphasized the use of sound economic and financial principles to support long-term service provision and maintenance. **Description of actual services provided:** 1. **Assessment of Service Costs and Operational Requirements:** Analysis of service costs and operational requirements for centralized sewerage systems and decentralized on-site sanitation services. 2. **Demand and Service Characteristics Analysis:** Evaluation of demand characteristics and service conditions as inputs for tariff design and affordability considerations. 3. **Tariff Structure Analysis and Design:** Assessment of alternative tariff structures and development of a tariff model and tariff schedule aligned with cost recovery, efficiency, and equity objectives.	World Bank, Malawi	190.561 US$ / 136.079 US$	Lead Firm	**Contact person:** Stainley Bakolo **Electronic mail address:** sbakolo@bwb.mw **Telephone number**: +265 111 895 000

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	4. **Institutional and Regulatory Review:** Identification and proposal of complementary institutional and regulatory reforms to strengthen sanitation service delivery and long-term sector performance. 5. **Capacity Building and Training:** Delivery of training sessions for staff from Blantyre City Council (BCC), Blantyre Water Board (BWB), and selected sector ministry representatives, focusing on sanitation tariff calculation methodologies and their application to future operation and maintenance planning. The scope and outputs of this assignment are highly relevant to multi-year water and wastewater tariff studies, as they combine cost-based tariff design, affordability considerations, evaluation of alternative tariff structures, and institutional strengthening measures to support financially sustainable sanitation services under different service configurations.				
January 2011 – January 2015	**Specialized Technical Advisory in the Processes of Tariff Review and Tariff Adjustment for COPASA and COPANOR:** This assignment consisted of the provision of specialized technical advisory services to support COPASA and its subsidiary COPANOR throughout the processes of tariff adjustment and tariff review for water and sanitation services. The consultancy assisted the utilities during both the analytical and negotiation phases of the regulatory process, with the objective of ensuring technical robustness, regulatory compliance, and financial sustainability. The scope covered technical support for the tariff adjustment process for the 2011–2012 period, as well as comprehensive advisory services during the subsequent tariff review process. The	COPASA – Minas Gerais Sanitation Company (Companhia de Saneamento de Minas Gerais) / COPANOR, Brazil	564.228 US$$ / 564.228 US$	Lead Firm	**Contact person:** Beatriz Gomes (Superintendent of Service Regulation Affairs) **Electronic mail address:** beatriz.gomes@copasa.com.br **Telephone number**: +55 31 3250-2068

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	work involved the development of detailed studies, simulations, and analytical calculations required to substantiate proposed tariff repositioning in terms of both tariff levels and tariff structures. **Description of actual services provided:** 1. **Cost and Revenue Requirement Analysis:** Calculation of manageable and non-manageable costs, estimation of efficient operating expenditures and definition of revenue requirements to support tariff adjustment and review processes. 2. **Demand, Investment, and Capital Cost Assessment:** Review of demand forecasts as inputs for tariff calculations, analysis of investment plans and capital structure and calculation of the regulated rate of return (WACC). 3. **Tariff Methodology and Regulatory Parameters:** Definition of regulatory losses and subsidy mechanisms, assessment of efficiency factors (Factor X) and long-term marginal costs and support in the definition of tariff levels and tariff structures consistent with regulatory principles. 4. **Tariff Modeling and Financial Impact Analysis:** Development of a computational tariff model to assess financial impacts and determine applicable tariffs under different scenarios. 5. **Regulatory Process Support and Capacity Building:** Technical assistance during negotiations with the Regulator and participation in public hearings and design and delivery of a training program for COPASA's regulatory and pricing teams.				

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	6. **Regulatory Accounting Support:** Support in the definition and implementation of a Regulatory Accounting Plan to ensure proper recording of financial and economic events associated with water and sanitation service provision. The experience developed through this assignment is particularly applicable to comprehensive water and wastewater rate studies, as it combines cost-based tariff analysis, revenue requirement calculations, assessment of operating and capital costs, development of tariff models, and direct support to regulatory review and decision-making processes in the water and sanitation sector.				
March 2025 – June 2025	**Second Ordinary Tariff Review:** This assignment provided regulatory support to SANESUL in the implementation of its Second Ordinary Tariff Review, with the objective of assessing and restoring the economic and financial equilibrium of water and sanitation service provision. The work focused on the comprehensive analysis of tariff-setting components required to ensure cost recovery, financial sustainability, and regulatory consistency. Quantum conducted an in-depth review of the economic, financial, and operational elements underpinning the revenue requirement, combining analytical rigor with alignment to regulatory standards and sectoral best practices. **Description of actual services provided:**	Mato Grosso do Sul Basic Sanitation Company (SANESUL), Brazil	157.320 US$ / 157.320 US$	Lead Firm	**Contact person:** João Paulo Sassioto **Electronic mail address:** joao.sassioto@sanesul.ms.gov.br **Telephone number**: +55 (67) 3318.7760

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	1. **Revenue Requirement and Cost Analysis:** Comprehensive analysis of all components affecting the revenue requirement, including: • Capital remuneration • Regulatory depreciation • Efficient operating costs • Costs associated with sanitation services provided under public–private partnership arrangements • Levels of non-collection • Other operating revenues 2. **Review of Existing Tariff Review Methodologies:** Critical assessment of the methodologies applied during the first tariff review and benchmarking against international best practices in water and sanitation regulation and other regulated utility sectors. 3. **Regulatory Framework and Reference Standards Assessment:** Evaluation of tariff methodologies against the Reference Standards issued by Brazil's National Water and Basic Sanitation Agency (ANA). 4. **Methodological Refinement and Proposal Development:** Identification of areas for methodological improvement, development of detailed proposals for refinement or adjustment of tariff review methodologies and discussion of proposed adjustments with SANESUL's internal technical teams. 5. **Regulatory Process Support and Public Participation:** Submission of technical proposals and studies to the regulatory authority for evaluation, presentation and defense of technical analyses before the regulator and				

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	active support during public consultations and public hearings. This assignment demonstrates strong relevance to multi-year water and wastewater tariff review processes, as it combines detailed revenue requirement analysis, assessment of operating and capital cost components, methodological benchmarking, alignment with regulatory standards, and direct support during regulatory evaluation and public participation stages.				
July 2021 – December 2021	**Regionalization of water and sewage services in the state of Minas Gerais:** The objective of the work is to provide a recommendation on the regionalization of the Water and Sewage units in the state of Minas Gerais, considering the evaluation of technical, geographic and demand criteria, in addition to economic, financial and social viability factors. **Description of actual services provided:** **1.** Evaluation of the proposal for regionalization of the state of Minas Gerais. **2.** Identification and diagnosis of existing contracts and plans. **3.** Identification of the available data for the economic-financial modeling. **4.** Feasibility analysis of service universalization in the northeast of the State of **5.** Minas Gerais. **6.** Improvement of the revenue projection model. **7.** Improvement of Opex estimates Improvement of Capex estimates **8.** Feasibility Model Development	International Finance Corporation, Brazil Founding Source: World Bank	145.385 US$ / 145.385 US$	Lead Firm	**Contact person:** Theodora Guimarães **Electronic mail address:** tguimaraes@ifc.org **Telephone number**: +55 21 99032-2110

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	9. Feasibility analysis **10.** Regionalization proposal				
May 2019 – October 2020	**Specialized consulting services to develop and implement tariff review and restructuring of sanitation services and regulatory accounting in the state of espírito santo**: Development of a regulatory - tariff management model for the sanitation sector, which meets the needs of the Agência de Regulação de Serviços Públicos do Espírito Santo (ARSP ES), respecting the principles established in the legislation. The regulatory and tariff management model comprises the set of methods, conditions, concepts and assumptions of an economic, financial, accounting, social, environmental and legal nature that involve establishing the levels and structure of tariffs, as well as the mechanisms for adequate monitoring of the costs involved in providing the service. **Description of actual services provided:** **1.** **Tariff management**: Development of a conceptual model for the economic-financial regulation of the sanitation sector that guarantees the sustainability of concession contracts and affordability. Elaboration of a Tariff Model that includes a subsidy scheme, with political and institutional feasibility, and foresees evaluation models of efficiency of the Concessionaire, with definition of parameters, capable of ensuring the achievement of the objectives of universalization of basic sanitation services. Proposal for a tariff regulation that contains the necessary guidelines, rules and procedures, both for the adjustment of the current tariff structure to the new tariff model, and for the processes of revision, future adjustments and tariff management.	Public Services Regulatory Agency of Espírito Santo, Brazil. Founding Source: Goverment of Espírito Santo	1.472.780 US$ / 1.472.780 US$	Lead Firm	**Contact person:** Kátia Muniz Côco **Electronic mail address:** katia.coco@arsp.es.gov.br **Telephone number**: +55 (27) 3636-8500

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	2. **Regulatory Accounting**: To structure, develop, implement and establish a regulatory accounting system for the basic sanitation sector that facilitates compliance with the regulatory and supervisory functions of the ARSP. Regulatory accounting aims to provide information related to the regulated sectors, minimizing the risks associated with the asymmetry of information that may exist, also regulatory accounting produces information focused on the operational, management, marketing and planning aspects of the regulated utility provider. 3. **Knowledge transfer**: Structure training routines and procedures (workshops and seminars) that allow the transfer of regulatory knowledge to ARSP professionals.				
January 2014 – January 2015	**Technical Assistance for ARCE for Definition and Implementation of the Tariff Regime of the Water and Sanitation Sector in the State of Ceará, Brazil:** The project provided technical assistance to the Ceará Water and Sanitation Regulatory Agency (ARCE) for the definition and implementation of the tariff regime applicable to water supply and sanitation services in the State of Ceará. The assignment focused on the development of a comprehensive economic and financial regulatory framework aimed at ensuring the sustainability of concession contracts while maintaining reasonable and affordable tariffs for users. Key activities included the design of a conceptual economic-financial model for the water and sanitation sector, the development of a tariff model incorporating subsidy mechanisms and efficiency assessment tools for service providers, and the formulation of a tariff system proposal defining guidelines, rules, and procedures for tariff revisions, adjustments, and extraordinary reviews. The consultancy also addressed the design of a transition scheme from the existing	ARCE – Ceará State Regulatory Agency for Delegated Public Services (Agência Reguladora de Serviços Públicos Delegados do Estado do Ceará), Brazil	423.143 US$ / 423.143 US$	Lead Firm	**Contact person:** Mario Monteiro **Electronic mail address:** mario.monteiro@arce.ce.gov.br **Telephone number**: (85) 31011027

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	tariff structure to the proposed regulatory framework, supporting ARCE in strengthening its regulatory capacity and ensuring consistency with sector best practices.				
February 2022 – February 2023	**Technical assistance for the execution and elaboration of a market study and tariff structure:** Technical assistance to CAGECE for the execution and preparation of a market study and tariff structure for the concessionary for the water supply and sanitary drainage services. Description of actual services provided: CAGECE Diagnosis: Conducted an in-depth analysis of the current situation of CAGECE, focusing on the water supply and sewage collection and treatment sectors in the state of Ceará, including service offerings, market analysis, tariff structure evaluation, operational costs, and investments. **Description of actual services provided:** 1. **Water and Sewage Market Study:** Assessed the market demand trends for water and sewage services offered by CAGECE, analyzing consumption patterns, service coverage, tariff structures, and subsidy schemes for various user categories. 2. **Cost Evaluation**: Evaluated the operational costs of CAGECE, including a breakdown of costs by service and activity, and developed methodologies to determine fixed and variable costs per customer and per unit of water and sewage. 3. **Tariff Structure Redesign**: Proposed a new tariff structure based on econometric demand functions, considering user classifications, consumption levels, and affordability criteria, aiming for economic efficiency, financial sustainability, and social equity. 4. **Tariff Norms Development**: Formulated regulatory norms	Ceará Water and Sewage Company, Brazil	195.557 US$ / 195.557 US$	Lead Firm	**Contact person:** Marcondes R. Sobreira **Electronic mail address:** marcondes.sobreira@cagece.com.br **Telephone number**: (85) 3101 1729

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	and methodologies for tariff setting, subsidy allocation, and contingency measures, ensuring alignment with regulatory principles and best practices in the water and sewage sector. 5. **Implementation Strategies**: Developed strategic plans for engaging stakeholders, including regulatory agencies, consumers, and civil society, in the process of tariff redesign and regulatory reform, emphasizing communication, negotiation, and consensus-building. 6. **Capacity Building and Knowledge Transfer:** Provided training and knowledge transfer sessions to CAGECE staff and relevant stakeholders on regulatory economics, market analysis, tariff design, and regulatory compliance, fostering technical expertise and institutional capacity.				
December 2016 – August 2017	**Consulting Service to Structure the Goiânia Regulatory Agency in the Definition of Regulatory Frameworks:** The project aimed to support the structuring and institutional strengthening of the Goiânia Regulatory Agency through the design and implementation of comprehensive regulatory frameworks covering a wide range of municipal public services, including water supply and sanitation, urban drainage, solid waste management and urban cleaning, public lighting, public and private municipal transportation, use of public spaces, and posthumous services. The consultancy encompassed a full diagnostic of each service, including service characterization, performance assessment, identification of user typologies and consumption patterns, and the development of efficiency evaluation models for regulatory control. The work also involved the detailed assessment of operating and capital costs to ensure financial equilibrium and the identification of investment needs.	Agência de Regulação, Controle e Fiscalização de Serviços Públicos de Goiânia (Goiânia Regulatory, Control and Inspection Agency for Public Services); Brazil	195.445 US$ / 195.445 US$	Lead Firm	**Contact person:** Unidade de Coordenação do Plano de Ação Goiânia Sustentável - UCPA **Electronic mail address:** ucpa.pmg@gmail.com **Telephone number**: (62) 3524-6328

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	Based on this diagnosis, Quantum supported the definition of new regulatory models through the analysis of alternative economic regulation approaches, SWOT assessments, and the selection of feasible and appropriate regulatory frameworks. A comprehensive economic and financial sustainability analysis was conducted, including the definition of service quality standards, investment plans, regulatory asset bases and allowed returns, efficiency factors (X-factor), social tariffs and subsidy schemes, and the design of tariff models with revenue projections. Finally, the project included the development of an implementation and follow-up plan, covering the drafting of regulatory frameworks, implementation strategies, tariff review calendars, monitoring and evaluation of tariff systems, regulatory accounting, inspection and audit procedures, accountability mechanisms, and continuous assessment of efficiency and service quality levels.				
July 2017 – March 2019	**Regulation / Inspection of the Sanitary Sewerage Concession in the Planning Area 5 – West Zone of the Municipality of Rio de Janeiro:** This assignment involved the provision of economic and financial advisory services to support RIO-ÁGUAS in the regulation and supervision of a sanitary sewerage concession in the West Zone of the Municipality of Rio de Janeiro. Quantum supported the monitoring of the concessionaire's economic and financial performance and the verification of the financial equilibrium of the concession contract. The work included the analysis of financial information, validation of tariff readjustment methodologies and their impacts on end-user tariffs, and the development of a computational tool to support	RIO-ÁGUAS – Rio de Janeiro Municipal Water Authority Foundation, Brazil	153.850 US$	Lead Firm	**Contact person:** Tatiana Mattos **Electronic mail address:** **Telephone number**: +55(21) 3895-5114

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	ongoing economic and financial oversight of the concession. Through this assignment, Quantum contributed to strengthening regulatory supervision, financial sustainability, and contractual compliance in sewerage service provision.				
May 2023 – July 2024	**Tariff review 2022 - Pernambuco Sanitation Company:** Consulting services were carried out with the purpose of proposing adjustments to the Tariff Methodology that was in force and to adapt the company to the New Regulatory Framework regarding Economic Regulation. The main objective of these services was the improvement of the existing Tariff Methodology, the structuring of the database, information and processes related to Economic Regulation in the Company, as well as the provision of Regulatory Advice for the 2022/2023 Tariff Review.	Pernambuco Sanitation Company, Brazil	119.395 US$ / 119.395 US$	Lead Firm	**Contact person:** Cleyton de Araujo Silva **Electronic mail address:** cleytonaraujo@compesa.com.br **Telephone number**: 81-3412-4184
February 2019 – July 2019	**Tariff review of Prolagos e Águas de Juturnaíba:** Technical support services for the analysis and validation of economic and financial rebalancing studies related to the fourth five-yearly revision of the tariffs of the water concession contracts of the Águas de Juturnaíba (CAJ) and Prolagos concessionaires. **Description of actual services provided:** **1.** Characterization of Concessions and similar experiences **2.** Evaluation of Management and Operation aspects of the Services (including loss **3.** management) **4.** Assessment of investment plans **5.** Analysis and Calculation of Asset Base **6.** Development of Regulatory Chart of Accounts **7.** Financial and Accounting Modeling **8.** Preparation of technical notes and support in public hearings	Regulatory Agency for Energy and Basic Sanitation of the State of Rio de Janeiro, Brazil	118.795 US$ / 118.795 US$	Lead Firm	**Contact person:** Fábio Cortês **Electronic mail address:** fcnascimento@agenersa.rj.gov.br **Telephone number**: +55 21 2332-6454

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November 2012 – May 2013	**Development of the Tariff Framework for Water and Sewerage Utilities:** The project aimed at developing a comprehensive tariff framework for public water supply and sewerage services in Panama, supporting ASEP in the establishment of clear, transparent, and consistent regulatory mechanisms for tariff setting and control. The assignment covered the definition of procedures, general principles, criteria, methodologies, tariff structures, and calculation formulas applicable to potable water production, water distribution, wastewater collection, and sewage treatment services. Key activities included the preparation of a detailed work plan defining methodologies, procedures, timelines, and quality control mechanisms; coordination with government entities and sector stakeholders to ensure data availability and alignment with national sector needs; and continuous technical support to ASEP during the development and implementation of the regulatory framework. The consultancy defined differentiated regulatory approaches according to provider size and customer base, established mechanisms for periodic and extraordinary tariff reviews, and proposed methodologies for revenue requirement determination and price control. The project also developed guidelines for tariff components, miscellaneous charges, indexing mechanisms, and verification procedures to ensure regulatory compliance. Additionally, it defined information requirements and reporting frequency for service providers to enable effective regulation, supervision, and monitoring. The assignment concluded with the preparation of a	ASEP – National Authority for Public Services (Autoridad Nacional de los Servicios Públicos), Panama	114.276 US$ / 114.276 US$	Lead Firm	**Contact person:** Eurípides Amaya (Jefe de Ingeniería de Agua Potable y Aguas Servidas) **Electronic mail address:** eamaya@asep.gob.pa **Telephone number**: (507) 508-4561

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	proposed tariff framework to be submitted for discussion and public consultation through formal public hearings.				
March 2020 – August 2020	**Methodology for periodic tariff review/adjustment for the basic sanitation sector to be used by the public water supply and sanitation service provider of the municipality of Belém:** Definition of guidelines and procedures for a periodic tariff revision and tariff adjustment methodology for the basic sanitation sector to be used by the public service provider of water supply and sanitary sewage in the municipality of Belém. Description of actual services provided: Quantum presented to the regulator (AMAE - Municipal Water and Sewage Regulatory Agency of Belém) an appropriate Methodology tailored to the reality of the municipality of Belém, in order to support the procedures for tariff review and adjustments by the Service Provider in the areas of potable water supply and sanitation, as well as the economic and financial norms related to tariffs. **Description of actual services provided:** 1. **Presentation of the Work Plan Proposal**: • Data Collection: Gathering necessary data for analyses, studies, and simulations. • Analysis of Regulatory Agency Technical Notes: Detailed review of current • regulations and related documents. • Definition of methodology and criteria for the development of the Methodology for • Periodic Tariff Review/Adjustment. 2. **Preliminary Proposal of Methodologies:**	Municipal Regulatory Agency of Belém, Brazil Funding Source: Government of Belem	42.473 US$ / 42.473 US$	Lead Firm	**Contact person:** Danyel Ribeiro Gerente de Regulação Administrativa Financeira - GRAF/ARBEL - Agência Reguladora Municipal de Belém - Pará/Brasil **Electronic mail address:** graf.amae@gmail.com **Telephone number**: +55 91 98464-7653

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	3. **Elaboration of the Tariff Review Proposal**: Development of methodologies for each component of the Required Revenue. • Market Projection • Definition of Regulatory Losses • Analysis of the Concessionaire's Investment Plan • Definition of Capital Base • Methodology for Calculating the Capital Remuneration Rate • Concessionaire's Operating Costs • Determination of Required Revenue • Efficiency Factor • Elaboration of the Tariff Adjustment Proposal: Analysis and formulation of tariff adjustment indices. 4. **Presentation of the Methodology for Annual Tariff Review and Adjustment:** • Definition of the Methodology for Periodic Tariff Review/Adjustment. • Proposal considering review cycles and criteria for annual tariff adjustments. • Preparation of the Draft Final Report for critical analysis by the Regulatory Agency.				
February 2026 – May 2026	**Adjustment of the Tariff Structure to the Social Tariff Law** The project aimed to adapt CAGECE's existing tariff structure—previously developed under Contract No. 0201/2021 between CAGECE and Quantum—to the national guidelines established by Brazil's Social Water and Sanitation Tariff Law (Law No. 14,898/2024). The assignment involved the integration and processing of billing databases with the national social registry (Cadastro Único) to identify eligible social tariff beneficiaries, the application of legal eligibility criteria defined under the new	Companhia de Água e Esgoto do Ceará (CAGECE), Brazil	34.211 US$ / 34.211 US$	Lead Firm	**Contact person:** Marcondes R. Sobreira **Electronic mail address:** marcondes.sobreira@cagece.com.br **Telephone number**: (85) 3101 1729

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	regulatory framework, and the simulation of alternative tariff structures aligned with social policy objectives. Quantum developed economic impact models to assess the effects of different tariff scenarios across customer categories and consumption blocks, ensuring regulatory compliance, financial sustainability, and social equity. The project also included capacity building and knowledge transfer activities for CAGECE's technical staff.				
April 2019 – July 2019	**Economic and financial consultancy for sanitary sewage concession regulation in Rio de Janeiro's west zone:** Consultancy services related to economic and financial issues, to support FUNDAÇÃO RIO ÁGUAS in the Regulation / Inspection activities of the sanitary sewage concession in the Planning area 5 - West Zone of the Municipality of Rio de Janeiro, performed by the company Concessionaire F.A.B. ZONA OESTE S.A. **Description of actual services provided:** **1.** Conduct economic and financial analysis of the sanitary sewage concession in Planning Area 5 - West Zone of the Municipality of Rio de Janeiro. **2.** Evaluate the financial performance of Concessionaire F.A.B. ZONA OESTE S.A. in relation to the regulatory requirements set by FUNDAÇÃO RIO ÁGUAS. **3.** Assess the tariff structure and rate design of the sanitary sewage services provided by Concessionaire F.A.B. ZONA OESTE S.A. **4.** Provide recommendations for tariff adjustments or revisions based on the economic and financial analysis. **5.** Assist FUNDAÇÃO RIO ÁGUAS in monitoring and inspecting the financial operations of Concessionaire F.A.B. ZONA	Rio de Janeiro Municipality Water Institute Foundation, Brazil Funding Source: Goverment of Rio de Janeiro	20.000 US$ / 20.000 US$	Lead Firm	**Contact person:** Tatiana Mattos **Electronic mail address:** tpmattos@gmail.com **Telephone number**: +55(21) 3895-5114

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	OESTE S.A. to ensure compliance with regulatory standards. **6.** Analyze financial reports and documents submitted by Concessionaire F.A.B. ZONA OESTE S.A. to verify accuracy and adherence to regulatory requirements. **7.** Prepare periodic reports on the economic and financial performance of the sanitary sewage concession for FUNDAÇÃO RIO ÁGUAS. **8.** Provide technical support and expertise to FUNDAÇÃO RIO ÁGUAS in discussions and negotiations with Concessionaire F.A.B. ZONA OESTE S.A. regarding economic and financial matters. **9.** Conduct training sessions or workshops for staff members of FUNDAÇÃO RIO ÁGUAS on economic and financial concepts relevant to regulatory activities in the sanitation sector. **10.** Collaborate with other stakeholders and regulatory bodies involved in the oversight of the sanitary sewage concession to ensure coordinated efforts and effective regulation.				
December 2023 – January 2024	**Regulatory support in the review and methodological proposal for the determination of the water levy:** The project entails providing regulatory support by reviewing existing regulations and proposing methodological enhancements for the determination of water levies. The project aims to address the main issues of APRHI (as indicated in a virtual meeting with its officials), which are: -Fees that may not reflect the value of water according to different uses; -Potential conflicts regarding efficiency, financing, and equity in the current fees. **Description of actual services provided:** **1.** **Regulatory Framework Analysis:** Examined the existing water levy regulatory framework for potential improvements.	Provincial Water Resources Administration, Argentina	18.463 US$ / 18.463 US$	Lead Firm	**Contact person:** **Electronic mail address:** **Telephone number**:

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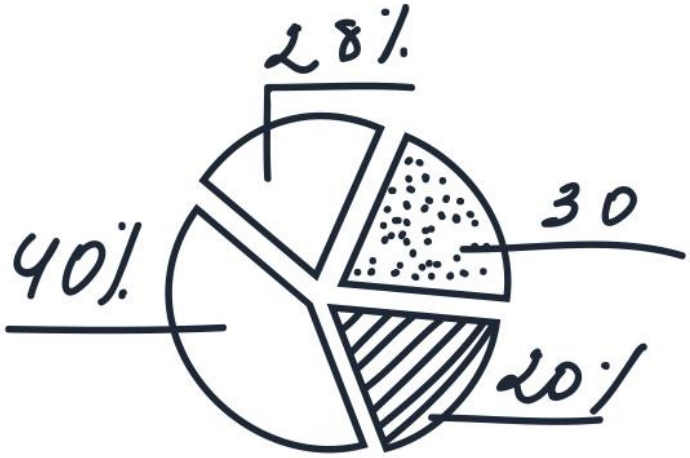
	2. **Benchmarking Study:** Conducted a comparative analysis of water levy methodologies to inform a proposal development. The comparison included the values of the levies applied according to each category of user; main ways of updating the levies, as well as their periodicity. 3. **Methodological Recommendations for Levy Calculation and Adjustment:** Recommendations to be taken into account when rethinking the levies calculation methodology and the periodic levies adjustment mechanism				
February 2012 – August 2012	**Non-Revenue Water Program in La Paz and El Alto – Bolivia:** This assignment focused on the design and strengthening of a Non-Revenue Water (NRW) management strategy for the potable water distribution systems operated by EPSAS in La Paz and El Alto. The work aimed to support the reduction of physical, commercial, and administrative water losses, improving operational efficiency and system resilience under conditions of increasing water scarcity and climate change. Quantum supported the assessment of existing operational practices, identification of key sources of non-revenue water, and definition of priority actions to improve network management, metering, billing, and control processes. The assignment resulted in a structured NRW management program providing a practical roadmap to enhance system performance, efficiency indicators, and service reliability.	EPSAS – Public Social Water and Sanitation Company (Empresa Pública Social de Agua y Saneamiento), Bolivia	60.729 US$ / 60.729 US$	Lead Firm	**Contact person:** Humberto Claure **Electronic mail address:** claureh@epsas.com **Telephone number**: +591 2 2210195
June 2019 – November 2020	**Regulation / supervision of the sewage concession of planning area 5 - west zone of Rio de Janeiro:** Within the framework of this project, permanent consulting services related to economic and financial issues were developed to support	Rio de Janeiro Municipality Water	114.085 US$ / 114.085 US$	Lead Firm	**Contact person:** Alan Lopes Nóbrega **Electronic mail address:** alnobrega.pcrj@gmail.com

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	FUNDACIÓN RÍO ÁGUAS in the Regulation / Inspection activities of the sanitary sewerage concession of Planning Area 5 - West Zone of the Municipality of Rio de Janeiro, carried out by the Concessionaire F.A.B. WEST ZONE S.A. **Description of actual services provided:** **1.** Analyzed monthly the economic and financial information carried out, referring to each completed month and made available by the Concessionaire through RIO-ÁGUAS. **2.** Prepared a summary of economic and financial indices realized, in light of the applicable indicators and those commonly practiced in the financial market in the analysis of credit and performance of service providers. **3.** Calculation of the indices realized required by the Concessionaire by its financiers. **4.** Supported the RIO-ÁGUAS team, acting, during the contract term, as a source of technical consultation and permanent support in the monthly discussion of relevant related topics, from the economic and financial point of view, and their impacts on the Concessionaire. **5.** Supported the periodic analysis, from the technical-economic point of view, of the calculation of tariff adjustment proposal submitted by the Concessionaire to RIO-ÁGUAS. **6.** Supported the analysis of discussions of requests for rebalancing or related matters, whenever manifested by the Concessionaire.	Institute Foundation, Brazil Funding source: Goverment of Rio de Janeiro			**Telephone number**: +55 (21) 2088-0676
March 2009 – October 2009	**Development of the Regulatory Accounting Plan for the Water and Sewerage Sector of Peru:** This assignment involved the design and implementation of a regulatory accounting system for the water and sanitation sector in	SUNASS – National Superintendence of Water and	117.000 US$ / 117.000 US$	Lead Firm	**Contact person:** Juan de la Cruz Toledo **Electronic mail address:**

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	Peru, aimed at strengthening the regulatory and supervisory capacity of **SUNASS** and reducing information asymmetries between service providers and the regulator. Quantum developed the regulatory accounting framework, including standardized definitions, a master chart of accounts, and implementation guidelines for water and sanitation utilities. The work also included system testing using the cost structure of SEDAPAL, preparation of regulatory instruments, and capacity-building activities for regulatory and utility staff, supporting the effective adoption of the regulatory accounting system across the sector.	Sanitation Services of Peru (Superintendencia Nacional de Servicios de Saneamiento), Peru			cfierro@sunass.gob.pe **Telephone number**: +511 614-3200
May 2025 – July 2026	**Technical Study for the Privatization of AySA:** This assignment involved the provision of technical support during the early phases of the privatization process of Agua y Saneamientos Argentinos S.A. (AySA). Quantum assisted in the review of the regulatory framework and concession arrangements for water and sanitation services, conducted technical due diligence activities, and supported the assessment of operational performance, service areas, demand projections, and asset conditions. The work also included the preparation and review of long-term CAPEX and OPEX plans, analysis of investment programs, and technical support during the preparation of transaction documentation, contributing to transparency, technical consistency, and alignment with international best practices.	World Bank, Argentina	615.700 US$ / 207.900 US$	Lead Firm	**Contact person:** Ari Skromne **Electronic mail address:** askromne@ifc.org **Telephone number**: +1-202-473-7711
December 2024 – December 2025	**Regulatory Guidelines for Water and Sanitation:** This assignment supported the development and review of regulatory guidelines for water supply and sanitation services in Brazil. Quantum provided technical assistance in the assessment and validation of regulatory instruments and technical documents	Inter-American Institute for Cooperation on Agriculture (IICA), Brazil	345.614 US$ / 257.895 US$	Lead Firm	**Contact person:** Cristina Costa **Electronic mail address:** cristina.costa@iica.int

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	prepared by the National Water and Basic Sanitation Agency (ANA), contributing to regulatory consistency, clarity, and effective implementation at the national level.				**Telephone number**: 61 2106-5413
October 2022 – April 2023	**Development of parametric tools for the universalization of public water supply and sewage services:** This assignment focused on the development of methodologies and parametric tools to support the pre-evaluation and economic-financial pre-feasibility analysis of water supply and sanitation projects aimed at service universalization, including concession and public–private partnership (PPP) initiatives. Quantum supported the analysis through data collection and modeling tools designed to characterize municipalities and regional service units, taking into account economic, social, and geographical differences. Revenues, investments, operating costs, and other key variables were determined according to municipality typologies, allowing for a differentiated and realistic assessment of OPEX and CAPEX requirements across diverse service contexts. The assignment included the development of computational tools to support pre-feasibility analysis, enabling cash flow projections, scenario analysis, and the identification of key drivers affecting economic and financial equilibrium. In parallel, Quantum developed a structured framework for estimating investment and operation and maintenance costs associated with the expansion of water supply and sanitation services in rural areas, clusters, and villages, based on demand analysis, technology options, benchmarking data, and parametric estimation techniques.	Inter-American Development Bank, Brazil	191.784 US$ / 191.784 US$	Lead Firm	**Contact person:** Reno Moreira Bezerra **Electronic mail address:** reno.bezerra@bndes.gov.br **Telephone number**: +55 21 3747 9776
May 2020 – October 2020	**Regulatory Tools for Water Supply and Sanitation Services**: This assignment involved the development of regulatory tools, procedures, and technical guidelines to support the certification and oversight of public water supply and sanitation services under	Water Regulatory Authority (Autoridade	200.000 US$ / 200.000 US$	Lead Firm	**Contact person:** Magalhães Miguel **Electronic mail address:** magalhaes@cra.org.mz

Duration	Assignment name & brief description	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment	Contact data
	different service delivery arrangements. The work aimed to strengthen the capacity of the Regulatory Authority (AURA IP) to monitor, evaluate, inspect, and audit service quality in urban and semi-urban systems. Quantum developed standardized tools and protocols related to service quality regulation, including non-revenue water (NRW) analysis, performance verification, and operational auditing. The assignment also included the preparation of guidelines to support regulatory oversight of operational, commercial, and financial aspects of service provision, as well as procedures for monitoring customer complaints and their resolution. All deliverables were designed to be ready for implementation by the Regulatory Authority.	Reguladora de Águas), Mozambique Funding Source: World Bank			**Telephone number**: 258 21 312 825



Narrative Proposal

INTRODUCTION

The City of Charles Town, West Virginia, through the Charles Town Utility Board (CTUB), is undertaking a comprehensive review of its water and wastewater rates to ensure the long-term financial sustainability and operational stability of its combined utility system. As CTUB plans for future capital needs, maintains compliance with applicable Public Service Commission (PSC) requirements, and responds to evolving consumption patterns, establishing transparent, forward-looking, and defensible rates is essential to maintaining reliable service for customers.

CTUB's currently effective rate schedules (service rendered on and after January 1, 2026) already include increasing block volumetric rates and meter-size minimum charges for metered customers, as well as flat-rate charges for non-metered supply, plus a set of miscellaneous fees (e.g., tap fees, disconnect/reconnect fees, returned check charges, leak adjustment rules, and delayed payment penalties). The water tariff also includes capacity improvement fees with usage equivalents for multi-residential and non-residential connections; the sewer tariff includes an excess pollution surcharge framework for high-strength wastewater and an additional capacity fee for the Flowing Springs Pump Station district.

This Water and Wastewater Rate Study will cover a five-year planning horizon (FY2027–FY2032) and will function as a practical financial planning tool to support CTUB's decision-making. The study will evaluate current financial performance, budgets, customer classes, historic usage, future growth assumptions, and debt service obligations, and will translate these inputs into a defensible cost-of-service, revenue requirement, and rate design framework.

The engagement will result in clear recommendations on rate levels and rate structures that support full cost recovery for efficient O&M, capital improvements, and debt service—while minimizing rate shock and maintaining affordability. A key deliverable will be a transparent, flexible, CTUB-owned rate model (with documentation and staff training) that allows CTUB to update assumptions, test scenarios, and support future rate-setting decisions.

OBJECTIVE

The objective of this consultancy is to conduct a comprehensive Water and Wastewater Cost of Service and Rate Study for CTUB, covering FY2027–FY2032, to establish fair, equitable, and financially sustainable rates and charges for water and wastewater services.

Specifically, the assignment will:

1. Determine revenue requirements and rate levels needed to maintain the long-term self-sufficiency and financial stability of CTUB's combined utility system.

2. Evaluate the current rate structures and key design features.

3. Assess financial impacts of planned CAPEX, O&M trends and debt service.

4. Develop and test alternative rate structures and multi-year rate paths that improve revenue stability, strengthen cost reflectivity and equity, and mitigate rate shock.

5. Deliver a transparent, flexible financial and rate model (Excel-based) that CTUB can own and use going forward, including the ability to adjust key drivers in response to economic conditions and to "stress test" scenarios.

6. Provide documentation and knowledge transfer, including hands-on training for CTUB staff and a user guide for the model.

STRATEGY AND APPROACH

Our approach is designed to produce a technically rigorous, transparent, and practical rate study tailored to CTUB's operational and financial realities and consistent with good utility rate-making practice.

Four guiding principles will be applied throughout the assignment:

1. Accuracy and transparency of inputs: We will establish a structured data request and validation process to ensure consistency across budgets, billing/usage data, customer classes, capital plans, and debt service records.
2. Multi-year financial planning and rate stability: A five-year integrated financial plan will be developed, incorporating O&M costs, capital expenditures, depreciation, debt service, reserves, and projected consumption trends. This framework will support the development of sustainable multi-year rate paths while limiting rate shock.
3. Rate design options aligned with usage patterns: We will evaluate existing consumption tiers and test alternative tier structures and fee/charge schedules using historical meter data to ensure tiers are meaningful, equitable, and administratively feasible.
4. Utility-owned tool and capacity building: A central deliverable of the assignment is a CTUB-owned financial and rate model with a clear control panel, transparent calculations, and comprehensive documentation. Training will be provided to ensure CTUB staff can independently update assumptions, run scenarios, and support future rate-setting decisions.

METHODOLOGY

The assignment will be implemented through five interrelated phases. The proposed schedule will be finalized with CTUB at the kick-off meeting and reflected in a detailed work plan.

PHASE 1 – KICK-OFF, DATA COLLECTION, AND BASELINE ASSESSMENT

Phase	1 - KICK-OFF, DATA COLLECTION, AND BASELINE ASSESSMENT
Objective	Confirm scope, data availability, and establish a clear baseline understanding of CTUB's current financial and operational position.
Duration	Months 0–2.
Main activities	1. Kick-off meeting with CTUB management and Board representatives; 2. Data request and data validation (budgets, billing determinants, customer classes, historical usage, debt service, funds/reserves, among others). 3. Baseline assessment of existing rates/revenues and structural features of the current tariffs (tiers, minimum charges, flat rates, contract rate, fees/charges). 4. Optional in-person mission, subject to CTUB's request and agreement, to support data collection, validation, and coordination with CTUB staff.
Deliverables	1. Inception Memorandum; 2. Data Request Log.

PHASE 2 – SITUATIONAL AND COST OF SERVICE ANALYSIS

Phase	2 - SITUATIONAL AND COST OF SERVICE ANALYSIS
Objective	Establish a robust cost-of-service and operational baseline for water and wastewater services.
Duration	Months 0–4.
Main activities	1. Regulatory/institutional review (ordinances, PSC alignment, approval processes).

	2. Service delivery and demand baseline by customer class (general domestic, commercial and industrial service); 3. Review billing and collection rules embedded in current tariffs (e.g., minimum charges for multiple occupancy; sewer minimum charge applicability even when not connected where gravity service is available; late payment penalty). 4. Cost of service: detailed O&M assessment (labor, energy, chemicals, materials, admin), allocation of shared costs across water/wastewater and functional components as appropriate.
Deliverables	1. Situational and Cost of Service Assessment Report.

PHASE 3 – REVENUE REQUIREMENT AND FINANCIAL PLANNING (FY2027–FY2032)

Phase	**3 - REVENUE REQUIREMENT AND FINANCIAL PLANNING (FY2027–FY2032)**
Objective	Determine annual and multi-year revenue requirements and assess financial sustainability.
Duration	Months 3–5.
Main activities	1. Development of a five-year financial forecast integrating: • O&M costs; • capital expenditures and depreciation; • debt service; • projected demand; 2. Identification of revenue gaps under existing rates; 3. Scenario testing and multi-year rate path design to limit rate shock while meeting revenue adequacy.
Deliverables	1. Revenue Requirement and Financial Planning Memorandum.

PHASE 4 – RATE STRUCTURE AND TARIFF DEVELOPMENT

Phase	**4 - RATE STRUCTURE AND TARIFF DEVELOPMENT**
Objective	Develop and evaluate water and wastewater rate structures that are cost-reflective, equitable, affordable, and administratively feasible.
Duration	Months 2–6.
Main activities	1. Rate design options may include: uniform volumetric rates; refined inclining blocks (including potential lifeline blocks); two-part tariffs (fixed + volumetric); recalibration of minimum charges by meter size; revision of flat rates for non-metered supply; and a full review of miscellaneous charges/fees. 2. Financial and Rate Model (CTUB-owned): An Excel-based Financial and Rate Model will be developed and transferred to CTUB. The model will: • integrate cost, demand, capital, and revenue components into a single auditable tool; • include a user-friendly Control Panel for assumptions and scenario switches; • allow testing of alternative rate structures and multi-year paths; • support annual updates and future rate adjustments by CTUB staff; and • be delivered with a User Manual and hands-on training.
Deliverables	1. Rate Structure Options and Impact Analysis; 2. Excel-based Financial and Rate Model with User Manual.

The Tariff–Financial Model will be grounded in local recognized tariff design and economic regulation principles, ensuring consistency with good regulatory practice:

Principle	Description
Cost efficiency and cost recovery	Tariffs should generate a stable and sufficient revenue stream to recover operating, capital, and financing costs, without creating cash flow or funding difficulties for the utility.
Economic efficiency	Tariffs should send appropriate price signals to users, reflecting the marginal costs of providing water and wastewater services, so that consumption and discharge decisions are economically efficient.

Resource conservation	Tariff structures should discourage excessive or wasteful water use and wastewater discharge, promoting the efficient and sustainable use of water resources and system capacity.
Affordability	Tariffs should remain affordable, particularly for low-income households, and may include targeted measures to protect vulnerable customers.
Equity and fairness	Tariffs should treat similar users equally and different users differently, where justified by cost causation or policy objectives.
Simplicity	Tariffs should be easy to understand, communicate, and administer.
Feasibility	Tariff implementation should be administratively feasible and achievable at reasonable cost.
Transparency	Tariff-setting processes should be clear, well-documented, and allow stakeholders to understand how rates are determined.
Flexibility	Tariff structures should be adaptable to changing demand, costs, and policy objectives, and be periodically reviewed to ensure continued effectiveness.

The Tariff–Financial Model will be organized into interlinked worksheets, clearly grouped by function to facilitate ease of use, transparency, and future updates.

Figure 1: End-to-end methodology mapped to the tariff-financial model (Allowed Revenue Requirement → New Tariff Structure)

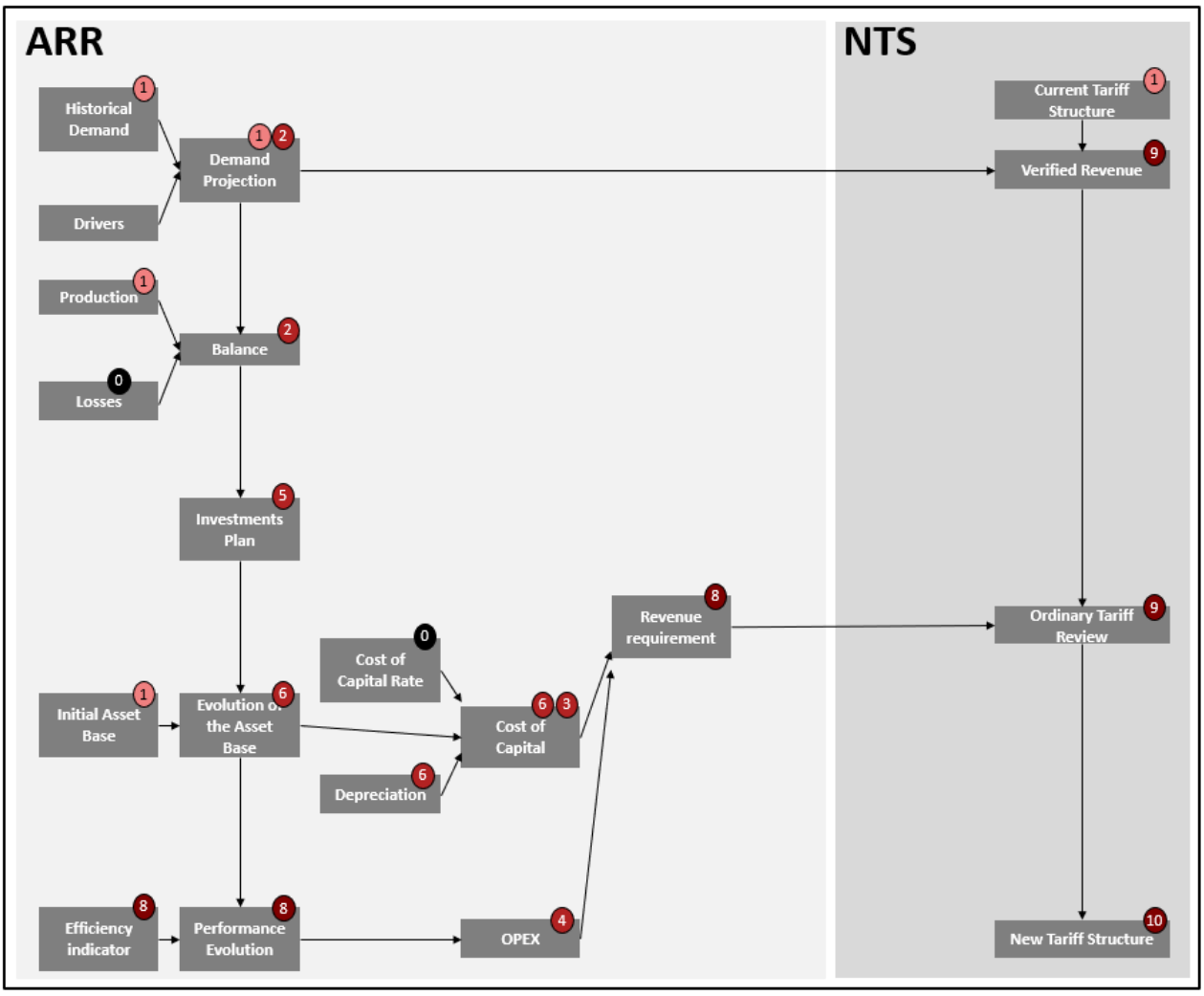
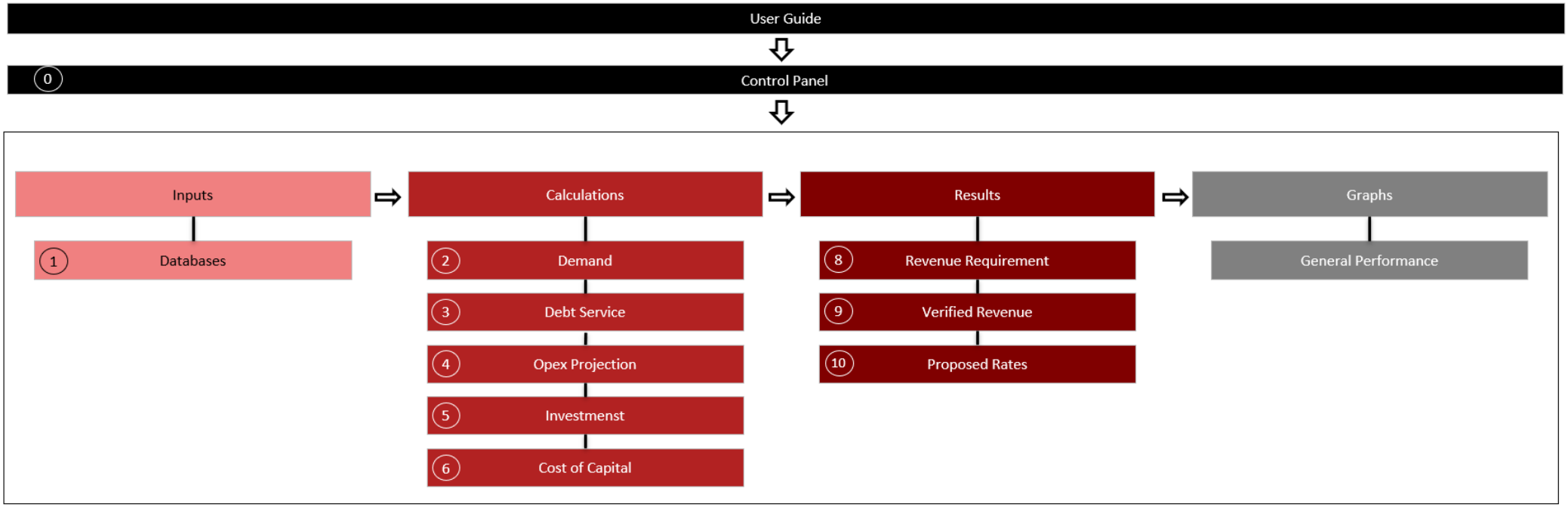


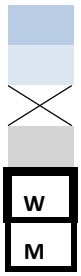
Figure 2: Financial & Rate Model Architecture and Navigation (Control Panel and module structure)



PHASE 5 – CAPACITY BUILDING AND FINAL REPORTING

Phase	5 - CAPACITY BUILDING AND FINAL REPORTING
Objective	Ensure CTUB has the tools and capacity to implement and maintain the rate framework.
Duration	Month 6.
Main activities	**3.** Preparation of training materials and user guides; **4.** Hands-on training sessions with CTUB staff; **5.** Optional in-person training sessions, subject to CTUB's preference, to facilitate knowledge transfer and practical use of the financial and rate model.
Deliverables	**6.** Training Materials and Capacity-Building Report; **7.** Draft Final Report; **8.** *Final Report*.

WORK PLAN



Phase duration

Consultant activity

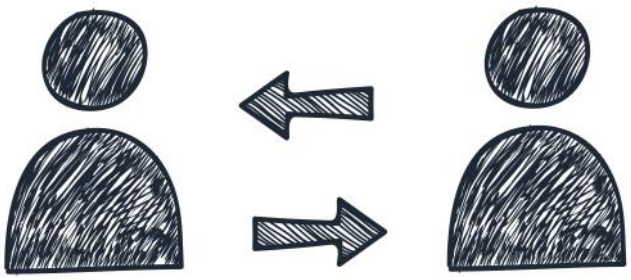
Deliverable

Client approval (not count as consultant working time)

Mission (field activity)

Workshop (field activity)

Phase	Activity	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
1	**KICK-OFF, DATA COLLECTION, AND BASELINE ASSESSMENT**						
1	Kick-off meeting						
1	Data request and validation	**M**					
1	Baseline financial and operational assessment						
1	*Delivery - Inception Memorandum*	X					
1	*Delivery - Data Request Log*	X					
2	**SITUATIONAL AND COST OF SERVICE ANALYSIS**						
2	Regulatory and institutional review						
2	Customer base and demand analysis by class						
2	Review of billing and collection rules						
2	O&M cost analysis and cost allocation						
2	*Delivery - Situational and Cost of Service Assessment Report*				X		
3	**REVENUE REQUIREMENT AND FINANCIAL PLANNING**						
3	Financial model framework setup						
3	O&M, CAPEX, depreciation and debt service projections						
3	Revenue requirement calculation (FY2027–FY2032)						
3	Demand and revenue forecasting under current rates						
3	Scenario and rate path analysis						
3	*Delivery - Revenue Requirement and Financial Planning Memorandum.*					X	
4	**RATE STRUCTURE AND TARIFF DEVELOPMENT**						
4	Diagnostic of current rate structures						
4	Design of alternative rate structures						
4	Development of Excel-based financial & rate model						
4	*Delivery - Rate Structure Options and Impact Analysis.*						X
4	*Delivery - Excel-based Financial and Rate Model.*						X
4	*Delivery - Model User Manual.*						X
5	**CAPACITY BUILDING AND FINAL REPORTING**						
5	Preparation of training materials						
5	Staff training on model use						**W**
5	*Delivery - Training Materials and Capacity-Building Report.*						X
5	*Delivery - Draft Final Report.*						X
5	*Delivery - Final Report.*						X



Consultant Team

1. INTRODUCTION

This section presents the proposed consulting team responsible for the implementation of the assignment. The objective is to demonstrate that the Consultant has assembled a multidisciplinary team with the technical expertise, professional experience, and institutional knowledge required to successfully deliver the scope of work and achieve the objectives defined in the Terms of Reference.

2. KEY TEAM MEMBERS AND ROLES

The following section presents the list of expert consultants, outlining their roles, education, and years of experience.

Consultant	Position	Degree/certificate or other specialized education obtained	Years of experience
Anabella Novara	Project Manager / Team Leader – Water & Wastewater Rate Study	Postgraduate in Oil & Gas Economics – Buenos Aires Institute of Technology, 2002 Certified Public Accountant - National University of Córdoba, 1998	>25
Fernando Damonte	Technical Director – Utility Tariff Strategy	Master of Arts in Economics, University of Florida, 2016 Industrial Engineer, Catholic University of Córdoba, 1996	>30
Mariana de Santis	Senior Economist – Cost of Service and Rate Design	PhD in Economic Sciences - Faculty of Economic Sciences, National University of Córdoba, 2002 Bachelor of Economics - Faculty of Economic Sciences, National University of Córdoba, 1998	>28
Damián Halabi	Senior Cost of Capital and Cost-of-Service Expert	Postgraduate in Environmental Engineering, University of Belgrano, Argentina, 2009 Master's Degree in Economics, Twenty-First Century Business University, Argentina, 2007 Industrial Engineer, Catholic University of Córdoba, Argentina, 2002	>20
Daniel Tenenwurcel	Senior Utility Finance and Revenue Requirement	Postgraduate in Financial Management, Fundação Getúlio Vargas, 2022 Master's Degree in Administration with an emphasis in Finance, Federal University of Minas Gerais, 2019	>15

		Bachelor's Degree in Economics, Federal University of Minas Gerais, 2013	
		Bachelor's Degree in Public Administration, Fundação João Pinheiro, 2011	
Verival Rios Pereira	Tariff Review and Regulatory Methodology Specialist	MBA in Controllership and Finance, Fucape Business School, 2020	>7
		Bachelor's Degree in Economics, Federal University of Paraná, 2008	
María Lucila Brouard Uriburu	Tariff Modeling Analyst	Master's Degree in Green Economy. Business Strategies for Sustainability - Next International Business School, Madrid – Spain, 2020	>5
		Industrial Engineer - Technological University of Córdoba, Argentina, 2019	
Tomas Halabi	Regulatory Analyst	Master in Economics and Development - Sevilla University, Spain, 2022	>5
		Industrial Engineer - Technological University of Córdoba, Argentina, 2018	

3. CURRICULUM VITAE OF THE CONSULTING TEAM

Anabella Novara

Project Manager / Team Leader

Education	**2002** - **Postgraduate in in Oil & Gas Economics** – Buenos Aires Institute of Technology, Argentina
	1998 - **Certified Public Accountant** - National University of Córdoba, Argentina
Contact	**Email**: anovara@quantumamerica.com
	Mobile Phone: +34 625 83 55 68
Membership in Professional Associations and Publications	Professional Council of Economic Sciences of Córdoba, Argentina
Main Competencies	Project Management of Regulatory and Tariff Studies
	Water and Sanitation Tariff Models and Regulatory Frameworks
	Regulatory Accounting Systems and ABC Costing
	Cost-of-Service Analysis across Utility Sectors
	Multilateral-Funded Projects (World Bank, IDB, GIZ)
	Capacity Building and Technical Training for Regulators and Utilities

Anabella Novara currently serves as Project Manager for regulatory and tariff studies, with a strong focus on water and sanitation services. She has extensive experience leading cost-of-service studies, tariff modeling exercises, and regulatory accounting projects, including the development of activity-based costing (ABC) systems to support tariff setting and financial sustainability assessments for public utilities.

Throughout her career at Quantum, she has coordinated and led multidisciplinary teams in the preparation of tariff frameworks, regulatory accounting information systems, and cost-allocation models for water and sanitation utilities, as well as for other regulated infrastructure sectors such as electricity, natural gas, and transportation. Her role typically involves project planning, coordination with utilities and regulatory authorities, quality control of technical outputs, and presentation of results to senior decision-makers.

Anabella has participated in projects across a wide range of institutional and operational contexts, including assignments in Argentina, Brazil, Chile, Uruguay, Peru, Bolivia, Colombia, Ecuador, Panama, Guatemala, the Dominican Republic, Cameroon, the Solomon Islands, and Mozambique. Many of these projects were funded by international financial institutions such as the World Bank, the Inter-American Development Bank, and GIZ, requiring strict compliance with methodological rigor, transparency, and reporting standards.

In addition to her consulting work, Anabella has been a frequent speaker at public service regulation seminars organized by Quantum and has delivered in-company training sessions for utilities and regulatory agencies, particularly on tariff models, regulatory accounting, and cost-of-service methodologies.
Anabella speaks native Spanish, fluent English, product of having resided in the United States of America, and advanced Portuguese.

Fernando Damonte

Technical Director

Education	**2016** - **Master of Arts in Economics**, University of Florida
	1996 - **Industrial Engineer**, Catholic University of Córdoba
Contact	**Email**: fdamonte@quantumamerica.com
	Mobile Phone: +54 9351 7045176
Membership in Professional Associations and Publications	**Book Chapter**: Os Novos Rumos da Distribuição de Gás Canaliza – 2022. Cid Tomanik Pompeu Filho and Daniela Santos – Coordinators. Chapter 17 - The New Rumes of the Distribution of Channeled Gas, Author: Fernando Damonte.
	Article: The technical efficiency of Brazilian electricity distributors during 2003-2012: an application of stochastic distance functions - Authors: Mariana De Santis, Fernando Damonte, Elías Curi – IPEA.
	Article: Perspectives of interested parties in the process of tariff reform of electricity distributors. Authors: Ryan Hledik, Ahmad Faruqui, Fernando Damonte, Carlos Morosoli, Elias P. Curi, Nicole Irwin, Kathryn Haderlein, Daniel König, Matias Labedz. ABRADEE Institute.
	Article: Novos Serviços de Distribuição de Energia Elétrica: Oportunidades e Riscos. Authors: Ryan Hledik, Ahmad Faruqui, Fernando Damonte, Carlos Morosoli, Elias P. Curi, Nicole Irwin, Kathryn Haderlein, Daniel König, Matias Labedz. ABRADEE Institute.
	Book Chapter: Technical and Economic Regulation in Natural Monopolies: Conceptual and Methodological Reflections in the Distribution of Electric Energy. – Author: Instituto ABRADEE Participation as Co-Author of Chapter IV – Regulatória Remuneration Base
	Article: The efficiency of Brazilian electricity distributors during 2004 – 2009. An application using DEA corrected by environmental and stochastic factors. Authors: Fernando Damonte, Mariana De Santis, Sanford Berg (University of Florida)
Multimedia & Press	CPCE Cordoba - Eng. Fernando Damonte - V Climate Change Forum - https://www.youtube.com/watch?v=Tqo9RiO0mJM
	Infonegocios - https://infonegocios.info/enfoque/luque-y-villa-general-belgrano-abren-el-camino-a-las-comunidades-solares-el-negocio-que-promueve-iris-energia
	https://www.pressreader.com/argentina/negocios/20210704/281509344172689 - Fernando Damonte Specialist in generating clean energy and making it community - PressReader.com - Digital Newspaper & Magazine Subscriptions
	Path to 100% — Q&A Series: Fernando Damonte on Accelerating Decarbonization in Argentina

	https://www.pathto100.org/serie-de-preguntas-y-respuestas-fernando-damonte-sobre-la-aceleracion-de-la-descarbonizacion-en-argentina/
	https://www.cadena3.com/noticia/resumen-3/damonte-el-estado-no-puede-seguir-subsidiando-la-energia_326407
Main Competencies	Regulatory Studies
	Strategic Services
	Economic and Financial Analysis
	Benchmarking
	Simulation Models

Fernando Damonte is Director of Quantum and has more than 25 years of professional experience in the regulation and tariff analysis of public utilities. In his role as Technical Director, he supervises and coordinates consulting projects, actively participating in the definition of methodologies, the review of technical results, and the presentation of findings to clients and regulatory authorities.

His professional background includes extensive experience in tariff design, regulated cost estimation, benchmarking, and efficiency analysis for utility services. During the early stages of his career, he served as Head of Tariffs at Distribuidora de Gas del Centro and Distribuidora de Gas Cuyana in Argentina. Since joining Quantum, he has participated in numerous tariff reviews and cost studies across Latin America and other regions.

While his experience spans several regulated sectors, including electricity and natural gas, Fernando has also contributed to cost-of-service analyses and tariff structure design for water and sanitation utilities as part of integrated regulatory and benchmarking studies. His work frequently involves the estimation of efficient costs, the assessment of financial sustainability, and the development of tariff strategies aimed at balancing cost recovery, service expansion, and efficiency incentives.

Fernando has participated as a speaker in a wide range of international seminars, courses, and training programs on utility regulation and tariffs, including events organized by regulatory agencies, universities, and industry associations. He has also co-authored academic publications and book chapters on tariff design, efficiency estimation, and regulatory methodologies. His professional interests are particularly focused on comparative efficiency analysis, best practices in utility regulation, and regulatory strategies that promote sustainable service provision and continuous improvement.

Fernando speaks native Spanish, fluent English, product of having resided in the United States of America, and advanced Portuguese.

Mariana de Santis

Senior Economist

Education	**2002** - **PhD in Economic Sciences** - Faculty of Economic Sciences, National University of Córdoba
	1998 - **Bachelor of Economics** - Faculty of Economic Sciences, National University of Córdoba
Contact	**Email**: mdsantis@quantumamerica.com
	Mobile Phone: +54 9 351 2052299
Membership in Professional Associations and Publications	Institution: Conselho Regional de Economia de Minas Gerais CORECON MG nº 8212
	Institution: Faculty of Economic Sciences, National University of Córdoba, Argentina
	Mariana De Santis, Fernando Damonte & Elías Curi (2019). A eficiência técnica das distribuidoras de eletricidade do Brasil durante 2003-2012: Uma aplicação de funções de distância estocásticas. Pesquisa e Planejamento Economico. Brasilia: IPEA. 2019 vol. 49 n° 1 - . issn 0100-0551. https://www.ipea.gov.br/portal/images/stories/PDFs/ppe/190508_ppe_v49_n1.pdf
	Mariana De Santis & Damián Halabi (2015). Benchmarking en el sector de saneamiento de Brasil: aplicación de fronteras estocásticas con datos de panel. Revista de Economía y Estadística. Córdoba: Instituto de Economía y Finanzas. Facultad de Ciencias Económicas. Universidad Nacional de Córdoba. 2015. vol .53 n°.1 p – 25-60. https://revistas.unc.edu.ar/index.php/REyE/article/view/16411
	Fernando Damonte, Mariana De Santis & Sanford Berg. The efficiency of Brazilian electricity distributors during 2004 – 2009. An application using DEA corrected by environmental and stochastic factors. https://www.semanticscholar.org/paper/The-efficiency-of-Brazilian-electricity-during-2004-Damonte-Santis/f01debda69bc686e3100f347cc13ff978e6361a9
	Mariana De Santis, María C. Ganame & Pedro Moncarz (2022). The Impact of Overeducation on Wages of Recent Economic Sciences Graduates. Social Indicators Research: Springer Nature. http://dx.doi.org/10.1007/s11205-022-02905-w
	Mariana De Santis, María C. Ganame & Pedro Moncarz (2021). Job Satisfaction of Recent University Graduates in Economics Sciences: The Role of the Match Between Formal Education and Job Requirements. Journal of Happiness Studies, Springer Nature, https://doi.org/10.1007/s10902-021-00360-x.
	Andrea Carrazana Rivera & Mariana De Santis (2021). Socioeconomic Inequalities in Alcohol Consumption in Argentina: Comparative Analysis from 2009, 2013, and 2018. Drug and Alcohol Dependence: Elsevier. https://doi.org/10.1016/j.drugalcdep.2021.108942
	Gisela González, Milva Geri & Mariana De Santis. (2021) Descomposición de la inequidad en la distribución de dependencias funcionales entre adultos mayores de Argentina. Revista Cubana de Medicina Integral: Editorial de Ciencias Médicas. Vol. 37 n°30.

	Andrea Carrazana Rivera & Mariana De Santis (2019). Socioeconomic inequalities in alcohol consumption in argentina: comparative analysis 2009 - 2013. Journal of Fetal Alcohol Spectrum Risk and Prevention. Canadá. Dundas. Revista. Resumen. Congreso. International Meeting of the Latin America Society for Biomedical Research on Alcoholism (LASBRA).
	Milva Geri; Mariana De Santis & Nebel Moscoso. (2019). Inequity in access to the Argentinian pension system (1994-2017). International Social Security Review.: International Social Security Association. vol.72 n°1. p83 - 105. eissn 1468-246X.
	Andrea Carrazana Rivera & Mariana De Santis (2019). Determinantes socioeconómicos y demográficos del gasto en alcohol de las familias del área urbana del altiplano boliviano. Perspectivas.Cochabamba: Universidad Católica Boliviana San Pablo,Unidad Académica Regional Cochabamba. vol.22 n°43. p51 - 78. eissn 1994-3733.
	Mariana De Santis & Mauricio Caggia (2018). Preferencias por la distribución del ingreso. Un análisis empírico para Argentina entre 1995 y 2012. Compendium: Cuadernos de Economía y Administración.Guayaquil: Facultad de Ciencias Sociales y Humanísticas de la Escuela Superior Politécnica del Litoral. vol.5 n°10. p77 - 102. issn 1390-9894.
Main Competencies	Water and Sanitation Tariff Design and Cost-of-Service Analysis
	Economic Regulation of Public Utilities
	Financial Sustainability, Affordability and Subsidy Analysis
	Demand Forecasting and Quantitative Modeling
	Benchmarking and Efficiency Analysis (including X-Factor)
	Social, Equity and Gender-Informed Regulatory Analysis

Mariana De Santis is a senior economist with more than 20 years of professional experience in the analysis of regulated markets and the design of tariff and cost-of-service frameworks for public utilities, including water supply and sanitation, electricity, and natural gas. She holds a Ph.D. in Economics from the National University of Córdoba, which supports her strong analytical background and her ability to integrate economic rigor with public policy objectives.

Her professional career has been primarily developed at Quantum, where she has specialized in economic regulation, cost-of-service analysis, tariff design, demand forecasting, efficiency benchmarking, and financial sustainability assessments. Mariana has participated in a large number of tariff studies and regulatory reviews in the water and sanitation sector, particularly in Brazil, supporting regulators and utilities in the estimation of efficient operating costs, tariff structures, affordability analysis, and regulatory benchmarking.

In parallel, she has developed extensive experience in comparative efficiency and productivity studies across regulated sectors, applying econometric and frontier-based methodologies to support cost benchmarking and incentive regulation. Her work also includes demand projection and quantitative modeling applied to tariff calculations, multi-year planning exercises, and scenario analysis for utilities operating under different regulatory and data conditions.

A distinctive feature of Mariana's profile is her integration of social and equity considerations into tariff and cost-of-service analysis. Her work frequently incorporates affordability assessments and distributional impacts, contributing to the design of tariff schemes that are financially sustainable while remaining socially balanced.

In addition to her consulting activities, Mariana is a tenured Full Professor at the National University of Córdoba and

Director of the Institute of Economics and Finance. She is actively involved in applied research, academic supervision, and capacity-building initiatives, and is a frequent speaker at international seminars and training programs on utility regulation and tariff design. She is fluent in Spanish and has advanced proficiency in English and Portuguese.

Damián Halabi

Senior Cost of Capital and Cost-of-Service Expert

Education	**2016 - Postgraduate in Environmental Engineering** - Technological University of Córdoba, Argentina (ongoing)
	2009 - Postgraduate in Financial Analysis - University of Belgrano, Argentina
	2007 - Master's Degree in Economics - Twenty-First Century Business University, Argentina
	2002 - Industrial Engineer - Catholic University of Córdoba, Argentina
Contact	**Email**: dhalabi@quantumamerica.com
	Mobile Phone: +54 9 3513 17-6731
Membership in Professional Associations and Publications	Member of the College of Specialist Engineers of Córdoba - 2002
	Benchmarking en el Sector de Saneamiento de Brasil: Una Aplicación de Fronteras Estocásticas con Datos de Panel. Revista De Economía Y Estadística, 53(1), 25-60. Authors: De Santis, M., & Halabi, D. (2016).
	Estructuras tarifarias que promuevan la universalización y uso eficiente del agua. V Congreso de gestión y tratamiento integral del agua, Authors: Halabi & Novara, 2014.
	Tasa de costo de capital en saneamiento. “Regulação do saneamento básico”. Editorial
	Manole, 2013, capítulo 9. Autores: Halabi & Morosoli & Gonçalves, 2013.
Main Competencies	Economic and Financial Equilibrium Analysis of Utilities and Concessions
	Cost of Capital Estimation (WACC, CAPM)
	Tariff Studies and Efficient Tariff Structure Design
	Benchmarking and Efficiency Analysis (OLS, SFA, DEA)
	Regulatory Framework Design and Contract Renegotiation
	Utility Valuation and Feasibility Studies

Damián Halabi has extensive experience coordinating and participating in projects focused on the economic and financial equilibrium of regulated utilities and concessions. His work includes cost-of-service studies, tariff analyses, feasibility assessments, and the valuation of utility companies across the water and sanitation, electricity, natural gas, and urban transport sectors.

A central component of his expertise is the estimation of the cost of capital, including the application of WACC and CAPM methodologies, as well as the development of efficient cost benchmarks using parametric and non-parametric techniques such as OLS, stochastic frontier analysis, and data envelopment analysis. These tools have been applied to support tariff reviews, productivity factor estimation, and regulatory decision-making processes.

Damián has also participated in projects related to the design of regulatory frameworks, contract renegotiation, and tariff structure definition in multiple countries. He has co-authored academic publications and book chapters on cost of capital estimation, efficient tariff structures, and efficiency measurement methodologies in water and sanitation and other regulated utility sectors. His native language is Spanish; however, he also speaks Portuguese and English.

Daniel Rennó Tenenwurcel

Senior Utility Finance and Revenue Requirement Specialist

Education	**2022 - MBA in Financial Management -** Fundação Getúlio Vargas, Brazil
	2021 - Masters in Administration - Federal University of Minas Gerais (UFMG), Brazil
	2014 - Bachelors in Economics - Federal University of Minas Gerais (UFMG), Brazil
	2012 - Bachelors in Public Administration - Fundação João Pinheiro, Brazil
Contact	**Email**: dtenenwurcel@quantumamerica.com
	Mobile Phone: +54 9 351 2052299
Membership in Professional Associations and Publications	**Article**: O estágio da regulamentação do mercado livre de gás nos estados. In: A Regulação de Infraestruturas no Brasil. TENENWURCEL, D.; NIERO, D. C. 1 ed. São Paulo: KPMG, 2021, v.1, p. 1-1127.
	Article: Determinants of indebtedness of brazilian companies listed in B3 with and without insolvency risk. LOTT, VINÍCIUS FREITAS; TENENWURCEL, DANIEL RENNÓ; CAMARGOS, MARCOS ANTÔNIO DE. Revista de administração da UFSM. , v.14, p.79 - 99, 2021.
	Article: O papel dos estados no novo mercado de gás: análise do caso de Minas Gerais. JÚNIOR, A. C. O.; TENENWURCEL, D. R. IN: REIS, H. et al. Temas relevantes do novo mercado de gás natural: uma análise jurídica e regulatória, tomo I. Rio de Janeiro. Synergia, 2020.
	Article: Low Carbon Transition through Renewables Sources? An Overview of the Renewable Energy Program in the State of Minas Gerais. DOS ANJOS, MORJANA M.; TENENWURCEL, DANIEL R.; SANTOS, LARISSA A. O.; FERREIRA, WEMERSON R.; COSTA, ANTONELLA L.; PEREIRA, ELIZABETH M. D. Journal of Sustainable Development of Energy, Water and Environment Systems, v. 8, p. 252-267, 2020.
	Book chapter: Os desafios e potenciais da nova economia em Minas Gerais. TENENWURCEL, D. R.; FARIA, G. A. D.; BORTOLINI, L. V.; COSTA, V. A. M. IN: QUEIROZ, A. G. Ideias em desenvolvimento: políticas para a promoção do desenvolvimento econômico em Minas Gerais, 2014, Belo Horizonte. FJP.
Main Competencies	Utility Finance and Cost-of-Service Analysis
	Tariff Design, Tariff Reviews and Revenue Requirement Calculations
	O&M Costing, Cost Recovery and Financial Sustainability
	Economic and Financial Regulation of Water and Sanitation Utilities
	Regulatory Methodologies, Benchmarking and Efficiency Analysis
	Institutional Strengthening and Regulatory Reform Support

Daniel Rennó Tenenwurcel is a senior regulatory and utility finance specialist with over ten years of professional

experience in the economic and financial regulation of public utilities, with a strong focus on water and sanitation services. He holds a Master's Degree in Administration, an MBA in Financial Management, and undergraduate degrees in Economics and Public Administration, providing a solid multidisciplinary foundation for cost recovery, tariff regulation, and public policy analysis.

Daniel has extensive hands-on experience in utility finance, cost-of-service analysis, operating and maintenance cost assessment, tariff structuring, and revenue requirement calculations. His professional background combines regulatory authority experience with international consulting assignments, allowing him to address tariff and financial sustainability challenges from both institutional and operational perspectives.

From 2020 to 2022, he served as Manager of Tariff Regulation at ARSAE-MG, the Water and Sanitation Regulatory Agency of Minas Gerais (Brazil), where he was directly responsible for tariff reviews, tariff adjustments, revenue requirement calculations, efficiency benchmarking, and the development of regulatory methodologies for major water and sanitation utilities, including COPASA and COPANOR. His responsibilities included managing multidisciplinary teams, leading public consultations, and supporting regulatory decision-making at board level.

At Quantum, Daniel contributes to tariff studies, cost recovery models, regulatory accounting tools, and financial sustainability assessments for utilities, including projects financed by international organizations such as the World Bank, the Inter-American Development Bank, USAID, and BNDES. His experience is particularly relevant for assignments requiring robust cost-of-service analysis, revenue sufficiency assessments, and the design of financially sustainable and affordable tariff structures. Daniel speaks native Portuguese, as well as advanced Spanish and English.

Verival Ríos Pereira

Tariff Review and Regulatory Methodology Specialist

Education	**2020** - **MBA in Controllership and Finance** - Fucape Business School
	2008 – **Economist** - Federal University of Paraná
Contact	**Email**: vpereira@quantumamerica.com
	Mobile Phone: +54 9 351 2052299
Membership in Professional Associations and Publications	**Article**: Regulatory Accounting Applied to the Sanitation Sector: State-Level Regulatory Experiences. KORITIAKE, M.; PEREIRA, V. R. 1st ed. São Paulo: KPMG, 2021, Vol. 1, pp. 1–1127.
Main Competencies	Economic Regulation of Water and Sanitation Utilities
	Tariff Review and Tariff Adjustment Processes
	Regulatory Frameworks and Methodological Development
	Cost-of-Service and Economic-Financial Equilibrium Analysis
	Regulatory Oversight and Performance Evaluation
	Institutional Strengthening of Regulatory Agencies

Verival Rios Pereira is a Senior Consultant at Quantum with over seven years of professional experience in the economic regulation of public utilities, with a strong specialization in water and sanitation services. He has a solid academic background in economics and finance and extensive experience in tariff review processes, regulatory frameworks, and economic-financial equilibrium analysis.

Prior to joining Quantum, Verival worked at the Espírito Santo State Public Services Regulatory Agency (ARSP), where he was involved in the economic regulation of sanitation services, road infrastructure, and natural gas. Serving as Regulation Analyst and later as Regulation Manager, he actively participated in tariff reviews, tariff adjustments, and regulatory evaluations, including the coordination of the first tariff reviews of Companhia Espírito-Santense de Saneamento (CESAN).

His experience combines regulatory authority practice with consulting work, contributing to the development and application of transparent, technically robust tariff-setting methodologies and regulatory oversight mechanisms for water and sanitation utilities. Verival speaks native Portuguese, as well as advanced Spanish and English.

María Lucila Brouard Uriburu

Tariff Modeling Analyst

Education	**2020 - Master's Degree in Green Economy. Business Strategies for Sustainability** - Next International Business School, Madrid – Spain
	2019 – Industrial Engineer - Technological University of Córdoba, Argentina
Contact	**Email**: lbrouard@quantumamerica.com
	Mobile Phone: +54 9 351 2052299
Main Competencies	Cost-of-Service and Tariff Studies for Utilities
	Public Services Modernization and Regulatory Support
	Tariff Review Processes in Water, Sanitation, Energy and Gas
	Economic and Financial Analysis of Utility Operations
	Support to Multilateral and International Development Projects
	Energy Transition and Green Economy Applications in Utilities

Lucila Brouard is an Industrial Engineer with a Master's Degree in Green Economy and has been working as a consultant at Quantum since 2020. Her professional experience focuses on supporting cost-of-service studies, tariff reviews, and tariff modeling exercises for public utilities, with particular involvement in projects related to water and sanitation services.

She has participated in consultancy assignments across multiple countries, contributing to data analysis, tariff modeling, and financial assessments for utilities operating under diverse regulatory and institutional contexts. Her recent experience includes direct involvement in cost-of-service and tariff studies for water utilities, as well as support to comprehensive tariff review processes in the energy and gas sectors.

Lucila has also collaborated on projects financed by international development institutions, supporting initiatives related to sustainability, energy transition, and the modernization of public services. Her profile combines technical tariff analysis with a sustainability-oriented perspective relevant to long-term utility planning. Her native language is Spanish; however, she also speaks Portuguese and English.

Tomás Halabi

Regulatory Analyst

Education	**2022 - Master in Economics and Development** - Sevilla University, Spain.
	2018 – Industrial Engineer - Technological University of Córdoba, Argentina
Contact	**Email**: thalabi@quantumamerica.com
	Mobile Phone: +39 3292446759
Main Competencies	Regulatory Framework Design and Analysis
	Energy and Utilities Regulation
	Legal and Institutional Analysis for Public Utilities
	Alignment of Economic & Financial Measures with Regulatory Frameworks
	Comparative Regulatory Studies (Latin America)
	Regulatory Reform and Implementation Support

Tomás Halabi is a regulatory and public policy consultant with experience in the design, analysis, and implementation of legal and regulatory frameworks for public utilities. Since joining Quantum in 2020, he has contributed to consultancy projects focused on strengthening regulatory institutions, modernizing regulatory frameworks, and ensuring consistency between economic, financial, and legal instruments.

His work has involved the analysis of regulatory models governing electricity, natural gas, and other utility services, as well as the assessment of how tariff methodologies, cost recovery mechanisms, and investment incentives interact with existing laws, concession contracts, and institutional mandates. This experience is particularly relevant for ensuring that proposed tariff structures and cost-of-service methodologies are legally robust and institutionally implementable.

Tomás has participated in projects with regulators, public authorities, and utilities across several Latin American countries, contributing to regulatory guidelines, technical notes, and institutional analyses that support regulatory decision-making and implementation.

Tomás is a native Spanish speaker who also speaks advanced Portuguese, English and Italian.



Financial Proposal

1. INTRODUCTION

The following section presents the proposed financial offer for the Water and Wastewater Rate Study. The proposal clearly differentiates between professional fees associated with technical work and travel-related reimbursable expenses, in accordance with the scope defined in the Terms of Reference.

Professional fees ("Work Costs") include all labor required to perform the technical and analytical activities described in the proposal.

Travel costs ("Travel Costs") correspond exclusively to out-of-pocket expenses related to in-person activities, including transportation, accommodation, and per diem allowances. Travel costs are limited to specific phases where on-site engagement is required.

Should CTUB prefer to carry out the assignment entirely in a remote modality, all travel-related costs would be excluded, and the total contract amount would be adjusted accordingly.

2. FEE BREAKDOWN BY PHASE

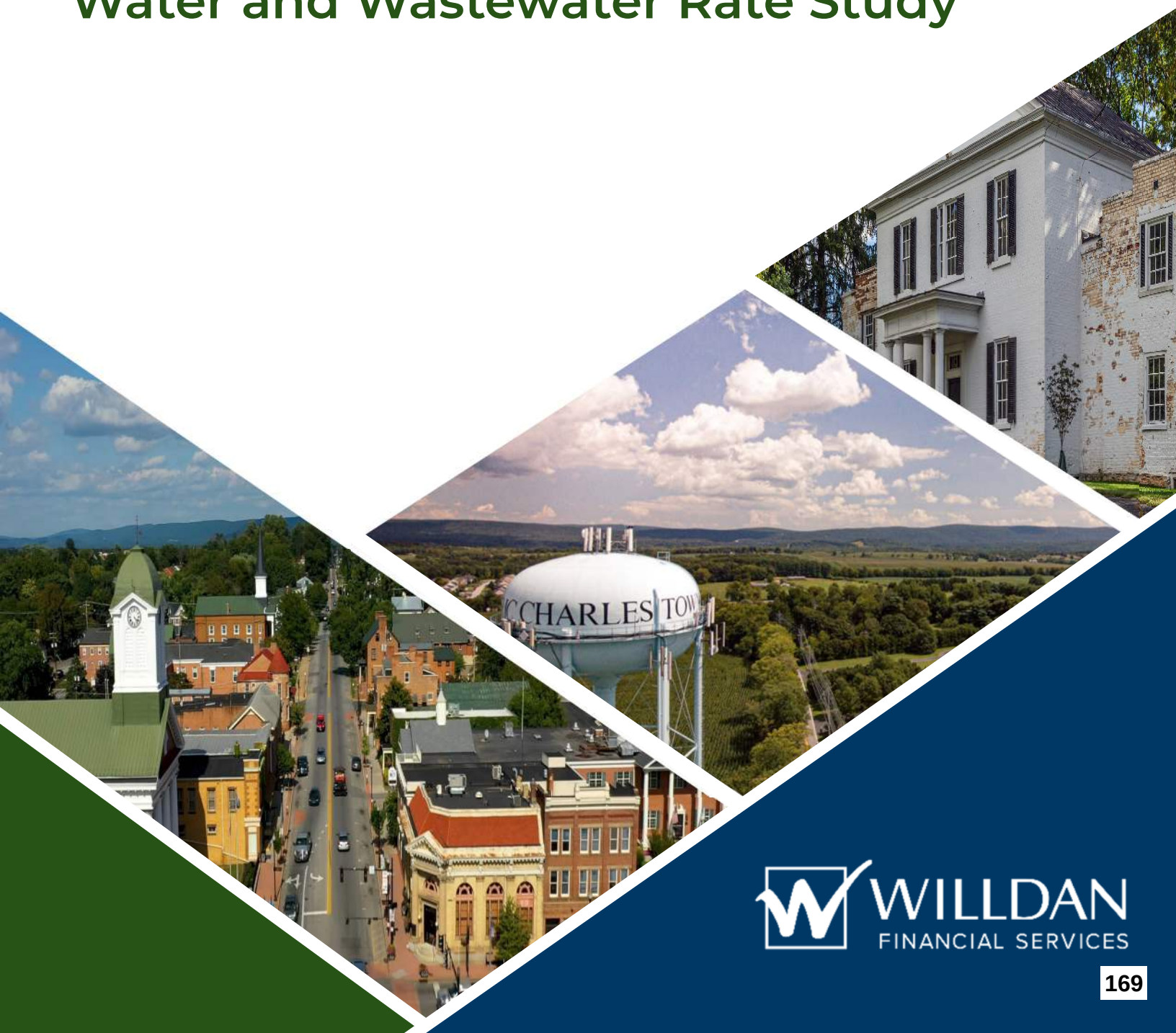
The proposed total lump-sum fee for the assignment amounts to USD 134,950, structured by project phase as follows:

Phase	Activity	Payments (%)	Travel Costs (USD)	Work Costs (USD)	Total (USD)
1	**KICK-OFF, DATA COLLECTION, AND BASELINE ASSESSMENT**	12%	4,243	14,760	19,003
2	**SITUATIONAL AND COST OF SERVICE ANALYSIS**	21%	-	25,920	25,920
3	**REVENUE REQUIREMENT AND FINANCIAL PLANNING**	32%	-	38,970	38,970
4	**RATE STRUCTURE AND TARIFF DEVELOPMENT**	27%	-	33,210	33,210
5	**CAPACITY BUILDING AND FINAL REPORTING**	8%	8,487	9,360	17,847
	TOTAL	**100%**	**12,730**	**122,220**	**134,950**

City of Charles Town, WV

Proposal

Water and Wastewater Rate Study



WILLDAN
FINANCIAL SERVICES

Cover Letter & Contact Information

February 6, 2026

Ms. Ashley Stottlemyer
Board Secretary
Charles Town Utility Board
City of Charles Town
661 S. George Street, Suite 101
Charles Town, WV 25414

via email: astottlemyer@ctubwv.com

Re: Proposal to Conduct a Water and Wastewater Rate Study for the City of Charles Town and the Charles Town Utility Board

Dear Ms. Stottlemyer:

Willdan Financial Services ("Willdan") appreciates the opportunity to submit our proposal to the City of Charles Town and the Charles Town Utility Board ("CTUB") to conduct a Water and Wastewater Rate Study. This proposal outlines our experience, expertise, and project understanding.

To ensure rates remain equitable, financially sustainable, and aligned with evolving system needs, CTUB has issued a request for proposals for a comprehensive water and wastewater rate study. This study will evaluate rate levels, structures, capital funding requirements, and long-term financial strategies while balancing affordability and minimizing rate shock for customers.

For more than 30 years, Willdan has partnered with hundreds of public utilities to navigate complex financial environments and advance their long-term strategic goals. As one of the nation's leading public sector consulting firms, our practice is defined by the enduring relationships we have built with over 800 public agencies. We offer more than advisory services—we bring decades of institutional knowledge and proven experience to every engagement.

Willdan's approach is collaborative and fully integrated with CTUB's operations, resulting in a shared, actionable financial roadmap. Our services include, but are not limited to, the following:

- **Financial Health Assessments** – drawing on our extensive experience in utility financial matters, Willdan conducts an in-depth diagnostic of your system's historical and current financial position. This analysis provides important information regarding such things as liquidity, debt management, asset management, and other key performance indicators.
- **Comprehensive Financial Planning** – We partner with you to build a multi-year strategic blueprint. Using our state-of-the-art modeling, we integrate your operational and financial goals—from capital funding to debt coverage—into a unified plan that provides the clarity and confidence needed to navigate the future and maintain financial sustainably.
- **Cost-of-Service Studies** – As nationally recognized specialists, we perform detailed analyses that equitably distribute system costs. Our process ensures that your financial plan bridges the gap between technical fairness and your broader organizational values, such as affordability and resource conservation.
- **Rate Design** – We work in tandem with your team to engineer rate structures that achieve a perfect balance between full cost recovery and community impact. By aligning our expertise with your specific objectives, we ensure your rates are both defensible and a reflection of your system's goals.

The Willdan team is built on a foundation of decades of experience in utility operations and financial management. We are not just consultants; we are highly specialized partners uniquely equipped for this engagement. Our team's expertise merges seamlessly with your goals, ensuring a level of qualification and commitment that is further detailed below.

Project Team/Experience — For this engagement, Willdan has brought together a team with 99 years of combined expertise in utility rate and financial consulting. Leading this effort is Mr. Erik Johnson, Principal Consultant, who has been a trusted utility advisor in the region since 2009. **We would like to mention Willdan's recent acquisition of Compass Municipal Advisors ("Compass") and highlight the inclusion of Mr. Michael George, Managing Director, on our project team.** Having provided municipal advisory service to CTUB for 9 years, Michael's inclusion on Willdan's team ensures that our solutions will not only be technically sound but also synchronized with CTUB's long-term financial goals.

Regional Experience — Project Manager Erik Johnson offers a combination of regional insight and specialized expertise in water and wastewater rate-setting. By uniting Erik's regional regulatory knowledge with Willdan's national resources, we ensure a partnership that is both nationally informed and locally grounded. Furthermore, with Compass now integrated into the Willdan family, we can combine their understanding of CTUB's history and finances with our rate-setting expertise. This synergy allows us to deliver a more refined, efficient, and distinctly tailored strategy for your system.

Unique Approach — Our approach to utility rate development is the product of years of refinement. While other firms often silo engineering and finance, Willdan can integrate these disciplines, combining unmatched rate and financial modeling with a comprehensive understanding of operational matters. We don't just deliver a report; we align with the CTUB staff as a single team to uncover the unique nuances of each utility system, ensuring our solutions are as distinct as the communities they serve.

Through an interactive and collaborative process, Willdan will deliver a customized, easy-to-use Microsoft Excel financial model that CTUB will retain as a long-term planning tool. The model and accompanying documentation will provide a tailored assessment of current rates, revenues, capital investments, operating costs, debt commitments, reserve policies, and other financial needs. This work will culminate in a comprehensive financial management plan that projects system performance and a sustainable rate path over a ten-year horizon.

Communicating the Results — While rigorous technical analysis is the foundation of Willdan's work, lasting success depends on shared understanding and buy-in. We approach this effort as a collaborative bridge between data and the community. By clearly and transparently explaining the rationale behind proposed fee structures, we align CTUB staff, the Board, and stakeholders around a common vision—ensuring proposed rates are not only understood but supported.

Willdan would like to thank you for your consideration and for the opportunity to submit this proposal to the CTUB. If you have any questions, please do not hesitate to contact Managing Principal, Jeff McGarvey or Erik Johnson, their contact information is provided below.

Contact Information	
Authorized Representative	**Primary Contact**
Jeffrey McGarvey Vice President	Erik Johnson, MAE Principal Consultant
Direct #: (407) 459-7117	Direct #: (513) 437-6505
Email: jmcgarvey@willdan.com	Email: ejohnson@willdan.com
200 South Orange Avenue, Suite 1550, Orlando, FL 32801	

Respectfully submitted,

Willdan Financial Services



Jeffrey McGarvey
Managing Principal – Vice President
(Authorized Representative)

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Jeffrey J. McGarvey 13

Erik Johnson, MAE 14

Tara L. Hollis, CPA, CVA, MBA 15

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Scope of Services

The Willdan Difference: From Data to Decisions

Willdan | City of Charles Town Partnership

It is Willdan's understanding that the City of Charles Town and the Charles Town Utility Board ("CTUB") is interested in hiring a professional consultant to provide the preparation of Water and Wastewater Rate Study. Willdan has provided transformative solutions to financial, rate and capital planning challenges for communities nationwide.

Such a partnership leads to consensus among your many stakeholders.

60+ Years of Success Serving Government Authorities & Community Stakeholders

Financing Plans	Rate and Capital Planning Management	Stakeholder Outreach

Any provider can tout their model as "the best." But a model is only as good as the experts driving it. While we provide the support needed to be self-sufficient, our experts also work with you to make your data meaningful and actionable.

Our models are easy to use, answer "what-if" scenarios, generate customized reports as inputs are changed, produce financial measures and ratios, and accompanied by interactive user support.

- Custom solutions to each client engagement.
- We serve as an extension of your team.
- Long-term relationships and friendships developed through 30-plus years of utility rate experience.

Model Forecasting Capability

To address questions that may arise during project team meetings with staff or elected officials, the dynamic modeling used by Willdan will help to gain consensus regarding the rate and financial plan which best addresses your needs. Subsequent to careful development and validation of the baseline forecast, a series of alternative forecasts (projections) can be prepared illustrating results in the following general categories.

- **What if things turn out differently?** These alternatives will demonstrate the sensitivity of the forecast to significant assumptions. This results in a sound understanding of areas where a conservative forecast approach is warranted. As part of this process, Willdan will develop a ten-year risk-based financial planning model for each utility, incorporating scenario and sensitivity analyses (e.g., demand variability, inflation shocks, CIP timing slippage, debt cost changes) to quantify risk ranges around revenues, O&M, capital needs, reserves, and coverage metrics.
- **What happens when we try this?** This series of alternatives focuses on different financial management approaches. For example, the use of different financing techniques such as capitalized interest, interim short-term financing, and capital appreciation bonds may be explored.
- **What can we do to make it better?** This approach to forecasting identifies the factors that may be causing significant rate increases in a given year and explores alternatives. For example, if a large capital project in a single year is the culprit, we would work with staff and the consulting engineers to determine whether this project could be phased or delayed.
- **How will any adjustments affect our customers?** In examining rate structure alternatives, we will demonstrate and discuss how users in various categories or classifications will be impacted. Our team will use our rate design model to explore the impact of various rate structures on bills for each customer class over the relevant consumption range.

Simplified Communication through the Model Dashboard

The sample dashboard graphic below illustrates how we can summarize data, assumptions, and calculations into an easy-to-understand graphical interface that updates with each alternative scenario evaluated. To summarize, rate model development is an integral part of the Willdan consulting process, and one in which staff and other stakeholders play a collaborative role.



Education

Willdan can offer a hands-on training/education session to staff members responsible for using the model as well as post-project phone consultations. Training can take place at CTUB offices, or via a webinar, and provides staff members with an opportunity to learn the dynamic interactions of the rate model. In addition, Willdan will be available to provide future instruction on an hourly basis either at CTUB offices or via webinar.

Project Understanding

The CTUB has undertaken several initiatives to evaluate and adjust its water and wastewater rates and policies to support long-term financial sustainability. CTUB Board approved the equalization of rate structures across the service territory effective January 2024, resulting in an average water rate increase while maintaining sewer rates at revenue-neutral levels. In addition, CTUB has evaluated alternative rate structures that modify minimum usage levels and consumption tiers, with proposed options reflecting combined water and sewer bill impacts generally ranging from the low to high teens for typical residential customers.

These efforts are occurring alongside continued customer growth and increasing operational and capital demands. CTUB serves approximately 6,600 water customers and 8,500 sewer customers, representing an estimated service population of approximately 18,000 residents. CTUB's water service is billed on a volumetric basis with an inclining block rate structure. In addition, water customers are charged a minimum monthly charge that varies by meter size. Sewer service is billed based on metered water consumption. There is also a monthly minimum sewer charge. To ensure rates remain equitable, financially sustainable, and aligned with evolving system needs, CTUB has issued a request for proposals for a comprehensive water and wastewater rate study.

Building on this foundation, the proposed work plan will provide CTUB with a transparent, data-driven evaluation of its financial condition, rate structures, and long-term funding needs. Through a collaborative and phased approach, the study will assess current and future costs, evaluate alternative rate and fee structures, and develop a flexible financial model to support informed decision-making. The resulting recommendations will equip CTUB with a sustainable rate path and financial management framework that balances system reliability, regulatory compliance, and customer affordability.

The following project approach and scope of services is based on Willdan's current understanding of the CTUB's needs and objectives for a comprehensive analysis of the CTUB's Water and Wastewater rates and charges.

Project Approach

Willdan's approach emphasizes collaboration, transparency, and practical results, ensuring that CTUB receives a customized, user-friendly financial model and a comprehensive financial management plan. Our Microsoft Excel-based models, supported by thorough documentation, provide tailored analyses of CTUB's current rates, revenues, capital projects, operational costs, debt obligations, reserves, and other critical financial data.

The study culminates in a long-term financial plan projecting system operating results and allowing evaluation of alternative rate scenarios. Using advanced financial modeling techniques, we guide CTUB staff through rate and financial scenarios, assess policy assumptions, and perform sensitivity analyses to explore the impact of various rate and financial strategies.

Our forecasts incorporate standard inputs, including account growth, historical and projected water consumption, the capital improvement program (CIP), billing system data, and current budgets. The resulting model is flexible, intuitive, and delivered electronically for ongoing use by CTUB staff. Costs are functionalized, classified, and allocated among customer classes according to AWWA and WEF industry standards, ensuring a defensible and equitable framework.

A ten-year planning horizon allows CTUB to assess the financial impacts of capital improvements, rising operating costs, and declining per capita usage, helping determine whether system growth and revenue streams can finance future projects and minimize the need for abrupt rate increases. The model also supports phased rate adjustments if appropriate.

While cost-of-service underpins rate recommendations, Willdan emphasizes that rate design is more than mathematics. Effective rate structures must balance broad financial goals, capital funding requirements, cost-to-serve, system goals, customer equity, affordability, administrative simplicity, conservation incentives, and avoidance of rate shock. Our team combines the art and science of rate design to deliver rates that are fair, strategic, and sustainable.

Key benefits of Willdan's services include:

- Clear, accessible reports that translate technical analyses into information stakeholders can easily understand.
- Effective public presentations are designed to communicate complex information to non-financial audiences and facilitate stakeholder buy-in.
- A structured public involvement process that promotes endorsement and ensures successful implementation of recommended rates and financial strategies.

In summary, Willdan will provide CTUB with rigorous analysis, flexible modeling tools, practical financial insights, and stakeholder-focused communication, enabling the CTUB to develop sustainable, equitable, and strategically aligned rate and capital plans that meet operational needs and support long-term financial health.

Work Plan

This collaborative work plan ensures that technical analysis, financial modeling, and stakeholder engagement are fully integrated. The result will be a defensible, flexible rate structure and financial management framework that supports CTUB's long-term fiscal health while maintaining transparency and minimizing rate impacts on customers.

The purpose of this study is to ensure the long-term fiscal sustainability of CTUB's Combined Utility System, while providing a defensible, equitable, and practical rate structure that balances funding requirements, operational needs, and customer affordability. The study will also produce a flexible, user-friendly financial model and provide CTUB with the tools to make informed decisions on rates, fees, and capital planning. The CTUB's schedule requires completion of the study in time to support the FY 2027 budget process. Willdan proposes to complete the Water and Wastewater cost of service and rate design components within the CTUB's requested timeframe.

Based on our understanding of CTUB's needs, the following scope of services has been segmented into the following parts consisting of:

1) Project Initiation
2) Water and Wastewater Rate Study
3) Financial Model and Reporting Outputs
4) Meetings & Presentations

Willdan welcomes this opportunity to provide a fresh perspective and approach to the planning and rate-making process, and to work with CTUB to develop a comprehensive financial and rate model, as well as evaluate the financial plan and rate alternatives.

Phase 1 – Project Initiation

Willdan will meet with CTUB representatives to discuss the overall goals and objectives, project schedule, data, CTUB's point-of-contact, meetings, and presentations. The purpose of this task is to formalize the lines of communication between the project team and appropriate CTUB personnel, to develop the project schedule, and to ensure that the project objectives are clearly defined and understood by all parties. The functions performed in this initial phase of the project will provide the foundation for completing a successful engagement. At project inception, Willdan will provide a project management tracking workflow with key milestone dates and will remain available for inquiries and implementation support, as needed, through the end of calendar year 2026.

Phase 2 – Water and Wastewater Rate Study

Provided herein is a description of the scope of work anticipated to complete the Water and Wastewater Rate Study project. The proposed scope of work is intended to develop a multi-year rate and capital planning model that will include estimated rate impacts and provide a review process that will allow CTUB to accomplish the changes in rates necessary to recover costs equitably, fund future capital projects and remain financially strong.

Task 2.1: Data Collection and Review

Task 2.1.a – Data Collection. As a means of initiating the project activities, CTUB will be provided with an initial list of basic data needed to conduct the Water and Wastewater rate study.

The data request will include items such as financial and operating data, customer account and billing data, reports prepared by others, budgets, audits, capital improvement programs, fixed asset records, official bond statements, debt service schedules, master plans, ordinances, previous rate studies, and policy statements.

Task 2.1.b – Data Review. Data will be reviewed for relative completeness and to ensure a sufficient understanding of historical Water and Wastewater operations. Willdan is not responsible for verifying the accuracy of financial, capital or engineering data provided by CTUB or other entities.

Task 2.2: Revenue Requirements and Rate Determinants

Task 2.2.a – Historical Billing Data Analysis. It is anticipated that the billing information will be provided in a format necessary to summarize the Water and Wastewater system accounts and volumes by customer class, meter size and usage blocks for recent historical periods. The customers and flows provide the basis on which operating revenues are derived and are therefore the primary factors utilized in reviewing the user rates and charges.

Task 2.2.b – Customer and Flow Projections. Water and Wastewater system accounts and flows will be forecast for a ten-year planning period. Such projections will be developed by considering historical growth trends, local economic conditions, potential for adding/losing major utility customers, changes in customer class usage patterns over time (based on client input) and experienced judgment. The analysis will focus on CTUB's needs over the next five years, with projections extending through ten years.

The flow projections will be based on the projected number of utility accounts and a usage per account analysis to differentiate the historical effects of account growth and increased (decreased) average usage by customer class.

Task 2.2.c – Projected Revenues Under Existing Rates (Revenue Sufficiency). Projections of each system's revenues under existing rates for the ten-year planning period will be developed, recognizing projected accounts, flow volumes, and usage patterns by customer class (as determined in the billing analysis under prior tasks). Such revenue projections will assume that the existing user rates and rate structures remain constant at the existing levels.

Task 2.2.d – Miscellaneous Revenue Projections. The revenues to be generated from other existing sources including such items as interest income, tapping fees, late payment charges, and other miscellaneous service charges will be projected for the planning period. It should be noted that prior to projection, each ancillary revenue source will be reviewed for a general level of reasonableness based on standard cost principles and concepts.

Task 2.2.e – Projected Revenue Requirements. Revenue requirements (i.e., utility system expenditures) will be developed based on an analysis of historical, currently budgeted, and anticipated operating and capital expenditures.

The revenue requirements will be projected on a fiscal year cash flow basis, while accounting for expected operational changes, changes in staffing or operating expenditures for new facilities, system growth occurring from new development, anticipated extraordinary expenses, and allowances for inflation.

The projections will include, but not be limited to, the following: operation and maintenance expenses; outlay for Routine Annual Capital Additions and Replacements, if applicable; debt service and reserve requirements (liquidity) on existing and anticipated debt; transfers to fund major capital improvements; and other expenditures and transfers.

Task 2.2.f – Projected Operating Results Based on Existing Rates. The projected revenues and revenue requirements will be summarized into a ten-year cash flow statement providing the projected operating results of each system under the existing rates. The ten-year cash flow statement will be used to estimate annual adjustments in utility revenues necessary to fund expenditure requirements, meet existing bond covenant requirements, and maintain prudent utility management practices.

The estimated timing and magnitude of future debt issues required to finance proposed capital improvements, as provided by CTUB's Financial Advisor (if applicable), will also be included in the ten-year cash flow statement. Concurrent with the development of the projected operating results, Key Performance Indicators ("KPIs") will be developed which will show the general financial health of the utility operations. If necessary, Willdan will work with CTUB's Financial Advisor to make recommendations for future debt issuance needs, required/targeted fund balances or reserves (liquidity), and debt service coverage ratios to maintain financial integrity and a stable bond rating.

Task 2.3: Resulting Rate/Revenue Revisions

Task 2.3.a – Projected Operating Results Based on Proposed Rates. If the projected revenues under the existing rates are insufficient to fund the projected revenue requirements, the rates will be adjusted on a percentage basis to estimate the revenues to be generated for the projection period. The projected revenues will consider possible changes in usage characteristics that may occur from revising the rate structure. In addition, similar to the process described in **Task 2.2.f,** the ten-year cash flow statement will identify annual adjustments in revenues necessary to meet existing bond covenant requirements specific to the applicable utility system, prudent management practices, and/or sound capital financing considerations.

Task 2.3.b – Typical Bill Comparison. A comparison of typical monthly utility bills under the existing and proposed rates will be developed for the residential customer class under various levels of usage. The comparison will calculate the rate impacts on typical customers for the majority of the customer base.

Task 2.3.c – Neighboring Utility Comparison. A comparison will be prepared to assess the difference between the existing and proposed rates of CTUB with those of other public utility systems in the region.

Task 2.3.d – Miscellaneous Fee Policy Review (Water/ Wastewater). A review of payment options, deposit amounts, connection/disconnection fees, late fees, and other miscellaneous charges versus peer utilities will be conducted. At the completion of the review, recommendations will be made for updates to align with current policy and administrative best practices as well as nationwide industry best practices.

Task 2.4: Capital Financing Analysis

Task 2.4.a – Review Capital Improvement Program (CIP). CTUB's existing CIP will be reviewed in conjunction with conversations with staff.

The objective of such a review is to gain an understanding of the types of projects scheduled, the timing associated with such projects, and associated expenditure requirements.

Task 2.4.b – Develop Capital Financing Plan. Based on the findings in **Task 2.3**, a general financing plan will be developed to provide for the anticipated capital expenditure activities, including potential debt issuances, relative to the CIPs. Willdan will rely on CTUB staff or CTUB's Financial Advisor for any assumptions specific to future debt service issuances. Such a financing plan will include consideration for the use of restricted and unrestricted funds, surplus operating reserves, connection and impact fee revenues, debt service, and future rate adjustments.

Task 2.5: Reports and Deliverables

Task 2.5.a – Draft Report Preparation. A preliminary draft report will be prepared addressing the study findings and recommendations. Contents will also include salient assumptions relied upon for the projection of customers and service characteristics, revenue requirements, revenues, operating results, and any proposed adjustments to the Water and/or Wastewater utility rates. An editable Word format document of the preliminary draft report will be submitted for staff review.

Task 2.5.b – Final Report Preparation. Based on comments received from staff and other participants, the draft report will be revised to incorporate the agreed upon changes. Upon completion, an electronic (PDF) copy of the final rate study report will be provided for CTUB's records.

Task 2.5.c – Final Financial Model. As previously addressed, an interactive financial model will be developed to allow for the consideration of alternative rate structures that meet the funding needs of the applicable system. The Microsoft Excel-based rate model will possess the elements necessary to conduct a full financial analysis and to provide the output necessary for the Water and Wastewater rate study. Features of the analysis model include the ability to incorporate line-item data and assumptions that are then summarized in a graphical dashboard to show KPIs for the system. Upon completion of the rate study project, the final model will be provided to CTUB for continued use as necessary by staff.

Phase 3 – Financial Model and Reporting Outputs

As discussed previously, the project team utilizes Microsoft Excel for its electronic spreadsheet modeling, as well as its dashboard tools. Willdan's cost-of-service and rate design model does not rely on externally linked files, is user-friendly, and includes navigational aids and a dynamic dashboard tool that supports myriad "what-if" analyses. Separate model functionality and reporting outputs will be developed for each utility system.

The dashboard tool is especially useful in explaining rate options to elected officials, utility advisory boards, and members of the public. A sample of the dashboard tool is provided in the Scope of Services section.

The dashboard can contain a myriad of graphic key performance indicators, or KPIs, which will reflect the general financial condition of the various utility systems, as well as the combined system. Such KPIs can include, but not be limited to:

- Projected operating results
- Existing debt service coverage
- Fund balances and reserves
- Capital improvement costs and sources of funding
- Rate comparisons
- Other financial ratios

Phase 5 - Meetings & Presentations

Our proposal includes several meetings/web conferences as part of the rate study process. At a minimum, Willdan's proposal includes four (4) in-person meetings, consisting of up to two (2) meetings with CTUB staff and up to two (2) meetings/presentations with Board Members.

Such meetings will be scheduled based on the needs of staff and the Board Members. Specific meeting requirements will be developed following consultation with staff. Provided herein is a description of the meetings and presentations defined on the scope of services.

Initial Kick-Off Meeting. An initial kick-off meeting will be scheduled with representatives from CTUB during a mutually convenient time at the start of the project to discuss project requirements, finalize scheduling and reporting requirements, and receive overall project direction. The meeting is part of the project initiation activities and will help ensure that the project objectives are clearly defined and understood by all parties.

Project Status Meetings. After data has been gathered and analyzed, and significant progress has been made, project meetings will be scheduled to provide status updates of the preliminary analyses performed to CTUB staff in order to obtain input as the Studies progress. These meetings will be held in-person or via web conference during the time period prior to completion of the draft report for each study.

Draft Report Meeting. After allowing sufficient review time from the delivery of the draft report for each study, a meeting will be scheduled to present the results to staff. The purpose will be to 1) provide staff members with a better understanding of the analyses and assumptions applied in developing the proposed utility rates, and 2) obtain personal feedback and comments from staff members responsible for implementing any proposed revisions.

Board Presentation. Project Manager, Erik Johnson, will attend a public meeting to present the results of the Studies to the Board Members. This presentation will provide supporting rationale for any proposed rate revisions and address any questions and/or concerns raised by Board Members prior to action being taken on the utility rates. Willdan will also assist CTUB's legal counsel in preparing necessary rate ordinances to be addressed at the public hearing.

City Staff Support

Willdan recommends that CTUB assign a key individual as project manager. As our analysis is developed, it is expected that CTUB's appointed project manager will:

1. Coordinate responses to informational requests;
2. Coordinate review of work products; and
3. Identify appropriate staff members for participation in meetings and facilitate in scheduling.

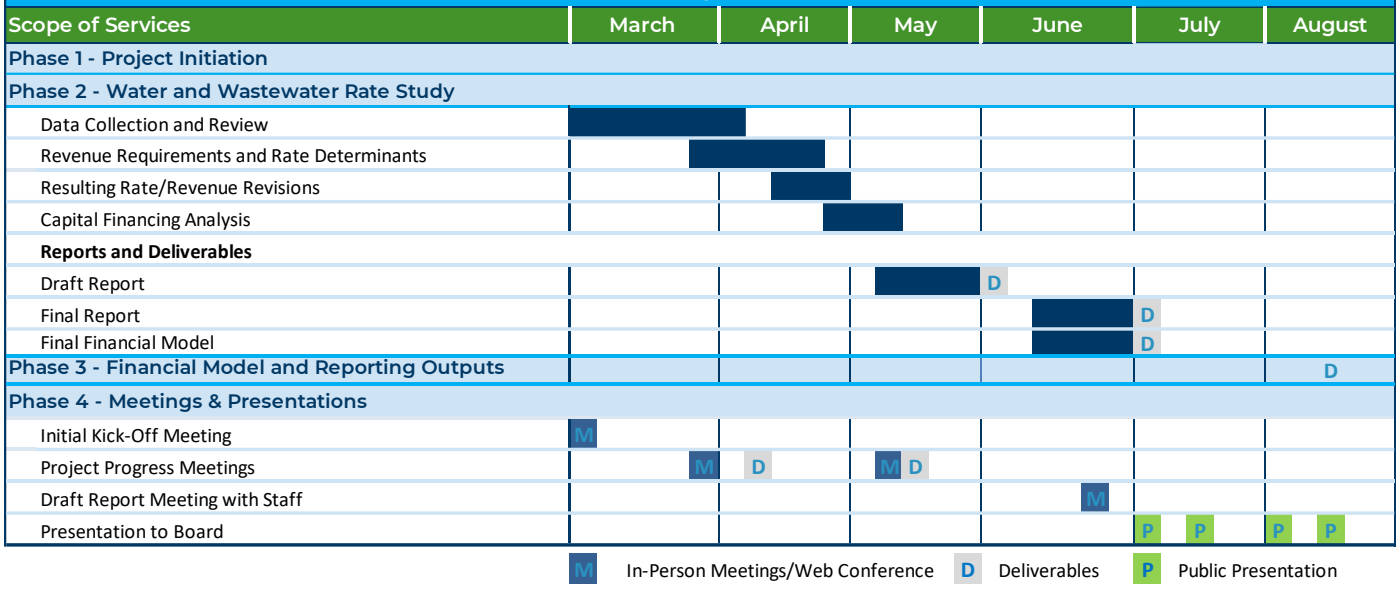
We will ask for responses to initial information, follow-up requests and comments on reports within five business days or otherwise agreed upon timetable. If there are delays, the project manager will follow up with the parties involved to establish an estimated date for the delivery of information and/or feedback. To ensure continued progression, the project manager will reconvene with the rest of the Willdan project team to identify tasks that can be started while waiting for requested data.

Willdan will rely on the validity and accuracy of the CTUB's data and documentation to complete our analysis. Willdan will rely on the data as being accurate without performing an independent verification of accuracy, and Willdan will not be responsible for any errors that result from inaccurate data provided by the client or a third party.

Project Timeline

Willdan understands time is of the essence for CTUB to begin this engagement. Willdan can meet CTUB's projected schedule; this schedule can only be met with the cooperation of CTUB staff. Delays in responding to our requests for data and review will result in corresponding delays to the project schedule. Of course, Willdan will work diligently with CTUB staff to ensure the project remains on schedule as planned.

City of Charles Town, West Virginia
Water and Wastewater Utility Rate Study
Estimated Project Schedule



Project Disclaimer

Willdan is a registered municipal advisory firm with the U.S. Securities and Exchange Commission ("SEC"), as such the City of Charles Town and Charles Town Utility Board ("CTUB") represents, acknowledges, and agrees that Willdan is not acting as a "municipal advisor" (as defined by the SEC), to CTUB, in any capacity as it relates to the project proposed in this proposal for Utility Rate Study Services.

(i) CTUB uses, or may use, the services of one or more municipal advisors registered with the SEC to advise it in connection with municipal financial products and the issuance of municipal securities;

(ii) CTUB is not looking to Willdan to provide, and CTUB shall not otherwise request or require Willdan to provide any advice or recommendations with respect to municipal financial products or the issuance of municipal securities (including any advice or recommendations with respect to the structure, timing, terms, and other similar matters concerning such financial products or issues);

(iii) The provisions of this proposal and the services to be provided hereunder as outlined in the scope of services are not intended (and shall not be construed) to constitute or include any municipal advisory services within the meaning of Section 15B of the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the rules and regulations adopted thereunder;

(iv) For the avoidance of doubt and without limiting the foregoing, in connection with any revenue projections, cash-flow analyses, feasibility studies and/or other analyses Willdan may provide CTUB with respect to financial, economic or other matters relating to a prospective, new or existing issuance of municipal securities of CTUB, (A) any such projections, studies and analyses shall be based upon assumptions, opinions or views (including, without limitation, any assumptions related to revenue growth) established by CTUB, in conjunction with such of its municipal, financial, legal and other advisers as it deems appropriate; and (B) under no circumstances shall Willdan be asked to provide, nor shall it provide, any advice or recommendations or subjective assumptions, opinions or views with respect to the actual or proposed structure, terms, timing, pricing or other similar matters with respect to any municipal financial products or municipal securities issuances, including any revisions or amendments thereto; and

(v) Notwithstanding all of the foregoing, CTUB recognizes that interpretive guidance regarding municipal advisory activities is currently quite limited and is likely to evolve and develop during the term of the potential engagement and, to that end, CTUB will work with Willdan throughout the term of the potential Agreement to ensure that the Agreement and the services to be provided by Willdan hereunder, is interpreted by the parties, and if necessary amended, in a manner intended to ensure that CTUB is not asking Willdan to provide, and Willdan is not in fact providing or required to provide, any municipal advisory services.

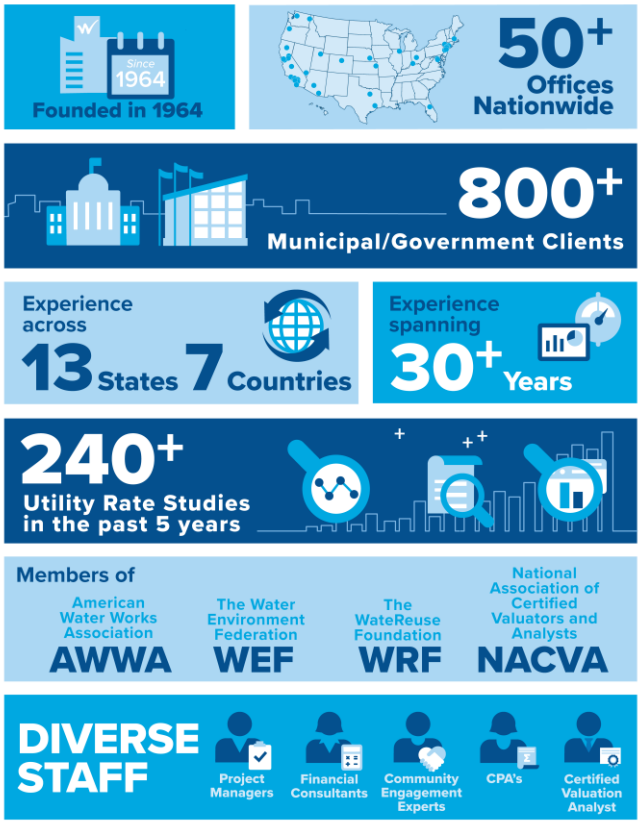
Background and Overview

Firm Profile

Willdan Financial Services is an operating division within Willdan Group, Inc. (WGI), which was founded in 1964 as an engineering firm working with local governments. Today, WGI is a publicly traded company (NASDAQ: WLDN). WGI, through its subsidiaries, provides professional, technical, and consulting services that ensure the quality, value and security of our nation's infrastructure, systems, facilities, and environment. The firm has pursued two primary service objectives since its inception—ensuring the success of its clients and enhancing its surrounding communities.

A financially stable company, Willdan has approximately 1,800 employees working in more than a dozen states across the U.S. Our employees include a number of nationally recognized subject matter experts for all areas related to the broadest definition of connected communities—***five of whom are committed to contributing their expertise throughout the duration of the Charles Town engagement.***

Willdan has solved economic, engineering and energy challenges for local communities and delivered industry-leading solutions that have transformed government and commerce. Today, we are leading our clients into a future accelerated by a change in resources, infrastructure, technology, regulations, and industry trends.



Willdan Financial Services

Established on June 24, 1988, Willdan Financial Services, is a national firm and one of the largest public sector economic and financial analysis consulting firms in the United States. Over the past 36 years, we have helped over 800 public agencies successfully address a broad range of infrastructure challenges.

Our team is focused on actively supporting our clients by ensuring they stay informed about the latest advancements in our areas of expertise. We believe that by sharing this knowledge, we can empower our clients to make informed decisions and achieve their objectives. Willdan assists local public agencies by providing the following services:

Willdan Financial Services	
Services	
▪ Utility rate and cost of service studies	▪ Development impact fee establishment & analysis
▪ User fee studies	▪ Feasibility studies
▪ Cost allocation studies	▪ Tax increment finance district formation & amendment
▪ Real estate economic analysis	▪ Arbitrage rebate & continuing disclosure services
▪ Property tax audits	▪ Debt issuance support
▪ Economic development strategic plans	▪ Long-term financial plans and cash flow modeling
▪ District administration services	
▪ Municipal advisory services	

Utility Rate Experience



Willdan's professional staff has provided professional consulting services, including financial planning; rate and cost-of-service studies; alternative and feasibility analyses; and operational and management studies for water, wastewater, reclaimed water, refuse, and stormwater utility clients across the United States for over two decades. Additionally, Willdan staff are involved with the development of the rate-setting methodologies set forth in the American Water Works Association ("AWWA") M1 manual "Principles of Water Rates, Fees and Charges" and the AWWA M29 manual, "Water Utility Capital Financing," and serve on the AWWA Rates Committee. Willdan is nationally recognized for its expertise with staff frequently being called upon to speak or instruct on utility financial matters, as subject matter experts, including the AWWA Utility Management conference.

Willdan staff is experienced in a broad range of utility planning services; and therefore, understand the importance of an approach that integrates elements of utility planning, engineering, and finance. Willdan team members possess considerable experience in utility rate and cost-of-service studies and have performed these services for hundreds of utilities throughout the country. Our team includes staff with ***more than 30 years*** of public sector experience that have been at the forefront of utility ratemaking and rate-modeling. In addition, team members understand the financial, operational, and political realities faced by local government staff and management; we craft solutions which are sensitive to this. Our expertise spans across the following utility financial planning services.

Willdan Financial Services	
Utility Financial Planning Experience and Expertise	
▪ Retail and wholesale rate studies	▪ Interactive rate model development with dashboards showing Key Performance Indicators ("KPIs")
▪ Revenue sufficiency analyses	▪ Connection fee / system development charge studies
▪ Utility management and policy assistance	▪ CIP financial scenario planning
▪ Rate ordinance drafting	▪ Billing system validation / rate testing
▪ Miscellaneous fee and charge studies	▪ Bond feasibility reports
▪ Renewal and replacement sufficiency analyses	▪ Valuation / divestiture studies
▪ Comprehensive alternatives analyses	▪ Life cycle costs analyses
▪ Capital project funding studies	

The Willdan team will work with CTUB to identify and prioritize operational and fiscal objectives, and match these to specific rate attributes; and use this information throughout the engagement to develop a comprehensive financial plan and design utility rates that effectively meet these goals. The culmination of our analyses will be rate policies that guide the rate setting process, and a financial management plan that develops projected system operating results for each utility for the forecast period.

Willdan will employ its proven interactive approach, coupled with advanced financial modeling techniques to design rates and a financial plan that meets established goals and performance criteria. These modeling techniques serve as a powerful decision-making tool and provide CTUB with genuine business solutions and recommendations as to the strategic direction of its utilities.

Project Team

Our management and supervision of the project team is very simple: staff every position with experienced, capable personnel in sufficient numbers to deliver a superior product to CTUB, on time and on budget. With that philosophy in mind, we have selected experienced professionals for this engagement. The table below identifies each team member and their areas of expertise specific to Utility Rate and Financial Analyses.

City of Charles Town Project Team			
Jeff McGarvey, Managing Principal — Project Principal & Quality Assurance/Control			
Areas of Expertise:	Rate and Cost-of-Service Studies; Impact/Capacity Fees; Expert Witness Testimony; Debt Issuance Support; Financial and Cash Flow Analyses; Bond Feasibility Reports; Revenue Sufficiency Studies		
Telephone:	(407) 459-7117	**Email:**	jmcgarvey@willdan.com
Erik Johnson, MAE, Principal Consultant | Project Manager			
Areas of Expertise:	Rate and Cost-of-Service Studies; Impact/Capacity Fees; Bond Feasibility Studies/Reports; Utility System Valuations; Revenue Sufficiency Studies; Affordability and Financial Capability Analysis		
Telephone:	(513) 437-6505	**Email:**	ejohnson@willdan.com
Tara Hollis, CPA, CVA, MBA, Principal Consultant | Assistant Project Manager			
Areas of Expertise:	Budgeting and Forecasting; Cost-of-Service Studies; Rate Studies; Expert Witness Testimony; Management Accounting; Impact/Capacity Fees; Bond Covenant Annual Reports; Bond Feasibility Reports; Revenue Sufficiency Studies, Assessment Programs		
Telephone:	(407) 255-2928	**Email:**	thollis@willdan.com
Michael N. George, Managing Director | Client Liaison			
Areas of Expertise:	Financial advisor specializing in municipal securities, providing strategic guidance on debt issuance, financing structures, and compliance with applicable federal and state regulations. Registered Municipal Advisor (Series 50), Registered Municipal Principal (Series 54), Prior Securities Representative (Series 7), Prior Uniform Securities Agent (Series 63)		
Telephone:	(803) 765-1004	**Email:**	michael.george@compassmuni.com
Carolin Huegemann, Analyst II | Lead Analyst			
Areas of Expertise:	Budgeting and Forecasting; Cost-of-Service Studies; Rate Analyses; Impact/Capacity Fees; Bond Feasibility Analyses; Revenue Sufficiency Studies; Dynamic Spreadsheet Development; Customer Data Analysis		
Telephone:	(614) 935-5930	**Email:**	chuegemann@willdan.com

Projected Workload and Capacity

Mr. Johnson has been assigned to serve as the central contact to CTUB; and has been selected for this role due to his extensive experience, which includes the preparation and supervision of numerous utility rate studies, as well as his experience presenting to governing bodies, stakeholders, and industry groups.

If necessary, Mr. Johnson and Mr. McGarvey are able to recruit additional, qualified individuals from our employee roster to assist with the completion of this engagement to deliver the final materials on time and within budget. We do not anticipate staffing changes during the course of the project, however, should the situation arise, any change in team members will be discussed and approved in concert with CTUB prior to the change being made.

Resumes

Resumes for key project team members are provided on the following pages.



Jeffrey J. McGarvey

Project Principal & Quality Assurance/Control

Mr. McGarvey is a Managing Principal and Vice President in Willdan's Financial Consulting Services group and resides in the firm's Orlando, Florida office. For more than 34 years, he has provided professional consulting services to municipal water, sewer, solid waste, and electric utilities throughout the country.

He possesses a broad range of experience, including special expertise in complex alternatives analyses; utility rate analyses; utility valuations and acquisitions; regionalization and consolidation studies; debt issuance support; capital financing analyses; strategic planning; rate and regulatory assistance; and instituting financial mechanisms to provide for the sufficient recovery of operating and capital costs.

Rate & Cost-of-Service Studies – Mr. McGarvey possesses extensive experience specific to utility rate and cost-of-service analyses, having *conducted over 200 studies throughout the country.* Such experience generally relates to performing budget analyses, customer and usage analyses, development of revenue requirements, cost-of-service allocations and sensitivity analyses related to the implementation of rate structures designed to promote desired usage characteristics. It should also be noted that Mr. McGarvey has *prosecuted over 40 impact/capacity fee studies* throughout the course of his career.

Revenue Bonds, Feasibility Analyses and Capital Funding – Mr. McGarvey has been involved in the preparation of capital financing plans and financial feasibility studies associated with the *issuance of over $1 billion in municipal revenue bonds*. The funding proceeds have been utilized for such purposes as utility acquisitions, expansion of facilities and various other capital improvement needs.

In addition, he has developed capital funding strategies utilizing various combinations of bonds, bank loans, government assistance loans (i.e., State Revolving Funds) and grants. He has also made numerous presentations on behalf of clients to various bond insurers and rating agencies (Moody's, Standard & Poor's, and Fitch).

Business and Strategic Planning – Mr. McGarvey has experience developing complex financial and economic evaluation models for utility systems located throughout the country. Such experience generally relates to the development of business and strategic plans as well as performing structured alternatives analyses and sensitivity analyses related to the evaluation and implementation of system modifications such as service and operational changes, as well as planning for customer growth and capital expenditures.

34 Years of Experience

With Willdan Since
2012

Areas of Expertise
- *Rate & Cost-of-Service Studies*
- *Rate Design*
- *Dynamic Computer Modeling*
- *Impact/Connection Fee Studies*
- *Revenue Bonds*
- *Capital & Financial Planning*
- *Acquisitions & Mergers*
- *Utility Valuations*
- *Long Term Strategic Planning*

Presentations
"Wall Street's Perception of North Carolina Water and Sewer Utilities: Positioning for Success," presented at the North Carolina AWWA-WEA Annual Conference

"Renewal and Replacement Costs: How Much is Enough?" presented at the AWWA/WEF Utility Management Conference

Education
BSBA - University of Central Florida



Erik Johnson, MAE

Project Manager

Mr. Johnson recently joined Willdan's Financial Consulting Services group, contributing over 17 years of experience in municipal financial decision-making. He specializes in developing financial models that support operational objectives and capital programs while ensuring equitable and affordable rates for customers. A lifelong Ohio resident, Erik earned both his bachelor's degree in business administration and Master of Arts in Economics from Youngstown State University.

Erik's deep experience in financial modeling for utility capital project planning has equipped him with a comprehensive understanding of financial document analysis, revenue and expense determination, and the nuances of clients' fund flows and governing regulations. His analytical skills encompass cost-of-service studies, capital planning, optimized financial projections, rate setting, connection fee development, asset and system valuations, and legal support. Notably, he has significant experience in financial capability analysis and affordability analysis for significant capital program demands, ranging from $20 million to $5.5 billion, utilizing both EPA guidelines and advanced methodologies.

Utility Rate Study Experience

- Town of Abingdon, VA - *Ongoing (Sewer and Solid Waste Rate Study Services)*
- City of Raleigh, NC (Financial Analysis of Volume-Based Residential Solid Waste Collection)
- Mongomery County Environmental Services, OH (Solid Waste Rate Study)
- Nashville Office of Management and Budget, TN (Employment and Payroll Dashboard)
- City of Akron, OH (Cost of Service and Rate Study)
- Avon Lake Regional Water, OH (Rate and Cost of Service Study)
- Baltimore Department of Public Works, MD (Water, Sewer, and Stormwater Rate and Cost-of-Service Study)
- Baltimore County, MD (Financial Plan and Rate Study)
- Birmingham Water Works Board, AL (Cost of Service Study)
- Bowling Green Municipal Utilities, KY (Rate and Financial Planning Model Updates and Bond Support)
- Delaware County Regional Sewer District, OH (Rate Study)
- City of Denver, CO (Sewer and Stormwater Rate Study)
- Des Moines Water Works, IA (Rate and Cost-of-Service Study)
- Geauga County Department of Water Resources, OH (Capital and Charge Study)
- City of Greeley, CO (Stormwater Financial Plan, Rate, and Fee Assistance)
- City of Lakewood, OH (Utility Funding and Affordability Analysis)
- City of Lansing, MI (Rate Study and Capital Planning)
- Lockwood Water and Sewer District, MT (Comprehensive Rate and Fee Study

17 Years of Experience

With Willdan Since

2025

Areas of Expertise

- *Utility Rate Studies*
- *Financial planning studies*
- *Utility cost-of-service and rate structure studies*
- *Financial capability and customer affordability studies*
- *Long-range financial planning and feasibility studies*
- *System development fee studies*
- *System valuation analysis*
- *Bond feasibility and forecast studies*
- *Wholesale rate studies*
- *Solid waste rate studies*
- *Cross-Connection Program Development*

Presentations

"Addressing Declining Revenue and Infrastructure Needs" presented at the Ohio One Water Joint Technical Conference 2025

"Rate Setting in Unsettled Times" presented at the Ohio Utility Management Workshop 2025

"Cross Connection Control Program Survey" presented at the NC One Water Annual Conference 2023

"COVID-19 Impacts on Utilities in 2020 and Forward-Looking Strategies" presented at the Ohio One Water Joint Technical Conference 2021

"Strategic Planning – A Key to Success, Part 2" presented at the AWWA/WEF Utility Management Conference 2012

Education

BSBA – Youngstown State University

M.A. Economics - Youngstown State University



Tara L. Hollis, CPA, CVA, MBA

Assistant Project Manager

Ms. Hollis is a Principal Consultant with Willdan Financial Services and has more than 24 years of experience. She resides in the firm's Orlando, Florida office and has provided consulting services throughout the southeast and across the country including utility rate, financial, economic, and capital planning services for water, wastewater, stormwater, reclaimed water, refuse, and electric utility systems. She specializes in rate and cost-of-service studies, capital planning, feasibility and financial reports, debt structuring analyses for the issuance of utility indebtedness, non-ad valorem assessment programs, and valuation studies for mergers or acquisitions.

Rate & Cost-of-Service Studies – Ms. Hollis has extensive experience with utility rate and cost-of-service analysis, having *prosecuted more than 200 studies.* Such experience generally relates to performing budget analyses, customer and usage analyses, development of revenue requirements, cost-of-service allocations and sensitivity analyses related to the implementation of rate structures designed to promote desired usage characteristics. It should also be noted that Ms. Hollis has *prosecuted over 50 impact/connection fee studies* throughout the course of her career.

Revenue Bonds, Feasibility Analyses and Capital Funding – Ms. Hollis has been involved in the preparation of bond resolutions, official statement financial feasibility reports, certificates of compliance, additional bond test certificates, and other related documents *in support of $1.75 billion of long-term indebtedness.* The funding proceeds have been utilized for such purposes as utility acquisitions, expansion of facilities and various other capital improvement needs. In addition, she has developed capital funding strategies utilizing various combinations of bonds, bank loans, government assistance loans (i.e., State Revolving Funds) and grants. She also has extensive experience related to reviewing and analyzing compliance with bond covenant requirements and contractual obligations.

Utility System Valuations – Ms. Hollis has *conducted over 250 valuation studies* using various techniques including the cost approach, income approach, and comparable sales approach for water, wastewater, and electric utility systems. She has developed detailed financial forecasts and cash flow models to be used in utility acquisition assistance including contract negotiations, transitional, transactional, and financial feasibility analysis. Additionally, Ms. Hollis is a Certified Valuation Analyst, designated by the National Association of Certified Valuators and Analysts.

Non-Ad Valorem Assessment Programs – Ms. Hollis has extensive experience in the development of non-ad valorem assessment programs including streetlights, fire, stormwater, and utility system undergrounding.

24 Years of Experience

With Willdan Since
2014

Certifications
C.P.A. Florida, No. AC-0031100
Certified Valuation Analyst

Areas of Expertise
- *Rate Studies*
- *Revenue Bonds*
- *Capital & Financial Planning*
- *Impact/Connection Fee Studies*
- *Valuations, Acquisitions & Mergers*
- *Assessment Programs*
- *Expert Witness Testimony*
- *Utility Optimization Services*

Presentations
"Long Term Capital & Financial Planning for Public Utility Systems," EUCI Training Course
"Financial Forces Impacting Utility Systems," presented at the Growth and Infrastructure Consortium Conference in Florida
"Financial Sustainability as a Basis for Utility Management" presented at the South Carolina Rural Water Association Conference
"Financial Forces Impacting Small Utility Systems" presented at the AWWA Section Conference in Indiana

Education
MBA - University of Central Florida
BSBA - University of Central Florida



Michael N. George

Client Liaison

Mr. George serves as Managing Director of Compass Municipal Advisors, LLC, and a senior quantitative analyst. Mr. George's responsibilities include analyzing and producing financial reports and capital plans, debt modeling and cash flow analysis, as well as communication with rating agencies, underwriters, bond counsel other financial professionals.

Mr. George has extensive experience in a wide variety of tax-exempt and taxable financing structures including general obligation, revenue, lease appropriation and certificates of participation. He has served as program administrator for several large pooled financing programs, which have lowered capital costs for municipal issuers through economies of scale and credit enhancement.

Compass Municipal Advisors, LLC – Financial advisor to cities, counties, special service districts, and school districts related to municipal securities. Serves as senior quantitative analyst with roles including debt modeling and cashflow analysis, producing and analyzing financial reports and capital plans, as well as communication with rating agencies, underwriters, bond counsel and other financial professionals. Serves as program administrator for several large pooled financing programs.

Select Regional Client List

- ***City of Charles Town, WV***
- Campbell CSD, KY
- City of Danville, KY
- City of Greenville, KY
- Covington ISD, KY
- Dayton CSD, KY
- Fayetteville CSD, KY
- Frankfurt, ISD, KY
- Hart CSD, KY
- Lexington Center Corp, KY
- Lexington Public Library, KY
- Lexington Recreation District, KY
- Muhlenberg County, KY
- Oldham County, KY
- Scott County, KY
- Washington CSD, KY

19 Years of Experience

With Willdan Since

2026

Certifications

Registered Municipal Advisor (Series 50)

Registered Municipal Principal (Series 54)

Prior Securities Representative (Series 7)

Prior Uniform Securities Agent (Series 63)

Areas of Expertise

- *Munex*
- *Microsoft Office Suite*
- *Bloomberg Terminal*

Education

BSBA - University of Kentucky
Magna Cum Laude



Carolin Huegemann

Lead Analyst

Ms. Huegemann is an Analyst II with a strong background in financial forecasting, auditing, and tax analysis for both public agencies and private sector organizations. She brings extensive experience preparing detailed financial forecasts, conducting complex data analyses, and ensuring regulatory compliance through state tax audits and transaction tax reviews.

Ms. Huegemann is highly proficient in Microsoft Excel, SAP, and other financial systems, and is skilled at identifying trends, cost drivers, and opportunities for process improvements. Her diverse experience supports her role in assisting project managers and consultants in delivering thorough and defensible financial analyses for municipal clients.

Utility Rate Study Experience

- Town of Abingdon, VA - *Ongoing (Sewer and Solid Waste Rate Study Services)*
- City of Nogales, AZ (Water, Sewer, and Sanitation Study)
- City of Gilbert, AZ (Water Rate Study)
- City of Tolleson, AZ (Water & Sewer Rate Study)
- City of Carolina Beach, NC (Water, Sewer, and Stormwater Rate Studies)
- City of Walterboro, SC (Water & Sewer Rate Study)
- City of Sumter, SC (Water & Sewer Rate Study)
- Town of Monument, CO (Water & Sewer Rate Study)
- Sheridan Sanitation District No. 2, CO (Sewer Tap Fee Study)

Impact/Capacity Fee Studies

- City of Ormond Beach, FL (Water & Sewer Capacity Fee Study)
- City of Florence, SC (Water & Sewer Capacity Fee Study)
- James Island Public Service District, SC (Sewer Capacity Fee Study)

Other Financial Analyses

- City of Oviedo, FL (Street Light Assessment)

5 Years of Experience

With Willdan Since

2025

Areas of Expertise

- *Financial Forecasting and Analysis*
- *Tax Compliance*
- *and Auditing*
- *Data Analysis*
- *and Modeling*
- *Regulatory Review*
- *Excel and Financial Systems Proficiency*
- *Process Improvement and Risk Identification*

Education

BSBA - Franklin University
AA - Columbus State College
Magna Cum Laude

References

Provided below are similar projects conducted on behalf of similar public agencies, highlighting the breadth and depth of our team experience and knowledge. We are proud of our reputation for customer service and encourage you to contact these clients regarding our commitment to excellence.

Seminole County, FL
Water, Wastewater, and Reclaimed Water Rate Study and Solid Waste Rate Study

In 2024, Willdan Financial Services was selected by Seminole County (County) for a multi-year contract to serve as its Rate and Financial Consultant for the County's Water, Wastewater, and Reclaimed Water Utility as well as Solid Waste Consultant for the County's Landfill and Transfer Station operations. As part of this project, Willdan developed MS-Excel based rate models for each system that incorporated the County's budgeted fiscal requirements, capital improvement plans, vehicle replacement program, debt service payment requirements, existing restricted and unrestricted fund balances, etc. The model was used by Willdan to demonstrate rate impacts of the inclusion/exclusion of capital projects, a septic-to-sewer program, charging other municipalities within the County for processing recyclables, etc.

As part of this project, the Willdan Team developed a 20-year vehicle replacement program for the County's Solid Waste Operations and the Landfill and Transfer Station. Results were presented to the County staff and Board of County Commissioners (BOCC) during the FY 2025 Budget meetings. Willdan is currently in the process of updating the rate and financial projections for FY 2026 with results to be presented to the BOCC in September. Additionally, Willdan has prepared a multi-year financial proforma analysis for the County that is being used to analyze the overall rate and financial impacts of various Septic to Sewer capital and funding scenarios.

Client Contact: Carrie Grein, MAcc, CMA | Senior Financial Division Manager
500 W. Lake Mary Blvd, Sanford, FL 32773-7499
Tel #: (407) 665-2148 | Email: cgrein@seminolecountyfl.gov

Mid-Ohio Water & Sewer District, OH
Water and Sewer System Development Fee Study

Conducted by a team led by Erik Johnson, the Water and Sewer System Development Fee Study for the Mid-Ohio Water and Sewer District was completed successfully. The project included a thorough review of existing connection fees, detailed analysis of customer usage and billing data, benchmarking against peer utilities, and evaluation of future capital investment needs. The team developed cost-justified fee recommendations using industry-standard methodologies and provided a clear, actionable summary report to District leadership. The study equips the District with equitable and sustainable fee structures to support ongoing system growth and future capital improvements.

Client Contact: Mr. Tom Taylor | Director
501 S. Main Street, London, Ohio 43140
Tel #: (740) 852-1867 | Email: Tom.taylor@midohiowsd.gov

Montgomery County Environmental Services, OH
Long-term Financial Support

Erik Johnson, working hand-in-hand with County staff for eight years, was responsible for supporting MCES financial planning needs for water, sewer, stormwater, and solid waste operations. Planning included supporting annual rate calculations, cost-of-service analysis, rate design, and capital funding considerations, as well as supporting wholesale customer cost analysis with the City of Dayton, OH.

Client Contact: Mr. John Hopwood | Financial Utility Business Manager
1850 Spaulding Road Kettering, Ohio 45432
Tel #: (937) 781-2500 | Email: Hopwoodj@mcohio.org

City of Oviedo, FL
Comprehensive Utility Rate and Financial Services

The City of Oviedo, located in Seminole County, has maintained steady growth over the years and has grown from a sleepy little citrus town to a thriving and vibrant community. The City is responsible for a regional utility that provides service to approximately 30,000 residents in Oviedo and Seminole County. Water, wastewater, reclaimed water, and stormwater service is provided to residential, multi-family and commercial establishments. The Utilities Division also provides reuse (irrigation quality) water to the local golf course and residential and commercial reclaimed zones throughout the City.

Willdan was selected in 2013 to provide a variety of utility rate and financial consulting services. The City sought a consulting firm to provide services on an as-needed basis which included rates and charges; financial policies and practices; capital program activity and funding sources; and debt issuance support.

Mr. McGarvey and Ms. Hollis have worked with the City on a variety of matters specific to their utility systems. They have also had the privilege of working on a broad range of other projects that include, among other things: development of assessment methodologies for street lighting and fire services; solid waste contractual issues; utility billing system audit; cost allocation analysis; and fiscal impact analysis for a proposed new development. Ms. Hollis recently served as project manager for the Water, Sewer, and Reclaimed Rate Study, Stormwater Rate Study, and Water and Sewer Impact Fee Study that was presented to the Council in early 2025 and included the adoption of multi-year rate adjustments.

Client Contact: Mr. Jerry Boop | Finance Director
400 Alexandria Boulevard, Oviedo, FL 32765
Tel #: (407) 971-5544 | Email: jboop@cityofoviedo.net

City of Aiken, SC
Water and Sewer Rate Study and Stormwater Fee Study

Willdan was retained by the City of Aiken, South Carolina to prepare both a Water and Sewer Rate Study and a Stormwater Fee Study to review and update the current utility system rates. The studies included 1) an evaluation of the existing fee structure; 2) review of current and projected rates to meet reserve requirements and debt service covenants; and 3) a recommendation of multi-year fee adjustments to provide for full cost recovery. The goal of the studies was to allow the Water, Sewer, and Stormwater Systems to maintain revenue sufficiency in support of the operations and maintenance and capital improvement initiatives. The sufficiency analyses were presented to the Council at its annual retreat in January 2025 as well as a Public Hearing in May 2025.

Client Contact: Ms. Kym Rooks, CGFO | Finance Director
111 Chesterfield Street South, Aiken, SC 29801
Tel #: (803) 642-7644 | Email: krooks@cityofaikensc.gov

Great Lakes Water Authority, MI
Utility Rate Consulting Services

Willdan Financial Services serves as the rates and charges consultant to the Great Lakes Water Authority (GLWA), one of the largest water and wastewater utilities in the United States, serving nearly 3.8 million residents across multiple Michigan counties. GLWA provides wholesale water and sewer service to more than 100 communities and holds exclusive authority to establish systemwide rates, fees, and charges.

Willdan supports GLWA through annual cost-of-service studies for wholesale water and sewer rates, member outreach and presentations, and a range of advisory services including long-term financial planning, affordability analysis, regulatory support, debt issuance assistance, and litigation support.

Client Contact: Ms. Nicolette N. Bateson | CPA – CFO / Treasurer
735 Randolph, Detroit, MI 48226
Tel #: (313) 964-9225 | Email: nicolette.bateson@glwater.org

Similar Projects

A representative listing of our southeastern U.S. utility rate study project experience is shown below. These studies were prosecuted by Willdan's proposed project team and include water, wastewater, reclaimed water, stormwater, and/or solid waste utility systems.

Willdan Project Team Experience		Affordability	Capital Funding	Debt Issuance Support	Capacity/Impact Fees	Model Development	Rate Structure	Rate Study	Regionalization	Revenue Enhancement	Scenario & Risk Analysis	Miscellaneous Fees	Testimony	Wholesale Rates
State	Entity													
VA	Abingdon, Town of	✓	✓			✓	✓	✓		✓	✓			
VA	Arlington, County of	✓	✓		✓	✓	✓	✓		✓	✓			
VA	Danville, City of	✓	✓			✓	✓	✓		✓	✓			
VA	Henrico, County of	✓	✓			✓	✓	✓		✓	✓			
VA	Isle of Wight County	✓	✓		✓	✓	✓	✓		✓	✓			
VA	Manassas, City of	✓	✓			✓	✓	✓		✓	✓			
VA	Norfolk, City of	✓	✓	✓		✓	✓	✓		✓	✓			
VA	Vienna, Town of	✓	✓			✓	✓	✓		✓	✓			
VA	Virginia Municipal Electric Assoc.												✓	
VA	Water Reuse Foundation Research	✓	✓				✓	✓		✓	✓			
FL	Bay Laurel Center Community Development District	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
FL	Bay, County of	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
FL	Belle Isle, City of					✓	✓	✓						
FL	DeLand, City of	✓	✓		✓	✓	✓	✓		✓	✓	✓		
FL	Delray Beach, City of		✓			✓	✓	✓						
FL	Emerald Coast Utilities Authority	✓	✓				✓	✓		✓	✓			
FL	Eustis, City of		✓			✓	✓	✓			✓			
FL	Fellsmere, City of	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	
FL	Fernandina Beach, City of	✓	✓	✓	✓	✓	✓	✓		✓	✓			
FL	Fort Myers Beach, City of	✓	✓		✓	✓	✓	✓		✓	✓	✓		
FL	Gateway Services Community Development District	✓	✓		✓	✓	✓	✓		✓	✓			
FL	Grove Land Utilities, LLC	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	
FL	Gulf Breeze, City of	✓	✓				✓	✓		✓	✓			
FL	Hernando, County of	✓	✓	✓			✓	✓		✓	✓			
FL	Hillsborough, County of					✓	✓	✓		✓	✓			
FL	Jacksonville Electric Authority	✓	✓				✓	✓		✓	✓			
FL	Lake Hamilton, Town of		✓		✓									
FL	Lake Worth, City of					✓					✓		✓	
FL	Lakeland, City of	✓	✓				✓	✓		✓	✓			
FL	Leesburg, City of		✓	✓		✓					✓			
FL	Longboat Key, Town of				✓	✓							✓	
FL	Miami-Dade Solid Waste		✓			✓				✓	✓	✓		
FL	Montverde, Town of		✓		✓								✓	
FL	Mulberry, City of	✓	✓	✓	✓	✓	✓	✓		✓	✓			

Willdan Project Team Experience		Affordability	Capital Funding	Debt Issuance Support	Capacity/Impact Fees	Model Development	Rate Structure	Rate Study	Regionalization	Revenue Enhancement	Scenario & Risk Analysis	Miscellaneous Fees	Testimony	Wholesale Rates
State	Entity													
FL	Nassau - Amelia Island Utilities, County of					✓	✓	✓			✓			
FL	New Port Richey, City of	✓	✓				✓	✓		✓	✓			
FL	North Peninsula Utility Company					✓	✓	✓			✓			
FL	North Port, City of	✓	✓			✓	✓	✓		✓	✓			
FL	Ocala, City of	✓	✓			✓	✓	✓		✓	✓			
FL	Ormond Beach, City of	✓	✓		✓	✓	✓	✓		✓	✓	✓		✓
FL	Oviedo, City of	✓	✓	✓	✓	✓	✓	✓		✓	✓			
FL	Palm Beach, County of					✓	✓	✓			✓			
FL	Palm Beach, City of	✓	✓			✓					✓			
FL	Polk City, City of	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		
FL	Port Richey, City of					✓	✓	✓			✓			
FL	Rolling Oaks Utilities					✓	✓	✓			✓			
FL	Sanibel, City of	✓	✓	✓	✓	✓	✓	✓		✓	✓			
FL	Sarasota, City of	✓	✓			✓	✓	✓			✓			
FL	Sarasota, County of	✓	✓			✓	✓	✓		✓	✓			
FL	Seminole, County of		✓		✓	✓	✓	✓		✓	✓	✓		
FL	South Daytona, City of	✓	✓		✓	✓	✓	✓			✓	✓	✓	
FL	Tymber Creek Utilities Incorporated	✓	✓		✓	✓	✓	✓		✓	✓			
FL	Winter Haven, City of	✓	✓			✓	✓	✓		✓	✓			
FL	Winter Park, City of					✓							✓	
FL	Woodstock Utilities, LLC	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	
GA	Cobb County, GA	✓	✓	✓		✓	✓	✓		✓	✓			
GA	DeKalb, County of	✓	✓	✓		✓	✓	✓		✓	✓			
GA	Glynn, County of	✓	✓	✓		✓	✓	✓			✓			
GA	Jefferson, City of		✓			✓	✓	✓						
LA	New Orleans, City of					✓							✓	
NC	Albemarle, City of	✓	✓			✓	✓	✓		✓	✓			
NC	Apex, Town of		✓	✓		✓	✓	✓		✓	✓			
NC	Belmont, City of			✓		✓	✓	✓			✓			
NC	Bessmer City, City of			✓		✓	✓	✓			✓			
NC	Broad River Water Authority	✓	✓	✓		✓	✓	✓		✓	✓			
NC	Cape Fear Public Utility Authority	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		
NC	Cape Fear Water District		✓			✓	✓	✓			✓			
NC	Carolina Beach, Town of	✓	✓			✓	✓	✓		✓	✓			
NC	Cherryville, City of		✓			✓	✓	✓			✓			
NC	Concord, City of	✓	✓	✓		✓	✓	✓		✓	✓		✓	
NC	Cramerton, Town of			✓		✓								
NC	Dallas, Town of					✓		✓					✓	✓
NC	Dunn, City of					✓	✓	✓						
NC	Fayetteville, City of		✓	✓		✓	✓	✓			✓			
NC	French Broad Electric Cooperative						✓	✓					✓	✓

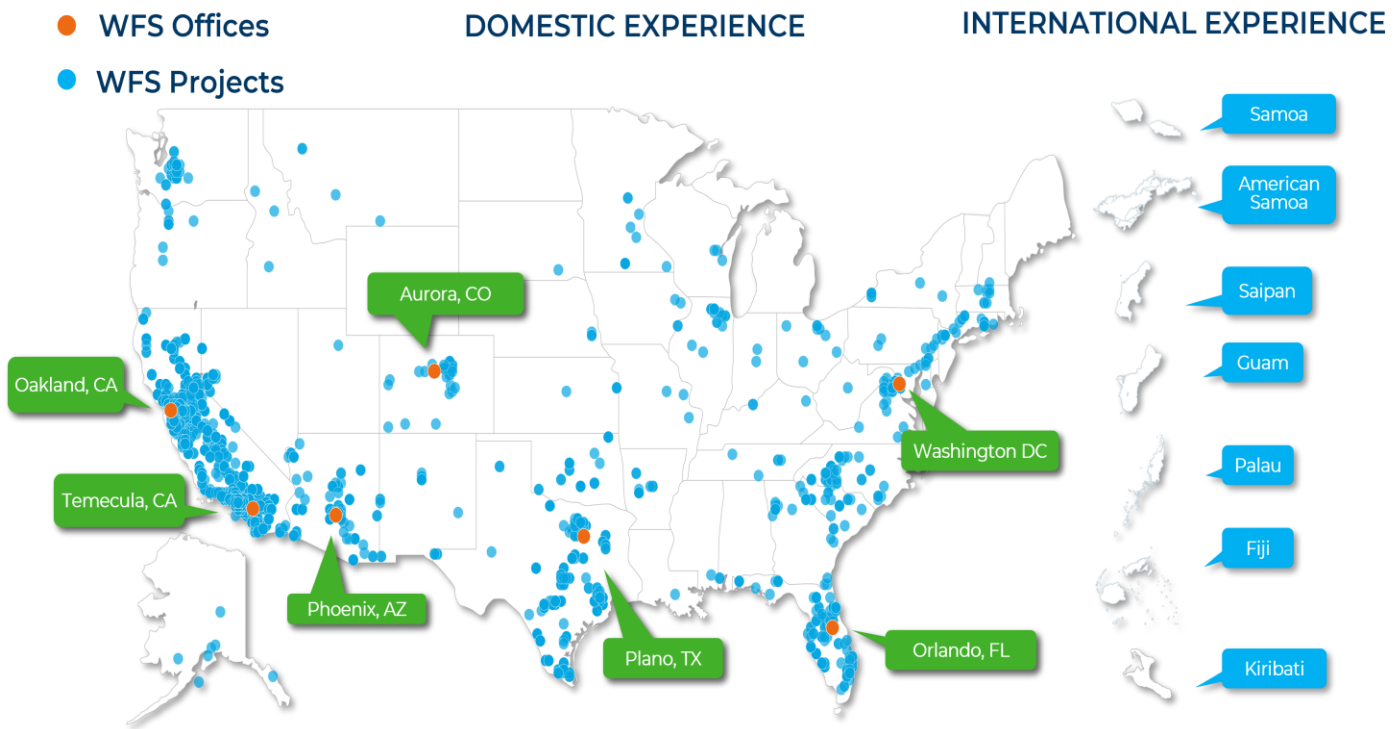
Willdan Project Team Experience		Affordability	Capital Funding	Debt Issuance Support	Capacity/Impact Fees	Model Development	Rate Structure	Rate Study	Regionalization	Revenue Enhancement	Scenario & Risk Analysis	Miscellaneous Fees	Testimony	Wholesale Rates
State	Entity													
NC	Gaston County		✓			✓	✓	✓	✓		✓			
NC	Gastonia, City of	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
NC	Greensboro, City of	✓	✓	✓		✓	✓	✓		✓	✓			
NC	Greenville Utilities Commission	✓	✓	✓		✓	✓	✓		✓	✓		✓	
NC	Harnett, County of	✓	✓	✓		✓								
NC	Henderson, City of	✓	✓	✓		✓	✓	✓		✓	✓			
NC	Hickory, City of	✓	✓			✓	✓	✓		✓	✓			
NC	High Point, City of	✓	✓	✓		✓	✓	✓		✓	✓			
NC	High Shoals, Town of			✓		✓								
NC	Hillsborough, Town of			✓		✓								
NC	Johnston, County of		✓		✓	✓	✓	✓		✓	✓			
NC	Kannapolis, City of	✓	✓	✓	✓	✓	✓	✓		✓	✓			
NC	Kings Mountain, City of	✓	✓	✓		✓	✓	✓		✓	✓		✓	
NC	Kinston, City of	✓	✓			✓	✓	✓		✓	✓			
NC	Lexington, City of	✓	✓			✓	✓	✓		✓	✓			
NC	Lincoln County	✓	✓			✓	✓	✓		✓	✓			
NC	Lincolnton, City of	✓	✓	✓		✓	✓	✓		✓	✓			
NC	Lowell, City of		✓			✓	✓	✓			✓			
NC	Lower Cape Fear Water & Sewer Authority	✓	✓			✓	✓	✓		✓	✓			
NC	McAdenville, Town of			✓		✓			✓					
NC	Metropolitan Sewerage District of Buncombe County	✓	✓	✓		✓	✓	✓		✓	✓			
NC	Monroe, City of	✓	✓	✓		✓	✓	✓		✓	✓		✓	
NC	Mooresville, Town of	✓	✓	✓	✓	✓	✓	✓		✓	✓			
NC	Morganton, City of	✓	✓			✓	✓	✓		✓	✓			
NC	Mount Airy, City of	✓	✓			✓	✓	✓		✓	✓			
NC	Mount Holly, City of		✓			✓	✓	✓			✓			
NC	New Hanover County	✓	✓	✓		✓	✓	✓		✓	✓			
NC	New River Light & Power Co.					✓								✓
NC	Onslow County Water & Sewer Authority	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
NC	Orange Water & Sewer Authority		✓	✓		✓	✓	✓			✓			
NC	Raleigh, City of	✓	✓			✓	✓	✓		✓	✓			
NC	Ranlo, Town of			✓		✓			✓					
NC	Rocky Mounty, City of					✓							✓	
NC	Shelby, City of	✓	✓	✓		✓	✓	✓		✓	✓			
NC	Spencer Mountain, Town of			✓		✓								
NC	Thomasville, City of	✓	✓	✓		✓	✓	✓		✓	✓			
NC	Stanley, Town of			✓		✓								
NC	Union, County of	✓	✓	✓	✓	✓	✓	✓		✓	✓			
NC	Wake, County of	✓	✓			✓	✓	✓		✓	✓			

Willdan Project Team Experience		Affordability	Capital Funding	Debt Issuance Support	Capacity/Impact Fees	Model Development	Rate Structure	Rate Study	Regionalization	Revenue Enhancement	Scenario & Risk Analysis	Miscellaneous Fees	Testimony	Wholesale Rates
State	Entity													
NC	Wilson, City of												✓	
NC	Winston-Salem, City of	✓	✓	✓		✓	✓	✓		✓	✓			
NC	Winterville, Town of													✓
SC	Abbeville, City of		✓			✓	✓	✓			✓			
SC	Aiken, City of		✓			✓	✓	✓			✓			
SC	Anderson, City of	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
SC	Beaufort Jasper Water & Sewer Authority		✓			✓	✓	✓			✓			
SC	Beaufort, City of	✓	✓			✓	✓	✓		✓	✓			
SC	Bennettsville, City of	✓	✓	✓		✓	✓	✓		✓	✓		✓	
SC	Berkeley County Water & Sanitation	✓	✓			✓	✓	✓		✓	✓			
SC	Camden, City of					✓	✓	✓					✓	✓
SC	Cayce, City of	✓	✓	✓		✓	✓	✓		✓	✓			
SC	Clemson, City of	✓	✓			✓	✓	✓		✓	✓			
SC	Clinton, City of	✓	✓			✓	✓	✓		✓	✓			
SC	Clover, Town of	✓	✓		✓	✓	✓	✓		✓	✓			
SC	Columbia, City of	✓	✓		✓	✓	✓	✓		✓	✓			
SC	Dorchester County	✓	✓		✓	✓	✓	✓		✓	✓			
SC	Due West, Town of					✓	✓	✓					✓	✓
SC	Easley Combined Utility System	✓	✓	✓		✓	✓	✓		✓	✓			
SC	East Richland County PSD					✓	✓	✓						
SC	Florence, City of	✓	✓	✓	✓	✓	✓	✓		✓	✓			
SC	Fort Mill, Town of	✓	✓		✓	✓	✓	✓		✓	✓			
SC	Gaffney Board of Public Works	✓	✓			✓	✓	✓		✓	✓			
SC	Georgetown, City of	✓	✓			✓	✓	✓		✓	✓			✓
SC	Greenville Water System	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		
SC	Greenwood Commission of Public Works	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	
SC	Greenwood Metropolitan District	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		
SC	Greer Commission of Public Works	✓	✓	✓	✓	✓	✓	✓		✓	✓			
SC	Hilton Head Public Service District	✓	✓	✓		✓	✓	✓			✓			
SC	Laurens Commission of Public Works					✓	✓	✓		✓				
SC	Lexington County Joint Municipal Water & Sewer Commission	✓	✓		✓	✓	✓	✓		✓	✓			
SC	Lowcountry Regional Water System	✓				✓	✓		✓	✓				
SC	Mount Pleasant, Town of	✓				✓	✓	✓			✓			
SC	Newberry, City of	✓	✓	✓		✓	✓	✓		✓	✓			
SC	North Augusta, City of	✓	✓			✓	✓	✓		✓	✓			
SC	North Charleston Sewer District	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
SC	Pickens, City of	✓	✓			✓	✓	✓		✓	✓			
SC	ReWa (Greater Greenville, Wastewater)	✓	✓		✓	✓	✓	✓	✓	✓	✓			
SC	Richland, County of		✓		✓	✓	✓	✓			✓			

Willdan Project Team Experience		Affordability	Capital Funding	Debt Issuance Support	Capacity/Impact Fees	Model Development	Rate Structure	Rate Study	Regionalization	Revenue Enhancement	Scenario & Risk Analysis	Miscellaneous Fees	Testimony	Wholesale Rates
State	Entity													
SC	Rock Hill, City of	✓	✓		✓	✓	✓	✓		✓	✓			
SC	SJWD Water District	✓	✓		✓	✓	✓	✓		✓	✓			
SC	Sumter, City of	✓	✓	✓		✓	✓	✓		✓	✓			
SC	Tega Cay, City of					✓			✓		✓			
SC	Union, City of	✓	✓			✓	✓	✓		✓	✓			
SC	Winnsboro, Town of					✓	✓	✓						
SC	Woodruff Roebuck Water District	✓	✓	✓		✓	✓	✓		✓	✓			
SC	York, City of	✓	✓		✓	✓	✓	✓		✓	✓			
TN	Brentwood, City of		✓			✓	✓	✓			✓			

National and International Experience

Willdan staff are experienced in a broad range of utility planning services and therefore understand the importance of an approach that integrates elements of rates and capital planning with the political aspect. A graphic representation of Willdan's geographical client presence is depicted below.



Fee Proposal

Water and Wastewater Rate Study

Based on our work plan provided in the scope of services, we propose a fixed fee of $58,500. The fees charged by Willdan are reflective of our belief and commitment to providing high quality, cost-effective consulting services to our clients.

We have adopted a billing philosophy whereby out-of-pocket costs such as reproduction, printing, postage, shipping, telephone, and travel are considered part of the project and are included in the proposed fees. This is accomplished by utilizing a fixed fee approach based on a defined scope of services and not requesting change orders or budget amendments unless additional services are requested by CTUB.

City of Charles Town, West Virginia
Water and Wastewater Rate Study
Fee Proposal

		Total	
		Hours	Cost
Scope of Services			
Phase 1:	Project Initiation	34.0	$7,560
Phase 2:	Water and Wastewater Rate Study	110.0	$26,760
Phase 3:	Financial Model and Reporting Outputs	57.0	$10,470
Phase 4:	Meetings & Presentations	36.0	$8,160
	Total Willdan Labor Costs	237.0	$52,950
	Expenses		$5,550
	Total Cost		$58,500

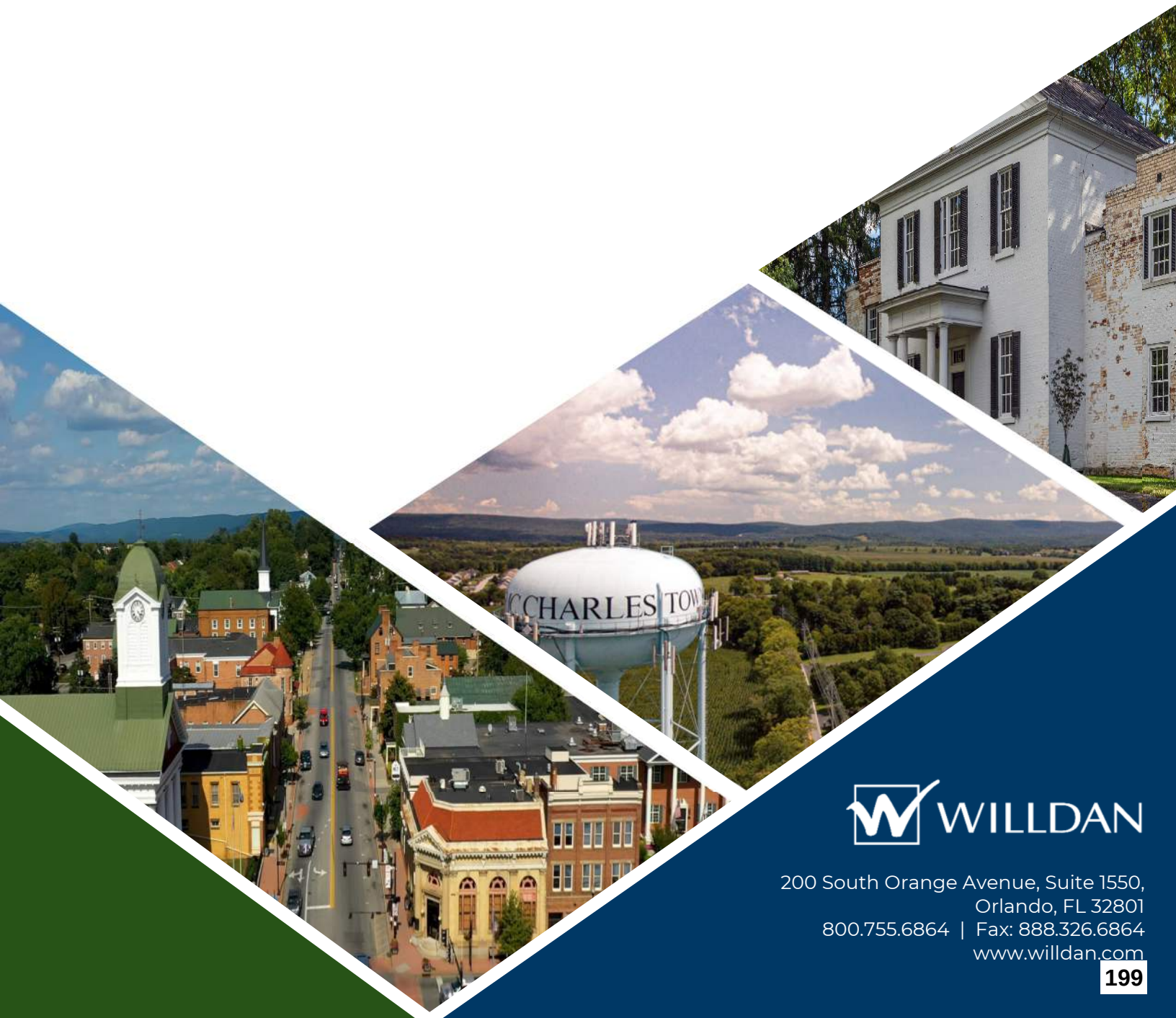
Notes

- CTUB will be invoiced on a monthly percentage-completion basis. Invoices will include a description of services, as well as a summary of costs to date by task.
- We will perform additional tasks, outside our scope of services, as requested and authorized by CTUB for an additional fee.
- Willdan will rely on the validity and accuracy of CTUB's data and documentation to complete our analyses. Willdan will rely on the data (water/sewer customer billing data, etc.) as being accurate without performing an independent verification of accuracy, and we will not be responsible for any errors that result from inaccurate data provided by the client or a third party.
- CTUB shall reimburse Willdan for any costs Willdan incurs, including without limitation, copying costs, digitizing costs, travel expenses, employee time, and attorneys' fees, to respond to the legal process of any governmental agency relating to CTUB or relating to this project. Reimbursement shall be at Willdan's rates in effect at the time of such response.

Hourly Rates

Provided below is Willdan's hourly rate table identifying current hourly rates for additional or optional services.

Willdan Financial Services Hourly Rate Schedule		
Position	**Team Member**	**Hourly Rate**
Vice President / Director		$310
Managing Principal	Jeff McGarvey Michael George	$300
Principal Consultant	Erik Johnson & Tara Hollis	$270
Senior Project Manager		$250
Project Manager		$210
Senior Project Analyst		$150
Senior Analyst		$135
Analyst II	Carolin Huegemann	$120
Analyst I		$110



WILLDAN

200 South Orange Avenue, Suite 1550,
Orlando, FL 32801
800.755.6864 | Fax: 888.326.6864
www.willdan.com

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting **661 South George Street**
Charles Town, WV 25414

Steptoe and Johnson Engagement Letter

Attachments:

Engagement Letter.pdf

STEPTOE & JOHNSON PLLC
ATTORNEYS AT LAW

Chase Tower, 17th Floor
P.O. Box 1588
Charleston, WV 25326-1588
(304) 353-8000 (304) 933-8704 Fax
www.steptoe-johnson.com

Writer's Contact Information
304-353-8133
Richard.Lewis@steptoe-johnson.com

January 28, 2026

Kristen Stolipher
Utility General Manager
Charles Town Utility Board
661 South George Street, Suite 101
Charles Town, WV 25414

Re: Representation by Steptoe & Johnson PLLC

Dear Ms. Stolipher:

Thank you for selecting Steptoe & Johnson PLLC to provide legal services to the Charles Town Utility Board in Charles Town, West Virginia for Environmental, Bond Counsel and Human Resources/Personnel matters. The Rules of Professional Conduct governing attorneys recommend that attorneys have written fee agreements with their clients. This letter ("Engagement Letter"), when returned to our office, will constitute, along with the Standard Terms of Engagement for Legal Services ("Standard Terms") and the Cost Information Sheet each enclosed herewith, your written fee agreement ("Agreement") with our firm for the matter addressed.

The Standard Terms address in general how our fees and charges are set; the handling of client deposits if required; billing and payment terms; the scope of the attorney-client privilege; the client's responsibilities; the termination of our firm's representation and the disposition of documents; and dispute resolution procedures. To the extent that an inconsistency may arise between the terms of this Engagement Letter and the Standard Terms, the Engagement Letter shall control.

1. IDENTITY OF CLIENT

For the purpose of this representation, we understand that our client is the **Charles Town Utility Board**. We are not representing any other entities or individuals whose interest may be affected by this matter and such individual persons or other entities are expressly excluded from the scope of our representation. References in this Agreement to "you" or "your" will mean the client identified in this paragraph.

2. SCOPE OF WORK

You are hiring us as your attorneys to provide legal services for Environmental, Bond Counsel and Human Resources/Personnel matters.

We will provide those legal services necessary to represent you in the above matter and we will take reasonable steps to keep you informed of progress and to respond to your inquiries. If Steptoe & Johnson PLLC is asked to perform additional work for you in the future, the terms of this letter will apply unless a different arrangement is agreed upon.

3. MINIMUM FEE/DEPOSIT

At this time, we are not requesting either a minimum fee or an initial deposit against fees. We may request, however, an advance against costs from time to time, or request a fee advance or a retainer if circumstances dictate such arrangements.

4. STAFFING, LEGAL FEES, BILLING PRACTICES

Richard Lewis will be the attorney primarily responsible for the work we will perform for you. We will utilize the services of other attorneys, law clerks and legal assistants to assist as necessary to efficiently handle your work and to meet time deadlines.

You agree to pay by the hour at our negotiated rates for time spent on your matter by our legal personnel. Pursuant to our Proposals, our billing rates are as follows: Richard Lewis and John Stump at $675 per hour; all other Partners and Of Counsels at $375 per hour, and all Associates at $275 per hour. Legal Assistants and other Professionals will be billed at their respective normal billable rates.

We charge for our time in one quarter (.25) hour increments, unless otherwise agreed. We will charge you for the time we spend on telephone calls relating to your matter, including calls with you, opposing counsel or court personnel. The legal personnel assigned to your matter may confer among themselves on the matter, as required. When they do confer, each person will charge for the time expended. We will charge for waiting time, in court and elsewhere, and for travel time, both local and out of town.

We normally adjust our billing rates annually. Accordingly, we will contact you on or about January 30, 2027 to discuss any necessary and appropriate adjustments to our billing rates.

5. BILLING STATEMENTS

Unless otherwise agreed to in writing, we will send you monthly statements for fees and costs incurred. Each statement will be due within thirty days of its receipt. If fees are collected at a settlement or the closing of a transaction, any additional time for post-closing matters will be either billed on a subsequent statement or estimated and collected at the settlement or closing.

304-353-8133
Richard.Lewis@steptoe-johnson.com

6. DISCLAIMER OF GUARANTEE

Nothing in this Agreement and nothing in our reports or statements to you should be construed as a promise or guarantee about the outcome of your matter. We make no such promises or guarantees. Our comments about the expected outcome of your matter are expressions of our opinion only based on the presently known facts and circumstances.

7. EFFECTIVE DATE

The effective date of this Agreement will be retroactive to the date we first performed services. The date at the beginning of this Agreement is for reference only. Even if this Agreement does not take effect, you will be obligated to pay us the reasonable value of any services we may have performed for you.

We look forward to working with you. If these terms are acceptable to you, please sign the enclosed duplicate original of this letter and return it to me. If you have any questions about this letter or our representation, please call or write me.

8. WAIVER OF CONFLICTS

As you are aware, our firm represents many other companies and individuals. It is possible that during the time that we are representing you, some of our present or future clients may have disputes or transactions with you. You hereby agree that we may continue to represent or may undertake in the future to represent existing or new clients in any matter that is not substantially related to our work for you even if the interests of such clients in those other matters are directly adverse to you. We agree, however, that your prospective consent to conflicting representation contained in the preceding sentence shall not apply in any instance where, as a result of our representation of you, we have obtained proprietary or other confidential information of a nonpublic nature, that, if known to such other client, could be used in any such other matter by such client to your material disadvantage. You should know that, in similar engagement letters with many of our other clients, we have asked for similar agreements to preserve our ability to represent you.

9. PRESERVATION OF DOCUMENTS AND ELECTRONICALLY STORED INFORMATION

Developments in the law regarding document and data preservation now require parties to a lawsuit to take affirmative and documented steps to preserve records related to litigation. Courts have become increasingly vigilant in demanding that records, especially electronic files, e-mail and similar communications, be preserved. Preservation obligations arise once litigation is reasonably anticipated. In this case litigation has commenced.

To meet the duty to preserve, a number of steps should be taken at the outset of any lawsuit. These acts can be time consuming but are critical if a party is going to adequately respond to

discovery requests and demonstrate its good faith efforts regarding preservation. Because of the nature of electronic record keeping, claims of spoliation or intentional destruction of discoverable evidence are becoming more commonplace. In this context, what a party does to preserve relevant records is coming under increasing scrutiny.

We anticipate working with you closely regarding document and data preservation. As an initial matter, please give consideration to and be prepared to discuss with us the scope of potentially relevant information, the possible types of records that may contain it, and all persons who may have relevant materials. If any potentially relevant information is maintained or stored electronically, immediately consult with your system administrator to determine what records exist and how they can be safeguarded. This is commonly referred to as placing a "Litigation Hold" on records. Options include the immediate suspension of relevant document/record deletion programs, copying or downloading of potentially relevant records, and creating hard copies of computerized records.

10. CONFIDENTIAL COMMUNICATIONS

Lawyers are required by the Rules of Professional Conduct to maintain as confidential information relating to representation of, and communications with, clients, subject to certain limited exceptions. This requirement of strict confidentiality extends to electronic communications and electronically maintained files of course.

We all realize that in today's world, the danger of "hacking", or other means of third party "bad actors" gaining access to electronically-stored confidential information or electronic communications, is high. Our firm has invested and will continue to invest in technology designed to prevent unwanted and unauthorized access to your confidential information and communications. We cannot guarantee, however, that our efforts will be foolproof. We will advise you of any breach that may occur of which we become aware.

We will communicate with you in the manner, including text-messaging, that you choose, but we must advise you that "texting" is considered a high risk means of communication and that if you choose to communicate with us in that manner, you do so at your own risk of unauthorized access.

11. EFFECTIVE DATE

The effective date of this Agreement will be retroactive to the date we first performed services. The date at the beginning of this Agreement is for reference only. Even if this Agreement does not take effect, you will be obligated to pay us the reasonable value of any services we may have performed for you and any reasonable costs incurred.

We look forward to working with you. If these terms are acceptable to you, please sign the enclosed duplicate original of this letter and return it to me. If you have any questions about this letter or our representation, please call or write me.

304-353-8133
Richard.Lewis@steptoe-johnson.com

Very truly yours,
STEPTOE & JOHNSON PLLC

By: _____
Richard L. Lewis, Member

Agreed to this _____ day of _____, 2026.

_____
Kristen Stolipher
Charles Town Utility Board

Enclosures

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting **661 South George Street**
Charles Town, WV 25414

GDF - Wastewater Plant Agreement between Owner and Engineer for Professional Services

Attachments:

Engineer Owner Agreement.pdf

AGREEMENT BETWEEN OWNER AND ENGINEER FOR PROFESSIONAL SERVICES

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AGREEMENT BETWEEN OWNER AND ENGINEER FOR PROFESSIONAL SERVICES

THIS IS AN AGREEMENT effective as of _____, 2026 ("Effective Date") between

CHARLES TOWN UTILITY BOARD (CTUB) ("Owner") and

GWIN, DOBSON & FOREMAN, INC. ("Engineer").

Owner's Project, of which Engineer's services under this Agreement are a part, is generally identified as follows:

Charles Town Wastewater Treatment Facility Expansion Project ("Project").

Engineer's services under this Agreement are generally identified as follows:
Engineering, design, plans and specifications, bid phase, construction administration, and Resident Project Representative (inspection) services for the Charles Town Wastewater Treatment Facility Expansion project based on the findings from the 2026 Preliminary Engineer's Report for the Wastewater Treatment and Collection System, officially made an official part herein by reference.

Owner and Engineer further agree as follows:

ARTICLE 1—SERVICES OF ENGINEER

1.01 Scope

A. Engineer shall provide, or cause to be provided, the services set forth herein and in Exhibit A.

B. All phases of service will include Management of Engineering Services as shown in Exhibit A.

ARTICLE 2—OWNER'S RESPONSIBILITIES

2.01 Project Information

A. To the extent Owner has not already provided the following, or has new, additional, or revised information from that previously provided, Owner shall provide Engineer with information and data needed by Engineer in the performance of Basic and Additional Services, including Owner's:

1. design objectives and constraints;
2. space, capacity, and performance requirements;
3. flexibility and expandability needs;
4. design and construction standards;
5. budgetary limitations; and
6. any other available information pertinent to the Project including reports and data relative to previous designs, construction, or investigation at or adjacent to the Site.

B. Following Engineer's assessment of initially-available Project information and data and upon Engineer's request, Owner shall obtain, furnish, or otherwise make available (if necessary through retention of specialists or consultants) such additional Project-related information and data as is reasonably required to enable Engineer to complete its Basic and Additional Services; or, with consent of Engineer, Owner may authorize the Engineer to obtain or provide all or part of such additional information as Additional Services. Such additional information or data may include the following:

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1. Property descriptions.
2. Zoning, deed, and other land use restrictions.
3. Surveys, topographic mapping, and utility documentation.
4. Property, boundary, easement, right-of-way, and other special surveys or data, including establishing relevant reference points.
5. Explorations and tests of subsurface conditions at or adjacent to the Site; geotechnical reports and investigations; drawings of physical conditions relating to existing surface or subsurface structures at the Site; hydrographic surveys, laboratory tests and inspections of samples, materials, and equipment; appropriate professional interpretation of such information or data.
6. Environmental assessments, audits, investigations, and impact statements, and other relevant environmental, historical, or cultural studies relevant to the Project, the Site, and adjacent areas.
7. Data or consultations as required for the Project but not otherwise identified in this Agreement.

C. Owner shall examine all alternative solutions, studies, reports, sketches, Drawings, Specifications, proposals, and other documents presented by Engineer (including obtaining advice of an attorney, risk manager, insurance counselor, financial/municipal advisor, and other advisors or consultants as Owner deems appropriate with respect to such examination) and render in writing timely decisions pertaining thereto.

D. Owner shall furnish to Engineer data as to Owner's anticipated costs for services to be provided to Owner by others (including, but not limited to, accounting, bond and financial, independent cost estimating, insurance counseling, and legal advice) so that Engineer may assist Owner in collating the various cost categories that comprise Total Project Costs.

E. Owner shall advise Engineer if any invention, design, process, product, or device that Owner has requested, required, or recommended for inclusion in the Drawings or Specifications will be subject to payment (whether by Owner or Contractor) of any license fee or royalty to others, as required by patent rights or copyrights.

F. Owner shall inform Engineer as to whether Engineer's assistance is requested with respect to Owner's evaluation of the possible use of Project Strategies, Technologies, and Techniques, as defined in Exhibit A.

G. Owner shall inform Engineer as to whether Engineer's assistance is requested in identifying opportunities for enhancing the sustainability of the Project.

2.02 Owner's Instructions Regarding Bidding/Proposal and Front-End Construction Contract Documents

A. Owner shall give instructions to Engineer regarding Owner's procurement of construction services (including instructions regarding advertisements for bids, instructions to bidders, and requests for proposals, as applicable) and Owner's construction contract practices and requirements, and furnish to Engineer (or give specific directions requesting Engineer to use copies already in Engineer's possession) the following:

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1. Owner's standard contract forms, general conditions (if other than the current edition of EJCDC® C-700, Standard General Conditions of the Construction Contract), supplementary conditions, text, and related documents and content for Engineer to include in the draft Bidding/Proposal Documents, and in draft Front-End Construction Contract Documents;

2. insurance and bonding requirements;

3. protocols for electronic transmittals during bidding and construction;

4. Owner's safety and security programs applicable to Contractor and other Constructors;

5. diversity and other social responsibility requirements;

6. bidding and contract requirements of funding, financing, or regulatory entities;

7. other specific conditions applicable to the procurement of construction or contract documents;

8. any other information necessary for Engineer to assist Owner in preparing its Bidding/Proposal Documents and Front-End Construction Contract Documents.

B. ~~Owner shall have responsibility for the final content of (1) such Bidding/Proposal Documents, and (2) such Front-End Construction Contract Documents, other than content furnished by Engineer concerning the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters.~~

1. ~~Owner shall seek the advice of Owner's legal counsel, risk managers, and insurance advisors with respect to the drafting and content of such documents.~~

C. If there will be an advertisement soliciting bids for construction, Owner shall place and pay for such advertisement.

2.03 Owner-Furnished Services

A. Recognizing and acknowledging that Engineer's services and expertise do not include the following services, Owner shall obtain, as required for the Project:

1. Accounting, bond and financial advisory services (including, if applicable, "municipal advisor" services as described in Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010) and the municipal advisor registration rules issued by the Securities and Exchange Commission), independent cost estimating, and insurance counseling services.

2. Legal services, including attorney review of proposed Construction Contract Documents, legal services required by Owner, legal services needed as a result of issues raised by Contractor, and Project-related legal services reasonably requested by Engineer.

3. Auditing services, including those needed by Owner to ascertain how or for what purpose Contractor has used money paid to it.

B. ~~Owner shall provide the services of an independent testing laboratory to perform all inspections, tests, and approvals of samples, materials, and equipment required by the Construction Contract Documents (other than those required to be furnished or arranged by Contractor), or to evaluate the performance of materials, equipment, and facilities of Owner,~~

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~~prior to their incorporation into the Work with appropriate professional interpretation thereof. Owner shall provide Engineer with the findings and reports generated by testing laboratories, including findings and reports obtained from or through Contractor.~~

C. Owner shall acquire or arrange for acquisition of the Site(s) and any temporary or permanent rights of access, easements, or property rights needed for the Project.

D. With respect to the portions or phases of the Project designed or specified by Engineer, Owner shall provide, obtain, or arrange for:

1. all required reviews, approvals, consents, and permits from governmental authorities having jurisdiction, and

2. such reviews, approvals, and consents from others as may be necessary for completion of each portion or phase of the Project.

E. Owner may delegate to Contractor or others the responsibilities set forth in Paragraphs 2.03.C and D.

2.04 Owner's General Responsibilities

A. Owner shall inform Engineer of the policies, procedures, and requirements of Owner that are applicable to Engineer's performance of services under this Agreement.

B. Owner shall provide Engineer with Owner's budget for the Project, including type and source of funding to be used, and will promptly inform Engineer if the budget or funding sources change.

C. Owner shall inform Engineer in writing of any safety or security programs that are applicable to the personnel of Engineer, its Subconsultants, and Engineer's Subcontractors, as they visit the Site or otherwise perform services under this Agreement.

D. Owner shall arrange for safe access to and make all provisions for Engineer to enter upon public and private property as required for Engineer to perform services under this Agreement.

E. Owner shall provide necessary direction and make decisions, including prompt review of Engineer's submittals, and carry out its other responsibilities in a timely manner so as not to delay Engineer's performance of its services.

F. Owner shall be responsible for all requirements and instructions that it furnishes to Engineer pursuant to this Agreement, and for the accuracy and completeness of all programs, reports, data, and other information furnished by Owner to Engineer pursuant to this Agreement. Engineer may use and rely upon such requirements, programs, instructions, reports, data, and information in performing or furnishing services under this Agreement, subject to any express limitations or reservations applicable to the furnished items.

G. Owner shall give prompt written notice to Engineer whenever Owner observes or otherwise becomes aware of:

1. any development that affects the scope or time of performance of Engineer's services;

2. the presence at the Site of any Constituent of Concern; or

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3. any relevant, material defect or nonconformance in: (a) Engineer's services, (b) the Work, (c) the performance of any Constructor, or (d) Owner's performance of its responsibilities under this Agreement.

H. Owner shall advise Engineer of the identity and scope of services of any independent consultants employed by Owner to perform or furnish services in regard to the Project, including, but not limited to, cost estimating, project peer review, value engineering, and constructability review.

I. If Owner designates a construction manager, site representative, or any individual or entity other than, or in addition to, Engineer to represent Owner at the Site, Owner shall define and set forth as an exhibit to this Agreement the duties, responsibilities, and limitations of authority of such other party and the relation thereof to the duties, responsibilities, and authority of Engineer.

J. Owner shall:

1. Attend and participate in the pre-bid conference, bid opening, pre-construction conferences, construction progress and other job-related meetings, and Site visits to determine Substantial Completion and readiness of the completed Work for final payment.

2. Primarily communicate with Engineer's Subcontractors and Subconsultants through the Engineer.

a. Promptly inform Engineer of the substance of any communications between Owner and Engineer's Subcontractors or Subconsultants.

b. Refrain from directing the services of Engineer's Subcontractors or Subconsultants.

3. Authorize Engineer to provide Additional Services as set forth in Article 2 of Exhibit A of the Agreement, as required.

4. Perform or provide the following:

a. None.

2.05 Payment

A. Owner shall pay Engineer as set forth in Article 4 and Exhibit J.

B. Engineer's total compensation of **$2,600,000** as summarized in Exhibit J. These are based on a **30-month** continuous construction period.

1. Compensation items and totals based in whole or in part on Hourly Rates, Direct Labor, or Percentage of Construction Cost are estimates only.

2. Lump sum amounts incorporate Engineer's labor, overhead, profit, and Engineer's Subcontractor and Subconsultants' charges.

ARTICLE 3—SCHEDULE FOR RENDERING SERVICES

3.01 Commencement

A. Engineer is authorized to begin rendering services as of the Effective Date.

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3.02 Time for Completion

A. Engineer shall complete its obligations within a reasonable time. Specific periods of time for rendering services, or specific dates by which services are to be completed, are provided in Exhibit B, and are hereby agreed to be reasonable.

B. If, through no fault of Engineer, such periods of time or dates are changed, or the orderly and continuous progress of Engineer's services is impaired, or Engineer's services are delayed or suspended, then the time for completion of Engineer's services, and the rates and amounts of Engineer's compensation, will be adjusted equitably.

C. If Owner authorizes changes in the scope, extent, or character of the Project or Engineer's services, then the time for completion of Engineer's services, and the rates and amounts of Engineer's compensation, will be adjusted equitably.

D. If Engineer fails, for reasons within control of Engineer, to complete the performance required in this Agreement within the time set forth, as duly adjusted, then Owner shall be entitled, as its sole remedy, to the recovery of direct damages to the extent, if any, resulting from such failure by Engineer.

ARTICLE 4—INVOICES AND PAYMENTS

4.01 Invoices

A. Preparation and Submittal of Invoices: Engineer shall prepare invoices in accordance with its standard invoicing practices, the progress reporting and special invoicing requirements (if any) in Exhibit A Paragraph 1.01.A, and the terms of Exhibit J. Engineer shall submit its invoices to Owner on a monthly basis. Invoices are due and payable within 30 days of receipt.

4.02 Payments

A. Application to Interest and Principal: Payment will be credited first to any interest owed to Engineer and then to principal.

B. Disputed Invoices: If Owner disputes an invoice, either as to amount or entitlement, then Owner shall promptly advise Engineer in writing of the specific basis for doing so; may withhold only that portion so disputed; and must pay the undisputed portion, subject to the terms of Paragraph 4.01. After a disputed item has been resolved, Engineer shall include the agreed-upon amount on a new invoice.

C. Failure to Pay: If Owner fails to make any undisputed payment due Engineer within 30 days after receipt of Engineer's invoice, then:

1. amounts due Engineer will be increased at the rate of 1.0% per month (or the maximum rate of interest permitted by law, if less) from said thirtieth day, and

2. Engineer may, after giving 7 days' written notice to Owner, suspend services under this Agreement until Owner has paid in full amounts due. Owner waives any and all claims against Engineer for any such suspension.

D. Sales or Use Taxes: If after the Effective Date any governmental entity takes an action that imposes additional sales or use taxes on Engineer's services or compensation under this Agreement, then Engineer may invoice such additional sales or use taxes for reimbursement by Owner. Owner shall reimburse Engineer for the cost of such invoiced additional sales or use taxes; such reimbursement will be in addition to the compensation to which Engineer is entitled under the terms of Exhibit J.

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ARTICLE 5—OPINIONS OF COST

5.01 Opinions of Probable Construction Cost

A. Engineer's opinions of probable Construction Cost (if any) are to be made on the basis of Engineer's experience, qualifications, and general familiarity with the construction industry. However, because Engineer has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Engineer cannot and does not guarantee that proposals, bids, or actual Construction Cost will not vary from opinions of probable Construction Cost prepared by Engineer. If Owner requires greater assurance as to probable Construction Cost, then Owner agrees to obtain an independent cost estimate.

5.02 Opinions of Total Project Costs

A. The services, if any, of Engineer with respect to Total Project Costs will be limited to assisting the Owner in tabulating the various categories that comprise Total Project Costs. Engineer assumes no responsibility for the accuracy of any opinions of Total Project Costs.

ARTICLE 6—GENERAL CONSIDERATIONS

6.01 Standards of Performance

A. Standard of Care: The standard of care for all professional engineering and related services performed or furnished by Engineer under this Agreement will be the care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same time and in the same locality. Engineer makes no warranties, express or implied, under this Agreement or otherwise, in connection with any services performed or furnished by Engineer.

B. Technical Accuracy: Owner shall not be responsible for discovering deficiencies in the technical accuracy of Engineer's services. Engineer shall correct deficiencies in technical accuracy without additional compensation, unless such corrective action is directly attributable to deficiencies in Owner-furnished information.

C. Engineer's Subcontractors and Subconsultants: Engineer may retain such Engineer's Subcontractors and Subconsultants as Engineer deems necessary to assist in the performance or furnishing of the services, subject to reasonable, timely, and substantive objections by Owner.

D. Reliance on Others: Subject to the standard of care set forth in Paragraph 6.01.A, Engineer may use or rely upon design elements and information ordinarily or customarily furnished by others, including, but not limited to, specialty contractors, manufacturers, suppliers, and the publishers of technical standards.

E. Compliance with Laws and Regulations, and Policies and Procedures

1. Engineer and Owner shall comply with applicable Laws and Regulations.

2. Engineer shall comply with the policies, procedures, and instructions of Owner that are applicable to Engineer's performance of services under this Agreement and that Owner provides to Engineer in writing, subject to the standard of care set forth in Paragraph 6.01.A, and to the extent compliance is not inconsistent with professional practice requirements.

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3. This Agreement is based on Laws and Regulations and Owner-provided written policies and procedures as of the Effective Date. The following may be the basis for modifications to Owner's responsibilities or to Engineer's scope of services, times of performance, or compensation:

    a. changes after the Effective Date to Laws and Regulations,

    b. the receipt by Engineer after the Effective Date of Owner-provided written policies and procedures, and

    c. changes after the Effective Date to Owner-provided written policies or procedures.

F. General Conditions of Construction Contract: The general conditions for any Construction Contract Documents prepared hereunder are to be the 2013 edition of EJCDC® C-700, Standard General Conditions of the Construction Contract, prepared by the Engineers Joint Contract Documents Committee~~, unless expressly indicated otherwise~~.

G. Copies of Drawings and Specifications: If Engineer is required to prepare or furnish Drawings or Specifications under this Agreement, Engineer shall deliver to Owner at least one complete electronic copy of such Drawings and Specifications, signed and sealed according to applicable Laws and Regulations, and one complete printed copy, duly signed and sealed.

H. Engineer shall not be required to sign any document, no matter by whom requested, that would result in Engineer having to certify, guarantee, or warrant conditions whose existence Engineer cannot ascertain within the authorized scope of Engineer's services. Owner agrees not to make resolution of any dispute with Engineer or payment of any amount due to Engineer in any way contingent upon Engineer signing any such document.

I. Engineer shall not at any time supervise, direct, control, or have authority over any Constructor's work, nor will Engineer have authority over or be responsible for the means, methods, techniques, sequences, or procedures of construction selected or used by any Constructor, or the safety precautions and programs incident thereto, for security or safety at the Site, nor for any failure of a Constructor to comply with Laws and Regulations applicable to that Constructor's furnishing and performing of its work. Engineer shall not be responsible for the acts or omissions of any Constructor.

J. Engineer neither guarantees the performance of any Constructor nor assumes responsibility for any Constructor's failure to furnish and perform the Work in accordance with the Construction Contract Documents.

K. Engineer shall not be responsible for any decision made regarding the Construction Contract Documents, or any application, interpretation, clarification, or modification of the Construction Contract Documents, other than those made by Engineer.

L. Engineer is not required to provide and does not have any responsibility for surety bonding or insurance-related advice, recommendations, counseling, or research, or enforcement of construction insurance or surety bonding requirements.

M. Engineer's services do not include providing legal advice or representation.

N. Engineer's services do not include (1) serving as a "municipal advisor" for purposes of the registration requirements of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010) or the municipal advisor registration rules issued by the Securities and Exchange Commission, or (2) advising Owner, or any municipal entity or other

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person or entity, regarding municipal financial products or the issuance of municipal securities, including advice with respect to the structure, timing, terms, or other similar matters concerning such products or issuances.

O. While at the Site, Engineer, its Subconsultants, and Engineer's Subcontractors, and their employees and representatives will comply with the applicable requirements of Contractor's and Owner's safety programs of which Engineer has been informed in writing.

6.02 Ownership and Use of Documents

A. All Documents are instruments of service, and Engineer owns the Documents, including all associated copyrights and the right of reuse at the discretion of the Engineer. Engineer shall continue to own the Documents and all associated rights whether or not the Project is completed.

1. Owner may make and retain copies of Documents for information and reference in connection with the use of the Documents on the Project.

2. Engineer grants Owner a limited license to use the Documents on the Project, extensions of the Project, and for related uses of the Owner, subject to receipt by Engineer of full payment due and owing for all services relating to preparation of the Documents, and subject to the following limitations:

a. Owner acknowledges that such Documents are not intended or represented to be suitable for use on the Project unless completed by Engineer, or for use or reuse by Owner or others on extensions of the Project, on any other project, or for any other use or purpose, without written verification or adaptation by Engineer;

b. any such use or reuse, or any modification of the Documents, without written verification, completion, or adaptation by Engineer, as appropriate for the specific purpose intended, will be at Owner's sole risk and without liability or legal exposure to Engineer or to its officers, directors, members, partners, agents, employees, and Subconsultants;

c. Owner shall indemnify and hold harmless Engineer and its officers, directors, members, partners, agents, employees, and Subconsultants from all claims, damages, losses, and expenses, including attorneys' fees, arising out of or resulting from any use, reuse, or modification of the Documents without written verification, completion, or adaptation by Engineer; and

d. such limited license to Owner shall not create any rights in third parties.

B. If Engineer at Owner's request verifies the suitability of the Documents, completes them, or adapts them for extensions of the Project or for any other purpose, then Owner shall compensate Engineer at rates or in an amount to be agreed upon by Owner and Engineer.

C. Engineer shall inform Owner if Engineer is aware of any invention, design, process, product, or device specified in the Drawings, Specifications, or other Documents that is subject to payment (whether by Owner or Contractor) of any license fee or royalty to others, as required by patent rights or copyrights. If Engineer's good-faith inclusion in the Drawings, Specifications, or other Documents of new, innovative, or non-standard technologies, for the benefit of Owner and the Project, results in third-party claims of infringement or violation of intellectual property rights, then Owner and Engineer shall share equally the costs of defending against, settling, or paying such claims.

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D. Engineer will obtain Owner's consent, which will not be unreasonably withheld, prior to releasing any publicity, including news and press releases, promotional publications, award and prize competition submittals, and other advertising regarding the subject matter of this Agreement. Nothing herein will limit the Engineer's right to include information in statements of qualifications and proposals to others accurately describing its participation and participation of employees in the Project.

6.03 Electronic Transmittals

A. To the fullest extent practical, Owner and Engineer agree to transmit, and accept, Project-related correspondence, Documents, text, data, drawings, information, and graphics, in electronic media or digital format, either directly, or through access to a secure Project website, in accordance with Exhibit F, Electronic Documents Protocol (EDP).

1. Compliance with the EDP by Engineer shall be considered a Basic Service and no direct or separate compensation will be paid to Engineer for such compliance, unless provisions for separate compensation are expressly set forth in the EDP.

2. Engineer's costs directly attributable to changes in Engineer's Electronic Documents obligations, after the effective date of this Agreement, necessitated by revisions to Exhibit F, delayed adoption of Exhibit F, or implementation of other Electronic Documents protocols, will be compensated as Additional Services.

B. If this Agreement does not include Exhibit F or otherwise does not establish or include protocols for transmittal of Electronic Documents by Electronic Means, then Owner and Engineer may operate without specific protocols or may jointly develop such protocols at a later date.

C. Except as stated otherwise in Exhibit F (if included in this Agreement), when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents, or from those established in applicable protocols.

D. This Agreement (including the EDP) is not intended to create obligations for Owner or Engineer with respect to transmittals to or from third parties, except as expressly stated in the EDP.

6.04 Insurance

A. Engineer shall procure and maintain insurance as set forth in Exhibit G.

B. Additional Insureds: The Engineer's commercial general liability, automobile liability, and umbrella or excess liability policies, must:

1. include and list as additional insureds Owner, and any individuals or entities identified as additional insureds in Exhibit G;

2. include coverage for the respective officers, directors, members, partners, and employees of all such additional insureds;

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3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations); and

4. not seek contribution from insurance maintained by the additional insured.

C. ~~Owner shall procure and maintain insurance as set forth in Exhibit G.~~

D. Owner shall require Contractor to purchase and maintain policies of insurance covering workers' compensation, general liability, motor vehicle damage and injuries, and other insurance necessary to protect Owner's and Engineer's interests in the Project. Owner shall require Contractor to cause Engineer, its Subconsultants, and Engineer's Subcontractors to be listed as additional insureds with respect to such liability insurance purchased and maintained by Contractor for the Project. Owner shall give Engineer access to any certificates of insurance and copies of endorsements and policies obtained by Owner from Contractor.

E. Owner and Engineer shall each deliver to the other certificates of insurance evidencing the coverages indicated in Exhibit G. Such certificates must be furnished prior to commencement of Engineer's services and at renewals thereafter during the life of the Agreement.

1. Upon request by Owner or any other insured, Engineer shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subconsultants and Engineer's Subcontractors. In any documentation furnished under this provision, Engineer may redact (a) any confidential premium or pricing information and (b) any wording specific to projects or jurisdictions other than those applicable to this Agreement.

F. All construction contracts entered into by Owner with respect to the Project must require builder's risk or similar property insurance.

G. All policies of property insurance relating to the Project, including but not limited to any builder's risk or similar policy, must allow for waiver of subrogation rights and contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insured thereunder or against Engineer, its Subconsultants, or Engineer's Subcontractors. Owner and Engineer waive all rights against each other, Contractor, Engineer's Subcontractors and Subconsultants, and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by any such builder's risk or similar policy and any other property insurance relating to the Project. Owner and Engineer shall take appropriate measures in other Project-related contracts to secure waivers of rights consistent with those set forth in this paragraph.

H. All policies of insurance must contain a provision or endorsement that the coverage afforded will not be canceled, and that renewal will not be refused, until at least 10 days' prior written notice has been given to the primary insured. Upon receipt of such notice, the primary insured must promptly forward a copy of the notice to the other party to this Agreement and replace the coverage being cancelled or reduced to conform to the requirements of this Agreement.

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I. At any time, Owner may request that Engineer, or Engineer's Subcontractors or Subconsultants, at Owner's sole expense, provide additional insurance coverage, increased limits, or revised deductibles that are more protective than those specified in Exhibit G. If so requested by Owner, and if commercially available, Engineer shall obtain and shall require Engineer's Subcontractors or Subconsultants to obtain such additional insurance coverage, different limits, or revised deductibles for such periods of time as requested by Owner, and Exhibit G will be supplemented to incorporate these requirements.

6.05 Suspension and Termination

A. Suspension

1. By Owner: Owner may suspend Engineer's services for up to 90 days upon 7 days' written notice to Engineer.

2. By Engineer: Engineer may, after giving 7 days' written notice to Owner, suspend services under this Agreement:

a. if Owner has failed to pay Engineer for invoiced services and expenses, as set forth in Paragraphs 4.02.B and 4.02.C;

b. in response to the presence of Constituents of Concern at the Site, as set forth in Paragraph 6.09.D; or

c. if persistent circumstances beyond the control of Engineer have prevented it from performing its obligations under this Agreement.

B. Termination for Cause

1. Either party may terminate the Agreement for cause upon 30 days' written notice in the event of substantial failure by the other party to perform in accordance with the terms of the Agreement, through no fault of the terminating party.

a. Notwithstanding the foregoing, this Agreement will not terminate under Paragraph 6.05.B.1 if the party receiving such notice begins, within 7 days of receipt of such notice, to correct its substantial failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt thereof; provided, however, that if and to the extent such substantial failure cannot be reasonably cured within such 30-day period, and if such party has diligently attempted to cure the same and thereafter continues diligently to cure the same, then the cure period provided for herein will extend up to, but in no case more than, 60 days after the date of receipt of the notice.

2. In addition to its termination rights in Paragraph 6.05.B.1, Engineer may terminate this Agreement for cause upon 7 days' written notice:

a. if Owner demands that Engineer furnish or perform services contrary to Engineer's responsibilities as a licensed professional;

b. if Engineer's services for the Project are delayed or suspended for more than 90 days for reasons beyond Engineer's control; or

c. as the result of the presence at or adjacent to the Site of undisclosed Constituents of Concern, as set forth in Paragraph 6.09.E.

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3. Engineer will have no liability to Owner on account of any termination by Engineer for cause.

C. Termination for Convenience: Owner may terminate this Agreement for convenience, effective upon Engineer's receipt of notice from Owner.

D. Extension of Effective Date of Termination: If Owner terminates the Agreement for cause or convenience, Owner may set the effective date of termination at a time up to 30 days later than otherwise provided to allow Engineer to demobilize personnel and equipment from the Site, to complete tasks whose value would otherwise be lost, to prepare notes as to the status of completed and uncompleted tasks, and to assemble Project materials in orderly files. Engineer shall be entitled to compensation for such tasks.

E. Payments Upon Termination: In the event of any termination under Paragraph 6.05, Engineer will be entitled to invoice Owner and to receive full payment for all services performed or furnished in accordance with this Agreement and all reimbursable expenses incurred through the effective date of termination. Upon making such payment, Owner will have the limited right to the use of Documents, at Owner's sole risk, subject to the provisions of Paragraph 6.02.A.

1. If Owner has terminated the Agreement for cause and disputes Engineer's entitlement to compensation for services and reimbursement of expenses, then Engineer's entitlement to payment and Owner's rights to the use of the Documents will be resolved in accordance with the dispute resolution provisions of this Agreement or as otherwise agreed in writing.

2. If Owner has terminated the Agreement for convenience, or if Engineer has terminated the Agreement for cause, then Engineer will be entitled, in addition to the payments identified above, to invoice Owner and receive payment of a reasonable amount for services and expenses directly attributable to termination, both before and after the effective date of termination, such as reassignment of personnel, costs of terminating contracts with Engineer's Subcontractors or Subconsultants, and other related close-out costs, using methods and rates for Additional Services as set forth in Exhibit J.

6.06 Successors, Assigns, and Beneficiaries

A. Owner and Engineer are hereby bound and the successors, executors, administrators, and legal representatives of Owner and Engineer (and to the extent permitted by Paragraph 6.06.B the assigns of Owner and Engineer) are hereby bound to the other party to this Agreement and to the successors, executors, administrators and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements, and obligations of this Agreement.

B. Neither Owner nor Engineer may assign, sublet, or transfer any rights under or interest (including, but without limitation, claims arising out of this Agreement or money that is due or may become due) in this Agreement without the written consent of the other party, except to the extent that any assignment, subletting, or transfer is mandated by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement.

C. Unless expressly provided otherwise in this Agreement:

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1. All duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of Owner and Engineer and not for the benefit of any other party.

2. Nothing in this Agreement will be construed to create, impose, or give rise to any duty owed by Owner or Engineer to any Constructor, other third-party individual or entity, or to any surety for or employee of any of them.

3. Owner agrees that the substance of the provisions of this Paragraph 6.06.C will appear in the Construction Contract Documents.

6.07 Dispute Resolution

A. Unless otherwise required by Exhibit H, Owner and Engineer shall resolve all disputes in the following manner:

1. Owner and Engineer agree to negotiate all disputes between them in good faith for a period of 30 days from the date of notice, prior to invoking mediation.

2. Owner and Engineer agree that they shall first submit any and all unsettled claims, counterclaims, disputes, and other matters in question between them arising out of or relating to this Agreement or the breach thereof ("Disputes") to mediation. Owner and Engineer agree to participate in the mediation process in good faith. The process will be conducted on a confidential basis, and must be completed within 120 days.

3. If the parties fail to resolve a Dispute through negotiations under Paragraph 6.07.A.1 or mediation under Paragraph 6.07.A.2, then:

a. either or both may invoke the applicable dispute resolution procedures of Exhibit H for final resolution of Disputes.

b. If Exhibit H is not included, or if no final dispute resolution method is specified in Exhibit H, then the parties may exercise their rights at law.

6.08 Controlling Law; Venue

A. This Agreement is to be governed by the Laws and Regulations of the state in which the Project is located.

B. Venue for any exercise of rights at law will be the state court having jurisdiction at the location of the Project; or at the choice of either party, and if federal jurisdictional requirements can be met, in federal court in the district in which the Project is located.

6.09 Environmental Condition of Site

A. Owner represents to Engineer that, as of the Effective Date, to the best of Owner's knowledge, no Constituents of Concern, other than those disclosed in writing to Engineer, exist at or adjacent to the Site.

B. Undisclosed Constituents of Concern: For purposes of this Paragraph 6.09, the presence at or adjacent to the Site of Constituents of Concern that were not disclosed to Engineer pursuant to Paragraph 6.09.A, in such quantities or circumstances that such Constituents of Concern may present a danger to persons or property exposed to them, will be referred to as "undisclosed" Constituents of Concern.

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1. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of this Agreement or the Construction Contract, are not undisclosed Constituents of Concern.

2. Constituents of Concern that are to be located, identified, studied, removed, or remediated as part of the services under this Agreement are not undisclosed Constituents of Concern.

3. Constituents of Concern that are to be located, identified, studied, removed, or remediated as part of the services under another professional services contract for Owner, or as part of the work under a construction or remediation contract, are not undisclosed Constituents of Concern if Engineer has been informed of the general scope of such contract.

C. If Engineer encounters or learns of an undisclosed Constituent of Concern at the Site, then Engineer shall notify (1) Owner and (2) appropriate authorities having jurisdiction if Engineer reasonably concludes that doing so is required by applicable Laws or Regulations.

D. It is acknowledged by both parties that Engineer's scope of services does not include any services related to undisclosed Constituents of Concern. If Engineer or any other party encounters, uncovers, or reveals an undisclosed Constituent of Concern, or if encountered, uncovered, or revealed Constituents of Concern are present in substantially greater quantities or substantially different locations than disclosed or anticipated, or if investigative or remedial action, or other professional services, are necessary or required by applicable Laws and Regulations with respect to such Constituents of Concern, then Engineer may, at its option and without liability for direct, consequential, or any other damages, suspend performance of services on the portion of the Project adversely affected thereby until such portion of the Project is no longer so affected; and Owner shall promptly determine whether to retain a qualified expert to evaluate such condition or take any necessary corrective action.

E. If the presence at the Site of undisclosed Constituents of Concern, or of Constituents of Concern in substantially greater quantities or in substantially different locations than disclosed or anticipated, adversely affects the performance of Engineer's services under this Agreement, then:

1. if the adverse effects do not preclude Engineer from completing its Project services in general accordance with this Agreement on unaffected or marginally affected portions of the Project, Engineer may accept an equitable adjustment in its compensation or in the time of completion, or both; and the Agreement will be amended to reflect changes necessitated by the presence of such Constituents of Concern; or

2. if the adverse effects are of such materiality to the overall performance of Engineer that it cannot complete its services without significant changes to the scope of services, time of completion, and compensation, then Engineer may terminate this Agreement for cause on 7 days' written notice.

F. Owner acknowledges that Engineer is performing professional services for Owner and that Engineer is not and will not be required to become an "owner," "arranger," "operator," "generator," or "transporter" of hazardous substances, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, which are or may be encountered at or near the Site in connection with Engineer's activities under this Agreement.

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6.10 Indemnification and Mutual Waiver

A. Indemnification by Engineer: To the fullest extent permitted by Laws and Regulations, Engineer shall indemnify and hold harmless Owner, and Owner's officers, directors, members, partners, agents, and employees, from losses, damages, and judgments (including reasonable consultants' and attorneys' fees and expenses) arising from third-party claims or actions relating to the Project, provided that any such claim, action, loss, damages, or judgment is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Engineer or Engineer's officers, directors, members, partners, agents, employees, Subconsultants, or Engineer's Subcontractors. This indemnification provision is subject to and limited by the provisions, if any, agreed to by Owner and Engineer in Exhibit I, "Limitations of Liability."

B. Environmental Indemnification: To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Engineer, its Subconsultants, Engineer's Subcontractors, and their officers, directors, members, partners, agents, employees, and subconsultants from all claims, costs, losses, damages, actions, and judgments (including reasonable consultants' and attorney's fees and expenses) caused by, arising out of, relating to, or resulting from a Constituent of Concern at, on, or under the Site, provided that:

1. any such claim, cost, loss, damages, action, or judgment is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and

2. nothing in this paragraph obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence or willful misconduct.

C. No Defense Obligation: The indemnification commitments in this Agreement do not include a defense obligation by the indemnitor unless such obligation is expressly stated.

D. Percentage Share of Negligence: To the fullest extent permitted by Laws and Regulations, a party's total liability to the other party and anyone claiming by, through, or under the other party for any cost, loss, or damages caused in part by the negligence of the party and in part by the negligence of the other party or any other negligent entity or individual, will not exceed the percentage share that the party's negligence bears to the total negligence of Owner, Engineer, and all other negligent entities and individuals.

E. Mutual Waiver: To the fullest extent permitted by Laws and Regulations, Owner and Engineer waive against each other, and the other's officers, directors, members, partners, agents, employees, subconsultants, and insurers, any and all claims for or entitlement to special, incidental, indirect, or consequential damages arising out of, resulting from, or in any way related to this Agreement or the Project, from any cause or causes. Such excluded damages include but are not limited to loss of profits or revenue; loss of use or opportunity; loss of good will; cost of substitute facilities, goods, or services; and cost of capital.

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6.11 Records Retention

A. Engineer shall maintain on file in legible form, for a period of five years following completion or termination of its services, or such other period as required by Laws and Regulations, all Documents, records (including cost records), and design calculations related to Engineer's services or pertinent to Engineer's performance under this Agreement. Upon Owner's request, Engineer shall provide a copy of any such item to Owner at cost.

6.12 Miscellaneous Provisions

A. Notices: Any notice required under this Agreement will be in writing, and delivered: in person (by commercial courier or otherwise); by registered or certified mail; or by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line. All such notices are effective upon the date of receipt.

B. Survival: Subject to applicable Laws and Regulations, all express representations, waivers, indemnifications, and limitations of liability included in this Agreement will survive its completion or termination for any reason.

C. Severability: Any provision or part of the Agreement held to be void or unenforceable under any Laws or Regulations will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Engineer.

D. No Waiver: A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Agreement.

E. Accrual of Claims: To the fullest extent permitted by Laws and Regulations, all causes of action arising under this Agreement will be deemed to have accrued, and all statutory periods of limitation will commence, no later than the date of Substantial Completion; or, if Engineer's services do not include Construction Phase services, or the Project is not completed, then no later than the date of Owner's last payment to Engineer.

ARTICLE 7—DEFINITIONS

7.01 Defined Terms

A. Wherever used in this Agreement (including the exhibits hereto) terms (including the singular and plural forms) printed with initial capital letters have the meanings indicated in the text above, in the exhibits, or in the following definitions:

1. Addenda—Written or graphic instruments issued prior to the opening of bids which clarify, correct, or change the bidding requirements or the proposed Construction Contract Documents.

2. Additional Services—The services to be performed for or furnished to Owner by Engineer in accordance with Article 2 of Exhibit A of this Agreement.

3. Agreement—This written contract for professional services between Owner and Engineer, including all exhibits identified in Paragraph 8.01 and any duly executed amendments.

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4. Application for Payment—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Construction Contract.

5. Basic Services—The services to be performed for or furnished to Owner by Engineer in accordance with Article 1 of Exhibit A of this Agreement.

6. Bidding/Proposal Documents—Documents related to the selection of the Contractor, including advertisements or invitations to bid; requests for proposals; instructions to bidders or proposers, including any attachments such as lists of available Site-related documents; bid forms; bids; proposal forms; proposals; bidding requirements; and qualifications documents.

7. Change Order—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Construction Contract Price or the Construction Contract Times, or other revision to the Construction Contract, issued on or after the effective date of the Construction Contract.

8. Change Proposal—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth in the Construction Contract, seeking an adjustment in Construction Contract Price or Construction Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Construction Contract Documents or the acceptability of Work under the Construction Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Construction Contract.

9. Constituents of Concern—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

10. Construction Contract—The entire and integrated written contract between Owner and Contractor concerning the Work.

11. Construction Contract Documents—Those items designated as "Contract Documents" in the Construction Contract, and which together comprise the Construction Contract. See also definition of "Front-End Construction Contract Documents" below.

12. Construction Contract Price—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Construction Contract Documents.

13. Construction Contract Times—The number of days or the dates by which Contractor must: (a) achieve milestones, if any, in the Construction Contract; (b) achieve Substantial Completion; and (c) complete the Work.

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14. Construction Cost—The cost to Owner of the construction of those portions of the entire Project designed or specified by or for Engineer under this Agreement, including construction labor, services, materials, equipment, insurance, and bonding costs, and allowances for contingencies. Construction Cost does not include costs of services of Engineer or other design professionals and consultants; cost of land or rights-of-way, or compensation for damages to property; Owner's costs for legal, accounting, insurance counseling, or auditing services; interest or financing charges incurred in connection with the Project; or the cost of other services to be provided by others to Owner. Construction Cost is one of the items comprising Total Project Costs.

15. Constructor—Any person or entity (not including the Engineer, its employees, agents, representatives, or Subconsultants, or Engineer's Subcontractors), performing or supporting construction activities relating to the Project, including but not limited to Contractors, Subcontractors, Suppliers, Owner's work forces, utility companies, other contractors, construction managers, design-builders, testing firms, shippers, and truckers, and the employees, agents, and representatives of any or all of them.

16. Contractor—The entity or individual with which Owner enters into a Construction Contract.

17. Documents—All documents expressly identified as deliverables in this Agreement, whether in printed or Electronic Document form, required by this Agreement to be provided or furnished by Engineer to Owner. Such specifically required deliverables may include, by way of example, Drawings, Specifications, data, reports, building information models, and civil integrated management models.

18. Drawings—That part of the Construction Contract Documents that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. Effective Date—The date indicated in this Agreement on which it becomes effective, but if no such date is indicated, the date on which this Agreement is signed and delivered by the last of the parties to sign and deliver.

20. Electronic Document—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. Electronic Means—Electronic mail (e-mail), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Agreement. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. Engineer—The individual or entity named as such in this Agreement.

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23. Engineer's Subcontractor—An individual, firm, vendor, or other entity having a contract with Engineer to furnish general services, equipment, or materials with respect to the Project as an independent contractor.

24. Field Order—A written order issued by Engineer which requires minor changes in the Work but does not change the Construction Contract Price or the Construction Contract Times.

25. Front-End Construction Contract Documents—Those Construction Contract Documents whose primary purpose is to establish legal and contractual terms and conditions, typically including the Owner-Contractor agreement, bonds, general conditions, and supplementary conditions. The term excludes the Drawings and Specifications, and any Construction Contract Documents delivered or issued after the effective date of the Construction Contract.

26. Laws and Regulations; Laws or Regulations—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

27. Owner—The individual or entity named as such in this Agreement and for which Engineer's services are to be performed. Unless indicated otherwise, this is the same individual or entity that will enter into any Construction Contracts concerning the Project.

28. Project—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the services to be performed or furnished by Engineer under this Agreement are a part.

29. Record Drawings—Drawings depicting the completed Project, or a specific portion of the completed Project, prepared by Engineer and based on Contractor's record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications, as delivered to Engineer and annotated by Contractor to show changes made during construction.

30. Resident Project Representative—The authorized representative of Engineer assigned to assist Engineer at the Site during the Construction Phase. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of the RPR.

31. Samples—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

32. Shop Drawings—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Construction Contract Documents.

33. Site—Lands or areas to be indicated in the Construction Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.

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34. Specifications—The part of the Construction Contract Documents that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

35. Subconsultant—An individual, design firm, consultant, or other entity having a contract with Engineer to furnish professional services with respect to the Project as an independent contractor.

36. Subcontractor—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

37. Submittal—A written or graphic document, prepared by or for Contractor, which the Construction Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Construction Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Construction Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

38. Substantial Completion—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Construction Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

39. Supplier—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

40. Total Project Costs—The total cost of planning, studying, designing, constructing, testing, commissioning, and start-up of the Project, including Construction Cost and all other Project labor, services, materials, equipment, insurance, and bonding costs, allowances for contingencies, and the total costs of services of Engineer or other design professionals and consultants, together with such other Project-related costs that Owner furnishes for inclusion, including but not limited to cost of land, rights-of-way, compensation for damages to properties and private utilities (including relocation if not part of Construction Cost), Owner's costs for legal, accounting, insurance counseling, and auditing services, interest and financing charges incurred in connection with the Project, and the cost of other services to be provided by others to Owner.

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41. Underground Facilities—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

42. Work—The entire construction or the various separately identifiable parts thereof required to be provided under the Construction Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Construction Contract Documents.

43. Work Change Directive—A written directive to Contractor issued on or after the effective date of the Construction Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

B. Terminology

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

ARTICLE 8—EXHIBITS AND SPECIAL PROVISIONS

8.01 Exhibits to Agreement

The following exhibits are incorporated by reference and included as part of this Agreement:

A. Exhibit A, Engineer's Services.

B. Exhibit B, Deliverables Schedule.

C. Exhibit C, Amendment to Owner-Engineer Agreement (form) – Not used.

D. Exhibit D, Duties, Responsibilities and Limitations of Authority of Resident Project Representative.

E. Exhibit E, EJCDC® C-626, Notice of Acceptability of Work (form) – Not used.

F. Exhibit F, Electronic Documents Protocol (EDP).

G. Exhibit G, Insurance.

H. Exhibit H, Dispute Resolution.

I. Exhibit I, Limitations of Liability.

J. Exhibit J, Payments to Engineer for Services and Reimbursable Expenses.

K. Compensation Packet BC-1: Basic Services – Lump Sum.

L. Compensation Packet RPR-1: Resident Project Representative – Lump Sum.

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8.02 Total Agreement

A. This Agreement (which includes the exhibits listed above) constitutes the entire contractual agreement between Owner and Engineer and supersedes all prior written or oral understandings. This Agreement may only be amended, supplemented, modified, or canceled by a written instrument duly executed by both parties. Amendments should be based whenever possible on the format of Exhibit C to this Agreement.

8.03 Designated Representatives

A. With the execution of this Agreement, Engineer and Owner shall each designate a specific individual to act as representative under this Agreement. Such an individual must have authority to transmit instructions, receive information, and render decisions with respect to this Agreement on behalf of the party that the individual represents.

8.04 Engineer's Certifications

A. Engineer certifies that it has not engaged in corrupt, fraudulent, or coercive practices in competing for or in executing the Agreement. For the purposes of this Paragraph 8.04:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the selection process or in the Agreement execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the selection process or the execution of the Agreement to the detriment of Owner, or (b) to deprive Owner of the benefits of free and open competition;

3. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the selection process or affect the execution of the Agreement.

8.05 Conflict of Interest

A. Nothing in this Agreement will be construed to create or impose any duty on the part of Engineer that would be in conflict with Engineer's paramount obligations to the public health, safety, and welfare under the professional practice requirements governing Engineer, its Subconsultants, and all licensed professionals employed by Engineer or its Subconsultants.

B. If during the term of this Agreement a potential or actual conflict of interest arises or is identified:

1. Engineer and Owner together will make reasonable, good faith efforts to avoid or eliminate the conflict of interest; to mitigate any adverse consequences of the conflict of interest; and, if necessary and feasible, to modify this Agreement to address the conflict of interest and its consequences, such that progress under the Agreement may continue.

2. Such efforts will be governed by applicable Laws and Regulations and by any pertinent Owner's policies, procedures, and requirements (including any conflict of interest resolution methodologies) provided to Engineer under Paragraph 2.04.A of this Agreement.

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This Agreement's Effective Date is _____.

Owner:	Engineer:
Charles Town Utility Board	Gwin, Dobson & Foreman, Inc.
(name of organization)	(name of organization)
By: _____	By: _____
(individual's signature)	(individual's signature)
Date: _____	Date: _____
(date signed)	(date signed)
Name: _____	Name: Christopher M. Eckenrode, P.E.
(typed or printed)	(typed or printed)
Title: _____	Title: Engineering Manager
(typed or printed)	(typed or printed)
Address for giving notices:	Address for giving notices:
661 South George Street	3121 Fairway Drive
Suite 101	Altoona, PA 16602
Charles Town, WV 25414	
Designated Representative:	Designated Representative:
Name: _____	Name: David Pedersen, P.E.
(typed or printed)	(typed or printed)
Title: _____	Title: Project Engineer
(typed or printed)	(typed or printed)
Address:	Address:
	3121 Fairway Drive
	Altoona, PA 16602
Phone:	Phone: 814-943-5214
Email:	Email: dpedersen@gdfengineers.com

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EXHIBITS TO AGREEMENT BETWEEN OWNER AND ENGINEER FOR PROFESSIONAL SERVICES

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EXHIBIT E—EJCDC® C-626, NOTICE OF ACCEPTABILITY OF WORK

EXHIBIT F—ELECTRONIC DOCUMENTS PROTOCOL (EDP)

EXHIBIT F—ATTACHMENT 1: SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE

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EXHIBIT H—DISPUTE RESOLUTION

EXHIBIT I—LIMITATIONS OF LIABILITY

EXHIBIT J—PAYMENTS TO ENGINEER FOR SERVICES AND REIMBURSABLE EXPENSES: INTRODUCTION

COMPENSATION PACKET BC-1: BASIC SERVICES—LUMP SUM

COMPENSATION PACKET RPR-1: RESIDENT PROJECT REPRESENTATIVE—LUMP SUM

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Article 1 of the Agreement, Services of Engineer, is supplemented to include the following provisions:

Baseline Information: Owner has furnished the following Project information to Engineer as of the Effective Date. Engineer's scope of services has been developed based on this information. As the Project moves forward, some of the information may change or be refined, and additional information will become known, resulting in the possible need to change, refine, or supplement the scope of services.

Project Title:	Charles Town Wastewater Treatment Facility Expansion Project
Type and Size of Facility:	1.75 MGD Municipal Wastewater Treatment Facility
Description of Improvements:	Upgrades necessary to address current expansion – final capacity to be determined during preliminary design phase
Expected Construction Start:	2028
Prior Studies, Reports, Plans:	2026 Preliminary Engineering Report
Facility Location(s):	Charles Town, WV
Current Project Budget:	$40M Construction
Funding Sources:	
Known Design Standards:	WV BPH & DEP
Known Project Limitations:	
Project Assumptions:	
Other Pertinent Information:	

Engineer shall provide Basic and Additional Services as set forth below.

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ARTICLE 1—BASIC SERVICES

1.01 Management of Engineering Services

A. All phases of Engineer's services will include management of Engineer's Project-specific responsibilities, including but not limited to the following management tasks, whether separately tracked and itemized or included as being incidental to other phase and scope task items.

1. Develop and submit an Engineering Services Schedule. The Engineering Services Schedule will:

a. be consistent with and serve as a supplement to the Schedule of Deliverables set forth in Exhibit B.

b. be updated on a regular basis, and as required to reflect any programmatic decisions by Owner.

c. include, but not be limited to, an anticipated sequence of tasks; estimates of task duration; interrelationships among tasks; milestone meetings and submittals; anticipated schedule of construction; and other pertinent Project events.

2. Develop and submit detailed work plans from Exhibit A tasks.

3. Coordinate services within Engineer's internal team, and with Subconsultants and Engineer's Subcontractors.

4. Prepare for and participate in meetings with consultants and contractors working on other parts of the Project that may affect, or be affected by, Engineer's services or resulting construction.

5. Prepare and submit **monthly** engineering services progress reports to the Owner. Include summary of services performed in period, expected progress in next period, percent completion of current tasks, and a description of major issues or concerns.

6. Special Invoicing: In addition to, or as a substitute for, Engineer's standard invoicing, provide the specified additional information or documentation, following the invoicing procedures indicated: **Not applicable unless requested by the Owner/Engineer.**

7. Conduct ongoing management tasks, including:

a. Maintaining communications records and files pertaining to or arising from Engineer's services;

b. With respect to Engineer's services and other directly relevant parts of the Project, prepare for and participate in periodic progress meetings with Owner to discuss progress, schedule, budget, issues, potential problems and their resolution; and

c. Preparing agendas prior to and minutes following all Engineer-led meetings.

B. In all phases of Engineer's services, Engineer shall prepare draft and final Drawings in accordance with **Engineer's CAD standards**, ~~using **[____]** version **[____]** software.~~

C. The source documents for the draft and final Specifications in all phases of Engineer's services will be **Engineer's standard specifications** unless otherwise mutually agreed upon by the parties.

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1.02 Study and Report Phase

A. Engineer shall:

1. Consult with Owner to define and clarify Owner's requirements for the Project, including design objectives and constraints, space, capacity and performance requirements, flexibility, and expandability, and any budgetary limitations, and identify available data, information, reports, facilities plans, and site evaluations.

a. If Owner has already identified one or more potential solutions to meet its Project requirements, then proceed with the study and evaluation of the Owner-identified potential solutions listed here:

1) **Initial H&H study to be undertaken to determine feasibility of expanding at the existing Charles Town Facility site. If the site proves to be unsuitable, a new site will be identified by the Owner for further investigation. Additional costs associated with evaluating multiple locations will be identified if needed and presented to the Owner for approval before undertaking additional work.**

b. If Owner has not identified specific potential solutions for study and evaluation, then assist Owner in determining whether Owner's requirements, and available data, reports, plans, and evaluations, point to a single potential solution for Engineer's study and evaluation, or are such that it will be necessary for Engineer to identify, study, and evaluate multiple potential solutions.

c. If it is necessary for Engineer to identify, study, and evaluate multiple potential solutions, then identify alternative solutions potentially available to Owner, unless Owner and Engineer mutually agree that some specific number of alternatives should be identified, studied, and evaluated.

2. Identify potential solution(s) to meet Owner's Project requirements, as needed.

3. Study and evaluate the potential solution(s) to meet Owner's Project requirements.

4. Visit the Site, or potential Project sites, to review existing conditions and facilities, unless such visits are not necessary or applicable to meeting the objectives of the Study and Report Phase.

5. Assess initially available Project information and data, including the Baseline Information set forth at the beginning of this Exhibit A.

6. Advise Owner of any need for Owner to obtain, furnish, or otherwise make available to Engineer additional Project-related information and data, for Engineer's use in the study and evaluation of potential solution(s) to Owner's Project requirements, and preparation of a related report.

7. After consultation with Owner, recommend the solution(s) which in Engineer's judgment meet Owner's requirements for the Project.

8. Identify, consult with, and analyze requirements of authorities having jurisdiction to permit or approve construction or operation of the portions of the Project to be designed or specified by Engineer, including but not limited to impacts and mitigating measures identified in previously prepared environmental assessments for the Project provided to the Engineer or being concurrently prepared for Owner by others.

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9. Advise the Owner of any need for Owner to provide data or services of the types described in Article 2 of the Agreement, for use in Project design, or in preparation for Contractor selection and construction.

10. Assist Owner in evaluating the possible use of building information modeling; civil integrated management; geotechnical baselining of subsurface conditions at the Site; innovative design, contracting, or procurement strategies; project delivery method; or other strategies, technologies, or techniques for assisting in the design, construction, and operation of Owner's facilities. The subject matter of this paragraph will be referred to in Exhibit A as "Project Strategies, Technologies, and Techniques."

11. Assist Owner in identifying opportunities for enhancing the sustainability of the Project, and pursuant to Owner's instructions, plan for the inclusion of sustainable features in the design.

12. Review with Owner the thresholds established in applicable codes, standards, and design criteria specifically governing the ability of the proposed facilities or improvements to perform, and to absorb or avoid damage without suffering complete or substantial failure. As part of the review, identify additional risk assessment studies or tools that are available to evaluate the susceptibility of the facilities or improvements to natural and man-made events beyond the applicable established thresholds. Upon Owner request, as an additional service, perform additional risk assessment studies or tools to further evaluate system resiliency beyond the applicable established thresholds.

13. Utilities, including Underground Facilities

    a. Review any utility mapping and surveys and other utilities documentation made available by Owner. Take note of observable utilities during Site visit.

    b. Identify, in a preliminary manner and to the extent determinable by such mapping or other information provided by Owner, and by observations at the Site, those utilities (whether above-ground utilities of any type, or Underground Facilities) likely to be affected by the Project construction and additional utility facilities or extensions that will be needed to serve the Project.

    c. If the impact on existing utilities or the need for additional utility facilities or extensions cannot reasonably be determined in a preliminary manner from mapping or other information provided by Owner, or such information was not available from Owner, then assist Owner in evaluating the need to either obtain additional utility mapping and utility documentation during the Study and Report Phase, or undertake other alternative approaches and contingencies to account for utility uncertainties in this phase.

    d. Advise Owner of additional utility documentation and coordination needed during the design and construction phases to adequately assess, mitigate, and manage the impact of the Project (including any additional utility facilities or extensions needed to serve the Project) on existing utilities.

    e. Use ASCE 38, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data" as a means to advise the Owner regarding the extent and identification and mapping of existing Underground Facilities during the design and construction phases.

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1) If Owner has retained a land surveyor, utility engineer, or utility consultant, collaborate with such individuals or entities regarding the application of ASCE 38.

14. Inquire regarding survey methodologies and technologies that would aid in addressing Owner's Project requirements. Develop a scope of work and survey limits for any topographic and other surveys necessary for design. For recommended survey deliverables, specify a) required technical specifications; b) pertinent datum; c) survey limits, and d) formats of deliverables. Collaborate with land surveyor, when separately retained by Owner or third party, to develop such scope of work.

15. Prepare a report (the "Report") which will, as appropriate, contain schematic layouts, sketches, and conceptual design criteria with appropriate exhibits to indicate the agreed-to requirements, considerations involved, and Engineer's recommended solution(s).

    a. For each recommended solution, Engineer will separately tabulate Total Project Cost, itemizing those items and services included within the definition of Total Project Costs.

    b. Engineer will meet with Owner to discuss the draft Report and receive Owner's comments.

16. Perform or provide the following other Study and Report Phase tasks or deliverables:

    a. No additional deliverables.

17. Furnish the Report and any other Study and Report Phase deliverables to Owner pursuant to the requirements of the Deliverables Schedule in Exhibit B, and review the deliverables with Owner.

18. Revise the Report and any other Study and Report Phase deliverables in response to Owner's comments, as appropriate, and submit revised deliverables pursuant to the Deliverables Schedule.

B. Engineer's services under the Study and Report Phase will be considered complete on the date when Engineer has delivered to Owner the final Report (as revised) and any other Study and Report Phase deliverables.

1.03 Preliminary Design Phase

A. After acceptance by Owner of the Report and any other Study and Report Phase deliverables (if Engineer's services under this Agreement included Study and Report Phase services); selection by Owner of a recommended solution; issuance by Owner of any instructions for use of Project Strategies, Technologies, and Techniques, or for inclusion of sustainable features in the design, or enhanced resiliency of the design; indication by Owner of any specific modifications or changes in the scope, extent, character, or design requirements of the Project desired by Owner; and any necessary changes, refinements, and supplementation of the Baseline Information set forth at the beginning of this Exhibit A, Engineer and Owner shall discuss, resolve, and document in writing any necessary revisions to Engineer's scope of services, compensation (through application of the provisions regarding Additional Services, or otherwise), and the time for completion of Engineer's services, resulting from the selected solution, related Project Strategies, Technologies, or Techniques, sustainable design and resiliency instructions, specific modifications to the Project, or changes, refinements, or supplementation of the Baseline Information.

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B. Upon written authorization from Owner, Engineer shall:

1. Review and assess all available Project information and data, including any pertinent reports or studies (whether prepared by Engineer or others) and any related instructions from Owner.

2. Based on the threshold review and assessment of available information and data, advise Owner of any need for Owner to obtain, furnish, or otherwise make available to Engineer any additional information and data, for Engineer's use in the preparation of a Preliminary Design Phase Report.

3. Prepare a Preliminary Design Phase Report in the following format: **Engineer's standard format, applicable to IJCDC requirements.**

4. The Preliminary Design Phase Report will consist of final design criteria, preliminary drawings, a preliminary list of expected specifications, and written descriptions of the Project. The Preliminary Design Phase Report will consider the following matters to the extent applicable to the Project and as necessary to establish the basis of design for proceeding to final design and construction:

    a. The Project concept, intent, performance criteria, desired outcomes, Owner's standards and Owner directed improvements and facility elements as established in the Study and Report Phase and as expressly set forth in the Baseline Information section of this Exhibit A (collectively the "Project Goals").

    b. Recommended appropriate design criteria for each primary portion and significant discipline of the design necessary to address the Project Goals.

    c. Site conditions and characterization as known at the time of, or to be determined during, the Preliminary Design Phase, including topography; subsurface information; Constituents of Concern; cultural, historical, and archaeological resources at the Site; wetlands information; and evaluations of flora and fauna that may be affected by the Project.

    d. The time schedule for completion of the Project in accordance with Project Goals, including any recommended changes to the time required to complete the Final Design Phase (as set forth in Exhibit B, Deliverables Schedule) and estimated schedule(s) for construction.

    e. Identification of major items of materials and equipment, rationale for selection with consideration of quality, suitability, pricing, sourcing, regulatory, and bidding issues affecting recommended selection.

    f. Revised opinions of probable Construction Cost.

    g. The impact of Project Strategies, Technologies, and Techniques, sustainable features, and enhanced resiliency selected by Owner for inclusion in the Project on the Project Goals, schedule and probable Construction Cost, including impact of multiple prime construction contracts, separate procurement of materials or equipment, and other alternate project delivery methods when the Project Goals necessitate and Owner authorizes;

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h. Construction Phase quality assurance and quality control needs affecting development of Drawings and Specifications and other Final Design and Bidding Phase documents.

i. The effect of permits and authorizations by other entities and utility coordination needs on the Project.

j. Other matters and information pertinent to addressing the Project Goals.

5. In preparing the Preliminary Design Phase Report, use any specific applicable Project Strategies, Technologies, and Techniques authorized by Owner during or following the Study and Report Phase, and include sustainable features and enhanced resiliency, as appropriate, pursuant to Owner's instructions.

6. Visit the Site as needed to prepare the Preliminary Design Phase Report.

7. If at any point in the Preliminary Design Phase it becomes apparent to Engineer that additional reports, data, information, or services of the types described in Article 2 are necessary, then so advise Owner, and assist Owner in obtaining such reports, data, information, or services.

8. Above-Ground Utilities

   a. Review above-ground utilities information obtained from Owner and from observations at the Site.

   b. Make recommendations regarding any further identification, investigation, and mapping of above-ground utilities at or adjacent to the Site, for Engineer's design purposes or otherwise.

   c. Account for above-ground utilities, based on available information, when advancing design during the Preliminary Design Phase.

9. Underground Facilities

   a. Review Underground Facilities data furnished by Owner. Assist Owner in reducing and managing risks associated with Underground Facilities by working together with Owner to jointly establish a procedure ("Underground Facilities Procedure") for the further identification, investigation, and mapping of Underground Facilities at or adjacent to the Site, using ASCE 38, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data," as a basis for establishing such Underground Facilities Procedure.

   b. Such Underground Facilities Procedure must take into account the Site and the nature of the Project.

   c. Use the Underground Facilities Procedure to aid in the performance of design services:

      1) Account for Underground Facilities, based on available information, when advancing the design during the Preliminary Design Phase.

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2) The Underground Facilities Procedure will include a plan to keep Underground Facilities information current as Engineer proceeds with the provision of design services, and to add new or relocated Underground Facilities information to the base utility or Site drawings.

3) To manage the potential impact of design changes on Underground Facilities, Engineer shall work together with Owner to modify or reapply the Underground Facilities Procedure as the design progresses and changes.

10. Mitigation of Utilities Conflicts

a. Identify potential conflicts between the Project (including existing and new facilities and structures) and above-ground utilities and Underground Facilities as reviewed in Exhibit A Paragraphs 1.03.B.8 and 9 above, and advise Owner regarding the need for resolution of such conflicts with utility and Underground Facilities owners and permit agencies. Identify the potential need for the relocation of existing above-ground utilities and Underground Facilities.

b. Update the Underground Facilities Procedure as necessary for any Underground Utilities conflicts and relocations.

c. Working together with Owner, jointly identify which specific parties or other entities will be responsible for implementation of the various specific parts of the Underground Facilities Procedure (including those parts that address resolution of Underground Facilities conflicts), and for resolution of above-ground utilities conflicts. Such identification will take into account Owner's authority and standing, as owner of the Site, with respect to Underground Facilities and above-ground utilities.

1) To the extent that Owner and Engineer agree that in addition to performing the design-related obligations set forth in Exhibit A Paragraphs 1.03.B.8 and 9, Engineer will also implement any non-design part of the Underground Facilities Procedure (including resolution of Underground Facilities conflicts), or undertake resolution of above-ground utilities conflicts, such additional duties will be Additional Services under Article 2 of this Exhibit A.

11. Surveys, Topographic Mapping, and Utility Documentation

a. Coordinate with Owner's utility engineer, utility consultant, or land surveyor for the necessary field surveys, topographic mapping, and utility documentation required for Engineer's design purposes, or by the Underground Facilities Procedure.

b. If no scope of work and procedure for utility documentation has been established, selected, or authorized, then at a minimum Engineer will contact utility owners and obtain available information. Except as otherwise provided in this Agreement, Owner acknowledges that the information gathered from utility owners may be incorrect, incomplete, outdated, or otherwise flawed, and as to Engineer, bidders, and Contractor, the Owner accepts all associated risks. Owner reserves all associated rights as to recourse against the sources of such flawed information and against third parties.

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12. Prepare initial draft of a comprehensive permit document that identifies Owner's permit duties, Engineer's permit duties, and Contractor's permit duties, and the schedule for permitting activities.

13. Continue to assist Owner with Project Strategies, Technologies, and Techniques that Owner has chosen to implement in Exhibit A Paragraph 1.03.A.

14. Obtain Owner's instructions regarding Owner's procurement of construction services (including instructions regarding advertisements for bids, instructions to bidders, and requests for proposals, as applicable), Owner's construction contract practices and requirements, insurance and bonding requirements, electronic transmittals during construction, and other information necessary for the finalization of Owner's Bidding/Proposal Documents and Front-End Construction Contract Documents.

    a. Also obtain copies of Owner's standard Bidding/Proposal Documents and Front-End Construction Contract Documents (if other than the EJCDC 2018 Construction Series documents), and any other related documents or content for Engineer to include in drafts of the Project-specific Bidding/Proposal Documents and Front-End Construction Contract Documents, when applicable.

    b. Review Owner's instructions regarding procurement, bidding and contracting of construction services with respect to effects on the Project design, schedule and construction and address as needed in the Preliminary Design Phase deliverables.

15. Prepare the Preliminary Design Phase Report. This Report will consist of, as appropriate, separate or combined submittals in whole or summary, the Preliminary Design Phase documents listed in Exhibit A Paragraph 1.03.B.4, and Engineer's findings and recommendations for advancing the Project to the Final Design Phase (including Engineer's findings and recommendations, if any, regarding permitting, utilities, and Underground Facilities). The submittal will be in the format of a report, or otherwise organized and assembled for ease and practicality of use.

    a. Based on the information contained in the Preliminary Design Phase documents, prepare a revised opinion of probable Construction Cost, and on the basis of information furnished by Owner, assist Owner in tabulating the various cost categories which comprise Total Project Costs.

    b. Engineer will meet with Owner to discuss the draft Preliminary Design Phase submittal and receive Owner's comments.

16. Perform or provide the following other Preliminary Design Phase tasks or deliverables:

    a. **None anticipated at this time.**

17. Furnish the Preliminary Design Phase Report, opinion of probable Construction Cost, and any other Preliminary Design Phase deliverables to Owner pursuant to the requirements of the Deliverables Schedule in Exhibit B, and review the deliverables with Owner.

18. Revise the Report and any other deliverables in response to Owner's comments, as appropriate, and submit revised deliverables pursuant to the Deliverables Schedule.

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C. Engineer's services under the Preliminary Design Phase will be considered complete on the date when Engineer has delivered to Owner the final Preliminary Design Phase Report (as revised) and associated documents, revised opinion of probable Construction Cost, and any other Preliminary Design Phase deliverables.

1.04 Final Design Phase

A. After acceptance by Owner of the Preliminary Design Phase Report and any other Preliminary Design Phase deliverables; issuance by Owner of any instructions for specific modifications or changes in the scope, extent, character, or design requirements of the Project desired by Owner; and any necessary changes, refinements, and supplementation of the Baseline Information set forth at the beginning of this Exhibit A, Engineer and Owner shall discuss, resolve, and document any necessary revisions to Engineer's scope of services, compensation (through application of the provisions regarding Additional Services, or otherwise), and the time for completion of Engineer's services, resulting from specific modifications to the Project, or changes, refinements, or supplementation of the Baseline Information.

1. The number of prime contracts for Work designed or specified by Engineer upon which the Engineer's compensation has been established under this Agreement is **1.** If more prime contracts are awarded, Engineer shall be entitled to an equitable increase in its compensation under this Agreement.

2. If more than one prime construction contract is to be awarded for the Work designed or specified by Engineer, then Owner shall define and set forth (in an exhibit to this Agreement, or in a subsequent document) the duties, responsibilities, and limitations of authority of a person or entity that will have authority and responsibility for coordinating the activities among the various prime Contractors, and any resulting changes in the duties, responsibilities, and authority of Engineer.

3. In the event that the Work designed or specified by Engineer is to be performed or furnished under more than one prime construction contract, or if Engineer's services are to be separately sequenced with the work of one or more separate design professional consultants or prime Contractors (such as in the case of fast-tracking), Owner and Engineer shall, prior to commencement of the Final Design Phase, develop a schedule for performance of Engineer's services during the Final Design, Bidding/Proposal, Construction, and Post-Construction Phases in order to sequence and coordinate properly such services as are applicable under such separate prime construction contracts. This schedule is to be prepared and included in or become an amendment to Exhibit A whether or not the work under such construction contracts is to proceed concurrently.

B. Upon written authorization from Owner, Engineer shall prepare final Drawings and Specifications indicating the scope, extent, and character of the Work to be performed and furnished by Contractor, in accordance with the Preliminary Design Phase Report (as revised) and other Preliminary Design Phase deliverables. As part of the preparation of the Drawings and Specifications, Engineer shall prepare interim drafts and final Drawings and Specifications as follows, pursuant to the Deliverables Schedule in Exhibit B:

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1. First Final Design Phase draft of all Drawings and Specifications.

2. Second Final Design Phase draft of all Drawings and Specifications, addressing Owner comments and including appropriate design advancement.

3. Final Drawings and Specifications that address Owner comments; complete the design; are suitable for estimating and pricing by prospective Contractors; and are complete and ready for construction.

C. In preparing the Specifications (and any bidding, contract, or other documents that are part of Engineer's scope of services), Engineer shall obtain from Owner or Owner's legal counsel any relevant constraints such as requirements for use of domestic steel and iron, other domestic purchasing requirements, statutory restrictions on utilizing proprietary specifying methods, and the like, and comply with or account for such constraints in drafting Specifications, Bidding/Proposal Documents, and other Project documents.

D. Engineer shall prepare or assemble draft Bidding/Proposal Documents and Front-End Construction Contract Documents as follows:

1. Such documents will be based on the 2013 EJCDC Construction Documents, and on the specific bidding or Contractor selection-related instructions and forms, contract forms, text, or other content received from Owner.

2. When Engineer is required to use other than the 2013 EJCDC Construction Documents, then as required in the Preliminary Design Phase Owner will furnish to Engineer a copy of the required documents to be used for the Project's Bidding/Proposal Documents and Front-End Construction Contract Documents. Prior to the first Final Design Phase submittal, Engineer will review the bidding and contracting documents furnished by Owner and provide comments to Owner. Engineer will meet with Owner to discuss Engineer's comments. Owner will consider Engineer's recommendations to revise Owner's documents for the Project.

3. Engineer will furnish to Owner, for review by Owner's legal counsel, the draft Bidding/Proposal Documents and Front-End Construction Contract Documents. Owner and Owner's legal counsel must transmit to Engineer, in a timely manner, one coordinated set of comments and revisions to the draft documents.

E. During the Final Design Phase the Engineer shall continue to account for above-ground utilities and Underground Facilities as the design advances and is finalized. This may include:

1. performing the services assigned to Engineer under the Underground Facilities Procedure described in Exhibit A Paragraph 1.03 above, including but not limited to the design-related tasks in Exhibit A Paragraph 1.03.B.9.

2. addressing required and proposed activities or mitigations identified in the analysis of utilities and by the Underground Facilities Procedure as having an impact on the final design, and considering such in preparing the Drawings and Specifications.

F. Engineer shall perform or furnish the following other Final Design Phase services:

1. Visit the Site as needed to assist in preparing the final Drawings and Specifications.

2. Assist with or prepare applications for permits and approvals, as follows:

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a. Update comprehensive permit document created in Preliminary Design Phase for Final Design detail.

b. Prepare the following applications for Owner's submittal to authorities having jurisdiction over the construction or operation of the Project:

1) **WVDEP Construction Permit,**

2) **Building Permits as required by design,**

3) **NPDES Stormwater,**

4) **FEMA Permits as required by design.**

c. Confer with Owner regarding revisions, if any, to the application(s), and make appropriate revisions to the application(s) for Owner's resubmittal to the authority having jurisdiction.

d. Provide technical criteria, written descriptions, and design data for Owner's use in filing applications for permits from or approvals of the authorities having jurisdiction listed above, including applications for review or approval of the final design.

e. Identify and indicate in the Construction Contract Documents the permits and approvals for which Contractor will be responsible, including work permits, building permits, and other permits and approvals that will be Contractor's responsibility; and, in addition, indicate those permits initially obtained by Owner for which Contractor will be a co-permittee, together with associated requirements.

f. Unless expressly indicated otherwise, Engineer's scope and budget includes attending one meeting or conference call with each permit and approval-issuing agency to discuss the Project and receive the agency's comments on the application.

g. Engineer does not guarantee issuance of any required permit or approval.

h. Fees charged by authorities having jurisdiction for such permits or approvals are the responsibility of Owner.

3. Advise Owner of any recommended adjustments to the opinion of probable Construction Cost. Furnish to Owner an updated opinion of probable Construction Cost with the interim and final deliverables of the Drawings and Specifications.

4. After consultation with Owner, include in the Front-End Construction Contract Documents any Electronic Document Protocol addressing specific protocols for the transmittal of Project-related correspondence, documents, text, data, drawings, information, and graphics, in electronic media or digital format, either directly, or through access to a secure Project website.

5. Assist Owner in assembling known reports and drawings of Site conditions, and in identifying the technical data contained in such reports and drawings upon which bidders or other prospective contractors may rely.

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6. Review the preliminary schedule for the Construction Phase and advise Owner when initial understanding of the Construction Contract Times must or should be revised, and furnish Owner with recommendations on revisions to the proposed Construction Contract Times.

7. Engineer's project manager and other appropriate staff will participate in the following meetings and/or conference calls:

   a. First draft design review meeting at Owner's office.

   b. Second draft design review meeting at Owner's office.

   c. Engineer will prepare and distribute minutes of each such meeting and conference call, indicating attendees, topics discussed, decisions made, and action items for follow-up.

8. Perform or provide the following other Final Design Phase activities or deliverables:

   a. **None anticipated at this time.**

G. Engineer shall complete the Final Design Phase as follows:

1. Pursuant to the requirements of the Deliverables Schedule in Exhibit B, furnish for review by Owner, its legal counsel, and other advisors, the final Drawings and Specifications (as set forth in Exhibit A Paragraph 1.04.B.3 above); assembled drafts of other Construction Contract Documents including the draft Front-End Construction Contract Documents; the draft Bidding/Proposal Documents; the most recent opinion of probable Construction Cost; and any other Final Design Phase deliverables, and review the deliverables with Owner.

2. Revise the final Design Phase deliverables in response to Owner's comments, as appropriate, and submit revised deliverables pursuant to the Deliverables Schedule.

3. Engineer's services under the Final Design Phase will be considered complete on the date when Engineer has delivered to Owner the final Drawings and Specifications; assembled drafts of the Front-End Construction Contract Documents; the draft Bidding/Proposal Documents; and any other Final Design Phase deliverables, as revised.

1.05 Bidding/Proposal Phase

A. After acceptance by Owner of the final Drawings and Specifications; assembled drafts of other Construction Contract Documents, including the draft Front-End Construction Contract Documents; the draft Bidding/Proposal Documents; the most recent opinion of probable Construction Cost as determined in the Final Design Phase, and any other Final Design Phase deliverables, and upon written authorization by Owner to proceed, Engineer shall:

1. Assist Owner in advertising for and obtaining bids or proposals for the Work; assist Owner in issuing assembled Bidding/Proposal Documents and proposed Construction Contract Documents to prospective contractors; if applicable, maintain a record of prospective contractors to which documents have been issued; attend pre-bid conferences, if any; and receive and process contractor deposits or charges, if any, for the issued documents.

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a. **Bidding documents will be distributed via the Engineer's office to maintain an accurate list of Planholders. The documents will be advertised locally by the Owner, on the Engineer's website, and various builder's exchanges.**

2. Prepare and issue addenda as appropriate to clarify, correct, or change the issued documents.

3. If the issued documents require, the Engineer shall evaluate and determine the acceptability of "or equals" and substitute materials and equipment proposed by prospective contractors, provided that such proposals are allowed by the bidding-related documents (or requests for proposals or other construction procurement documents) prior to award of contracts for the Work. Services under this paragraph are subject to the provisions of Exhibit A Paragraph 2.01.A.2.

4. Attend the bid opening; prepare bid tabulation sheets; and assist Owner in evaluating bids or proposals, assembling final Construction Contracts for the Work for execution by Owner and Contractor, and in preparing notices of award to be issued by Owner for such contracts.

5. Provide information or assistance needed by Owner in the course of any review of bids, proposals, or negotiations with prospective contractors.

6. Consult with Owner as to the qualifications of prospective contractors.

7. Consult with Owner as to the qualifications of subcontractors, suppliers, and other individuals and entities proposed by prospective contractors, for those portions of the Work as to which review of qualifications is required by the issued documents.

8. If Owner engages in negotiations with bidders or proposers, assist Owner with respect to technical and engineering issues that arise during the negotiations.

9. Perform or provide the following other Bidding/Proposal Phase tasks or deliverables:

   a. **None**.

10. The Bidding/Proposal Phase will be considered complete upon award of Construction Contracts for the Work and commencement of the Construction Phase, or upon cessation of negotiations with prospective contractors.

1.06 Construction Phase

A. After completion of the Final Design Phase and concurrent with the Bidding/Proposal Phase, and after issuance by Owner of any instructions for specific modifications or changes in the scope, extent, character, design, schedule, number of prime construction contracts, and other construction requirements of the Project during the Construction Phase desired by Owner, the Engineer and Owner shall discuss, resolve, and document any necessary revisions to Engineer's scope of services or compensation (through application of the provisions regarding Additional Services, or otherwise), or the time for completion of Engineer's services, resulting from specific modifications to the Project.

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1. Engineer shall be responsible only for those Construction Phase services expressly required of Engineer in Exhibit A Paragraph 1.06, as duly modified. With the exception of such expressly required services, Engineer shall have no design, Submittal (including Shop Drawing) review, or other obligations during construction, and Owner assumes all responsibility for providing or arranging for all other necessary Construction Phase administrative, engineering, and professional services.

2. Owner waives all claims against Engineer and its officers, directors, members, partners, agents, employees, and Subconsultants, and Engineer's Subcontractors, that may be connected in any way to Construction Phase administrative, engineering, or professional services except for those services that are expressly required of Engineer in Exhibit A. Notwithstanding the foregoing waiver, Engineer shall be responsible for any professional opinions and interpretations provided by Engineer to Owner during the Construction Phase or Post-Construction Phase, including interpretations or clarifications of the Construction Contract Documents.

B. Upon successful completion of the Bidding/Proposal Phase, and upon written authorization from Owner, Engineer shall provide the following services:

1. General Administration of Construction Contract: Consult with Owner and act as Owner's representative as provided in this Agreement and the Construction Contract. Unless otherwise set forth in the scope of Basic Services (as duly modified), the extent and limitations of the duties, responsibilities, and authority of Engineer shall be as assigned in EJCDC® C-700, Standard General Conditions of the Construction Contract (2013) or other construction general conditions specified in this Agreement. Except as otherwise provided in the Construction Contract, Owner's communications to Contractor will be issued through Engineer.

   a. If the responsibilities of Engineer as set forth in the Construction Contract are greater than those Construction Phase services expressly required of Engineer in Exhibit A Paragraph 1.06, as duly modified, then Owner shall either (1) expand the scope of the Construction Phase services to match those of the Construction Contract, and compensate Engineer for any related increases in the cost to provide Construction Phase services, pursuant to the provisions for compensating Additional Services, or (2) identify a qualified individual or entity (other than Engineer) responsible for the additional responsibilities in the Construction Contract.

   b. If Owner, or Owner and Contractor, modify the duties, responsibilities, and authority of Engineer in the Construction Contract, or modify other terms of the Construction Contract having a direct bearing on Engineer, or if Owner requires Engineer's services for construction that extends longer than the anticipated Construction Contract Times, then Owner shall compensate Engineer for any related increases in the cost to provide Construction Phase services, pursuant to the provisions for compensating Additional Services.

   c. Engineer shall not be required to furnish or perform services contrary to Engineer's responsibilities as a licensed professional.

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2. Field Office: ~~Engineer and~~ Resident Project Representative ~~(if any)~~ will be based in a field office at the Site. The field office will be furnished and maintained at Owner's expense, and will include reasonable furnishings, all required temporary utilities (including internet service) and facilities, and be secured for Engineer's (and RPR's) exclusive use.

3. Resident Project Representative (RPR): Provide the services of an RPR at the Site to assist Engineer and to provide more extensive observation of Contractor's Work. Duties, responsibilities, and authority of the RPR are as set forth in Exhibit D. The furnishing of such RPR's services will not limit, extend, or modify Engineer's responsibilities or authority except as expressly set forth in Exhibit D.

4. Selection of Independent Testing Laboratory: Assist Owner in the selection of an independent testing laboratory to perform required testing services.

5. Pre-Construction Conference: Participate in a pre-construction conference prior to commencement of Work at the Site; prepare and distribute agenda for the conference and prepare and distribute minutes of such conference.

6. Electronic Transmittal Protocols: If the Construction Contract does not establish protocols for transmittal of Electronic Documents by Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

7. Original Documents: If requested by Owner to do so, maintain and safeguard during the Construction Phase at least one original printed record version of the Construction Contract Documents, including Drawings and Specifications signed and sealed by Engineer and other design professionals in accordance with applicable Laws and Regulations. Throughout the Construction Phase, make such original printed record version of the Construction Contract Documents available to Contractor and Owner for review.

8. Schedules: Receive, review, and, and, subject to the criteria of the Construction Contract, determine the acceptability of any and all schedules that Contractor is required to submit to Engineer, including the progress schedule, schedule of submittals, and schedule of values. Advise Contractor in writing of Engineer's comments or acceptance of schedules.

    a. Schedules will be acceptable to Engineer as to form and substance:

        1) Progress Schedule: if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

        2) Contractor's Schedule of Submittals: if it provides a workable arrangement for reviewing and processing the required Submittals.

        3) Contractor's Schedule of Values: if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

9. Baselines and Benchmarks: As appropriate, establish baselines and benchmarks for locating the Work which in Engineer's judgment are necessary to enable Contractor to proceed.

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10. Permits: Provide Owner with copies of technical information and supporting data previously obtained or developed by Engineer for Owner's use, or for Owner to provide to Contractor, in obtaining required permits and licenses delegated to Contractor by Owner.

11. Visits to Site and Observation of Construction: In connection with observations of Contractor's Work while it is in progress:

    a. Make visits to the Site at approximately monthly intervals during periods of active construction, to observe as an experienced and qualified design professional, the progress of Contractor's executed Work. Such visits and observations by Engineer, including its RPR, if any, are not intended to be exhaustive or to extend to every aspect of the Work or to involve detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in this Agreement and the Construction Contract Documents, but rather are to be limited to spot checking, selective sampling, and similar methods of general observation of the Work based on Engineer's exercise of professional judgment, as assisted by its RPR, if any. Based on information obtained during such visits and observations, Engineer will determine in general if the Work is proceeding in accordance with the Construction Contract Documents, and Engineer shall keep Owner informed of the progress of the Work. Engineer will make a report of Engineer's visit, summarizing Engineer's general observations and any significant findings.

    b. The purpose of Engineer's visits to the Site, and representation by the Resident Project Representative, if any, at the Site, will be to enable Engineer to better carry out the duties and responsibilities assigned to by this Agreement and undertaken by Engineer during the Construction Phase, and, in addition, by the exercise of Engineer's efforts as an experienced and qualified design professional, to provide for Owner a greater degree of confidence that the completed Work will conform in general to the Construction Contract Documents and that Contractor has implemented and maintained the integrity of the design concept of the completed Project as a functioning whole as indicated in the Construction Contract Documents. Engineer will not, during such visits or as a result of such observations of the Work, supervise, direct, or have control over the Work, nor will Engineer have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected or used by any Constructor, for security or safety at the Site, for safety precautions and programs incident to any Constructor's work in progress, for the coordination of the Constructors' work or schedules, nor for any failure of any Constructor to comply with Laws and Regulations applicable to furnishing and performing of its work. Accordingly, Engineer neither guarantees the performance of any Constructor nor assumes responsibility for any Constructor's failure to furnish or perform the Work, or any portion of the Work, in accordance with the Construction Contract Documents.

12. Defective Work: If, on the basis of Engineer's observations or as indicated in documentation available to Engineer, Engineer believes that any part of the Work is defective under the terms and standards set forth in the Construction Contract Documents, Engineer will promptly issue written notice to Contractor (with copy to

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Owner) of such defective Work. Such notice will communicate the scope, extent (to Engineer's understanding) of defect, and associated provisions of the Construction Contract Documents.

a. Provide recommendations to Owner regarding whether Contractor should correct such Work or remove and replace such Work, or whether Owner should consider accepting the defective Work in accordance with the provisions of the Construction Contract Documents. Engineer shall give notice to Contractor regarding whether the defective Work should be repaired, replaced, or will be accepted by Owner.

b. However, Engineer's authority to provide this information to Owner or Engineer's decision to exercise or not exercise such authority will not give rise to a duty or responsibility of the Engineer to Contractors, Subcontractors, material and equipment suppliers, their agents or employees, or any other person(s) or entities performing any of the Work, including but not limited to any duty or responsibility for Contractors' or Subcontractors' safety precautions and programs incident to the Work.

13. Compatibility with Design Concept: If Engineer has express knowledge that a specific part of the Work that is not defective under the terms and standards set forth in the Construction Contract Documents is nonetheless not compatible with the design concept of the completed Project as a functioning whole, then inform Owner of such incompatibility, and provide recommendations for addressing such Work.

14. Clarifications and Interpretations: Accept from Contractor and Owner submittal of all matters in question concerning the requirements of the Construction Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Construction Contract Documents. With reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Construction Contract Documents.

15. Non-reviewable Matters: If a submitted matter in question concerns the Engineer's performance of its duties and obligations, or terms and conditions of the Construction Contract Documents that do not involve (a) the performance or acceptability of the Work under the Construction Contract Documents, (b) the design (as set forth in the Drawings, Specifications, or otherwise), or (c) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer will not provide a decision or interpretation.

16. Field Orders: Subject to any limitations in the Construction Contract Documents, Engineer may prepare and issue Field Orders requiring minor changes in the Work.

17. Change Orders and Work Change Directives: Recommend Change Orders and Work Change Directives to Owner, as appropriate, and prepare Change Orders and Work Change Directives as required.

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18. Change Proposals and Claims

    a. Review and respond to Change Proposals. Review each duly submitted Change Proposal from Contractor and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer will not resolve the Change Proposal.

    b. Provide information or data to Owner regarding engineering or technical matters pertaining to Claims.

19. Differing Site Conditions: Respond to any notice from Contractor of differing site conditions, including conditions relating to Underground Facilities such as utilities, and hazardous environmental conditions. Promptly conduct reviews and prepare findings, conclusions, and recommendations for Owner's use subject to limitations of Engineer's obligations under this Agreement.

20. Contractor's Submittals: Review and approve or take other appropriate action with respect to required Contractor Submittals, but only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Construction Contract Documents, and for compatibility with the design concept of the completed Project as a functioning whole as indicated by the Construction Contract Documents. Such reviews and approvals or other action will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions and programs incident thereto. Engineer shall meet any Contractor's Submittal schedule that Engineer has accepted.

21. Substitutes and "Or-equals": Evaluate and determine the acceptability of substitute or "or-equal" materials and equipment proposed by Contractor, but subject to the provisions of Exhibit A Paragraph 2.01.A.2.

22. Inspections and Tests

    a. Receive and review all certificates of inspections, tests, and approvals required by Laws and Regulations or the Construction Contract Documents. Engineer's review of such certificates will be for the purpose of determining whether the results certified indicate compliance with the Construction Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests, or approvals comply with the requirements of the Construction Contract Documents. Engineer shall be entitled to rely on the results of such inspections and tests.

    b. Reply to Contractor requests for written concurrence that specific portions of the Work that are to be inspected, tested, or approved may be covered.

    c. Issue written requests to Contractor that specific portions of the Work remain uncovered.

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d. As deemed reasonably necessary, request that Contractor uncover Work that is to be inspected, tested, or approved.

e. Pursuant to the terms of the Construction Contract, require additional inspections or testing of the Work, whether or not the Work is fabricated, installed, or completed.

23. Contractor's Applications for Payment: Based on Engineer's observations as an experienced and qualified design professional and on review of Applications for Payment and accompanying supporting documentation:

a. Determine the amounts that Engineer recommends Contractor be paid. Recommend reductions in payment (set offs) based on the provisions for set offs stated in the Construction Contract. Such recommendations of payment will be in writing and will constitute Engineer's representation to Owner, based on such observations and review, that, within the limits of Engineer's knowledge, information and belief, Contractor's Work has progressed to the point indicated, the Work is generally in accordance with the Construction Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Construction Contract Documents, and to any other qualifications stated in the recommendation), and the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work. In the case of unit price Work, Engineer's recommendations of payment will include final determinations of quantities and classifications of the Work (subject to any subsequent adjustments allowed by the Construction Contract Documents).

b. By recommending payment, Engineer shall not thereby be deemed to have represented that observations made by Engineer to check the quality or quantity of Contractor's Work as it is performed and furnished have been exhaustive, extended to every aspect of Contractor's Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in this Agreement. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment including final payment will impose on Engineer responsibility to supervise, direct, or control the Work, or for the means, methods, techniques, sequences, or procedures of construction or safety precautions or programs incident thereto, or Contractor's compliance with Laws and Regulations applicable to Contractor's furnishing and performing the Work. It will also not impose responsibility on Engineer to make any examination to ascertain how or for what purposes Contractor has used the money paid to Contractor by Owner; to determine that title to any portion of the Work, including materials or equipment, has passed to Owner free and clear of any liens, claims, security interests, or encumbrances; or that there may not be other matters at issue between Owner and Contractor that might affect the amount that should be paid.

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24. Contractor's Completion Documents: Receive from Contractor, review, and transmit to Owner maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance required by the Construction Contract Documents, certificates of inspection, tests and approvals, and Shop Drawings, Samples, and other data approved as provided under Exhibit A Paragraph 1.06.B.20. Receive from Contractor, review, and transmit to Owner the annotated record documents which are to be assembled by Contractor in accordance with the Construction Contract Documents to obtain final payment. The extent of Engineer's review of record documents will be to check that Contractor has submitted a complete set of those documents that Contractor is required to submit.

25. Substantial Completion: Promptly after notice from Contractor that Contractor considers the entire Work ready for its intended use, visit the Site in company with Owner and Contractor to review the Work and determine the status of completion. Follow the procedures in the Construction Contract regarding the preliminary certificate of Substantial Completion, punch list of items to be completed, Owner's objections, notice to Contractor, and issuance of a final certificate of Substantial Completion. Assist Owner regarding any remaining engineering or technical matters affecting Owner's use or occupancy of the Work following Substantial Completion.

26. Other Tasks: Perform or provide the following other Construction Phase tasks or deliverables:

    a. **None**.

27. Completion and Acceptability of the Work: After notice from Contractor that the Work is complete:

    a. visit the Site with Owner and Contractor to determine if the Work is in fact complete and acceptable;

    b. notify Contractor of any part of the Work that is found during the visit to be incomplete or defective, and subsequently confirm that Contractor has corrected any such deficiencies;

    c. follow the procedures in the Construction Contract regarding review and response to Contractor's application for final payment and accompanying documentation; and

    d. if Engineer is satisfied that the Work is complete and acceptable, provide a notice to Owner and Contractor using EJCDC® C-626, Notice of Acceptability of Work (attached as Exhibit E), stating that the Work is acceptable (subject to the provisions of the Notice and this Exhibit A) within the limits of Engineer's knowledge, information, and belief, and based on the extent of the services provided by Engineer under this Agreement.

28. Standards for Certain Construction-Phase Decisions: Engineer will render decisions regarding the requirements of the Construction Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth in the Construction Contract for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

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C. Duration of Construction Phase: The Construction Phase will commence with the execution of the first Construction Contract for the Project or any part thereof and will terminate upon written recommendation by Engineer for final payment to Contractor. If the Project involves more than one prime contract as indicated in Exhibit A Paragraph 1.04.A.1, then Construction Phase services may be rendered at different times in respect to the separate contracts. Subject to the provisions of Article 3, Engineer shall be entitled to an equitable increase in compensation if Construction Phase services (including Resident Project Representative services, if any) are required after the original date for completion and readiness for final payment of Contractor as set forth in the Construction Contract.

1.07 Post-Construction Phase

A. Upon written authorization from Owner during the Post-Construction Phase, Engineer shall:

1. Together with Owner, visit the Project to observe any apparent defects in the Work, make recommendations as to replacement or correction of defective Work, if any, or the need to repair of any damage to the Site or adjacent areas, and assist Owner in consultations and discussions with Contractor concerning correction of any such defective Work and any needed repairs.

2. Together with Owner, visit the Project within one month before the end of the Construction Contract's correction period to ascertain whether any portion of the Work or the repair of any damage to the Site or adjacent areas is defective and therefore subject to correction by Contractor.

3. Perform or provide the following other Post-Construction Phase tasks or deliverables:

a. **None.**

B. The Post-Construction Phase services may commence during the Construction Phase and, if not otherwise modified in this Exhibit A, will terminate 12 months after the commencement of the Construction Contract's correction period.

ARTICLE 2—ADDITIONAL SERVICES

2.01 Additional Services Not Requiring Owner's Written Authorization

A. Engineer shall advise Owner that Engineer is commencing to perform or furnish the Additional Services of the types listed below. For such Additional Services, Engineer need not request or obtain specific advance written authorization from Owner. Engineer shall cease performing or furnishing such Additional Services upon receipt of written notice to cease from Owner. These services are not included as part of Basic Services and will be paid for by Owner as indicated in Exhibit J.

1. Substantive design and other technical services in connection with Work Change Directives, Change Proposals, and Change Orders to reflect changes requested by Owner.

2. Services essential to the orderly progress of the Bidding/Proposal and Construction Phases and not wholly quantifiable prior to those Phases or otherwise dependent on the actions of prospective individual bidders or contractors and including:

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a. making revisions to Drawings and Specifications occasioned by the acceptance of substitute materials or equipment other than “or equal” items;

b. services after the award of the Construction Contract in evaluating and determining the acceptability of a proposed "or equal" or substitution which is found to be inappropriate for the Project;

c. evaluation and determination of an excessive number of proposed "or equals" or substitutions, whether proposed before or after award of the Construction Contract; and

d. providing to the Contractor or Owner additional or new information not previously prepared or developed by the Engineer for their use in applying for or obtaining required permits and licenses, in responding to agency comments on such applications, or in the administration of any such permits or licenses.

3. Services resulting from significant delays, changes, or price increases occurring as a direct or indirect result of materials, equipment, or energy shortages.

4. Additional or extended services arising from (a) the presence at the Site of any Constituent of Concern or items of historical or cultural significance, (b) emergencies or acts of God endangering the Work, (c) damage to the Work by fire or other causes during construction, (d) a significant amount of defective, neglected, or delayed Work, (e) acceleration of the progress schedule involving services beyond normal working hours, or (f) default by Contractor.

5. Implement coordination of Engineer’s services with other parts of the Project that are not planned or designed by Engineer or its Subconsultants, unless Owner furnished to Engineer substantive information about such other parts of the Project prior to the parties’ entry into this Agreement, in the Baseline Information section of this Exhibit A, or otherwise in Exhibit A; if such substantive information has been so provided, coordination of Engineer’s services will be part of Basic Services.

6. Implement the specific parts of an Underground Facilities Procedure that are assigned to Engineer, or above-ground utilities tasks that are assigned to Engineer as the Project progresses (but not including the design-related services already assigned to Engineer as a Basic Service).

7. Services (other than Basic Services during the Post-Construction Phase) in connection with any partial utilization of the Work by Owner prior to Substantial Completion.

8. Evaluating unreasonable or frivolous requests for interpretation or information (RFIs), Change Proposals, or other demands from Contractor or others in connection with the Work, or an excessive number of RFIs, Change Proposals, or demands.

9. Reviewing a Shop Drawing or other Contractor submittal more than three times, as a result of repeated inadequate submissions by Contractor.

10. While at the Site, compliance by Engineer and its staff with those terms of Owner's or Contractor's safety program provided to Engineer subsequent to the Effective Date that exceed those normally required of engineering personnel by federal, State, or local safety authorities for similar construction sites.

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11. To the extent the Project is subject to Laws and Regulations governing public or government records disclosure or non-disclosure, Engineer will comply with provisions applicable to Engineer, and Owner will compensate Engineer as Additional Services for Engineer's costs to comply with any disclosure or non-disclosure obligations beyond those identified in the Basic Services.

12. Services directly attributable to changes in Engineer's Electronic Documents obligations after the effective date of the Agreement.

2.02 Additional Services Requiring Owner's Written Authorization

A. If authorized in writing by Owner, Engineer shall provide Additional Services of the types listed below. These services are not included as part of Basic Services and will be paid for by Owner as indicated in Exhibit J.

1. Obtain or provide specified additional Project-related information and data to enable Engineer to complete its Basic and Additional Services.

2. Preparation of special and customized reporting, invoicing, and related support documentation in addition to that identified to be provided under Basic Services.

3. Preparation of applications and supporting documents (in addition to those furnished under Basic Services) for private or governmental grants, loans, or advances in connection with the Project; preparation or review of environmental assessments and impact statements; review and evaluation of the effects on the design requirements for the Project of any such statements and documents prepared by others; and assistance in obtaining approvals of authorities having jurisdiction over the anticipated environmental impact of the Project.

4. Services to make measured drawings of existing conditions or facilities, to conduct tests or investigations of existing conditions or facilities, or to verify the accuracy of drawings or other information furnished by Owner or others.

5. Services resulting from significant changes in the scope, extent, or character of the portions of the Project designed or specified by Engineer, or the Project's design requirements, including, but not limited to, changes in size, complexity, Owner's schedule, character of construction, or method of financing; and revising previously accepted studies, reports, Drawings, Specifications, or Construction Contract Documents when such revisions are required by changes in Laws and Regulations enacted subsequent to the Effective Date or are due to any other causes beyond Engineer's control.

6. Services resulting from Owner's request to evaluate additional Study and Report Phase alternative solutions beyond those agreed to in Exhibit A Paragraph 1.02.A.1.

7. Services required as a result of Owner's providing incomplete or incorrect Project information to Engineer.

8. Providing renderings or models for Owner's use, including development, management, and other services in support of building information modeling or civil integrated management.

9. Undertaking investigations and studies including, but not limited to:

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a. All-hazards risk assessments and other studies to evaluate the feasibility of enhancing the resiliency of the design;

b. detailed consideration of operations, maintenance, and overhead expenses;

c. the preparation of feasibility studies (such as those that include projections of output capacity, utility project rates, project market demand, or project revenues) and cash flow analyses, provided that such services are based on the engineering and technical aspects of the Project, and do not include rendering advice regarding municipal financial products or the issuance of municipal securities;

d. preparation of appraisals;

e. with respect to proprietary systems or processes requiring licensing, providing services necessary to assist Owner in obtaining such licensing.

f. detailed quantity surveys of materials, equipment, and labor; and

g. audits or inventories required in connection with construction performed or furnished by Owner.

10. Furnishing services of Subconsultants or Engineer's Subcontractors for other than Basic Services.

11. Providing data or services of the types described in Article 2, when Owner retains Engineer to provide such data or services instead of Owner furnishing the same.

12. Providing the following services:

    a. Services attributable to more prime construction contracts than specified in Exhibit A Paragraph 1.04.A.1.

    b. Services to arrange for performance of construction services for Owner by contractors other than the principal prime Contractor, and administering Owner's contract for such services.

13. Services during out-of-town travel required of Engineer, other than for visits to the Site or Owner's office as required in Basic Services (Article 1 of Exhibit A).

14. Preparing for, coordinating with, participating in and responding to structured independent review processes, including, but not limited to, construction management, cost estimating, project peer review, value engineering, and constructability review requested by Owner; and performing or furnishing services required to revise studies, reports, Drawings, Specifications, or other documents as a result of such review processes.

15. Preparing additional bidding-related documents (or requests for proposals or other construction procurement documents); preparing pre-qualification procedures and documents, and participating in pre-qualifying prospective Bidders; and preparing Construction Contract Documents for alternate bids.

16. Assistance in connection with bid protests, rebidding, or renegotiating contracts for construction, materials, equipment, or services.

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17. Preparing conformed Construction Contract Documents that incorporate and integrate the content of all addenda and any amendments negotiated by Owner and Contractor.

18. Services to assist Owner in developing or modifying protocols for transmittal of Electronic Documents by Electronic Means after the effective date of this Agreement, either by revising or adapting Exhibit F to the Project or implementing other Electronic Documents protocols among Project participants.

19. Any services by Engineer in connection with Owner or Engineer providing a Document to a Requesting Party under Exhibit F Paragraph 1.01.D (see Exhibit F, Electronic Documents Protocol), or any other distribution of a Document to a third party. Such services may include but are not limited to preparing the data contained in the requested Document in a manner deemed appropriate by Engineer; creating or otherwise preparing and distributing the Document in a format necessary to respond to Owner's direction or decision to provide the Document to a requesting party, including Contractor, in a format other than that required for deliverables from Engineer to Owner; and services in connection with obtaining required releases from the third parties to which the Documents will be distributed. Compensation for these Additional Services is not contingent upon Owner's reimbursement from the requesting party.

20. Providing Construction Phase services beyond the original date for completion and readiness for final payment of Contractor, but only if such services increase the total quantity of services to be performed in the Construction Phase, rather than merely shifting performance of such services to a later date.

21. Preparing Record Drawings, and furnishing such Record Drawings to Owner.

22. Supplementing Record Drawings with information regarding the completed Project, Site, and immediately adjacent areas obtained from field observations, Owner, utility companies, and other reliable sources.

23. Conducting surveys, investigations, and field measurements to verify the accuracy of Record Drawing content obtained from Contractor, Owner, utility companies, and other sources; revise and supplement Record Drawings as needed.

24. Preparation of operation, maintenance, and staffing manuals.

25. Protracted or extensive assistance in refining and adjusting of Project equipment and systems (such as initial startup, testing, and balancing).

26. Assistance to Owner in training Owner's staff to operate and maintain Project equipment and systems.

27. Assistance to Owner in developing systems and procedures for (a) control of the operation and maintenance of Project equipment and systems, and (b) related recordkeeping.

28. Preparing to serve or serving as a consultant or witness for, or producing documents for or on behalf of, Owner in any litigation, arbitration, mediation, lien or bond claim, or other legal or administrative proceeding involving the Project (but not including disputes between Owner and Engineer).

29. Overtime work requiring higher than regular rates.

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30. Providing construction surveys and staking to enable Contractor to perform its work other than as required under Exhibit A Paragraph 1.06.B.9; any type of property surveys or related engineering services needed for the transfer of interests in real property; providing construction and property surveys to replace reference points or property monuments lost or destroyed during construction; and providing other special field surveys.
31. Providing more extensive services required to enable Engineer to issue notices or certifications requested by Owner.
32. Extensive services required during any correction period, or with respect to monitoring Contractor's compliance with warranties and guarantees called for in the Construction Contract (except as agreed to under Basic Services).
33. Other additional services performed or furnished by Engineer not otherwise provided for in this Agreement.

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EXHIBIT B—DELIVERABLES SCHEDULE

Paragraphs 2.04.E, 3.02.A, and Exhibit A of the Agreement are supplemented by the following paragraph and table.

Engineer shall furnish Documents to Owner as required in Column 2 of the following table (and as further described in Exhibit A), according to the schedule in Column 4. Owner shall comment or take other identified actions with respect to the Documents as indicated in Column 2 (and as further described in Exhibit A), according to the schedule in Column 4.

Party	Action	Exhibit A Reference	Schedule
Engineer	Submit review copies of the Report and other Study and Report Phase deliverables to Owner.	1.02.A.17	Within **180** days of the Effective Date.
Owner	Submit comments regarding the Report and other Study and Report Phase deliverables to Engineer.	1.02.A.18	Within **30** days of the receipt from Engineer of the Report and other Study and Report Phase deliverables.
Engineer	Submit copies of the revised Report and other Study and Report Phase deliverables to Owner.	1.02.A.18	Within **30** days of the receipt of Owner's comments regarding the Report and other Study and Report Phase deliverables.
Engineer	Submit review copies of the Preliminary Design Report, opinion of probable Construction Cost, and other Preliminary Design Phase deliverables to Owner.	1.03.B.17	Within **30** days of Owner's authorization to proceed with Preliminary Design Phase services.
Owner	Submit comments regarding Preliminary Design Report, opinion of probable Construction Cost, and other Preliminary Design Phase deliverables to Engineer.	1.03.B.18	Within **30** days of the receipt from Engineer of Preliminary Design Report, opinion of probable Construction Cost, and other Preliminary Design Phase deliverables.
Engineer	Submit copies of the revised Preliminary Design Report, opinion of probable Construction Cost, and other Preliminary Design Phase deliverables to Owner.	1.03.B.18	Within **30** days of the receipt of Owner's comments regarding the Preliminary Design Report, opinion of probable Construction Cost, and other Preliminary Design Phase deliverables.

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Party	Action	Exhibit A Reference	Schedule
Engineer	Submit copies of the first Final Design Phase draft of Drawings and Specifications to Owner.	1.04.B.1	Within **210** days of Owner's authorization to proceed with Final Design Phase services.
Owner	Submit comments and instructions regarding the first Final Design Phase draft of Drawings and Specifications to Engineer.	1.04.B.1	Within **30** days of the receipt of the first final Design Phase drafts of Drawings and Specifications from Engineer.
Engineer	Submit copies of the second Final Design Phase drafts of Drawings and Specifications to Owner.	1.04.B.2	Within **30** days of the receipt of Owner's comments and instructions regarding the first Final Design Phase drafts of Drawings and Specifications.
Engineer	Submit of copies of draft Bidding/Proposal and Front-End Construction Contract Documents, as required, and any other Final Design Phase deliverables (other than Drawings and Specifications) to Owner.	1.04.D.3; 1.04.F.8	Concurrent with submittal to Owner of the second Final Design Phase drafts of Drawings and Specifications.
Owner	Submit comments and instructions regarding the second Final Design Phase drafts of Drawings and Specifications to Engineer.	1.04.B.2	Within **30** days of the receipt from Engineer of the second Final Design Phase drafts of Drawings and Specifications.
Engineer	Submit copies of the final, completed, pricing-ready and construction-ready Drawings and Specifications to Owner.	1.04.B.3 and 1.04.G.1	Within **60** days of the receipt of Owner's comments and instructions regarding the second Final Design Phase drafts of Drawings and Specifications.
Owner	Submit comments and instructions regarding the final, completed, pricing-ready and construction-ready Drawings and Specifications to Engineer.	1.04.G.2	Within **30** days of the receipt from Engineer of the final, completed, pricing-ready and construction-ready Drawings and Specifications.

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Party	Action	Exhibit A Reference	Schedule
Owner	Submit comments and instructions regarding drafts of Bidding/Proposal and Front-End Construction Contract Documents, and any other Final Design Phase deliverables (other than Drawings and Specifications) to Engineer.	1.04.D.3; 1.04.F.8	Concurrent with Owner's submittal of comments and instructions regarding the final, completed, pricing-ready and construction-ready Drawings and Specifications.
Engineer	Submit to Owner: copies of the revised final, completed, pricing-ready and construction-ready Drawings and Specifications; and of copies of assembled Bidding/Proposal and Front-End Construction Contract Documents, and any other Final Design Phase deliverables.	1.04.G.2 1.04.G.3	Within **60** days of receipt of Owner's final comments and instructions regarding the regarding the final, completed, pricing-ready and construction-ready Drawings and Specifications, the Bidding/Proposal and Front-End Construction Contract Documents, and any other Final Design Phase deliverables.
Engineer	Submit copies of Bidding/Proposal Phase deliverables (if any) identified in Exhibit A Paragraph 1.05.A.9.a to Owner.	1.05.A.9.a	Within **30** days of written authorization by Owner to proceed with Bidding/Proposal Phase services.
Engineer	Submit copies of Construction Phase deliverables (if any) identified in Exhibit A Paragraph 1.06.B.26.a to Owner.	1.06.B.26.a	Within **30** days of **[Notice of Intent to Award to the selected Contractor]**
Engineer	Submit copies of Post-Construction Phase deliverables (if any) identified in Exhibit A Paragraph 1.07.A.3.a to Owner.	1.07.A.3.a	Within **60** days of Substantial Completion.

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EXHIBIT D—DUTIES, RESPONSIBILITIES, AND LIMITATIONS OF AUTHORITY OF RESIDENT PROJECT REPRESENTATIVE

ARTICLE 1—RESIDENT PROJECT REPRESENTATIVE SERVICES

Article 1 of the Agreement, Services of Engineer, and Exhibit A, Engineer's Services, are supplemented to include Exhibit D Paragraphs 1.01, 1.02, and 1.03, as follows:

1.01 Resident Project Representative

A. Engineer shall furnish a Resident Project Representative ("RPR") to observe progress and quality of the Work. RPR is Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

B. The RPR will provide full-time representation **for a construction period not longer than 30-months.**

C. Subject to the scope of RPR's observations of the Work, which may include field checks of materials and installed equipment, Engineer shall endeavor to identify defects and deficiencies in the Work. However, Engineer shall not, as a result of such RPR observations of the Work, supervise, direct, inspect, or have control over the Work, nor shall Engineer (including the RPR) have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected or used by any Constructor, for security or safety at the Site, for safety precautions and programs incident to the Work or any Constructor's work in progress, for the coordination of the Constructors' work or schedules, or for any failure of any Constructor to comply with Laws and Regulations applicable to the performing and furnishing of its work. The Engineer (including RPR) neither guarantees the performance of any Constructor nor assumes responsibility for any Constructor's failure to furnish and perform the Work, or any portion of the Work, in accordance with the Construction Contract Documents. In addition, the specific terms set forth in Exhibit A Paragraph 1.06 are applicable.

1.02 Duties and Responsibilities of RPR

A. The duties and responsibilities of the RPR are as follows:

1. General: RPR's dealings in matters pertaining to the Work in general will be with Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.

2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, schedule of values, and other schedules prepared by Contractor and consult with Engineer concerning acceptability of such schedules.

3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.

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4. Safety Compliance: Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.

5. Liaison

    a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Construction Contract Documents.

    b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

    c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

6. Clarifications and Interpretations: Receive from Contractor submittal of any matters in question concerning the requirements of the Construction Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Construction Contract Documents. Report to Engineer regarding such RFIs. Report to Engineer when clarifications and interpretations of the Construction Contract Documents are needed, whether as the result of a Contractor RFI or otherwise. Transmit Engineer's clarifications, interpretations, and decisions to Contractor.

7. Shop Drawings, Samples, and other Submittals

    a. Receive Samples that are furnished at the Site by Contractor.

    b. Receive Contractor-approved Shop Drawings.

    c. Receive other Submittals from Contractor.

    d. Record date of receipt of Samples, Contractor-approved Shop Drawings, and other Submittals.

    e. Notify Engineer of availability of Samples for examination, and forward Contractor-approved Shop Drawings and other Submittals to Engineer. When appropriate recommend distribution of Submittal to specified Subconsultants.

    f. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal, if RPR believes that the submittal has not been received from Contractor, or has not been approved by Contractor or Engineer.

8. Proposed Modifications: Consider and evaluate Contractor's suggestions for modifications to the Drawings or Specifications, and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit Engineer's response (if any) to such suggestions to Contractor.

9. Review of Work; Defective Work

    a. Report to Engineer whenever RPR believes that any part of the Work is defective under the terms and standards set forth in the Construction Contract Documents, and provide recommendations as to whether such Work should be corrected, removed and replaced, or accepted as provided in the Construction Contract Documents.

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b. Inform Engineer of any Work that RPR believes is not defective under the terms and standards set forth in the Construction Contract Documents, but is nonetheless not compatible with the design concept of the completed Project as a functioning whole, and provide recommendations to Engineer for addressing such Work.

c. Advise Engineer of that part of the Work that RPR believes should be uncovered for observation, or requires special testing, inspection, or approval.

10. Inspections, Tests, and System Start-ups

a. Consult with Engineer in advance of scheduled inspections, tests, and systems start-ups.

b. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

c. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.

d. Observe whether Contractor has arranged for inspections required by Laws and Regulations, including but not limited to those to be performed by public or other agencies having jurisdiction over the Work.

e. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work, record the results of these inspections, and report to Engineer.

f. Nothing in this Agreement will be construed to require RPR to conduct inspections.

11. Records

a. Maintain at the Site orderly files for correspondence, reports of job conferences, copies of Construction Contract Documents including all Change Proposals, Change Orders, Field Orders, Work Change Directives, Addenda, additional Drawings issued subsequent to the execution of the Construction Contract, RFIs, Engineer's clarifications and interpretations of the Construction Contract Documents, progress reports, approved Shop Drawing and Sample submittals, and other Project-related documents.

b. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Proposals, Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

c. Upon request from Owner to Engineer, photograph or video Work in progress or Site conditions.

d. Record and maintain accurate, up-to-date lists of the company names and points of contact for Contractors, Subcontractors, and major Suppliers of materials and equipment.

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e. Maintain records for use in preparing Project documentation.

f. Upon completion of the Work, furnish original set of all RPR Project documentation to designated recipients.

12. Reports

a. Furnish periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.

b. Draft responses to or make recommends on Change Proposals, Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.

c. Furnish to Engineer and Owner copies of all inspection, test, and system start-up reports.

d. Immediately inform appropriate parties of the occurrence of any Site accidents, emergencies, natural catastrophes endangering the Work, possible force majeure or delay events, damage to property by fire or other causes, or the discovery of any potential differing site condition or Constituent of Concern.

13. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

14. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

15. Completion

a. Participate in Engineer's visits to the Site regarding Substantial Completion, assist in the determination of Substantial Completion, and prior to the issuance of a Certificate of Substantial Completion submit a punch list of observed items requiring completion or correction.

b. Participate in Engineer's visit to the Site in the company of Owner and Contractor, to determine completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.

c. Observe whether all items on the final punch list have been completed or corrected, and make recommendations to Engineer concerning acceptance and issuance of the Notice of Acceptability of the Work (Exhibit E).

1.03 Limitations of Authority

A. Resident Project Representative shall not:

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1. Authorize any deviation from the Construction Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in this Agreement.
3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers, or any Constructor.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of the Work, by Contractor or any other Constructor.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

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EXHIBIT F—ELECTRONIC DOCUMENTS PROTOCOL (EDP)

ARTICLE 1—ELECTRONIC DOCUMENTS PROTOCOL (EDP)

Paragraph 6.03 of the Agreement is supplemented by the following Exhibit F Paragraph 1.01 and Exhibit F—Attachment 1: Software Requirements for Electronic Document Exchange:

1.01 Electronic Documents Protocol

A. Electronic Transmittals: The parties shall conform to the following provisions together referred to as the Electronic Documents Protocol ("EDP" or "Protocol") for exchange of electronic transmittals.

1. Basic Requirements

a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents by Electronic Means using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Agreement.

b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.

c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Agreement.

d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between the Owner and Engineer and any third party for any portion of the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with Owner, Engineer, or any Contractor or other entity directly contracted with the Owner to furnish Program-related services. Nothing herein will modify the requirements of the Agreement and applicable Construction Contract Documents regarding communications between and among the individual third parties and their respective subcontractors and consultants, except to the extent that any respective subcontractor or consultant exchanges Electronic Documents with the Owner or Engineer.

e. When transmitting Electronic Documents, the transmitting Party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving Party's use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.

f. Nothing herein negates any obligation (1) in the Agreement to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; (2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or (3) to comply with any notice requirements limiting or otherwise modifying the acceptance of Electronic Documents for such notice.

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2. System Infrastructure for Electronic Document Exchange

   a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions ("System Infrastructure") at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP and any explicit system requirements specified by attachment to this EDP, it will be the obligation of each party to determine, for itself, its own System Infrastructure.

      1) The maximum size of an e-mail attachment for exchange of Electronic Documents under this EDP is **[File Size]** MB. Attachments larger than that may be exchanged using large file transfer functions or physical media.

      2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.

   b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology ("IT") for maintaining operations of its System Infrastructure during the Project, including coordination with the party's individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.

   c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it will not be liable to the other party for any breach of system security.

   d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties will cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Engineer, not reasonably anticipated under the original EDP, Engineer shall be entitled to compensation as Additional Services for its costs associated with the revisions to the EDP, delayed adoption of Exhibit L or implementation of other Electronic Documents protocols.

   e. Each party is responsible for its own back-up and archive of documents sent and received during the term of any Project contract/agreement under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the Parties may rely for document archiving during the specified term of operation of such project document archive. Further, each party remains solely responsible for its own post-

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Project back-up and archive of project documents, as each party deems necessary for its own purposes, after the term of contract, or termination of the project document archive, if one is established.

f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.

g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.

h. Not used.

B. Software Requirements for Electronic Document Exchange; Limitations

1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.

a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.

2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.

3. Software and data formats for exchange of Electronic Documents will conform to the requirements set forth in the following Attachment 1 to this EDP, including software version, if listed.

C. Format and Distribution of Deliverables

1. By definition, "Documents" as used in this Agreement are documents expressly identified as deliverables from Engineer to Owner. Exhibit A of the Agreement identifies various Documents that Engineer is required to deliver to Owner as part of Engineer's services; Exhibit B is a schedule of such Documents. Engineer will transmit such Documents to Owner in the formats identified in Attachment 1 to this Protocol. If no specific format is identified for a deliverable Document, the format will be Portable Document Format (PDF).

2. If a Document will be distributed to third parties, such as prospective bidders and contractors, reviewing agencies, or lenders, the transmittal format for distribution will be as identified in Attachment 1 to this Protocol; provided, however, that if a format for distribution of a specific Document is expressly stated in Exhibit A, then the Exhibit A format will take precedence. If no specific format is identified for distribution of a deliverable Document to third parties, the format will be Portable Document Format (PDF).

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a. If a format for Document distribution other than Portable Document Format (PDF) is specified, Owner shall first obtain a written, signed release from each third party to which the deliverable Document is distributed, establishing agreement to the following conditions:

1) The content included in the Electronic Documents prepared by or for Engineer and covered by the request was prepared as an internal working document for Engineer's purposes solely, and is being provided to the third party on an "AS IS" basis without any warranties of any kind, including, but not limited to any implied warranties of fitness for any purpose. As such, the third party is advised and acknowledges that the content may not be suitable for the third party's application, or may require substantial modification and independent verification by the third party. The content may include limited resolution of models; not-to-scale schematic representations and symbols; use of notes to convey design concepts in lieu of accurate graphics; approximations; graphical simplifications; undocumented intermediate revisions; and other devices that may affect subsequent reuse.

2) Electronic Documents containing text, graphics, metadata, or other types of data that are provided to the Requesting Party are only for the convenience of the third party. Any conclusion or information obtained or derived from such data will be at the third party's sole risk and the third party waives any and all claims against Engineer or Owner arising from the use of the Electronic Documents covered by the request, or of any data contained in such Electronic Documents.

3) The third party shall indemnify and hold harmless Owner, Engineer, and Engineer's Subcontractors and Subconsultants, from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from the third party's use, adaptation, or distribution of any Electronic Documents provided under the request.

4) The third party agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the request and is limited to the third party's subcontractors and consultants. The third party warrants that subsequent use by the third party's subcontractors and subconsultants will comply with all terms of the Construction Contract Documents and any specific instructions or conditions established by Owner.

b. If Engineer is required to assist or participate in obtaining such releases from third parties, such services will be categorized as Additional Services.

D. Requests by Project-Related Parties for Electronic Documents in Other Formats

1. Owner may release (or direct Engineer to release) an Electronic Document version of a Document prepared by or for Engineer, including but not limited to a deliverable Document as set forth in Exhibit F Paragraph 1.01.C, in a format other than those identified in Exhibit F Paragraph 1.01.B or 1.01.C of the Electronic Documents Protocol,

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or elsewhere in the Agreement, only if (a) a Contractor or other Project-related party (Requesting Party) makes a good faith request for such release, (b) Owner determines in its sole discretion that such release is prudent and will be beneficial to the Project, and (c) Owner obtains Requesting Party's written consent to the four conditions set forth in Exhibit F Paragraph 1.01.C.2.a.1-4 above.

2. Any services by Engineer in connection with Owner or Engineer providing a Document to a Requesting Party under this Exhibit F Paragraph 1.01.D are Additional Services. Such services may include but are not limited to preparing the data in a manner deemed appropriate by Engineer. Owner may require reimbursement from the Requesting Party for the cost of such Additional Services, but compensation by Owner to Engineer for the Additional Services is not contingent upon Owner obtaining reimbursement from the Requesting Party.

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EXHIBIT F—ATTACHMENT 1: SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE

Item	Electronic Documents	Transmittal Means	Data Format	Note (1)
a.1	General communications, transmittal covers, meeting notices, and responses to general information requests for which there is no specific prescribed form.	Email	Email	
a.2	Meeting agendas; meeting minutes; RFI's and Responses to RFI's; and Construction Contract administrative forms.	Email w/Attach	PDF	(2)
a.3	Contractor's Submittals (Shop Drawings, "Or Equal" requests, Substitute requests, documentation accompanying Sample submittals and other Submittals) to Owner and Engineer; and, Owner's and Engineer's Responses to Contractor's Submittals, Shop Drawings, Correspondence, and Applications for Payment	Email w/Attach	PDF	
a.4	Correspondence; Interim and Final Versions of reports, layouts, Specifications, Drawings, maps, calculations and spreadsheets, Construction Contract, Bidding/Proposal Documents, and Front-End Construction Contract Documents.	Email w/ Attach or LFE	PDF	(3)
a.5	Layouts, plans, maps, and Drawings to be submitted to Owner by Engineer for future use and modification	Email w/ Attach or LFE	DWG	
a.6	Correspondence, reports, and specifications to be submitted by Engineer to Owner for future word processing use and modification	Email w/ Attach or LFE	DOC	
a.7	Spreadsheets and data to be submitted to Owner by Engineer for future data processing use and modification	Email w/ Attach or LFE	EXC	
a.8	Database files and data to be submitted to Owner for future data processing use and modification	Email w/ Attach or LFE	DB	

Notes	
(1)	All exchanges and uses of transmitted data are subject to the appropriate provisions of the Agreement and Construction Contract.
(2)	Transmittal of written notices is governed by requirements of the Agreement and Construction Contract.
(3)	Transmittal of Bidding/Proposal Documents and Front-End Construction Contract Documents will be in manner selected by Owner in Exhibit A, Paragraph 1.05.A.1.a. Unless otherwise expressly stated, these documents and the Construction Contract will be transmitted in PDF format, including transmittals to bidders and Contractor.
Key	
EMAIL	Standard Email formats (.htm, .rtf, or .txt). Do not use stationery formatting or other features that impair legibility of content on screen or in printed copies.
LFE	Agreed upon Large File Exchange method (FTP, CD, DVD, hard drive.)
PDF	Portable Document Format readable by Adobe® Acrobat Reader
DWG	Autodesk® AutoCAD. dwg format
DOC	Microsoft® Word. docx format
EXC	Microsoft® Excel .xlsx or .xml
DB	Microsoft® Access .mdb

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EXHIBIT G—INSURANCE

ARTICLE 1—INSURANCE

Paragraph 6.04 of the Agreement, Insurance, is supplemented to include the following Exhibit G Paragraphs 1.01 and 1.02:

1.01 Insurance Policies and Limits

A. In accordance with Paragraph 6.04.A of the Agreement, the insurance that Engineer must procure and maintain, and the policy limits of such insurance, are as follows:

Coverage	Policy limits of not less than:
Workers' Compensation	
State	Statutory
Employer's Liability	
Each accident	$1,000,000
Each employee	$1,000,000
Commercial General Liability	
General Aggregate	$2,000,000
Personal and Advertising Injury	$1,000,000
Bodily Injury and Property Damage—Each Occurrence	$1,000,000
Automobile Liability	
Combined Single Limit	
Combined Single Limit (Bodily Injury and Property Damage)	$1,000,000
Excess or Umbrella Liability	
Each Occurrence	$5,000,000
General Aggregate	$5,000,000
Professional Liability	
Each Claim	$3,000,000
Annual Aggregate	$5,000,000
Other Insurance: Blanket Leased Equipment	
Each Claim	$175,000

B. Not Used.

C. Owner shall cause Engineer, its Subconsultants, and its Engineer's Subcontractors to be listed as additional insureds on any of Owner's general liability policies that are applicable to the Project. The following individuals or entities are to be listed on Owner's general liability policies of insurance (and on Contractor's policies required under Paragraph 6.04.D of the Agreement) as additional insureds:

None.

D. During the term of this Agreement the Engineer shall notify Owner of any other Subconsultant or Engineer's Subcontractor to be listed as an additional insured on Owner's and applicable Contractor's general liability policies of insurance.

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E. The Owner must be listed on Engineer's general liability policy as provided in Paragraph 6.04.B.

F. For applicable Contractor's general liability policies of insurance, the additional insured endorsements will include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.

G. For applicable Contractor's general liability policies of insurance, Contractor shall provide ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent for Engineer, Subconsultants, and other design professional additional insureds.

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EXHIBIT H—DISPUTE RESOLUTION

ARTICLE 1—DISPUTE RESOLUTION METHOD

Paragraph 6.07 of the Agreement, Dispute Resolution, is supplemented to include the following Exhibit H Paragraph 1.01:

1.01 Arbitration

A. Method for Resolution of Disputes: All Disputes between Owner and Engineer that have not been resolved by negotiations or mediation will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Exhibit H Paragraph 1.01). This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.

B. Arbitration Provisions

1. Notice of the demand for arbitration must be filed in writing with the other party to the Agreement and with the selected arbitration administrator. The demand must be made within a reasonable time after the Dispute has arisen. In no event may the demand for arbitration be made after the date when institution of legal or equitable proceedings based on such Dispute would be barred by the applicable statute of limitations.

2. All demands for arbitration and all answering statements thereto which include any monetary claims must contain a statement that the total sum or value in controversy as alleged by the party making such demand or answering statement is not more than $250,000 (exclusive of interest and costs). The arbitrators will not have jurisdiction, power, or authority to consider, or make findings (except in denial of their own jurisdiction) concerning any Dispute if the amount in controversy in such Dispute is more than $250,000 (exclusive of interest and costs), or to render a monetary award in response thereto against any party which totals more than $250,000 (exclusive of interest and costs). Disputes that are not subject to arbitration under this paragraph may be resolved in any court of competent jurisdiction.

3. The arbitrator(s) must be licensed engineers, architects, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Agreement. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.

4. If the applicable arbitration rules require a preliminary mediation, but the parties have already participated in mediation with respect to the Dispute, then the second mediation is not required.

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5. The rules of any arbitration must be supplemented to include the following: The award rendered by the arbitrators must be in writing, and include (a) a precise breakdown of the award, and (b) a written explanation of the award specifically citing the Agreement provisions deemed applicable and relied on in making the award.

6. The award rendered by the arbitrators will be consistent with this Agreement. The Engineer reserves the right to appeal the arbitration award, in accordance with AAA rules.

7. The arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Agreement expressly permits them to do so.

8. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party of the right to present evidence or cross-examine witness. In such event, the other party will be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.

9. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Agreement. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

10. If a Dispute in question between Owner and Engineer involves the work of a Contractor, Subcontractor, or consultants to the Owner, Subconsultants to the Engineer, or Engineer's Subcontractors (each a "Joinable Party"), and such Joinable Party has agreed contractually or otherwise to participate in a consolidated arbitration concerning this Project, then either Owner or Engineer may join such Joinable Party as a party to the arbitration between Owner and Engineer hereunder. Nothing in this Exhibit H Paragraph 1.01 nor in the provision of such contract consenting to joinder will create any claim, right, or cause of action in favor of the Joinable Party and against Owner or Engineer that does not otherwise exist.

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EXHIBIT I—LIMITATIONS OF LIABILITY

ARTICLE 1—LIMITATIONS OF LIABILITY

Paragraph 6.10 of the Agreement is supplemented to include Exhibit I Paragraphs **1.01 and 1.02 as follows:**

1.01 *Limitation of Engineer's Liability*

1. *Engineer's Liability Limited to Amount of Insurance Proceeds:* Engineer shall procure and maintain insurance as required by and set forth in Exhibit G to this Agreement. Notwithstanding any other provision of this Agreement, and to the fullest extent permitted by Laws and Regulations, the total liability, in the aggregate, of Engineer and Engineer's officers, directors, members, partners, agents, employees, and Consultants to Owner and anyone claiming by, through, or under Owner for any and all claims, losses, costs, or damages whatsoever arising out of, resulting from, or in any way related to the Project or the Agreement from any cause or causes, including but not limited to the negligence, professional errors or omissions, strict liability, breach of contract, indemnity obligations, or warranty express or implied, of Engineer or Engineer's officers, directors, members, partners, agents, employees, or Consultants (hereafter "Owner's Claims"), shall not exceed the total insurance proceeds paid on behalf of or to Engineer by Engineer's insurers in settlement or satisfaction of Owner's Claims under the terms and conditions of Engineer's insurance policies applicable thereto (excluding fees, costs and expenses of investigation, claims adjustment, defense, and appeal), up to the amount of insurance required under this Agreement. If no such insurance coverage is provided with respect to Owner's Claims, then the total liability, in the aggregate, of Engineer and Engineer's officers, directors, members, partners, agents, employees, and Consultants to Owner and anyone claiming by, through, or under Owner for any and all such uninsured Owner's Claims shall be $1,000,000.

2. *Exclusion of Special, Incidental, Indirect, and Consequential Damages:* To the fullest extent permitted by Laws and Regulations, and notwithstanding any other provision in the Agreement, consistent with the terms of Paragraph 6.11, the Engineer and Engineer's officers, directors, members, partners, agents, Consultants, and employees shall not be liable to Owner or anyone claiming by, through, or under Owner for any and all claims for or entitlement to special, incidental, indirect, or consequential damages arising out of, resulting from, or in any way related to this Agreement or the Project, from any cause or causes, including but not limited to any such damages caused by the negligence, professional errors or omissions, strict liability, breach of contract, indemnity obligations, or warranty express or implied of Engineer or Engineer's officers, directors, members, partners, agents, Engineer's Consultants, employees.

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1.02 *Indemnification by Owner*: To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Engineer and its officers, directors, members, partners, agents, employees, and Consultants from and against any and all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to the Project, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Owner or Owner's officers, directors, members, partners, agents, employees, consultants, or others retained by or under contract to the Owner with respect to this Agreement or to the Project.

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EXHIBIT J—PAYMENTS TO ENGINEER FOR SERVICES AND REIMBURSABLE EXPENSES

COMPENSATION PACKET BC-1: BASIC SERVICES—LUMP SUM

ARTICLE 1—COMPENSATION PACKET BC-1: BASIC SERVICES—LUMP SUM

Article 2 of the Agreement is supplemented to include the following Exhibit J Paragraph 1.01:

1.01 Compensation for Basic Services (other than Resident Project Representative)—Lump Sum Method of Payment

A. Owner shall pay Engineer for Basic Services set forth in Exhibit A (except for Resident Project Representative services, if any) as follows:

1. A Lump Sum amount of $**2,075,000** based on the following estimated distribution of compensation:

a.	Study and Report Phase	$0
b.	Preliminary Design Phase	$500,000
c.	Final Design Phase	$1,065,000
d.	Bidding and Negotiating Phase	$80,000
e.	Construction Phase	$375,000
f.	Post-Construction Phase	$55,000

2. Engineer may alter the distribution of compensation between individual phases noted herein to be consistent with services actually rendered, but compensation will not exceed the total Lump Sum amount unless approved in writing by the Owner.

3. The Lump Sum includes compensation for Engineer's services and services of Engineer's Subcontractors and Subconsultants, if any. Appropriate amounts have been incorporated in the Lump Sum to account for labor costs, overhead, profit, and expenses (other than any expressly allowed Reimbursable Expenses).

4. In addition to the Lump Sum, Engineer is also entitled to reimbursement from Owner for the following Reimbursable Expenses (see Appendix 1 for rates or charges): **None.**

5. The portion of the Lump Sum amount billed for Engineer's services will be based upon Engineer's estimate of the percentage of the total services actually completed during the billing period. ~~If any Reimbursable Expenses are expressly allowed,~~ Engineer may also bill for any such Reimbursable Expenses incurred during the billing period.

B. Period of Service: The compensation amount stipulated in Compensation Packet BC-1 is conditioned on a period of service not exceeding **66** months. If such period of service is extended, the compensation amount for Engineer's services will be appropriately adjusted.

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EXHIBIT J—PAYMENTS TO ENGINEER FOR SERVICES AND REIMBURSABLE EXPENSES

COMPENSATION PACKET RPR-1: RESIDENT PROJECT REPRESENTATIVE—LUMP SUM

ARTICLE 2—COMPENSATION PACKET RPR-1: RESIDENT PROJECT REPRESENTATIVE—LUMP SUM

Article 2 of the Agreement is supplemented to include the following Exhibit J Paragraph 2.01:

2.01 Compensation for Resident Project Representative Services—Lump Sum Method of Payment

A. Owner shall pay Engineer for Resident Project Representative Services as follows:

1. Resident Project Representative Services: For services of Engineer's Resident Project Representative (RPR), if any, under Exhibits A and D, the Lump Sum amount of $**525,000**. The Lump Sum includes compensation for Resident Project Representative services, including any RPR-related services performed by Engineer's Subcontractors and Subconsultants. Appropriate amounts have been incorporated in the Lump Sum to account for labor costs, overhead, profit, and expenses (other than any expressly allowed Reimbursable Expenses, as set forth immediately below) related to the Resident Project Representative services.

2. Reimbursable Expenses: All expenses are accounted for in the Lump Sum.

3. Resident Project Representative Schedule: The Lump Sum amount set forth in Exhibit J Paragraph 2.01.A.1 above is based on full-time RPR services on an eight-hour workday Monday through Friday over a **912**-day **(30-months)** construction schedule. Modifications to the construction schedule will entitle Engineer to an equitable.

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CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting

661 South George Street
Charles Town, WV 25414

Tuscawilla Plant Membrane Replacement Request for Proposals

Attachments:

Tuscawilla Membrane Task Order.pdf

GD&F
GWIN
DOBSON &
FOREMAN
CONSULTING ENGINEERS

February 11, 2026

Charles Town Utility Board
661 South George Street, Suite 101
Charles Town, WV 25414

Attn: Kristen M. Stolipher, Utility General Manager

RE: Professional Engineering Services Proposal (Task Order)
Tuscawilla Membrane Replacement and Expansion Project

Dear Mrs. Stolipher:

Per your request, Gwin, Dobson & Foreman, Inc. (GD&F) is pleased to present the following engineering services proposal associated with the Tuscawilla Membrane Replacement and Expansion.

Understanding of the Project

The existing membrane at the Tuscawilla WWTF has performed well since installation, but is nearing the end of it's useful life. GD&F proposes to provide engineering services to replace the existing membrane, install a second membrane and design any other instrumentation/maintenance/upgrade items to BNR trains and MBR systems at 0.5 MGD. This project will be essential to providing adequate treatment capacity in the interim while the Charles Town WWTF is upgraded in the near future.

Proposed Services

GD&F will provide demolition and modification drawings and technical specifications for the required upgrades as identified by a site inspection and review of current operations. GD&F will also prepare bid documents, assist with bidding, and perform construction administration. This scope does not include site survey, programming modifications, or Resident Project Representative services throughout construction.

Proposed Schedule

GD&F will begin immediately upon written authorization from the Board and will be prepared to begin the construction project before the end of 2026.

Proposed Cost

GD&F will provide the above scope of services for a not-to-exceed fee of $50,000.00. Invoices will be submitted on a monthly basis. Payment will be made on an accrued hourly basis plus expenses. The expenses include direct expenses such as printing/copying, mileage, postage, etc. as necessary to complete the services. Payment is due within thirty (30) days of invoicing.

We appreciate the opportunity to submit this proposal. To authorize the services, please complete the following authorization section of this proposal and return a signed copy to our office. If you have any questions, please contact our office at your convenience.

Respectfully submitted,
GWIN, DOBSON & FOREMAN, INC.

Christopher M. Eckenrode

Christopher M. Eckenrode, P.E.
Engineering Manager

CME/mad
Prop/2026/CTUB_TuscawillaMembraneRepl_2-5-26.doc
cc: File

ACCEPTANCE OF PROPOSAL

The Charles Town Utility Board hereby accepts the above service and cost proposal.

_____ _____

Authorized Representative Date

_____

Attest/Witness

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting

661 South George Street
Charles Town, WV 25414

Cantor Hollow Additional Engineering Proposal

Attachments:

Cantor Hollow Additional Engineering Proposal 02.02.26.pdf

GD&F
GWIN
DOBSON &
FOREMAN
ENGINEERS

February 2, 2026

Kristen M. Stolipher, Utility General Manager
Charles Town Utility Board
661 South George Street, Suite 101
Charles Town, WV 25414

RE: Cantor Hollow Pump Station Design
Additional Engineering Services Proposal

Dear Mrs. Stolipher:

This is a follow-up to the originally approved August 22, 2023, GD&F proposal for design, permitting and bid phase services for the Canter Hollow Pump Station.

Project Changes

Please note that the original design was based on the Concept Plan provided by the Developer dated January 17, 2023. The original design was based upon the Developer providing the basemap drawings. Upon further review, GD&F had to field survey the site and create a new basemap. GD&F also had to re-configure the pump station such that it meets the new Sewer Standards. This involved design of a meter vault, emergency bypass connection, Godwin dry prime backup, revised pump controller and revised station remote telemetry system. The entire proposed easement area also needs revised because it was not large enough to accommodate all the appurtenances of the pump station. The entire site layout was revised.

Proposed Additional Cost

GD&F provided the original scope of services for an estimated, not-to-exceed, fee of $19,500. Due to the scope changes, GD&F is requesting an additional **$9,000** to take the station to final design, permitting and bidding. Invoices will be submitted on a monthly basis based on GDF current standard rates. Payment will be made on an accrued hourly basis plus expenses. The expenses include direct expenses such as mileage, printing/copying, etc. as necessary to complete the services. Payment is due within thirty (30) days of invoicing.

We appreciate the opportunity to submit this proposal. To authorize the services, please complete the following authorization section of this proposal and return a signed copy to our office. If you have any questions, please contact our office at your convenience.

Respectfully submitted,
GWIN, DOBSON & FOREMAN, INC.

Christopher M. Eckenrode

Christopher M. Eckenrode, P.E.
Engineering Manager

CME/mad
Prop/2026/CTUB_AddEngServices_2-2-26.doc
cc: File

ACCEPTANCE OF PROPOSAL

The Charles Town Utility Board hereby accepts the above service and cost proposal.

_____ _____

Authorized Representative Date

_____

Attest/Witness

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting

661 South George Street
Charles Town, WV 25414

Utility Manager Report

Attachments:

UM Report.pdf

Charles Town
Utility Board
661 S. George Street, Suite 101 Charles Town, WV 25414
Phone: (304) 725-2316 ♦ Fax: (304) 725-7150 ♦ Web: www.ctubwv.com

MEMORANDUM TO THE BOARD OF DIRECTORS

DATE: February 11, 2026
TO: Board of Directors
SUBJECT: Utility General Manager's Report, February 2026

Summary:

Several major projects are on-going including the 2023 Collection System Project, Greenfield Forcemain Project, Asbury Block Sewer project, NPDES Permit Renewal, Deerfield Permit Renewal.

Wastewater Treatment Plant

Total Wastewater Processed December 2026:
Charles Town: 38.14 million Gallons per month or 1.23 MGD average
Tuscawilla: 2.99 million Gallons per month or 0.10 MGD average

Collection System

4 pump(s) pulled and sent for repair
9 Grease Trap inspections
9 Sewer main repairs/blockages/call-outs
43 sewer line inspections
10 manhole inspections

Water Plant and Distribution System

Total Water Pumped December 2025 (CT): 47.8 million Gallons per month or 1.54 MGD average
13 leaks repaired
16 meters repaired
18 meters replaced
10 new meters installed
1,842 - Ten (10) day notices
410 Disconnect notices, 63 Disconnects
0 hydrant(s) repaired

Customer Counts

- Sewer 10,713
- Water 7,715

Human Resources

Employees Count: 34 full-time | 1 part-time | 3 vacancies

Other Notable Activities for the Month:

January 14, 2026: Board meeting

January 15, 2026 – Asset Management meeting

January 21, 2026 – Jefferson County Water Advisory Committee Meeting

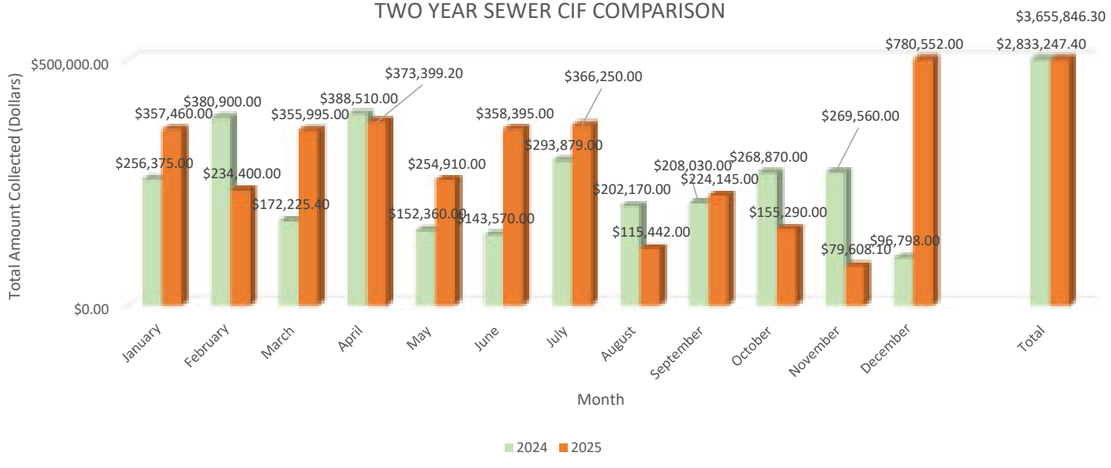
January 28, 2026 – Board meeting

January 28, 2026 – Meet with City of Charles Town Planning to discuss tree planting and landscaping requirements

January 29, 2026 – CTUB Collection System Project Progress Meeting

Charles Town Utility Board
2025 Capacity Improvement Fee Collections/EDU for Sewer

Month	Commercial	Residential	Total Number of EDU's	Total Sewer CIF Collected	CIF Paid to Ranson	Total
Jan-25	1	121	122	$ 402,960.00	$ 45,500.00	$ 357,460.00
Feb-25		80	80	$ 289,650.00	$ 55,250.00	$ 234,400.00
Mar-25	0.5	121	121.5	$ 419,370.00	$ 63,375.00	$ 355,995.00
Apr-25	0.44	127	127.44	$ 514,774.20	$ 141,375.00	$ 373,399.20
May-25		87	87	$ 313,410.00	$ 58,500.00	$ 254,910.00
Jun-25		114	114	$ 368,145.00	$ 9,750.00	$ 358,395.00
Jul-25		125	125	$ 390,625.00	$ 24,375.00	$ 366,250.00
Aug-25	1.4	38	39.4	$ 133,317.00	$ 17,875.00	$ 115,442.00
Sep-25	0.5	76	76.5	$ 259,895.00	$ 35,750.00	$ 224,145.00
Oct-25		53	53	$ 182,915.00	$ 27,625.00	$ 155,290.00
Nov-25	2.67	24.5	27.17	$ 79,608.10		$ 79,608.10
Dec-25	4.4	263	267.4	$ 1,017,802.00	$ 237,250.00	$ 780,552.00
Total 2025	**10.91**	**1153.5**	**1240.41**	**$ 4,372,471.30**	**$ 716,625.00**	**$ 3,655,846.30**



Charles Town Utility Board
2026 Capacity Improvement Fee Collections/EDU for Sewer

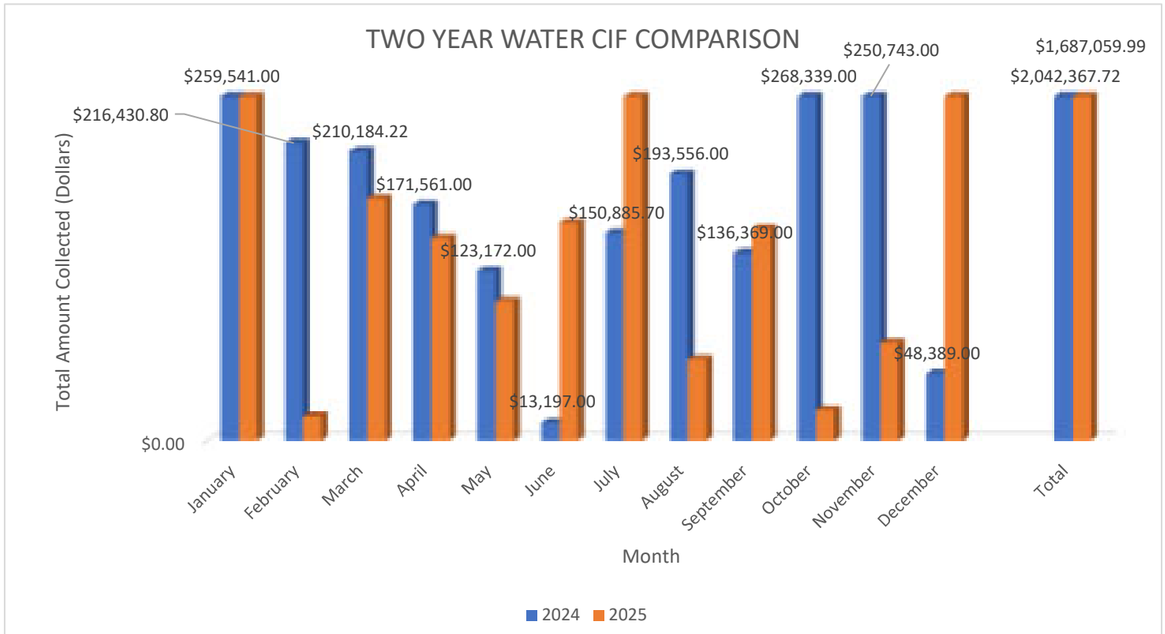
Month	Commercial	Residential	Total Number of EDU's	Total Sewer CIF Collected	CIF Paid to Ranson	Total
Jan-26		12	12	$ 53,940.00		$ 53,940.00
Feb-26		24	24	$ 122,505.00	$ 14,625.00	$ 107,880.00
Mar-26						$ -
Apr-26						$ -
May-26						$ -
Jun-26						$ -
Jul-26						$ -
Aug-26						$ -
Sep-26						$ -
Oct-26						$ -
Nov-26						$ -
Dec-26						$ -
Total 2026	**0**	**36**	**36**	**$ 176,445.00**	**$ 14,625.00**	**$ 161,820.00**

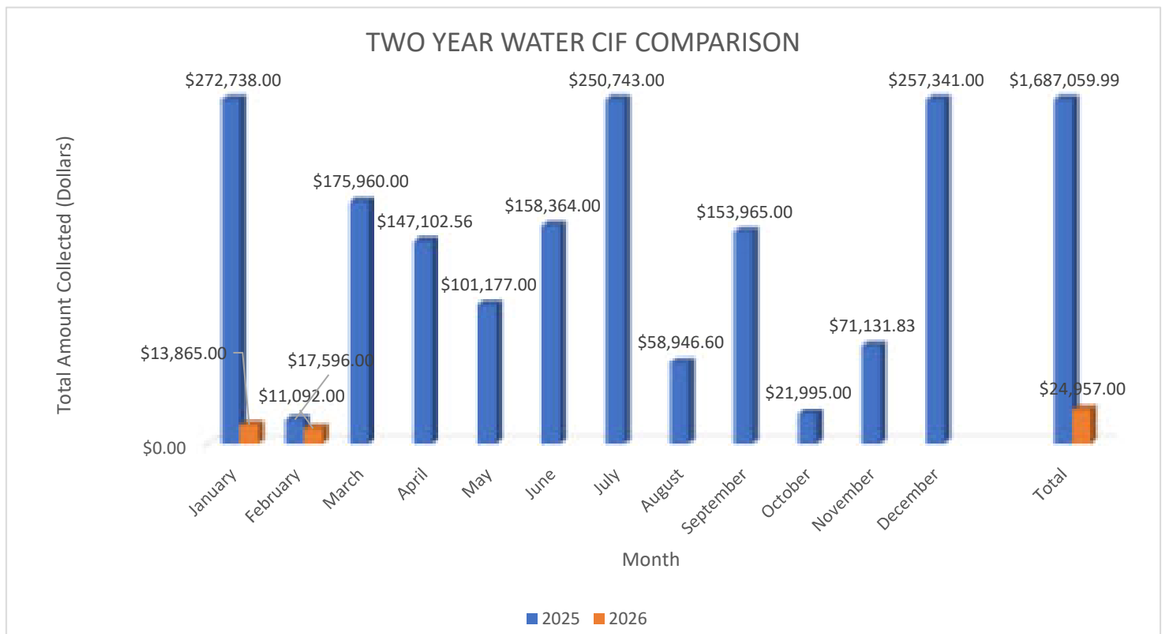


Water CIF Tracking as of February 6, 2026

2025 Capacity Improvement Fee Collections/EDU for Water				
Month	**Commercial**	**Residential**	**Total Number of EDU's**	**Total Water CIF**
Jan-25		62	62	$ 272,738.00
Feb-25		4	4	$ 17,596.00
Mar-25		40	40	$ 175,960.00
Apr-25	0.44	33	33.44	$ 147,102.56
May-25		23	23	$ 101,177.00
Jun-25		36	36	$ 158,364.00
Jul-25		57	57	$ 250,743.00
Aug-25	1.4	12	13.4	$ 58,946.60
Sep-25		35	35	$ 153,965.00
Oct-25		5	5	$ 21,995.00
Nov-25	2.67	13.5	16.17	$ 71,131.83
Dec-25	3.5	56	59.5	$ 257,341.00
Total 2025	**8.01**	**371.5**	**384.51**	**$ 1,687,059.99**

2026 Capacity Improvement Fee Collections/EDU for Water				
Month	**Commercial**	**Residential**	**Total Number of EDU's**	**Total Water CIF**
Jan-26		5	5	$ 13,865.00
Feb-26		4	4	$ 11,092.00
Mar-26				
Apr-26				
May-26				
Jun-26				
Jul-26				
Aug-26				
Sep-26				
Oct-26				
Nov-26				
Dec-26				
Total 2026	**0**	**9**	**9**	**$ 24,957.00**





CHARLES TOWN UTILITY BOARD
WASTEWATER TREATMENT PLANT FLOW DATA

CHARLES TOWN WASTEWATER PLANT FLOW DATA						
YEAR	Total Design (MGD)	TOTAL ANNUAL FLOW (MG)	AVERAGE DAILY (MGD)	Total Design minus Average Daily (MGD)	Total Available (gpd)	Total Available (EDU's)
2015	1.75	384	1.05	0.7	700,000	3,333
2016	1.75	419	1.14	0.61	610,000	2,905
2017	1.75	393	1.08	0.67	670,000	3,190
2018	1.75	491	1.34	0.41	410,000	1,952
2019	1.75	459	1.26	0.49	490,000	2,333
2020	1.75	419.7	1.15	0.60	603,333	2,873
2021	1.75	401.61	1.11	0.64	637,500	3,036
2022	1.75	387.15	1.06	0.69	687,500	3,274
2023	1.75	382.28	1.06	0.69	694,167	3,306
2024	1.75	432.96	1.19	0.56	559,167	2,663
2025	1.75	431.13	1.18	0.57	570,833	2,718
2026	1.75	38.14	1.18	0.57	570,833	2,718

TUSCAWILLA WASTEWATER PLANT FLOW DATA						
YEAR	Total Design (MGD)	TOTAL ANNUAL FLOW (MG)	AVERAGE DAILY	Total Design minus Average	Total Available	Total Available
2015	0.5	48	0.13	0.37	370,000	1,762
2016	0.5	49	0.13	0.37	370,000	1,762
2017	0.5	48	0.14	0.36	360,000	1,714
2018	0.5	78	0.21	0.29	290,000	1,381
2019	0.5	55.24	0.15	0.35	350,000	1,667
2020	0.5	1.09	0.16	0.34	340,000	1,619
2021	0.5	32.55	0.10	0.40	400,833	1,909
2022	0.5	62.8	0.17	0.33	328,333	1,563
2023	0.5	83.78	0.23	0.27	270,000	1,286
2024	0.5	66.68	0.18	0.32	316,667	1,508
2025	0.5	62.85	0.18	0.32	316,667	1,508
2026	0.5	2.99	0.10	0.40	400,000	1,905

Total EDU's available between CT and Tuscawilla	
2015	5,095
2016	4,667
2017	4,905
2018	3,333
2019	4,000
2020	4,492
2021	4,944
2022	4,837
2023	4,591
2024	4,171
2025	4,226
2026	4,623

Legend:
MGD= Million gallons per day
MG=million gallons
gpd= gallons per day
EDU= Equivalent Dwelling Unit (210 gpd design for future plant)

2023		
	Total (MG)	AVERAGE (MG)
JANUARY	36.55	1.21
FEBRUARY	28.96	1.03
MARCH	30.46	1.02
APRIL	29.52	0.98
MAY	30.78	0.99
JUNE	29.64	0.99
JULY	31.2	1.01
AUGUST	29.96	1.00
SEPTEMBER	33.38	1.11
OCTOBER	33.02	1.07
NOVEMBER	33.61	1.12
DECEMBER	35.2	1.14
Annual Total	382.28	1.06

2024		
	Total (MG)	AVERAGE (MG)
JANUARY	36.06	1.16
FEBRUARY	34.43	1.19
MARCH	38.99	1.26
APRIL	38.08	1.27
MAY	37.15	1.2
JUNE	32.9	1.1
JULY	34.51	1.11
AUGUST	42.16	1.36
SEPTEMBER	35.37	1.18
OCTOBER	35.46	1.14
NOVEMBER	35.48	1.22
DECEMBER	32.37	1.1
Annual Total	432.96	1.19

2025		
	Total (MG)	AVERAGE (MG)
JANUARY	38.98	1.26
FEBRUARY	34.73	1.24
MARCH	33.84	1.09
APRIL	32.05	1.07
MAY	37.34	1.2
JUNE	38.01	1.2
JULY	34.6	1.12
AUGUST	35.14	1.16
SEPTEMBER	36.58	1.22
OCTOBER	35.87	1.16
NOVEMBER	36.00	1.2
DECEMBER	37.99	1.23
Annual Total	431.13	1.18

2026		
	Total (MG)	AVERAGE (MG)
JANUARY	38.14	1.23
FEBRUARY		
MARCH		
APRIL		
MAY		
JUNE		
JULY		
AUGUST		
SEPTEMBER		
OCTOBER		
NOVEMBER		
DECEMBER		
Annual Total	38.14	1.23

2023		
	Total (MG)	AVERAGE (MG)
JANUARY	7.3	0.24
FEBRUARY	6.38	0.23
MARCH	6.41	0.21
APRIL	6.13	0.20
MAY	6.30	0.20
JUNE	6.89	0.23
JULY	7.31	0.24
AUGUST	7.7	0.25
SEPTEMBER	6.98	0.23
OCTOBER	6.92	0.22
NOVEMBER	7.22	0.24
DECEMBER	8.24	0.27
Annual Total	83.78	0.230

2024		
	Total (MG)	AVERAGE (MG)
JANUARY	8.61	0.28
FEBRUARY	8.25	0.28
MARCH	6.28	0.2
APRIL	5.05	0.17
MAY	4.64	0.15
JUNE	5.25	0.18
JULY	4.91	0.16
AUGUST	5.42	0.18
SEPTEMBER	4.87	0.16
OCTOBER	4.5	0.15
NOVEMBER	4.41	0.15
DECEMBER	4.49	0.14
Annual Total	66.68	0.183

2025		
	Total (MG)	AVERAGE (MG)
JANUARY	4.9	0.16
FEBRUARY	4.5	0.17
MARCH	6.19	0.2
APRIL	6.84	0.23
MAY	6.76	0.22
JUNE	6.84	0.23
JULY	6.82	0.22
AUGUST	5.42	0.17
SEPTEMBER	4.78	0.16
OCTOBER	3.68	0.12
NOVEMBER	3.12	0.22
DECEMBER	3	0.1
Annual Total	62.85	0.183

2026		
	Total (MG)	AVERAGE (MG)
JANUARY	2.99	0.1
FEBRUARY		
MARCH		
APRIL		
MAY		
JUNE		
JULY		
AUGUST		
SEPTEMBER		
OCTOBER		
NOVEMBER		
DECEMBER		
Annual Total	2.99	0.100

CHARLES TOWN UTILITY BOARD
WATER TREATMENT PLANT FLOW DATA

HISTORICAL CHARLES TOWN WATER PLANT FLOW DATA						
YEAR	Total Design (MGD)	TOTAL ANNUAL FLOW (MG)	AVERAGE DAILY (MGD)	Total Design minus Average Daily (MGD)	Total Available (gpd)	Total Available (EDU's)
2019	2.8	644.32	1.77	1.03	1,034,980	4,928
2020	2.8	615.64	1.68	1.12	1,117,946	5,324
2021	2.8	601.87	1.64	1.16	1,164,627	5,546
2022	2.8	588.97	1.60	1.20	1,204,163	5,734
2023	2.8	602.24	1.63	1.17	1,168,256	5,563
2024	2.8	579.85	1.57	1.23	1,228,525	5,850
2025	2.8	602.15	1.65	1.15	1,154,057	5,496
2026	2.8	47.83	1.54	1.26	1,257,146	5,986

HISTORICAL GLEN HAVEN WATER PLANT FLOW DATA						
YEAR	Total Design (MGD)	TOTAL ANNUAL FLOW (MG)	AVERAGE DAILY (MGD)	Total Design minus Average Daily (MGD)	Total Available (gpd)	
2020	0.0216	1.04	0.01	0.01	13,120	
2021	0.0216	3.06	0.01	0.01	13,213	-
2022	0.0216	2.70	0.01	0.01	14,335	-
2023	0.0216	2.99	0.01	0.01	13,573	-
2024	0.0216	2.68	0.01	0.01	14,441	-
2025	0.0216	2.90	0.01	0.01	13,678	-
2026	0.0216	0.22	0.01	0.01	14,413	-

HISTORICAL CAVALAND WATER PLANT FLOW DATA						
YEAR	Total Design (MGD)	TOTAL ANNUAL FLOW (MG)	AVERAGE DAILY (MGD)	Total Design minus Average Daily (MGD)	Total Available (gpd)	
2020	0.036	0.59	0.005	0.03	31,210	
2021	0.036	1.91	0.01	0.03	30,766	
2022	0.036	1.84	0.005	0.03	31,041	
2023	0.036	1.79	0.005	0.03	31,186	
2024	0.036	1.86	0.01	0.03	30,967	
2025	0.036	1.75	0.00	0.03	31,209	
2026	0.036	0.14	0.00	0.03	31,394	

Legend:
MGD= Million gallons per day
MG=million gallons
gpd= gallons per day
EDU= Equivalent Dwelling Unit (280 gpd)

WATER TREATMENT PLANT FLOW DATA (TOTAL MONTHLY AND AVERAGE DAILY IN MILLION GALLONS)

2023		
	TOTAL MONTHLY (MG)	AVERAGE DAILY (MG)
JANUARY	50,324,969	1,623,386
FEBRUARY	44,512,256	1,589,723
MARCH	51,243,776	1,653,025
APRIL	49,507,092	1,597,003
MAY	51,882,496	1,673,629
JUNE	51,245,216	1,653,071
JULY	53,546,017	1,727,291
AUGUST	53,866,467	1,737,628
SEPTEMBER	51,067,174	1,647,328
OCTOBER	49,781,275	1,605,848
NOVEMBER	47,073,432	1,518,498
DECEMBER	48,189,312	1,554,494
Annual Total	602,239,482	1,631,744

2024		
	TOTAL MONTHLY (MG)	AVERAGE DAILY (MG)
JANUARY	48,027,207	1,549,265
FEBRUARY	44,217,320	1,579,190
MARCH	46,432,344	1,497,818
APRIL	44,552,042	1,437,163
MAY	46,432,344	1,497,818
JUNE	52,695,168	1,699,844
JULY	55,816,216	1,800,523
AUGUST	51,158,016	1,650,259
SEPTEMBER	48,673,792	1,570,122
OCTOBER	48,580,272	1,567,106
NOVEMBER	46,786,184	1,509,232
DECEMBER	46,480,137	1,499,359
Annual Total	579,851,042	1,571,475

2025		
	TOTAL MONTHLY (MG)	AVERAGE DAILY (MG)
JANUARY	49,081,856	1,583,286
FEBRUARY	45,138,739	1,612,098
MARCH	48,289,664	1,557,731
APRIL	48,088,035	1,551,227
MAY	50,221,867	1,620,060
JUNE	49,541,120	1,651,371
JULY	53,797,378	1,735,399
AUGUST	51,914,776	1,674,670
SEPTEMBER	50,267,112	1,675,570
OCTOBER	48,798,720	1,574,152
NOVEMBER	59,302,560	1,976,752
DECEMBER	47,709,152	1,539,005
Annual Total	602,150,979	1,645,943

2026		
	TOTAL MONTHLY (MG)	AVERAGE DAILY (MG)
JANUARY	47,828,478	1,542,854
FEBRUARY		
MARCH		
APRIL		
MAY		
JUNE		
JULY		
AUGUST		
SEPTEMBER		
OCTOBER		
NOVEMBER		
DECEMBER		
Annual Total	47,828,478	1,542,854

2023		
	TOTAL MONTHLY (MG)	AVERAGE DAILY (MG)
JANUARY	233,300	7,526
FEBRUARY	184,300	5,945
MARCH	218,200	7,039
APRIL	234,800	7,574
MAY	264,800	8,542
JUNE	268,900	8,674
JULY	325,100	10,487
AUGUST	281,300	9,074
SEPTEMBER	265,600	8,568
OCTOBER	233,900	7,545
NOVEMBER	242,500	7,823
DECEMBER	233,500	7,532
Annual Total	2,986,200	8,027

2024		
	TOTAL MONTHLY (MG)	AVERAGE DAILY (MG)
JANUARY	234,900	7,577
FEBRUARY	182,100	5,874
MARCH	206,200	6,250
APRIL	224,200	7,232
MAY	210,000	6,774
JUNE	257,889	8,319
JULY	306,700	9,894
AUGUST	217,900	7,029
SEPTEMBER	203,900	6,577
OCTOBER	215,000	6,935
NOVEMBER	211,300	6,816
DECEMBER	205,400	6,626
Annual Total	2,675,489	7,159

2025		
	TOTAL MONTHLY (MG)	AVERAGE DAILY (MG)
JANUARY	229,800	7,413
FEBRUARY	191,300	6,832
MARCH	213,100	6,874
APRIL	248,300	8,010
MAY	275,900	8,900
JUNE	281,500	9,383
JULY	298,800	9,639
AUGUST	288,599	9,310
SEPTEMBER	237,500	7,917
OCTOBER	234,900	7,577
NOVEMBER	201,800	6,727
DECEMBER	200,900	6,481
Annual Total	2,902,399	7,922

2026		
	TOTAL MONTHLY (MG)	AVERAGE DAILY (MG)
JANUARY	222,800	7,187
FEBRUARY		
MARCH		
APRIL		
MAY		
JUNE		
JULY		
AUGUST		
SEPTEMBER		
OCTOBER		
NOVEMBER		
DECEMBER		
Annual Total	222,800	7,187

2023		
	Total (MG)	AVERAGE DAILY (MG)
JANUARY	134,900	4,352
FEBRUARY	122,700	3,958
MARCH	140,000	4,516
APRIL	143,100	4,616
MAY	153,400	4,948
JUNE	166,200	5,361
JULY	166,400	5,368
AUGUST	170,400	5,497
SEPTEMBER	163,600	5,277
OCTOBER	140,600	4,535
NOVEMBER	143,200	4,619
DECEMBER	146,400	4,723
Annual Total	1,790,900	4,814

2024		
	Total (MG)	AVERAGE DAILY (MG)
JANUARY	155,600	5,019
FEBRUARY	135,000	4,821
MARCH	148,800	4,750
APRIL	155,700	5,023
MAY	153,600	4,955
JUNE	164,300	5,300
JULY	178,100	5,745
AUGUST	177,200	5,716
SEPTEMBER	151,800	4,897
OCTOBER	144,000	4,645
NOVEMBER	134,900	4,352
DECEMBER	160,300	5,171
Annual Total	1,859,300	5,033

2025		
	Total (MG)	AVERAGE DAILY (MG)
JANUARY	137,900	4,448
FEBRUARY	125,700	4,489
MARCH	133,100	4,294
APRIL	135,700	4,377
MAY	169,600	5,471
JUNE	140,600	4,687
JULY	148,600	4,794
AUGUST	149,100	4,810
SEPTEMBER	175,900	5,863
OCTOBER	162,500	5,242
NOVEMBER	139,700	4,657
DECEMBER	135,300	4,365
Annual Total	1,753,700	4,791

2026		
	Total (MG)	AVERAGE DAILY (MG)
JANUARY	142,800	4,606
FEBRUARY		
MARCH		
APRIL		
MAY		
JUNE		
JULY		
AUGUST		
SEPTEMBER		
OCTOBER		
NOVEMBER		
DECEMBER		
Annual Total	142,800	4,606

Charles Town Utility Board
2022 Collection System Project
City of Charles Town, Jefferson County, West Virginia
Progress Meeting #11
Thursday, January 29, 2026 @ 10:00 AM

Meeting Minutes

Prepared by: Gwin, Dobson & Foreman, Inc.
David Santelli, Project Manager
Issued: 2/2/2026

1. Review Minutes of Previous Meeting & Attendance

- All attendees confirmed receipt of the Progress Meeting #10 minutes (issued December 22, 2025) and approved the minutes as written.
- Attendance sheet is attached.

2. Review of Work Progress since Previous Meeting

- Lakeland wet-well is installed and ¾ backfilled.
- MHs APS-12 and 12B installed.
- Burr East PS wet-well demo.
- Burr East doghouse MH set and bypass installed.
- Jefferson Park flushing MHs installed. Ready for tie-in. HRI to coordinate with CTUB for shut down.
- Evitt's Run doghouse MH and bypass installed.
- Installed MH 11.

3. Planned Work

- Continue Evitt's Run/Bob's car lot work - FM conflicts with 30". ART will be grouting and lining. Should be completed next week.
- Continue work on gravity on 11th St. HRI will be open cutting the misaligned section.
- Tie in Jefferson Park FM
- Burr East electrical subcontractor to start by next week.

4. Field Observations, Problems, Conflicts & Coordination:

- HRI reported they had to shut down 1 day for weather, and 1 day for cleanup (snow removal).
- HRI reported having issues with pumps freezing, but was able to correct the issues.
- Lakeland power risers and electrical coordination, GDF Electrical (Luke P.) coordinating with Potomac Energy to resolve power riser configuration and requirements.
- GD&F processing change orders:
    - Waiting on DEP approval of CO No. 3 for Boring Augustine Ave. *(Contract addition of $195,786.50, but will ultimately be a credit of $36,183.50).* Thomas requested additional information for deleting the Jetts farm residential/Kevin Wilt scope of work. He also requested changing the totals to reflect CO No. 1&2.
    - Bobbys Car Lot Power- PCO-10 **A** *($14,003.58)*, **B** *($9,911.00)*, **C** *($13,589.00).*
    - Burr East Wetwell Top Section- PCO-11 *($6,485.16)*

- HRI Time Extension *(22 day)*

GD&F would like to combine these two into one change order (CO No. 4) and Thomas confirmed that this will be acceptable.

- There has been 18 total RFIs for the project 0 outstanding.

5. Status of Construction Schedule & Contract Times

- Pending contract time extension (22-day extension).
- HRI reported that they should be on track if the extension is approved.
  - Contract Status: 407 of 578 days have elapsed.
  - Substantial Completion Date: June 18, 2026 (18 months)
  - Final Completion Date: July 18, 2026 (19 months)

6. Review of Submittals & Material Deliveries

- There have been 52 submittals, with 0 outstanding.
- Deliveries since last meeting:
  - Burr electrical panels have been delivered.
  - Burr flow meter has been delivered.
- Upcoming deliveries:
  - Jetts electrical panels are still on track to be delivered in March.
  - Last of the 4" plug valves to be delivered next week.
  - Lakeland, Moose, and Jetts flow meters to be delivered next week.

7. Maintenance of Quality and Work Standards

Both CTUB and Don commented that they were impressed with the quality of work HRI produced with the doghouse manhole work and the forcemain conflict resolution.

8. Application for Payment

- Pay App. 10 for the work completed in Dec. was reviewed and turned over to CTUB for processing on 1/6/2026. CTUB approved this in their first board meeting in January.
- Pay App. 11 will be sent to GD&F next week for review.

9. Testing

- Wetwell backfill compaction testing was completed by Specialized. HRI to send results.
- Testing was performed at Samual St. and Don reported that it passed.

Charles Town Utility Board
2022 Collection System Project
City of Charles Town, Jefferson County, West Virginia
Progress Meeting #11
Thursday, January 29, 2026 @ 10:00 AM

10. Other Pertinent Business

- HRI to include DBE quarterly report with upcoming pay app.
- Everything at Jefferson Park has been tested and passed with the exception of 22'. The last 22' will be visually inspected when completed.
- DEP completed an E&S inspection and had some issues that HRI was able to resolve. All inspections are up to date with no issues remaining unresolved.
- HRI reported that a homeowner on Morrison St. asked about needing to add a sidewalk, and moving a section of fence that HRI had to remove. We informed HRI that they are only required to restore the property to found condition.
- A WM dumpster was dropped off at Bobby's car lot and needed to be removed. This was not ordered by HRI, CTUB, nor the car lot. CTUB to reach out to WM to request removal.

DEP:

- Drawdown schedule will need updated.
- Thomas reported being behind due to high turnover at DEP but plans to resume monthly site visits.

11. Future Meeting

- Next progress meeting will be Thursday, February 26, 2026 at 10:00 AM at CTUB Office with Zoom option.

Respectfully submitted,
GWIN DOBSON & FOREMAN, INC.

David Santelli 2/2/2026

David Santelli — Date
Project Manager

Attendance Sheet
2022 Collection System Project
Charles Town Utility Board
City of Charles Town, Jefferson County, West Virginia

Meeting: 11
Date: 1-29-2026

	NAME/TITLE	REPRESENTING	PHONE	EMAIL
1.	David Santelli PM	GD&F	412.289.6875	dsantelli@gdfengineers.com
2.	Rob Kerr PE	HRI	(814) 400-2490	rKerr@hriinc.com
3.	Bill Sarraf	HRI	582-322-1751	wsarraf@hriinc.com
4.	Ed Barker	HRI	814-424-7171	ebarker@hriinc.com
5.	Kristen Stolipher	CTUB	304-724-7080	KStolipher@CTUBWV.COM
6.	Collin Cole	CTUB	304 995-6777	CCole@CTUBWV.COM
7.	Dan Peglow	GD&F	814.600.8432	dpeglow@gdfengineers.com
8.	Travis Markley	CTUB	304-671-1245	tmarkley@CTUBWV.COM
9.				
10.				
11.	Virtual			
12.	Thomas	DEP		
13.	Bill Weisenburg	HRI		
14.				
15.				
16.				
17.				

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting

661 South George Street
Charles Town, WV 25414

Chairman Report

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting

661 South George Street
Charles Town, WV 25414

February 11, 2026

CHARLES TOWN UTILITY BOARD

Wednesday, February 11, 2026

Regular Meeting

661 South George Street
Charles Town, WV 25414

Next Meeting - February 25, 2026 at 4:00 P.M.