City of Unalaska

UNALASKA CITY COUNCIL

P. O. Box 610 ▪ Unalaska, Alaska 99685
(907) 581-1251 ▪ www.ci.unalaska.ak.us

Regular Meeting
Tuesday, March 12, 2019
6:00 p.m.

Unalaska City Hall
Council Chambers
43 Raven Way

Frank Kelty, Mayor

Council Members
James Fitch
Roger Rowland
David Gregory

Council Members
Dennis Robinson
Alejandro Tungul
Shari Coleman

AGENDA

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1. Call to order
2. Roll call
3. Pledge of allegiance
4. Recognition of visitors
5. Adoption of agenda
6. Approve minutes of previous meeting, February 12, 2019
7. Reports
    a. City Manager
    b. Committee / Commission: Planning Commission Minutes from September 20, 2018 (information only)
8. Community Input / Announcements
9. Public testimony on agenda items
10. Work session
    a. Presentation and discussion of the initial findings regarding the Public Safety Building Assessment by Jensen Yorba Lott
    b. Presentation of the proposed Capital and Major Maintenance Plan FY2020-2024 by Planning Director Bil Homka
    c. Presentation of the proposed FY20 Rolling Stock Replacement Summary by DPW Director Tom Cohenour
    d. Presentation and discussion of the Iliuliuk Family Health Services Operational Assessment 2010-2018 and emergency funding request by Bil Homka, Vice President of the Clinic Board Executive Committee
11. Regular agenda
    a. New Business
        i. Ordinance 2019-02: First Reading, Creating Budget Amendment no. 5 to the Fiscal Year 2019 Budget, increasing the operating budget of the Water Fund by $255,784 to fund the addition of two full time Water Operator 1 positions
        ii. Ordinance 2019-03: First Reading, Amending Chapters 6.40 and 6.44 to require certain out of town retailers to collect and remit sales tax including certain retailers who make sales over the internet and to make corporate officers responsible for underpayment or nonpayment of raw seafood sales tax
        iii. Resolution 2019-10: Authorizing foreclosure proceedings for delinquent property taxes for tax years 2014-2018
        iv. Resolution 2019-11: Authorizing the City Manager to enter into an agreement with the Airport Restaurant and Lounge, LLC for a sublease at the Tom Madsen Airport Terminal
        v. Resolution 2019-12: Authorizing the City Manager to enter into an agreement with Rentricity to perform the Phase II Scoping, 15% design, and equipment manufacturer selection for the Pyramid Micro Turbines Project WA17C in the amount of $50,000
        vi. Resolution 2019-13: Confirming the Mayor's appointments to the Parks, Culture and Recreation Committee and to the Planning Commission and the Historic Preservation Commission
        vii. Approve Mayor and Council Travel to NPFMC, April 1-9, 2019 in Anchorage
12. Council Directives to City Manager
13. Community Input / Announcements
14. Adjournment

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Shari Coleman

MINUTES

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1. Call to order
   Vice Mayor Robinson called the Regular Meeting of the Unalaska City Council to order at 6:01pm, on February 12, 2019, in the Unalaska City Hall council chambers.

2. Roll call
   Present:
   Shari Coleman
   James Fitch (Telephonic)
   David Gregory
   Frank Kelty, Mayor (Telephonic)
   Dennis Robinson, Vice Mayor
   Roger Rowland
   Alejandro Tungul

3. Pledge of allegiance: Unalaska Girl Scout Troop 381 led the Pledge of Allegiance
4. Recognition of visitors
   - David Lundin with HDL Engineering Consultants, presenting Captains Bay Road Project
   - Brian Meissner and Karen Zaccaro with ECI Alaska Architecture presenting Library Project
   - Bill Shaishnikoff and Keith Pedwell
   - Jim Wilson and Tammy Pound
   - M. Lynn Crane – Library Advisory Committee
   - Billie Jo Gehring – Planning Commission
   - Thomas Roufos – PCR Committee

5. Adoption of agenda
   No changes to the agenda, adopted by consensus

6. Awards
   a. City of Unalaska, Community Extra Mile Award: Tammy Pound
   b. Unalaska City School District, Recognition of Service: Tammy Pound

7. Approve minutes of previous meeting, January 22, 2019
   Rowland made a motion to approve the January 22, 2019, Tungul seconded
   Motion passed by consensus

8. Reports
   a. Vice Mayor Robinson, report on the North Pacific Fisheries Management Council Meeting
   b. City Manager gave his report
   c. Committee and Commission 2018 Annual Reports
      i. Library Advisory Committee, presented by M. Lynn Crane
      ii. Parks, Culture and Recreation Committee, presented by Thomas Roufos
      iii. Planning Commission and Platting Board, presented by Billie Jo Gehring
      iv. Historic Preservation Commission, presented by Billie Jo Gehring

9. Community Input and Announcements
   a. M. Lynn Crane – USAFV's Soup-off will be on March 30, 2019
   b. City Clerk Marjie Veeder – No Council Meeting on February 26th due to lack of a quorum, next scheduled meeting is March 12th
   c. Peggy McLaughlin – new UMC dock has been open for 26 days, 22 different vessel calls
   d. Roger Blakeley – Girls Day Out on Saturday, February 16th Aquatic Center; Father-Daughter dance had 75 attendees
   e. Ice Cream Social on February 17, 2019
   f. Frank Kelty – shout out to Unalaska Raiders boys and girls and Mr. Wilson for making the travel arrangements
   g. Museum of the Aleutians – February 14th Choc-O-Lot event, March 1st Community Art Show
   h. Bill Shaishnikoff and Keith Pedwell made a presentation regarding private Wind Turbine Project

10. Public testimony on agenda items - none

11. Work session
    Tungul made a motion to enter into a Work Session; Rowland seconded
    Motion passed by consensus

    a. Captains Bay Road Project Update, by HDL Engineering
    b. Library Expansion Project Update, by ECI Architects
    c. Sitka Spruce Park Project Update, by Roger Blakeley and Nick Cron of PCR
    d. School District Playground Project Update, by Roger Blakeley and Nick Cron of PCR

12. Regular agenda
    Rowland made a motion to reconvene to Regular Session; Tungul seconded
    Motion passed by consensus

    a. Review of liquor license renewal application from Airport Restaurant & Lounge
    b. Resolution 2019-04: Approving Council's Goals for the Fiscal Year 2020 Budget

       Coleman made a motion to adopt Resolution 2019-04, Rowland seconded
       Roll Call Vote: Coleman – yes; Rowland – yes; Robinson – yes; Tungul – yes; Gregory – yes; Fitch – yes
       Motion passed 6-0

    c. Resolution 2019-05: Supporting full funding from the State of Alaska for the Harbor Facility Grant Program in the FY20 State Capital Budget

       Rowland made a motion to adopt Resolution 2019-05; Coleman seconded
       Roll Call Vote: Rowland – yes; Robinson – yes; Tungul – yes; Gregory – yes; Fitch – yes; Coleman – yes
       Motion passed 6-0

    d. Resolution 2019-06: Identifying the City of Unalaska's State Priorities for Fiscal Year 2020

       Rowland made a motion to adopt Resolution 2019-06; Tungul seconded
       Roll Call Vote: Robinson – yes; Tungul – yes; Gregory – yes; Fitch – yes; Coleman – yes; Rowland – yes
       Motion passed 6-0

    e. Resolution 2019-07: Confirming the Mayor's appointments to the Parks, Culture and Recreation Committee and the Library Advisory Committee

       Rowland made a motion to adopt Resolution 2019-07; Tungul seconded
       Roll Call Vote: Tungul – yes; Gregory – yes; Fitch – yes; Coleman – yes; Rowland – yes; Robinson – yes
       Motion passed 6-0

    f. Resolution 2019-08: Authorizing the City Manager to enter into an agreement with the Financial Engineering Company for professional services to analyze the Unalaska Marine Center Tariff and Contract Rates, in an amount not to exceed $22,090

       Rowland made a motion to adopt Resolution 2019-08; Coleman seconded
       Roll Call Vote: Gregory – yes; Fitch – yes; Coleman – yes; Rowland – yes; Robinson – yes; Tungul – yes
       Motion passed 6-0

    g. Resolution 2019-09: Authorizing a donation from the Council's operating budget in the amount of $_____ to the United States Coast Guard Chief Petty Officers Foundation to be used for the benefit of the U.S. Coast Guard Marine Safety Detachment in Unalaska

       Coleman made a motion to adopt Resolution 2019-09; Rowland seconded

       Rowland made a motion to amend Resolution 2019-09 to insert the amount of $10,000; Tungul seconded

       Roll Call Vote to amend: Coleman – yes; Rowland – yes; Robinson – yes; Tungul – yes; Gregory – yes; Fitch – yes
       Amendment motion passed 6-0

       Roll Call Vote on main motion as amended: Fitch – yes; Coleman – yes; Rowland – yes; Robinson – yes; Tungul – yes; Gregory – yes

       Motion passed 6-0

13. Council Directives to City Manager – None
14. Community Input / Announcements
    - Coleman – Acknowledged and thanked Finance director Clay Darnell and Deputy Chief Jennifer Shockley for their knowledge, integrity, candor and wished them the best in their next endeavors.
    - Robinson – Wanted to echo what Coleman said
15. Adjournment

    Meeting adjourned at 9:23pm

____
Marjie Veeder
City Clerk

TO: Mayor and Council
FROM: Thomas Thomas, City Manager
SUBJECT: City Manager's Report
DATE: March 12, 2019

Public Utilities

The Department of Public Utilities has hired a Solid Waste Supervisor and a Wastewater Supervisor.

Jayme Steigerwalt, the Solid Waste Supervisor, will begin his duties on March 18th. Mr. Steigerwalt is from Pennsylvania and has many years of experience in solid waste facilities and extensive training through the Solid Waste Association of North America.

The Wastewater Supervisor, Mark Descoteaux, is from Maine. He has more than 20 years of wastewater treatment experience, operating a number of different types of wastewater treatment plants, with 6 years in superintendent roles. The Alaska Department of Environmental Conservation will provide reciprocity for his out of state wastewater treatment certification up to Level 2, and he has the experience and education to take the exam for Level 3. Mr. Descoteaux's employment will begin on April 1.

Library

ECI's next visit to the island was planned for March 6-8 but was rescheduled due to high winds and subsequent flight cancellations. The next visit will now be April 1-2 and will include a public meeting on April 1 at 6:00 pm focusing on roof forms and site layout. The public and City Council are encouraged to attend this meeting, especially those who have been curious about the roof and building exterior. The public meeting will include some 3D models for the public to review.

The City's project team currently has phone check-in meetings with the architects every other week. The architects also met remotely with library staff on March 7. During that staff meeting, the group discussed furniture and shelving, which will lead us into the discussion of where different library collections will be located.

In March, Engineer Tom Regan will transition onto the project team in anticipation of the departure of City Engineer Robert Lund from city employment in April.

We have just started a "Book Bingo" winter reading program at the library. Readers aged teen to adult can earn prizes by reading books in different categories to make a line on their bingo card. Bingo cards are available at the library's front desk.

PCR

On March 17 the Aquatic Center will host a St. Paddy's Day Dive. Check in for the Race is at 11 and race starts at 12. It is a 500 yard free swim. Soda Pop plop is for all kids who cannot race. All proceeds go to APIA's new Intensive Outpatient Program.

CITY OF UNALASKA, ALASKA
PLANNING COMMISSION & PLATTING BOARD
REGULAR MEETING
THURSDAY, SEPTEMBER 20, 2018, 6:00 P.M.
UNALASKA CITY HALL
MINUTES

CALL TO ORDER: Acting Chair Swangel called the meeting to order at 6:00 p.m.

ROLL CALL

Commissioners Physically Present	Commissioners Absent
Travis Swangel	Billie Jo Gehring - Excused
Thomas Bell	
Vicki Williams	
Helen Brown	

Staff Present
Bil Homka, Planning Director
Thomas Roufos, Associate Planner
Judy Huling, Administrative Assistant

REVISIONS TO THE AGENDA:
None

ANNOUNCEMENTS:
Mr. Roufos announced that DPS is updating their computer dispatch system. He has been working there for the last week and a half, providing maps and technical support for them.

Commissioner Williams suggested that DPS purchase her cell phone number or better advertise their 581-1233 number. She continually gets calls for DPS on her cell.

Planning Determination – Daniel Loy: Mr. Roufos explained that in order to fit a container on a pad behind his house, Planning made the determination that based on the way his house is sitting on the lot, his rear yard is actually the southern section of the lot.

Mr. Homka explained that Planning Determinations were a way to put interpretations of the planning code into writing for future use. Planning puts them forth to the commission so they are aware of what is going on.

Planning Determination - Bruce Barton: Mr. Roufos explained that because of the large difference in height between his ground level and his neighbor's ground level, Planning waived the side yard requirements for his lot.

Commissioner Travis asked if in the future the City would allow lots like this to be created, where special passes would be required.

Mr. Roufos replied that this was a fairly unique lot. He did not think it would be allowed to be created at this time. It was subdivided in 2005.

There was discussion over this and the concern was raised as to whether this would set a precedent for properties including cliffs being allowed to receive waivers for setbacks. Mr. Roufos explained that this would be considered on a case by case basis. Saying yes to this parcel does not mean we couldn't say no next time. It would depend on the situation.

Mr. Roufos announced that the Alaska Chapter of the American Planning Association is having its annual meeting in January. Commissioners Brown and Bell have been invited to go to attend the Planning Conference and New Commissioner training. Mr. Homka and Mr. Roufos will be attending as well.

MINUTES:
Commissioner Bell made a motion to accept the Planning Commission and Platting Board minutes of July 23, 2018 and August 16, 2018. Commissioner Brown seconded. Motion passed

PUBLIC HEARING
None

OLD BUSINESS
None

NEW BUSINESS
None

WORKSESSION
Update: Mr. Homka stated that Planning had contracted with PND to make the wetlands determination. They have come out to examine the property, but we have not yet received the report.

Mr. Roufos explained that the decision we received from the Property lawyer had stated that the original meander lines on the property had been noted on each subsequent plat. Acting Chair Swangel stated that his understanding was that this determination was not even something that the Commission should be concerned about because the lawyer had stated it was a property owner concern.

ADJOURNMENT: Commissioner Bell made a motion for adjournment. Acting Chair Swangel seconded. Meeting adjourned at 6:40 pm.

PASSED AND APPROVED THIS THURS DAY OF Sept, 20, 2018 BY THE CITY OF UNALASKA PLANNING COMMISSION.

Billie Jo Gehring
Commission Chair

2/7/19
Date

Bil Homka
Bil Homka, AICP
Secretary of the Commission

2-7-19
Date

Prepared by Judith Huling, Administrative Assistant

City of Unalaska
Capital and Major Maintenance Plan
FY2020 - FY2024
Estimated Project and Purchase Timelines
(excluding new vehicle purchases & replacements)

🟦 *Pre-Design*
🟩 *Engineering / Design*
🟥 *Construction / Purchase*

Regardless of when a project might be funded, many remain active in other fiscal years. The purpose of this table is to provide an overview of the estimated project timelines identified in the nominations for the current CMMP and to display the allocation of valuable staffing resources. Projects identified in previous CMMP's that are not in need of additional funding in the current CMMP are not included below.

Fund or Department	Project	FY 20 Request	Total Project Cost	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Public Works - Fac Maint	Burma Road Chapel Roof Ventilation Upgrades	$10,000	$559,000	🟦🟦🟦🟦	🟩🟩🟩🟩	🟥🟥🟥🟥		
General Fund, Electric, Water & WW	Captain's Bay Road and Utilities	$750,000	$59,000,000	🟩🟩🟩🟩		🟥🟥🟥🟥		
Public Works	Causeway Culvert Replacement	$699,500	$799,500	🟩🟩🟩🟩		🟥🟥🟥🟥		
Public Works	City Wide Drainage Project -Trapper Drive	$366,793	$533,000	🟥🟥🟥🟥				
Public Works	DPW Equipment Storage Bldg.	$0	$1,545,830		🟦🟦🟦🟦	🟩🟩🟩🟩	🟥🟥🟥🟥	
Parks, Culture & Recreation	Aquatics Center Mezzanine and Office Space Expansion	$100,000	$520,000	🟩🟩🟩🟩	🟥🟥🟥🟥			
Parks, Culture & Recreation	Gymnasium Floor	$0	$221,000		🟩🟩🟩🟩	🟥🟥🟥🟥		
Parks, Culture & Recreation	Sitka Spruce Park Improvements	$808,185	$878,185	🟥🟥🟥🟥				
Parks, Culture & Recreation	Tennis Court Improvements/Multi-Purpose Facility	$0	$5,629,000			🟩🟩🟩🟩	🟥🟥🟥🟥	
Parks, Culture & Recreation	UCSD Playground Renovations	$1,326,485	$1,326,485	🟥🟥🟥🟥				
Parks, Culture & Recreation	Unalaska Public Library Improvements	$5,000,000	$5,400,000	🟩🟩🟥🟥	🟥🟥🟥🟥			
Fire Department	ALS Manikin	$143,000	$143,000	🟦🟩🟥🟥				
Fire Department	Fire Training Facility	$2,192,078	$3,857,738	🟩🟩🟩🟩	🟥🟥🟥🟥			
Fire Department	SCBA Replacement	$348,400	$348,400	🟦🟩🟥🟥				
Fire Department	Aerial Ladder Replacement	$0	$1,690,000			🟦🟩🟥🟥		
Public Safety	Radio System Upgrade	$509,000	$819,000	🟥🟥🟥🟥				
Public Safety	Tsunami Siren Upgrade	$261,879	$261,879	🟦🟩🟥🟥				
Planning	Henry Swanson House	$119,340	$119,340	🟦🟩🟥🟥				
Electric - Production	Generator Sets Rebuild	$1,714,056	$8,920,019	🟥🟥🟥🟥	🟥🟥🟥🟥	🟥🟥🟥🟥	🟥🟥🟥🟥	🟥🟥🟥🟥
Electric - Production	Flywheel Energy Storage System	$2,346,560	$2,425,310	🟥🟥🟥🟥				
Electric - Production	4th ORC	$0	$600,600		🟩🟩🟥🟥			
Electric - Production	Powerhouse Cooling Water Inlet Cleaning and Extension	$40,000	$412,662	🟦🟦🟩🟩	🟥🟥🟥🟥			
Electric - Distribution	34.5kV Submarine Cable Replacement	$0	$2,340,000		🟦🟦🟦🟦	🟩🟩🟩🟩	🟥🟥🟥🟥	
Electric - Distribution	Automatic Meter Read System	$404,220	$523,582	🟥🟥🟥🟥				
Water	Generals Hill Water Booster Pump	$844,400	$1,066,000	🟥🟥🟥🟥				
Water	Pyramid Water Treatment Plant MicroTurbines	$1,588,975	$1,638,975	🟥🟥🟥🟥				
Water	CT Tank Interior Maintenance & Painting	$100,000	$1,053,000	🟦🟦🟩🟩	🟥🟥🟥🟥			
Water	Pyramid Water Storage Tank	$0	$9,134,943			🟦🟦🟩🟩	🟥🟥🟥🟥	
Water	Water Dept. SCBA Replacement	$62,400	$62,400	🟥🟥🟥🟥				
Solid Waste	Reinsulation of Baler Building	$60,000	$877,500	🟦🟦🟩🟩	🟥🟥🟥🟥			
Solid Waste	Solid Waste Scale Upgrade	$65,000	$65,000	🟦🟩🟥🟥				
Solid Waste	Oil Separator and Lift Station Replacement	$971,100	$971,100	🟦🟩🟥🟥				
Solid Waste	Composting Project	$616,500	$721,500	🟥🟥🟥🟥				
General Fund	Entrance Channel Dredging	$1,000,000	$6,500,000	🟩🟩🟩🟩		🟥🟥🟥🟥		
Ports & Harbors	LCD and UMC Dredging	$0	$2,654,145				🟩🟩🟥🟥	
Ports & Harbors	Robert Storrs Small Boat Harbor Improvements (A & B Float)	$600,000	$10,630,000	🟩🟩🟩🟩	🟥🟥🟥🟥			
Ports & Harbors	UMC Cruise Ship Terminal Design	$390,000	$1,170,000	🟦🟦🟦🟦	🟩🟩🟥🟥			
Ports & Harbors	Emergency Mooring Bouy Maintenance	TBD	TBD	🟦🟩🟥🟥				
Ports & Harbors	Rescue Vessel Engine Upgrades	$65,650	$65,650	🟦🟩🟥🟥				
Ports & Harbors	Port Rescue Boat Replacement	$0	$520,000				🟦🟦🟩🟩	🟥🟥🟥🟥
Ports & Harbors	UMC Restroom	TBD	TBD			🟦🟩🟥🟥		
Housing	4-Plex Roof Replacement	$10,000	$500,500	🟦🟦🟦🟦	🟩🟩🟩🟩	🟥🟥🟥🟥		
Highlight of Summary of Project and Funding Sources	**Total Requested Funds for FY19-FY23 CMMP**	**$23,513,521**	**$136,504,243**	**$23,513,521**	**$16,961,160**	**$67,640,055**	**$20,916,588**	**$2,305,350**

City of Unalaska
Capital and Major Maintenance Plan
FY2020 - FY2024
Estimated Project and Purchase Timelines
(excluding new vehicle purchases & replacements)

🟦 *Pre-Design*
🟩 *Engineering / Design*
🟥 *Construction / Purchase*

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Public Works - Fac Maint	Burma Road Chapel Roof Ventilation Upgrades	$10,000	$559,000	🟦🟦🟦🟦	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
General Fund, Electric, Water & WW	Captain's Bay Road and Utilities	$750,000	$59,000,000	🟩🟩🟩🟩	⬜⬜⬜⬜	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Public Works	Causeway Culvert Replacement	$699,500	$799,500	🟩🟩🟩🟩	⬜⬜⬜⬜	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Public Works	City Wide Drainage Project -Trapper Drive	$366,793	$533,000	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Parks, Culture & Recreation	Aquatics Center Mezzanine and Office Space Expansion	$100,000	$520,000	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Parks, Culture & Recreation	Sitka Spruce Park Improvements	$808,185	$878,185	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Parks, Culture & Recreation	UCSD Playground Renovations	$1,326,485	$1,326,485	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Parks, Culture & Recreation	Unalaska Public Library Improvements	$5,000,000	$5,400,000	🟩🟩🟥🟥	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Fire Department	Fire Training Facility	$2,192,078	$3,857,738	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Fire Department	ALS Manikin	$143,000	$143,000	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Fire Department	SCBA Replacement	$348,400	$348,400	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Public Safety	Radio System Upgrade	$509,000	$819,000	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Public Safety	Tsunami Siren Upgrade	$261,879	$261,879	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Planning	Henry Swanson House	$119,340	$119,340	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Electric - Production	Generator Sets Rebuild	$1,714,056	$8,920,019	🟥🟥🟥🟥	🟥🟥🟥🟥	🟥🟥🟥🟥	🟥🟥🟥🟥	🟥🟥🟥🟥
Electric - Production	Flywheel Energy Storage System	$2,346,560	$2,425,310	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Electric - Production	Powerhouse Cooling Water Inlet Cleaning and Extension	$40,000	$412,662	🟦🟦🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Electric - Distribution	Automatic Meter Read System	$404,220	$523,582	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Water	Generals Hill Water Booster Pump	$844,400	$1,066,000	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Water	Pyramid Water Treatment Plant MicroTurbines	$1,588,975	$1,638,975	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Water	CT Tank Interior Maintenance & Painting	$100,000	$1,053,000	🟦🟦🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Water	Water Dept. SCBA Replacement	$62,400	$62,400	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Solid Waste	Reinsulation of Baler Building	$60,000	$877,500	🟦🟦🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Solid Waste	Solid Waste Scale Upgrade	$65,000	$65,000	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Solid Waste	Oil Separator and Lift Station Replacement	$971,100	$971,100	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Solid Waste	Composting Project	$616,500	$721,500	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
General Fund	Entrance Channel Dredging	$1,000,000	$6,500,000	🟩🟩🟩🟩	⬜⬜⬜⬜	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Ports & Harbors	Robert Storrs Small Boat Harbor Improvements (A & B Float)	$600,000	$10,630,000	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Ports & Harbors	UMC Cruise Ship Terminal Design	$390,000	$1,170,000	🟦🟦🟦🟦	🟩🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Ports & Harbors	Emergency Mooring Bouy Maintenance	TBD	TBD	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Ports & Harbors	Rescue Vessel Engine Upgrades	$65,650	$65,650	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Housing	4-Plex Roof Replacement	$10,000	$500,500	🟦🟦🟦🟦	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Highlight of Summary of Project and Funding Sources	**Total Requested Funds for FY20-FY24 CMMP**	**$23,513,521**	**$112,168,725**	**$23,513,521**	**$16,840,160**	**$63,707,805**	**$1,818,970**	**$1,855,350**

31	Total	$	11,191,507.00
14	General Fund	$	74,565,527.00
4	Electric	$	12,281,573.00
0	Wastewater	$	-
4	Water	$	3,820,375.00
4	Solid Waste	$	2,635,100.00
5	Ports and Harbors	$	18,365,650.00
1	Housing	$	500,500.00

City of Unalaska
Capital and Major Maintenance Plan
FY 2020

General Fund

Project #/ Type	Fund or Department	Project	Appropriated Funds	FY20	Total	FY20 Financing Sources for Capital Cost					
						City				Other	
						General Fund	1% Sales Tax	Proprietary	Debt	Grant	Total
	Public Works	City Wide Multi Location Drainage - Trapper Drive	166,207	366,793	533,000	366,793	-	-	-	-	366,793
PR601	PCR - Library	Unalaska Public Library Improvements (Design)	400,000	5,000,000	5,400,000	5,000,000	-	-	-	-	5,000,000
	PCR	Aquatics Center Mezzanine and Office Space Expansion	-	100,000	100,000	100,000	-	-	-	-	100,000
	General Fund	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
	Public Works	Burma Road Chapel Roof Upgrade	-	10,000	10,000	10,000	-	-	-	-	10,000
	Fire Department	Fire Training Facility	12,000	2,192,078	2,204,078	2,192,078	-	-	-	-	2,192,078
	Fire Department	ALS Manikin	-	143,000	143,000	143,000	-	-	-	-	143,000
	Fire Department	SCBA Replacement	-	348,400	348,400	348,400	-	-	-	-	348,400
	Public Safety	Radio System Upgrade	310,000	509,000	819,000	509,000	-	-	-	-	509,000
	Public Safety	Tsunami Siren Upgrade	-	261,879	261,879	261,879	-	-	-	-	261,879
	Public Works	Causeway Culverts	100,000	699,500	799,500	699,500	-	-	-	-	699,500
	PCR	UCSD Playground Renovation	-	1,326,485	1,326,485	1,326,485	-	-	-	-	1,326,485
	PCR	Sitka Spruce Park (Construction)	70,000	808,185	878,185	808,185	-	-	-	-	808,185
	Public Works	Captain's Bay Road and Utilities Improvements (Eng & Design)	1,250,000	750,000	2,000,000	750,000	-	-	-	-	750,000
	Planning	Swanson House	-	119,340	119,340	119,340	-	-	-	-	119,340
		Governmental Grand Total	**2,308,207**	**12,634,660**	**14,942,867**	**12,634,660**	**-**	**-**	**-**	**-**	**12,634,660**

Proprietary Funds

Project #/ Type	Fund or Department	Project	Appropriated Funds	FY20	Total	FY20 Financing Sources for Capital Cost					
						City				Other	
						General Fund	1% Sales Tax	Proprietary	Debt	Grant	Total
	Electrical-Production	Generator Sets Rebuild (Annual Major Maintenance)	-	1,714,056	1,714,056	-	-	1,714,056	-	-	1,714,056
	Electrical-Production	Flywheel Energy Storage System	78,750	2,346,560	2,425,310	-	-	2,346,560	-	-	2,346,560
	Electric - Distribution	Automatic Meter Read System	119,362	404,220	523,582	-	-	404,220	-	-	404,220
	Electrical-Production	Powerhouse Cooling Water Inlet Cleaning and Expansion	-	40,000	40,000	-	-	40,000	-	-	40,000
	Electric	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Electric Grand Total	**198,112**	**4,504,836**	**4,702,948**	**-**	**-**	**4,504,836**	**-**	**-**	**4,504,836**
	Water	General Hill Water Booster Pump	221,600	844,400	1,066,000	-	-	844,400	-	-	844,400
	Water	Pyramid Water Treatment Plant MicroTurbines	50,000	1,588,975	1,638,975	-	-	1,588,975	-	-	1,588,975
	Water	CT Tank Interior Maintenance and Painting	-	100,000	100,000	-	-	100,000	-	-	100,000
	Water	SCBA Replacement	-	62,400	62,400	-	-	62,400	-	-	62,400
	Water	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Water Grand Total	**271,600**	**2,595,775**	**2,867,375**	**-**	**-**	**2,595,775**	**-**	**-**	**2,595,775**
	Wastewater										
		Wastewater Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Solid Waste	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	.	-
	Solid Waste	Solid Waste Scale Upgrade	-	65,000	65,000	-	-	65,000	-	-	65,000
	Solid Waste	Oil Separator and Lift Station Replacement	-	971,100	971,100	-	-	971,100	-	-	971,100
	Solid Waste	Composting Project (Design & Construction)	105,000	616,500	721,500	-	-	616,500	-	-	616,500
	Solid Waste	Reinsulation of Baler Building	-	60,000	60,000	-		60,000			60,000
		Solid Waste Grand Total	**105,000**	**1,712,600**	**1,817,600**	**-**	**-**	**1,712,600**	**-**	**-**	**1,712,600**
	Ports & Harbors	UMC Cruise Ship Terminal	-	390,000	390,000	-	-	390,000	-	-	390,000
	Ports & Harbors	Entrance Channel Dredging	1,500,000	1,000,000	2,500,000	1,000,000	-	-	-	-	1,000,000
	Ports & Harbors	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
	Ports & Harbors	Emergency Bouy Maintenance	-	TBD	TBD	-	-	TBD	-	-	-
	Ports & Harbors	Rescue Vessel Engine Upgrade	-	65,650	65,650	-	-	65,650	-	-	65,650
	Ports & Harbors	Robert Stores Small Boat Harbor Improvements (A&B Floats)	50,000	600,000	650,000	-	-	600,000	-	-	600,000
		Ports & Harbors Grand Total	**1,550,000**	**2,055,650**	**3,215,650**	**1,000,000**	**-**	**1,055,650**	**-**	**-**	**2,055,650**
	Airport					-	-	-	-	-	-
		Airport Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Housing	4-Plex Roof Replacement (Engineering & Design)	-	10,000	10,000	10,000	-	-	-	-	10,000
		Housing Grand Total	**-**	**10,000**	**10,000**	**10,000**	**-**	**-**	**-**	**-**	**10,000**
		Governmental Fund Total	2,308,207	12,634,660	14,942,867	12,634,660	-	-	-	-	12,634,660
		Proprietary Funds Total	2,124,712	10,878,861	13,003,573	1,010,000	-	9,868,861	-	-	10,878,861
		City Grand Totals	4,432,919	23,513,521	27,946,440	13,644,660	-	9,868,861	-	-	23,513,521

City of Unalaska
Capital and Major Maintenance Plan
FY 2021

General Fund

Project #/ Type	Fund or Department	Project	Appropriated Funds	FY21	Total	FY21 Financing Sources for Capital Cost					
						City				Other	
						General Fund	1% Sales Tax	Proprietary	Debt	Grant	Total
	DPW & PCR	Burma Road Chapel Roof Venilation Upgrades (Construction)	10,000	70,000	80,000	70,000	-	-	-	-	70,000
	PCR	Aquatics Center Mezzanine and Office Space Expansion	100,000	420,000	520,000	420,000	-	-	-	-	420,000
	PCR	Gymnasium Floor	-	51,000	51,000	51,000	-	-	-	-	51,000
	DPW/DPU	Captains Bay Road and Utilities Improvements	2,000,000	-	2,000,000	-	-	-	-	-	-
	FireDepartment	Fire Training Facility	2,204,078	1,653,660	3,857,738	1,653,660	-	-	-	-	1,653,660
	General Fund	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
	Public Works	DPW Equipment Storage Shed	-	10,000	10,000	10,000	-	-	-	-	10,000
		Governmental Grand Total	**4,314,078**	**2,204,660**	**6,518,738**	**2,204,660**	**-**	**-**	**-**	**-**	**2,204,660**

Proprietary Funds

Project #/ Type	Fund or Department	Project	Appropriated	FY21	Total	FY21 Financing Sources for Capital Cost					
						City				Other	
						General Fund	1% Sales Tax	Proprietary	Debt	Grant	Total
	Electrical-Production	Powerhouse Cooling Water Inlet Cleaning and Extension	40,000	372,662	412,662	-	-	372,662	-	-	372,662
	Electrical-Production	Generator Sets Rebuild (Annual Major Maintenance)	1,714,056	1,748,338	3,462,394	-	-	1,748,338	-	-	1,748,338
	Electric - Distribution	34.5kV Submarine Cable Replacement	-	60,000	60,000	-	-	60,000	-	-	60,000
	Electric	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Electric Grand Total	**1,754,056**	**2,181,000**	**3,935,056**	**-**	**-**	**2,181,000**	**-**	**-**	**2,181,000**
	Water	CT Tank Interior Maintenance and Painting	100,000	953,000	1,053,000	-	-	953,000	-	-	953,000
		Water Grand Total	**100,000**	**953,000**	**1,053,000**	**-**	**-**	**953,000**	**-**	**-**	**953,000**
	Wastewater										
		Wastewater Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Solid Waste	Vehicle Replacement (Purchases)									
	Solid Waste	Re-insulation of the Baler Building	60,000	817,500	877,500	-	-	817,500	-	-	817,500
		Solid Waste Grand Total	**60,000**	**817,500**	**877,500**	**-**	**-**	**817,500**	**-**	**-**	**817,500**
	Ports & Harbors	UMC Cruise Ship Terminal	390,000	780,000	1,170,000	-	-	780,000	-	-	780,000
	Ports & Harbors	Robert Stores Small Boat Harbor Improvements (A&B Floats)	650,000	9,980,000	10,630,000	-	-	6,575,000	-	3,405,000	9,980,000
		Ports & Harbors Grand Total	**1,040,000**	**10,760,000**	**11,800,000**	**-**	**-**	**7,355,000**	**-**	**3,405,000**	**10,760,000**
	Airport		-	-	-	-	-	-	-	-	-
		Airport Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Housing	4-Plex Roof Replacement (Construction)	10,000	45,000	55,000	45,000	-	-	-	-	45,000
		Housing Grand Total	**10,000**	**45,000**	**55,000**	**45,000**	**-**	**-**	**-**	**-**	**45,000**

		Governmental Fund Total	4,314,078	2,204,660	6,518,738	2,204,660	-	-	-	-	2,204,660
		Proprietary Funds Total	2,964,056	14,756,500	17,720,556	45,000	-	11,306,500	-	3,405,000	14,756,500
		City Grand Totals	7,278,134	16,961,160	24,239,294	2,249,660	-	11,306,500	-	3,405,000	16,961,160

City of Unalaska
Capital and Major Maintenance Plan
FY 2022

General Fund

Project #/ Type	Fund or Department	Project	Appropriated Funds	FY22	Total	FY22 Financing Sources for Capital Cost					
						City				Other	
						General Fund	1% Sales Tax	Proprietary	Debt	Grant	Total
	Fire Department	Aerial Ladder Replacement	-	1,690,000	1,690,000	1,690,000	-	-	-	-	1,690,000
	PCR	Tennis Court Improvement/Multipurpose Facility	-	562,900	562,900	562,900	-	-	-	-	562,900
	PCR	Gymnasium Floor	51,000	170,000	221,000	170,000	-	-	-	-	170,000
	General Fund	Captains Bay Roads and Utilities Improvements (Const)	2,000,000	47,000,000	49,000,000	47,000,000	-	-	-	-	47,000,000
	General Fund	Vehicle Replacement (Purchases)	-		-		-	-	-	-	-
	Public Works	DPW Equipment Building	10,000	185,000	195,000	185,000	-	-	-	-	185,000
	Public Works	Burma Road Chapel Roof Venilation Upgrades	80,000	479,000	559,000	479,000	-	-	-	-	479,000
		Governmental Grand Total	**2,141,000**	**50,086,900**	**52,227,900**	**50,086,900**	**-**	**-**	**-**	**-**	**50,086,900**

Proprietary Funds

Project #/ Type	Fund or Department	Project	Appropriated Funds	FY20	Total	FY22 Financing Sources for Capital Cost					
						City				Other	
						General Fund	1% Sales Tax	Proprietary	Debt	Grant	Total
	Electric - Distribution	Captain's Bay Road and Utilities Improvements (Eng & Design)	-	3,333,334	3,333,334	-	-	3,333,334	-	-	3,333,334
	Electrical-Production	4th ORC	-	600,600	600,600	-	-	600,600	-	-	600,600
	Electrical-Production	Generator Sets Rebuild (Annual Major Maintenance)	3,462,394	1,783,305	5,245,699	-	-	1,783,305	-	-	1,783,305
	Electric - Distribution	34.5kV Submarine Cable Replacement	60,000	120,000	180,000	-	-	120,000	-	-	120,000
	Electric	Vehicle Replacement (Purchases)	-		-	-	-	-	-	-	-
		Electric Grand Total	**3,522,394**	**5,837,239**	**9,359,633**	**-**	**-**	**5,837,239**	**-**	**-**	**5,837,239**
	Water	Captains Bay Roads and Utilities Improvements (Const)	-	3,333,333	3,333,333	-	-	3,333,333	-	-	3,333,333
WA501	Water	Pyramid Water Storage Tank	625,000	603,750	1,228,750	-	-	-	-	603,750	603,750
	Water	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Water Grand Total	**625,000**	**3,937,083**	**4,562,083**	**-**	**-**	**3,333,333**	**-**	**603,750**	**3,937,083**
	Wastewater	Captain's Bay Road and Utilities Improvements (Eng & Design)	-	3,333,333	3,333,333	-	-	3,333,333	-	-	3,333,333
	Wastewater	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Wastewater Grand Total	**-**	**3,333,333**	**3,333,333**	**-**	**-**	**3,333,333**	**-**	**-**	**3,333,333**
	Solid Waste	Vehicle Replacement (Purchases)	-		-	-	-	-	-	-	-
		Solid Waste Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Ports & Harbors	Entrance Channel Dredging	2,500,000	4,000,000	6,500,000	4,000,000	-	-	-	-	4,000,000
	Ports & Harbors	UMC Restroom	-	TBD	-	-	-	TBD	-	-	-
	Ports & Harbors	Vehicle Replacement (Purchases)	-	-					-	-	-
		Ports & Harbors Grand Total	**2,500,000**	**4,000,000**	**6,500,000**	**4,000,000**	**-**	**-**	**-**	**-**	**4,000,000**
	Airport		-	-	-	-	-	-	-	-	-
		Airport Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Housing	4-Plex Roof Replacement (Construction)	**55,000**	445,500	500,500	**445,500**	**-**	-	**-**	**-**	445,500
		Housing Grand Total	**55,000**	**445,500**	**500,500**	**445,500**	**-**	**-**	**-**	**-**	**445,500**
		Governmental Fund Total	2,141,000	50,086,900	52,227,900	50,086,900	-	-	-	-	50,086,900
		Proprietary Funds Total	6,702,394	17,553,155	24,255,549	4,445,500	-	12,503,905	-	603,750	17,553,155
		City Grand Totals	8,843,394	67,640,055	76,483,449	54,532,400	-	12,503,905	-	603,750	67,640,055

City of Unalaska
Capital and Major Maintenance Plan
FY 2023

General Fund

Project #/ Type	Fund or Department	Project	Appropriated Funds	FY23	Total	FY23 Financing Sources for Capital Cost					
						City				Other	
						General Fund	1% Sales Tax	Proprietary	Debt	Grant	Total
	PCR	Tennis Court Improvement/Multipurpose Facility	562,900	5,066,100	5,629,000	5,066,100	-	-	-	-	5,066,100
	DPW	DPW Equipment Building	195,000	1,350,830	1,545,830	1,350,830					1,350,830
	General Fund	Vehicle Replacement (Purchases)	-		-		-	-	-	-	-
		Governmental Grand Total	**757,900**	**6,416,930**	**7,174,830**	**6,416,930**	**-**	**-**	**-**	**-**	**6,416,930**

Proprietary Funds

Project #/ Type	Fund or Department	Project	Appropriated Funds	FY20	Total	FY32 Financing Sources for Capital Cost					
						City				Other	
						General Fund	1% Sales Tax	Proprietary	Debt	Grant	Total
	Electric - Distribution	34.5kV Submarine Cable Replacement	180,000	2,160,000	2,340,000	-	-	2,160,000	-	-	2,160,000
	Electrical-Production	Generator Sets Rebuild (Annual Major Maintenance)	5,245,699	1,818,970	7,064,669	-	-	1,818,970	-	-	1,818,970
	Electric	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Electric Grand Total	**5,425,699**	**3,978,970**	**9,404,669**	**-**	**-**	**3,978,970**	**-**	**-**	**3,978,970**
	Water	Pyramid Water Storage Tank	1,228,750	7,906,193	9,134,943	-	-	-	-	7,906,193	7,906,193
	Water	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Water Grand Total	**1,228,750**	**7,906,193**	**9,134,943**	**-**	**-**	**-**	**-**	**7,906,193**	**7,906,193**
	Wastewater	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Wastewater Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Solid Waste	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Solid Waste Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Ports & Harbors	Port Rescue Boat Replacement	-	70,000	70,000	-	-	70,000	-	-	70,000
PH602	Ports & Harbors	LCD and UMC Dredging (Construction)	109,650	2,544,495	2,654,145	-	-	2,544,495	-	-	2,544,495
	Ports & Harbors	Vehicle Replacement (Purchases)	-						-	-	-
		Ports & Harbors Grand Total	**109,650**	**2,614,495**	**2,724,145**	**-**	**-**	**2,614,495**	**-**	**-**	**2,614,495**
	Airport		-	-	-	-	-	-	-	-	-
		Airport Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Housing			-	-	-	-	-	-	-	-
		Housing Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Governmental Fund Total	757,900	6,416,930	7,174,830	6,416,930	-	-	-	-	6,416,930
		Proprietary Funds Total	6,764,099	14,499,658	21,263,757	-	-	6,593,465	-	7,906,193	14,499,658
		City Grand Totals	7,521,999	20,916,588	28,438,587	6,416,930	-	6,593,465	-	7,906,193	20,916,588

City of Unalaska
Capital and Major Maintenance Plan
FY 2023

General Fund

Project #/ Type	Fund or Department	Project	Appropriated Funds	FY23	Total	FY23 Financing Sources for Capital Cost					
						City				Other	
						General Fund	1% Sales Tax	Proprietary	Debt	Grant	Total
	General Fund	Vehicle Replacement (Purchases)	-		-		-	-	-	-	-
		Governmental Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Proprietary Funds

Project #/ Type	Fund or Department	Project	Appropriated Funds	FY20	Total	FY32 Financing Sources for Capital Cost					
						City				Other	
						General Fund	1% Sales Tax	Proprietary	Debt	Grant	Total
	Electrical-Production	Generator Sets Rebuild (Annual Major Maintenance)	7,064,669	1,855,350	8,920,019	-	-	1,855,350	-	-	1,855,350
	Electric	Vehicle Replacement (Purchases)	-	-	-		-	-	-	-	-
		Electric Grand Total	**7,064,669**	**1,855,350**	**8,920,019**	**-**	**-**	**1,855,350**	**-**	**-**	**1,855,350**
	Water	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Water Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Wastewater	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Wastewater Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Solid Waste	Vehicle Replacement (Purchases)	-	-	-	-	-	-	-	-	-
		Solid Waste Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Ports & Harbors	Port Rescue Boat Replacement	70,000	450,000	520,000	-	-	450,000	-	-	450,000
	Ports & Harbors	Vehicle Replacement (Purchases)	-						-	-	-
		Ports & Harbors Grand Total	**70,000**	**450,000**	**520,000**	**-**	**-**	**450,000**	**-**	**-**	**450,000**
	Airport		-	-	-	-	-	-	-	-	-
		Airport Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Housing			-	-	-	-	-	-	-	-
		Housing Grand Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Governmental Fund Total	-	-	-	-	-	-	-	-	-
		Proprietary Funds Total	7,134,669	2,305,350	9,440,019	-	-	2,305,350	-	-	2,305,350
		City Grand Totals	7,134,669	2,305,350	9,440,019	-	-	2,305,350	-	-	2,305,350

City of Unalaska
Capital and Major Maintenance Plan
FY2020 - FY2024
Summary of Project and Funding Sources

	FY20	FY21	FY22	FY23	FY24	Totals
General Fund Projects	12,634,660	2,204,660	50,086,900	6,416,930	-	71,343,150
Proprietary Fund Projects	10,878,861	14,756,500	17,553,155	14,499,658	2,305,350	59,993,524
Totals	**$ 23,513,521**	**$ 16,961,160**	**$ 67,640,055**	**$ 20,916,588**	**$ 2,305,350**	**$131,336,674**

Funding Source	FY20	FY21	FY22	FY23		Totals
General Fund	13,644,660	2,249,660	54,532,400	6,416,930	-	76,843,650
1% Sales Tax	-	-	-	-	-	-
Electric Proprietary Fund	4,504,836	2,181,000	5,837,239	3,978,970	1,855,350	18,357,395
Water Proprietary Fund	2,595,775	953,000	3,333,333	-	-	6,882,108
Wastewater Proprietary Fund	-	-	3,333,333	-	-	3,333,333
Solid Waste Proprietary Fund	1,712,600	817,500	-	-	-	2,530,100
Ports & Harbors Proprietary Fund	1,055,650	7,355,000	-	2,614,495	450,000	11,475,145
Airport Proprietary Fund	-	-	-	-	-	-
Housing Proprietary Fund	-	-	-	-	-	-
Debt	-	-	-	-	-	-
Grants	-	3,405,000	603,750	7,906,193	-	11,914,943
Totals	**$23,513,521**	**$16,961,160**	**$67,640,055**	**$20,916,588**	**$2,305,350**	**$131,336,674**

NOTE(s): Does not include TBD amounts for FY 19 for the Emergency Bouy Maintenance, or the UMC Restrooms in FY2022. Total $131,336,674, shown on this page does not match project total on "Projects by Fund" tables because summary page does not account for appropriated funds.

City of Unalaska
Capital and Major Maintenance Plan
FY2020 - FY2024
Estimated Project and Purchase Timelines
(excluding new vehicle purchases & replacements)

🟦 *Pre-Design*
🟩 *Engineering / Design*
🟥 *Construction / Purchase*

The purpose of this table is to illustrate the density of in progress projects. Projects which are in full purchase/construction mode are most likely to have been on previous CMMPs and are not as likely to have been added

Fund or Department	Project	FY 20 Request	Total Project Cost	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Public Works	City Wide Drainage Project -Trapper Drive	$366,793	$533,000	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Parks, Culture & Recreation	Sitka Spruce Park Improvements	$808,185	$878,185	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Parks, Culture & Recreation	UCSD Playground Renovations	$1,326,485	$1,326,485	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Public Safety	Radio System Upgrade	$509,000	$819,000	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Electric - Production	Flywheel Energy Storage System	$2,346,560	$2,425,310	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Electric - Distribution	Automatic Meter Read System	$404,220	$523,582	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Water	Generals Hill Water Booster Pump	$844,400	$1,066,000	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Water	Pyramid Water Treatment Plant MicroTurbines	$1,588,975	$1,638,975	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Water	Water Dept. SCBA Replacement	$62,400	$62,400	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Solid Waste	Composting Project	$616,500	$721,500	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Electric - Production	Generator Sets Rebuild	$1,714,056	$8,920,019	🟥🟥🟥🟥	🟥🟥🟥🟥	🟥🟥🟥🟥	🟥🟥🟥🟥	🟥🟥🟥🟥
Parks, Culture & Recreation	Unalaska Public Library Improvements	$5,000,000	$5,400,000	🟩🟩🟥🟥	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Parks, Culture & Recreation	Aquatics Center Mezzanine and Office Space Expansion	$100,000	$520,000	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Fire Department	Fire Training Facility	$2,192,078	$3,857,738	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Ports & Harbors	Robert Storrs Small Boat Harbor Improvements (A & B Float)	$600,000	$10,630,000	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
General Fund, Electric, Water & WW	Captain's Bay Road and Utilities	$750,000	$59,000,000	🟩🟩🟩🟩	⬜⬜⬜⬜	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Public Works	Causeway Culvert Replacement	$699,500	$799,500	🟩🟩🟩🟩	⬜⬜⬜⬜	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
General Fund	Entrance Channel Dredging	$1,000,000	$6,500,000	🟩🟩🟩🟩	⬜⬜⬜⬜	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Fire Department	SCBA Replacement	$348,400	$348,400	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Fire Department	ALS Manikin	$0	$143,000	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Public Safety	Tsunami Siren Upgrade	$261,879	$261,879	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Planning	Henry Swanson House	$119,340	$119,340	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Solid Waste	Solid Waste Scale Upgrade	$65,000	$65,000	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Solid Waste	Oil Separator and Lift Station Replacement	$971,100	$971,100	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Ports & Harbors	Emergency Mooring Bouy Maintenance	TBD	TBD	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Ports & Harbors	Rescue Vessel Engine Upgrades	$65,650	$65,650	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Electric - Production	Powerhouse Cooling Water Inlet Cleaning and Extension	$40,000	$412,662	🟦🟦🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Water	CT Tank Interior Maintenance & Painting	$100,000	$1,053,000	🟦🟦🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Solid Waste	Reinsulation of Baler Building	$60,000	$877,500	🟦🟦🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Ports & Harbors	UMC Cruise Ship Terminal Design	$390,000	$1,170,000	🟦🟦🟦🟦	🟩🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Public Works - Fac Maint	Burma Road Chapel Roof Ventilation Upgrades	$10,000	$559,000	🟦🟦🟦🟦	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Housing	4-Plex Roof Replacement	$10,000	$500,500	🟦🟦🟦🟦	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Electric - Production	4th ORC	$0	$600,600	⬜⬜⬜⬜	🟩🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜
Parks, Culture & Recreation	Gymnasium Floor	$0	$221,000	⬜⬜⬜⬜	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Public Works	DPW Equipment Storage Bldg.	$0	$1,545,830	⬜⬜⬜⬜	🟦🟦🟦🟦	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜
Electric - Distribution	34.5kV Submarine Cable Replacement	$0	$2,340,000	⬜⬜⬜⬜	🟦🟦🟦🟦	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜
Ports & Harbors	UMC Restroom	TBD	TBD	⬜⬜⬜⬜	⬜⬜⬜⬜	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Fire Department	Aerial Ladder Replacement	$0	$1,690,000	⬜⬜⬜⬜	⬜⬜⬜⬜	🟦🟩🟥🟥	⬜⬜⬜⬜	⬜⬜⬜⬜
Water	Pyramid Water Storage Tank	$0	$9,134,943	⬜⬜⬜⬜	⬜⬜⬜⬜	🟦🟦🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜
Parks, Culture & Recreation	Tennis Court Improvements/Multi-Purpose Facility	$0	$5,629,000	⬜⬜⬜⬜	⬜⬜⬜⬜	🟩🟩🟩🟩	🟥🟥🟥🟥	⬜⬜⬜⬜
Ports & Harbors	LCD and UMC Dredging	$0	$2,654,145	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	🟩🟩🟥🟥	⬜⬜⬜⬜
Ports & Harbors	Port Rescue Boat Replacement	$0	$520,000	⬜⬜⬜⬜	⬜⬜⬜⬜	⬜⬜⬜⬜	🟦🟦🟩🟩	🟥🟥🟥🟥
Highlight of Summary of Project and Funding Sources	**Total Requested Funds for FY20-FY24 CMMP**	**$23,370,521**	**$136,504,243**	**$23,513,521**	**$16,961,160**	**$67,640,055**	**$20,916,588**	**$2,305,350**
		Total Number of Projects (starting?) Each Year:		**30***	**5**	**4**	**2**	**0**

* Does not include the Generator rebuild, this is an annual project which is accounted as "new" every year.

BURMA ROAD CHAPEL ROOF UPGRADES| GENERAL FUND

Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2021
Purchase/Construction: FY 2022

Project Description: This project removes shingles, roof boards, damaged insulation, installs framing for eave soffit ventilation/increased depth for insulation, installs insulation to R-30, installs new roof boards, reroofs the building, paints the new eaves and trim.

Project Need: The facility lacks proper insulation and ventilation below the roofing. It causes snow melt on the roof to run down to the eave and freezes where the walls and roof join together where there is less heat loss at that part of the roof structure. As ice dams grow larger, the water from the melting snows backs up and leaks between wood shingles into the building causing water damage. In FY08, metal flashing was installed on the eaves over the electric cable system to heat the flashing. The facility's life will be extended by eliminating further water damage to the structural components below the roof. The new roof will protect the facility for at least another 30 years.

Maintenance history includes: Repairs from 1940 to 1996 is largely undocumented. Work prior to 1996 adapted the structure to new uses as needs evolved. Past work includes: exterior painting, interior renovations, flooring, new shingles in 1995, boiler and fuel tank in 1998. As part of the DPW-Facilities Maintenance budget, we will replace the metal flashing and heat trace on the eave as an interim measure when the present system fails

Development Plan & Status (Include Permit and Utility Requirements): Concept stage.

Cost & Financing Data:

Cost Assumptions	
Engineering, Design, Const Admin	70,000
Other Professional Services	10,000
Construction Services	350,000
Machinery & Equipment	-
Subtotal	**430,000**
Contingency (set at 30%)	129,000
TOTAL	**559,000**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**559,000**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)		10,000	70,000	479,000			559,000
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	10,000	70,000	479,000	-	-	559,000
Requested Funds:							

CAPTAINS BAY RD & UTILITY IMPROVE| DPW / DPU

Project Description: This project will construct drainage, utilities, and pavement out Captains Bay Road to the entrance of the Offshore Systems, Inc. (OSI). This will involve approximately 2 .5 miles of drainage improvements from Airport Beach Road to OSI, 2.5 miles of road realignment/paving/walkways/lighting from Airport Beach Road to OSI, and 1.3 miles of water/sewer/electric utility extensions from Westward to OSI.

Project Need: Captains Bay Road serves as a primary transportation route for Westward Seafoods, North Pacific Fuel, Northland Services, Offshore Systems Inc., and several smaller businesses as well as residential homes. The section of road making up this project is a high traffic area of heavy vehicles which are used by the fishing and support industries which are vital to the community's economic welfare. In September 2011 residents and industry representatives discussed the hazards at public meetings about the Road Improvement Master Plan. Although the road's high crown is needed for adequate drainage, it also creates a safety hazard for the large trucks and school buses traveling the road. The public expressed strong support for improvements to Captains Bay Road. The area of Captains Bay Road is also an area of potential growth in the community as identified in the Comprehensive Plan.

Development Plan & Status (Include Permit and Utility Requirements): Preliminary cost estimates have been provided by HDL Engineering and Regan Engineering based on recent materials and construction costs in Unalaska. These are still very rough estimates that will be refined as the project commencement approaches. Costs are split between the General Fund for the paving and drainage portion and the three utility funds based on the costs for each of those portions. Predesign and Permitting started in FY19 helped define scope, the road realignment, utility needs, and permitting requirements. An aggressive schedule has full design, permitting and ROW realignments concluded during FY20-FY21 with construction spread over 2.5 seasons from FY22-FY24.

Cost & Financing Data: HDL Engineering provided a preliminary cost estimate to City Council in February 2019. City Council supported proceeding with full design using the general fund. In the mean time, the City Manager and DPW are investigating funding sources for full construction, such as the STIP and BUILD grant programs.

Estimated Project & Purchase Timeline

Pre Design: FY 2019

Engineering/Design: FY 2020

Purchase/Construction: FY 2022

Captains Bay Road and Utilities

Cost Assumptions		
	Engineering, Design, Const Admin	4,238,461
	Other Professional Services	300,000
	Construction Services	40,846,154
	Machinery & Equipment	-
	Subtotal	**45,384,615**
	Contingency (set at 30%)	13,615,385
	TOTAL	**59,000,000**
	Less Other Funding Sources (Grants, etc.)	-
	Total Funding Request $	**59,000,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)	1,250,000	750,000		47,000,000			49,000,000
1% Sales Tax							-
Grant							-
Proprietary Fund				10,000,000			10,000,000
TOTALS $	1,250,000	750,000	-	57,000,000	-	-	59,000,000
Requested Funds:							

CAUSEWAY CULVERT REPLACEMENT| DPW

Project Description: Replace failing culverts under Broadway Avenue causeway between Methodist Church and Dutton Road.

Project Need: This project was listed as a need in the 2013 Hazard Mitigation Plan. The existing metal culverts that allow drainage from Dutton Lake and surrounding watershed into Iluliaq Lake are old, rusted, and showing signs of collapse and need to be replaced. Salmon are known to spawn in the Dutton Lake stream.

Development Plan & Status (Include Permit and Utility Requirements): The project is in early stage concept. A complete design will be required along with USACOE and Fish & Game permitting . Dutton Lake and the stream feeding into Dutton Lake are anadromous and do support fish habitat and spawning. As recently as 2016, Fish and Game documented fish in the Lake and stream.

Cost & Financing Data: No cost data is available but preliminary estimates are in the $800,000 range.

Estimated Project & Purchase Timeline

Pre Design: FY 2019

Engineering/Design: FY 2020

Purchase/Construction: FY 2022

Existing Culverts are Failing

Proposed culverts improve fish habitat, can be visually inspected, and are large enough to accommodate tidal fluctuations and heavy rainfall.

Cost Assumptions	
Engineering, Design, Const Admin	100,000
Other Professional Services	15,000
Construction Services	500,000
Machinery & Equipment	-
Subtotal	**615,000**
Contingency (set at 30%)	184,500
TOTAL	**799,500**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**799,500**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)	100,000	699,500					799,500
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	100,000	699,500	-	-	-	-	799,500
Requested Funds:							

CITY WIDE DRAINAGE – Trapper Drive| DPW

Project Description: This project will improve storm drain infrastructure and control runoff from spring snow melt and rainfall which has been an ongoing cause of erosion on Trapper Drive for several years.

Project Need: The Road Improvement Master Plan, completed in 2009-1010, identified drainage improvements as a high priority task in order to keep water off road surfaces and out of the road base. Gravel and paved roads without adequate drainage deteriorate and require much more frequent maintenance of the driving surface. Improved water quality in our lakes, streams, and ocean has also been identified as high priority by the community and the Alaska Department of Fish and Game.

Development Plan & Status (Include Permit and Utility Requirements): This portion of our City Wide Multi-Location Drainage (Munis number PW203) project is fully designed and was included in the 2017 bid package. Because bids came in higher than our budget allowed, the Trapper Drive portion was removed from the bid award with the intent to conduct the work at a later date. Regan Engineering has completed plans and specifications for this work.

Cost & Financing Data: Cost estimate is based on the 2017 bids with a 10% inflation factor included. Council initially funded this project via the FT2013 CMMP and Budget Ordinance 2012-04 which was approved and adopted on May 22, 2012.

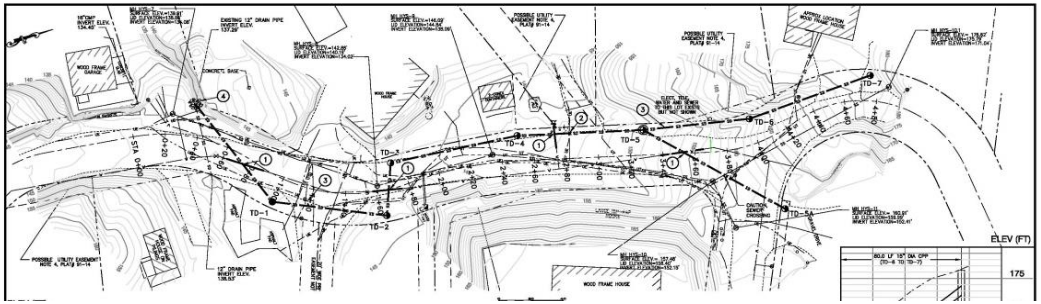
Estimated Project & Purchase Timeline

Pre Design: FY 2017

Engineering/Design: FY 2017

Purchase/Construction: FY 2020

Trapper Drive looking southwest



Trapper Drive looking northeast

Cost Assumptions	
Engineering, Design, Const Admin	50,000
Other Professional Services	-
Construction Services	360,000
Machinery & Equipment	-
Subtotal	**410,000**
Contingency (set at 30%)	123,000
TOTAL	**533,000**
Less Other Funding Sources (Grants, etc.)	
Total Funding Request $	**533,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)	166,207	366,793					533,000
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	166,207	366,793	-	-	-	-	533,000
Requested Funds:							

EQUIPMENT STORAGE BUILDING| DPW

Estimated Project & Purchase Timeline

Pre Design: FY 2021

Engineering/Design: FY 2022

Purchase/Construction: FY 2023

Project Description: This is an 80’ x 120’ unheated pole building with a gravel floor to be located at the DPW/U site. This is not a mechanic shop but a well-lit equipment storage building protecting both equipment and employees from the elements during the normal course of their work preparing equipment for use.

Project Need: The building will improve winter emergency response time, extend the life of trucks, trailers, graders, snow plows, and snow blowers. The building will also decrease equipment maintenance expense. The building will also greatly improve the ability of employees called upon to service and prepare equipment for response and routine use by keeping them protected from heavy rains, blowing snow, and harsh wind storms—work often accomplished in the darkness of winter. The building will reduce the time employees currently expend fighting the elements in order to prepare equipment for use.

Development Plan & Status (Include Permit and Utility Requirements): The building will have electricity and will require fire marshal review. This project is only in concept stage.

Cost & Financing Data: This will be funded via the general fund.

DPW Equipment Storage

Cost Assumptions		
	Engineering, Design, Const Admin	195,000
	Other Professional Services	34,000
	Construction Services	960,000
	Machinery & Equipment	100
	Subtotal	**1,189,100**
	Contingency (set at 30%)	356,730
	TOTAL	**1,545,830**
	Less Other Funding Sources (Grants, etc.)	-
	Total Funding Request $	**1,545,830**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)			10,000	185,000	1,350,830		1,545,830
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	-	10,000	185,000	1,350,830	-	1,545,830
Requested Funds:							

Aquatics Center Mezzanine and Office Space Expansion| PCR

Project Description: Expand the Aquatics Center Mezzanine and Office space to the walls over the loft area in the lobby . As of now the Mezzanine consist of a multi-use open area, one office, a server room and a janitors closet. This expansion project will allow for more usable space in the Mezzanine (approximately an additional 500 sqft), more offices and a bank of windows that will allow natural light and air circulation in an otherwise very stuffy and hot room.

Project Need: With the addition of the Aquatics Center new Coordinator and the up and coming Head Lifeguard position there is currently no office space for them at the Aquatics Center. As of now the Coordinator's office is at the PCR. Programming has also increased with the new coordinator and the size of our upstairs facility makes large events such as the Pumpkin Plunge and Youth Swim League's Award Ceremony packed and standing room only with people filtering down the stairs. Also, after many requests from the public, free weights will be put in the Mezzanine which will take up even more space.

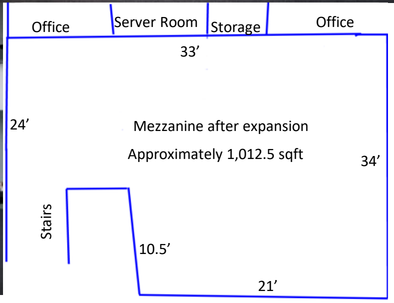
Development Plan & Status (Include Permit and Utility Requirements): In October 2018 the City Engineer, Information Systems and Maintenance did a walk through the Mezzanine and Offices with the Aquatics Manager to see what the Aquatics Managers plan was and if it was possible to accomplish. There are currently no obstacles that would not allow this expansion project.

Estimated Project & Purchase Timeline

Pre Design: n/a

Engineering/Design: FY 2020

Purchase/Construction: FY 2021



Cost Assumptions	
Engineering, Design, Const Admin	100,000
Other Professional Services	
Construction Services	300,000
Machinery & Equipment	
Subtotal	**400,000**
Contingency (set at 30%)	120,000
TOTAL	**520,000**
Less Other Funding Sources (Grants, etc.)	
Total Funding Request $	**520,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)		100,000	420,000				520,000
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	100,000	420,000	-	-	-	520,000
Requested Funds:							

FY20-24 CMMP

Gymnasium Floor| PCR

Estimated Project & Purchase Timeline
Pre Design: n/a
Engineering/Design: FY 2021
Purchase/Construction: FY 2022

Project Description: The gymnasium floor was installed when the building was built in 1996 provides lines for a full size basketball court, volleyball court and badminton court. A replacement floor would include lines for the same sports. The new floor would be made of a synthetic material so it would no longer need to be covered during special events.

Project Need: The current wooden floor has received a recoat once a year to improve it's appearance and correct any scratches. However, over the past 20 years scratches have become more significant and the floor is beginning to show it's age. A replacement floor would not only provide a better experience for patrons but would also greatly improve staff's ability to deliver quality programming. Currently any special event held in the Community Center requires PCR staff to roll out tarps to protect the gymnasium floor. Those tarps then need to be cleaned and mopped which can take a great deal of time. The planned replacement floor could be mopped and would be cared for much like the Multipurpose Room floor.

Development Plan & Status (Include Permit and Utility Requirements): During FY21 PCR staff will identify the floor that best meets the needs for the community. The estimated cost is $221,000 which means that $51,000 or 10% is planned to be spent in FY21 for design and scoping. These numbers are WAG numbers and may change as FY21 approaches.

Cost Assumptions	
Engineering, Design, Const Admin	50,000
Other Professional Services	
Construction Services	120,000
Machinery & Equipment	
Subtotal	**170,000**
Contingency (set at 30%)	51,000
TOTAL	**221,000**
Less Other Funding Sources (Grants, etc.)	
Total Funding Request $	**221,000**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)			51,000	170,000			221,000
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	-	51,000	170,000	-	-	221,000
Requested Funds:							

Sitka Spruce Park Improvements| PCR

Estimated Project & Purchase Timeline

Pre Design: n/a

Engineering/Design: FY 2019

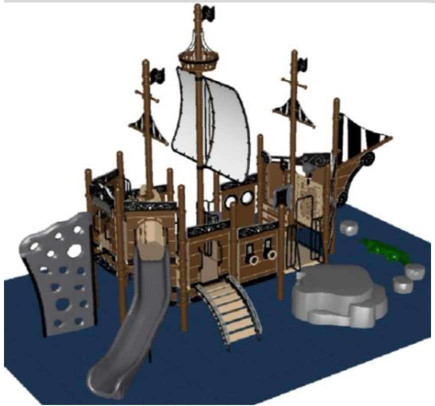
Purchase/Construction: FY 2020

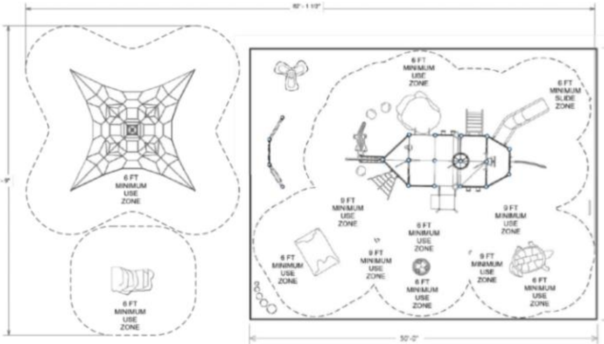
Project Description: Fully fund the engineering and construction of a new Sitka Spruce Park, also known as "Pirate Park," opened in 1979. This park includes picnic tables, a playground, stationary grill, bike rack, restrooms, a gravel trail, and a significant amount of trees for which it is a National Historic Landmark. This project is intended to replace the existing structures which were constructed during the original construction of the park.

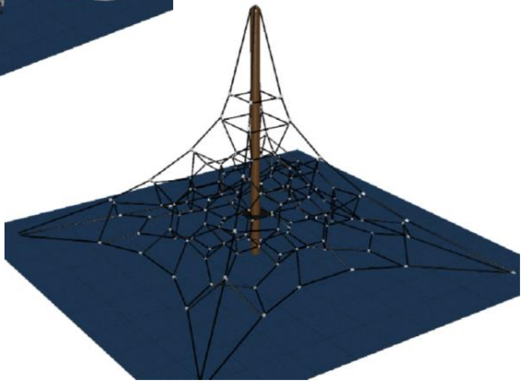
Project Need: In 2015, the swing set was replaced with a new swing designed to accommodate more children. While the equipment has been well maintained since its construction, all of it has seen some significant wear. The current equipment needing to be replaced consists of a large seesaw, three rocking horses, and a large piece of equipment made to look like a ship. When these items were built, this replacement project was planned for 2019. This project is included in the CMMP for the following purposes:

- Improve the quality of the park and the current structures.
- Evaluate the current and future facility in an effort to best accommodate Unalaska residents for the next 20 to 30 years.
- Current playground structures are at the end of their useful life span.

Development Plan & Status (Include Permit and Utility Requirements): After receiving a large amount of public input during FY17 and FY18, PCR staff and the PCR Advisory Board decided the original plans weren't as extensive as the general public preferred. During FY 2019 an analysis of the soil was done in order to ensure that it hadn't been contaminated. After the study was completed we were informed that the area was indeed safe to construct a playground on so we'd suggest moving forward with construction of the park during FY 2020.







Cost Assumptions		
	Engineering, Design, Const Admin	46,000
	Other Professional Services	
	Construction Services	629,527
	Machinery & Equipment	
	Subtotal	**675,527**
	Contingency (set at 30%)	202,658
	TOTAL	**878,185**
	Less Other Funding Sources (Grants, etc.)	
	Total Funding Request $	**878,185**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)	70,000	808,185					878,185
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	70,000	808,185	-	-	-	-	878,185
Requested Funds:							

FY20-24 CMMP

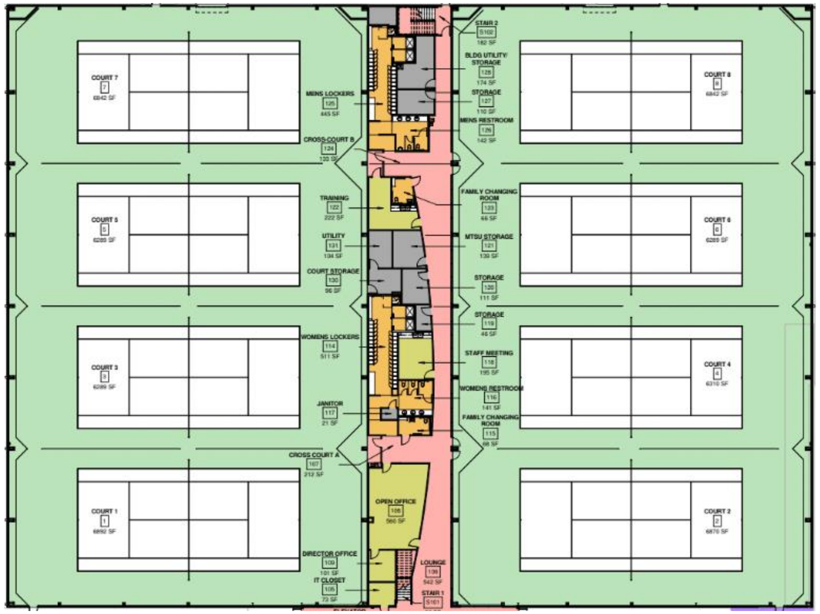
Tennis Court Improvement/Multipurpose Facility| PCR

Estimated Project & Purchase Timeline
Pre Design: n/a
Engineering/Design: FY 2022
Purchase/Construction: FY 2023

Project Description: Ounalashka Park was built in 1999 and is located in Unalaska valley. It is the department's largest park and includes a softball field, outdoor basketball/tennis court, and a paved trail with some permanent exercise stations. In addition to the athletic equipment, it also has a playground, pavilion, and a snack shack which is occasionally used during PCR events.

Project Need: In 2012, the court was resurfaced with plastic tiles in the hopes that they would be in improvement over the worn out court. However, they do not offer a particularly realistic tennis surface and the court is two feet too short. The purpose of this project is to:
- Improve the quality of the park and what it has to offer.
- Evaluate the current and future facility in an effort to best accommodate Unalaska residents for the next 20 to 30 years.
- Raise Council awareness of the need to bring an authentic tennis facility to the island.
- Provide a multipurpose covered facility.

Development Plan & Status (Include Permit and Utility Requirements): During FY19 and FY20 PCR staff and the Advisory Board will gauge public interest in bringing a covered facility with two regulation tennis courts. The estimated cost is $5,629,000 which means that $562,900 or 10% is planned to be spent in FY22 for design and scopi



Cost Assumptions		
	Engineering, Design, Const Admin	950,000
	Other Professional Services	130,000
	Construction Services	3,250,000
	Machinery & Equipment	
	Subtotal	**4,330,000**
	Contingency (set at 30%)	1,299,000
	TOTAL	**5,629,000**
	Less Other Funding Sources (Grants, etc.)	
	Total Funding Request $	**5,629,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)				562,900	5,066,100		5,629,000
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	-	-	562,900	5,066,100	-	5,629,000
Requested Funds:							

Unalaska City School Playground Renovation| PCR

Estimated Project & Purchase Timeline

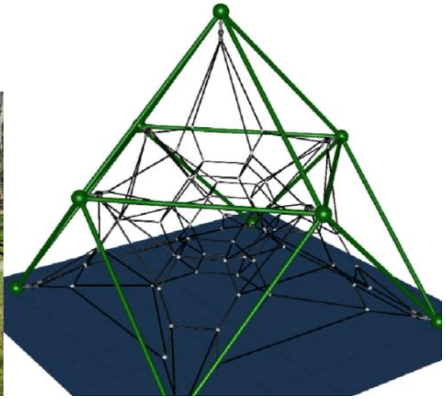
Pre Design: n/a

Engineering/Design: FY 2019

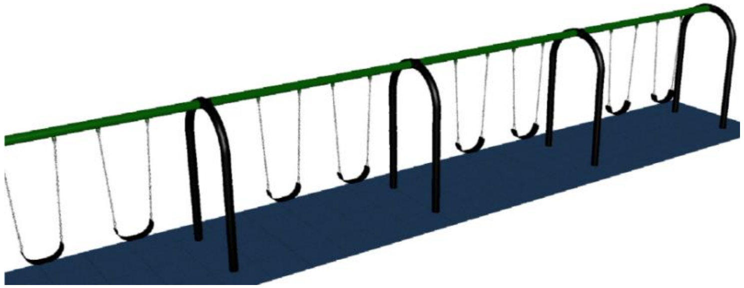
Purchase/Construction: FY 2020

Project Description: The UCS playground is located at the north end of the school property. The fenced in area of the playground totals 14,260 square feet, and the deteriorating wood and metal structures were installed in about 1996. These playground structures were purchased and installed through the efforts of many local individuals, business and Unalaska Pride. Some have part repaired or removed due to safety concerns with sharp edges and loose handholds. The playground surface is pea gravel with a type of tar paper subsurface. This surface has been fairly easy to maintain, although it needs to be regarded to make it safe and more suitable for students in grades 5 – 12. This might be accomplished with a new play structure, swing set, and additional flat, paved surfaces for basketball, volleyball, and other court based games. Additionally, the adjacent field could be improved through regarding and the additional of topsoil and grass. If fenced in, this field could be utilized for soccer, flag football and other field based games.

Project Need: The UCS playground would serve as an additional recreation site for families and community members during the evenings, weekends, and summer months. While the play structures at Town Park and the Recreation Center are wonderful for younger children, currently there is not an area in downtown that is appropriately equipped or designed for older children and young adults to play outdoors. The UCS playground would also provide a nice alternative for young people who are not avid skateboarders, but who might rather enjoy playing basketball, volleyball, soccer, and other field or court based activities. The School District's Student Nutrition and Physical Activity policy mandates that schools strive to allow students the opportunity for moderate physical activity each day. Studies have revealed that aerobic exercise during childhood is essential for cognitive development. A playground that meets al industry standards safety requirement would promote healthy life style practice while also expanding city recreation opportunities. This propose project support the Unalaska Comprehensive Plan 2020 by improving a venue for recreation activities. Further, the renovation would enhance the appearance of the downtown neighborhood will improve overal quality of life for Unalaska's residents.



Development Plan & Status (Include Permit and Utility Requirements): Overall costs for this project depends on the concept phase that will include public feedback, preserved and support. Detailed estimates for this project will be gathered once the scope of the project is determined. Possible funding sources included, donations, contributions, sponsorships, and grants.



Cost Assumptions

Engineering, Design, Const Admin	30,000
Other Professional Services	
Construction Services	990,373
Machinery & Equipment	
Subtotal	**1,020,373**
Contingency (set at 30%)	306,112
TOTAL	**1,326,485**
Less Other Funding Sources (Grants, etc.)	
Total Funding Request $	**1,326,485**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)		1,326,485					1,326,485
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	1,326,485	-	-	-	-	1,326,485
Requested Funds:							

Unalaska Public Library Improvements| General Fund

Estimated Project & Purchase Timeline

Pre Design: FY 2018-2019

Engineering/Design: FY 2019-2020

Purchase/Construction: FY 2020-2021

Project Description: Since the current facility was designed in 1996, we have seen changes in technology, in the community, and in library use. The library's collections and services have also expanded. Consequently, the facility's design and layout are no longer meeting the changing needs of the community.

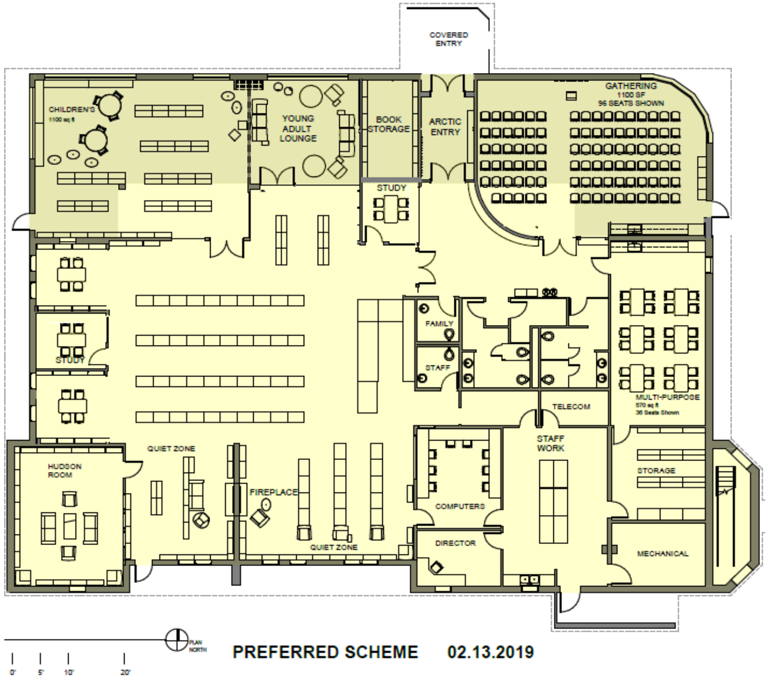
In FY18, the Foraker Group accepted this project into a Pre-Development Program whose services have been funded by the Rasmuson Foundation at no cost to the city. During the Pre-Development phase, Architect Brian Meissner with ECI visited Unalaska twice and created a concept design based on public and staff input.

City Council elected to go ahead with the project after Pre-Development, and in August 2018, ECI was awarded the design contract by the City of Unalaska. ECI will further develop the design in FY 2019, continuing to incorporate input from the public and from library staff, and arriving at a refined budget estimate for construction. They will present two reports to City Council in January – May of 2019.

Project Need: This project will increase the efficiency and service delivery life of the Unalaska Public Library. The current facility falls short in the following areas:

- Space and services for children and teens
- Meeting, study, and program space
- Quiet seating and reading space
- Room for growing library collections

Cost & Financing Data: The current project cost estimate is an Order of Magnitude cost based on conceptual designs created during Pre-Development by ECI Alaska Architecture. Once the project is funded for construction, staff may seek Rasmuson Foundation grant funding.



PREFERRED SCHEME 02.13.2019

Cost Assumptions	
Engineering, Design, Const Admin	500,000
Other Professional Services	230,000
Construction Services	4,100,000
Machinery & Equipment	-
Subtotal	**4,830,000**
Contingency (per ECI)	570,000
TOTAL	**5,400,000**
Less Other Funding Sources (Grants, etc.)	
Total Funding Request $	**5,400,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)	400,000	5,000,000					5,400,000
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	400,000	5,000,000	-	-	-	-	5,400,000
Requested Funds:							

FY20-24 CMMP

ALS Manikin | Public Safety

Estimated Project & Purchase Timeline

Pre Design: FY 2020

Engineering/Design: FY 2020

Purchase/Construction: FY 2020

Project Description: This project is for an Advanced Life Support training manikin.

Project Need: This project would allow the fire department personnel to get a more realistic and intuitive experience during medical training scenarios. This manikin would allow EMS trained career and volunteer staff to diagnose and treat as real as possible ailments while receiving feedback through software and human experience. These manikins are designed to function as a human would during any illness. Examples of this would be sweating, vomiting, fever, bleeding, realistic blood pressures, medication interactions, and many other reactionary behaviors of a patient. This will allow our only EMS service on the island to be better prepared for scenarios faced in the field and will improve patient outcomes. The project would also help the community at large. This manikin could also be used by medical providers at the clinic. This would provide them with continuing education and ensure that that are prepared for any and all cases.

Development Plan & Status (Include Permit and Utility Requirements):

Cost & Financing Data:

Cost Assumptions	
Engineering, Design, Const Admin	-
Other Professional Services	-
Construction Services	-
Machinery & Equipment	110,000
Subtotal	**110,000**
Contingency (set at 30%)	33,000
TOTAL	**143,000**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**143,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)		143,000					143,000
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	143,000	-	-	-	-	143,000
Requested Funds:							

Training Center| Public Safety

Estimated Project & Purchase Timeline

Pre Design: FY 2019

Engineering/Design: FY 2020

Purchase/Construction: FY 2021

Project Description: This project will establish a much needed live fire training facility. The structure will provide residential-like design with a burn room, interior stairs to multiple floors, interior fixed ladder, roof-mounted chop-out curbs, and parapet roof guard with chain opening. This allows for multiple training exercises including hose advancement, fire attack, search & rescue, rappelling, laddering, confined space, and high-angle rescue operations. The facility may also be used for police use-of-force training exercises, as well as for confined space training. Currently there are no such facilities, for public or private sector organizations, in the City of Unalaska. This facility will also include a "dirty" classroom and a "clean" classroom. These will allow personnel to stay out of the elements while the are instructed on the didactic portion of the lesson.

Project Need: Firefighters cannot be certified in Alaska without meeting a live fire requirement, to ensure that they experience fighting fires with significant heat and smoke in limited or zero visibility environments. An uncertified volunteer or paid firefighter can respond to a fire, but live fire training and certification ensures that they are prepared, so they don't panic in a real situation. No such live fire facility exists in Unalaska. Currently, firefighters go off-island for live fire training and certification at a cost of approximately $3,000 each; the training requires 1-2 weeks and volunteers must take time off from work and/or family commitments in order to attend. The proposed live fire building can be modified for use by the police department to practice active shooter or other use-of-force situations, and can also be used as a confined space rescue training facility by other City departments or private industry. Additionally, this facility could be used as a regional training center for other Aleutian Communities. This Project will also include utilities run the site. Approximately 8000 feet of large diameter water piping and wastewater will be run in the road up to the site. This would equip the site as a training site that could be used by multiple departments in the city.

Development Plan & Status (Include Permit and Utility Requirements):): at present, only a concept plan exists, shown on the right side of this page. The location of these buildings will be in the valley next to the Water Department Maintenance Shop.

Cost & Financing Data: All monies will come from the general fund. $12,000 was previously appropriated for a temporary training structure made from shipping containers. Cost quote for facility in 2018 dollars is $255,000 plus $85,000 shipping.

Cost Assumptions

Engineering, Design, Const Admin	694,418
Other Professional Services	1,746,654
Construction Services	526,418
Machinery & Equipment	-
Subtotal	**2,967,490**
Contingency (set at 30%)	890,247
TOTAL	**3,857,737**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**3,857,737**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)	12,000	2,192,078	1,653,660				3,857,738
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	12,000	2,192,078	1,653,660	-	-	-	3,857,738
Requested Funds:							

SCBA Replacement | Public Safety

Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2020
Purchase/Construction: FY 2020

Project Description: This project will replace the aging and dated SCBA units currently in use. This essential piece of firefighting equipment is regulated under the National Fire Protection Agency. This Agency meets to update the requirements for SCBAs every five years and recommends replacing units every three regulatory cycles.

Project Need: : In Calendar year 2018 NFPA will release new guidelines pertaining to SCBA features and functionality. This will be the third regulatory update since the last purchase of SCBAs. By following these guidelines put forward by NFPA Unalaska fire department will continue to adhere to industry standards and better serve the community of Unalaska. Adhering to industry standards keeps firefighters and citizens safer in hazardous situations. Being the only emergency response department on the island magnifies the importance of keeping properly functioning equipment because it is not possible to know when a large incident may occur or when help may arrive.

Development Plan & Status (Include Permit and Utility Requirements): Manufactures have began releasing the most updated SCBA units to end users. These new packs are currently being released with the 2013 NFPA compliance rating but will be upgraded as soon as the Consensus standard is released. By the time of purchase for Unalaska all new packs will be in compliance with 2018 NFPA standards.

Cost & Financing Data: : In the past there has been grant opportunities for the purchase of SCBAs. With the current fiscal climate at the state level this source can not be counted on. The Fire Department is also part of a Group Purchasing Organization (GPO) that offers a discount for these units. Purchasing through this GPO will save the city 25% per unit.

Cost Assumptions	
Engineering, Design, Const Admin	-
Other Professional Services	-
Construction Services	-
Machinery & Equipment	268,000
Subtotal	**268,000**
Contingency (set at 30%)	80,400
TOTAL	**348,400**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**348,400**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)		348,400					348,400
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	348,400	-	-	-	-	348,400
Requested Funds:							

FY20-24 CMMP

Aerial Ladder Replacement| DEPARTMENT

Estimated Project & Purchase Timeline

Pre Design: FY 2022

Engineering/Design: FY 2022

Purchase/Construction: FY 2022

Project Description: Replacement of the aerial apparatus. The current apparatus was built in 1997 and has been in service for 22 years.

Project Need: In keeping with our past practices of replacing apparatus every 25 years we will spec and build this apparatus in FY22. NFPA currently states that apparatus should be replaced every 10 years. With our current low fire call volume and excellent maintenance record we are able to stretch the life span by %150. Building a new apparatus will ensure that Unalaska Fire Division will stay current with industry standard and best serve the community of Unalaska. This apparatus will allow us to operate more efficiently and safely during emergency events. The new proposed apparatus will be designed with the safety of our firefighters first and the community second. With this new apparatus the department will be able to reach higher or further out and pump more water per minute.

Development Plan & Status (Include Permit and Utility Requirements): The design, development, and purchase of this apparatus will occur in FY20. As we have done with all fire apparatus we will sole source this project through Pierce Manufacturing. This reduces the training and familiarization time for department personnel and city maintenance staff. This apparatus will be custom built in Appleton Wisconsin with three trips made to the manufacture to ensure the apparatus spec and timeline is being met.

Cost & Financing Data: The cost of this apparatus could be fully funded through the general fund. There is a possibility of a grant that may offset the cost of an apparatus but can not be counted on as the only source of funding. As this project is still 3 years out the cost of the apparatus may increase with cost of materials and labor rising with the new tariffs and steel and aluminum. These factors make this cost estimate an educated guess and will be clearer as the purchase date approaches.

Cost Assumptions		
	Engineering, Design, Const Admin	1,300,000
	Other Professional Services	-
	Construction Services	-
	Machinery & Equipment	-
	Subtotal	**1,300,000**
	Contingency (set at 30%)	390,000
	TOTAL	**1,690,000**
	Less Other Funding Sources (Grants, etc.)	-
	Total Funding Request $	**1,690,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)				1,690,000			1,690,000
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	-	-	1,690,000	-	-	1,690,000
Requested Funds:							

FY20-24 CMMP

Radio System Upgrade | Public Safety

Estimated Project & Purchase Timeline

Pre Design: FY 2018

Engineering/Design: FY 2019

Purchase/Construction: FY 2020

This project will upgrade the current radio system by replacing components that include; repeaters, transmitters, antenna systems, and console software operating systems. The various components are located at the top of Haystack, and in the DPS building. This project will ensure the radio system becomes compliant with FCC regulations requiring further 'narrow banding' of public entity radio systems, and will additionally upgrade our current 911 system to become an 'enhanced 911' (E911) system with expansion options for location mapping and CAD (Computer Aided Dispatch) software for incident and event records.

PROJECT NEED: The City of Unalaska utilizes seven radio channels, and all seven channels are maintained and operated by Public Safety. This mission critical system is one of our primary methods of communicating during daily activities as well as disasters. It is designed to provide redundancy in the event of a multi-hazard event. In FY16 two a systems audit was conducted (the R56 audit), which showed there were many problems with the two repeater sites and the system's aging components. Most of the radio system components were purchased around 2005, system parts are no longer manufactured and the components cannot be programed to the frequency ranges which are now required by the FCC.

The E911 system will provide dispatch with the location of the person calling 911 on both wired or wireless phone system, and will result in decreased response times to emergencies. Not incorporating E911 does not affect FCC narrow-banding requirements, nor does it affect the age and condition of our current radio equipment. An investment in a compliant, properly installed communication system will support site repair work, new equipment and new equipment warranty.

DEVELOPMENT PLAN & STATUS: The R56 audit was conducted in FY16 and identified problems with both repeater sites, and with the radio system's components. The contractor will utilize the audit to conduct the needed upgrades, repairs, and replacements in order to obtain R56 audit compliance and ensure operation at the frequency ranges that are required by the FCC. The E911 system will be developed after R56 compliance has been achieved, in a two phased approach—phase one provides caller ID and caller location for landline phones, and phase two provides caller location for landline and cellular phones using GPS mapping and coordinates.

COST & FINANCING DATA: The funding for this project will be for a contractor to upgrade, replace and install radio system components, as well as install the consoles, hardware and software needed for both FCC-required narrow-banding and E911 systems. One funding option is to solely utilize the general fund to pay for the project. Another option is to enact a telecommunication surcharge on all phone lines in Unalaska (up to $2 per line). This surcharge is allowed under AS 29.35.131 and is intended to cover the cost of E911 systems equipment or services (including radio systems). Not updating to an E911 system may affect the ability of the City to assess this telecommunications surcharge. This project is estimated at $630,000.00.

Cost Assumptions	
Engineering, Design, Const Admin	40,000
Other Professional Services	40,000
Construction Services	60,000
Machinery & Equipment	490,000
Subtotal	**630,000**
Contingency (set at 30%)	189,000
TOTAL	**819,000**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**819,000**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)	310,000	509,000					819,000
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	310,000	509,000	-	-	-	-	819,000
Requested Funds:							

TSUNAMI SIRENS UPGRADE| DPS

Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2020
Purchase/Construction: FY 2020

PROJECT NEED: The City of Unalaska's Hazard Mitigation Plan identifies all applicable natural hazards, identifies the people and facilities potentially at risk, and ways to mitigate damage from future hazard impacts. Tsunamis are one such natural hazard. Tsunamis can strike at any time of day or night and the community needs to be vigilant at all times 24/7/365. The City's array of 7 tsunami sirens alerts the community of possible danger enabling residents to seek higher ground in advance of impending tsunami strike. Annual inspections of our tsunami sirens indicates they are aging and in need of repairs, replacements, and upgrades. Most of the sirens are worn and require more and more frequent maintenance. Some heaters have failed resulting in inoperable sirens.

DEVELOPMENT PLAN & STATUS: The 7 tsunami sirens are located at:

1. Standard Oil Hill
2. Amaknak Fire Station
3. Ballyhoo Road
4. Bobby Storrs Boat Harbor
5. PCR
6. Unalaska Valley
7. Carl E Moses Boat Harbor

For each of the 7 tsunami sirens, American Signal Corporation (ASC) will provide materials, control server and software, server, training, and system commissioning. A local electrical contractor will remove and replace 200 amp electrical service, install rectifier/controller cabinet, new conduit and wiring, and assist ASC technician.

COST & FINANCING DATA: The funding for this project will come from the General Fund. Price quotes have been solicited and received.

Cost Assumptions	
Engineering, Design, Const Admin	10,000
Other Professional Services	15,000
Construction Services	133,140
Machinery & Equipment	43,305
Subtotal	**201,445**
Contingency (set at 30%)	60,434
TOTAL	**261,879**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**261,879**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)		261,879					261,879
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	261,879	-	-	-	-	261,879
Requested Funds:							

HENRY SWANSON HOUSE IMPROVEMENTS| DPW

Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2020
Purchase/Construction: FY 2020

Project Description: The Henry Swanson House Improvement Project includes the rehabilitation, reuse, and recognition of the historical importance of the Henry Swanson House.

Project Need: As required per City Code, the Historic Preservation Commission produced an Inventory of Historic Sites in 2003. This survey of historic properties in our community included the Henry Swanson House. The Alaska Heritage Resource Survey documentation completed as a part of the survey provides a detailed overview of the structure, architecture, and historical relevance. The Unalaska Comprehensive Plan calls for the Preservation Commission to continue to place interpretive markers at significant historic sites within the City limits and to advocate for cost effective preservation, rehabilitation, and adaptive reuse of Unalaska's historic buildings. This current funding request is to elevate the construction of the house to prevent future mold issues.

Development Plan & Status (Include Permit and Utility Requirements): The DPW Facilities Maintenance Division inspected the building in the fall of 2017 and found the structure solid but in need of much TLC. The metal roof has helped keep the overall structure in fair and salvageable condition. Small inspection holes were cut into the floor, walls, and ceiling to inspect the inner structure and it was found to be in good condition. Tests for 36 different strains of mold were conducted by an independent lab with results showing little to no evidence of mold. DPW will solicit bids from local contractors to raise the structure approximately 30" off the ground, place the building on a solid perimeter foundation, and bring electrical up to code. DPW Facilities Maintenance will repair and paint the interior, inspect/repair electrical wiring, and restore heat via the existing Toyo stove to control humidity. Once the Henry Swanson House is returned to useable condition, a written report with pictures providing the history of the house will be made available to assist Council in making a decision about the future use of the historic home.

Cost & Financing Data:

Cost Assumptions	
Engineering, Design, Const Admin	4,000
Other Professional Services	2,800
Construction Services	85,000
Machinery & Equipment	-
Subtotal	**91,800**
Contingency (set at 30%)	27,540
TOTAL	**119,340**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**119,340**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)		119,340					119,340
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	119,340	-	-	-	-	119,340
Requested Funds:							

Generator Sets Rebuild| ELECTRIC PRODUCTION

Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2020
Purchase/Construction: FY 2020

Project Description: This project consists of the inspection, major maintenance, and rebuilds of the four primary Generator sets in the Unalaska Powerhouse. The maintenance schedule for the Generator Sets at the Unalaska Powerhouse is determined by engine hours. Engine inspections are also conducted by the manufacturer's mechanics to determine if engine rebuilds are needed according to the hourly schedule or if they can be prolonged.

Project Need: These Generator Set rebuilds are needed to maintain our equipment and the reliability of our electrical production. The replacement costs are approximately $7 million for the Wartsila Gensets and $5 million for the C280 Caterpillars. Maintaining the City's investment is an important priority. Also, our Certificate of Fitness from Alaska Energy Authority states that we must keep all electrical generating equipment in good running condition.

Development Plan & Status (Include Permit and Utility Requirements): Due to the cost of the engine rebuilds, it has been determined that the cost will be capitalized.

Cost & Financing Data: Costs for the Generator Sets rebuilds can fluctuate greatly according to what is determined by the maintenance inspections. Costs for these rebuilds has been determined by past rebuild costs according to the worst case scenario. A 2% inflation rate has been added each year. Money that is not used for rebuilds by the end of the fiscal year, will be returned to the proprietary fund.

Cost Assumptions	
Engineering, Design, Const Admin	-
Other Professional Services	500,000
Construction Services	-
Machinery & Equipment	6,361,553
Subtotal	**6,861,553**
Contingency (set at 30%)	2,058,466
TOTAL	**8,920,019**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**8,920,019**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund		1,714,056	1,748,338	1,783,305	1,818,970	1,855,350	8,920,019
TOTALS $	-	1,714,056	1,748,338	1,783,305	1,818,970	1,855,350	8,920,019
Requested Funds:							

Flywheel Energy Storage System I Electric Production

Estimated Project & Purchase Timeline
Pre Design: FY 2019
Engineering/Design: FY 2019
Purchase/Construction: FY 2020

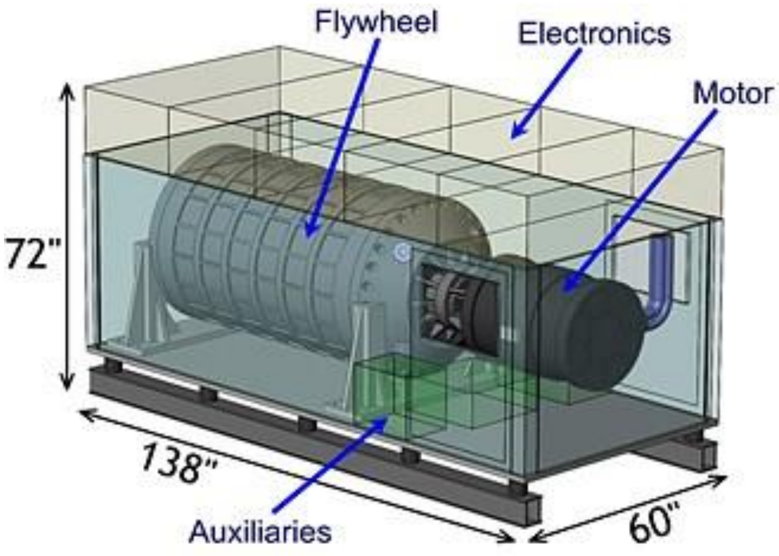
PROJECT DESCRIPTION: This nomination is for the final design, procurement, construction, integration and commissioning of one 1 MW PowerStore PCS (16.5MJ) flywheel system, space for future second flywheel system, and related components.

PROJECT NEED: The electrical loads introduced the City's electrical grid by equipment such as large ship to shore cranes are outside the intended loading profile. To counter these rapid changes in load, which at times reach levels of 10 to 15% of the total load in seconds, the engines must constantly react to both the rapid increases and decreases of the system load. The engines reaction to these changes decreases efficiency and creates undue mechanical and electrical wear on the equipment and distribution system. In addition generation dispatch is often significantly effected due to the inability of the facilities to run in the most efficient configuration possible. The proposed Flywheel system will arrest the rapid changes in the electrical load.

DEVELOPMENT PLAN & STATUS (INCLUDE PERMIT AND UTILITY REQUIREMENTS):

Design will be accomplished in FY2019 and FY2020. Installation of the Flywheel equipment will be in FY2020. Permitting is not expected for this project.

COST & FINANCING DATA: Money for this project will come from the Electrical Proprietary Fund.



Cost Assumptions	
Engineering, Design, Const Admin	78,750
Other Professional Services	100,000
Construction Services	229,500
Machinery & Equipment	1,457,411
Subtotal	**1,865,661**
Contingency (set at 30%)	559,698
TOTAL	**2,425,359**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**2,425,359**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund	78,750	2,346,560					2,425,310
TOTALS $	78,750	2,346,560	-	-	-	-	2,425,310
Requested Funds:							

FY20-24 CMMP

4th Waste Heat Recovery Unit /ELECTRIC PRODUCTION

Estimated Project & Purchase Timeline

Pre Design: None

Engineering/Design: FY 2021

Purchase/Construction: FY 2021

Project Description: This nomination is for the purchase, installation and commissioning of a 4th ElectraTherm Organic Rankine Cycle heat recovery unit to be installed in the old powerhouse facility.

Project Need: The addition of the 4th unit increases the cooling capacity of the existing power production facility, which adds redundancy to the community's existing facilities, reduces the amount of fuel required to produce energy, reduces pollution, and decreases the amount of additional energy required to run the existing facilities.

Development Plan & Status (Include Permit and Utility Requirements): To minimize the design we recommend the sole source to Electrical Power Systems (EPS) as the Mechanical and Electrical installer for those portions of this project. EPS/MBIS was the principal designer, mechanical installer, electrical installer, and SCADA integrator for the installation of the original 3 ORC units. As the Engineer of Record, EPS has existing knowledge of the electrical production facility and its subsystems, and they have a proven track record of successful and well-implemented Design Build projects for the Electrical Utility. The design from the first three ORCs will be used for this project. The piping, electrical race ways, and concrete slab was installed for the fourth unit during the construction of the first three units.

Cost & Financing Data: The monies for this project will come from the Electrical proprietary Fund. Cost were determined from quotes from Electratherm and Electrical Power Systems.

Cost Assumptions	
Engineering, Design, Const Admin	-
Other Professional Services	-
Construction Services	$285,000
Machinery & Equipment	$177,000
Subtotal	**462,000**
Contingency (set at 30%)	138,600
TOTAL	**600,600**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**600,600**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund				600,600			600,600
TOTALS $	-	-	-	600,600	-	-	600,600
Requested Funds:							

Powerhouse Cooling Water Inlet Cleaning and Extension | ELECTRIC PRODUCTION

Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2020
Purchase/Construction: FY 2021

Project Description: This project consists of cleaning the Powerhouse seawater cooling line from the intake to the Powerhouse, and extending the intake to deeper water.

Project Need: The seawater cooling line for the Powerhouse needs cleaned out every five years due to marine growth inside the line. Due to the seawater temperatures increasing and congestion from local construction, the cooling water intake needs to be lengthened to a deeper location where the water will be colder. An estimated depth of 20 feet is recommended by the Electrical Masterplan.

Development Plan & Status (Include Permit and Utility Requirements): The existing pipe runs inside a square concrete utilidoor that terminates with a concrete gate support structure. The gate was actually a strainer grate that could be raised and lowered from the support structure for maintenance and cleaning. Only the concrete guides for the gate remain of this system. It is suggested that the gate be replaced at the end of a 200 linear foot pipe extension out into Unalaska Bay. The pipe would be 30 inch pipe and terminate at a -20 foot MLLW. The gate would be constructed of 316 stainless steel and the pipe extension would be constructed of SDR 32.5 (.923 inch wall) HDPE pipe to eliminate the need for corrosion maintenance. The extension would be attached to the gate with a 45° elbow to swing the direction of the pipeline to the north, away from the fuel dock and in the shortest direction to deeper water. The terminus would be connected to a steel box, the top of which would have a removable grate. There would be a flanged connection at the 45° elbow and another flange connection 20 feet from the elbow to allow a removable section for cleaning and maintenance. There would be another flange connection 100 feet from the terminus to facilitate handling in construction. To prevent any movement of the extension pipe or suction box, pairs of short wide flange beam anchors would be driven into the bay. The first set just out from the 20' section, the second pair would be to one side of the center connection, the third pair would be 50 feet from the box and the fourth pair would be driven through guide bars welded to the side of the box. These anchor beams would be 10 feet long of 12" 53 lb./ft. WFB that would be driven approximately 6 feet into the gravel substrate. A heavy chain going over the pipe would be shackled to the beam flanges to prevent excessive vertical movement in the event that air would be trapped in the pipeline.
Prior to installation the existing intake pipe would be cleaned again by drawing the cleanout pig through the line, pumping the mud and any debris from the sump and scraping the marine growth from the inside of the concrete gate support structure.

Cost Assumptions		
	Engineering, Design, Const Admin	40,000
	Other Professional Services	10,000
	Construction Services	200,000
	Machinery & Equipment	67,432
	Subtotal	**317,432**
	Contingency (set at 30%)	95,230
	TOTAL	**412,662**
	Less Other Funding Sources (Grants, etc.)	-
	Total Funding Request $	**412,662**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund		40,000	372,662				412,662
TOTALS $	-	40,000	372,662	-	-	-	412,662
Requested Funds:							

34.5 kV Submarine Cable Replacement| ELECTRIC DISTRIBUTION

Estimated Project & Purchase Timeline

Pre Design: FY 2021

Engineering/Design: FY 2022

Purchase/Construction: FY 2023

Project Description: The Electric Utility relies on the 34.5 kV subtransmission system to deliver power to major Industrial loads and to the Town Substation using two existing feeders.One feeder crosses Iliukiuk Bay between East Point Road and Bay View Avenue. This feeder is nearing the end of its lifespan and replacement will be required.

Project Need: The submarine cable crossing is understood to be approximately 30 years old and was originally installed by the City linecrew. At the East Point Road entrance point, the cable is no longer buried completely and is easily approachable at low tide. Furthermore, large rocks have been moved by waves over the years are now sitting directly on the cable. While undersea cable has a durable outer jacketing and is more protected by its construction than a typical 15 kV cable, the current condition does represent a safety problem and should be corrected as soon as feasible.

Development Plan & Status (Include Permit and Utility Requirements): Once a preliminary design is completed, then the Section 10 permit package can be developed and filed with the Army Corps of Engineers. The project assumes the Corps will determine that the cable project will qualify for a Nationwide permit, which a streamlined version of an individual permit. The Corps will coordinate with federal and state resource agencies during the review process. The agencies will consider project impacts to endangered species, impaired waterbodies, and fish habitats. The Corps usually issue a Nationwide Section 10 permit within three months of receiving a completed application. It is assumed that the new submarine cable will be installed in the same location and with the same points of connection as the existing line. However, the capacity of this line should be updated during the engineering planning phase of this project in order to better serve the current and future loads. Engineering coordination with the express feeder project will be required. Additionally, a cable condition assessment and inspection should occur very soon. The results of this inspection may affect the replacement schedule of the submarine cable.

Cost & Financing Data: The money for this project will come from the Electrical Proprietary Fund.

Cost Assumptions

Engineering, Design, Const Admin	180,000
Other Professional Services	40,000
Construction Services	1,000,000
Machinery & Equipment	580,000
Subtotal	**1,800,000**
Contingency (set at 30%)	540,000
TOTAL	**2,340,000**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**2,340,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund			60,000	120,000	2,160,000		2,340,000
TOTALS $	-	-	60,000	120,000	2,160,000	-	2,340,000
Requested Funds:							

Automatic Meter Read System | Electric Distribution

Estimated Project & Purchase Timeline
Pre Design: FY 2017
Engineering/Design: FY 2019
Purchase/Construction: FY 2020

Project Description: The Electric Utility AMR (Automatic Meter Reading) System, project encompasses the final design, installation and commissioning of a system capable of integrating with our existing automatic meter reading and financial billing systems. This includes replacing our existing meters to incorporate automatic meter reading capabilities system wide. This project will include the installation of a communications system capable of automatically taking the electrical meter reads at a given time. The implementation of this system is the last step in an effort to synchronize the production, distribution and billing portions of the Electric Utility.

Project Need: Results of a survey on Rural Electrical Systems in 2012, conducted by AEA (Alaska Energy Authority), noted that our meter reading abilities were an area to look at for improvement. The AEA in addition to other agencies mandate accuracy between power sales and production, with an expected line loss for our system of about 4%. When Power Cost Equalization (PCE) reports show line losses excessively higher or lower than 4%, an explanation must be provided. Less accuracy may affect the PCE (Power Cost Equalization) rate, which generally covers more than half of residential customers' electrical utility bill. This project will increase the ability to pass on notice of excessive power use to customers, quicker cut in/out of services and reduce "bad" meter reads due to read or input error. Automatic polling will allow meters to be read on a more consistent base, with the ability to disregard time/labor conflicts with weekends, holidays, and weather conditions which currently causes fluctuations of more than a week in the read schedule

Cost & Financing Data: The money for this project will come from the Electrical Proprietary Fund.

Cost Assumptions	
Engineering, Design, Const Admin	19,184
Other Professional Services	32,875
Construction Services	30,696
Machinery & Equipment	320,000
Subtotal	**402,755**
Contingency (set at 30%)	120,827
TOTAL	**523,582**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**523,582**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund	119,362	404,220					523,582
TOTALS $	119,362	404,220	-	-	-	-	523,582
Requested Funds:							

General Hill Booster Pump| WATER

Estimated Project & Purchase Timeline

Pre Design: FY 20X18

Engineering/Design: FY 2019

Purchase/Construction: FY 2020

Project Description: This project consists of installing a water booster station on General Hill at approximately 100 feet of elevation. It will include underground plumbing, a small building, two pumps with controls, and plumbing to connect a fire engine.

Project Need: This project will increase water service pressure in the upper elevations of the hill. It will greatly reduce the potential for contamination of the water system due to backflow, and decrease the potential for customers to lose water service due to low pressure. Water pressure at the top of General Hill does not currently meet the minimum industry standard of 40 psi or a minimum sustainable pressure of 20 psi. Measured residual pressures range from 0 to 26 psi at the uppermost fire hydrant. This is not simply an inconvenience to the highest General Hill customers, but it is a health and safety issue for all water utility customers. These low water pressures create a high potential for contamination of the water system caused by backflow. This is of special concern during water main breaks and fires.

Development Plan & Status (Include Permit and Utility Requirements): This project will require a consultant for design and engineering to obtain Alaska Department of Environmental Conservation (ADEC) approval. A contractor will be needed for construction. Land purchase will also be required.

Cost & Financing Data: This project will be funded by the Water Proprietary fund. Costs are rough estimates, but staff will refine cost estimates prior to FY18 budget submittal.

Cost Assumptions		
	Engineering, Design, Const Admin	45,000
	Other Professional Services	25,000
	Construction Services	500,000
	Machinery & Equipment	250,000
	Subtotal	**820,000**
	Contingency (set at 30%)	246,000
	TOTAL	**1,066,000**
	Less Other Funding Sources (Grants, etc.)	-
	Total Funding Request $	**1,066,000**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund	221,600	844,400					1,066,000
TOTALS $	221,600	844,400	-	-	-	-	1,066,000
Requested Funds:							

Pyramid Water Treatment Plant Micro TurbinesWATER

Estimated Project & Purchase Timeline

Pre Design: FY 2018

Engineering/Design: FY 2019

Purchase/Construction: FY 2020

Project Description: This project will install Micro-Turbines in the new Pyramid Water Treatment Plant. Previous studies have shown that turbines located at this site have the potential to greatly reduce the fossil fuel energy demand in this plant, potentially even reducing the cost to operate this new plant to current operating levels.

Project Need: It is intended to reduce or eliminate the cost of the additional energy required to operate the new WTP, helping to reduce the rising cost of producing potable water. Because of the elevation of the Icy Creek Reservoir, the pressure of the water has to be reduced before it can be processed. This is currently achieved by stripping off the energy through a Pressure Reducing Valve or PRV. A PRV regulates the pressure by restricting the flow through a point. This project proposes to use Inline Micro-Turbines to produce electricity and reduce the pressure. The electricity generated would be used to meet electrical and other energy demands of the WTP, potentially saving the utility and its customers money in energy costs each year. The WTP currently uses about 200,000 kW per year in electricity. Micro-Turbines will generate about 345,000 kW per year with the capability to produce 575,00 kW per year if additional water rights are acquired.

Development Plan & Status (Include Permit and Utility Requirements): Planning was done during the design of the new WTP to provide the space needed for the future installation of inline Micro-Turbines. This project will determine the most efficient way to utilize that space. It will effect both how the new WTP operates and how much it costs to operate. This project will be broken into three parts. Phase I will be Pre-design including gathering stream data, permitting, validation of existing data, and 35% design including engineers estimate with O&M costs. Phase II is design and Phase III is the construction piece.

Cost & Financing Data: Payback is 10 years. This is an estimate which can change.

Cost Assumptions	
Engineering, Design, Const Admin	120,000
Other Professional Services	30,000
Construction Services	660,750
Machinery & Equipment	450,000
Subtotal	**1,260,750**
Contingency (set at 30%)	378,225
TOTAL	**1,638,975**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**1,638,975**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund	50,000	1,588,975					1,638,975
TOTALS $	50,000	1,588,975	-	-	-	-	1,638,975
Requested Funds:							

CT Tank Interior Maintenance & Painting | WATER

Estimated Project & Purchase Timeline

Pre Design: FY 2020

Engineering/Design: FY 2020

Purchase/Construction: FY 2021

Project Description: This project is to paint and perform other maintenance to the inside of the Pyramid CT Tank. The work will be performed in two phases. The coatings on the ceiling are deteriorating at a rate to meet its predicted life span of 20-25 years. This tank can be kept in good reasonable service for many years to come, with the proper maintenance including painting, for a fraction of the cost of a new tank. Adding a new CT Tank may however, be the best option to provide for the ability to maintain this existing CT Tank.

Project Need: Small sections of coatings are beginning to drop into the water in the tank. The floor has problems with pitting that needs to be dealt with immediately. In some locations the pitting is believed to exceed ½ of the thickness of the steel plate. If left in its current condition, the tank floor will likely be leaking in 2-3 years. In 5-7 years, large sections of the ceiling coatings will be dropping into the water and could plug the tank discharge holes or break up and travel through the distribution system and into customers' services. Shortly after, structural damage will begin to occur. The Pyramid CT Tank was originally constructed in 1993. The tank has been drained every 3-5 years for cleaning and/or inspection over the past 10 years. It takes from 200-300 man hours over a 7-10 day period to drain, clean and inspect the tank. The tank has never been completely de-watered. Because of the length of time and type of equipment available to do the work, and the configuration of the tank, complete de-watering has not been practical. Historically, water tanks in this area have had to have the exteriors re-coated every 15-25 years. The CT Tank roof was painted with a finish coat in 2008 after a failed attempt to replace the wind damaged foam insulation in 2000. Anodes were added in 2004 to help slow the rate of corrosion to the inside of the tank. Total cost for maintenance has averaged about $25,000.00-$30,000.00 per year. Building a second CT Tank was the designed and intended path to take when the original CT Tank was built. It provides the redundancy required in the treatment process to maintain Filtration Avoidance status. It also directly addresses the operational function issues associated with maintaining each tank.

Development Plan & Status (Include Permit and Utility Requirements):

Cost & Financing Data:

Cost Assumptions	
Engineering, Design, Const Admin	75,000
Other Professional Services	-
Construction Services	735,000
Machinery & Equipment	-
Subtotal	**810,000**
Contingency (set at 30%)	243,000
TOTAL	**1,053,000**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**1,053,000**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund		100,000	953,000				1,053,000
TOTALS $	-	100,000	953,000	-	-	-	1,053,000
Requested Funds:							

Pyramid Water Storage Tank| WATER

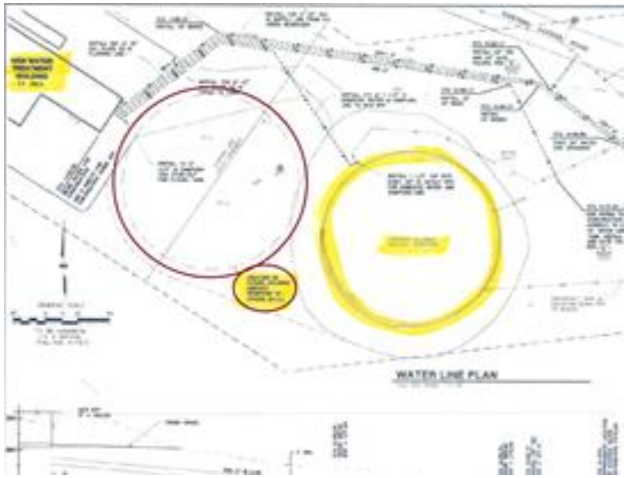
Estimated Project & Purchase Timeline
Pre Design: FY 2022
Engineering/Design: FY 2022
Purchase/Construction: FY 2023

Project Description: This project will construct a second Chlorine Contact Tank (CT Tank) next to the existing CT Tank. It will provide much needed clear water storage and enable maintenance to be done on the interior of either tank regardless of process seasons or weather. The project will require the installation of approximately 200 ft. of 16" DI water main, 200 ft. of 8" DI drain line, and 100 ft. each of 1" sample line and control wiring.

Project Need: Additional storage provided by this tank will help to meet many of the issues mentioned in the 2004 Water Master Plan. Even in the Water Distribution System's current configuration, this new tank will provide an additional 960,000 gallons of the additional 4 MG of finished water storage recommended in the Master Plan. When planned future development is completed on Captain's Bay Road, over 2.2 MG of water storage will be available at the maximum Pyramid Water Treatment Plant capacity of 9 MGD. The additional storage will provide a much needed buffer, allowing time to troubleshoot and repair problems in the event of an equipment failure or system malfunction. It will reduce the likelihood of water shortages and/or outages during the Pollock Processing seasons. Additional benefits include: reduces service interruption, boil water notices, and risk of system contamination during maintenance; allows routine maintenance to be done on the interior or exterior of either tank during any season, prolonging the life of these tanks; expands and upgrade both the water treatment and distribution systems, using the full 9 MGD design capacity of the new water treatment plant will be possible; improves the flow characteristics of the new Pyramid Water Treatment Plant; plant operators will be able to allow the tanks to absorb the high and low flows, maintaining a more stabilized treatment process and allowing the new Ultra Violate treatment process to operate more efficiently.

Development Plan & Status (Include Permit and Utility Requirements): A "Certificate to Construct" and a "Certificate to Operate" are required from ADEC, obtained through application by the designing engineer.

Cost & Financing Data:



Much of the pre-design work for this job was completed with the design of the original CT Tank. Very little piping will be required to connect the new CT Tank to the Water Distribution system. Space (in the red circle) has been maintained for the new tank between the existing tank and the new Pyramid Water Treatment Plant.

Cost Assumptions	
Engineering, Design, Const Admin	647,000
Other Professional Services	-
Construction Services	6,379,879
Machinery & Equipment	-
Subtotal	**7,026,879**
Contingency (set at 30%)	2,108,064
TOTAL	**9,134,943**
Less Other Funding Sources (Grants, etc.)	8,509,943
Total Funding Request $	**625,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant				603,750	7,906,193		8,509,943
Proprietary Fund	625,000						625,000
TOTALS $	625,000	-	-	603,750	7,906,193	-	9,134,943
Requested Funds:							

SCBA Replacement | WATER

Estimated Project & Purchase Timeline

Pre Design: FY 2020

Engineering/Design: FY 2020

Purchase/Construction: FY 2020

Project Description: This project will replace the aging and dated SCBA (Self Contained Breathing Apparatus) units currently in use. This essential piece of hazmat response equipment is required by the EPA and regulated under OSHA because we work with Chlorine Gas as part of our water disinfection process.

Project Need:

1. When we purchased our Survivair SCBA's in 2005/2006 Unalaska Fire Department (UFD) staff provided the annual SCBA flow tests and maintenance for our SCBA's as well as their own since they were certified Survivair SCBA technicians. In subsequent years the UFD upgraded by purchasing SCBA's from a different manufacturer. Fortunately UFD staff were able to continue the maintenance on our SCBA's due to their certifications. Staff turnover in the Unalaska Fire Department has resulted in not having a certified Survivair technician here since at least 2012. Subsequently we send our SCBA's to the Lower 48 as there are only two locations where the maintenance can be performed. Having SCBA's from the same manufacturer as the Unalaska Fire Department will save labor, shipping and repair costs.
2. Our SCBA's are low pressure systems which means we are limited in our options to increase air supply capacity. The UFD utilizes high pressure systems which means that their air tanks cannot be used on our SCBA's when our tanks are empty. As the individuals designated to respond to issues concerning Chlorine Gas at our water treatment facilities, it is important to obtain SCBA's which allow for the higher air supply capacities and at the same time utilize the same pressure system as the UFD.

Development Plan & Status (Include Permit and Utility Requirements): Manufactures have began releasing the most updated SCBA units to end users. These new packs are currently being released with the 2013 NFPA compliance rating but will be upgraded as soon as the Consensus standard is released. By the time of purchase for Unalaska all new packs will be in compliance with 2018 NFPA standards.

Cost & Financing Data:: In the past there has been grant opportunities for the purchase of SCBA's. With the current fiscal climate at the state level this source can not be counted on. The Unalaska Fire Department is a part of a Group Purchasing Organization (GPO) that offers a discount for these units. Purchasing these units with the Unalaska Fire Department in the same GPO will save the city 25% per unit.

Cost Assumptions	
Engineering, Design, Const Admin	-
Other Professional Services	-
Construction Services	-
Machinery & Equipment	48,000
Subtotal	**48,000**
Contingency (set at 30%)	14,400
TOTAL	**62,400**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**62,400**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)		62,400					62,400
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	62,400	-	-	-	-	62,400
Requested Funds:							

Re-Insulation of Baler Building| Solid Waste

Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2020
Purchase/Construction: FY 2021

Project Description: This project will be conducted at the Landfill Baler Building, built in 1998. It will replace approximately 75% of the wall insulation, approximately 10% of the ceiling insulation, and install PVC Liner Panels over all of the building's insulation to protect the insulation from birds. This project is intended to replace damaged insulation and defend against future damage. This project will also find a solution and pay for the installation of devices that will deter the birds from entering the Baler Building.

Project Purpose and Need: Our local bird population has torn out a great amount of the insulation in the walls and ceiling of the Landfill Baler Building. Attempts to persuade the birds to go elsewhere have been futile. In order to conserve fuel and reduce heating costs, it is necessary to replace the damaged insulation, and to cover the insulation with PVC panels to protect the City's investment from the flying nuisances. The corrugated PVC Panels will be tightly fitted and slick so birds cannot land or perch on it. This project is related to the stack replacement for boiler system.

Development Plan & Status (Include Permit and Utility Requirements): This project was put on hold until a solution for our bird problem could be developed. However no solution has been found. Staff is still researching a way to deter the birds from entering the Baler Building.

Cost & Financing Data: Money for this project will come from the Solid waste Proprietary Fund.

Cost Assumptions		
	Engineering, Design, Const Admin	60,000
	Other Professional Services	40,000
	Construction Services	300,000
	Machinery & Equipment	275,000
	Subtotal	**675,000**
	Contingency (set at 30%)	202,500
	TOTAL	**877,500**
	Less Other Funding Sources (Grants, etc.)	-
	Total Funding Request $	**877,500**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund		60,000	817,500				877,500
TOTALS $	-	60,000	817,500	-	-	-	877,500
Requested Funds:							

Solid Waste Scale Upgrade | SOLID WASTE

Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2020
Purchase/Construction: FY 2020

Project Description: This project consists of replacing the outdated scale components to the Solid Waste State Certified scale.

Project Need: The Landfill uses a state certified vehicle scale to determine the amount of waste entering the Landfill. This scale also determines the tonnage cost to charge the customer. When the scale in inoperable, Landfill Personnel must estimate the tonnage of waste entering the Landfill. This is a very inefficient way to operate. The Solid Waste Scale was installed in 1997. The scale platform is still operational but the other scale components, such as the load bearing cells and control mechanisms are obsolete and parts cannot be obtained when repairs are needed. Upgrading the scale components will also dictate that a recalibration and certification will need to be completed, which is included in the costs.

Development Plan & Status (Include Permit and Utility Requirements): Recertification of the scale will be needed. This cost is included.

Cost & Financing Data: The money for this project will come from the Solid Waste Proprietary Fund.

Cost Assumptions	
Engineering, Design, Const Admin	-
Other Professional Services	10,000
Construction Services	10,000
Machinery & Equipment	30,000
Subtotal	**50,000**
Contingency (set at 30%)	15,000
TOTAL	**65,000**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**65,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund		65,000					65,000
TOTALS $	-	65,000	-	-	-	-	65,000
Requested Funds:							

Oil Separator and Lift Station Replacement| SOLID WASTE

Project Description: This project consists of replacing and relocating the oil separator in the underground vault in the Baler Building, upgrading lift station 10.5, replacing associated piping, and upgrading electrical wiring.

Project Need – Oil Separator: When the Baler Building was constructed in 1997, it included an underground concrete vault to collect water and other liquids. The vault serves as a sump and houses an oil separator. Over the years, the oil separator has become worn and has now failed. It's underground location makes it exceptionally difficult and unsafe to service and maintain. Drain lines to the sump and oil separator require daily cleaning while the discharge line has failed necessitating a temporary sump pump with bypass hose to empty the sump on a daily basis. The oil separator has stopped functioning altogether allowing oil (petroleum) to enter the wastewater stream going to the Waste Water Treatment Plant. Petroleum at the WWTP disrupts the chemical and biological processes necessary to properly handle sewage.

Project Need – Lift Station and Check Valve: All catch basins and drainage piping in the Baler building, including the underground sump with oil separator, drain into Lift Station 10.5 located outside of the Baler Building near the Leachate Tank (big white tank at Landfill). Lift Station 10.5 pushes all sewage and leachate from the Landfill to the Waste Water Treatment Plant via a 4" HDPE force main. The lift station pumps are aging and worn requiring replacement. Controls and wiring for lift Station 10.5 are exposed to the weather and need an enclosure placed over them. The existing check valve in the 8" HDPE pipe connecting the Baler floor drain to the lift station has failed and needs to be replaced. High rain events overwhelm the lift station and water backs up past the check valve causing flooding in the Baler. Scope of work includes relocating the backflow preventer vault out of the roadway, replacement of the check valve, installation of a clean-out, concrete pad, and bollards for protection from snow plows.

Development Plan & Status (Include Permit and Utility Requirements): These needs were identified several months ago and Landfill staff utilized time consuming work-arounds to keep the plant operational while repairs were sought out. In reviewing all the related issues of pumps, drains, wiring, and oil separator, it was deemed serious enough to seek a broader solution instead of individual temporary fixes.

Cost & Financing Data: The money for this project will come from the Solid Waste Proprietary Fund.

Estimated Project & Purchase Timeline

Pre Design: FY 2020

Engineering/Design: FY 2020

Purchase/Construction: FY 2020

Cost Assumptions	
Engineering, Design, Const Admin	100,000
Other Professional Services	-
Construction Services	647,000
Machinery & Equipment	-
Subtotal	**747,000**
Contingency (set at 30%)	224,100
TOTAL	**971,100**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**971,100**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund		971,100					971,100
TOTALS $	-	971,100	-	-	-	-	971,100
Requested Funds:							

Composting | SOLID WASTE

Estimated Project & Purchase Timeline

Pre Design: FY 2019

Engineering/Design: FY 2019

Purchase/Construction: FY 2020

Project Description: This is a multi year project consisting of Feasibility, design, and construction, of a biological solids composting system at the Unalaska solid waste facility. The compost material involved includes wastewater sludge, food and fish waste, cardboard, and wood.

PROJECT NEED: Currently, biological solids and compostable material make up approximately 40% of the Unalaska Solid Waste intake. These bio solids consist of wastewater sludge, fish processor fish waste and food waste. Other compostable material consists of cardboard, paper, and wood. This waste substantially decreases the useful life of the Landfill cells and increases the organic load into the Leachate stream. Since the influx of wastewater sludge into the landfill, the organic load to the leachate stream has increased to 720 pounds per day compared to 126 pounds per day prior to the influx. This puts additional loading on the leachate system and has an ill effect on the wastewater plant process, which must use more chemicals and electricity to process it. All of this waste can be composted into usable class A soil. This soil can be used for cover material at the landfill or be sold to the public.

DEVELOPMENT PLAN & STATUS (INCLUDE PERMIT AND UTILITY REQUIREMENTS):
Feasibility: An internal feasibility study has been completed by Deputy Director of Public Utilities. An external feasibility is scheduled for July 1, 2017 (FY2018). **Design**: Design is scheduled to begin on July 1, 2018 (FY2019). **Construction**: Construction will begin July 1, 2019 (FY2020). **Permitting:** Classifying the composted soil as a class A soil is scheduled to begin as soon as the compost units are started up.

COST & FINANCING DATA: The cost estimates for this project are derived from Kodiak's composting project and estimates are very rough. Funds for the Feasibility study and design will come from the Proprietary Fund. The construction is depicted as coming from the General Fund at this time. If the Solid Waste Proprietary Fund has the monetary reserve to pay for the construction in the future, then they will.

Cost Assumptions

Engineering, Design, Const Admin	105,000
Other Professional Services	50,000
Construction Services	100,000
Machinery & Equipment	300,000
Subtotal	**555,000**
Contingency (set at 30%)	166,500
TOTAL	**721,500**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**721,500**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund	105,000	616,500					721,500
TOTALS $	105,000	616,500	-	-	-	-	721,500
Requested Funds:							

FY20-24 CMMP

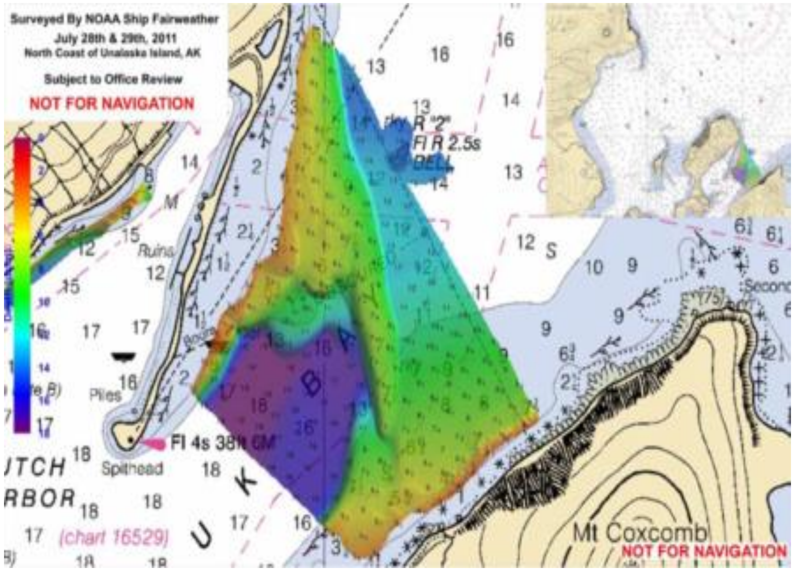
Entrance Channel Dredging| PORTS

Estimated Project & Purchase Timeline
Pre Design: FY 2019
Engineering/Design: FY 2020
Purchase/Construction: FY 2022

Project Description: This project is a General Fund project. It will remove material from the channel bar that crosses the entrance of Iliuliuk Bay before vessels can enter Dutch Harbor. The dredging will increase the depth of water to accommodate the draft of large vessels transiting the channel and utilizing the Unalaska Marine Center and facilities inside of Dutch Harbor. See attachment for general area of dredge location. The City will work with the Corps of Engineers to help fund, design, construct, and maintain this project. The first step in the process is conducting the biological assessments, understand the impact of dredging to beachfronts inside of the harbor, and working on application with the Corps of Engineers to partner for the dredging. This dredging project will allow deeper draft vessels to enter into Dutch Harbor including tankers, container ships and break-bulk vessels. This project will also reduce delayed arrival and departure of current vessels entering into to Dutch Harbor due to storm surge and swell in the channel. The current estimate to be removed is 23,400 CY. We are moving all unencumbered proprietary funds back to Ports to use for more pressing projects.

Project Need: Due to a bar that crosses the entrance channel vessels entering the port are limited by their draft rather than their need for services the community can provide. Numerous vessels passing the community cannot enter our port. Depending upon sea conditions the depth under keel for vessels currently utilizing the port can be as little as one meter according to the Alaska Marine Pilots. In storm conditions especially any northerly wind the sea height can make this situation worse by causing vessels to pitch resulting in contact with the sea floor where the bar is located. This represents both a safety concern as well as an economic constraint upon the community. Dredging the entrance channel to a sufficient depth and width would alleviate this problem.

Project Status: The Feasibility Study is complete and the milestone of presenting the study to Headquarters reached. USACE HQ will be tracking our feasibility finish [intensely]! As the District is poised to complete actions by March/April - - - District is definitely geared/tuned to the signed Chief's Report date. Design phase, and Construction are the next phases of the project.



Cost Assumptions	
Engineering, Design, Const Admin	1,500,000
Other Professional Services	1,000,000
Construction Services	2,500,000
Machinery & Equipment	
Subtotal	**5,000,000**
Contingency (set at 30%)	1,500,000
TOTAL	**6,500,000**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**6,500,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)	1,500,000	1,000,000		4,000,000			6,500,000
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	1,500,000	1,000,000	-	4,000,000	-	-	6,500,000
Requested Funds:							

LCD and UMC Dredging| Ports

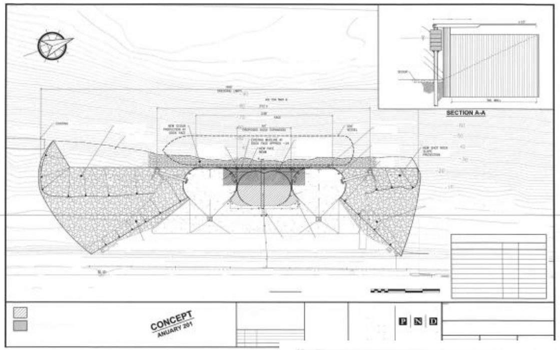
Project Description: This project includes the engineering, permitting, and dredging at the faces of the Light Cargo Dock and the Unalaska Marine Center positions 1-7. This project is proposed to compliment other pending capital projects in the Port. With the dredging of the entrance channel larger vessels will be able to enter into Dutch Harbor. The depths at the Unalaska Marine Center vary from -32 ft. and -45 ft. at MLLW. Dredging at the face of the Unalaska Marine Center would create a constant -45ft from Positions 1-7. This will accommodate deeper draft vessels throughout the facility. The existing sheet pile is driven to approximately -58 ft. and dredging to -45ft will not undermine the existing sheet pile. This project is primarily to accommodate large class vessels. Many of the vessels currently calling the Port must adjust ballast to cross the entrance channel and dock inside Dutch Harbor. We are proposing that in concert with the Dredging at the UMC we also dredge in front of the LCD. The LCD is schedule to handle some of the regular customers using the Unalaska Marine Center. These customers will be displaced during construction of Positions 3 and 4. Dredging in front of the Light Cargo Dock will also make this dock more accessible for current customers. Vessels using the Light Cargo Dock that draws more than 22ft. must place another vessel between the dock face and their vessel in order to get enough water under the keel.

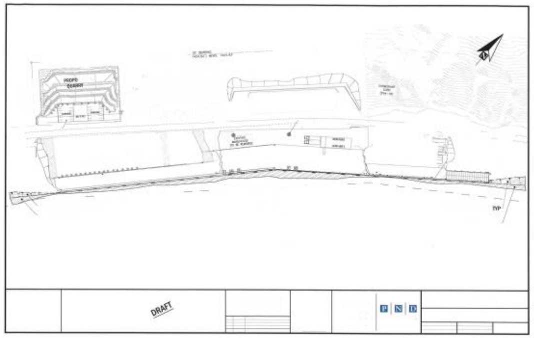
Project Need: The completion of this dredging will enhance current and future operations by creating useable industrial dock face that is designed for vessels in varying lengths and tonnage.

Project Status: This dredging project is in support of both the UMC position 3 and 4 Replacement project and the dredging of the entrance channel. The estimates for dredging of the Light Cargo Dock include 6000 CY of dredging and 3100 CY of shot rock slope protection. The dredging material will not be removed; however, it will be relocated on the sea floor. Dredging at UMC estimated to relocate 6000 CY of dredging material and will require approximately 1200 CY of shot rock slope protection.

Estimated Project & Purchase Timeline

Pre Design: FY 2019
Engineering/Design: FY 2023
Purchase/Construction: FY 2023





Cost Assumptions	
Engineering, Design, Const Admin	109,650
Other Professional Services	-
Construction Services	1,932,000
Machinery & Equipment	-
Subtotal	**2,041,650**
Contingency (set at 30%)	612,495
TOTAL	**2,654,145**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**2,654,145**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund	109,650				2,544,495		2,654,145
TOTALS $	109,650	-	-	-	2,544,495	-	2,654,145
Requested Funds:							

Bobby Storrs A & B Float Realignment & Replacement | PORTS

Estimated Project & Purchase Timeline

Pre Design: FY 2019

Engineering/Design: FY 2020

Purchase/Construction: FY 2021

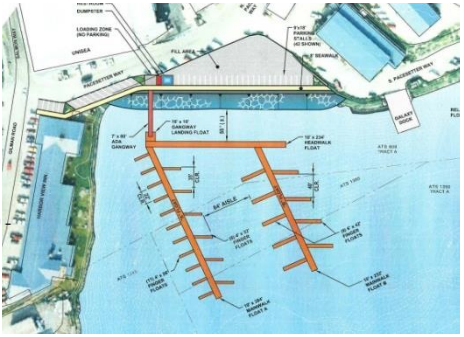
PROJECT DESCRIPTION: This project is an additional phase to the Robert Storrs Float improvement project. It will remove the existing A and B Floats at the Harbor and reconfigure the Harbor to accommodate the new float system ADA gangway and create uplands for parking and a public restroom. It will also include a fire suppression system, electric and year-round water supply to Harbor users and new piling. In FY17 we are reducing funding set aside for this project to make them available for other more urgent Ports projects.

PROJECT NEED: This project would include replacing the deteriorated floats and reconfiguring the floats and fingers of A and B Floats to include updated electrical systems, lighting, fire suppression, year-round utilities, and an ADA-required gangway. Based on current engineer concepts, a reconfiguration of A and B Floats will at minimum create 30 additional slips plus linear tie options to accommodate part of the 37 vessel waiting list. Reconfiguration will also allow for development of the uplands for a certain amount of required parking and a public restroom. Because the current floats were relocated, they were arranged in the harbor based on the materials at hand and not with consideration to the best use of the basin. In order to accommodate the vessel demand at the Robert Storrs Harbor, reconfiguration of the floats would allow for better use of the basin based on bathymetry and navigational approaches and also allow for additional vessel slips, with minimal fill and no dredging. It will add a significant number of slips for vessels 60’ and under. This is an extension of the Robert Storrs Float Replacement Project. C Float is was completed in FY16. As the Float Replacement Project for Robert Storrs is being constructed in phases it was logical to separate the phases into separate project tracking purposes.

FUNDING: The current estimates place this project at approximately 9.5 million dollars, based on engineers estimates for in kind replacement. We are eligible to apply for a 50% grant through the Alaska Department of Transportation and Public Facilities. 50% of the funding for this is estimated to come out of the Port Net Assets.

Existing Condition (left)
Side Tie: 643 feet
Slips: 6 - 42 foot & 6 - 60 foot

Proposed Concept (right)
Side Tie: 218 feet
Slips: 22—26 foot, 13 - 32 foot, & 20 - 42 foot



Cost Assumptions	
Engineering, Design, Const Admin	650,000
Other Professional Services	-
Construction Services	9,980,000
Machinery & Equipment	-
Subtotal	**10,630,000**
Contingency (set at 30%)	3,189,000
TOTAL	**13,819,000**
Less Other Funding Sources (Grants, etc.)	3,405,000
Total Funding Request $	**10,414,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant			3,405,000				3,405,000
Proprietary Fund	50,000	600,000	6,575,000				7,225,000
TOTALS $	50,000	600,000	9,980,000	-	-	-	10,630,000
Requested Funds:							

UMC Cruise Ship Terminal Design| PORTS

Estimated Project & Purchase Timeline

Pre Design: FY 2020

Engineering/Design: FY 2021

Purchase/Construction: FY 2021

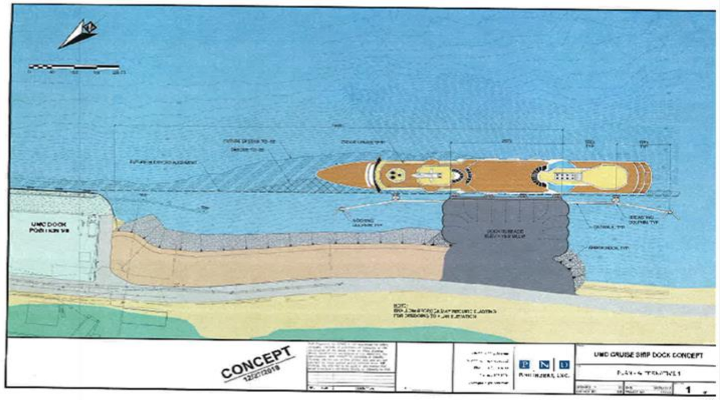
Project Description: This project will design the Unalaska Marine Center Cruise ship terminal. This Terminal will provide an open sheet pile design dock with mooring dolphins to the South of Unalaska Marine Center Position7.

Project Need: Cruise ship activity is on the rise in Unalaska and is proving to be a benefit to local commerce. The cruise ships do not have a place to reserve with certainty as the Unalaska Marine Center is designated for industrial cargo and fishing operations. We have been fortunate to be able to accommodate most of the cruise ship activity, but the passenger count and number of vessel call s is on the rise.

With this in mind, a cruise ship terminal would allow for dedicated cruise ship berthing. It would eliminate passengers walking through and around cargo operations. During the off season for cruise ships this facility could be used for fishing vessel offloads. This would allow additional revenue opportunity and still bolster commerce through committed berthing for the cruise ship industry.

Development Plan & Status (Include Permit and Utility Requirements):

Cost & Financing Data: ROM for geotechnical is about $300 and ROM for design is $600



Cost Assumptions	
Engineering, Design, Const Admin	600,000
Other Professional Services	-
Construction Services	300,000
Machinery & Equipment	-
Subtotal	**900,000**
Contingency (set at 30%)	270,000
TOTAL	**1,170,000**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**1,170,000**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund		390,000	780,000				1,170,000
TOTALS $	-	390,000	780,000	-	-	-	1,170,000
Requested Funds:							

Emergency Mooring Buoy Maintenance| PORTS

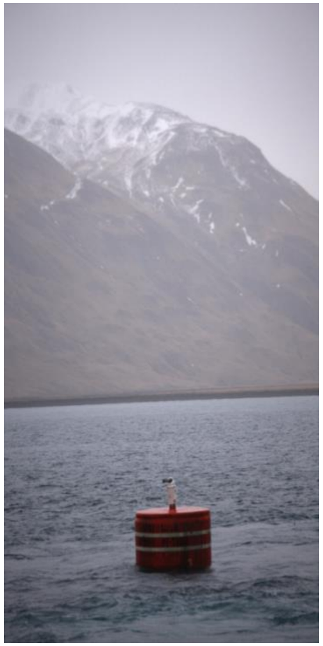
Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2020
Purchase/Construction: FY 2020

Project Description: This is maintenance required to ensure the integrity of the mooring buoy. This project will inspect the tri-plate and anchor chain connecting to the 35, 000 lb anchors. It will inspect the anchor chain at the mudline, remove marine growth from the buoy, and inspect the buoy for structural integrity. It will also confirm GPS Coordinates for anchor locations.

Project Need: The structural integrity of the buoy system is critical to be able to provide this as an emergency asset. Materials can degrade over time and it is important that we keep this type of maintenance on a 4-5 year rotation in order to identify weakness or replacement needs.

Development Plan & Status (Include Permit and Utility Requirements): This buoy system is located in State waters and permitted by the Department of Natural Resources. A copy maintenance records and replacement records will be provided to DNR.

Cost Assumptions: At the time of this CMMP draft, a request for a quote has not been returned. Project cost is TBD until then.



Cost Assumptions	
Engineering, Design, Const Admin	-
Other Professional Services	TBD
Construction Services	TBD
Machinery & Equipment	-
Subtotal	**-**
Contingency (set at 30%)	-
TOTAL	**-**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**-**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund		TBD					-
TOTALS $	-	-	-	-	-	-	-
Requested Funds:							

Rescue Vessel Engine Upgrade| PORTS

Estimated Project & Purchase Timeline

Pre Design: FY 2020

Engineering/Design: FY 2020

Purchase/Construction: FY 2020

Project Description: Rescue Vessel Engine Upgrade

Project Need: The Tide Breaker runs on two Yamaha F250 . Both of these engines are original to the vessel. The Engines have had on going issues with water and seals that can no longer be replaced. We have sent out one of the engines for a complete rebuild. This puts the vessel out of service. Yamaha is phasing out the F250 model that is on the Tide Breaker. We would purchase two Yahama LF300's and maintain the F250 as back up for the Tide Breaker so that engine maintenance does not take the vessel out of commission. The LF300 could eventually serve as back up engines for a new response vessel. The costs includes shipping.

Development Plan & Status (Include Permit and Utility Requirements):

Cost & Financing Data: Anticipated cost is $50,500 with an additional mandatory 30% contingency totaling $65,650.

Cost Assumptions	
Engineering, Design, Const Admin	-
Other Professional Services	-
Construction Services	-
Machinery & Equipment	50,500
Subtotal	**50,500**
Contingency (set at 30%)	15,150
TOTAL	**65,650**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**65,650**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund		65,650					65,650
TOTALS $	-	65,650	-	-	-	-	65,650
Requested Funds:							

Port Rescue Boat Replacement | PORTS

Estimated Project & Purchase Timeline

Pre Design: FY 2023

Engineering/Design: FY 2023

Purchase/Construction: FY 2024

Project Description: Port Rescue Boat Replacement

Project Need: The Tide Breaker is the City rescue response vessel that was purchased in 2005. This paid for in part with Homeland Security Funds. As with all vehicles there is a useful life. This replacement plan will enable us to replace the Tide Breaker after 20 years of service. The maintenance schedule is being met and the vessel is currently in good condition . However, to maintain maximum capability, and provide appropriate support for emergency responses, search and rescue, marine security functions it is recommended that we begin planning for a replacement vessel. The systems on the vessel are aging and the time and money required to maintain and fix are increasing. The time out the water reduces our ability to respond when required.

Development Plan & Status (Include Permit and Utility Requirements):

No permits required

Cost & Financing Data:

The cost below is an estimate and we will search for grant opportunities to offset Port Fund expenses.

Cost Assumptions	
Engineering, Design, Const Admin	50,000
Other Professional Services	-
Construction Services	350,000
Machinery & Equipment	-
Subtotal	**400,000**
Contingency (set at 30%)	120,000
TOTAL	**520,000**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**520,000**

Revenue Source	**Appropriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund					70,000	450,000	520,000
TOTALS $	-	-	-	-	70,000	450,000	520,000
Requested Funds:							

Restroom Unalaska Marine Center| PORTS

Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2022
Purchase/Construction: FY 2022

Project Description: This will purchase and install a restroom for the Unalaska Marine Center. Water and Sewer have been stubbed in at UMC for the purpose of installation of public restrooms for dock workers and passengers. By Unalaska Code requires us to plumb into City services if available. These services are available at UMC

Project Need: For years dock workers have used portable toilets and these outhouses require service from the Waste Water Treatment Staff. This will provide a minimum of four toilets and keep us compliant with City Code and provide reasonable facilities and better working conditions for the employees.

Development Plan & Status (Include Permit and Utility Requirements): This is a that will be based off of a preexisting design and the restroom will tie into a pre-poured foundation connect into existing utility services.

Cost Assumptions	
Engineering, Design, Const Admin	TBD
Other Professional Services	-
Construction Services	TBD
Machinery & Equipment	-
Subtotal	**-**
Contingency (set at 30%)	-
TOTAL	**-**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**-**

Revenue Source	Appropriated Funds	Fiscal Year Funding Requests					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)							-
1% Sales Tax							-
Grant							-
Proprietary Fund				TBD			-
TOTALS $	-	-	-	-	-	-	-
Requested Funds:							

4-PLEX ROOF REPLACEMENT | HOUSING

Estimated Project & Purchase Timeline
Pre Design: FY 2020
Engineering/Design: FY 2021
Purchase/Construction: FY 2022

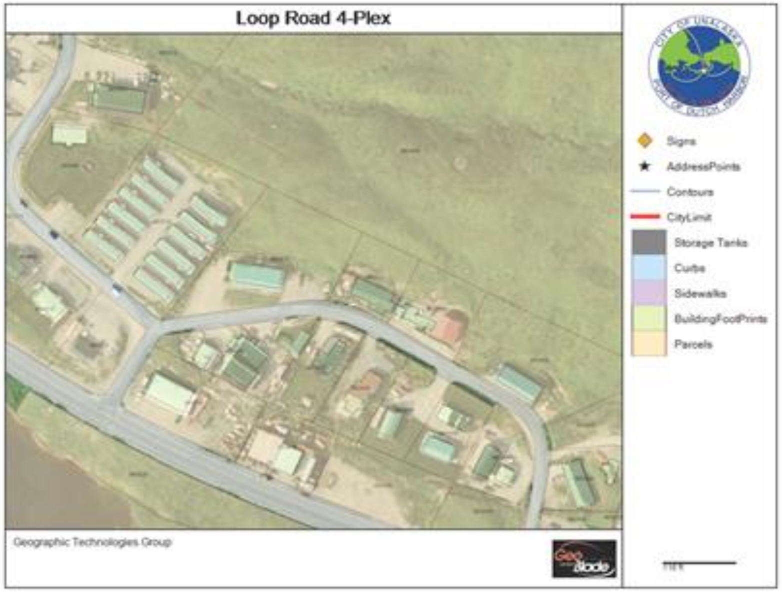
Project Description: Replace steel roof and plywood sheathing.

Project Need: The roofing is nearing the end of its useful life. Sheathing is in bad condition because improper moisture control in the attic promoted mold growth. Rust is beginning to form in areas around the metal fasteners making roof replacement in the next few years important before failure has reached the point of allowing enough moisture into the structure to damage other components within the structure. Leaks not repaired in a reasonable amount of time can also increase risk of health problems for the inhabitants due to molds and material failures. Roof sheathing beneath the roofing is also suspect of possible failure. This will compound the problem of the roof failure and should the wood around the fasteners that holds the roofing in place become soft from rot, the fasteners will no longer keep the roofing material in place.

Maintenance history includes: original construction 1988, residing and painting 1998, floor coverings 1999, exterior painting 2007, new floor covering and interior renovations 2012, new boiler room 2012. Annual maintenance costs are $16,000.

Development Plan & Status (Include Permit and Utility Requirements): Concept stage. FY20 funding will provide for an architectural assessment of the steel roofing, underlying sheathing, truss system, insulation, attic fire walls, fire dampers, and exhaust vents.

Cost & Financing Data: No formal cost estimate has been developed.



Cost Assumptions	
Engineering, Design, Const Admin	45,000
Other Professional Services	10,000
Construction Services	330,000
Machinery & Equipment	-
Subtotal	**385,000**
Contingency (set at 30%)	115,500
TOTAL	**500,500**
Less Other Funding Sources (Grants, etc.)	-
Total Funding Request $	**500,500**

Revenue Source	**Apporpriated Funds**	**Fiscal Year Funding Requests**					
		FY20	FY21	FY22	FY23	FY24	Total
General Fund (DEPT)		10,000	45,000	445,500			500,500
1% Sales Tax							-
Grant							-
Proprietary Fund							-
TOTALS $	-	10,000	45,000	445,500	-	-	500,500
Requested Funds:							

FY20-24 CMMP

Rolling Stock Replacement Plan

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Rolling Stock Replacement Policy Statement

Rolling Stock Replacement Policy

The City of Unalaska has a formal, written Rolling Stock Replacement Policy. The policy, effective January 1, 2008, establishes the Vehicle Maintenance Chief as the main person responsible for making recommendations to replace and remove vehicles and equipment from our rolling stock fleet.

Rolling Stock Includes

Vehicles, equipment, trailers, mixers, pumps, generators, etc that move under their own power or are created to be pulled behind a motor-powered vehicle or piece of equipment. The City presently has 157 pieces in our rolling stock inventory.

Rolling Stock Replacement Recommendations

Each fiscal year, the replacement list is initiated by our Vehicle Maintenance Chief based on the results of annual inspections and evaluations and in light of any extraordinary circumstances associated with the specific piece of rolling stock. In addition, when a vehicle reaches the recommended review date, the following criteria are used to determine whether the vehicle warrants replacement.

1. Level of reliability required
2. Historical maintenance and repair costs
3. Current physical conditions
4. Other factors such as safety and regulatory requirements

FY20 Rolling Stock Replacement Plan Summary

By Department

Vehicle #	Dept	Primary Driver	Description	Year	Life Cycle	Replace Date	Miles	Hrs	Replace With	Description of New Vehicle	Transfer Old Vehicle To	FY20 $$$	Estimate or Quote
PW3448	DPW	Facility Maint	4x4, F250 Pickup	2000	15	2015	91,550		**New**	4x4, F250 w/ utility box	Surplus Sale	$ 55,000	Estimate
PW7449	DPW	Vehicle Maint	4x4, F150 Pickup	2000	15	2015	46,653		**New**	4x4, F250	DPW Floater	$ 40,000	Estimate
SD5542	DPU	Wastewater	4x4, F150 Pickup	2004	15	2019	76,081		**New**	4x4, Explorer XL w/rubber mats	Surplus Sale	$ 40,000	Estimate
PW6065	DPW	Facility Maint	4x4, F250 Pickup	2003	15	2018	46,835		**New**	4x4, F250 Ext w/ 6' box	DPW Floater	$ 40,000	Estimate
UFD0118	UFD	Fire	4x4, F250 Pickup w/plow	2003	13	2016	46,383		**New**	4x4, F250 w/plow	Surplus Sale	$ 50,000	Estimate
UFD5555	UFD	Fire	4x4, F450 Equip Truck	1997	13	2010	5,689		**New**	4x4, F450 Equipment Truck	DPW Veh Maint	$ 325,000	Estimate
PW8586	DPW	Vehicle Maint	4x4, F350, Flat Bed, Crane	1996	20	2016	23,334		UFD5555	4x4, F450 Equipment Truck	Surplus Sale	-	n/a
DT5	DPW	Roads	Autocar 12 CY Dump Truck	1994	18	2012	167,839	18,689	**New**	Mack 12 CY Dump Truck	Surplus Sale	$ 230,000	Estimate
E4117	DPU	Elec Line Crew	F550 Bucket Truck	2001	20	2021		1,914	**New**	F550 Bucket Truck	Surplus Sale	$ 175,000	Quote
BH2	DPW	Roads	4x4, Case 580, Backhoe	1999	15	2014		3,382	**New**	Cat 314 Wheeled Excavator	DPU Waste Water	$ 275,000	Estimate
BH9	DPU	Wastewater	4x4, Case 580, Backhoe	1996	15	2011		3,543	BH2	n/a	Surplus Sale	$ -	n/a
New	DPW	Facility Maint	New Addition to Fleet	2019	15	2034		0	**New**	Toro Riding Lawnmower	n/a	$ 10,500	Estimate
Used	DPW	Facility Maint	New Addition to Fleet	2019	15	2034		0	**New**	JLG Manlift	n/a	$ 18,500	Quote
										TOTAL		**$ 1,259,000**	

By Fund

GENERAL FUND	$ 1,044,000
PORTS / HARBOR FUND	$ -
WATER FUND	$ -
ELECTRIC FUND	$ 175,000
SOLID WASTE FUND	$ -
WASTEWATER FUND	$ 40,000
TOTAL	**$ 1,259,000**

Rolling Stock Replacement Plan 5 Year Look Ahead

Vehicle #	Class	Function / Description	FY20	FY21	FY22	FY23	FY24
PW3448	GP	F250 Supercab 4x4 - Facilities Maintenance Surplus Sale	$55,000				
PW7449	GP	4x4, Pickup Ford - parts runner DPW/U Floater	$40,000				
PW0688	GP	4x4 F150 Ford		$40,000			
PW8586	GP	4x4 Flatbed w/crane/air comp Surplus Sale - Replace w/ UFD 5555					
SD5542	GP	4x4 Pickup F-150 Surplus Sale	$40,000				
SD5275	GP	Flatbed F-350		$50,000			
PW6065	GP	4x4, Pickup F250	$40,000				
UFD0118	GP	4x4 Supercab Surplus Sale	$50,000				
PW6372	GP	1 ton Flatbed w/plow / salt/sand spreader			$60,000		
PW4572	GP	One Ton Service Truck GMC - Carps				$60,000	
W7587	GP	4x4, Pickup				$40,000	
E5629	GP	1 Ton Pickup w/svc		$50,000			
UPD5563	GP	4x4 Expedition		$60,000			
UPD5565	GP	4x4 Expedition			$60,000		
UPD9826	GP	4x4, Expedition XLT w/elecs		$65,000			
UFD5555	GP	4x4 Ford Equip Truck Transfer to Vehicle Maint	$325,000				
E1214	HE	Crane Truck					$80,000
DT5	HE	Dump Truck Surplus Sale	$230,000				
DT6	HE	Dump Truck				$200,000	
WT2	HE	Water Tanker - Autocar 4000 gal					$200,000
L1	HE	Loader, Cat IT28			$250,000		
DT2	HE	Dump Truck w/ Snow Plow		$200,000			
BH9	HE	Backhoe Surplus Sale - Replace with BH2 Roads					
E6	HE	Boom Truck		$100,000			
RG2	HE	Cat Grader 14H				$600,000	
FL4	HE	Forklift					$75,000
BH1	HE	Backhoe 4X4				$250,000	
HML1	HE	908 CAT Loader					$250,000
E4117	HE	Bucket Truck Surplus Sale	$175,000				
S2878	HE	Fuel Truck F-600			$100,000		
BH2	HE	Case 590 Backhoe 4X4 Transfer to Waste Water	$275,000				
BH3	HE	CAT Mini Excavator		$250,000			
CC2	HE	Volvo Compactor					$250,000
UFD3535	HE	Pumper/Tender					$250,000
BD6	HE	CAT D4 Dozer		$350,000			

Rolling Stock Replacement Plan 5 Year Look Ahead

Vehicle #	Class	Function / Description	FY20	FY21	FY22	FY23	FY24
PW5954	HE	4x4, Flatbed F700			$65,000		
T2	HE	Tractor, 5th Wheel			$100,000		
LF0750	HE	Flatbed with Lift					$80,000
PW4751	HE	Flatbed with Box			$80,000		
FL2	EQ	Forklift - Hyster E30XL			$80,000		
PUMP578	EQ	Fire Pump			$50,000		
TR2	EQ	Trailer (Scissor lift)			$50,000		
GW1	EQ	Welder			$25,000		
AC3	EQ	Air Compressor			$50,000		
TR17	EQ	Utility Trailer			$50,000		
HB1	EQ	Asphalt Hot Box			$150,000		
	EQ	Toro Riding Lawnmower NEW	$10,500				
	EQ	JLG Manlift USED BUT NEW TO FLEET	$18,500				
		Totals	$1,259,000	$1,165,000	$1,170,000	$1,150,000	$1,185,000

		FY Totals By Fund	FY20	FY21	FY22	FY23	FY24
GENERAL FUND			$1,044,000	$965,000	$1,070,000	$860,000	$700,000
ELECTRIC FUND			$175,000	$150,000	$100,000	$250,000	$80,000
WATER FUND			$0	$0	$0	$40,000	$0
WASTEWATER FUND			$40,000	$50,000	$0	$0	$0
SOLID WASTE FUND			$0	$0	$0	$0	$80,000
PORTS / HARBOR FUND			$0	$0	$0	$0	$325,000
			$1,259,000	$1,165,000	$1,170,000	$1,150,000	$1,185,000

This Vehicle Going on Surplus Sale

The vehicle pictured, driven by DPW Facilities Maintenance Division personnel, will be replaced with a new 4x4 F250 with a utility box. The vehicle pictured will be disposed of at our annual Surplus Sale held at the DPW Warehouse.

Vehicle #	Dept	Primary Driver	Description	Year	Life Cycle	Replace Date	Miles	Transfer To
PW3448	DPW	Facility Maint	4x4, F250 Pickup, runs and drives but very worn out, rusty	2000	15	2015	91,550	Surplus Sale

This Vehicle Going on Surplus Sale

The vehicle pictured, driven by DPU Waste Water Division personnel, will be replaced with a new 4x4 Explorer with rubber mats. The vehicle pictured will be disposed of at our annual Surplus Sale held at the DPW Warehouse.

Rolling Stock Replacement Plan

Vehicle #	Dept	Primary Driver	Description	Year	Life Cycle	Replace Date	Miles	Transfer To
SD5542	DPU	Wastewater	4x4, F150 Pickup, runs and drives but very worn out, rusty	2004	15	2019	76,081	Surplus Sale

This Vehicle Going on Surplus Sale

The vehicle pictured, driven by our Fire and Emergency Response personnel, will be replaced with a new similar F250 with a snow plow. This vehicle has been well maintained and runs good but at over 46,383 miles, it has seen a lot of use. As a Fire and Emergency Response vehicle with a 13 year life-cycle, it's 3 years past its replacement date. The vehicle pictured will be disposed of at our annual Surplus Sale held at the DPW Warehouse.

FY20-24 CMMP

Rolling Stock Replacement Plan

Vehicle #	Dept	Primary Driver	Description	Year	Life Cycle	Replace Date	Miles	Transfer To
UFD0118	UFD	Fire	4x4, F250 Pickup w/plow, well-maintained, runs good	2003	13	2016	46,383	Surplus Sale

FY20-24 CMMP

Rolling Stock Replacement Plan

This Vehicle Going on Surplus Sale

The vehicle pictured, driven by DPW Vehicle Maintenance Division personnel, will be replaced with UFD5555 1997 F450. This 1996 vehicle is 3 years past its replacement date, has been well maintained and runs good but has seen a lot of use. The vehicle pictured will be disposed of at our annual Surplus Sale held at the DPW Warehouse.

Vehicle #	Dept	Primary Driver	Description	Year	Life Cycle	Replace Date	Miles	Transfer To
PW8586	DPW	Vehicle Maint	4x4, F350, Flat Bed, Crane	1996	20	2016	23,334	Surplus Sale

FY20-24 CMMP

Rolling Stock Replacement Plan

This Vehicle Going on Surplus Sale

The vehicle pictured, driven by our Roads Maintenance personnel, will be replaced with a new Mack 12 cubic yard dump truck. This 1994 vehicle is 7 years past its replacement date, has 167,839 miles on it, has been well maintained and runs good but has seen a lot of hard use. Chassis and drive train components are worn beyond repair. Rebuilding this faithful old truck would cost more than purchasing a new one. The vehicle pictured will be disposed of at our annual Surplus Sale held at the DPW Warehouse.

Vehicle #	Dept	Primary Driver	Description	Year	Life Cycle	Replace Date	Miles	Transfer To
DT5	DPW	Roads	Autocar 12 CY Dump Truck	1994	18	2012	167,839	Surplus Sale

This Vehicle Going on Surplus Sale

The vehicle pictured, driven by the DPU Electric Line Crew, will be replaced with a new F550 with a longer boom with greater weight capacity. This boom truck cannot reach some tsunami sirens and does not have capacity to safely hold two workers and the tsunami siren. Boom and controls are getting very rusty. The vehicle pictured will be disposed of at our annual Surplus Sale held at the DPW Warehouse. **NOTE:** This truck was approved in last year's CMMP Rolling Stock Replacement. Because of a price increase and added tariffs, this truck was not purchased. We are bringing it back for approval this year with the increased costs included.

Vehicle #	Dept	Primary Driver	Description	Year	Life Cycle	Replace Date	Miles	Transfer To
E4117	DPU	Elec Line Crew	F550 Bucket Truck	2001	20	2021		Surplus Sale

This Vehicle Going on Surplus Sale

The backhoe pictured, infrequently driven by the DPU Waste Water Division personnel, will be replaced with the DPW Roads Division BH2. BH2 and BH9 are nearly identical except BH2 is in much better condition. BH9, 8 years past its replacement date, is in very poor condition and has only been kept in service because of its limited use. Because the Roads Division requires a backhoe in a higher state of readiness, BH2 needs to be replaced. But, since BH2 is still suitable for the infrequent use by DPU Waste Water, we would like to transfer BH2 to them. The vehicle pictured will be disposed of at our annual Surplus Sale held at the DPW Warehouse.

Vehicle #	Dept	Primary Driver	Description	Year	Life Cycle	Replace Date	Miles	Transfer To
BH9	DPU	Wastewater	4x4, Case 580, Backhoe	1996	15	2011		Surplus Sale

Iliuliuk Family Health Services

Operational Assessment

2010 – 2018

Prepared by:

Executive Committee

Amy Dowds, President
William Homka, Vice President
Sharon Svarney-Livingston, Treasurer-Secretary

Draft Date: March 6, 2019

Contents

History

The Iliuliuk Family and Health Services Inc. (Clinic) got its start at the Unalaska Health Council in 1969 as a result of local citizens looking at ways to provide more consistent health care to the community. There were only about 500 people living on the island at that time.

The first meeting of the Unalaska Board of Health was on December 29, 1969, with members appointed by the City Council. A Community Health Aide clinic was started in the school in early 1970. In May of 1970, the State was contacted to help establish a "more definitive medical facility." In September 1971, the name chosen for the facility was "Iliuliuk Family and Medical Services." At the October meeting, "Medical" was changed to "Health." Incorporation papers were signed on December 31, 1971, with the State officially signing and recognizing the non-profit corporation on February 14, 1972. The original budget was $17,000.

In 1970 efforts were made with the State of Alaska and Unalaska City Council to create a more definitive medical facility than the small health aid clinic that was operating at the public school. The IFHS Clinic was formally established in 1971, was recognized as a non-profit organization in 1975 and had a budget of 17,000. The Clinic changed locations and increased in size over the next 17 years and moved into the present facility in 1992.

Operations

The Clinic is open six days per week. Its hours of operation are Monday thru Friday, from 8:30 am until at 6:00 pm. It is closed from noon to 1:00 pm for lunch. It's open on Saturdays between 8:30 am and 1:00 pm. On the first Wednesday of each month the Clinic delays opening by one hour, starting at 9:30 am. The staff and providers hold an All Staff Meeting and Training during this time.

The staff is available 'on call' during the closed hours. This has been the practice since about 2010 when IFHS applied for and received money from the Frontier Extended Stay Clinic (FESC). The grant was provided for three years, however the Clinic has maintained its 24/7 on call model since the grant expired.

Relationship with Emergency Care

Although chartered as a 'health clinic', IFHS is also the initial source for emergent care in Unalaska. The City's 911 operations are hosted in the Department of Public Safety. Dispatch receives the calls and coordinates the response from the City of Unalaska's Police and Fire Departments, Alaska State Troopers, and the Volunteer Fire members. Unalaska's Division of Fire and Emergency Medical Services (Unalaska Fire & EMS) is a registered fire department with the Alaska Department of Public Safety, and a certified ground ambulance service with the Alaska Department of Health and Social Services.

The city's Fire/EMS division is responsible for providing all fire prevention, fire suppression, rescue, and emergency medical services within the City of Unalaska and the International Port of Dutch Harbor. The Division consists of 5 paid and as many as 30 volunteer staff. The command staff includes a full-time

Fire Chief, two paid Fire Captains, two paid Firefighters, as well as several volunteer Fire Officers. The division responds to over 400 calls for service per year out of two fire stations with two engines, a ladder truck, a rescue unit, two advanced life support ambulances, a special operations trailer (extrication, lighting, air), a rescue boat (operated and maintained by the Department of Ports and Harbors) and three staff vehicles.

During its 20+ year history in the community, the City of Unalaska has been very supportive of the organization. The City owns the land on which the facility is located, and the City currently provides grant funding to the clinic through the Community Support Program. The resignation of the executive director is only one issue currently facing the Clinic. Others include fewer patients and corresponding revenue from cash receipts and insurance reimbursements; on-going costs to provide access to 24 hour care 7 days per week, among others.

Board Turbidity

There are 11 positions on the Clinic board of directors. As of January 10, 2019 two of the positions are vacant with the most recent resignations of Sean O’Donnell and Leslie Thomas, both in January, 2019. Of the remaining 9 board members, only 2 have been on the board longer than 2 years. The other 7 members are all new. This is a high degree of turnover on a board that is tasked with oversight of a medical organization. The Clinic has numerous funding revenues and navigates federal and state operation regulations. Add to all of this the remote location of Unalaska and the present situation’s challenges can all be amplified by limited availability of qualified staff, volunteers and the elevated costs of doing business so far from mainstream America.

FY 18 - Most Recent Year

Much can be lost in an analysis of this type when it's comparing numerous variables across a 9-10 year time frame. This section focuses on FY18 (the most recent complete year) and compares it with the other operational years beginning with FY10 through FY17. It becomes clear quickly that numerous firsts, extremes, or new averages jumped out last year.

The number of patients seen in FY18 was 4,031. FY18 ranks the 7th lowest number of patients over the nine year reporting period. Although the clinic staff of 39 is the lowest in nine years and the number of patients was the 7th lowest year, FY18 still had the highest patient/staff ratio of 103.4 patient visits per staff. The average of all years is 82.11 and reflects over 20 visits more per staff person.

This was the lowest year for uninsured patients; only 35% were uninsured (1,397). It's also the year with the fewest staff (39) compared to 51 in FY15 which was the next year with the fewest staff. However the patient / staff ratio increased significantly in FY18, from 62.6 patient visits per doctor in FY17 to 103.36 in FY18.

The Clinic's final cash position for FY18 was a loss of $596,729 and is the 4th highest loss between FY10 – FY18. The Clinic lost a total of $4,368,533 in that time which is an average of -$485,395 yearly. The losses have been covered by funds the Clinic held in an investment/savings account.

The Clinic's most recent financial statement and supplementary information is for the years ended June 2018 and 2017. It was just presented to the Clinic Board of Directors for its review on February 20, 2019. Reviewing the assets report for 2017 and 2018 indicates the ending balance for all assets was $1,594,857 and $1,210, 787 respectively in June of each year. The Clinic has been paying for operating losses by withdrawing cash from its investments accounts. In June 2017 the Clinic had a balance of $619,144; in June 2018 the balance had been reduced to $430,212.

<u>Comparing FY18 to Previous 8 years</u>

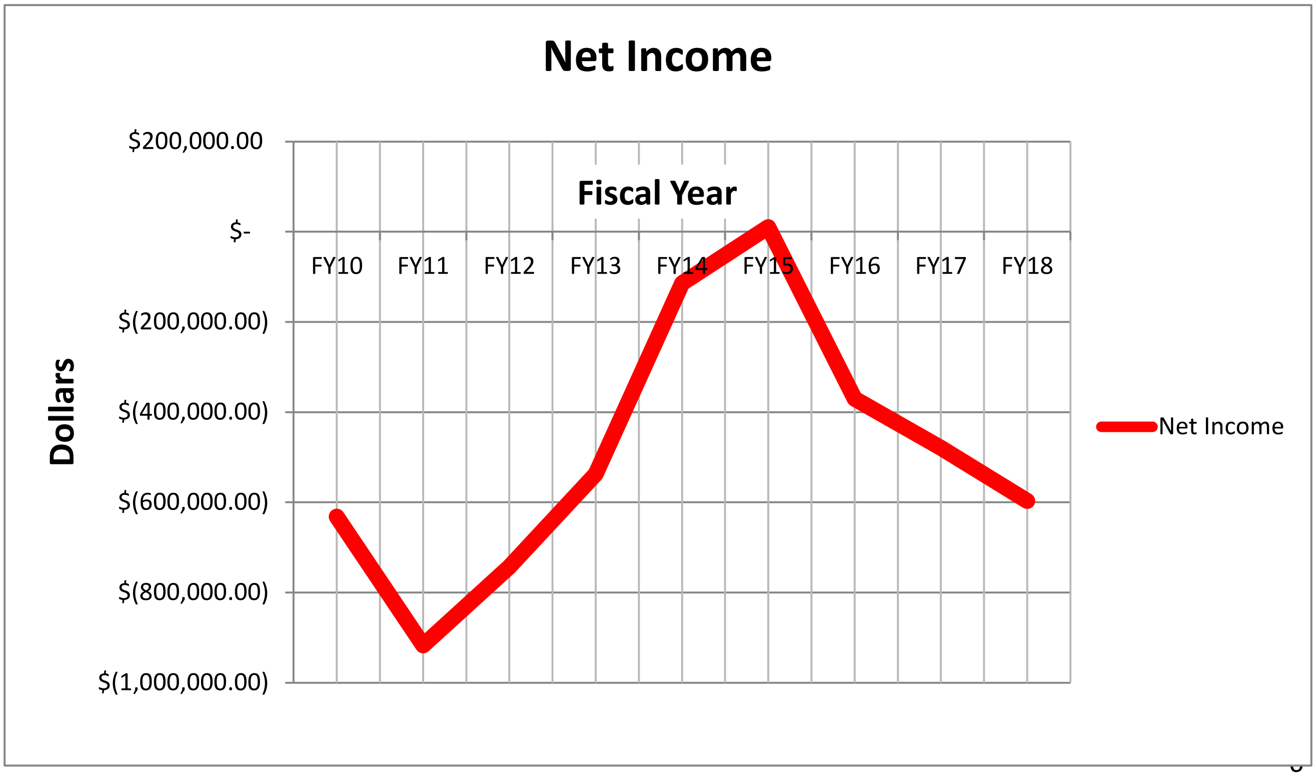
Patients	4,031 7th Lowest Served
Number of Staff	38 Lowest
Patient/Staff Ratio	39 staff = 1/103.4 Highest
%Budget for personnel	59.88% 2nd Highest
Patient Revenues Collected	$2.7 M Lowest
Patient Revenues Billed	$3.7 M Lowest
Collection Rate	56.8% 6th Highest
Percent Patients Uninsured	34.7% Lowest
Grants/Gifts	$2 M Highest
Profit/Loss ±	-(596,729.00) 4th highest loss

Since July 1, 2018 the Clinic Board has made several withdrawals from the investment account to cover operations. It currently has a balance of about $150,000. (Note: need to confirm this)

Operating Expenses and Income

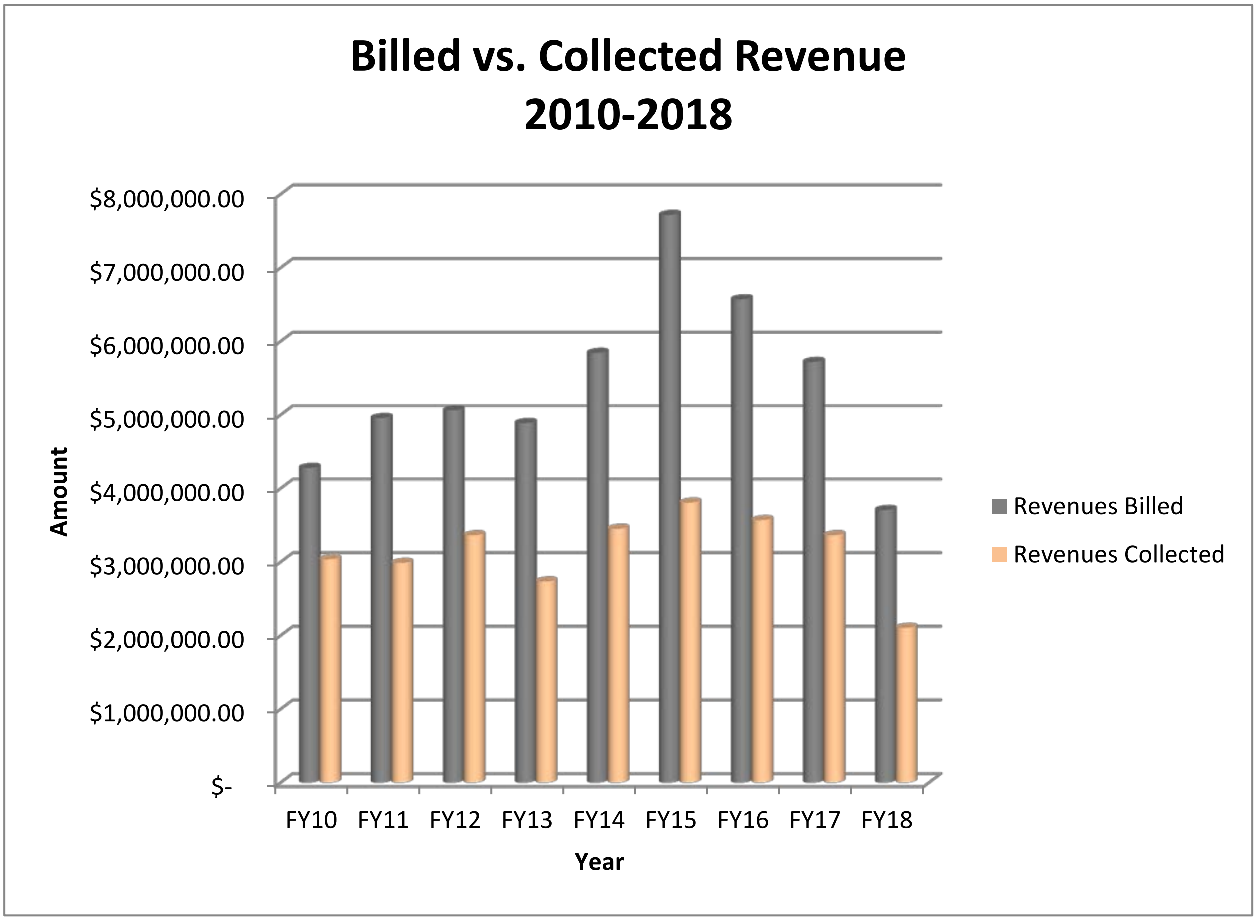
The total operational expenses each year has ranged from a low of $5.4 million in FY18 to a high of $6.8 million in FY16. The previous low was in FY10 at $5.6 million. Total income has ranged from a low of $4.8 million in FY18 to a high of $6.5 million in FY15. The low prior to FY18 was $5 million in FY10. During the same time the Clinic only produced net positive revenue once; in FY15 the income was $10,506. Otherwise the Clinic has been operating at net loss revenue ranging from $114,139 in FY14 to $916,845 in FY11. It lost nearly $600,000 in FY18 ($596,729). **The average annual operating loss since FY10 is $485,394.78.**

	Expenses	Income	Profit/Loss
FY10	5,641,591.00	5,009,806.00	-631,785.00
FY11	6,700,240.00	5,783,395.00	-916,845.00
FY12	6,660,431.00	5,927,314.00	-733,117.00
FY13	6,419,384.00	5,882,083.00	-537,301.00
FY14	5,897,796.00	5,783,657.00	-114,139.00
FY15	6,509,915.00	6,520,421.00	10,506.00
FY16	6,811,121.00	6,441,083.00	-370,038.00
FY17	6,092,045.00	5,612,940.00	-479,105.00
FY18	5,401,082.00	4,804,353.00	-596,729.00
Total	**56,133,605.00**	**51,765,052.00**	**-4,368,553.00**



Billing & Collections

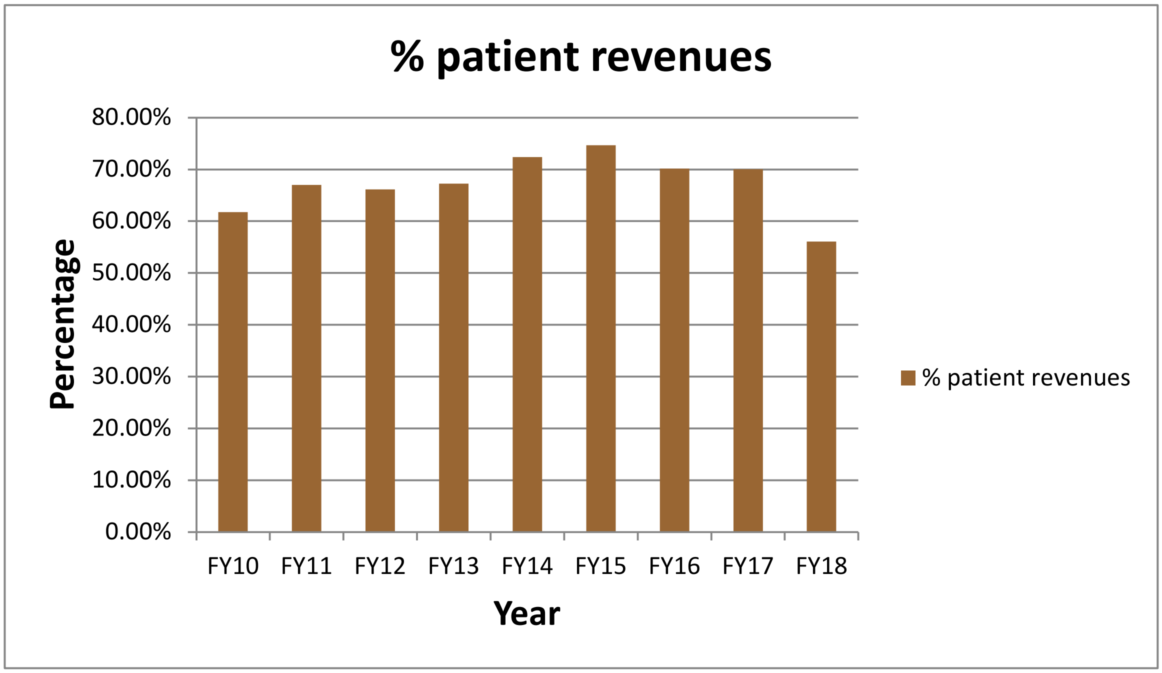
The Clinic's best ratio between billing and collections was FY10 when it billed about $4.28 million and collected about $3.0 million (71%). It's worst year was FY15 when the Clinic billed $7.7 million but only received $3.8 million collections (49%). Nearly $4 million went uncollected, which is about 25% of the $20 million that went uncollected from FY10 through FY18. In total the Clinic billed out $48.7 million for services and collected $28.4 million during the same reporting period. That represents an average collection of 58%.



Major Revenues and Expenses

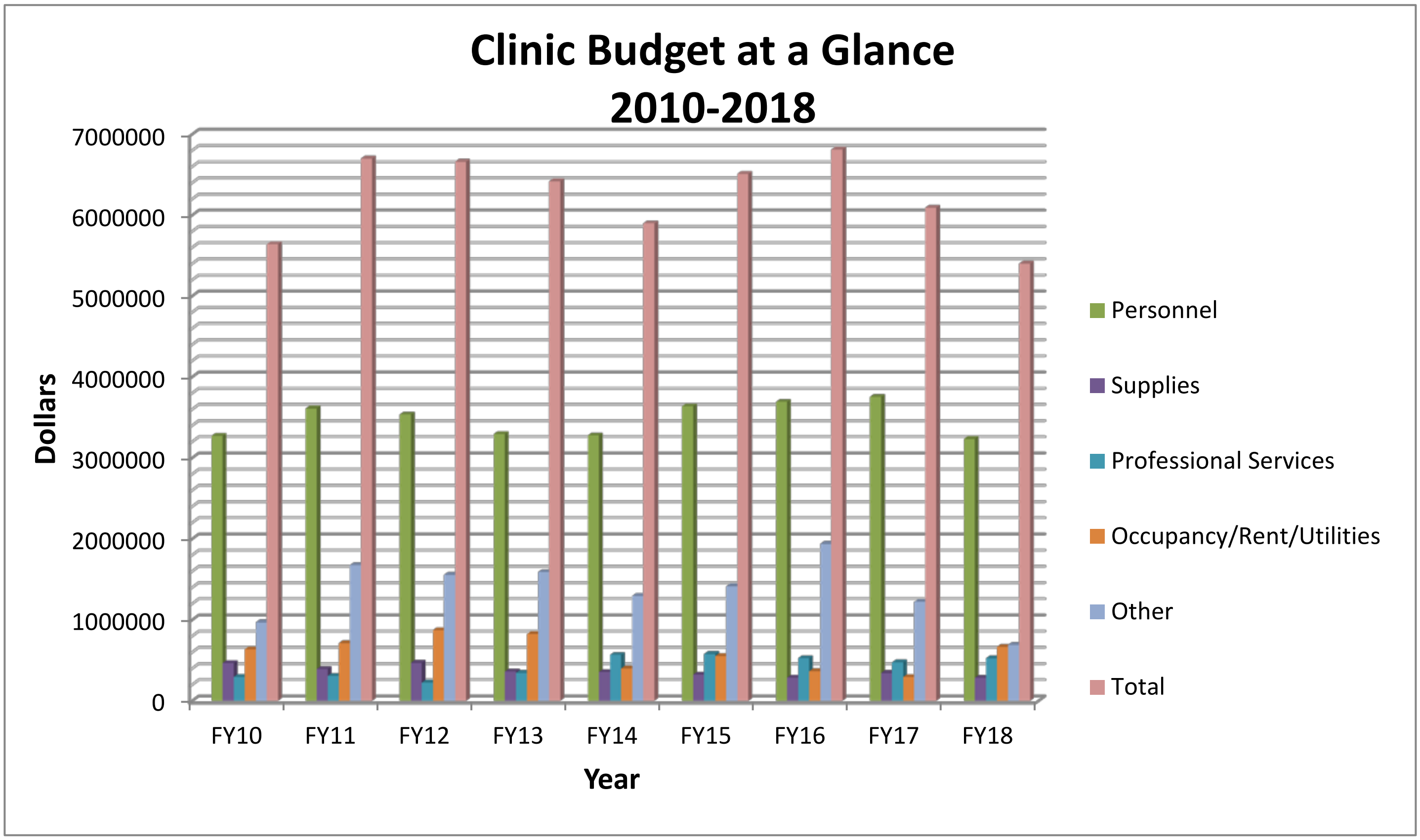
The total losses for the years FY10 – FY18 total is $4.4 million. Personnel are the bulk of expenses to the Clinic and have ranged between a low of 51.3% in FY13 to a high of 61.6% in FY17. Personnel costs were 59.9% of the expenses in FY18.

Patient revenues typically account for between 60% and 75% of overall income for the Clinic. In FY15 we received the highest percentage of patient revenue to income since FY10; we collected 74.4% of our revenues from patients that year. The lowest year for patient revenues was FY18 when our overall revenues were just 56% of our income sources.



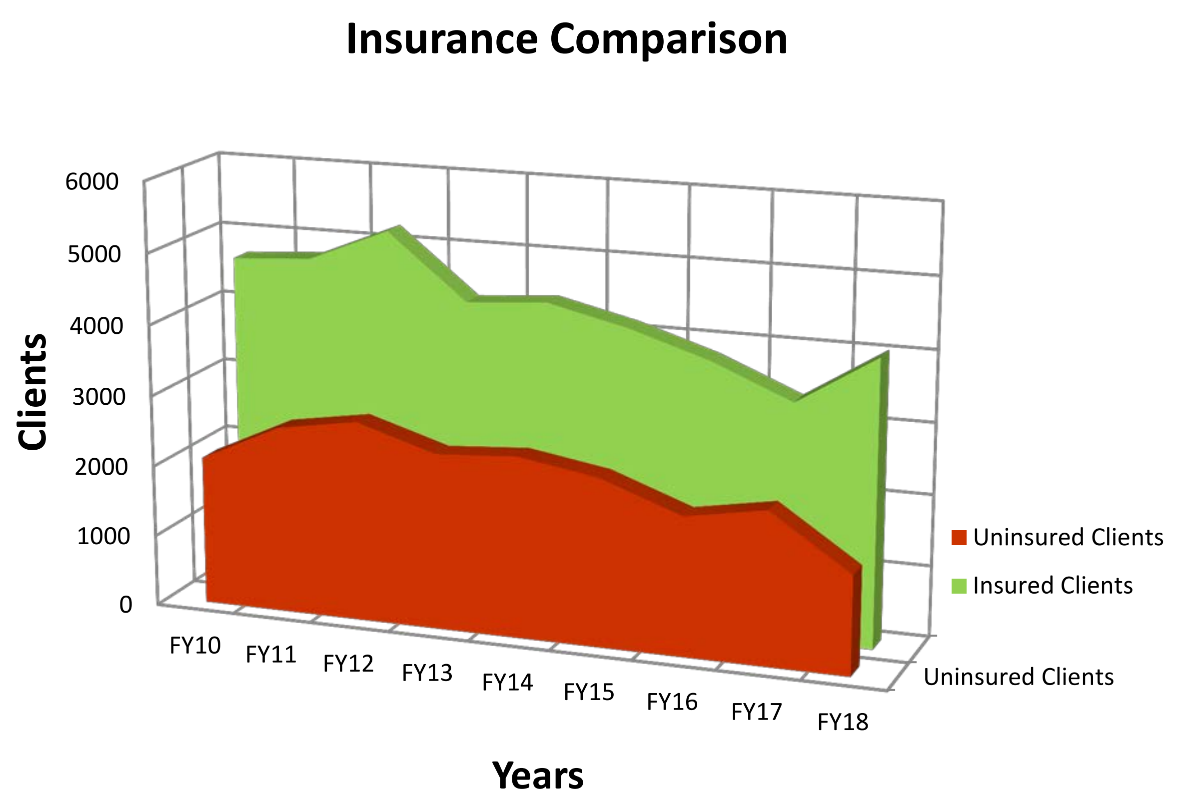
Budget at a Glance

Clinic Operations Informa	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
Expenses									
Personnel	$ 3,272,655.00	$ 3,610,567.00	$ 3,536,059.00	$ 3,294,950.00	$ 3,278,514.00	$ 3,637,930.00	$ 3,692,458.00	$ 3,754,090.00	$ 3,234,166.00
Supplies	$ 466,917.00	$ 393,181.00	$ 469,714.00	$ 362,775.00	$ 356,526.00	$ 323,862.00	$ 287,137.00	$ 344,000.00	$ 284,628.00
Professional Services	$ 295,571.00	$ 308,282.00	$ 225,411.00	$ 345,692.00	$ 567,460.00	$ 579,407.00	$ 526,913.00	$ 476,019.00	$ 524,980.00
Occupancy/Rent/Utilities	$ 636,881.00	$ 712,691.00	$ 873,068.00	$ 825,398.00	$ 399,802.00	$ 553,225.00	$ 366,567.00	$ 294,609.00	$ 666,902.00
Other	$ 969,567.00	$ 1,675,519.00	$ 1,556,179.00	$ 1,590,569.00	$ 1,295,494.00	$ 1,415,491.00	$ 1,938,046.00	$ 1,223,327.00	$ 690,406.00
Total	$ 5,641,591.00	$ 6,700,240.00	$ 6,660,431.00	$ 6,419,384.00	$ 5,897,796.00	$ 6,509,915.00	$ 6,811,121.00	$ 6,092,045.00	$ 5,401,082.00
% personnel expense	58.01%	53.89%	53.09%	51.33%	55.59%	55.88%	54.21%	61.62%	59.88%
Income									
Patient Revenues	$ 3,093,690.00	$ 3,874,686.00	$ 3,921,979.00	$ 3,955,603.00	$ 4,187,981.00	$ 4,867,683.00	$ 4,518,989.00	$ 3,932,246.00	$ 2,693,915.00
Grants/Gifts/Contributions	$ 1,843,360.00	$ 1,806,447.00	$ 1,785,976.00	$ 1,706,740.00	$ 1,327,521.00	$ 1,460,955.00	$ 1,742,465.00	$ 1,580,766.00	$ 2,022,271.00
Rental	$ 70,913.00	$ 76,828.00	$ 82,162.00	$ 116,377.00	$ 50,400.00	$ 91,294.00	$ 79,200.00	$ 86,400.00	$ 86,400.00
Other	$ 1,843.00	$ 25,434.00	$ 137,197.00	$ 103,363.00	$ 217,755.00	$ 100,489.00	$ 100,429.00	$ 13,528.00	$ 1,767.00
Total	$ 5,009,806.00	$ 5,783,395.00	$ 5,927,314.00	$ 5,882,083.00	$ 5,783,657.00	$ 6,520,421.00	$ 6,441,083.00	$ 5,612,940.00	$ 4,804,353.00
% patient revenues	61.75%	67.00%	66.17%	67.25%	72.41%	74.65%	70.16%	70.06%	56.07%
% Grants/Gifts/Contributions	36.80%	31.24%	30.13%	29.02%	22.95%	22.41%	27.05%	28.16%	42.09%
Operating Income (Loss)	$ (631,785.00)	$ (916,845.00)	$ (743,117.00)	$ (537,301.00)	$ (114,139.00)	$ 10,506.00	$ (370,038.00)	$ (479,105.00)	$ (596,729.00)

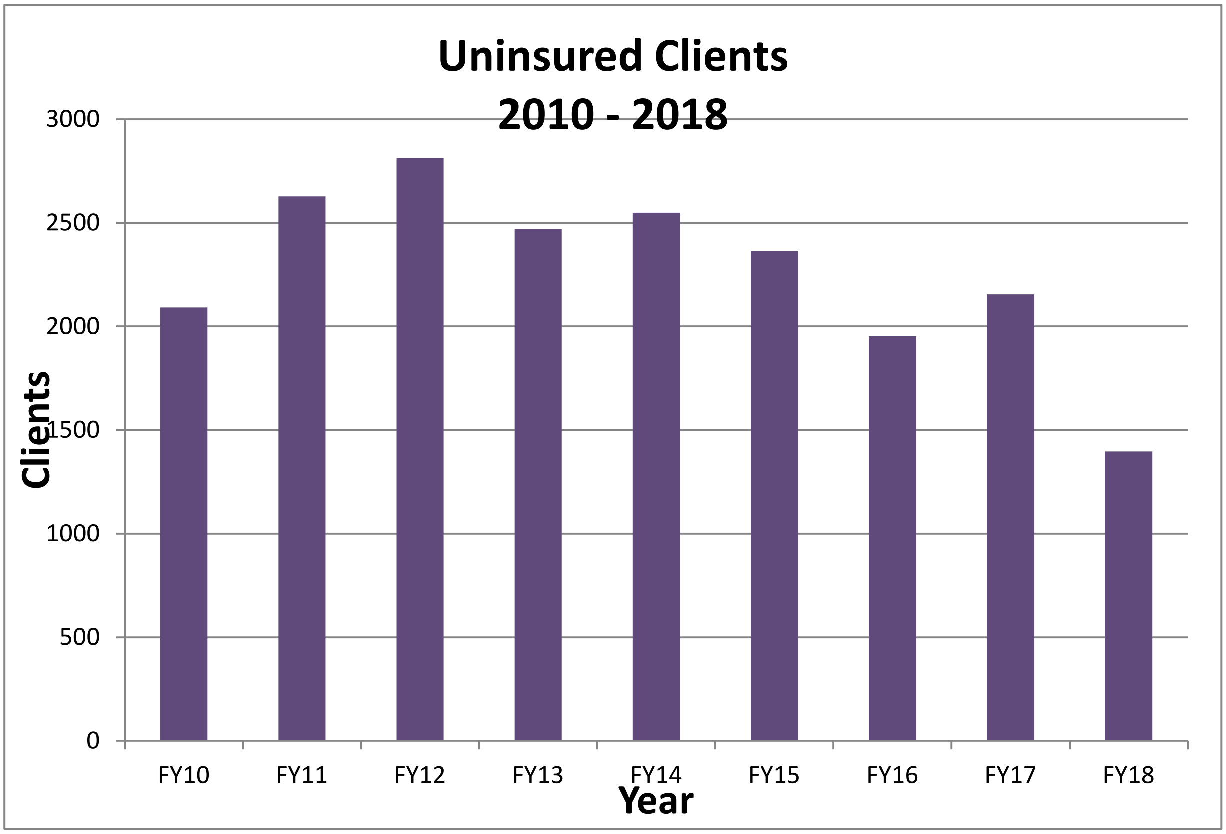


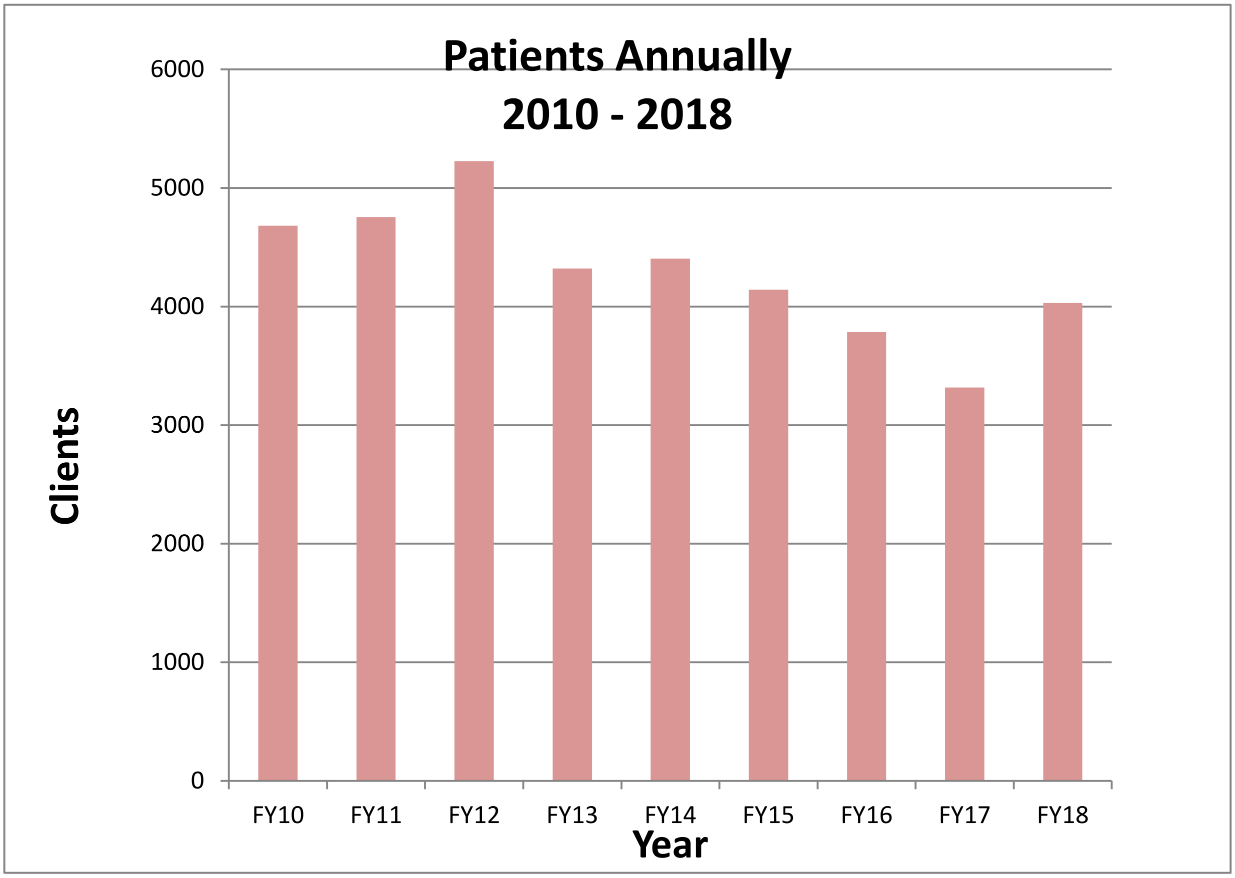
Insurance

The Clinic provided services to 38,666 patient visits from FY10-FY18. Of those only 18,248 were insured which left the services provided on 20,418 patient visits uninsured. Obviously the uninsurable rate plays a large factor in the Clinic's revenue stream, but it is not a direct correlation to the Clinic's net income. For example, the Clinic saw 4,031 patients in FY18 and only 1,397 were uninsured. This is a better insurance ratio than in FY17 when 65% of visits were to uninsured patients. The Clinic lost $479,105 that year but lost $596,479 in FY18.



	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
🟥 **Uninsured Clients**	**2091**	**2627**	**2812**	**2470**	**2549**	**2364**	**1953**	**2155**	**1397**
🟩 **Insured Clients**	**4681**	**4756**	**5227**	**4320**	**4405**	**4142**	**3786**	**3318**	**4031**


Uninsured Clients
2010 - 2018
Clients
Year
0
500
1000
1500
2000
2500
3000
FY10
FY11
FY12
FY13
FY14
FY15
FY16
FY17
FY18


Patients Annually
2010 - 2018
Clients
Year
0
1000
2000
3000
4000
5000
6000
FY10
FY11
FY12
FY13
FY14
FY15
FY16
FY17
FY18


Total Annual Expenses
$7,000,000.00
$6,000,000.00
$5,000,000.00
$4,000,000.00
$3,000,000.00
$2,000,000.00
$1,000,000.00
$-
Dollars
1
2
3
4
5
6
7
8
9
Years
Series1

BOARD of DIRECTORS

The Iliuliuk Family Health Center (Clinic) is governed by a Board of Directors. There are 11 positions on the board and they are divided by representation from the Clinic, processing businesses (Processors), the City of Unalaska (City), and the Ounalashka Corporation (OC). Terms are for three years and are staggered to avoid abrupt changes in board composition.

Anecdotally the present board members, Clinic staff, and the community at large are aware that the Clinic board seems to experience a high rate of turnover. It seems appropriate as part of this analysis to review the governance and leadership at the board level. A ten year time period from January 2009 through now is the basis of this review, which looks at of appointments, tenure, and vacancies.

Vacancies

In January, 2009 the Clinic Board had 10 sitting members and one vacancy. Since that time the Board has only been fully appointed 27% of the time through February 2019. Its operated missing one member 30% of that time, while missing two members 29%; without three members 11% and has operated for 3 months while short four members. Basically the board has only operated at capacity for 33 months over the past 122 months, and has **struggled with vacancies for 89 months or 73% of the past 10 plus years.** The longest period of a full complement of board members spanned from June 2013 through May 2014. The Board presently has nine (9) serving members and two vacancies.

Over the past 122 months the board was:

Fully appointed =	33 months	(27%)
Missing 1 member=	37 months	(30%)
Missing 2 members=	36 months	(29%)
Missing 3 members=	13 months	(11%)
Missing 4 members=	3 months	(3%)
		100%

Board Members

Though the Board has been fully appointed at times, its operation over 10 years' time has been in flux. Since January 2009, 45 board members have served at least one month. As of February 2019 the average term of service calculates to 24 months; however this includes present board members whose service lengths lack a finite end thus far. If the board was at a full complement starting in 2009 and board members completed their appointment terms, then there would have been about 45 people involved, which match the 45 appointees at right. However what this does not reflect is the vacancy rate which averages 1.3 missing member appointments annually. With the average tenure of 2 years, that technically adds another potential 5 appointments if the board were fully appointed, thus 50 people over 10 years' time.

With Board member turnover as high as presented herein, the numbers validate the perception that the Clinic has experienced tumultuous board composition for the past 10 years. The records indicate it is rare for a Clinic board member to complete a full term. The longest serving members in that time are present member Sharon Svarney-Livingston- (9 years & 1 month) and D. Tyrell McGirt (7 years & 11 months). Obviously these two individuals have served more than one term consecutively. There have only been five other board members who've served more than one term, and two other members who have served twice but not consecutively and not to completion.

Executive Directors

In the same 10 year review period there have been a total of five Executive Directors: Sonia Handforth Krome, Eilene Scott, James Navotny (Interim), Michelle Cochran (Interim), and James Kaech. Some served longer than others, with the longest being about four years and the shortest being interim directors. Still, five directors over 10 years means the Clinic as an organization has a turnover in representation while trying to develop relationships with external organizations including other health care providers and services in our Alaska region.

MEMBER	MONTHS
Berikoff, Harriet	**26 & 15**
Bennett, Robert	2
Cochran, Michelle	60
Collins, Joel	14
Crane, Lynn	**1**
Dowds, Amy	**16**
Enlow, Thomas	22 & 23
Fisher, Vic	**4**
Gisvold, Char	18
Gehring, Billie Jo	66
Goodfellow, Don	2
Gordon, Lydia	16
Hatfield, Rachelle	20
Homka, William	**15**
Kelty, Frank	47
Krukoff, Janice	**22**
Leasure, Laura	50
Lecanoff, Jana	**3**
Leclere, Yudelka	16
Livingston, Sharon	**109**
Lopez, Ferdinand	**27**
Marakin, Sean	18
McGirt, D. Tyrell	95
Miller, Tonya	5
O'Donnel, Sean	3
Palmeri, Andrew	1
Peck, Richard	37
Pilande, Estkarlen	54
Poole, Anna	10
Reinders, Erin	11
Riffer, Sara	14
Rodriguez, Kim	25
Sandness, Gary	34
Shapsnikoff, Shirley	13
Shaisnikoff, Stephen	10
Sheffield, Michael	23
Soule, Patricia	10
Stipple, Jamie	16
Sunderland, Belinda	11
Syverson, Alena	22
Tutiakoff, Nick	8
Taylor, Tammy	22
Tellman, Johanna	13
Thomas, Leslie	2
Wilt, Sinclair	54

Report Date: March 6, 2019

March 6, 2019

Thomas E. Thomas, City Manager
City of Unalaska
PO Box 610
Unalaska, AK 99685

RE: Emergency Funding Request

Dear Mr. Thomas:

On behalf of the Iliuliuk Family Health Services (IFHS) Executive Committee I hereby submit the attached report for the city review and seek emergency funding in the amount of $500,000. I've served on the IFHS board as a city appointee since October 2017 and have been the City's Planning Director since February, 2017. I can tell you that the Clinic Board of Directors and the Executive Committee in particular, has been wrestling with the financial position of the organization for nearly six months. That is not to say, however, that IFHS has not had ongoing funding issues because these actually extend back at least ten years.

The most recent exposure City Council has had with the IFHS funding was July, 2018. The City Council approved emergency funding for IFHS by Ordinance 2017-14 – a BUDGET AMENDMENT NO. 2: CREATING A BUDGET TO TRANSFER $500,000 FROM THE GENERAL FUND BUDGETED SURPLUS TO INCREASE THE GRANTS TO NON-PROFITS TO HELP FUND THE ILIULIUK FAMILY HEALTH SERVICES (IFHS) EMERGENCY ASSISTANCE SUPPORT REQUEST. Council approved that ordinance and had money set aside for the clinic. Between January and July 2018 the IFHS Board of Directors was repeatedly informed that the IFHS financial situation was continuously improving. Former Clinic Executive Director James Kaech was so certain of this improvement that he appeared before the City Council in July 2018 to indicate the IFHS no longer needed the funds. That assessment was not only premature, it was incorrect.

The IFHS has been working hard to transition the organization into a well-run clinic. Although it provides valuable services to island residents, business and visitors, the operation has not been able to sustain itself for at least 10 years. In the past year we've implemented relationships with new billing companies to increase the rate of payment via collections for services; contracted with another company to double check our medical coding so that the services being administered are being correctly billed for to patient insurance companies; begun serious dialogue about merging services with the Aleutian Pribolof Islands Association; streamlined staffing levels, the lowest in 10 years, and; increased the patient to provider ratio. Still however the IFHS's model of operation is not sustainable.

Attached is a draft report entitled 'Ililiuk Family Health Services Operational Assessment 2010 - 2018 that aims to review numerous operational issues; from insurance and collections to non-collectable and uninsured patient services; the organization's budgets over the past 10 years; even the level of volatility the organization's leadership has experienced with repetitive, extended board position vacancies. There have been 45 board members appointed to the IFHS Board of Directors since 2010, some members serving one month and the rare few completed a full three year term. The board would have had about 45 members if they served full terms, but the amount of vacant board positions each month (as many as 3-4 at a time for several months) paints a picture of leadership that has struggled for the past 10 years as well.

The real culprit that has created sustainability challenges to the clinic operation model is that we are a rural clinic that is trying to operate 24/7 service as a critical access medical facility would operate somewhere else. When the clinic made the decision over 10 years ago to pursue federal grant funding for services, it had to commit to operate 24/7. Unfortunately the patient volume has never met the threshold of service that would help clinic operations balance out with financial budgetary needs. Basically, the clinic has been losing an average of about $485,000 annually since FY2010.

So where did the clinic get the funds to close this half million budget gap each year? The answer is from the funds it set aside in investments during the years it operated as a rural health clinic. Before the organization made the decision to accept federal grant funding, which caused it to maintain staffing available 24/7, the organization operated in a positive cash position annually. Thus the nearly $4.5 million investment fund is nearly depleted and has a balance of about $150,000 currently.

One of the successful goals James Kaech achieved was to reduce the size of the clinic staff. It's currently 38, the lowest it's been over the past 10 years. Even with the staff reduction, payroll is still about $100,000 every pay period. That means it's about $200,000 every month and $300,000 on the two months were there are three pay periods. The IFHS cash account has been as low as $4,500 recently all the while we continue to monitor the cash flow daily from the two main sources: grant draws and insurance reimbursements. Some days we collect as much at $20,000. The IFHS budget currently stands at about $4.3 million annually.

Our Executive Director, James Kaech, announced his resignation in December 2018. He last day was February 21, 2019. On March 5, 2019 the Executive Committee extend a successful offer to Mr. Will Rogers. He brings a career of healthcare service and experience with him to Unalaska and has prior experience with Community Health Centers, clinic mergers, and the numerous grants, insurance, and other issues that are part of the daily operation of a health center. His first day is tentatively Monday March 11, 2019. Obviously one of the challenges IFHS has faced recently, on top of getting an accurate account of our funds, is that the Executive Committee has been working on the search for an Interim Director.

Mr. Rogers will arrive during this ongoing, crucial time for IFHS. Though the Executive Committee has worked diligently and has been as resourceful as possible, the fact remain that we are not health care professionals. One of the changes IFHS has been working on includes exploring a merger with the Aleutian Pribolof Islands Association (APIA) which provides health services to the Native population on Unalaska. We've already forged an agreement to have APIA be the sole provider of Behavioral Health services on the island. Meanwhile we continue to work out a 'merger' agreement with APIA to where APIA will pay rent for space it currently uses in the IFHS, APIA will agree to direct its clients to use the services provided by IFHS, and thus we avoid duplicating services and increase everyone's bottom line as a result.

The attached report is a draft. We have been working to find answers for many questions regarding the services at the clinic, whether or not our operations model could ever be sustainable, what potential role we can cultivate with the city, other health care systems off island etc. Much of the analytical information was never collected in the format we want to present, and so amidst everything else we have been taxing our staff with information requests. Thus this is a 'draft' because we anticipate more information being added that may alter some of the the analysis; however we don't expect the overall assessment to be different as a result. We just want to paint as clear a picture as possible now and into the future.

I will be present to answer any questions I can about the report, our financial status, and the need for emergency funds from the city to sustain IFHS operations. Please feel free to call me at 907-359-2105.

Best regards,

William M. Homka
Vice President, IFHS

Cc: Amy Dowds, IFHS President
Sharon Svarney-Livingston, Treasurer-Secretary

Att: IFHS Organizational Assessment

CITY OF UNALASKA
UNALASKA, ALASKA

ORDINANCE 2019-02

CREATING BUDGET AMENDMENT NO. 5 TO THE FISCAL YEAR 2019 BUDGET, INCREASING THE OPERATING BUDGET OF THE WATER FUND BY $255,784 TO FUND THE ADDITION OF TWO FULL-TIME WATER OPERATOR 1 POSITIONS

BE IT ENACTED BY THE UNALASKA CITY COUNCIL, as follows:

Section 1. Classification: This is a non-code ordinance.

Section 2. Effective Date: This ordinance becomes effective upon adoption.

Section 3. Content: The City of Unalaska FY19 Budget is amended as follows:

A. That the following sums of money are hereby accepted and the following sums of money are hereby authorized for expenditure.

B. The following are the changes by account line item:

Amendment No. 5 to Ordinance #2018-04

	Current	Requested	Revised
I. OPERATING BUDGETS			
A. Proprietary Funds			
Sources			
Water Enterprise Fund - Budgeted use of unrestricted net assets	$ 676,325	$ 255,784	$ 932,109
Uses			
Water Enterprise Fund - Water Operations	$ 1,251,282	$ 255,784	$ 1,507,066

PASSED AND ADOPTED by a duly constituted quorum of the Unalaska City Council on March 12, 2019.

Frank Kelty
Mayor

ATTEST:

Marjie Veeder
City Clerk

City of Unalaska
Summary of Budget Amendment and Schedule of Proposed Accounts
FY19 Budget Amendment 5, page 2

1) Water Fund - Operating Budget

Add $255,784 to Salaries & Wages and related payroll tax, insurance and employee benefit costs for two additional Water Operator I positions

	Org	Object	Project	Current	Requested	Revised
2) Water Fund - Operating Budget						
Sources:						
Budgeted use of unrestricted net assets	51015549	49910		676,325.00	255,784.00	932,109.00
Uses:						
Salaries and Wages	51024351	51100		361,230.00	140,904.00	502,134.00
Health Insurance Benefit	51024351	52100		119,092.00	59,545.00	178,637.00
FICA & Medicare Emplr Match	51024351	52200		34,396.00	10,779.00	45,175.00
PERS Employer Contribution	51024351	52300		107,247.00	38,034.00	145,281.00
Unemployment Insurance	51024351	52400		2,138.00	790.00	2,928.00
Workers Compensation	51024351	52500		11,531.00	4,612.00	16,143.00
Other Employee Benefits	51024351	52900		2,772.00	1,120.00	3,892.00

MEMORANDUM TO COUNCIL

To:	Mayor and City Council Members
From:	Dan Winters, Director of Public Utilities
Through:	Thomas Thomas, City Manager
Date:	March 12, 2019
Re:	Ordinance 2019-02, creating Budget Amendment no. 5 to the Fiscal Year 2019 budget, increasing the operating budget of the Water Fund by $255,784 to fund the addition of two full time water operator 1 positions

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SUMMARY: Through this Ordinance, staff requests the addition of two full-time, permanent employees and $255,784 in funding for the same for the Water Division of the Department of Public Utilities. This total represents the cost for these positions for one year.

PREVIOUS COUNCIL ACTION: Council approved the Fiscal Year 2019 Operating Budget for the Water Division of the Department of Public Utilities on May 22, 2018, via Ordinance 2018-04. In doing so, Council authorized the FY19 budget funding the following positons in the Water Division:

- Two Operator in Training, Temporary/Seasonal positions at 90 day intervals
- One Water Operator I
- One Water Operator II
- One Water Operator III
- One Water Division Supervisor

BACKGROUND: Since Fiscal Year 1998, the Water Division has operated with 4 full-time permanent employees and two seasonal temporary employees. Meanwhile, regulations governing the production of drinking water have significantly increased. Infrastructure such as the Pyramid Water Treatment Plant, which began operations in 2012, and the Icy Lake Automatic Control System, put in service in 2013. Before 1998, the Water Division had 5 employees. One of these employees was dedicated to testing, leak detection, and repairing automatic relief valves, pressure relief valves and mainline valves in the distribution system and the plants. This position was not filled after the employee retired and the position was dropped from the City's funded employee roster.

DISCUSSION: The Water Division personnel work five days per week, Monday through Friday. Water staff work eight hours per day, translating to 40 hours per week. Each of the three current long-term staff members is allowed to take up to 30 days of personal leave per year. Due to the low staffing numbers, one person's personal leave cannot overlap another person's personal leave by more than a few days.

In November 2018, Staff completed a Job Analysis of the Water Division. The analysis focused on operator tasks required to run the utility in a safe and environmentally compliant manner. Once the tasks were identified, Staff calculated the time it took to complete each task. Data from the analysis shows it takes 55.8 man hours per day to accomplish the necessary, routine daily tasks. This equates to 6.9 personnel at eight hour work days. At the time of the analysis, the division was staffed with three Operators and one Supervisor, which equates to a shortage of 2.9 employees.

With the addition of the new water plant and other equipment, overtime has steadily increased over the years and a record high has been achieved this Fiscal Year. At the writing of this memo, the Water Division has used 121% of its $32,624 overtime budget, with only 50% of the Fiscal Year completed. Consequently, the water crew is under pressure to perform and burnt out from overwork, creating a higher likelihood of accidents and injuries as well as decreasing their quality of life.

The Water Division Master Plan was completed in FY18 and confirms Staff's analysis. The Master Plan states:

> "The Water Utility appears to be short staffed on operators. It is recommended that the City perform a staffing analysis to verify the need for additional operators, determine how many more operators are needed, and look for ways to increase efficiency."

As recommended by the Master Plan, Staff completed the Job Analysis and its finding confirmed the master plan's suspicion.

Through this Ordinance, Staff requests the addition of two full-time, permanent Water Operator 1 positions to the employee roster of the Water Division Operations as well as the necessary funding in the amount of $255,784.

ALTERNATIVES: Between the recommendations of the Master Plan and the results of the Job Analysis, Staff believes there is no other viable alternative to adding the two positions. Staff must have help to keep the Utility operating safely and in compliance with State and Federal Regulations.

FINANCIAL IMPLICATIONS: The annual cost to fund these positions is $255,784, which includes all benefits, as the table below depicts:

Annual Cost for Two Water Operator I Positions							
2 Water Operator I	Salaries & Wages	Airfare	PERS 27% of Base	Taxes 8% of Base	Insurance	Union, Other	Total
(2080 hrs X $33.15 X 2)	$ 137,904	$ 3,000	$ 38,034	$ 10,779	$ 59,545	$ 6,522	$ 255,784

With the approval of the FY19 Budget and through other Ordinances, Council authorized 173.17 full time equivalent (FTE) employees. This includes 159 full-time permanent positions (159 FTE), 29 part-time positions (6.67 FTE), 11 temporary or seasonal positions (5.5 FTE), as well as two pending and unbudgeted positions (2 FTE).

Through the approval of this Ordinance, the FTE will increase to 175.17. This includes 161 full-time permanent positions (161 FTE), 29 part-time positions (6.67 FTE), 11 temporary or seasonal positions (5.5 FTE), as well as 2 pending and unbudgeted positions (2 FTE).

LEGAL: Not applicable.

STAFF RECOMMENDATION: Staff recommends adopting Ordinance 2019-02.

PROPOSED MOTION: I move to approve Ordinance 2019-02, and set it for public hearing and second reading on March 12, 2019.

CITY MANAGER COMMENTS: I recommend adoption of Ordinance 2019-02.

CITY OF UNALASKA
UNALASKA, ALASKA

ORDINANCE 2019-03

AN ORDINANCE AMENDING CHAPTERS 6.40 AND 6.44 TO REQUIRE CERTAIN OUT OF TOWN RETAILERS TO COLLECT AND REMIT SALES TAX INCLUDING CERTAIN RETAILERS WHO MAKE SALES OVER THE INTERNET AND TO MAKE COPORATE OFFICERS RESPONSIBLE FOR UNDERPAYMENT OR NONPAYMENT OF RAW SEAFOOD SALES TAX

WHEREAS, retail sellers making deliveries to customers in the City benefit from municipal services provided by the City; and

WHEREAS, exempting out-of-town retailers from the obligation to collect sales taxes provides these retailers an unfair competitive advantage over local retailers; and

WHEREAS, buyers and collectors or raw seafood products within the City are obligated to collect raw seafood sales tax from sellers and remit it to the City; and

WHEREAS, these collected taxes are held in trust by the buyers and collectors for the benefit of the City.

BE IT ENACTED by the City Council of the City of Unalaska:

Section 1: Form. This is a Code ordinance. Sections 3-6 amend the Unalaska Code of Ordinances.

Section 2: Legislative Findings.

(1) The inability to effectively collect city sales tax from remote sellers who deliver tangible personal property, any products transferred electronically, or services directly to the citizens of Unalaska is seriously eroding the sales tax base of Unalaska, causing revenue losses and imminent harm to this city through the loss of critical funding for services;

(2) The harms from the revenue losses are especially serious in Unalaska because sales tax revenues are essential in funding local services;

(3) The structural advantages of remote sellers, including the absence of point-of-sale tax collection, along with the general growth of online retail, make clear that further erosion of this city’s sales tax base is likely soon;

(4) Remote sellers who make a substantial number of deliveries into or have large gross revenues from Alaska benefit extensively from this state's market, including the economy generally, as well as state and city infrastructure; and

(5) In contrast with the expanding harms caused to the city from this exemption of sales tax collection duties for remote sellers, the costs of that collection have fallen. Given modern computing and software options, it is neither unusually difficult nor burdensome for remote sellers to collect and remit sales taxes associated with sales into Alaska generally and Unalaska specifically.

Section 3: **Amendment of UCO §6.40.010** Subsection 6.40.010(C) of the Unalaska Code of Ordinances is hereby amended to read as follows: [deleted language is struck and new language underlined]

(C) "MADE IN THE CITY" means:

(1) A sale resulting ~~from an offer being communicated from a seller to a consumer within the City and accepted by the consumer within the City~~ in tangible personal property delivered into the possession of a consumer in the City;

(a) if the seller has a physical presence in the City; or

(b) if the seller does not have a physical presence in the City but;

(i) the seller's gross revenue from the delivery of tangible personal property, any product transferred electronically or services into the State of Alaska in the previous calendar year or the current calendar year exceeds one hundred thousand dollars; or

(ii) the seller sold tangible personal property or electronically transferred any product or services for delivery in Alaska in two hundred or more separate transactions in the previous calendar year or the current calendar year.

(2) Services and rentals performed wholly within the City; or

(3) Services and rentals performed partially within the City where the end result of the service or rental performed occurs in the City; or

(4) Services performed outside the City in connection with construction of a structure or improvement to real or personal property located within the City.

Situations excluded are where separation of the goods from the stock of the seller takes place at the point of delivery and is outside the boundaries of the City, including such items as oil deliveries, telephone service, television service and electric power service.

Section 4: **Amendment of UCO §6.40.080** Subsection 6.40.080 of the Unalaska Code of Ordinances is hereby amended by deleting subsection (B) in its entirety and re-lettering the remaining subsections.

Section 5: **Amendment of UCO §6.40.110** Subsection 6.40.110 of the Unalaska Code of Ordinances is hereby amended to read as follows: [deleted language is struck and new language underlined]:

6.40.110 PERIOD OF LIMITATION.

(A) The amount of any sales tax imposed under this Chapter may be determined and assessed at any time within a period of six (6) years after the sale tax became due and payable. The period shall begin on the date when a return is required to be filed. Where no sales tax return has been filed, or where a fraudulent return has been filed, then the period of limitation does not begin to run until discovery of the delinquency or fraud occurs. No proceeding for the collection of the sales tax shall be begun after the expiration of this period.

(B) No obligation to collect tax established by section 6.40.010(C)(1)(b) shall be applied retroactively.

Section 6: **Amendment of UCO §6.44.** Chapter 6.44 of the Unalaska Code of Ordinances is hereby amended with the addition of a new Section 6.44.160 to read as follows:

6.44.160 PERSONAL LIABILITY OF CORPORATE OFFICERS FOR UNPAID TAXES.

(A) Any person who receives or collects a tax or any money represented to be a tax from another person holds the amount so collected in trust for the benefit of the City and is liable to the City for the full amount collected plus any accrued penalties and interest on the amount collected.

(B) Persons owning stock of ten percent (10%) or more of the total of corporations or ten percent (10%) interest in limited liability companies with thirty-five (35) or fewer owners and exercising responsibility for fiscal management, shall be jointly and severally liable for raw seafood product sales taxes levied or otherwise required to be collected or paid to the City by such corporation or limited liability company when such taxes become due and unpaid to the extent that such taxes accrued while such person was exercising responsibility for fiscal management.

(C) The dissolution of a corporation, limited liability company, limited partnership, limited liability partnership, or limited liability limited partnership does not discharge an officer, member-manager, manager, or partner's liability for a prior failure of the corporation, limited liability company, limited partnership, limited liability partnership, or limited liability limited partnership to file a return or remit the tax due. The sum due for such a liability may be assessed and collected as provided by law.

(D) If the corporate officers, limited liability company member-managers or managers, or partners elect not to be personally liable for the failure to file the required returns or to pay the tax due, the corporation, limited liability company, limited partnership, limited liability partnership, or limited liability limited partnership shall provide the City with a surety bond or certificate of deposit as security for payment of any tax that may become due. The bond or certificate of deposit provided for in this section shall be in an amount equal to the estimated annual gross purchases made by the collector multiplied by the applicable tax rate.

(E) Upon the termination, dissolution, or abandonment of the business of a corporation, partnership, limited partnership, limited liability partnership, or limited liability company, any officer, member, manager, partner, or other person having control or supervision of, or who is charged with the responsibility for the filing of returns or the payment of tax, or who is under a duty to act for the corporation, partnership, limited partnership, limited liability partnership, or limited liability company in complying with any requirement of this Chapter, and who is not jointly and severally liable under § 6.44.160(A), shall be personally liable for any unpaid taxes and interest and penalties on those taxes, if the officer, member, manager, partner, or other person willfully fails to pay or to cause to be paid any taxes due from the corporation, partnership, limited partnership, limited liability partnership, or limited liability company pursuant to this part.

(F) The officer, member, manager, partner, or other person liable under § 6.44.160(E) shall be liable only for taxes that became due during the period he or she had the control, supervision, responsibility, or duty to act for the corporation, partnership, limited partnership, limited liability partnership, or limited liability company, plus interest and penalties on those taxes.

(G) Personal liability may be imposed pursuant to this section only if the City can establish that the corporation, partnership, limited partnership, limited liability partnership, or limited liability company had included tax reimbursement in the selling price of, or added tax reimbursement to the selling price of raw seafood product purchased in the conduct of its business, or when it can be established that the corporation, partnership, limited partnership, limited liability partnership, or limited liability company made a sale of raw seafood product subject to tax and failed to pay the tax.

(H) For purposes of this section, “willfully fails to pay or to cause to be paid” means that the failure was the result of an intentional, conscious, and voluntary course of action.

Section 7: Effective Date:

A. Subsection 6.40.110(c)(1)(a) as amended clarifies existing law in a manner consistent with past administrative interpretation and the language as amended shall be effective retroactive to January 1, 2013.

B. All other provisions of this ordinance shall be effective thirty days after passage.

PASSED AND ADOPTED by a duly constituted quorum of the Unalaska City Council on the _____ day of _______________, 2019.

____
Frank Kelty
Mayor

ATTEST:

____
Marjie Veeder
City Clerk

BOYD, CHANDLER, FALCONER & MUNSON, LLP
Attorneys At Law
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911 West Eighth Avenue
Anchorage, Alaska 99501
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bcf@bcfaklaw.com

MEMORANDUM

To: Thomas Thomas
City Manager

From: Brooks Chandler

Date: March 7, 2019

Re: Sales Tax Ordinance Changes

This memorandum summarizes and explains proposed amendments to city sales tax code provisions intended to establish clear authority for the city to require certain internet sellers to collect and remit city sales tax. As previously advised in our memorandum of July 30, 2018 it is now "legal" to tax such sales as a result of the South Dakota v. Wayfair decision. It is no longer necessary for a seller to have a physical presence in Unalaska. A "virtual" presence based on the volume of sales made in the entire State of Alaska is enough.

The draft ordinance applies the new legal authority by replacing the phrase "offer being communicated from a seller to a consumer within the city and accepted by the consumer within the city" with language based on delivery of the item purchased to Unalaska. This will clearly require larger internet sellers to collect tax. It is likely the current language already includes such a requirement. But exactly where "communication" that occurs via computer takes place is debatable. Is this where the keyboard is located or where the servers on which Amazon hosts its website are located? What about when an Unalaska resident uses their cell phone while in Anchorage to order something over the internet? The ordinance change removes all doubt.

The threshold levels of sales required to trigger the obligation to collect tax on internet sales are identical to those approved by the United States Supreme Court in the Wayfair decision. Alaska is used as the basis for sales volume rather than Unalaska because the constitutional provision on which Wayfair and the old legal rule were based is one relating to interstate commerce. Using Alaska rather than Unalaska will maximize the number of sellers required to collect tax. If the city council prefers to use Unalaska a much lower threshold gross sales amount should be substituted.

Specific language indicating the City will not retroactively seek tax based on the old "solicitation within the city" language is included in Section 5. The Supreme Court specifically mentioned similar language in the South Dakota statute it upheld in the Wayfair case.

The change in Section 4 is "housekeeping". The code section being deleted referenced an exemption for "out of town sales" which no longer exists. Section 6 applies provisions previously adopted for sales tax making corporate officers individually responsible for the failure of a corporation to remit sales tax to the city's fish tax ordinance.

The effective date section has two components. One emphasizes that the city will apply the new language to internet sales upon adoption although previous sales can still be considered taxable based on the former "offer being communicated by a seller to a consumer within the city" language. The other contains a retroactive date for local businesses. This subsection is included in response to claims that sales of fuel made by OSI's fuel business in Unalaska are not taxable if the fuel sold was ordered through OSI's Seattle office by way of phone, fax or email. We do not believe this is a correct interpretation of current language or was ever what was intended by the language which justifies a retroactive effective date.

I plan to be available by telephone on March 12 to respond to any council questions.

CITY OF UNALASKA
UNALASKA, ALASKA

RESOLUTION 2019-10

A RESOLUTION OF THE UNALASKA CITY COUNCIL AUTHORIZING FORECLOSURE PROCEEDINGS FOR DELINQUENT PROPERTY TAXES FOR TAX YEARS 2014-2018

WHEREAS, AS Chapter 29.45 and UCO Chapter 6.36 authorize the City of Unalaska to collect unpaid real property taxes through *in rem* foreclosure proceedings against all real property for which the property tax has not been paid in full; and

WHEREAS, in accordance with AS 29.45.330 and UCO 6.36.110, the City Clerk has prepared a foreclosure list identifying properties for which the tax has not been paid.

NOW THEREFORE BE IT RESOLVED AS FOLLOWS:

1. The City Attorney is hereby authorized to file a foreclosure action against all property identified in the attached foreclosure list; and

2. The City Clerk is hereby directed to certify and publish the foreclosure list and provide notice of commencement of the foreclosure action in accordance with AS 29.45.330 and UCO 6.36.110.

PASSED AND ADOPTED by a duly constituted quorum of the Unalaska City Council on March 12, 2019.

____
Frank Kelty
Mayor

ATTEST:

____
Marjie Veeder
City Clerk

City of Unalaska, Alaska

REAL PROPERTY TAX FORECLOSURE LIST

2014-2018 Foreclosures

Parcel #	Owner of Record	Property Description	2014	2015	2016	2017	2018	2019	Tax Due	Penalty & Interest	Total Delinquency
04-03-528	Bayview Associates	Lot 4 Block 1 Ilulaq Subd	-	-	-	-	1,361.75	1,516.08	2,877.83	335.26	3,213.09
04-09-172	Carl's Commercial	Tract C Carl's Subdivision Addition #1, Plat 91-15	222.34	222.35	226.93	223.90	222.91	222.91	1,341.34	540.04	1,881.38
03-07-536	John Galaktionoff	Lot 3, New Town Subdivision	1,473.78	2,011.31	2,052.83	2,025.37	2,011.31	2,011.31	11,585.91	3,883.07	15,468.98
06-02-025	Larry D. Garrison Trust B	Lot 8, R. Moore Subdivision	-	-	-	-	358.06	358.06	716.12	94.24	810.36
06-02-030	Larry D. Garrison Trust B	Lot 7 R. Moore Subdivision	-	-	-	-	2,345.81	2,345.81	4,691.62	617.42	5,309.04
06-02-035	Larry D. Garrison Trust B	Lot 6 R. Moore Subdivision	-	-	-	-	847.78	847.78	1,695.56	223.13	1,918.69
06-09-135	Richard McConnell	Lot 2 Helgevold Subdivision	-	-	-	-	-	2,557.18	2,557.18	161.93	2,719.11
06-09-151	Richard McConnell	Lot 5 Creekside Estates Subdivision	-	-	-	-	-	2,774.32	2,774.32	175.69	2,950.01
06-09-152	Richard McConnell	Lot 6 Creekside Estates Subdivision	-	-	-	-	-	693.00	693.00	43.88	736.88
06-09-179	Juliann Tucker	Lot 3 ARC Addition 1	-	-	-	-	761.35	1,488.79	2,250.14	144.35	2,394.49
06-09-150	John Zirlott	Tract A-1 Creekside Estates Sub Amundson Addn #2	887.04	887.04	905.35	893.24	1,002.54	1,002.54	5,577.75	2,184.30	7,762.05

Interest is calculated through March 8, 2019. Additional interest at 15% per annum on the tax due accrues until paid in full.

Each property owner will be assessed a proportionate share of the costs of the foreclosure proceeding, including attorney fees, court costs and fees for recording, service and publication. The costs must be paid before the property may be removed from the foreclosure list.

This 2014-2018 Real Property Tax Foreclosure List is available for public inspection at the office of the City Clerk for the City of Unalaska, 43 Raven Way, P. O. Box 610, Unalaska, AK 99685.

A Petition for Judgment and Decree has been presented to the Superior Court in Anchorage, Alaska.

I certify that I am the City Clerk for the City of Unalaska, Alaska, and that the foregoing Real Property Tax Foreclosure List 2014-2018 is true and correct to the best of my knowledge and belief.

CITY OF UNALASKA

By: ______________________________
Marjie Veeder
City Clerk

STATE OF ALASKA)
) ss.
Municipality of Unalaska)

SUBSCRIBED AND SWORN to before me on March _____, 2019, by Marjie Veeder, City Clerk for the City of Unalaska.

____
Notary Public
State of Alaska

MEMORANDUM TO COUNCIL

To:	Mayor and City Council Members
From:	Marjie Veeder, City Clerk
Through:	Thomas Thomas, City Manager
Date:	March 12, 2019
Re:	Resolution 2019-10, authorizing foreclosure proceedings for delinquent property taxes for tax years 2014-2018

SUMMARY: Unalaska City Code § 6.36.110 states that the City Clerk, with the assistance of the City Attorney, shall every other year present a petition for judgment and a foreclosure list in the Superior Court. Resolution 2019-10 authorizes the City Attorney to move forward with foreclosure proceedings.

PREVIOUS COUNCIL ACTION: Council has not previously acted on this foreclosure list.

BACKGROUND: Council has authorized foreclosure proceedings numerous times in the past, the last one in 2012. Previous lawsuits were dismissed in Superior Court because the property taxes were paid in full, or the property was redeemed by the owner during the redemption period.

DISCUSSION: On December 21, 2018, the City Clerk sent letters to property owners whose property taxes were past due, letting them know a foreclosure proceeding would commence in 2019; encouraging them to bring their taxes current; and explaining acceptable methods of payment.

Thereafter, the City Clerk was contacted by various property owners, several of whom paid their past due taxes, penalty and interest in full.

Final reminder letters were sent on February 12 to those property owners whose taxes remained unpaid, imposing a full payment deadline of March 5 in order to keep their property off the foreclosure list and explaining that the list would go to the City Council on March 12. After the final reminder, several more property owners paid their taxes in full.

As a result of these notices, the foreclosure list was narrowed to the properties before you tonight. Before this list goes to court and is published, it is my hope that additional property owners will pay in full so that their property may be removed from the list.

After the Superior Court awards judgment to the City, the properties go into a one-year redemption period. This allows the owners one year from the date of judgment to pay delinquent taxes, penalty, interest, and a share of the costs of foreclosure, thereby removing their property from the court’s judgment of foreclosure. The costs associated with foreclosure include attorney fees, court costs and the cost of recording, service and publication in the newspaper as required.

The owners will be allowed to retain occupancy of the property during the redemption period. Property that remains subject to the court's judgment of foreclosure after the redemption period expires is deeded to the City.

Code outlines specific requirements regarding the disposal of foreclosed property after it has been deeded to the City. Staff will work closely with the City Attorney to ensure that those requirements are met.

It is my intent to continue to work with the property owners to ensure all amounts due are paid and the foreclosure suit dismissed.

ALTERNATIVES: UCO § 6.36.110 requires that this process occur biennially (every other year). Note: there is a typographical error in the code and biennially is spelled biannually, which means twice per year.

FINANCIAL IMPLICATIONS: Foreclosure proceedings result in additional expenses, which are recovered through the foreclosure action. The City will see increased tax revenue when delinquent taxes, penalties, interest and fees are paid.

LEGAL: The City Clerk is working closely with the City Attorney on the foreclosure process.

STAFF RECOMMENDATION: Staff recommends adoption of Resolution 2019-10.

PROPOSED MOTION: I move to adopt Resolution 2019-10.

CITY MANAGER'S COMMENTS: We need to move forward with the foreclosures, and we will continue to work with property owners to bring their accounts current.

CITY OF UNALASKA
UNALASKA, ALASKA

RESOLUTION 2019-11

A RESOLUTION OF THE UNALASKA CITY COUNCIL AUTHORIZING THE CITY MANAGER TO ENTER INTO AN AGREEMENT WITH THE AIRPORT RESTAURANT, LLC FOR A SUBLEASE AT THE TOM MADSEN AIRPORT TERMINAL

WHEREAS, the City of Unalaska desires to negotiate a sublease at the Tom Madsen Airport with the Airport Restaurant. LLC; and

WHEREAS, the City of Unalaska has reached an agreement with the Airport Restaurant, LLC; and

WHEREAS, the State of Alaska Department of Transportation and Public facilities requires an agreement between the City of Unalaska and the tenants at the Tom Madsen Airport Terminal; and

WHEREAS, the City of Unalaska has negotiated fairly and reached an agreement on rates and terms of a sublease with the Airport Restaurant, LLC.

NOW THEREFORE BE IT RESOLVED that the Unalaska City Council authorizes the City Manager to enter into an agreement with Airport Restaurant, LLC for a sublease at the Tom Madsen Airport Terminal.

PASSED AND ADOPTED by a duly constituted quorum of the Unalaska City Council on March 12, 2019.

____
Frank Kelty
Mayor

ATTEST:

____
Marjie Veeder
City Clerk

MEMORANDUM TO COUNCIL

To:	Mayor and City Council Members
From:	Peggy McLaughlin, Port Director
Through:	Thomas Thomas, City Manager
Date:	March 12, 2019
Re:	Resolution 2019-11, Resolution authorizing the City Manager to enter into an agreement with the Airport Restaurant, LLC for a sublease at the Tom Madsen Airport Terminal

SUMMARY: This resolution authorizes the City Manager to sign a sublease agreement with the Airport Restaurant, LLC. This agreement would provide a base rent, mechanisms for billing utilities, financial documentation requirements, and a term not to exceed December 31, 2021.

PREVIOUS COUNCIL ACTION: No formal action has been taken by the City Council on this sublease since 2012.

BACKGROUND: The Airport Restaurant sublease with the City of Unalaska expired December 31, 2018. Negotiations were on-going with the restaurant prior to the expiration of the sublease. City Council was briefed and the negotiations were completed by the City attorney.

DISCUSSION: By approving this resolution, the City Council authorizes the City Manager to enter into an agreement with the Airport Restaurant and submit the final sublease to the State of Alaska for approval.

Set forth in this agreement are internal controls that meet the criteria for internal audits and financial tracking. The terms of the agreement provide the tenant with opportunities to extend, but the extensions may not go beyond December 31, 2021. The tenant may also terminate the sublease.

The City of Unalaska is required to obtain approval from the State of Alaska Department of Transportation and Public Facilities for any space that it leases at the airport terminal. Providing the opportunity to extend through 2021 gives the City ample time to renew the land lease with the State, which expires in 2023.

City Staff believes that internal controls created within this agreement meet the requirements of the Unalaska City Council and the State of Alaska Department of Transportation and Public Facilities. This agreement has been fairly negotiated; the terms are reasonable and should be approved by the City to be submitted to the State for final approval.

ALTERNATIVES: The City Council could approve Resolution 2019-11 and move it forward to the State for DOT approval.

The City Council could choose to not approve Resolution 2019-11.

The City Council could make recommendations of alternative terms and conditions for the sublease.

FINANCIAL IMPLICATIONS: The rent received from the Airport Restaurant is calculated into the budget for the airport fund.

LEGAL: The agreement was prepared by the city attorney.

STAFF RECOMMENDATION: Staff recommends approving Resolution 2019-11.

PROPOSED MOTION: I move to approve Resolution 2019-11.

CITY MANAGER'S COMMENTS: I recommend adoption of Resolution 2019-11.

ATTACHMENTS: Proposed Agreement

CITY OF UNALASKA

TOM MADSEN AIRPORT TERMINAL

SUBLEASE AGREEMENT

This Sublease Agreement ("Sublease") is made effective this 1st day of February, 2019, by and between the City of Unalaska, a Municipal Corporation ("the City'), and Airport Restaurant, LLC (Tenant"). The parties agree as follows:

1 . Premises and Term.

(a) Leased Premises. Subject to the terms and conditions in this agreement the City sublets to Tenant that certain area in the Unalaska Airport Terminal Building ("Building") generally described as Airport Restaurant ("Leased Premises"). The Leased Premises consist of the floor area as outlined on the floor plan (attached hereto as Exhibit "A") of the Building.

(b) Square Footage. For the purpose of calculating Monthly Base Rent and/or Tenant's share of Utility Costs, the agreed square footage of the Leased Premises is 2 358 square feet.

(c) Term. The term of this Sublease shall be from February 1, 2019 through and including December 31, 2021, unless terminated earlier in accordance with this Agreement.

(d) Use of Leased Premises for Security. The Tenant understands that security in the nation's airports is a matter of the utmost importance and that the City has little or no control over how or where security is implemented in the Building. The Tenant agrees to yield any part or all of the Leased Premises for the implementation of security as follows:

(1) Partial Loss of Leased Premises. If part of the Leased Premises is required by the State of Alaska, the Transportation Security Administration or any other state or federal agency the City may change the shape and/or square footage of the Leased Premises. Should more than 25 percent of the Leased Premises be required by the State of Alaska, the Transportation Security Administration, or any other state or federal agency, the Tenant and the City each has the option of terminating this agreement. If the Tenant continues to lease the Leased Premises, then the Base Monthly Rent and Extended Operating Expenses shall be calculated on the actual square footage of the Leased Premises available to the Tenant.

(2) Total Loss of Leased Premises. If all of the Leased Premises is required by the State of Alaska, the Transportation Security Administration, or any other state or federal agency, this lease shall terminate. The City may, but is under no obligation to, offer to transfer the Tenant to other space which may be available within the Building Should different space be offered to Tenant, then the City may require the Tenant to enter into a new sublease.

(3) Notice. The City agrees to give Tenant 30 days' notice that all or part of the Leased Premises is required for security purposes unless the City is given less than 30 days' notice before all or part of the Leased Premises is required by the State Alaska, the Transportation Security Administration, or any other state or federal agency which case the City shall provide the Tenant with notice within 24 hours after the City receives notice.

(4) Hold Harmless. Tenant understands that neither the City nor the State of Alaska is responsible for decisions regarding security in the Building and agrees to hold both the City and the State of Alaska harmless from any damages that Tenant may incur should all or part of the Leased Premises be required for security purposes.

2. Appurtenances and Access.

(a) The City sublets to Tenant those fixtures and appurtenances now or hereafter belonging or appertaining to the Leased Premises, “as is, where is.”

(b) The City sublets to Tenant those rights of ingress and egress to the Leased Premises as are reasonably necessary to the operation of its permitted operations on the Leased Premises, insofar as such rights of ingress and egress are consistent with the security needs of the Airport Terminal Building. The City, the State of Alaska, the Transportation Security Administration, or any other state or federal agency, may temporarily or permanently close doors, corridors, or otherwise restrict Tenant's access, without liability to the City, its agents, its elected officials, employees, or volunteers. Any such action shall neither be construed as an eviction of Tenant nor relieve Tenant from any duties or liabilities hereunder.

3. Encumbrances. The Leased Premises are sublet subject to deed restrictions: easements, rights-of-way, zoning and building restrictions, and governmental regulations now in effect or hereafter adopted by any governmental authority. Tenant shall not allow or cause any encumbrances to lie against the Leased Premises. Tenant shall not permit any mechanics’, laborers’ or materialmen’s lien to stand against the Leased Premises or improvements thereto for any labor or materials furnished to Tenant or claimed to have been furnished to Tenant or to Tenant’s agents, contractors, or sublessees, in connection with work of any character performed or claimed to have been performed on the Leased Premises or improvements thereto by or at the direction or sufferance of Tenant, provided, however, that Tenant shall have the right to contest the validity or amount of any such lien or claimed lien. In the event of such contest, Tenant shall give to the City a bond in an amount sufficient to satisfy the provisions of AS 34.35.072.

4. Sublease is Subordinate to Master Lease. Tenant acknowledges that this Sublease is subordinate to and dependent on the Master Lease between the City and the State of Alaska, ADA05248 or any subsequent lease between the City and the State of Alaska. Should the City's lease with the State terminate for any reason, this Sublease shall immediately terminate, without any liability to Tenant on the part of the City.

Tenant shall be liable for all sums due and owing under this Sublease up to and including the date of such a termination.

5. Rental. Alcohol Concession Fee and Security Deposit.

(a) Rent. Tenant shall pay, during the entire term of this Sublease and any extension thereof or holdover period, a Monthly Base Rent of $5.25 per square foot.

(b) Alcohol Concession Fee. In addition to Monthly Base Rent, Tenant shall pay an Alcohol Concession Fee as referenced in (f)(3) of this section and as required by the State of Alaska, Department of Transportation.

(c) Time for Payment. Tenant shall pay, by the fifth (5th) day of each calendar month all payments due the City.

(d) Interest on Under-Payments. If any examination, inspection or audit of the Tenant's books and records discloses an under-payment by Tenant, the Tenant will promptly pay the difference, plus interest at 10.5% per annum from the time payment was due plus all costs incurred in conducting the examination or audit.

(e) Security Deposit. City acknowledges it is in the possession of a $5,000 security deposit previously made by Tenant or on behalf of Tenant.

(f) Alcohol Concession Fee/Terms and Conditions.

(1) Alcohol Sales Permitted. Tenant may sell alcoholic beverages on the Leased Premises subject to the following terms and conditions. Tenant’s permission to sell alcoholic beverages on the Leased Premises is conditioned upon compliance with all covenants and conditions of the Sublease.

(2) On Premises Consumption Only. Tenant may sell alcoholic beverages for consumption on the Leased Premises only. Tenant shall not permit any person to remove alcoholic beverages purchased on the Leased Premises from the Leased Premises.

(3) Alcohol Concession Fee. Tenant shall pay the City an additional Alcohol Concession Fee, paid on a monthly basis, equal to ten percent (10%) of the gross alcohol sales for the preceding month. “Gross sales” means the following: All sales made and all cash and credit revenue of the Tenant, whether sales are for cash or on a charge basis, collected or uncollected from any alcoholic beverage sold. Articles, work or services furnished to any person in lieu of payment or in exchange for value received is deemed to be a cash sale. However, “Gross Sales” do not include the amount of any sales taxes, excise taxes, gross receipt taxes, and other similar taxes imposed by any federal, state, municipal, or government authority directly on the sale of merchandise, now or in the future, if the tax is added separately to the sale price and collected from customers at the time of the sale. No franchise, capital stock, income or similar tax based on income or profits will be deducted from gross sales.

(4) Local Bank Account. On or before February 1, 2019, Tenant shall establish an account with the Unalaska branch of Key Bank ("Local Bank Account"). During the term of this Sublease, Tenant shall deposit all cash receipts from gross sales made on the Leased Premises into the Local Bank Account.

(5) Auditing and Enforcement. By the fifth day of each month, during the term of this Sublease Tenant must submit a certified activity report to the City. The certified activity report must reflect Tenant's gross sales activity for alcoholic beverages for both the previous calendar month and the calendar year to date. Time is of the essence in meeting this requirement and the City will impose a fifty-dollar ($50) penalty for each day Tenant's certified activity report is late. Each certified activity report must be in the form attached to this agreement as Exhibit B.

(6) Maintenance of Books and Records. To provide a satisfactory basis for confirming the accuracy of Tenant's certified activity reports, Tenant shall establish and maintain books and records concerning the operation of its business on the Leased Premises in accordance with generally accepted accounting principles. In particular Tenant must maintain the following records:

(i) daily reconciliations of point of sale computer reports to cash deposits into the Local Bank Account and cash on hand.

(ii) daily reconciliations of cash register receipts

(ii) receipts for daily cash deposits into the Local Bank Account.

(iv) daily reports of credit and debit card sales

(v) daily point of sale computer reports of cash sales

(vi) monthly alcohol inventory records

(vii) monthly alcohol purchase records

(7) Audit. Tenant will permit the City to inspect, copy and audit Tenant's books, records and supporting data at the City's request during regular business hours. Audits may examine years as far back as the City, in its sole discretion, deems necessary. The City has the option of having the necessary books and records transported to a location within the City boundaries for inspection, copying, or audit, or performing the audit at the place Tenant maintains the records. If the records are maintained outside Unalaska, and the City elects to audit the books where they are maintained, Tenant will pay all costs incurred in travel, including round-trip air and ground transportation from Unalaska to the place the records are maintained, plus per diem at the then-current City rate for each day of travel and audit.

(8) Additional Supporting Data. Tenant will furnish the City with other financial or statistical reports as the City may require from time to time regarding the concession operated on the Leased Premises. Tenant shall furnish the City with the following reports each month as attachments to the Certified Activity Report:

(i) all records of deposits into the Local Bank Account for the previous month.

(ii) all alcohol purchase records for the previous month

(iii) the alcohol inventory report for the previous month

(9) Alcohol Liability Insurance. In addition to all other insurance required under the Sublease, Tenant shall obtain and maintain, for the entire term of its authorization to sell alcoholic beverages, liability insurance for personal injury, death or property damage arising out of the sale of alcoholic beverages on the Leased Premises. Said insurance shall be in an amount not less than $1,000,000 combined single limit and shall be written by a responsible insurer(s) licensed to do business in the State of Alaska. Said insurance shall name both the City and the State of Alaska as additional named insureds. Tenant shall provide both the City and the State of Alaska with certificates of insurance for said insurance, at or before the time this Lease is signed, including in each instance, an endorsement providing that said insurance shall not be canceled or reduced without thirty (30) days' written notice to the City. Tenant shall immediately notify the City of any cancellation, termination, or decrease in this insurance. If, at any time during the term of this Sublease, a competent insurance agent deems this amount of coverage inadequate, or the State requires more insurance, Tenant will increase coverage to an adequate level. This insurance shall waive subrogation against both the City and the State of Alaska.

(10) Responsibility for Alcohol Over-Service. Tenant shall take care to instruct employees or others who may serve alcoholic beverages to customers that employees must discontinue service of alcohol to a customer that appears to be intoxicated. Tenant will be held liable for repair and/or cleaning costs of damage to, or contamination of, the common areas of the Airport Terminal Building, if in the sole opinion of the City, the damage or contamination was caused by intoxicated customers of Tenant or due to over-serving of alcohol to the customers by Tenant or Tenant's employees. Contamination by intoxicated customers of Tenant is defined as vomiting, urinating, defecating or pouring or throwing other noxious or objectionable material on the floor or walls of the common areas of the Airport Terminal Building. Materials for repair of damage or cleaning of contamination caused by Tenant's over-served customers will be charged to Tenant at cost plus Eighteen (18%) percent. Labor for repairs and/or cleaning of damage or contamination caused by Tenant's over-served customers will be charged to Tenant at $70.00 per man hour. These charges may be waived if Tenant agrees to repair or clear damage or contamination in the common areas of the Airport Terminal Building at Tenant's expense.

(11) Hold Harmless. Tenant shall, at its sole expense defend, indemnify, and hold harmless both the City and the State of Alaska, their agents, elected officials, volunteers, and employees from and against any and all claims arising in any way out of the sale of alcoholic beverages on the Leased Premises, including, but not limited to, claims arising from any accident, injury, death or damage whatsoever caused to any person or property, whether on or off the Leased Premises.

(12) Performance Bond. On or before the commencement of the term of this Lease Tenant shall provide the City a performance bond in the form attached hereto in the amount of fifty-thousand dollars ($50,000) for the faithful performance of all Tenant's payment and reporting obligations under this Agreement. This bond shall remain in effect for one year after expiration of the initial or any extended term of this Agreement. The bond shall be executed by a Surety authorized to do business in Alaska.

6. Taxes and Charges Treated as Additional Rent. Tenant agrees to pay to the public authorities charged with collection thereof, promptly as the same become due and payable, all taxes, assessments, general and special, permit, inspection and license fees and other public charges, whether of a like or different nature, levied upon or assessed against the Leased Premises and any buildings, structures, fixtures or improvements now or hereafter located thereon, or arising in respect of the occupancy, use or possession of the Leased Premises, including but not limited to municipal sales, real property and personal property taxes, and which are assessed and are or become payable to the City during the term of this Sublease. Tenant agrees to exhibit to the City, on demand, receipts evidencing payment of all taxes, assessments and public charges so payable by Tenant. These payments constitute part of Tenant's rent and failure to pay these taxes in a timely fashion to the appropriate authority is equivalent to the non-payment of rent. This paragraph shall not be construed to require double payments of said taxes (once as taxes and once as rent), but only once as taxes.

7. Utility Service. The City shall furnish electricity, heat, water, sewer and solid waste utility services to the Leased Premises during the term of this Sublease, plus any extension hereof. Tenant shall be solely responsible for installation, operation and maintenance of telephone, television and internet service. In no event shall the City be liable for any loss or damage caused by any variation, interruption or failure of such services. No temporary interruption or failure of such services incident to the making of repairs, alterations, or improvements, or due to accident or strike, or conditions or events beyond the City's reasonable control shall be deemed an eviction of Tenant or relieve Tenant of any of its obligations hereunder.

8. Utility Costs. In addition to Monthly Base Rent, Tenant shall pay to the City on or before the fifteenth day of each month during the term of this Sublease or any extension or holdover period for all electricity used by Tenant as measured by the installed meter adjacent to the Leased Premises at the applicable tariff plus any electrical utility demand charges billed by the City of Unalaska electric utility, plus Tenant's Share of utility Costs calculated as provided in paragraph 9.

9. Tenant's share of Utility Costs. As used in this Sublease Utility Costs means: all costs incurred by the City to provide heat to the Building. Tenant's share of utility Costs for any given month during the lease term shall equal the total Utility Costs multiplied by the ratio of the number of square feet identified in paragraph I(b) to 12,166 square feet (representing the total leasable square footage of the second floor of the Building).

10. Compliance with Laws and Care of Premises/Indemnity.

(a) Tenant shall comply with all applicable laws, ordinances and regulations of duly constituted public authorities now or hereafter enacted in any manner affecting the Leased Premises, or the sidewalks, streets, and ways adjacent thereto or any buildings, structures, fixtures and improvements or the use thereof, including, but not limited to, the City of Unalaska sales tax ordinance, whether or not any such laws, ordinances or regulations which may be hereafter enacted involve a change of policy on the part of the governmental body enacting the same. Tenant agrees to defend, indemnify, and hold both the City and State of Alaska, their agents, elected officials, volunteers, and employees financially harmless (a) from the consequences of any violation of such laws, ordinances and/or regulations, (b) from all claims for damages on account of injuries, death or property damage resulting from such violation, and (c) from all claims for damages to the Tenant or a third party arising out of the partial or complete use of the Leased Premises for security purposes provided that such damage is not caused by the City's or the State's negligence.

(b) Tenant shall not permit any unlawful occupation, business or trade to be conducted on the Leased Premises or any use to be made thereof contrary to any law, ordinance or regulation.

(c) Tenant shall neither use nor permit any assignee or sublessee to use the Leased Premises for any purpose which poses a substantial risk of damage by means of fire or otherwise.

(d) Failure of Tenant to comply with any applicable provision of the City of Unalaska sales tax ordinance or property tax ordinance shall constitute a material breach of this sublease.

11. Maintenance Obligations.

(a) Tenant, at its own cost and expense, shall keep the Leased Premises and all Tenant’s improvements which at any time during the term of this Sublease, plus any extensions or holdover periods, may be situated thereon, clean and in good condition and repair free of hazard or nuisance during the entire term of this Sublease, plus any extensions or holdover periods. Tenant shall provide its own janitorial service for the Leased Premises and remove trash from the Leased Premises. All proposed repairs or alterations must receive the advanced written approval of the City and any other government entity or agency whose approval is required.

(b) The City shall reasonably maintain the common areas of the Airport Terminal Building, including lobbies, stairs, corridors, restrooms, and common parking and access areas and Baggage Area, in reasonably good order and condition.

(c) Tenant expressly waives the right to make repairs at the expense of the City as provided for in any statute or law in effect at the time of the execution of this Sublease or any amendment thereof, or any other statute or law which may be hereafter passed during the term of this Sublease.

(d) Tenant shall always maintain the Leased Premises in keeping with good fire prevention practices.

(e) Tenant shall, upon expiration or termination of this Sublease surrender and deliver the Leased Premises to the City in as good condition as when received by Tenant or as thereafter improved, ordinary wear and tear excepted.

12. Tenant's Rights.

Tenant shall have the following rights during the term of this Sublease:

(a) To make such alterations, additions and repairs to the Leased Premises as are reasonably necessary to the operation of Tenant's mode of business, subject to prior written approval under paragraph11 (a).

(b) No structure, fixture or other improvement, the plans, specifications and proposed location of which have not first received the written approval of the City or any other governmental entity or agency from which approval is required, or which does not comply with such approved plans, specifications and locations, shall be constructed or maintained on the Leased Premises. All fixtures or improvements constructed or installed shall comply with all public laws, ordinances and regulations applicable thereto and shall be completed at the sole cost and expense of Tenant and without any cost, expense or liability to the City whatsoever.

(c) The approval by the City of any plans and specifications refers only to the conformity of such plans and specifications to the general -architectural plan for the Leased Premises and the Building. Such plans and specifications are not approved for architectural or engineering design, and by approving such plans and specifications, the City assumes no liability or responsibility therefore or for any defect in any structure, fixture or improvement constructed from such plans or specifications.

(d) All structures, fixtures and improvements, placed or attached on or about the Leased Premises by Tenant, shall at the City's option become the property of the City at the expiration of the Sublease or any extended term, unless removed by Tenant within thirty (30) days after the expiration or termination of the Sublease. Tenant shall be responsible for paying rent and all other sums payable by it under this Sublease while removing structures, fixtures or improvements. Upon expiration or termination of this Sublease, Tenant shall reimburse the City for damages to the Leased Premises or the Baggage Area caused by the removal of fixtures or improvements. The

City may require prior to removal such reasonable security against these damages as may be demanded by the City.

(e) Not later than the expiration or termination date of this Sublease, or of any extended term thereof, Tenant shall remove all readily movable items of personal property, provided that any damage caused to the Leased Premises or the Building by reason of such removal shall be immediately paid by Tenant. Any movable items or personal property not so removed by Tenant shall become the property of the City at the City's option.

(f) The City may, in its sole discretion, remove and store any or all property not timely removed from the Leased Premises or the Building. Storage shall be for the account and at the expense of Tenant, and without liability for loss thereof or damage thereto on the part of the City. If, after a period of thirty (30) days or more, Tenant has not paid all sums due and owing to the City under this Sublease or any Addendum hereto, including the reasonable cost of storage, the City may sell any or all of such property at a public or private sale. The City shall mail written notice of such sale to Tenant, at least ten (10) days prior to sale. The notice shall state the date, time and place of the sale. The City may set the time, place and manner of the sale in its sole discretion. The proceeds of any such sale shall be applied first to the costs of sale (including reasonable attorney's fees), then to storage charges and then to delinquent sums due or to become due the City under this Sublease or any Addendum hereto. Any remaining balance shall be mailed to Tenant.

13. Discrimination Prohibited. Tenant will not discriminate in the conduct of its permitted activities on the Leased Premises on the grounds of race, color, religion, national origin, ancestry, marital status, age, or gender.

14. Use of Premises.

(a) The Leased Premises may be used by Tenant or its assignees or, sublessees only to conduct operations reasonably necessary and incidental to the operation of a Restaurant. Use of the Leased Premises which is not reasonably necessary or incidental to the operation of a Restaurant is grounds for termination of this Sublease.

(b) Tenant shall not commit or permit any act that disturbs the quiet enjoyment of any other user of the Airport. Tenant shall not, without the written consent of the City, use any machinery or apparatus that will cause any significant noise or vibration, or disturb the other users in their quiet enjoyment.

15. Indemnification/Insurance.

(a) Tenant shall defend, indemnify and save harmless both the City and the State of Alaska, their agents, elected officials, volunteers, and employees from and against any and all claims, demands and causes of action of any nature whatsoever, and any expenses incident to defense of and by the City and the State of Alaska therefrom, for any injury to or death of persons or loss of or damage to property occurring on the Leased Premises, or in any manner arising out of Tenant’s use and occupation of the Leased Premises or the condition thereof, during the term of this Sublease or any extension or holdover period.

(b) In addition, Tenant shall procure and maintain public liability insurance coverage, written by responsible insurer(s) licensed to do business in the State of Alaska naming both the City and the State of Alaska as additional named insured, which coverage pertaining to the Leased Premises, or Tenant's activities thereon, shall not be less than $1,000,000 per occurrence, and $2,000,000 in the aggregate, including bodily injury, property damage and personal injury liability. Tenant agrees to furnish certificates of insurance evidencing insurance coverage pertaining to the Leased Premises no later than February 1, 2019. The certificates of insurance shall contain an endorsement providing for not less than thirty (30, days' written notice to the City of intent to cancel or decrease the insurance. Tenant shall also maintain required Workers' Compensation insurance. If at any time during this Sublease or any extension or holdover period a competent insurance agent deems this amount of coverage inadequate, or the State requires more insurance, Tenant will immediately increase its coverage to an adequate level. All insurance provided by Tenant shall provide primary coverage and waive all subrogation rights against the City and the State and their respective agents and employees.

(c) Any deductible or self-insured retentions must be declared to and approved by the City. At the option of the City, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its elected official, agents, employees and volunteers; or Tenant shall provide a financial guarantee satisfactory to the City guaranteeing payment of losses and related investigations, claim administration and defense expense. Such insurance must be written on an occurrence basis.

16. <u>Quiet Enjoyment</u>. Except as provided in this Sublease including, but not limited to 1 (d), and provided Tenant is not in default hereunder, the City covenants that Tenant shall have peaceful and quiet enjoyment of the Leased Premises and that the City will warrant and defend Tenant in the peaceful and quiet enjoyment of the Leased Premises.

17. <u>Notices</u>. Any and all notices required or permitted under this Sublease unless otherwise specified in writing by the party whose address is changed, shall be addressed as follows:

The City: City of Unalaska
P.O. Box 610
Unalaska, AK 99685
Attn: Peggy McLaughlin
Phone/Fax: 907-581-1254 / 907-581-2519

Tenant: Airport Restaurant, LLC
P.O. Box 921086
Dutch Harbor, AK 99692
Attn: Lisa Tran
Phone/Fax: 907-581-6007

18. Default. (a) If Tenant at any time during the term of this Sublease or any extension hereof (and regardless of the pendency of any bankruptcy, reorganization, receivership, insolvency or other proceedings, in law, in equity or before any administrative tribunal, which have or might have the effect of preventing Tenant from complying with the terms of this Sublease) shall (a) fail to make payment of any installment of rent or of any other sum herein specified to be paid by Tenant, or (b) fail to observe or perform any of Tenant's other covenants, agreements or obligations hereunder, and if any such default shall not be cured as to (a) within ten (10) days after mailing of written notice of such failure to make payments, or as to (b) within thirty (30) days after the City shall have mailed to Tenant written notice specifying such default or defaults, Tenant shall not have commenced to cure such default and proceed diligently to cure the same, or

(i) If Tenant has filed a Petition under Chapter 11 of the Bankruptcy code, 11 U.S.C. 701 et. seq; or

(ii) A voluntary petition under any other provision of said Bankruptcy Code; or

(iii) If Tenant finally and without further possibility of appeal or review is adjudicated a bankrupt or insolvent; or

(iv) Has a receiver or a Trustee appointed for all or substantially all of its business or assets on the ground of Tenant's insolvency; or

(v) Has itself appointed as debtor-in-possession in a proceeding for a recognition or an arrangement; or

(vi) files a petition, or a petition is filed on behalf of Tenant, seeking any relief under the Bankruptcy Code of the United States, or any other act of the United States or any state having the same general purposes; or

(vii) Makes an assignment for the benefit of its creditors; or

(viii) If the property of the Tenant is seized by any governmental officer or agency;

then in any such event the City shall have the right at its election, then or at any time thereafter, and while such default, defaults or events shall continue, to give Tenant notice of termination of this Sublease. In such a case, on a date specified in such notice, which date shall not be less than thirty (30) days after the date of mailing of such notice ("termination date"), the term of this Sublease shall come to an end. Tenant hereby covenants to peaceably and quietly yield up and surrender to the City, not later than the termination date, said Leased Premises and all structures, buildings, improvements and equipment located thereon, subject to Tenant's removal rights under paragraph 12, and to execute and deliver to the City such instrument or instruments as shall be required by the City as will properly evidence termination of Tenant's rights hereunder or its interest therein.

(b) In the event of termination of this Sublease, the City shall have the right to repossess the Leased Premises and all structures, buildings, improvements and equipment, without process of law or any form of suit or proceedings, subject to Tenant's removal rights under 12, as well as the right to sue for and recover all rents and other sums accrued up to the time of such termination, and damages arising out of any breach on the part of Tenant, including damages for rent and other sums not then accrued. The City shall also have the right, without resuming possession of the Leased Premises or terminating this Sublease, to sue for and recover all rents and other sums, including damages, at any time and from time to time accruing hereunder.

(c) The City shall not be in default of any of its obligations hereunder unless and until it shall have unreasonably failed to perform said obligation within thirty (30) days, or such additional time as may be reasonably required, after receipt of written notice by the City specifying the default.

19. Costs upon Default/Interest. In the event either party shall be in default in the performance of any of its obligations under this Sublease, and an action is brought for the enforcement thereof, the defaulting patty shall pay to the other all the expenses incurred therefore, including full, actual, reasonable attorney's fees. Any sums due from the Tenant under this Sublease shall accrue interest at 10.5% per annum from the date they are due until paid in full.

20. Rights or Remedies. No right or remedy herein conferred upon or reserved to the City is intended to be exclusive of any other right or remedy, and each right and remedy shall be cumulative and in addition to any other right or remedy given hereunder, or now or hereafter existing at law or in equity or by statute.

21. Waiver and Forbearance. Except to the extent that such party may otherwise agree in writing, no waiver by such party of any breach by the other party of any of its obligations, agreements or covenants hereunder shall be deemed to be a waiver of any subsequent breach of the same or any other covenant, agreement or obligation. Nor shall any forbearance by such party to seek a remedy for any breach of the other party be deemed a waiver by such party of its rights or remedies with respect to such breach.

22. Emergency Access. Tenant shall provide the City with a complete set of keys to the Leased Premises for use in an emergency. Tenant shall also provide the City

with the name and home phone number of an appropriate contact person for use in an emergency.

Emergency Contact: Lisa Tran
Emergency Phone: 907-359-6006

In an emergency the City may be contacted through Scott Brown, Harbor Master, at 907-581-1254 (phone) or 907-581-2519 (fax).

23. Successors in Interest. This lease shall be binding upon and inure to the benefit of the respective heirs, successors and assigns of the parties hereto.

24. Advertising. Tenant shall not post advertising of any sort without first obtaining the City's written consent, either on the Leased Premises, in the Building, or within sight of the Building. The City may condition its consent upon removal of the advertising upon expiration or termination of this Sublease; upon approval of form and content; and upon posting of security against damages from installation or removal in an amount the City in its discretion deems sufficient. The City's consent will not be unreasonably withheld.

25. Destruction of Improvements on Leased Premises. If all or part of the Leased Premises or 50% or more of the Building (regardless of whether the Leased Premises is affected) are destroyed or rendered unusable by fire, earthquake or other similar cause, Tenant shall remove the debris from the Leased Premises and clean up the Leased Premises within 270 days of the occurrence of such destruction. The square footage usable in calculating Monthly Base Rent shall be abated in the same proportion as the destroyed portion of the Leased Premises bears to the whole. The City may in such event and at its sole discretion terminate the Sublease on thirty (30) days' written notice to Tenant.

26. Assignments or Subletting.

(a) Tenant shall not assign or sublet or grant a security interest in the Leased Premises or any part thereof or in its fixtures or improvements thereon without the prior written consent of the City and the State of Alaska to such subletting, assignment or security interest. An assignment of this Sublease, or any part thereof, for loan security purposes shall not be construed as a subordination of the City's rights hereunder, nor a subordination of its fee. The City's permission to sublet or assign will not be unreasonably withheld. Tenant's request to assign, sublease or grant a security interest must be in writing and must show the name and address of the proposed assignee, sublessee or secured party. If Tenant is a corporation, any transfer of the lease by way of merger consolidation, liquidation, change in effective control or change in ownership of 30% or more of the stock of the corporation is an assignment for purposes of this paragraph.

(b) Secured party's rights as against the City in the event of expiration or termination of the Sublease. Upon either the natural expiration of this Sublease or notice of termination being given due to a default by the Tenant under the terms of this Sublease, the holder of a security interest, which has been approved by the City in accordance with paragraph 26(a), in the leasehold or fixtures, improvements and chattels permissibly erected by Tenant in accordance with paragraph 12 (hereinafter "secured party") shall have the following rights and no others:

(1) If notice of default is given to Tenant under paragraph 18, secured party shall be mailed a copy of said notice at the address provided by Tenant for it pursuant to paragraph 26(a).

(2) If the Sublease is to be terminated due to an uncured default by the Tenant, secured party shall be mailed a copy of the termination notice at the address provided by Tenant for it pursuant to paragraph 26(a).

(3) Secured patty has no independent right to cure a default by Tenant of its obligations under this Sublease. Tenant's right to cure its own default is limited to the provisions of paragraph 18. Secured party takes a security interest in this Sublease subject to the provisions of this Sublease, including but not limited to its termination provisions, and enjoys no greater rights under it than does Tenant. If this Sublease is terminated or naturally expires pursuant to its terms, secured party's security interest in the Sublease is immediately extinguished.

(4) If this Sublease is terminated due to a default by Tenant or expires and Tenant has failed to remove fixtures or improvements permissibly erected by Tenant under paragraph 12, in which the secured party holds a security interest, then the secured party may exercise its rights, if any, under AS 45.09.313. Secured party does not have the right to enter and remove fixtures and improvements, if any, granted to it by AS 45.09.313 until it gives to the City such reasonable security as may be demanded by the City to reimburse the City for damages to the Leased Premises or the Building which may be incurred in the course of removal.

27. Holding Over. In the event that the Tenant holds over at or after the end of the term, or any extended term, the tenancy shall be deemed a tenancy by sufferance and Tenant shall be liable for the current fair rental value of the property or the rent set by this Sublease, whichever is greater, in addition to all other sums payable by Tenant under this Sublease. All covenants required to be observed by Tenant continue into any holdover period.

28. Integration and Modification. This document contains the entire agreement of the parties hereto. All negotiations, statements, representations, warranties, and assurances, whether oral or written, which are in any way related to the subject matter of this Sublease or the performance of either party hereto are merged and integrated into the terms of this document. This Sublease may not be modified or amended except by a writing signed by both parties hereto, and any purported amendment or modification is without effect until reduced to a writing signed by both parties hereto.

29. Governing Law/Venue. This Sublease shall be construed and governed by the laws of the State of Alaska. Any disputes related to this Sublease shall exclusively be litigated in state court in the Third Judicial District, State of Alaska, at Unalaska.

30. Covenants and Conditions. Each term and each provision of this Sublease shall be construed to be both a covenant and a condition.

31. Time of the Essence. Time is of the essence as to each term and provision of this Sublease to be performed by Tenant.

32. Severability. Any provision of this Sublease which shall prove to be invalid, void or illegal, shall in no way affect, impair or invalidate any other provision hereof and the remaining provisions hereof shall nevertheless remain in full force and effect.

33. Hazardous Substances. Tenant shall strictly comply with all applicable laws, ordinances or regulations respecting the handling, containment and cleanup of discharges or releases of oil or hazardous substances, including petroleum fractions. In the event of a discharge or release of oil or a hazardous substance, including petroleum fractions, resulting from Tenant’s activities in the Building, Tenant shall (1) promptly and completely clean up the discharge or release, in strict compliance with applicable laws, ordinances or regulations, and (2) defend, indemnify and save the City harmless from the consequences thereof, including the costs of state or federal remedial or compliance actions, whether informal or formal, all clean up and remediation costs needed to restore the site to its previous condition, and attorney's fees. As used in the Sublease, “Hazardous Substances” includes oil or petroleum fractions; asbestos; polychlorinated biphenyls (PCBs); any substance defined or listed by the State of Alaska or the Environmental Protection Agency as a hazardous substance under Title 46 of the Alaska Statutes or associated regulations or CERCLA, 42 U.S.C. 6901 et seq., or associated regulations; and any substance listed by the U.S. Department of Transportation or Environmental Protection Agency under 33 U.S.C. 1317, 49 C.F.R 172.101 or 40 C.F.R. 302.

34. Security/Keys.

(a) Under no circumstances shall Tenant prop or block open a door opening onto the aircraft apron or providing access between the outside or any unsecured part of the Building and any secured part of the Building (including but not limited to that part of the Building open to the public after having passed through security screening) without a properly badged individual in attendance. The City may assess a penalty of $200 per violation, payable immediately.

(b) Tenant shall fully indemnify and hold the City harmless from any fines, penalties or other amounts charged to the City by the Federal Aviation Administration, Transportation Security Administration, Alaska Department of Transportation or other state or federal governmental agency resulting from an act or omission of Tenant. This includes, but is not limited to, security infractions committed by Tenant, its agents or employees.

(c) The City may conduct inspections from time to time as it in its sole discretion sees fit, in order to determine whether Tenant is complying with all applicable Federal Aviation Administration, Alaska Department of Transportation and other applicable laws or regulations respecting airport security or safety, or for any violation of the terms of this Sublease. The City may assess a penalty of $200, payable immediately, for each infraction found..

(d) Tenant acknowledges that certain Federal regulations require the replacement of certain entire series of keys if one of that series is lost. Replacement of such series of keys shall be at Tenant's sole expense, if an agent or employee of Tenant is in whole or in part responsible for the loss.

DATED this ______ day of ________________, 2019.

CITY OF UNALASKA, ALASKA

By: ______________________________
Its: ______________________________

STATE OF ALASKA)
) ss.
THIRD JUDICIAL DISTRICT)

On this__ day of _________________ 2019, before me, a Notary Public in and for the State of Alaska, duly commissioned and sworn as such, personally appeared Thomas Thomas, to me known to be the City Manager of the City of Unalaska, and known to me to be the person who executed this instrument on behalf of the City of Unalaska.

WITNESS my hand and official seal the day and year last above written.

____
My Commission Expires _____________.

DATED this ______ day of ________________, 2019.

Tenant: Airport Restaurant, LLC

By: ______________________________
Its: ______________________________

STATE OF ALASKA)
) ss.
THIRD JUDICIAL DISTRICT)

On this __ day of ______________, 2019, before me, a Notary Public in and for the State of duly commissioned and sworn as such, personally appeared Tuyen Dinh, a member of Airport Restaurant, LLC and acknowledged this instrument to be a free and voluntary act and deed of the named Tenant for the uses and purposes herein mentioned, and on oath stated that he/she was authorized to execute this instrument.

WITNESS my hand and official seal the day and year last above written.

____
My Commission Expires _____________.

Exhibit B

State of Alaska
Department of Transportation and Public Facilities

Attn: Finance Section PO Box 196900 Anchorage, AK 99519-6900 (907) 269-0883	Attn: Finance Section OR 2301 Peger Road Fairbanks, AK 99709-5399 (907) 451-5247	Attn: Fiscal Office-M/S 2500 OR 3132 Channel Drive Juneau, AK 99801-7898 (907 465-8835

CERTIFIED ACTIVITY REPORT CONCESSION SALES

Under Agreement ________________________________ at the Unalaska Airport, my firm is authorized by the State of Alaska, Department of Transportation and Public Facilities to Sell food, lodging and/or liquor. Following is a Certified Activity Report for sales for the period ending: ______________________

	SALES	**RATE**	
Food	____________X	___%	__________________
Liquor	____________X	___%	__________________
			AMOUNT

A. TOTAL CONCESSION FEES DUE: __________________

Enclosed is my check (payable to the 'City of Unalaska') covering the fees due.
Charge the amount due to the following credit card:

☐ VISA ☐ MASTERCARD Expiration Date:

Credit card Number: ______________________________

Name printed on card: ____________________________

Billing Statement Address __________________________, Zip: __________

Check here if you want a receipt faxed to you at fax number __________

I certify that the figures presented above are true and correct.

Date: _______________ __________________________________
Airport Restaurant LLC
** Signature

By: ________________________________
Title: ______________________________
Phone:

*If a credit card is used to make payment, the person signing must be an authorized signer on the credit card.

CITY OF UNALASKA
UNALASKA, ALASKA

RESOLUTION 2019-12

A RESOLUTION OF THE UNALASKA CITY COUNCIL AUTHORIZING THE CITY MANAGER TO ENTER INTO AN AGREEMENT WITH RENTRICITY, INC. TO AWARD PHASE II SCOPING, 15% DESIGN, AND EQUIPMENT MANUFACTURER SELECTION FOR THE PYRAMID MICRO TURBINES PROJECT (WA17C) IN THE AMOUNT OF $50,000

WHEREAS, the Pyramid Micro Turbines Project (WA17C) is an approved component of the City of Unalaska Capital & Major Maintenance Program; and

WHEREAS, Staff publicly advertised a Request for Qualifications to perform the Design of the Project and received five (5) proposals; and

WHEREAS, RENTRICITY, INC., an experienced design firm, was determined, through an extensive scoring process, to be the most qualified firm to perform the work; and

WHEREAS, funding is available in the Capital Project budget (WA17C) to award this Phase II work.

NOW THEREFORE BE IT RESOLVED that the Unalaska City Council authorizes the City Manager to enter into an Agreement with Rentricity, Inc., to perform Phase II Scoping, 15% Design, and Equipment Manufacturer Selection for the Pyramid Micro Turbines Project (WA17C) for $50,000.

PASSED AND ADOPTED by a duly constituted quorum of the Unalaska City Council on March 12, 2019.

____
Frank Kelty
Mayor

ATTEST:

____
Marjie Veeder
City Clerk

MEMORANDUM TO COUNCIL

To:	Mayor and City Council Members
From:	Thomas Cohenour, Director, Department of Public Works
Through:	Thomas Thomas, City Manager
Date:	March 12, 2019
Re:	Resolution 2019-12, authorizing the City Manager to enter into an agreement with Rentricity Inc. to perform Phase II Scoping, 15% Design, and Equipment Manufacturer Selection for the Pyramid Micro Turbines Project WA17C in the amount of $50,000

SUMMARY: In December 2018, Staff issued a public Request for Qualifications (RFQ) for design of the Pyramid Micro Turbines Project WA17C; five proposals were received. Resolution 2019-12 will award the Phase II Scoping, 15% Design, and Equipment Manufacturer Selection to Rentricity, Inc. (Rentricity) for $50,000.

PREVIOUS COUNCIL ACTION: Council funded this project via the FY2017 CMMP and Resolution 2016-23, adopted it. Other recent Council action regarding the Pyramid Water Treatment Plant includes Resolution 2014-25 which authorized construction of the Pyramid Water Treatment Plant.

BACKGROUND: This project will install hydroelectric Micro Turbines in the Pyramid Water Treatment Plant in a space reserved on the plant floor for this purpose during design and construction of the plant. Because of the elevation of the Icy Creek Reservoir, the water pressure must be reduced before it can be processed. This is currently achieved by reducing the pressure through a Pressure Reducing Valve (PRV). This project proposes using two inline Micro Turbines in parallel to reduce water pressure by producing electricity instead of using a PRV. Based on real flows and average efficiency of 60%, we anticipate the Micro Turbines will generate about 342,987 kW-hr ($126,905) per year with the capability to produce 670,857 kW-hr ($248,217) per year if additional water rights are acquired. These are optimal solutions and, based on the frequency and duration of actual Pyramid Creek flows, there is not a reasonable payback for additional generation above the 670,857 kW-hr. The Micro Turbines will be brought online in FY20 but to achieve optimal capacity of 670,857 kW-hr, additional water rights will take several more years to acquire. For comparison, the Pyramid Water Treatment Plant currently requires approximately 200,000 kW-hr per year in electricity to operate; about $74,000 per year.

DISCUSSION: Approval of this resolution is the first step in preparing this project for installation. A Request for Qualifications (RFQ) for design services regarding this project was sent directly to major engineering firms in Alaska, advertised through The Plans Room and Builders Exchange of Washington, and advertised on the City website for 30 days.

Five proposals were received:

1. Electric Power Systems, Inc.
2. HDR
3. Rentricity, Inc.
4. KGS Group International Inc.
5. Coffman Engineers.

Following the pre-defined selection procedures in the RFQ, a team of City Staff scored the proposals. Interviews were held with the top 3 proposers (HDR, Rentricity, and Coffman). A second round of scoring was conducted with Rentricity receiving the highest overall score; HDR coming in a close second. Both Rentricity and HDR had outstanding proposals and concept designs but Rentricity is a firm with more direct experience installing small hydro power systems with an emphasis on constructability and commissioning.

Rentricity will subcontract Electric Power Systems, Inc., Boreal Controls, Inc., and Taku Engineering, LLC (an Alaska firm) but will perform the majority of the work in-house. Regan Engineering has years of experience with the WTP and will assist with contract administration.

Project design has been phased as follows in order to control costs and scope creep:

Phase I – Pre-Development - complete. Since 1984, 10 studies have been conducted related to hydropower in the Pyramid watershed. The City Engineer completed analysis with an optimization and validation model based on hourly 2010-2018 data. Previous work completed.

Phase II – Scoping, 15% Design, and Equipment Manufacturer Selection. <u>This Phase II work is the subject of this Resolution</u>

Phase III – Design, Permitting, Construction. Future work intended for FY20.

Phase IV – Installation and Commissioning. Future Work intended for FY20.

Tasking for Phase II is broken out as follows:

Task 1 Data review, site visit, setup project management.

Task 2 Concept design and vendor recommended micro turbine sizing, operational sequence document, and water rights permitting review.

Task 3 Controls integration, grid integration, mechanical and electrical pre-design and estimates, future expansion options, and draft turbine specification.

Task 4 Summary report with 15% plans, equipment manufacturer costs, and updated plant functional narratives.

This Resolution will award Phase II (Tasks 1-4) to Rentricity for $50,000. An FY20 CMMP nomination will come before Council which will request funding to complete Phases III and IV of the Project.

ALTERNATIVES: Council could direct Staff to negotiate with the second highest scoring respondent (HDR). However, Staff feels the Rentricity's costs are typical and fair. Each of the proposers provided billing rate tables of which Rentricity was lower than HDR.

FINANCIAL IMPLICATIONS: Moving forward with this work will encumber $50,000 of the Project's present budget leaving a balance of $0. A forthcoming FY20 CMMP nomination will request funding in order to progress into Phase III and IV.

LEGAL: Not Applicable

STAFF RECOMMENDATION: Staff recommends Council adopt Resolution 2019-12 and award Phase II to Rentricity for $50,000.

PROPOSED MOTION: I move to approve Resolution 2019-12.

CITY MANAGER COMMENTS: I recommend Council approve Resolution 2019-12.

ATTACHMENTS:

Attachment 1: Consultant Agreement

Attachment 2: Request for Qualifications (RFQ)

Attachment 3: Interview Responses with Scoring Sheet Summary

Attachment 4: Statements of Qualifications (SOQs) 5 Each:

4A: Rentricity
4B: HDR
4C: Coffman
4D: EPS
4E: KGS

Resolution 2019-12
Attachments 1 - 4

Pyramid Micro Turbine
Award Documention

Attachment 1

CITY OF UNALASKA

RENTRICITY INC.

Consultant Agreement

Pyramid Water Treatment Plant Inline MicroTurbines Desig~~n~~

FILE NO. 17401

Prepared By:

City of Unalaska
P.O. Box 610
Unalaska, Alaska 99685
907.581.1260

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AGREEMENT FOR CONSULTING AND RELATED SERVICES

THIS AGREEMENT is entered into this **__**th day of March**, 2019** by and between **Rentricity Inc.,** (hereinafter called "Consultant"), and the **CITY OF UNALASKA** (hereinafter called "City").

WITNESSETH THAT:

WHEREAS City desires to engage Consultant to render consulting and related services for the performance of the **Pyramid Water Treatment Plant Inline MicroTurbines Design**, and

WHEREAS Consultant represents that it has the experience and ability to perform such services; and

WHEREAS the parties hereto desire to enter into a basic agreement setting forth the terms under which Consultant will, as requested, perform such work;

NOW THEREFORE the parties hereto do mutually agree as follows:

1. Employment of Consultant

   Consultant agrees to provide professional services in accordance with the provisions of this Agreement. A written description of the work to be performed, schedule and compensation is set out in **Exhibits A-C** of this Agreement.

2. Performance

   Consultant agrees to perform the work described in **Exhibit A- Scope of Services**; however, the Consultant is not authorized to perform any work or incur any expense which would cause the amount for which he is entitled to be paid under this Agreement to exceed the amount set forth in **Exhibit C – Fee Schedule** without the prior written approval of the City. Invoices will be issued monthly. The total amount of each invoice will be based on the work, labor and costs summarized in the spreadsheet shown in Exhibit C. All services shall be rendered in accordance with the schedule set forth in **Exhibit B – Contract Schedule**.

   The work shall include but not be limited to the following: furnishing all equipment, transportation, per diem, travel, and supplies to perform all scopes of work that are authorized under the State of Alaska's Professional Engineering License, in connection with the **Pyramid Water Treatment Plant Inline MicroTurbines Design**.

3. Fee

After receipt of a periodic billing for said services, the City agrees to pay Consultant as compensation for the services under this Agreement such sums of money as set forth in **Exhibit C** of this Agreement. The amount payable to the Consultant shall not exceed the amount specified in **Exhibit C**.

4. Payments

City agrees to make monthly payments to Consultant as services are performed and costs are incurred, provided Consultant submits a proper invoice for each payment, in such form accompanied by such evidence in support thereof as may be reasonably required by the City. City may, at its option, withhold last payment until all defined deliverables are accepted as outlined in Exhibit A. All invoices are otherwise due and payable within thirty (30) days of receipt by City. City shall pay Consultant for the services identified in **Exhibit A** the **Time and Expense Not to Exceed Total Fee of $50,000**. The Not to Exceed Total Fee is based on the distribution of the Not to Exceed Total Fee between tasks set forth in **Exhibit A.** The portion of the Not to Exceed Total Fee billed and paid for Consultant's services shall be equal to the proportion of services actually completed for each task set forth in **Exhibit A** during the billing period to the fee total specified for that task.

5. Personnel

Consultant agrees to furnish all personnel necessary for expeditious and satisfactory performance of this Agreement, each to be competent, experienced, and well qualified for the work assigned. No person objected to by the City shall be employed by Consultant for work hereunder.

6. Independent Contractor Status

In performing under this Agreement, Consultant acts as an independent contractor and shall have responsibility for and control over the details and means for performing the consulting services required hereunder.

7. Indemnification

Consultant shall defend and save harmless City or any employee, officer, insurer, or elected official thereof from and against losses, damages, liabilities, expenses, claims, and demands but only to the extent arising out of any negligent act or negligent omission of Consultant while performing under the terms of this contract.

City shall defend and save harmless Consultant or any employee, officer, or insurer thereof from and against losses, damages, liabilities, expenses, claims, and demands but only to the extent arising out of any negligent act or negligent omission of City while performing under the terms of this contract.

8. Assignment

Consultant shall not assign this Agreement or any of the monies due or to become due hereunder without the prior written consent of City.

9. Subcontracting

Consultant may not subcontract its performance under this Agreement without prior written consent of City. Any subcontractor must agree to be bound by terms of this Agreement.

10. Designation of Representatives

The Parties agree, for the purposes of this Agreement, the City shall be represented by and may act only through the Deputy Director of Public Utilities or such other person as he may designate in writing. Consultant shall advise City in writing of the name of its representative in charge of the administration of this Agreement, who shall have authority to act for and bind Consultant in connection with this Agreement.

11. Termination

Either party shall have the right to terminate this Agreement in whole or in part at any time and for reasonable cause, by delivery of thirty (30) days written notice, specifying the extent and effective date thereof. After receipt of such notice, Consultant shall stop work hereunder to the extent and on the date specified in such notice, terminate all subcontracts and other commitments to the extent they relate to the work terminated, and deliver to City all designs, computations, drawings, specifications and other material and information prepared or developed hereunder in connection with the work terminated.

In the event of any termination pursuant to this clause, Consultant shall be entitled to be paid as provided herein for direct labor hours expended and reimbursable costs incurred prior to the termination pursuant to Section 3 hereof, and for such direct labor hours and reimbursable costs as may be expended or incurred thereafter with City's approval in concluding the work terminated, it being understood that Consultant shall not be entitled to any anticipated profit on services not performed. Except as provided in this clause, any such termination shall not alter or affect the rights or obligations of the parties under this Agreement.

12. Ownership and Use of Documents

Work products produced under this Agreement, except items which have pre-existing copyrights, are the property of the City. Payments to the Consultant for services hereunder include full compensation for all work products produced by the Consultant and its Subcontractors and the City shall have royalty free nonexclusive and irrevocable right to reproduce, publish, or otherwise use, and to authorize others to use, such work products.

Should the City elect to reuse work products provided under this Agreement for other than the original project and/or purpose, the City will indemnify the Consultant and its Subcontractors against any responsibilities or liabilities arising from such reuse. Additionally, any reuse of design drawings or specifications provided under this Agreement must be limited to conceptual or preliminary use for adaptation and the original Consultant or Subcontractor's signature, professional seals and dates removed. Such reuse of drawings and specifications, which require professional seals and dates removed, will be signed, sealed and dated by the professional who is in direct supervisory control and responsible for all adaptation.

12a. Opinions of Probable Costs

Opinions of probable cost prepared by Rentricity are based on professional judgment and experience as a designer/consultant. Rentricity has no control over market forces, competitive bids, construction practices, etc., and therefore cannot provide assurance that competitive bids/prices will not show some variation from our judgments and assessments. Any alterations in the price estimates provided herein shall be reviewed and approved by Unalaska before incurring additional costs, expenses and fees.

13. Insurance

A. During the term of the contract, the Contractor shall obtain and maintain in force the insurance coverage specified in these requirements. Such coverage shall be with an insurance company rated "Excellent" or "Superior" by A. M. Best Company, or a company specifically approved by the City.

B. The contractor shall carry and maintain throughout the life of this contract, at its own expense, insurance not less than the amounts and coverage herein specified, and the City of Unalaska, its employees and agents shall be named as additional insured under the insurance coverage so specified and where allowed, with respect to the performance of the work. There shall be no right of subrogation against the City or its agents performing work in connection with the work, and this waiver of subrogation shall be endorsed upon the policies. Insurance shall be placed with companies acceptable to the City of Unalaska; and these policies providing coverage thereunder shall contain provisions that no cancellation or material changes in the policy relative to this project shall become effective except upon *30* days prior *written* notice thereof to the City of Unalaska.

C. Prior to commencement of the work, the contractor shall furnish certificates to the City of Unalaska, in duplicate, evidencing that the Insurance policy provisions required hereunder are in force. Acceptance by the City of Unalaska of deficient evidence does not constitute a waiver of contract requirements.

D. The contractor shall furnish the City of Unalaska with certified copies of policies upon request. The minimum coverages and limits required are as follows:

1. Workers' Compensation insurance in accordance with the statutory coverages required by the State of Alaska and Employers Liability insurance with limits not less than $1,000,000 and, where applicable, insurance in compliance with any other statutory obligations, whether State or Federal, pertaining to the compensation of injured employees assigned to the work, including but not limited to Voluntary Compensation, Federal Longshoremen and Harbor Workers Act, Maritime and the Outer Continental Shelf's Land Act.

2. Commercial General Liability with limits not less than $1,000,000 per Occurrence and $2,000,000 Aggregate for Bodily Injury and Property Damage, including coverage for Premises and Operations Liability, Products and Completed Operations Liability, Contractual Liability, Broad Form Property Damage Liability and Personal Injury Liability.

3. Commercial Automobile Liability on all owned, non-owned, hired and rented vehicles with limits of liability of not less than $1,000,000 Combined Single Limit for Bodily Injury and Property Damage per each accident or loss.

4. Umbrella/Excess Liability insurance coverage of not less than $1,000,000 per occurrence and annual aggregate providing coverage in excess of General Liability, Auto Liability, and Employers Liability.

5. If work involves use of aircraft, Aircraft Liability insurance covering all owned and non-owned aircraft with a per occurrence limit of not less that $1,000,000.

6. If work involves use of watercraft, Protection and Indemnity insurance with limits not less than $1,000,000 per occurrence.

7. Professional Liability insurance with limits of not less than $1,000,000 per claim and $1,000,000 aggregate, subject to a maximum deductible $10,000 per claim. The City of Unalaska has the right to negotiate increase of deductibles subject to acceptable financial information of the policyholder.

E. Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, officials, employees and volunteers; or the contractor shall provide a financial guarantee satisfactory to the City guaranteeing payment of losses and related investigations, claim administration and defense expense.

F. All insurance policies as described above are required to be written on an "occurrence" basis. In the event occurrence coverage is not available, the contractor agrees to maintain "claims made" coverage for a minimum of two years after project completion.

G. If the contractor employs subcontractors to perform any work hereunder, the contractor agrees to require such subcontractors to obtain, carry, maintain, and keep in force during the time in which they are engaged in performing any work hereunder, policies of insurance which comply with the requirements as set forth in this section and to furnish copies thereof to the City of Unalaska. This requirement is applicable to subcontractors of any tier.

14. Claims Recovery

Claims by City resulting from Consultant's failure to comply with the terms of and specifications of this contract and/or default hereunder may be recovered by City by withholding the amount of such claims from compensation otherwise due Consultant for work performed or to be performed. City shall notify Consultant of any such failure, default or damage therefrom as soon as practicable and no later than 10 days after discovery of such event by written notice. Nothing provided herein shall be deemed as constituting an exclusive remedy on behalf of City, nor a waiver of any other rights hereunder at law or in equity. Design changes required as a result of failure to comply with the applicable standard of care shall be performed by the Consultant without additional compensation.

15. Performance Standard

Services performed under this Agreement will be performed with reasonable care or the ordinary skill of the profession practicing in the same or similar location and under similar circumstances and shall comply with all applicable codes and standards.

16. Compliance with Applicable Laws

Consultant shall in the performance of this Agreement comply with all applicable federal, state, and local laws, ordinances, orders, rules, and regulations applicable to its performance hereunder, including without limitation, all such legal provisions pertaining to social security, income tax withholding, medical aid, industrial insurance, workers' compensation, and other employee benefit laws. Consultant also agrees to comply with all contract provisions pertaining to grant or other funding assistance which City may choose to utilize to perform work under this Agreement. The Consultant and all subcontractors must comply with state laws related to local hire and prevailing wages.

17. Records and Audit

Consultant agrees to maintain sufficient and accurate records and books of account, including detailed time records, showing all direct labor hours expended and all reimbursable costs incurred and the same shall be subject to inspection and audit by City at all reasonable times. All such records and books of account pertaining to any work performed hereunder shall be retained for a period of not less than six (6) years from the date of completion of the improvements to which the consulting services of this Agreement relate.

17a. Confidentiality

Except as required by applicable law and regulation, both parties to this Agreement undertake to keep confidential and not to disclose to any third party or to use itself, any Confidential Business Information (CBI).

Both parties to this Agreement undertake to disclose CBI of the other party only to those of its officers, employees, agents and contractors to whom and to the extent to which disclosure is necessary for the purposes contemplated under this Agreement, and/or as is required by law. The above obligations of confidentiality and non-use shall not apply to information or material:

a. which is known prior to receipt by the receiving party, as evidenced by documents in the possession of the receiving party at the time of disclosure;

b. which, after receipt, is disclosed to the receiving party by a third party having the legal right to do so;

c. which is available to the public at the time of receipt; or

d. which becomes available to the public after receipt through no fault of the receiving party.

This clause shall survive the termination of this Agreement.

18. Reporting of Progress and Inspection

Consultant agrees to keep City informed as to progress of the work under this Agreement by providing monthly written progress reports, and shall permit City to have reasonable access to the work performed or being performed, for the purpose of any inspection City may desire to undertake.

19. Form of City Approval

Except as otherwise provided in this Agreement, City's requests and approvals, and Consultant’s cost estimates and descriptions of work to be performed, may be made orally where necessary, provided that the oral communication is confirmed immediately thereafter in writing.

20. Duration of Agreement

This agreement is effective for a period of three (3) years from the date first shown above. The agreement may be extended by the mutual written agreement of City and Consultant.

21. Inspections by City

The City has the right, but not the duty, to inspect, in the manner and at reasonable times it considers appropriate during the period of this Agreement, all facilities and activities of the Consultant as may be engaged in the performance of this Agreement.

22. Endorsements on Documents

Endorsements and professional seals, if applicable, must be included on all final plans, specifications, estimates, and reports prepared by the Consultant. Preliminary copies of such documents submitted for review must have seals affixed without endorsement (signature).

23. Notices

Any official notice that either party hereto desires to give the other shall be delivered through the United States mail by certified mail, return receipt requested, with postage thereon fully prepaid and addressed as follows:

To City:

Tom Cohenour, DPW Director
City of Unalaska
Box 610
Unalaska, Alaska 99685

To Consultant:

Frank Zammataro, CEO
Rentricity Inc.
PO Box 1021
Planetarium Station
New York, NY 10024

The addresses hereinabove specified may be changed by either party by giving written notice thereof to the other party pursuant to this paragraph.

24. Venue/Applicable Law

The venue of any legal action between the parties arising as a result of this Agreement shall be laid in the Third Judicial District of the Superior Court of the State of Alaska and this contract shall be interpreted in accordance with the laws of the State of Alaska.

25. Attorney's Fees

In the event either party institutes any suit or action to enforce its right hereunder, the prevailing party shall be entitled to recover from the other party its reasonable attorney's fees and costs in such suit or action and on any appeal therefrom.

26. Waiver

No failure on the part of City to enforce any covenant or provisions herein contained, nor any waiver of any right hereunder by City, unless in writing and signed by the parties sought to be bound, shall discharge or invalidate such covenants or provisions or affect the right of City to enforce the same or any other provision in the event of any subsequent breach or default.

27. Binding Effect

The terms, conditions and covenants contained in this Agreement shall apply to, inure to the benefit of, and bind the parties and their respective successors.

28. Entire Agreement/Modification

This agreement, including **Exhibits A-C**, and the Consultant’s Statement of Qualifications dated **January 17, 2019** constitutes the entire Agreement between the parties with respect to the subject matter hereof, and all prior negotiations and understandings are superseded and replaced by this Agreement and shall be of no further force and effect. No modification of this Agreement shall be of any force or effect unless reduced to writing, signed by both parties and expressly made a part of this Agreement.

In witness whereof, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in duplicate on the respective date indicated below.

CONSULTANT:RENTRICITY INC.	CITY OF UNALASKA, ALASKA
By:________________________________	By:________________________________
Frank Zammataro, Its CEO	Thomas Thomas, City Manager
State of New Jersey)) ss.)	State of Alaska)) ss. Third Judicial District)
The foregoing instrument was acknowledged before me on the ____ day of ___________, 2019, by __________________________, the ______________________________ of _________________, a _________ Corporation, on behalf of the corporation.	The foregoing instrument was acknowledged before me on the ____ day of ___________, 2019, by Thomas Thomas, City Manager for the City of Unalaska, a First Class Alaska Municipal Corporation, on behalf of the City of Unalaska.
________________________________	________________________________
Notary Public, State of New Jersey	Notary Public, State of Alaska
My Commission Expires _______________	My Commission Expires ______________

CITY OF UNALASKA

EXHIBIT "A"
SCOPE OF SERVICES

The Consultant will work with the City to complete the **Pyramid Water Treatment Plant Inline MicroTurbines Design**

In general accordance with the narrative work plan in the Rentricity Statement of Qualifications dated **January 17, 2019** and the and Article 2.1 of the Request for Qualifications (RFQ) issued by Unalaska on November 30, 2018.

The following shall constitute Rentricity's scope of work for this agreement unless all parties mutually agree to a change in writing.

1. Enumeration and evaluation of any permits or authorizations required to utilize an excess of raw water over normal fresh water demand for the express purpose of generating additional power. The agencies and entities listed on p.2.9 will be included in the assessment. The requirements, timing and fees will be identified as well as an assessment of the risk/level of difficulty will be noted. A summary will be prepared covering these factors which will provide a basis for decision making by Unalaska to pursue or abandon efforts to gain approvals for usage of the excess raw water.
2. Prepare a Functional Design Document for the project which defines all of the overarching objectives and criteria for energy recovery at the Pyramid WTF
3. Prepare a technical evaluation documenting a full assessment of turbine generator options for both the current and future flow scenarios. These scenarios are fully modeled for the supply through the water processing/treatment and delivery to Unalaska in the detailed spreadsheets in the reference list of documentation associated with the RFQ. This detailed model utilizes SCADA data from 2010 and includes assumptions for an overlay of excess usage up to 7000 gpm. The evaluation will consider up to three alternative turbine generator designs for such factors as range of use, output, size and ease of deployment in the existing WTF, cost, location of fabrication and service facilities.
4. Develop a complete set of mechanical design schematics covering all potential changes to backfit the in-pipe hydropower options into the WTF. These schematics will consider and evaluate as necessary following elements:
   a. Relocation of the existing PRVs
   b. Utilization of modulating flow control valves where the PRVs are currently located for granular control of CT Tank level.
   c. Potential for over-pressurization or other transients and steps to mitigate same.
   d. Piping/valve/turbine arrangement configurations and limitations within the confines of the existing WTF mechanical/hydraulic profile.
   e. Impact of regulatory and permitting requirements
5. Develop a complete set of electrical design schematics covering all potential changes associated with power generation, distribution, control and monitoring. These schematics and supporting documentation will consider and evaluate as necessary the following elements:

   a. System remote and local control requirements.
   b. Location of the main electrical control panels
   c. Protective relaying requirements
   d. Interconnection to existing plant switchgear, back-feed through primary grid circuits, metering and anti-islanding requirements and possible tie-in to the existing microgrid.
   e. Coordination with the electric utility to confirm assessment of and mitigation of transients and perturbations
   f. Interface with existing SCADA, form/type of data transfer in both directions, requirements for displays

6. Schedule and Capital Cost Estimates – prepare first indicative capital cost summary for the current and future flow scenarios covering the following:
   a. Budget for each turbine generator system estimate from a minimum of three suppliers.
   b. Final Design engineering
   c. Additional mechanical system specialty control, relief and manual valves, incremental piping and supports,
   d. Additional electrical equipment and components to complement the specialty panels estimated by the suppliers
   e. Mechanical and electrical installation estimates
   f. Estimated permitting costs
   g. Schedule to complete including key assumptions and conditions.

CITY OF UNALASKA

Pyramid Water Treatment Plant Inline MicroTurbines Design

EXHIBIT "B"

CONTRACT SCHEDULE

Completion date is on or about four months following issuance of a purchase order for this work.

Timeline: Phase II – Pre-design Scoping - 4 months (16 weeks)

2.5 weeks:

- Review Phase I (Feasibility Study) materials and historical materials and documentation
- Draft Project Functional Specification Document
- Site visit and kickoff meeting (two people, two days inclusive of video conference)
- Edit project schedule, deliverables, and communication plan; e.g. type/frequency of update sessions and action Items

3.5 weeks:

- Conceptual design, equipment & vendor recommendations with sizing of turbine(s)
- Projection of annual power production based on historical data and selected current turbine options/performance curves
- Draft Operational and Sequence of Events Document
- Initial review & assessment of requirements for permitting of water rights for generation

3 weeks:

- Recommendations for equipment siting within WTP, inclusive of control panel and intertie to the WTP switchgear and power grid
- Preliminary mechanical and electrical design, inclusive of construction cost estimates
- Recommendations for future (optional) expansion to accommodate untreated water flow
- Draft turbine generator specification

2 weeks:

- 10% level project review by City, followed by video/web conference call

2 weeks:

- Preparation and submittal of summary report, inclusive of 15% design plans
- Review of requisite permits and recommendations, with conference calls as needed
- Update Functional Specification document & Operational/Sequence Events document.

3 weeks:

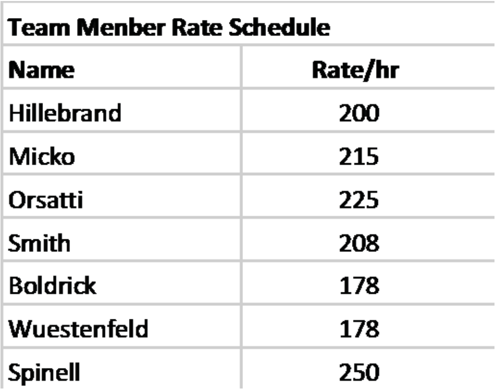
- 15% level project review by City, followed by video/web conference call
- Revisions to 15% level project review documentation and recommendations for Phase III (all materials to be submitted as PDF files and four bound hardcopies

CITY OF UNALASKA

EXHIBIT “C”

FEE SCHEDULE

Fee will not exceed $50,000. All fees will be based upon the rate schedule previously included in Rentricity’s Statement of Qualifications.



Team Menber Rate Schedule

Name	Rate/hr
Hillebrand	200
Micko	215
Orsatti	225
Smith	208
Boldrick	178
Wuestenfeld	178
Spinell	250

In addition, Rentricity will use two forms (shown below) to report Team member activities and travel related expenses on a monthly basis:

Rentricity Inc. ____________________ Prepared by: ____________________
Department ____________________ Date ____________________

Time Period	Consultant	Task Description	Hours	Rate	Other	Total
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
						$ -
			$ -	$ -	$ -	
					Subtotal	$ -
					Advances	
					Total	$ -

APPROVED: ____________________
NOTES: ____________________

CONSULTANT INFORMATION:

Name ______________________ Position ______________ SSN ______________

Department ______________________ Manager ______________ Employee ID ______________

Date	Account		Hotel	Transport	Fuel	Meals	Phone	Entertainment	Misc.	Total
										$ -
										$ -
										$ -
										$ -
										$ -
										$ -
										$ -
										$ -
										$ -
										$ -
										$ -
										$ -
										$ -
										$ -
										$ -
			$ -		$ -	$ -	$ -	$ -	$ -	
									Subtotal	$ -
									Advances	
									Total	$ -

APPROVED: ______________________________

____

NOTES: ______________________________

____

Attachment 2

RFQ

Request for Qualifications

Pyramid Water Treatment Plant Inline MicroTurbines Design

DPU Project No. 17401

Prepared by:

City of Unalaska
Department of Public Works

PO Box 610
Unalaska, Alaska 99685

November 30, 2018

TABLE OF CONTENTS

LIST OF ATTACHMENTS

Attachment A	References
Attachment B	DRAFT Consulting Services Agreement
Attachment C	Evaluation Score Sheet

LIST OF ACRONYMS

ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
ASFM	Alaska State Fire Marshal
BEP	Best Efficiency Point
CAD	Computer Aided Drafting
CFS	Cubic Feet per Second
CMMP	Capital and Major Maintenance Plan
CT	Contact Time
EPS	Electrical Power Systems
FERC	Federal Energy Regulatory Commission
FFE	Fixed Floor Elevation
GPM	Gallons per Minute
GPRV	Generating Pressure Reducing Valve
KWH `	Kilo-Watt-Hour
kVA	Kilo-Volt-Ampere
MG	Million Gallons
MLW	Mean Low Water
MGD	Million Gallons per Day
MPPT	Maximum Power Point Tracking
PDF	Portable Document Format
PRV	Pressure Reducing Valve
PSI	Pounds per Square Inch (gauge)
RFP	Request for Proposals
RFQ	Request for Qualifications
SCADA	Supervisory Control and Data Acquisition
UV	Ultra Violet
WTP	Water Treatment Plant

1.0 INTRODUCTION

This is a RFQ by the City of Unalaska Department of Public Works for engineering services for preliminary design of the installation of inline MicroTurbine power generation (or GPRVs) at the City of Unalaska Pyramid WTP. All questions about this RFQ are to be directed to the City Engineer.

City of Unalaska - Department of Public Works
Robert Lund, P.E. City Engineer
rlund@ci.unalaska.ak.us
P.O. Box 610
Unalaska, AK 99685
Phone 907-581-1260 x8106

Interpretations or clarifications considered necessary by the City of Unalaska in response to such questions will be issued by Addenda. Addenda will be emailed to all registered potential Respondents and also posted on the City of Unalaska website:

http://www.ci.unalaska.ak.us/rfps

To be added to the registration list published on the City of Unalaska website send an email to:

lgregory@ci.unalaska.ak.us

1.1 PROJECT BACKGROUND

The City of Unalaska has about 4,500 permanent residents and supports the largest seafood industry in the U.S. in terms of volume. During various seafood processing seasons, the total population may swell to more than 8,000 due to an influx of transient employees hired to work for the seafood processors. In order to meet water system demand, the City of Unalaska relies on three groundwater wells in the Unalaska Valley and an unfiltered surface water treatment plant herein referred to as the Pyramid WTP or the WTP in the Pyramid Valley. Water system demand ranges from about 1.5 MGD to 8 MGD closely following the seafood processing seasons. Seafood processing seasons vary but do not typically exhibit high water demand in May or November-December.

The Pyramid Valley watershed is located in Unalaska, Alaska on Unalaska Island in the Aleutian Archipelago and drains approximately 4.9 square miles of mountainous tundra growing atop deposits of volcanic ash underlain with shallow glacial till and friable bedrock. It is accessible by an unpaved gravel road, Pyramid Road, controlled and maintained by the City of Unalaska. The uppermost sub-watershed is the Icy Creek Valley. Icy Creek Valley is a 0.24-square mile drainage discharging into a 17-acre alpine lake, Icy Lake, situated at 727-feet MLW in a glaciated trough with about a 57 MG storage capacity of which ½ is accessible for use by the City of Unalaska's Water Utility. The level of Icy Lake was historically raised by a 6-feet high sheet pile dam with discharge controlled through a remotely operated valve on a 24-inch pipe which extends about 1,200-feet downstream before discharging into Icy Creek. Overflow and controlled discharge are routed 2,600-feet overland through Icy Creek across an alluvial valley to a man-made lake, Icy Creek Reservoir, at 517.8-feet MLW with an impoundment of 9.6 MG. Icy Creek Reservoir gathers an additional 3-square miles of drainage along the way.

Icy Creek Reservoir is impounded by a 28-feet tall and 280-feet long sheet pile dam. Water from Icy Creek Reservoir spills over the crest of the dam back into Icy Creek. The highest recorded flow measurement was 367 CFS on December 9, 2011, but the spillway is also often dry as water released from Icy Lake is prioritized for municipal use. 2,100-feet downstream of Icy Creek Reservoir, Icy Creek confluences with the East Fork of Pyramid Creek and becomes Pyramid Creek, which discharges into Captain's Bay about 6,668-feet further downstream.

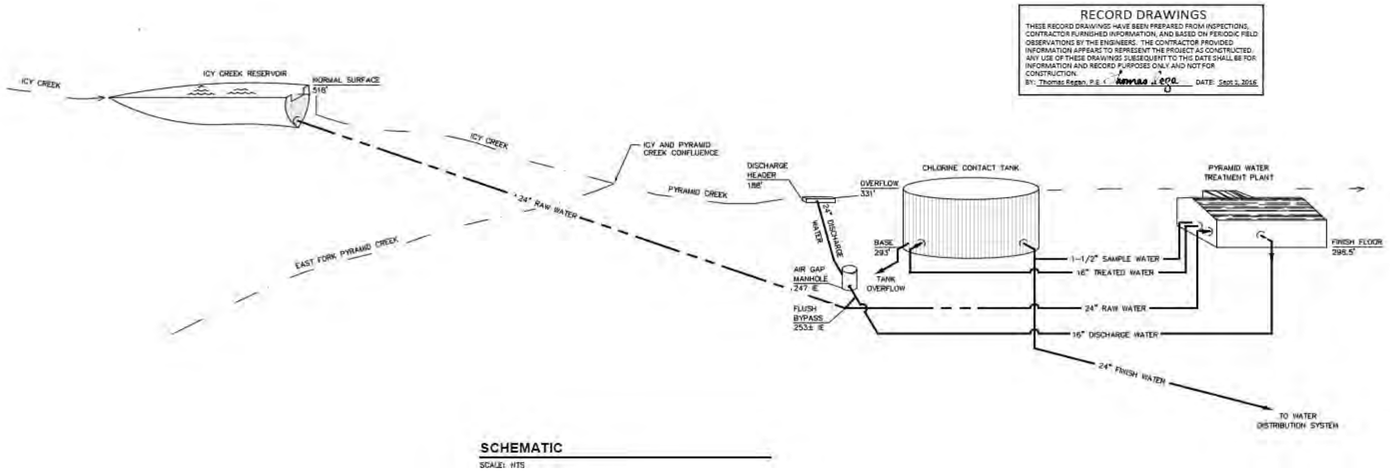
Prior to the Icy Creek Reservoir spillway, raw water can be diverted 6,200-feet through an automated valve on a 24-inch ductile iron pipe to a tee just below the Pyramid WTP at 252-feet MLW. From the tee, water can either continue uphill 320-feet to the Pyramid WTP inlet at 298.5-feet FFE MLW or, by opening a manual butterfly valve at the tee, it can be discharged into an air gap manhole where it breaks head and is conveyed down a steep 24-inch penstock to Pyramid Creek, discharging at 185.2-feet MLW. The discharge penstock is rated at 12,000 GPM and has energy dissipaters at the discharge point. Normally, raw water continues 320-feet uphill to the Pyramid WTP and after entrance is reduced to 16-inch stainless steel pipe. The Pyramid WTP is a 6,250 GPM maximum, 2,500 GPM average and 280 GPM minimum facility. At least 500 GPM is typical for stable operation of the various processes and sensors.

Inside the Pyramid WTP, the raw water continues through a 34.5-feet section of straight pipe which crosses a 16-feet wide by 34-feet long floor space dedicated for a future MicroTurbine. After the straight pipe, the line branches again. One branch conveys discharge water back downhill 320-feet to the air gap manhole through an automated valve on a 16-inch pipe. This discharge water line is used to automatically clear turbidity from the raw water line whenever necessary to maintain UV transmittance requirements. The other branch continues as raw water through two parallel basket strainers. At the outlets of the basket strainers, the line reconnects and then is expanded back to 24-inch and split through two parallel UV reactors. Recombined with a reduction to 16-inch, it is then chlorinated, continues through a flowmeter, and then is split again through two parallel PRVs which drops pressure 30 PSI to operate quickly enough to adjust for rapidly varying flows.

After the PRVs, the treated water line leaves the building and continues underground 211.5-feet (including riser) through a 16-inch line to the 2.6 MG CT Tank with discharge into the CT Tank at 293.5-feet FFE through a 35.5-feet tall perforated riser. The CT Tank head is normally maintained at 329-feet MLW.

All pipes are Class 52 ductile iron outdoors and 304L SCH40S stainless steel indoors.

The discharge of Pyramid Creek to Captains Bay is an anadromous reach. However; pink and Coho salmon cannot run over a waterfall located about 1,200-feet downstream of the Pyramid WTP discharge. The waters upstream of this waterfall are populated by freshwater resident Dolly Varden up into Icy Creek Reservoir to a waterfall located about midway to Icy Lake.



RECORD DRAWINGS
THESE RECORD DRAWINGS HAVE BEEN PREPARED FROM INSPECTIONS, CONTRACTOR FURNISHED INFORMATION, AND BASED ON PERIODIC FIELD OBSERVATIONS BY THE ENGINEERS. THE CONTRACTOR PROVIDED INFORMATION APPEARS TO REPRESENT THE PROJECT AS CONSTRUCTED. ANY USE OF THESE DRAWINGS SUBSEQUENT TO THIS DATE SHALL BE FOR INFORMATION AND RECORD PURPOSES ONLY AND NOT FOR CONSTRUCTION.
BY: Thomas Regan, P.E. Thomas Regan DATE: Sept 1, 2016

Figure 1. Icy Creek Reservoir to the Pyramid WTP.

2.0 SCOPE OF SERVICES

The requested services are as outlined below. The City of Unalaska considers historical work Phase I and intends to award this Project as Phase II Pre-Design Scoping and Supplier Procurement followed by Phase III Schematic Design then Phase IV Construction and Commissioning.

Phase II has a budget of $50,000.

- Scoping Study
- Competitive selection of qualified GPRV manufacturers
- 15% plans and cost estimate

Phase II-III of the Project is expected to be complete before June 30, 2020.

2.1 PHASE II – PRE-DESIGN SCOPING

The scoping study will bridge the Project from feasibility analysis into schematic design and construction. The scoping study provides an evaluation of the existing facility and available information to select inline MicroTurbines (GPRVs) best suited to facility needs. A GPRV system dedicated to energy recovery on existing infrastructure requires considering some constraints not experienced in the case of conventional hydropower infrastructure. Specifically, this scoping study will address energy recovery in a drinking water treatment plant, where the primary function of the infrastructure is to deliver water to consumers. The primary function must be preserved at all times and the inclusion of GPRVs planned accordingly.

The scoping study is the planning activity and documentation required to achieve a successful outcome for this Project. It follows initial planning and precedes the schematic design and construction stages. The scoping study is the “business plan” for the Project and identifies the goals to for how the Project will function to serve operations and obtain the full support and embracement by the City of Unalaska and the community. The scoping study will communicate essential Project objectives with factual data, such as cost estimates and preliminary schematics, before the full design process commences or other decisions are made.

This Project supports the future installation of inline MicroTurbines on existing pipelines in or in the vicinity of the Pyramid WTP. Historically, a great deal of study has been put into hydroelectric generation on the Pyramid system in many configurations, but this Project is specifically for inline MicroTurbines (GPRVs) using existing infrastructure to the extent practical. Based on previous work by others and information presented to the

City Council during the CMMP process, a location for inline MicroTurbines has already been identified.

DPW evaluated the available studies and different siting scenarios using a hydraulic model which estimates benefits based on hourly flow data from 2010-2012. We feel the model is conservative and on that basis, an acceptable best cost benefit would be the following:

a) A single GPRV; or should payback and floor space allow two parallel GPRVs with partially overlapping operating ranges, operating in a lead lag mode then lead + lag mode, inside the Pyramid WTP on the 16-inch straight pipe previously dedicated for this purpose. Power generation is limited to treated water capacity to 6,250 GPM, at first, but in the future untreated water may be diverted as discharge water up to a total of both GPRVs flow capacity, as future operating conditions and permits, ADNR Water Rights in particular, allow.

The City of Unalaska wants the successful Respondent to consider or evaluate relevant requirements, even if an in depth evaluation is reserved for a later phase, including:

- This Project has been studied previously, Phase II is not intended to be another feasibility study; instead it is intended to bridge previous feasibility studies into schematic design and construction through a Scoping Study, 15% plans and identification of qualified GPRV manufacturers. Later in Phase II our goal is a lean design process in partnership with a qualified manufacturer to bring the right GPRVs online in late Winter 2019 through Spring 2020 following full design/construction funding in early Summer 2019 if approved by City Council.

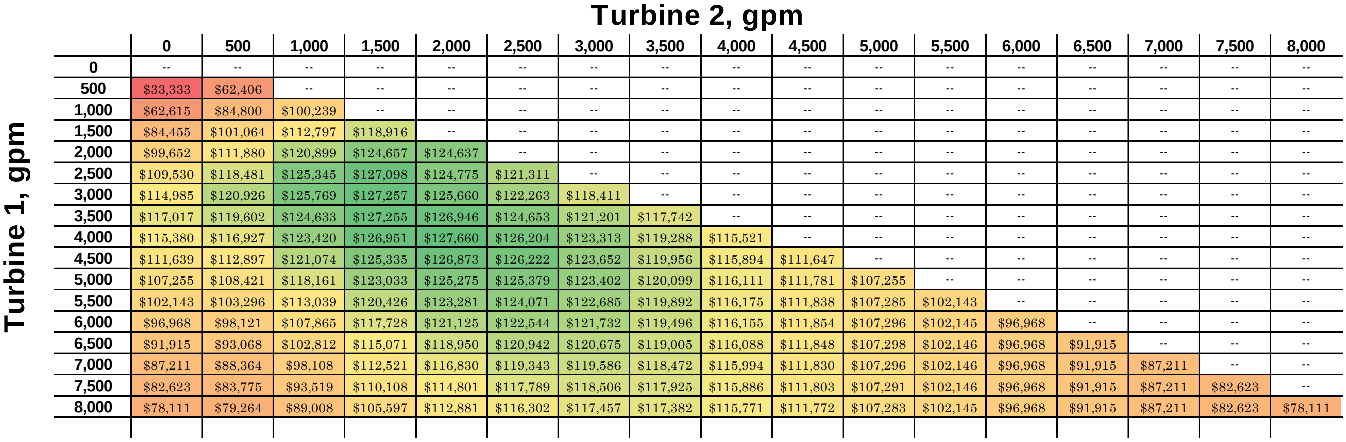
- Gather available data, assess or validate any necessary models, develop selection criteria, specifications and pre-select manufacturer partners based in North America and conduct site visits if needed. Again, this is not a feasibility study; the manufacturers will be most efficient at taking provided data, modeling it in their equipment and recommending equipment sizes based on their standard products.

- The over 6,250 GPM scenario using treated or untreated water is a future scenario that roughly doubles payback from 10.6 down to 6.4 years, but the necessary permits for the future scenario will be difficult and time consuming to acquire. Obtaining those permits is currently out of scope but could be added in the future.

- The selected equipment could be sized for the future scenario and include controls to operate it while still providing satisfactory performance in the current scenario. Two parallel GPRVs at peak flow could do a combined total of 7,000 gpm, or even less, and the future scenario would be adequately covered. We have observed through the 2010-2012 model that due to the actual flow duration frequency experienced through the WTP; the majority of the benefit isn't from passing very high but infrequent flows through the turbines. Rather the most benefit is from keeping smaller turbines fully loaded even when treated water demand is low but Icy Creek Reservoir overflow is available.

- The 2010-2012 model estimates 3,700-4,700 max gpm rating on Turbine 1 (see Figures 2 and 3) and 1,800-2,300 max gpm on Turbine 2 as optimum turbine combinations for both the current or future scenarios. The water to wheel hill efficiency curve used allows as low as 25% of BEP flows up to 125% of BEP flow (max gpm rating) with further reduction by an 80% wheel to wire factor.

  A single 4,000 gpm max turbine approaches a maximum payback in the current scenario but the future scenario optimized at 6,000 gpm.

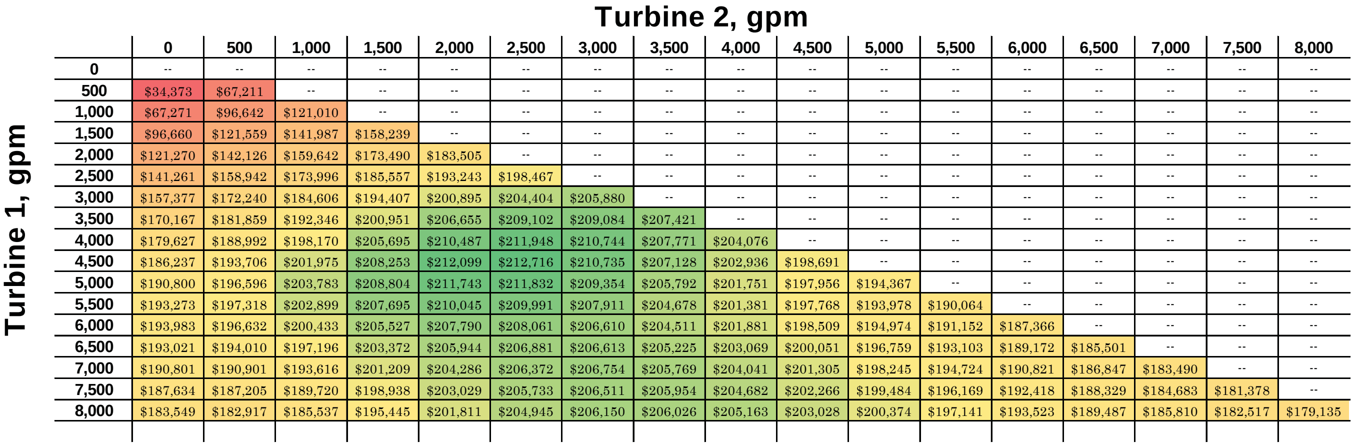


Turbine 2, gpm

Turbine 1, gpm

	0	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000
0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
500	$33,333	$62,406	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,000	$62,615	$84,800	$100,239	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,500	$84,455	$101,064	$112,797	$118,916	--	--	--	--	--	--	--	--	--	--	--	--	--
2,000	$99,652	$111,880	$120,899	$124,657	$124,637	--	--	--	--	--	--	--	--	--	--	--	--
2,500	$109,530	$118,481	$125,345	$127,098	$124,775	$121,311	--	--	--	--	--	--	--	--	--	--	--
3,000	$114,985	$120,926	$125,769	$127,257	$125,660	$122,263	$118,411	--	--	--	--	--	--	--	--	--	--
3,500	$117,017	$119,602	$124,633	$127,255	$126,946	$124,653	$121,201	$117,742	--	--	--	--	--	--	--	--	--
4,000	$115,380	$116,927	$123,420	$126,951	$127,660	$126,204	$123,313	$119,288	$115,521	--	--	--	--	--	--	--	--
4,500	$111,639	$112,897	$121,074	$125,335	$126,873	$126,222	$123,652	$119,956	$115,894	$111,647	--	--	--	--	--	--	--
5,000	$107,255	$108,421	$118,161	$123,033	$125,275	$125,379	$123,402	$120,099	$116,111	$111,781	$107,255	--	--	--	--	--	--
5,500	$102,143	$103,296	$113,039	$120,426	$123,281	$124,071	$122,685	$119,892	$116,175	$111,838	$107,285	$102,143	--	--	--	--	--
6,000	$96,968	$98,121	$107,865	$117,728	$121,125	$122,544	$121,732	$119,496	$116,155	$111,854	$107,296	$102,145	$96,968	--	--	--	--
6,500	$91,915	$93,068	$102,812	$115,071	$118,950	$120,942	$120,675	$119,005	$116,088	$111,848	$107,298	$102,146	$96,968	$91,915	--	--	--
7,000	$87,211	$88,364	$98,108	$112,521	$116,830	$119,343	$119,586	$118,472	$115,994	$111,830	$107,296	$102,146	$96,968	$91,915	$87,211	--	--
7,500	$82,623	$83,775	$93,519	$110,108	$114,801	$117,789	$118,506	$117,925	$115,886	$111,803	$107,291	$102,146	$96,968	$91,915	$87,211	$82,623	--
8,000	$78,111	$79,264	$89,008	$105,597	$112,881	$116,302	$117,457	$117,382	$115,771	$111,772	$107,283	$102,145	$96,968	$91,915	$87,211	$82,623	$78,111

Figure 2. Current scenario with turbines inside the WTP. Heat map shows estimated annual payback at 2010-2012 model settings for parralel turbines. Discharge (bypass) flow is set to 0.



Turbine 2, gpm

Turbine 1, gpm

	0	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000
0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
500	$34,373	$67,211	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,000	$67,271	$96,642	$121,010	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,500	$96,660	$121,559	$141,987	$158,239	--	--	--	--	--	--	--	--	--	--	--	--	--
2,000	$121,270	$142,126	$159,642	$173,490	$183,505	--	--	--	--	--	--	--	--	--	--	--	--
2,500	$141,261	$158,942	$173,996	$185,557	$193,243	$198,467	--	--	--	--	--	--	--	--	--	--	--
3,000	$157,377	$172,240	$184,606	$194,407	$200,895	$204,404	$205,880	--	--	--	--	--	--	--	--	--	--
3,500	$170,167	$181,859	$192,346	$200,951	$206,655	$209,102	$209,084	$207,421	--	--	--	--	--	--	--	--	--
4,000	$179,627	$188,992	$198,170	$205,695	$210,487	$211,948	$210,744	$207,771	$204,076	--	--	--	--	--	--	--	--
4,500	$186,237	$193,706	$201,975	$208,253	$212,099	$212,716	$210,735	$207,128	$202,936	$198,691	--	--	--	--	--	--	--
5,000	$190,800	$196,596	$203,783	$208,804	$211,743	$211,832	$209,354	$205,792	$201,751	$197,956	$194,367	--	--	--	--	--	--
5,500	$193,273	$197,318	$202,899	$207,695	$210,045	$209,991	$207,911	$204,678	$201,381	$197,768	$193,978	$190,064	--	--	--	--	--
6,000	$193,983	$196,632	$200,433	$205,527	$207,790	$208,061	$206,610	$204,511	$201,881	$198,509	$194,974	$191,152	$187,366	--	--	--	--
6,500	$193,021	$194,010	$197,196	$203,372	$205,944	$206,881	$206,613	$205,225	$203,069	$200,051	$196,759	$193,103	$189,172	$185,501	--	--	--
7,000	$190,801	$190,901	$193,616	$201,209	$204,286	$206,372	$206,754	$205,769	$204,041	$201,305	$198,245	$194,724	$190,821	$186,847	$183,490	--	--
7,500	$187,634	$187,205	$189,720	$198,938	$203,029	$205,733	$206,511	$205,954	$204,682	$202,266	$199,484	$196,169	$192,418	$188,329	$184,683	$181,378	--
8,000	$183,549	$182,917	$185,537	$195,445	$201,811	$204,945	$206,150	$206,026	$205,163	$203,028	$200,374	$197,141	$193,523	$189,487	$185,810	$182,517	$179,135

Figure 3. Future scenario with turbines inside the WTP. Heat map shows estimated annual payback at 2010-2012 model settings for parralel turbines. Discharge (bypass) flow is set to 5,500 gpm.

- A defensible procurement basis for pre-approved equipment and partnering with that supplier early in the Project. The procurement will be phased. A document similar to this RFQ will be used to pre-qualify at least 3 vendors and then an RFP will be let in a later phase. The contract between the City of Unalaska and the manufacturer will be similar to that employed by the City of Unalaska powerhouse when purchasing generators and other capital equipment. In other words templates previously used by the City of Unalaska for similar procurements are available.

- Limitations such as consideration of hydraulic transients, cavitation, air entrainment, settleable solids or onerous permitting requirements.

- It is critical that we reconfigure or replacing the existing in-plant PRVs with automatic flow control valves to repurpose the 30 PSI head loss incurred to operate PRVs to the GPRVs. The existing PRVs are CLA-VAL Hytrols 16" 631G-36BCSVYKC.

  The PRVs are rated to operate at about 7 PSI but need about 30 PSI to open and close rapidly enough to keep up with the actual rapid flow fluctuations and keep the CT tank full. Keep rapidly varying flow in mind as one of the criteria for PRV replacement or modification and also the GPRV manufacturer selection.

  <u>If the current PRV energy loss is not addressed this is not a cost effective project.</u>

- How the MicroTurbines and ancillary equipment will fit into the existing space already dedicated to a future MicroTurbine inside the Pyramid WTP in a restricted plant floor space.

- The Water Division continuously measures and records flow data from the Icy Creek Reservoir spillway and the flowmeters inside the Pyramid WTP. Therefore, except if necessary for permitting, this is not a hydrology study and calculations can be made using historical data provided by the City of Unalaska recorded on an hourly basis from 2010-2012 and later. The caveat is reserving enough residual pressure to keep the CT Tank full. The estimated pressure available at the GPRV inlet at flow is available in the 2010-2012 model.

  The treated water supply, maintaining a full CT tank and maintaining contingency storage in Icy Lake and Icy Creek Reservoir will always be prioritized over power production. Therefore the Utility will not operate the storage system any differently than historical data indicates even with GPRVs.

- The equipment selection should not only use daily average and peak flows, but also consider actual flow duration and frequency versus equipment BEPs (efficiency hill chart).

- The most suitable types of GPRVs and manufacturers for this facility with BEPs and overlapping operating ranges that best fit the flow duration frequency and available plant floor space with domestic spare parts service and availability.

- The City of Unalaska will help identify land use requirements, provide ARC-GIS maps and AUTOCAD single line of the utility, front end documents, historical bid tabs and schedule of values, as-builts including CAD files of Pyramid WTP record drawings, SCADA data from the Icy Lake Reservoir and the Pyramid WTP, topographic maps, high resolution power production load data and customer metering information.

- Develop construction cost estimates in spring 2019 so that the City of Unalaska can use them in the CMMP process to fully fund the Project.

- The MicroTurbines will feed a NET metering system at market rates into the existing 34.5 kVA 3-phase primary. Evaluate whether load dumping or additional batteries are necessary.

- The City of Unalaska powerhouse will not be able to force the GPRV to make more power by increasing flow but they must be able to reduce power generation by remotely manipulating the MPPT or a flow bypass without impacting water production.

- Current electric service power analysis to analyze feasibility for sizing and penetration into the remote micro-grid system, taking into account current and future electric production demands.

- In the event of a utility power failure at the Pyramid WTP, an existing battery system maintains plant operations for 5-minutes while the back-up generator warms up. The MicroTurbine system must be compatible with this and all other operating scenarios.

- Consider the provided historical utility bills for the Pyramid WTP.

- Appropriate or typical or creative procurement methodology for this application, such as project manager at risk, and other related considerations.

- Revised Pyramid WTP control narrative and concept schematics of selected alternative.

- Construction windows and sequencing that minimizes Pyramid WTP down time. Due to the fish processing seasons this construction window is May or November-December.

- Permits to generate power from more than just the treated water could be a significant obstacle. The City of Unalaska is currently permitted to intermittently discharge extra water for the purposes of clearing turbidity from the raw water main only, but not solely for power generation. One result of the scoping study will be a decision by the City of Unalaska whether to pursue permits for additional take from Icy Creek, or to limit the sizing to treated water or a scalable system with capacity for higher flows future permits allowing.

- Enumeration and evaluation of required permits. The following permits or authorizations may be required.

  - FERC Licensing. Determination, exemptions, certifications and licensing.

  - ADF&G. May set terms and conditions for discharge of waters over those previously permitted.

  - ADNR Water Rights. The City of Unalaska currently only has rights to that water used to supply the drinking water distribution system.

  - APDES. The City of Unalaska currently is permitted only to discharge raw water that was used to purge the raw water line of turbidity and dechlorinated sample water. The CT Tank overflow was also retrofitted with a dechlorination device.

  - ADEC Water Division. Authority to Construct and Permit to Operate for Drinking water treatment system system changes and replacing PRVs with GPRVs and/or automatic flow control valves.

  - ASFM Review. Life safety and electrical/mechanical review.

2.2 PHASE III – DESIGN (NEGOTIATED WITH PHASE II CONSULTANT OR REBID)

- Manufacturer RFP
- 35%, 65% and 95% plans, specifications, project manual, cost estimate and City of Unalaska reviews
- Permitting
- Bid plans, specifications, project manual and bid services

2.3 PHASE IV – CONSTRUCTION SERVICES (NEGOTIATED WITH PHASE II CONSULTANT OR REBID)

- Construction administration
- Commissioning support
- Permit closeout
- Project closeout by June 30, 2020

2.4 PROJECT TEAM

The City of Unalaska anticipates the following primary support:

- Project Management
- Process Pipe Engineering
- Permitting
- Electrical Engineering and Powerhouse Link Process Controls (sourced to current City electrical engineering firm EPS under prime)
- Mechanical Process Controls (sourced to current City of Unalaska controls engineering firm Boreal Controls under prime)
- GPRV Supplier
- Construction Contractor

3.0 DELIVERABLES

Microturbine options will be refined with staff meetings to provide input and feedback with selections ultimately incorporated into the future improvement. The Scoping Study results should be summarized in a written technical memorandum and other visuals, including the 15% plans that present the information to the City of Unalaska. Anticipate 10% and 15% level reviews by the City of Unalaska with each review period lasting about 2 weeks.

An RFQ for the manufacturer will not be let until after the Scoping Study and 15% plans are complete. The selected respondent will generate the RFQ and participate in the selection process. It is anticipated that the RFQ is essentially an extension of the Scoping Study and 15% plans in that the technical memorandum should be written in anticipation of its usefulness in pre-qualifying manufacturers.

Project communication will be primarily through the City Engineer and Deputy Utility Director.

3.1 DOCUMENTS

Provide a PDF copy of draft documents; four bound hardcopies of the final document; one PDF copy provided on CD or flash drive; and all drawing files must also be provided in AutoCAD or ARC-GIS and PDF format.

4.0 SELECTION PROCESS

Only one Statement of Qualifications from any individual, firm, partnership or corporation, under the same or different names, will be considered. Should it appear to the City of Unalaska that any Respondent is interested in more than one Statement of Qualifications for the work contemplated, then all Statements of Qualifications in which such Respondent is interested will be rejected.

This does not preclude a subcontractor from appearing in more than one Statement of Qualifications. However; our recommendation is that the Statements of Qualifications focus on the project management and architectural team rather than other disciplines.

4.1 EVALUATION AND AWARD PROCESS

The Evaluation Team will be appointed by the City Engineer from among City of Unalaska staff. The entire scoring procedure, including Evaluation Team meetings and scoring materials, will be held strictly confidential until after negotiations are concluded.

All Evaluation Team members will be required to certify that they have no conflicts of interest and that they will strictly adhere to the procedures herein described.

- The City of Unalaska receives the Statements of Qualifications.
- Evaluation Team evaluates the Statements of Qualifications according to established criteria.
- The Evaluation Team will schedule and conduct a phone interview with at least the two highest scored Respondents.
- The Evaluation Team re-evaluates the interviewed Respondents according to the established criteria.
- City Engineer reviews final scores and forwards evaluation results to the Director of Public Works.
- Negotiation with the Respondent with the highest scored Statement of Qualifications or, if necessary, the next lower scored responsive Respondent and so on. The Contract will be the Engineering and Related Services Agreement, **Attachment B**. The City of Unalaska will be inflexible with regards to the Contract language. The Scope of Services, Schedule and Fee for Services are negotiable.

- Director of Public Works forwards evaluation results and the Contract to the City Manager.

- City Manager makes their recommendation to the City Council for Contract award.

The City of Unalaska and the successful Respondent execute the Contract and a purchase order. The purchase order serves as Notice to Proceed.

4.2 CONDITIONS

The City of Unalaska reserves the right to reject any and all Statements of Qualifications and/or to waive any informality in procedures.

This RFQ does not commit the City of Unalaska to award a Contract, or procure or Contract for any services of any kind whatsoever.

The selection of a successful Respondent shall be at the sole discretion of the City of Unalaska. No agreement between the City of Unalaska and any Respondent is effective until the contract is approved by the City Council of the City of Unalaska, signed by the City Manager and a purchase order completed.

The City of Unalaska is not liable for any costs incurred by Respondents in preparing or submitting Statements of Qualifications.

In submitting a Statement of Qualifications, each Respondent acknowledges that the City of Unalaska is not liable to any entity for any costs incurred therewith or in connection with costs incurred by any respondent in anticipation of City of Unalaska City Council action approving or disapproving any agreement without limitation.

Any perception of a conflict of interest is grounds for rejections of any Statement of Qualifications. In submitting a Statement of Qualifications, each Respondent certifies that they have not and will not create and/or be party to conflicts of interest with any City of Unalaska official or employee, including but not limited to any direct or indirect financial gain and/or gratuity or kickback or through unauthorized communication with City employees or officials not listed in this RFQ before the selection process is complete.

Nothing in this RFQ or in subsequent negotiations creates any vested rights in any person or entity.

4.3 TRANSMITTAL REQUIREMENTS

Statements of Qualifications must be delivered to the email addresses below by **2:00 p.m., local time, on January 17, 2019**.

mveeder@ci.unalaska.ak.us; rwinters@ci.unalaska.ak.us

Statements of Qualifications will only be accepted before and on the published date, and until the time specified.

Statements of Qualifications must be submitted in a single email no larger than **5 megabytes**. The email header must clearly identify the Project and the Respondent e.g.

Name of Consulting Firm – Statement of Qualifications for City of Unalaska Pyramid Water Treatment Plant Inline MicroTurbines Design

The City of Unalaska complies with Title II of the American with Disabilities Act of 1990 and the Rehabilitation Act of 1973. Individuals with disabilities who may need auxiliary aids or services or special modifications to participate in the RFQ process should contact the Director of Public Works at 907-581-1260.

4.4 DOCUMENT REQUIREMENTS

One (1) copy of the Statement of Qualifications must be submitted in an electronic PDF file less than 5 megabytes in size, organized with bookmarks, and printable to standard 8.5" x 11" and 11" x 17" paper.

Our intent is that the preparation and review of an RFQ is not an onerous task. So the recommended size of the Statement of Qualifications is about 3-5 pages not including resumes.

5.0 EVALUATION FACTORS

The purpose of the Statement of Qualifications is to evaluate each Respondent's capabilities for efficient execution of the Project. Evaluation criteria and weight are as follows.

Major Factor	Weight
1. Professional Qualifications	[40]
2. Experience and References	[30]
3. Narrative	[30]
Total	**[100]**

The Evaluation Team will rank each Respondent using a successive integer ranking system for each major factor. An Evaluator Score for each Respondent will be calculated.

$100 – ((\text{Ranking}_1 \text{ x } \% \text{ Weight}_1 + \text{Ranking}_2 \text{ x } \% \text{ Weight}_2 + \text{Ranking}_3 \text{ x } \% \text{ Weight}_3)\text{-}1) \text{ x } 5$

The Total Score for each Respondent is an average of all of the Evaluator Scores.

The *Evaluation Score Sheet* will be used by the Evaluation Team to score each Statement of Qualifications; **Attachment C**.

5.1 PROFESSIONAL QUALIFICATIONS

The Professional Qualifications section should include:

- A brief description of the number, qualifications and types of key personnel who would serve on this Project including employees and potential subcontractors.
- Identify and furnish resumes of up to three key personnel and/or subcontractors who will serve in key positions for this project, including specific experience for each person on similar or related projects.
- Billing rates of key personnel in tabular format.

- The location of the home office and the scope of services offered there.

- Any additional information reflecting on the Respondents ability to perform on this Project.

5.2 EXPERIENCE AND REFERENCES

The satisfactory completion of similar projects of equal size and complexity will be an important element in the evaluation.

- Provide information for two (2) projects for which the Respondent has provided services most related to this Project.

- Provide a reference from the above projects that can comment on the firm's professional capabilities and experience. Names, email addresses and phone numbers of individual to contact must be included.

- Provide a sealed sample floor plan and a sheet of details similar to this project that was prepared before 2019.

5.3 NARRATIVE WORK PLAN

Describe the methodology the Respondent will use to complete this Project for the City of Unalaska. The Narrative Work Plan will be developed into the *Scope of Services* referenced within the *Agreement Exhibit "A"*, **Attachment B**. The Narrative Work Plan must not conflict with or supersede the *Agreement;* however, the Respondent should note any potential conflicts they would prefer to negotiate.

Provide information about the Respondents availability to complete the work.

6.0 REFERENCES

The information and descriptions provided are for general informational purposes only and are not a substitute for industry knowledge, site inspection and completion of other necessary due diligence by interested Respondents. Respondents must make their own independent assessment of the conditions and may not rely entirely on any representation, description, or diagram provided by the City of Unalaska in preparing their Proposal. Various references are provided for informational purposes only at the below hyperlink as **Attachment C**.

References

6.1 REFERENCES INCLUDED

These are references we believe are most valuable for basic information needed to evaluate this RFQ.

- Electrical rates and billing for Pyramid WTP.
- Miscellaneous photographs.
- Water System Master Plan, HDR, May 2018.

  Includes a Microturbine analysis.
- SCADA Data and Turbine Model Spreadsheet, City of Unalaska, January 2018.
- Pyramid WTP Record Drawings, Larsen Consulting Group, September 2016.
- Technical Memorandum #2 Pyramid Water Treatment Plant Discharge System Design, Larsen Consulting Group, August 2013.

  CAD files and O&M Manual are available but not provided here.
- Technical Memorandum #1 Pyramid Water Treatment Plant Discharge Study, Larsen Consulting Group, February 2013.
- Inline Turbine for Energy Recovery at the Water Treatment Plant, HDR, May 2009.
- Pyramid Creek Hydroelectric Project Preliminary Design and Permitting Services, HDR, May 1999.

- Rural Hydroelectric Assessment and Development Study, Prepared for the Alaska Department of Community and Regional Affairs, Division of Energy, by Locker Interest LTD, Anchorage, Alaska, August 1997.

- Icy Lake Reservoir, Golder Associates, May 1995.

- Icy Creek Dam and Reservoir Improvements, Wince-Corthell-Bryson, April 1995.

- Icy Creek Power Recovery Study, PolarConsult Alaska, Inc., April 1994.

- Icy Lake Feasibility Study, Golder Associates, July 1994.

- Schedule A Pyramid Creek Waterline Replacement, James M. Montgomery Consulting Engineers, Inc., May 1993.

- Chlorine Contact Reservoir, CH2MHill, August 1992.

The below reports are referenced historically but the City of Unalaska was unable to locate copies.

- Unalaska, Alaska Final Small Hydropower Interim Feasibility Report and Environmental Impact Statement, U.S. Army Corps of Engineers, July 1984.

- Overview Pyramid Creek Hydroelectric Project, Energy Stream, Inc. (ESI), January 1985.

- North Fork Pyramid Creek Hydropower Study, Polarconsult Alaska, January 1993.

- Streamflow Data Report Pyramid Creek Drainage Basin, Carrick and Ireland, August 1996.

ATTACHMENT A

References

ATTACHMENT B

Draft Consulting Services Agreement

ATTACHMENT C

Evaluation Score Sheet

Proposal Evaluation

Pyramid Water Treatment Plant Inline MicroTurbines Design

Technical Attributes	***Weight***	***%***	**A**	**B**	**C**	**D**		
Professional Qualifications	*40*	*40.0%*	100.0	95.0	90.0	85.0		
Experiences and References	*30*	*30.0%*	85.0	90.0	95.0	100.0		
Narrative	*30*	*30.0%*	85.0	95.0	100.0	100.0		
Technical Proposal Raw Score	*100*	--	91.0	93.5	94.5	94.0		
Technical Proposal Adjusted Score	--	*100%*	91.0%	93.5%	94.5%	94.0%		

Enter the Price Proposal (if any) in USD

Cost Attributes	***Weight***	***%***	**A**	**B**	**C**	**D**		
Cost USD	*0*	--						
Price Proposal Score	--	*0%*	0.0%	0.0%	0.0%	0.0%		

Total Score	**91.0%**	**93.5%**	**94.5%**	**94.0%**		
Ranking	**4**	**3**	**1**	**2**		

Proposal Evaluation
Pyramid Water Treatment Plant Inline MicroTurbines Design

For each Technical Attribute rank each Respondent starting with 1,2,3,4,5 and 6 and so forth. 1 is best, 2 is next best, 3 is third best, etc.. Do not skip or repeat numbers.

Attributes	***Weight***	***%***	**A**	**B**	**C**	**D**		
Professional Qualifications	*40*	*40.0%*	1	2	3	4		
Experiences and References	*30*	*30.0%*	4	3	2	1		
Narrative	*30*	*30.0%*	4	2	1	1		

Do not edit. The below calculates the rankings you entered above as a percentage. Each successive rank is a difference of 5%.

Attributes	***Weight***	***%***	**A**	**B**	**C**	**D**		
Professional Qualifications	*40*	*40.0%*	100.0	95.0	90.0	85.0		
Experiences and References	*30*	*30.0%*	85.0	90.0	95.0	100.0		
Narrative	*30*	*30.0%*	85.0	95.0	100.0	100.0		
Total Weight	*100*	*100.0%*	91.0	93.5	94.5	94.0		
Ranking			4	3	1	2		

I certify that I have no conflicts of interest and that I have strictly adhered to the procedures described in the Request for Qualifications.

Evaluator Signature:

Date:

Attachment 3

Scoring of Statements of Qualifications and Interviews

Final Scoring of Statements of Qualifications and Interviews

Post Interview Evaluation Summary
Pyramid Microturbines

Technical Attributes	***Weight***	**%**	**Coffman**	**Rentricity**	**HDR**			
Professional Qualifications	*40*	*40.0%*	91.7	97.5	97.5			
Experience	*15*	*15.0%*	91.7	97.5	97.5			
References	*15*	*15.0%*	92.5	95.8	98.3			
Narrative	*30*	*30.0%*	93.3	97.5	95.8			
Technical Proposal Raw Score	*100*	*--*	92.3	97.3	97.1			
Technical Proposal Adjusted Score	*--*	*100%*	92.3%	97.3%	97.1%			
Technical Proposal Successive Rank Difference	*5%*	*--*	3	1	2			

Enter the Price Proposal (if any) in USD

Cost Attributes	***Weight***	**%**	**Coffman**	**Rentricity**	**HDR**			
Cost USD	*0*	*--*						
Price Proposal Score	*--*	*0%*	0.0%	0.0%	0.0%			
Price Rank	*--*	*--*	1	1	1			
Total Score			**92.3%**	**97.3%**	**97.1%**			
Ranking			**3**	**1**	**2**			

Digitally signed by Robert Lund
DN: cn=Robert Lund, o=Department of Public Works, ou, email=rlund@ci.unalaska.ak.us, c=US
Date: 2019.02.22 13:31:32 -09'00'

Evaluation Summary
Pyramid Microturbines

Initial Scoring of Statements of Qualifications.

Technical Attributes	***Weight***	***%***	**EPS**	**HDR**	**KGS**	**Rentricity**	**Coffman**	
Professional Qualifications	*40*	*40.0%*	90.6	98.1	85.6	85.6	90.0	
Experience	*15*	*15.0%*	83.1	95.0	90.6	90.6	90.6	
References	*15*	*15.0%*	86.9	96.9	85.6	90.0	90.6	
Narrative	*30*	*30.0%*	88.8	93.8	88.1	88.8	90.6	
Technical Proposal Raw Score	*100*	--	88.4	96.2	87.1	88.0	90.4	
Technical Proposal Adjusted Score	--	*100%*	88.4%	96.2%	87.1%	88.0%	90.4%	
Technical Proposal Successive Rank Difference	*5%*	--	3	1	5	4	2	

Enter the Price Proposal (if any) in USD

Cost Attributes	***Weight***	***%***	**EPS**	**HDR**	**KGS**	**Rentricity**	**Coffman**	
Cost USD	*0*	--						
Price Proposal Score	--	*0%*	0.0%	0.0%	0.0%	0.0%	0.0%	
Price Rank	--	--	1	1	1	1	1	
Total Score			**88.4%**	**96.2%**	**87.1%**	**88.0%**	**90.4%**	
Ranking			**3**	**1**	**5**	**4**	**2**	

2/7/19

Attachment 4A
Rentricity

Rentricity Interview Response and Statement of Qualifications

CITY OF UNALASKA
PYRAMID WATER TREATMENT PLANT INLINE MICROTURBINES DESIGN
PROSPECTIVE CONSULTANT INTERVIEWS
FEBRUARY 21ST, 2018

888-363-4734
1258939
2149

I. Introductions:

City of Unalaska:

Tom Cohenour	DPW Director
Dan Winters	DPU Director
JR Pearson	Deputy DPU Director
Jeremiah Kirchhofer	Water Utility Supervisor
Erik Hernandez	Water Utility Operator
Kevin Kloft	Water Utility Operator
Lori Gregory	DPW Admin
Robert Lund	City Engineer
Mark Morrow	Engineering Technician

Consultant: **Rentricity Inc.**

II. Questions:

a) Compare and contrast a similar project you have worked on from scoping and pre-design through construction and final completion. What is something would you do the same and something you do differently on this project?

Rentricity assures active engagement by all stakeholders which maintains continuity (no delays) through all project phases from preliminary design to system start-up, and follow the same functional design approach as outlined in the introductory paragraphs of the Work Plan/Narrative section of our response to the RFQ. The Company's references will confirm this client-centered, active management approach.

Rentricity's has a proven track record of successful project design and implementation as measured by adherence to cost and schedule, power output, system reliability, and effectiveness of problem identification and resolution. All stakeholders have been committed and followed through cooperatively on their actions and responsibilities. The completeness of our design approach has been borne out by highly successful performance and reliability of our commercial projects.

Unalaska has demonstrated its commitment to this project and, if selected, Rentricity looks forward to working with Unalaska to achieve similar results. Some aspects we would reinforce/enhance from some prior projects:

- Added emphasis/proactive support in technical aspects of any electrical interconnect application to the extent it applies to the local utility/grid.
- Required detailed joint review of electrical design/equipment drawings prior to installation, termination and initial checkout by the electrical contractor.
- Onsite presence during construction to assure adherence to drawings and identification and timely resolution of technical or logistical issues as they may arise. This may be of particular importance given the Pyramid site location, communications, etc.

b) Discuss the top 3 critical functions and related control/flow sequences you envision in the current versus future flow scenarios.

The most important critical functions for the hydropower system are to maintain the existing supply and delivery hydraulics, preserve system integrity and reliability of performance following any planned or emergent shutdowns or transients, and provide full remote and local monitoring as well as the option for manual override control of the system at all times by the operations staff.

For the current flow/demand scenario, the normal design setup for a site such as the Pyramid WTF is to place each turbine generator assembly in parallel to the existing PRVs at the plant discharge. Each turbine generator assembly would be inclusive of a properly sized automated inlet control valve with full modulating capability. The turbine generator assemblies would be programmed to start and stop in a lead/lag arrangement with staggered startup and shutdown level permissives. It is expected that the turbines will be two different sizes; respective flow though puts will be different for the same available head. The precise values of the pressure and level permissives and set points are to be determined by analysis during Phase III and tuned for optimization during startup testing.

The PRVs will operate in a standby mode when one or both turbines are meeting the system demand. If demand conditions change, or a grid other system transient occurs tripping one or both of the turbines off line, the PRVs will open to make up for the loss of flow and prevent storage tank draw down. The staggered startup and engaging of turbines compensates for the slower open of the inlet control valves (typically 30 sec) and assures that the PRVs have sufficient time to close and not cause a significant pressure transient in the Pyramid WTF.

An overpressure or surge analysis is typically performed early in the design process to assure that all operating scenarios for start-up or shut down sequences, even under worst case scenarios, do not cause significant pressure transients on the intake or discharge lines reducing transients. Typically, the abrupt loss of grid power would result in the most pronounced pressure transients in the system. The design will provide for overpressure relief should any transient result in a pressure surge that is expected to rise above the design rating of the upstream piping.

All control and protection of the system are driven by signals from a PLC in the integrated electrical control panel. This panel typically includes all switchgear, protective relaying, controls and interface with SCADA.

Status of the system will be available to the operators at all times via mimicked displays in the SCADA system. As an option, the WTF control room operator can have the capability for override control of the system.

Section 2.7 notes that there are some transient demand conditions that challenge the PRVs to respond in a timely fashion and maintain the CT Tank at an even level. An additional concern is the need to preserve 30 psi for the PRVs to function in this arrangement. Locating the turbines in a parallel loop to the PRVs will diminish the ability to generate power.

Our initial recommendation is to situate the turbines/PRVs in a common hydraulic loop where the straight run of supply piping runs to the process loop and raw water discharge line. The turbines/PRV loop will consume essentially all available head other than what is reserved for pressure loss during water processing and that needed to fill the CT Tank up to the high-level set-point. In place of the current PRVs, it would be appropriate to deploy electrically actuated flow control valves. This type will provide granularity in control tank level via responsiveness without the need to reserve pressure to operate.

The future scenario is characterized by total flows that might be as high as 7000 gpm as noted in the RFQ and detailed in the 12/31/2018 version of the Turbine Model. The three main differences between the current and future scenarios are:

1. the allowance (once permits are attained) to utilize excess water solely for generation and expelled through the raw water line,
2. the size and possibly type of turbines used for generation
3. the additional control valve loop(s) to allow effective splitting of the flow without affecting process requirements.

We do not anticipate major issues managing the bifurcation of different amounts of flow into the raw water and process streams simultaneously. Updating net generation profiles based on turbine selection, possible equipment layouts and cost estimates would be part of the Phase II efforts.

Rentricity's energy recovery design goals always emphasize protection of all mechanical & electrical infrastructure and transparency to normal operations.

c) How would you accommodate an emergency such as a fast input requiring diversion and auto flush of 5,000 gpm to discharge due to a turbidity spike or a CT Tank overflow alarm?

Requirement to accommodate an emergency such as a fast input requiring diversion and auto flush (due to turbidity spike, etc.)
In the current flow scenario, downstream pressure will initially drop and the turbines will respond by passing more flow. If the flush demand still exceeds the output of the turbines, the PRV will open and downstream pressure will stabilize to the original set-point. For the future scenario, we would assume that total flow ~ 7000 gpm could be maintained by closing the inlet control valves to the process loop and further opening the inlet control valve to the raw water line. In either case, we would want to assure the opening time for the raw water discharge control valve and closing time of the valves (to isolate the process loop) is gradual enough to minimize any resulting pressure transient. Confirmation of this will be done during Phases II/III.

CT tank overflow alarm
The control strategy for operation of the turbines includes high level limits (different for each turbine). As the level exceeds the pre-set high level limits for each unit (one higher than the other but both values lower than the overflow) a signal in the main control panel will generate a trip of the respective turbine. Auto startup would commence when the condition clears (i.e. CT Tank level reaches a defined low level for each turbine).

d) Discuss the technical possibilities of replacing an existing PRV with a flow control valve or modifying a PRV for "net zero" head loss to control CT Tank Level, or? What are the related permitting challenges?

As outlined in our response to question b above, our initial recommendation is to repurpose the PRVs as part of the turbine hydraulic loop. The 16" PRVs are quite large relative to the minimum flow demands of the WTF (500 gpm). Utilizing the PRVs on the inlet supply line in conjunction with the turbine(s) and deploying electrically actuated flow control valves solves both the pressure reserve/tank level control problem and sets up the WTF to effectively and safely generate the maximum amount of power. This arrangement is similar to the vast majority of facilities we have assessed and supported system upgrades on.

An unofficial opinion from a representative at the ADEC suggests equipment changes of the type being discussed above should not cause any permitting issues. A temporary work permit would likely be required during construction. Finally, this representative's opinion was that any equipment changes should be certified to the NSF-61/372 standards (not simply compliant). This opinion is for current flow demand conditions.

III. Open Discussion:

For almost two decades Unalaska has examined and characterized in detail all of the major pre-requisites for the design and implementation of energy recovery at the Pyramid WTF. With the certainty of defined hydraulic, mechanical, structural and electrical boundary conditions, Rentricity is in an excellent position to design and implement the best solution for current and possibly future plant scenarios.

Rentricity has the breadth of experience in designing and supplying multi-turbine systems in configurations in water treatment facilities or the front end of large storage tanks (3-5 million gallons). Two of these project sites are commercial (part of our reference list in our response to the RFQ) and two others in California and Pennsylvania are fully designed. All of the equipment has been procured by Rentricity for the California project and it is expected to be commercial late this year.

Regardless of the number of conditions or scenarios, our top line functional criteria remain the same; i.e. those characterized in the second paragraph of the Work Plan/Narrative of our response to the RFQ. Most importantly, any added electromechanical system(s) will mimic either current or improved water operations in a protective and transparent manner.

The systems we design (and typically supply at our customers' requests) consider all electrical, controls, SCADA interface, mechanical, overpressure and structural aspects. The controls and valves are integral parts of these systems that are necessary to achieve the functional and detailed design and operational objectives. By way of example, a turbine installed in a loop and tripped for whatever cause will normally over-speed and eventually come to rest after a long and potentially damaging coast down. Rentricity minimizes this problem in the controlled shutdown procedure by the partial closing of the inlet control valve before disengaging the generator. Proper design of an integrated system inclusive of valves, an integrated control package and programmed precise operational sequences will avoid any severe hydraulic or mechanical system transients and allow the facility to continue providing quality water in an uninterrupted fashion.

Rentricity is a design and systems integrator. It is technologically agnostic; seeking to define and implement the best technology solution for a specific range of site conditions and constraints.

Rentricity's response to the interview questions reflect our expectations based on current understanding but further due diligence during the early portion of Phase II may affect some elements of the design.

a) Questions for the City?

Schedule – the narrative section of Rentricity's response included a schedule for Phase II. Does Unalaska have any questions/issues regarding the activities/durations? We would expect a similar duration for Phase III. Is this in line with Unalaska's expectations?

Project Status/Reviews – usually Rentricity conducts weekly progress conference calls during the early phase of a project and depending on extent of issues/resolution might back off to progress calls every other week. Is this acceptable to Unalaska?

Reviews of design at the 10%, 15%, 35%, 65% and 95% level – Usually projects are executed with deliverables at the 35/65/95 % complete level. Rentricity will work with the additional milestones called out in Phases II & III.

Are there any questions regarding Rentricity project team, utilization of resources, interface with Unalaska, etc.?

Does Unalaska require equipment that is independently certified by WQA to NSF to NSF-61/372 or is NSF 61/372 compliance sufficient?

What turbine technologies is Unalaska familiar with?

IV. Schedule:

a) The City will re-score the SOQs by March 1st, 2019 and send the results to respondents the following week.

b) Develop the scope of work for and negotiate fees for City Council award in early April 2019.

rentricity

Rentricity Inc.
Statement of Qualifications for City of Unalaska, Pyramid Water Treatment Plant Inline Micro Turbine Design

Background

Rentricity Inc. (www.rentricity.com) is familiar with the project details and has been in discussions with Unalaska regarding micro turbines since 2009. Rentricity's involvement included a visit to the Pyramid WTP site to better understand site specific challenges. Rentricity was contacted in early 2018 by Clint Huling, provided a Company update and is pleased to respond to the RFQ distribution of November 2018.

Rentricity has carefully analyzed the hydraulic information provided in the RFQ. Based on that data, our unique qualifications, and our familiarity with local site conditions, the Company is highly confident that a system can be designed to economically and efficiently generate electricity over a relatively wide range of flow conditions. Rentricity's design will uniquely and consistently deliver clean renewable power to the City. A detailed assessment of annual power prediction yield will be determined during the Phase II preliminary steps.

Rentricity will be the primary contracting entity for this project and will work in a sub-contracting agreement partnership with Taku,Engineering, LLC (www.takuengineering.com) an Alaska licensed professional engineering firm based in Anchorage. Taku and Rentricity's contractual arrangement will be consistent with the roles and responsibilities outlined in the professional qualifications section below. Given Rentricity's and Taku's combined experience, this proposal provides a logical, incremental and cost effective approach to design engineering, supply, installation support, and startup of an inline micro turbine system.

Professional Qualifications

Rentricity is a privately-owned renewable energy company focused entirely on recovering energy in solid piped water infrastructure from dams through distribution networks and irrigation/industrial systems to wastewater. Our capabilities include complete system/component design, permitting, supply and installation/startup of these energy systems. Our customer base includes investor owned water utilities, large and small cities, irrigation and privately held water systems. Our 12-commercial inline energy recovery projects have been constructed and successfully deployed in the US and Canada (the first was commissioned in 2010). We are actively involved with another 8 similar projects in various stages of permitting, design, and installation. This body of work provides a wealth of experience that is directly applicable to the Pyramid WTP Project.

Rentricity maintains an office in New York City but its biggest assets are its resources that are deployed in Northeastern US as well as independent consultants and partners around the country. These resources are part of or aligned with Rentricity and provide deep knowledge, experience and continuity in applications for energy recovery. We are able to professionally seal our design work in the majority of the US and Canada. We hold IP around our electrical/control system designs and the NSF 61/372 (safe water/low lead) certification of Cornell Pump Company turbines.

Taku Engineering is an Alaskan based and owned multi-discipline small business. Taku has been providing professionally licensed Electrical, Mechanical, Civil/Structural, Process/Chemical, and Materials Engineering design and consulting services in Alaska since 2001. They are a nimble and highly skilled group that is able to efficiently focus on developing engineering solutions for its clients.

Taku's personnel are experienced in all phases of project design and construction including site inspections, conceptual engineering assessments, risk analysis, detailed design, construction oversight, procurement oversight, equipment inspection, functional checkout, system commissioning, system acceptance, project as-builts, and documentation closeout.

The following attributes and competencies of the Rentricity/Taku Team provide Unalaska with the ability to achieve the highest value and lowest risk in bringing the Pyramid WTP inline micro turbine system into commercial operation:

a. Experience in use of a variety of in-line turbines from different suppliers;
b. Large commercial base of operational systems and ongoing project development;
c. Ability to optimally back-fit systems into difficult existing footprints (restricted spaces) w/o need for additional civil construction;
d. Experience in the design and analysis to minimize impact of any transients and supply of overpressure relief as necessary to assure mechanical integrity is not compromised;
e. Utilization of the same project and engineering resources involved in our commercial and ongoing work;
f. Use and adaptation of field-proven mechanical and electrical/control designs; and
g. Use of in-state resources for identification of any unique state requirements, review and final approval/sealing of drawings and documents and ability to provide local installation oversight.

All design work including systems and components drawings, calculations, specifications, and other documentation, as appropriate, will be in-part performed by and in all cases reviewed and approved by a Professional Engineer certified in Alaska. All final designs will be managed from the Taku Engineering offices located in Anchorage, Alaska. Taku's offices are fully staffed with licensed engineers who have a full suite of design software tools. This office will finalize and seal all documentation that will become part of the design record for the project. Taku's resources will also provide an onsite presence for any special meetings & reviews for the project that complement video/web conferencing from Rentricity offices which also includes mechanical, structural and electrical resources with a full suite of software aids including CAD.

Rentricity's project team members, responsibilities and organizational structure is shown in the figure below. These members have been chosen because of their competencies and experience in similar projects. Detailed information regarding their backgrounds and responsibilities for this project are found in biographies below and attached resumes.

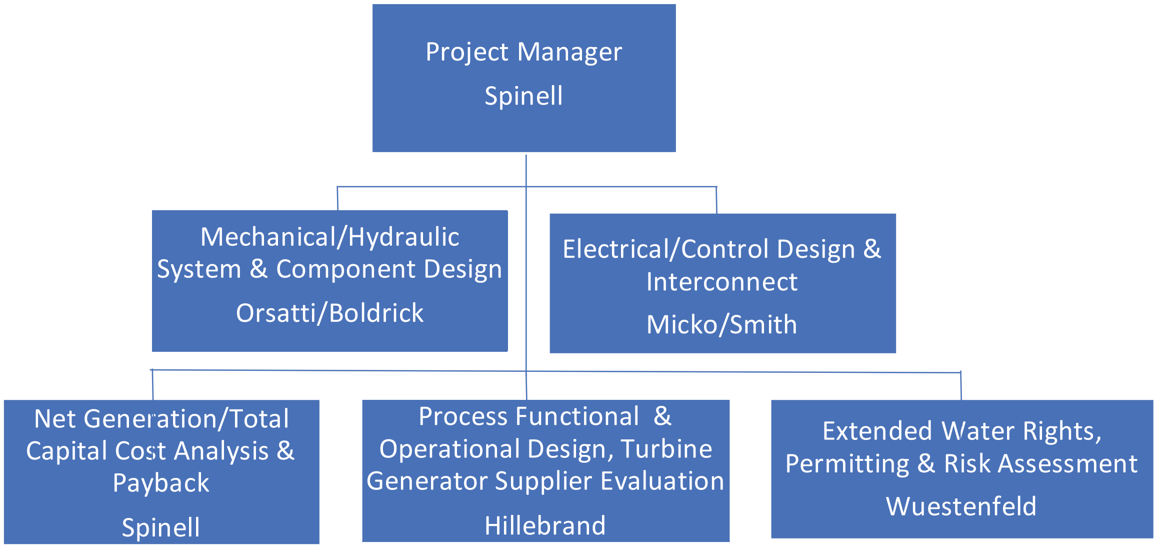
Select Biographies

Mr. Spinell has over 35-years of experience with three world recognized companies in the power and energy sectors; Combustion Engineering, Asea Brown Boveri (ABB), and Westinghouse. Mr. Spinell was an integral part of management teams responsible for design, procurement, and installation of power stations as large as 1100 MW in the US, Asia and Europe. Mr. Spinell joined Rentricity in 2004 as Co-Founder and holds the position of COO/CTO. He has been responsible for all of Rentricity's commercial projects and all of the current projects underway are under his management. Prior to his professional career, he received a B.S. in Engineering from U Mass at Lowell, and M.S. degrees in Engineering and Industrial Management from Purdue University.

Jeremie Smith, PE, PMP is the Principal Electrical Engineer at Taku Engineering, LLC. Mr. Smith will provide electrical engineering services including the review of designs relative to State and local requirements. He has a Bachelor and Master of Science in Electrical Engineering as well as a Master of Science in Engineering Management and is licensed by the State of Alaska to practice Electrical Engineering (AEL E 11789). Mr. Smith has over 14 years of experience including the NSB Microturbine Project (Ongoing, 100% Design Completion in January 2018) and ConocoPhillips Alaska, Inc. (CPAI)– Alpine Power Expansion (30MW)

Mr. Zach Boldrick, PE is the Senior Mechanical Engineer at Taku. Mr. Boldrick will provide mechanical engineering services including review of designs relative to State and local requirements. Mr. Boldrick has a Bachelor of Science in Mechanical Engineering and is a licensed Mechanical Engineer in the State of Alaska. Zach has a diverse mechanical engineering background that has spanned multiple states and included the mechanical design for projects from large scale energy (e.g. Walakpa-Microturbine project), and industrial facilities to marine header pipelines. Zach routinely designed HVAC, plumbing, water/wastewater and light commercial buildings in developed and rural Alaska.

Mark Wuestenfeld will provide permitting support for this effort. Matt is familiar with the regulators in Alaska and understands the logistical challenges of designing and executing projects in remote locations. Mr. Wuestenfeld has been a Project Engineer with Taku Engineering, LLC since 2012. Matt has extensive experience with the Alaska regulatory bodies through his support of the Barrow Gas Field, Nuiqsut Transmission Line and the Department of Public Works.



Team Menber Rate Schedule	
Name	**Rate/hr**
Hillebrand	200
Micko	215
Orsatti	225
Smith	208
Boldrick	178
Wuestenfeld	178
Spinell	250

Experiences and References

1. City of Keene, NH – Commissioned April 2011

One of Rentricity's first commercial installations installed April 2011- dual turbine 62 kW energy recovery system for the City of Keene, NH. The project is located in parallel to an existing PRV within the City's main Water Treatment Facility. Rentricity provided a full suite of engineering services including all design (drawing attached) procurement, installation and startup oversight on behalf of the City. The City of Keene WTP is now completely energy neutral at the WTP. The power is net-metered to Public Service of New Hampshire's grid. This project was nominated as a "technology project of the year" for the 2012 American Water Summit and has been highlighted as a best practice by industry observers.

The system is controlled entirely from the operator's console in the control room. All operational and performance information is integrated into the existing SCADA network. There are two Cornell turbines (4TR3 and 5TR3), each close coupled to a Marathon electric induction generator. The combined system generates between 20 and 60 kw depending on WTP flow rate. The units operate seamlessly and in parallel to the existing PRV.

Reference contact: Donna Hanscom, Asst. Director of Water Resources
dhanscom@ci.keene.nh.us 603-352-6550

2. Richmond Irrigation Company, Richmond, UT – Commissioned June 2017

The Richmond Irrigation Company (Utah) commissioned Rentricity to effect energy recovery as part of a capital improvement project to eliminate evaporation in their drought stricken area while also providing a flood control capability brought on by extreme downpours. Rentricity designed and installed turbine generator assemblies at two sites, inclusive of piping, fittings, control valves, and electrical control panels. The first site consists of two turbine generator assemblies in parallel to a pressure reducing valve and a surge release valve. This site aims to maintain the discharge head or pressure. The maximum differential head is about 177 feet, and the two turbines can each produce up to 120 kW of power with flows of about 8 CFS. The second site consists of a single turbine generator assembly parallel to a combination flow control/ surge relief valve. This system aims to maintain flow at a set rate. The differential head is about 260 feet, and the turbine can produce about 120 kw of power with a flow of about 6 CFS. Power from both sites is exported (net metered) to the electrical utility (Rocky Mountain Power) grid.

Reference contact: On behalf of RIC - Eric Franson, Managing Partner, Franson Civil Engineers American Fork, UT 801-592-3224 (c); 801-756-0309 (o) efranson@fransoncivil.com

3. North Slope Borough (NSB) Micro-turbine Project, Design Completion February 2018

The North Slope Borough's (NSB) remote Walakpa Gas Field (Walakpa) is currently powered by three 125kW Waukesha generators that have reached end of life and need to be replaced. Walakpa is a remote natural gas consolidation site located approximately 25 miles southwest of Barrow (Utqiaġvik), AK. The NSB has decided to replace the three generators with three Capstone Turbines C65 65kW Microturbine

Generators. Through a competitive bid, Taku Engineering, LLC (Taku) was selected to complete the engineering design package for the NSB Barrow Gas Field Microturbine Project. The design is complete and the implementation contractor has been selected for this project. Implementation will commence around January, 2019. Taku Engineering will provide construction administration support for the NSB on this project.

Reference/Contact: Melissa Bynum NSB-CIPM 1274 Ogvik St. Barrow, AK 99723 Phone: 907-852-0489, melissa.bynum@north-slope.org

Work Plan/Project Narrative

Rentricity's typical project approach is consistent with the framework and work scope defined by Unalaska in the RFQ. A top-level schedule below provides required breakpoints for review and approval of submittals as supplemented by periodic project update video/web conference calls.

In order to achieve an installation that is technologically and economically viable, Rentricity will follow the top-level priorities listed below. This listing forms the core of our Functional Design Specification.

a. Maximize the potential for power generation;
b. Achieve a high level of system/component reliability Be totally transparent & protective to water supply operations (i.e. cause no physical impact on the site facilities or affect reliability of water supply operations;
c. Supplying equipment including the turbine generators that has a reliable track record to maximize long term energy production;
d. Highest standards for the design and supply of electrical equipment consistent with the NEC, utility interconnect standards, and UL-508A (design and fabrication);
e. Assure continuous water supply in the event that one or more of the turbine generators is shut down for maintenance or as a result of transients such as grid perturbations; and
f. Optimize footprint of system to eliminate the need for civil construction (installation only).

Rentricity has reviewed the RFQ requirements in Section 2 and the references in Section 6. Of particular focus in the reference list were the following documents; Inline Turbine for Energy Recovery at the WTP (HDR, 2009), Water System Master Plan (HDR, 2918), and Pyramid WTP Record Drawings (Larsen, 2016). This documentation, supplemented by the findings from on-site visit and kick-off meeting by the design team, will allow the design process to proceed with a minimum number of uncertainties.

The top-level schedule reflects a reasonable and prudent amount of time to support the evolution of the (Phase II) Pre-Design Scoping Study as detailed in Section 2.0, with accommodation for review and comment by all stakeholders. The critical path in Phase II is evaluating all turbine generator options and selecting the unit(s) that can achieve the highest total annual projected output while minimizing its WTP footprint and system cost. Rentricity has worked with suppliers whose equipment should be actively considered.

Rentricity believes that there are at least three viable types of turbine generator assemblies from US-based suppliers that should be assessed for this project. Our knowledge of the equipment and relationships with the suppliers will allow for rapid technical, cost and mechanical evaluation against both historical water usage and targeted additional water usage. Phase II includes an assessment of the additional permits needed to utilize water rights beyond those for supply of Unalaska's drinking water demands. This assessment will review the requirements, time-line and risks of each type listed in Section 2.1 on Page 2.9 of the RFQ. We believe that the selection of the turbine generator supplier will not be greatly impacted by additional water rights usage assessments or timing. The estimated investment paybacks will be generated based on the various system capacities.

In all cases, the turbine generator(s) coupled with appropriate isolation, control, and relief valves, will be configured to be hydraulically connected in parallel with the existing PRVs. Confirmation will be made of proper setup and response time of the PRVs to preserve required backpressure in order to maintain storage tank level and dynamic response to system demands/transients.

The system design will accommodate all planned and unforeseen transients originating from all sources, which is critical to maintaining mechanical integrity. Our approach includes a full hydraulic analysis including design pressure ratings on existing equipment. The system design will offset the impact of these transients through the use of integrated control and valve response. An additional measure of safety will be achieved by including overpressure relief to assures protection against multiple independent single failures. Most of Rentricity's systems have this added level of safety.

The overall Phase II timeframe below would accommodate timely progression to Phase III (Design) and Phase IV (Construction Services) to allow for installation and commissioning by June 2020. Our experience indicates this is a prudent and conservative schedule that accommodates contingency and risk allowance during Phases II and III. However, there are options that could potentially shorten the overall schedule and may allow for install/startup in as early as December 2019. These options can be discussed further during the kickoff meetings.

Rentricity has a broad database of system, equipment, installation cost and schedule envelopes it uses to develop or update capital costs. We will adjust this database to accommodate work in Unalaska to customize the economics for each option. Site specifics will include alternatives as required so as not to interfere with water supply, siting of cabinets, routing of conduit, etc.

Timeline: Phase II – Pre-design Scoping - 4 months (16 weeks)

2.5 weeks:

- Review Phase I (Feasibility Study) materials and historical materials and documentation
- Draft Functional Specification Document
- Site visit and kickoff meeting (two people, two days inclusive of video conference)
- Edit project schedule, deliverables, and communication plan; e.g. type/frequency of update sessions and action Items

3.5 weeks:

- Conceptual design, equipment & vendor recommendations with sizing of turbine(s)
- Projection of annual power production based on historical data and selected current turbine options/performance curves
- Draft Operational and Sequence of Events Document
- Initial review & assessment of requirements for permitting of water rights for generation

3 weeks:

- Recommendations for equipment siting within WTP, inclusive of control panel and intertie to the WTP switchgear and power grid
- Preliminary mechanical and electrical design, inclusive of construction cost estimates
- Recommendations for future (optional) expansion to accommodate untreated water flow
- Draft turbine generator specification

2 weeks:

- 10% level project review by City, followed by video/web conference call

2 weeks:

- Preparation and submittal of summary report, inclusive of 15% design plans
- Review of requisite permits and recommendations, with conference calls as needed
- Update Functional Specification document & Operational/Sequence Events document.

3 weeks:

- 15% level project review by City, followed by video/web conference call
- Revisions to 15% level project review documentation and recommendations for Phase III (all materials to be submitted as PDF files and four bound hardcopies

Bob Orsatti, P.E.

Senior Process Mechanical Engineer

Mr. Orsatti has more than 39 years of experience in the planning, design, and construction of water and wastewater infrastructure for the federal government, municipalities, and private industry. His expertise also includes facilities evaluations, condition assessments, energy assessments, and value engineering. During his career as a registered professional engineer, Bob has served as the Engineer of Record on more than $500M in water & wastewater facilities improvements.

His water and wastewater technical capabilities span an extensive array of projects including many miles of gravity and pressure pipelines; and numerous water and wastewater pumping stations. He has also designed many water and wastewater treatment facilities from small, 20,000-gpd sites to large regional municipal plants in excess of 50-mgd. His construction phase experience includes full construction administration, equipment startup, operator training, and facilities commissioning. Bob maintains responsible charge of all water/wastewater engineering in Colorado for Lamp Rynearson, Inc. including technical reports, cost estimating, construction drawings, project manuals and specifications.

A significant component of Bob's experience has come from designing and building water and wastewater facilities in cold, alpine conditions, with short construction seasons and minimal logistical support. His passion is bringing together diverse stakeholders and creating solutions to challenging technical conditions by applying state of the practice technology, innovation and energy efficiency. He understands that active stakeholder collaboration is the foundation to any successful infrastructure project. Listed below are several examples of award-winning water and wastewater infrastructure projects completed by Mr. Orsatti.

Education

BS Environmental Engineering – Rensselaer Polytechnic Institute

Licensing

- Registered Professional Engineer in Colorado, Georgia, Idaho, New Mexico, Arizona

Professional Affiliations

- American Water Works Association
- Water Environmental Federation
- American Public Works Association

Project Experience

Manitou Springs WTP Hydropower Project

City of Manitou Springs, Colorado

Rentricity's Lead Mechanical Engineer for the planning & design of a 175 KW hydroelectric power generation facility. Work included project conceptualization, alternatives analysis and design of pump as turbine power generation facility within an existing water treatment plant. With the City constructing a new raw water pipeline to the WTP, Bob represented Rentricity's local technical representation in the development of design alternatives for the facilities construction. An innovative approach employed the construction of a raised platform within the WTP to make use of unused space and provide above ground, all weather access for operation and maintenance without the requirement to construct additional building improvements. Project elements included new Cornell Pump as Turbine (PAT) with associated electrical power and control equipment, automated pressure reducing valve and automated raw water screening equipment

Nederland Advanced Wastewater Treatment Plant

Town of Nederland, Colorado

Project Manager and Principal in Charge of the design and construction for a new 0.5 MGD advanced WWTP that discharges into Barker Reservoir, a drinking water supply for the City of Boulder. Innovative design and delivery approach acquired "Green Funding" at 0% interest from Colorado SRF. Project included new headworks facility followed by an advanced sequencing batch reactor process tuned for maximum nutrient removal and energy recovery. Final advanced treatment employed continuous backwashing filers for suspended solids and metals removal. Disinfection prior to discharge utilizes on-site Hypochlorite generation. Project was awarded the ACEC Excellence Award, its highest honor for outstanding Colorado project of the year. Value added design elements included conversion of the reclaimed site to an outdoor lakeside entertainment venue for the Town and geothermal preheating of headworks ventilation.

Avon Water Treatment Plant Expansion

Upper Eagle Region Water Authority, Vail, Colorado

Project Manager for planning, design, and construction of surface water treatment plant expansion to 10 MGD. Project included 10 MGD raw water pump station, surface water intake structure, and 1.8 miles of 36" raw water pipeline improvements. Treatment improvements included new ozone contact basins, influent flow control, four new chemical storage and feed systems, flocculation tanks, sedimentation basins, multimedia rapid sand filters, and a backwash reclaim system. Building improvements entailed a new SCADA control system, laboratory, and administrative area. Duties included project and client management, coordination of all sub-consultants, civil and hydraulics engineering design. Construction cost was $8.2 million.

Canyon Village AWT Plant

Yellowstone Nation Park, Wyoming

As Project Manager, Mr. Orsatti led the design of a 0.5-mgd facility to replace a 20-year old package plant. The new facility used a conventional three-stage aerated lagoon system followed by chemical addition, flocculation, and sedimentation. Multimedia filters provided final advanced treatment; followed by disinfection prior to discharge into the Grand Canyon of the Yellowstone River immediately below Tower Falls. Treatment process achieved Title 22 water quality standards for non-potable reuse. Programmable logic control was tied into a microcomputer-based SCADA system to provide remote plant monitoring automatic plant control. All infrastructure was designed on the site to be visually screened from public view and hidden in the natural landscape on the canyon rim. Design and construction required heavy consideration of long-term cold weather operation & maintenance.

Raw Water Pump Station Improvements

Pueblo West Metropolitan District, Pueblo West, CO

Project and Client Manager for the planning, design and construction of pump station expansion to 35MGD. Project elements included providing a hydraulic and piping design capacity of 35 MGD at 350 psi maximum design pressure, and preparing construction documents for a pumping capacity to 30 MGD. The planning and design efforts included fail-safe surge abatement, high pressure piping and equipment design, and construction sequencing to maintain full pumping capacity during construction. Also provided was the existing building rehabilitation design, including all new HVAC, lighting, emergency power generation, SCADA communication with the treatment plant and pipeline freeze protection. Approximate construction cost was $11.9 million.

Raw Water River Intake, Pump Station & Pipeline

Town of Kremmling, CO

Project Manager for the planning, design and construction of a new raw water supply delivery system. Specific project elements included a 4.0 MGD buried intake gallery in the Colorado River, raw water pump station and approximately 14,000-feet of 16" transmission pipeline to the existing treatment plant. Scope of work included site planning of all infrastructure components, intake gallery, pump station & pipeline design, architectural, civil and electrical power engineering design, including instrumentation and control, pump selection, construction document preparation, permitting, bidding and construction phase services. Approximate construction cost was $3.1 million

Marty J. Micko, PE

Senior Electrical Engineer

Steel Nation Inc.

2016 - present

Education

B.S. Electrical Engineering Technology

University of Pittsburgh at Johnstown

Professional Registration:
Pennsylvania, Idaho, Maryland, Utah, Vermont, West Virginia, Colorado, and Ohio

Vice President of Electrical Engineering at Steel Nation Engineering, Inc. and serves as a Project Engineer for various projects.

Professional Experience

- Practiced electrical engineering for 26 years at which time he had been responsible for engineering, design and commissioning of power distribution, lighting, process controls, system integration and emergency power systems.
- Over 7 years spent in the construction field performing hands-on electrical testing and commissioning.
- Other duties include: conceptual design, analysis, specifications, shop drawing approval, bid evaluation and final project checkout.

Project Experience

- **Rentricity Projects**
  Served as lead electrical engineer on 10 commerical projects (beginning in 2009). Also eight ongoing projects under development and installation including 2 two turbine designs in CA and PA, Services have included preliminary and final design of all site systems and equipment, technical equipment specifications, and technical content of interconnect applications with electric utilities. Also an integral part of the startup team that was on site to successfully commission each unit.

  Mr. Micko's experience has led to a number of incremental design and performance improvements that have allowed Rentricity's designs to extend the performance of pumps as turbines over a wider range of hydraulics; thereby increasing overall net annual generation and improved payback.

- **Municipal Authority of the City of McKeesport**
  Double-ended 4,000A electrical service with complete 480 VAC plant distribution system

- **Kiski Valley Water Pollution Control Authority**
  Electrical distribution system, 350 hp VFD-driven raw sewage pumps and three 600 kW emergency standby diesel generators

- **Rostraver Township Sewage Authority**
  Wastewater treatment plant protective device coordination study

- **Authority of the Borough of Charleroi**
  17 cellular based remote terminal control units

- **Erie Water Works**
  Arc flash hazard analysis study for nine facilities

- **City of Cumberland Maryland**
  24 radio-based monitoring and control units

- **Borough of Rouseville**

Education

B.E. Engineering
Stony Brook University

M.S. Engineering Geoscience:
University of California, Berkeley

Perform preliminary assessments of potential for power generation and revenue to be realized by installation of Rentricity “Flow to Wire” technology at client sites.

· Prepare proposals for Feasibility studies and needs assessments, proposal and contract preparation, contract negotiations

· Project manager for all stages of project development and execution, from preliminary and detailed design phases through procurement and installation and site acceptance testing. Responsibilities include project planning, identification of objectives and operational constrictions, coordination of tasks, information gathering, and design functions between all parties (client, mechanical/civil contractor, electrical engineering contractor)

Managing client relations at all stages

Cary Hillebrand

Regional Director and Project Manager
Rentricity, Inc.
2008 – Present

Project Experience

As project manager for Rentricity, Cary has responsibility for coordinating all phases of project development from functional through detailed design, equipment selection and procurement, installation, system startup and training as well as post installation support.

Mr. Hillebrand has worked closely with several turbine generator equipment suppliers for over a decade; particularly Cornell Pump Company, focusing on all aspects of mechanical design, ease of application, and overall performance. This experience has afforded Rentricity to seamlessly integrate robust, high quality turbine generator designs into optimized solutions.

Representative Rentricity Projects

Manitou Springs, CO

Preliminary assessment and design of a complete in-pipe system at the front end of the City’s main WTP. Preliminary design completed 1/18. Completion and implementation of design expected 12/19.

Richmond Irrigation Company, Utah

Two site, three turbine generator systems, up to 360 KW power production, export to grid

Halifax Water, Nova Scotia, Canada

Installation of 32 KW turbine generator within flow control chamber, Generated power exported to grid. Energy recovery control system integrated with Halifax Water’s SCADA system.

City of Keene, New Hampshire

Installation of two turbine generators (22 KW and 40 KW) in parallel to raw water input PRV at intake to water treatment facility. Capacity to regulate water input flow into WTF filter trains by operation of either turbine or both in parallel. Power used behind the meter.

Previous Professional Experience

Regional Manager, North America

Peak-Dynamics Ltd.

Product development, business development, and project support for energy management and optimization system serving the water utility sector in the US and Canada. For water utilities, energy costs are typically the largest operational expense. Peak-Dynamic addresses this growing financial strain through development of a dedicated energy management system, PeakWater, for real time optimization of pump scheduling within municipal and regional potable water treatment and distribution systems, PeakWater integrates with the utility's process monitoring and control system to optimize pump scheduling, minimizing electrical power costs while maintaining production requirements and assuring operational constraints.

Regional Manager (North America)

Derceto Inc.

North American representative for Derceto, a New Zealand based consultancy. Derceto had developed a real time energy management system.

Managed preparation and delivery of feasibility studies for clients in the United States, Canada, and England. Scope of the feasibility studies generally included reviewing the clients existing infrastructure, operational requirements and limitations, and energy costs, and estimating the projected cost savings as well as identifying operational benefits to be gained through operation of Derceto, as well as the projected scope and cost of implementation.

Participated in project teams to prepare detailed analysis and design studies for clients as well as managing client relations at all stages.

Representative Rentricity Projects (Cont).

Municipal Authority of Westmoreland County, Pennsylvania

Installation of single 32 KW turbine generator to recover energy at gravity fed raw water mandated discharge point. Power produced used behind the meter at adjoining water treatment plant. Control panel accommodates future integration to MAWC SCADA.

Pennsylvania American Water Company, Butler, Pennsylvania

Installation of single 32 KW turbine generator in parallel to flow control valve on gravity feed raw water input line to water treatment plant. Power produced used behind the meter at the plant. Control panel accommodes monitoring and control integration with WTP SCADA system.

rentricity

KEENE WTP PROCESS PIPING ISOMETRIC VIEW DESCRIPTION

Rentricity installed an in-pipe hydropower system in parallel to the existing PRV inside the City of Keene, NH. Water Treatment Plant (WTP). The system went into commercial operation in 2011. Because of the significant range in diurnal flows, the in-pipe hydropower system consists of two turbine generators with different capacities in order to maintain continuous operation during all flow and pressure differential ranges. The in-pipe hydropower system also consists of control and surge relief valves, associated electrical controls and water process controls.

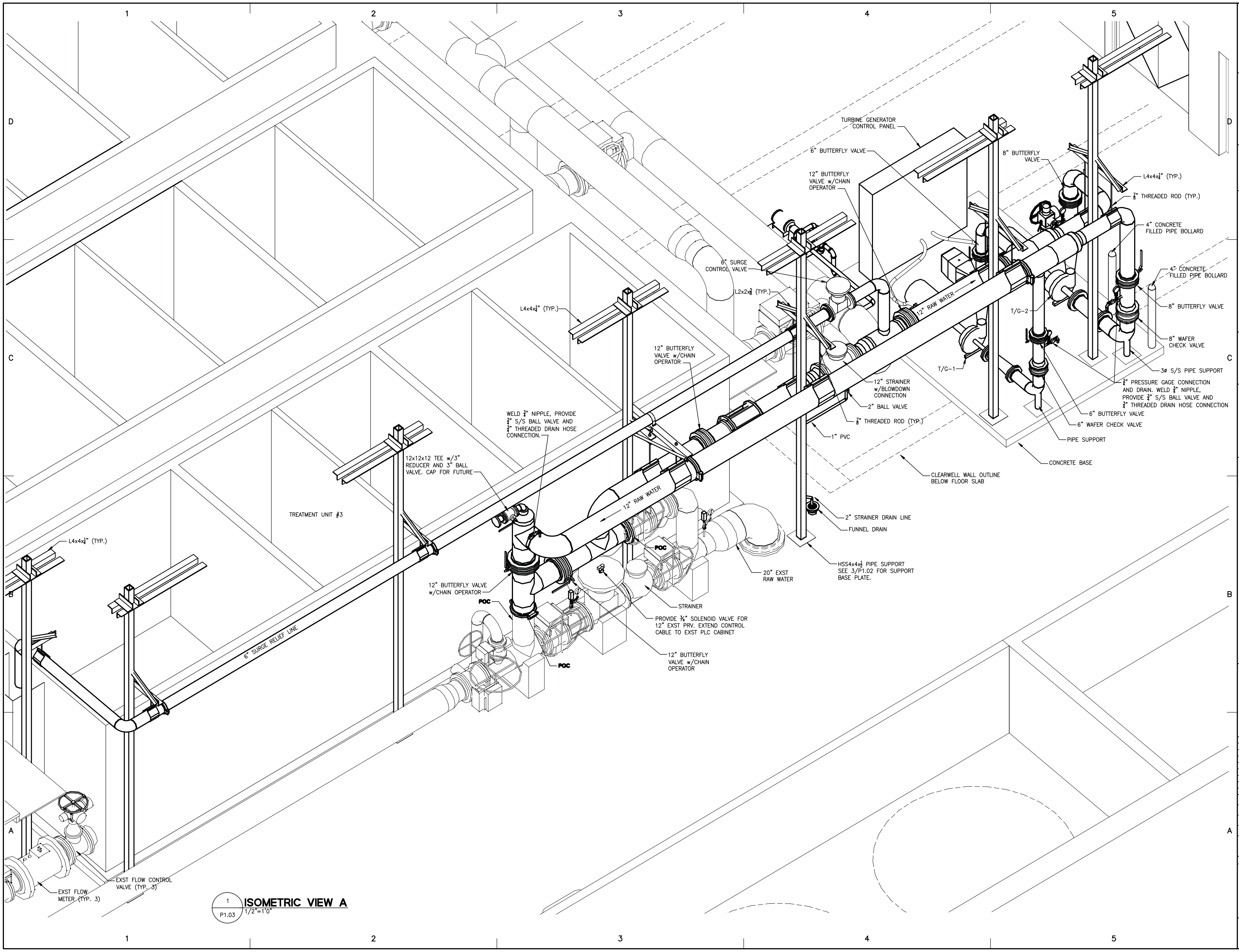
Rentricity’s design maximizes flexibility in operations while maintaining complete transparency to the City’s primary mission – providing safe, reliable drinking water. The operating ranges of the system includes:

- Turbine Generator 1 at 190-196 feet differential-head around 700 GPM generating 17-18 kW power;
- Turbine Generator 2 at 190-196 feet differential-head around 1400 GPM, generating 36 - 38 kW power;
- Turbine Generators 1 and 2 operating in parallel at 176-189 feet differential head and around 2100 GPM, generating 50 to 55 kW power;
- Either one or both of the turbines operating in combination with the PRV; or both turbines non-operational with pressure reduction through the PRV.
- Full automation through SCADA, switching between scenarios seamlessly as flow rates change. All electrical, hydraulic data, and turbine generator status are also monitored providing Keene with the real-time operation information.

The layout of the system as back-fit in the WTP is shown in the attached three-dimensional sealed layout/isometric drawing. Keene required a clear access way for utility forklifts to operate adjacent to existing flow control & PRV valves. Accordingly, the turbine generators and electrical/control panels were located in another nearby location.

Start-up of either one or both turbine generators can be initiated either by operator selection through SCADA or local control panel. Shutdown can be initiated by operator keyboard control (through SCADA), local control panel, or automated by protective devices during various upset conditions such as loss of utility power, voltage surges, etc., or switching between turbine generator and PRV combination listed above according to flow rate. A surge release valve operates in accordance with local conditions to prevent overpressure or water hammer effects in the event of a rapid unplanned turbine shut down. Surge release discharges into a waste drop box that in turn drains into the recycled water storage tanks.

A switchgear cabinet was installed inside the electrical room for interconnect to the water treatment facility’s electrical distribution system in accordance with the Public Service Company of New Hampshire (PSNH) cogeneration interconnection and net metering requirements.



ISOMETRIC VIEW A

1/2"=1'0"

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MJ Project No. : 17395.00

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENCED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION

PROJECT

CITY OF KEENE
WATER TREATMENT FACILITY
ENERGY RECOVERY PROJECT
555 Roxbury Street
Keene, NH

OWNER

CITY OF KEENE
3 Washington Street
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TEL (603) 352-0133
http://www.ci.keene.nh.us

STATE OF NEW HAMPSHIRE
American Recovery and Reinvestment Act

ABBREVIATION LIST	
POC	POINT OF CONNECTION
EXST	EXISTING
T/G	TURBINE GENERATOR
TYP.	TYPICAL
PRV	PRESSURE REDUCING VALVE
PIT	PRESSURE INDICATING TRANSMITTER

SEAL

DONALD P. HARRIS No. 11636

MARK	DATE	DESCRIPTION
4	10/28/09	CONSTRUCTION DOCUMENTS
3	10/23/09	90% DESIGN SUBMISSION
2	09/25/09	50% DESIGN SUBMISSION
1	08/28/09	PRELIMINARY SUBMISSION

PROJECT NO: 17395.00
CAD DWG FILE: P1.03 PROCESS PIPING ISOMETRIC VIEW A.DWG
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CHK'D BY: ####
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SHEET TITLE

PROCESS PIPING ISOMETRIC VIEW A

P1.03

SHEET – OF 3

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Attachment 4B
HDR

HDR Interview Response and Statement of Qualifications

CITY OF UNALASKA
PYRAMID WATER TREATMENT PLANT INLINE MICROTURBINES DESIGN
PROSPECTIVE CONSULTANT INTERVIEWS
FEBRUARY 21ST, 2018

888-363-4734
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I. Introductions:

City of Unalaska:

Tom Cohenour	DPW Director
Dan Winters	DPU Director
JR Pearson	Deputy DPU Director
Jeremiah Kirchhofer	Water Utility Supervisor
Erik Hernandez	Water Utility Operator
Kevin Kloft	Water Utility Operator
Lori Gregory	DPW Admin
Robert Lund	City Engineer
Mark Morrow	Engineering Technician

Consultant: HDR

II. Questions:

a) Compare and contrast a similar project you have worked on from scoping and pre-design through construction and final completion. What is something would you do the same and something you do differently on this project?

HDR completed a 240 kW energy recovery project in 2018 for the City of Sheridan, WY on the raw water supply to the City's water treatment facility. The Sheridan project is a grid parallel design where the City sells power produced to the local utility. HDR was involved with the Sheridan project from conceptual design, FERC conduit permit support, interface with Wyoming DEQ, project support for the Power Purchase Agreement and Interconnection Agreement with the local utility, final project design, bid document preparation, bid support, grant funding support, construction support, SCADA integration with the water plant and startup/commissioning. The HDR team brings this recent, direct energy recovery experience to the Unalaska Pyramid project.

The total system flow on the Sheridan water project was comparable and the maximum new head on the Sheridan micro turbine was significantly higher than the Pyramid location (about 370 feet of net head at Sheridan versus about 180 ft for Pyramid).

HDR developed a system design that retained the full capability of the existing PRVs and added a new energy recovery turbine in parallel with the existing PRVs for system operation. For final design HDR located a turbine manufacturer who could supply a single Francis turbine that could replace two smaller pump derivative turbines. This saved space and optimized system performance. Similarly HDR will work to optimize the turbine selection and system operation for Pyramid project.

Relative to things to do differently, HDR would have pushed for earlier finalization of project objectives, scope and layout with all parties. Here are a few examples from Sheridan:

1) *Operations Review - Operations and operations staff were apparently not involved in reviewing the conceptual layout we had submitted a year before. Before starting detailed design we did a review of the conceptual layout with a walk-through of the facility with the City's engineering and O/M staff. We made several changes from the conceptual layout including a separate above ground electrical / controls enclosure rather than install this equipment in the vault. We also relocated of the turbine / generator since we had more space available.*
2) *Extra System Modifications - The City wanted to include replacement of current system isolation valves and other system maintenance modifications into the final scope. Again we accommodated but this came up midway in the process.*
3) *Electrical System - On the electrical side the local Wyoming utility, MDU, wanted system changes that came out during the PPA and interconnection discussions. MDU already had a supply meter for vault service. We expected to add a separate meter for power generation. MDU wanted to utilize a single meter with facility consumption and generation being net metered at one point with net generation power sold to MDU. Because of the voltage difference we had to add a service transformer and add additional vault electrical work into the project. MDU also wanted additional unit metering and SCADA feedback which we accommodated in partnership with the turbine / generator equipment supplier. Again we accommodated but this request but it came up midway in the process.*

b) Discuss the top 3 critical functions and related control/flow sequences you envision in the current versus and flow scenarios.

3 Critical Functions:

1) *There is little buffer capacity in the CT tank, so the turbine and PRV system will need to be fast-acting to respond to rapid changes in flow, and to some extent head.*

2) *Flushing function. The new systems need to accommodate flushing of settled turbidity out of the raw water pipe from the reservoir.*
3) *There is a wide range of potable water demand on the Pyramid WTP, so the new systems need to accommodate a wide range of flow.*

c) How would you accommodate an emergency such as a fast input requiring diversion and auto flush of 5,000 gpm to discharge due to a turbidity spike or a CT Tank overflow alarm?

We would install a downstream turbine discharge bypass for this case so that you could continue to generate even though the flow through the water treatment systems would be shut down.

d) Discuss the technical possibilities of replacing an existing PRV with a flow control valve or modifying a PRV for "net zero" head loss to control CT Tank Level, or? What are the related permitting challenges?

PRVs need at least some line pressure in order to function properly. If the turbine is extracting all of the energy (pressure) out of the downstream pipe then the PRVs won't work properly. Therefore you want a PRV system downstream that can allow zero pressure loss when operating on the turbine. This can be accommodated with the right combination of pilot systems and electrical controls on the existing PRVs.

HDR could also evaluate relocating the PRV to the "Hard Bypass" pipe (as shown on the City's conceptual sketch) so that the PRV is piped in parallel with the two turbines shown. The PRV would be installed just downstream of the MOV shown on the "Hard Bypass" pipe. This arrangement would allow the PRV to handle rapid changes in flow so that the turbines can run at a steadier rate. The challenge with this option would be keeping the CT tank level at least about 310' to keep the WTP pipes flooded.

Permitting Challenges:
- *All work subject to ADEC Drinking Water Plan Approval*
- *FERC conduit exemption*
- *Change in pressure through treatment systems could require modifications to prevent backflow and to ensure that the chlorine injection system will still work*
- *Disposal of additional bypass water beyond what is currently permitted for turbidity flushing would require an APDES permit modification.*

III. Open Discussion:

a) Questions for the City?

   1. *What is status of the Captains Bay Road Water Main project?*

   2. *The RFQ indicates the City wants a 34.5 kV distribution interconnect with net metering for the hydroelectric generator. Similarly, we connected to a high voltage distribution system at Sheridan. You have to include a capacitor bank for power factor connection and appropriate relaying (similar at Sheridan). Is the City aware of the significant challenges and costs associated with tying the Pyramid WTP hydroelectric generator directly into a 34.5 kV system? For the 100 kW of expected output this seems unnecessarily complex. Will City Electrical division staff be included in the design process?*

IV. Schedule:

a) The City will re-score the SOQs by March 1st, 2019 and send the results to respondents the following week.

b) Develop the scope of work for and negotiate fees for City Council award in early April 2019.

January 17
2019

Statement of Qualifications

Pyramid Water Treatment Plant Inline MicroTurbines Design

DPU Project No. 17401

City of Unalaska, Alaska
Department of Public Works

HDR

Table of Contents

A. HDR's Professional Qualifications

HDR is a global firm with 10,000 employees in 225 locations throughout the world, with approximately 350 working in the hydropower industry. HDR started in Alaska as a water resources engineering practice in 1979, and we are known in this state for small hydroelectric feasibility studies, design, and permitting. Examples include Delta Creek (King Cove), Waterfall Creek (King Cove), Tazimina (INNEC), Gartina Creek (IPEC - Hoonah), Gunnuk Creek (IPEC - Kake), Triangle Lake (Metlakatla), Mahoney Lake (Ketchikan), Cooper Lake (Chugach Electric Assoc.), Pelican Creek (Pelican), and several studies of your Pyramid Creek and WTP.

The HDR team's skills are directly aligned with the City of Unalaska (City) for the Pyramid WTP Inline Turbine design project engineering design service needs. Our project staff experience on similar and cost-effective inline GPRV turbines for energy recovery in potable water systems and experience working with you on the recent Water Master Plan and the 2009 Pyramid WTP Inline Turbine Study set us up for immediate productivity. From our depth of experience, we have organized a focused team of three key personnel, combining local leadership with experienced small hydro experts. Resumes for the three following individuals are attached and billing rates are provided in the table below.

Paul Berkshire, PE, will be our **design lead**. Paul has 28 years of experience and led the design of over 15 small hydro projects, many of them in Alaska. In the last four years, he has designed and overseen the construction of two completely new hydro projects (Waterfall Creek and Gartina Creek). He has executed the approach you have indicated you wish to follow. Paul is currently working on another similar GPRV energy recovery project in Loma Rica, CA.

Wescott Bott, PE, will be our local **project manager** and will provide design support. Wescott led your water master plan project, is familiar with Unalaska's water system and your Public Utilities team and protocols. Wescott has also been involved with several hydroelectric and energy recovery feasibility study and design projects. Having performed numerous water system designs in Alaska, Wescott will handle the permitting with Alaska DEC to obtain Approval to Construct and an APDES permit modification (if necessary).

David Summers, PE, will oversee project **quality**. David has 38 years of experience on hydropower engineering around the world, including multiple projects in Alaska. David performed your 2009 Pyramid WTP Inline Turbine study and recently finished design and construction of a nearly identical GPRV project for Sheridan, Wyoming. David is currently working with Paul on the GPRV project in Loma Rica, CA. He is based in HDR's Charlotte, NC office.

HDR brings full complement of supporting staff such as structural engineers, cost estimators, and pipe designers. HDR's **Paul McLarnon**, a fish biologist by trade, will handle agency consultation and permitting/licensing/exemptions with ADF&G, ADNR, and FERC if necessary. This is something Paul has performed on numerous other hydroelectric projects.

Billing Rates of Key Personnel	
Paul Berkshire	$233.66
Wescott Bott	$203.01
David Summers	$252.61

We understand that we will be contracting **Electric Power Systems Inc. (EPS)** for electrical engineering and **Boreal Controls** for controls engineering. We had a successful partnership with EPS on a City of Soldotna project several years ago. We also worked with Boreal Controls on preliminary engineering of Unalaska's groundwater well project. We made contact with Bill Farrell of EPS and Rob Swanson of Boreal Controls and we look forward to working with them again.

Being active in the hydropower industry allows HDR to forge strong relationships with the likely turbine vendors who will supply equipment for your project. These relationships are valuable to you when it comes to ensuring smooth coordination between the manufacture and supply of the turbine-generator and design and construction of piping, structural modifications, and electrical/controls systems. To maximize project success we recommend using vendors that understand the unique aspects of the economic efficiency required for small inline hydroelectric projects.

HDR's home office is in Anchorage. The scope of services that will be performed from the Anchorage office on this project will be project management, hydropower engineering, pipe design, and permitting.

B. Experience and References

The following two HDR projects are examples of similar projects of similar size and complexity:

Sheridan, WY, Beckton Hall GPRV Energy Recovery Project

CLIENT REFERENCE:	**KEY HDR STAFF:**
Hanns Mercer, PE City Engineer City of Sheridan, WY 307.675.4237 hmercer@sheridanwy.net	David Summers, PE, Design Lead

The City of Sheridan, Wyoming (City) commissioned studies in 2002 and 2009 for screening of potential hydropower generation within the potable water supply system. This study identified the Beckton Hall Road pressure reducing valve (PRV) vault as the most feasible site for energy recovery turbine(s) to operate as energy reduction devices in place of PRVs.

In 2014, more favorable renewable energy interest loans and direct grant funding became available. The City hired HDR to provide hydropower, mechanical, electrical, and controls engineering to develop an updated review of the Beckton Hall site.

HDR's regulatory studies determined that the licensing submittals would include an application for exemption of small conduit hydroelectric facilities and self-certification of qualifying facility status, rather than a FERC hydropower license application.

The City decided to proceed with the project in 2015 and selected HDR to finalize design and develop bid documents. The final project configuration included a single 240 kW SOAR GPRV Francis turbine generator along with ancillary electrical and mechanical equipment. The single GPRV was installed in parallel with the three existing PRVs. A small, prefabricated equipment enclosure was added above ground to house the electrical equipment and controls. The project was installed 2017 and began operation in 2018.

King Cove, AK, Waterfall Creek Hydroelectric Project

CLIENT REFERENCE:
Gary Hennigh
City Manager
City of King Cove, AK
907.274.7563
ghennigh@kingcoveak.org

KEY HDR STAFF:
Paul Berkshire, PE,
Design Manager

Wescott Bott, PE,
Engineering Support

HDR's second hydroelectric project for the City of King Cove, the Waterfall Creek Hydroelectric Project is a run-of-river system consisting of a small diversion structure and intake; 20-inch-diameter, 5000-foot-long HDPE penstock; and a powerhouse with single 435 kW Pelton turbine/generator unit supplied by Canyon Industries.

HDR provided a full range of engineering, design, environmental, and regulatory services to help the City of King Cove take this project from initial concept to commercial operation. HDR assisted the Owner with separately procuring the turbine, generator, switchgear and penstock materials and the coordination with the general contractor for their installation. Construction of this project began in August, 2015 and the project began operating in March 2017.

Previously HDR designed the 890 kW Delta Creek hydroelectric project for the City of King Cove. This project utilized a 2-jet horizontal Turgo turbine manufactured by Gilkes. The City of King Cove also uses Delta Creek watershed as its primary source of drinking water, therefore requiring integrated planning and operation of both the hydroelectric and drinking water systems to manage the water supply. In 2010 HDR also performed a feasibility study of replacing a drinking water transmission main PRV with a GPRV for energy recovery.

C. Narrative Work Plan

Based on the objectives expressed by the City in the RFQ, we anticipate that the Work Plan described herein will provide the basis for the contract Scope of Work for the project. We understand that the City or others on behalf of the City of Unalaska have conducted several studies over the past two decades or more to evaluate the feasibility of energy recovery within the water supply system. The City was forward-thinking on the future implementation of an energy recovery system by reserving footprint and piping space in the water treatment plant. HDR has developed this Work Plan to describe the anticipated scope of work needed to pick up where we left off in the 2009 study and carry the micro-turbine design through the Phase II Pre-Design Scoping and Supplier Procurement.

As identified in the RFQ, we understand that the City desires this project to consist of the following:

- Pre-Design Scoping Study
- Assistance with the competitive selection of GPRV manufacturers
- 15% Plans and Specifications based on the availability and specific dimensions and requirements of the available qualified GPRV units that meet the desired energy recovery characteristics of the site.

HDR's proposed Work Plan consists of the following breakdown of tasks and deliverables, in anticipation of an overall budget of $50,000 or less:

Task 1 – Review historical data, reports, and information, including previous and recent HDR and City reports specifically discussing the micro-turbine feasibility and the recently collected water use data.

Task 2 – Identify data gaps or other information necessary to competently select an appropriate GPRV energy recovery micro-turbine system. Current information now available includes the original 2009 feasibility study recommending evaluation of the GPRV units, but also the recently collected water use data that will help characterize the available energy and timing of current demand flows in more detail than the 2009 study.

Task 3 – Based on the design input data generated in Task 2 above, HDR will select several appropriately sized and rated micro-turbine systems. This effort will consider future implementation of additional turbine capacity for bypass flows in excess of the treatment plant capacity and the City's established water right for Icy Creek. Though the City has made it clear that utilizing additional flows beyond their current water right would require additional permits, the system should be designed to accommodate this addition.

Task 4 – Develop 15% Plans and Specifications, anticipating that the Phase III effort would include direct input from the micro-turbine manufacturer to complete the design documents. The 15% design is anticipated to determine a schematic layout of the current-demand GPRV units, but should also consider the layout and configuration of flow bypass and piping system necessary to shunt future additional raw water capacity through the GPRV unit(s) when available. More specifically, in order to accommodate the currently planned GPRV units on the downstream side of the primary chlorination units, and also potentially additional raw water inflows that would be bypassed directly back to Icy Creek, it will be critical to properly select units of broad enough capacity in head and discharge to accept this added capacity. The 15% design will need to identify whether the future raw water head and discharge range can be accommodated within the efficient operating range of one or more GPRV's, or whether additional dedicated units would be necessary. Given the City's expressed desire to explore future raw water bypass to the energy recovery system, it will also be necessary to determine whether the reserved space within the existing building is adequate to house a potential additional unit if dedicated to raw water only, or whether one or more current-demand capacity units and the associated bifurcations and control valve systems can fit within the reserved space.

Design will also consider the appropriate materials for potable water contact (NSF-61 and lead-free) as well as preventing cross-connection between raw and treated water piping. These items, along with potential modifications to the flow control valves, are what ADEC will focus on when it comes time to submit the plans for Approval to Construct.

Deliverables

Deliverables for this project are anticipated to include the following, as identified in the RFQ:

Pre-Design Scoping Study

We expect that this deliverable will include a detailed discussion of the current- and future-demand turbine application, with recommendations regarding whether the treated water GPRV system can accommodate the additional head and discharge that would arise with implementation of additional raw water supply through the GPRV system. Manufacturer's catalog cuts and full discussion of operating unit capacity and head range, as well as generating efficiency, will be included in this study report. This study will identify specific GPRV units, schematic layouts, and other information secured from qualified manufacturers working with the design team on the project. The study will identify permits that will be required for implementation of the current-demand GPRV units, to include ADEC Approval to Construct and Alaska State Fire Marshall review. It will also identify necessary permits needed to utilize additional available bypass raw water supply for generation.

15% design-level construction plans and specifications.

Working with specific manufacturers of qualified GPRV units, we will develop detailed layout drawings of the micro-turbine energy capture system. In addition, the 15% design-level construction plans development will include an opinion of probable construction cost commensurate with an AACE Class 3 construction cost estimate. The design plans will show the selected units from various manufacturers meeting the required specification, along with the required piping, control and isolation valves, and inclusion of the existing primary treatment system upstream of the unit(s).

Schedule

In developing this schedule, we assume that the City can provide review and comments on deliverables within two (2) weeks of receipt of draft deliverables. The table below provides estimated schedule for development of the project deliverables and outcome.

Task	Duration (weeks)	Initiation (weeks after NTP)	Completion (weeks after NTP)
Task 1 – Review of data and information	2	0	2
Task 2 – Pre-Design Scoping Study	4	1	5
Task 3 – GPRV unit selection	2	7	9
Task 4 – 15% Design Plans and Specs	6	10	16

D. Attachments

Resumes

Sheridan, WY – Beckton Hall GPRV Floor Plan and Detail Sheets

King Cove, AK – Waterfall Creek Hydro Floor Plan and Detail Sheets

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Paul Berkshire, PE

Senior Engineer, Design Lead

Paul has more than 28 years of experience in consulting civil engineering, small hydropower development and generation facility operation. He has performed at a high level throughout much of his career as Lead Civil Engineer and/or Project Manager for both public and private clients throughout the United States and Latin America, though most of his projects have been in Alaska. Paul is well versed in small hydropower development and has completed a substantial number of project evaluations, feasibility studies, and designs of new projects and due diligence reviews of existing facilities. His design and construction oversight experience in public works and infrastructure projects includes roads, canals and pipelines and water storage and diversion structures. Paul has proven himself to be a highly capable engineer with diversity of experience and knowledge well suited to the hydropower industry.

EDUCATION

M.S., Civil Engineering, University of Washington, 1997

REGISTRATIONS

Professional Engineer, Alaska, United States, No. 8657

INDUSTRY TENURE

28 years

HDR TENURE

13 years

RELEVANT EXPERIENCE

Waterfall Creek Hydroelectric Project, City of King Cove, AK. Paul served as the design manager for a small 325 kW hydroelectric project. The project included site investigations, access road layout and preliminary design level drawings of the intake, pipeline and powerhouse.

Delta Creek Hydroelectric Project, City of King Cove, AK. Project Engineer. Led design and construction of an 800 kW hydroelectric project in rural Southwest Alaska. Project included site investigations; structural design for two reinforced concrete intake structures, retaining walls, and powerhouse foundation; steel design for heavily loaded hatch covers; hydraulic analysis of sluiceway; slide gate selection; trashrake design; safety design of access ladders, handrails, and gratings; and, site layout and grading for switchyard and staging facilities. Assisted in turbine/generator vendor coordination and equipment selection.

Inside Passage Electric Cooperative, Gartina Falls Hydroelectric Project, Hoonah, AK. Project Manager for the complete development of the 455 kW Gartina Falls project. Work on this project includes design, permitting and FERC licensing. Paul led an aggressive FERC licensing strategy that involved extensive agency negotiations and expedited timelines. He is currently managing the preparation of license compliance documents and plans and specifications for construction.

INNEC, Tazimina Hydroelectric Project, Alaska Peninsula, AK. Design Manager. Led final design of the 700 kW Tazimina Hydroelectric Project located in remote Southwest Alaska. Coordinated a 25-person design team, including geotechnical, structural, electrical, civil, and mechanical engineers located in three different offices. Unique project features include a “diversion-less” intake structure, an underground powerhouse with a 26-foot diameter, 130-foot deep access shaft and a 300-foot long horseshoe tunnel through highly fractured bedrock, and seven miles of all-weather access road. The access shaft contains a self-supporting 3-dimensional space frame that houses the 2-man access elevator, egress ladders, HVAC ducting, and power cableways. Analysis included physical model tests of the intake, 3-dimensional computer modeling of the geology, and two 3-dimensional finite element analyses of structural features.

Alaska Energy Authority (AEA), Susitna Hydroelectric Project Evaluation, AK. Project Engineer for the 2010 re-evaluation of the Susitna river hydroelectric complex. Paul's work consisted of detailed energy modeling and cost estimating. As part of this work he participated in a Railbelt Integrated Resource Plan providing the technical input associated with the hydroelectric projects being considered.

Haida Corporation, Reynolds Creek Hydroelectric Project, Hydaburg, AK. Project Manager. Managed development of a small hydroelectric project on Prince of Wales Island in Southeast Alaska. Determined optimal project development and led team in preparing FERC licensing documents including an Applicant Prepared Environmental Assessment. Participated in land use and power sales negotiations. Developed regional energy plan for the island to demonstrate project need and present project economics. Assisted in securing federal grant funding for the project.

Cape Fox Corporation, Mahoney Lake Hydroelectric Project, Ketchikan, AK. Project Engineer. Responsible for the design of a 9.6 MW hydroelectric project in southeastern Alaska. Project features include a lake tap, a series of tunnels and shafts. Performed in-depth hydraulic modeling of the basin and project operation. Participated in negotiations with agency personnel pertaining to establishing fish habitat flow requirements and operational parameters. Responsible for the technical content of the FERC license application and Applicant Prepared Environmental Assessment.

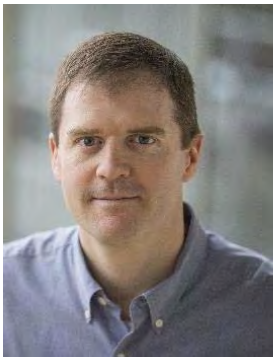
Alaska Power & Telephone, Schubee Lake Hydroelectric Project, Skagway, AK. Paul was the project manager for the feasibility level investigation of the Schubee Lake hydroelectric project located near Haines. He conducted site investigations, created conceptual designs, and prepared energy and cost estimates.

Chenega Corporation Hydroelectric Project, Chenega, AK. Paul was project engineer for the feasibility level investigation of a small hydroelectric project located in Chenega. He participated in conceptual design and was responsible for energy and cost estimates.

Homer Electric Association, Grant Lake Hydroelectric Project, Moose Pass, AK. Paul was the project engineer responsible for the conceptual design of a small hydroelectric project on Grant Lake. He was responsible for energy modeling and cost estimating.

AEA Southeast Alaska Integrated Resource Plan, AK. Paul provided the technical input associated with the hydroelectric projects being considered. Work involved identifying over 300 potential hydroelectric projects in southeast Alaska and detailed analysis of projects identified for further review.

Loma Rica Hydroelectric Energy Recovery System, Nevada Irrigation District HDR is currently designing a large hydroelectric system for energy recovery in Loma Rica, California. Paul is providing engineering support.



EDUCATION
Virginia Military Institute,
Bachelor of Science,
Civil Engineering, 1999

Virginia Tech,
Master of Science,
Structural Engineering,
2005

REGISTRATIONS
Professional Engineer - Environmental, Alaska, No. 14371

Professional Engineer - Civil, Alaska, No. 11521

PROFESSIONAL MEMBERSHIPS
Alaska Water Wastewater Management Association, Past President

Water Environment Federation, Member

Alaska Miners Association

INDUSTRY TENURE
18 years

HDR TENURE
13 years

OFFICE LOCATION
Anchorage, AK

Wescott Bott, PE

Civil Engineer

Wescott is a professional civil and environmental engineer with HDR. He has a diverse background in water and wastewater engineering, heavy civil construction, and rural Alaska infrastructure. As a project engineer and manager, he has performed studies and design on a wide range of water, wastewater, hydroelectric, transportation, and mining projects all over the Alaska, but primarily in rural Alaska. Wescott also has experience in construction management from working for several general contractors early in his career and from providing bidding abd construction-phase services on most of the projects he designs.

RELEVANT EXPERIENCE

Unalaska Water System Master Plan*, Unalaska, AK*
Wescott managed and was the primary author of the 2018 Unalaska Water System Master Plan. The plan updated City population and water demand projections, evaluated regulatory drivers, and identified a number of projects that would provide economic, hydraulic, or operational improvements. A major focus of the master plan was an update and economic business case study of the Pyramid WTP inline hydroelectric turbine project.

Unalaska Groundwater Supply*, Unalaska, AK*
The City of Unalaska has been working on a project to expend its groundwater supply with a new well in Iliuliuk Valley. As a sub to Shannon & Wilson, HDR has provided watershed hydrological and stream flow measurement services, as well as preliminary engineering services for the wellhouse and interconnections with the Unalaska water system. Wescott provided project management and engineering input for these projects.

King Cove – Delta/Waterfall Creek Hydroelectric Project, City of King Cove*, AK*
Wescott provided technical assistance on the Waterfall Creek hydroelectric design and construction project.

King Cove Water Transmission Main GPRV Study, City of King Cove*, AK*
Wescott performed a small feasibility study of an inline turbine in a PRV vault for the City of King Cove. The inline GPRV turbine would have been installed in parallel with the existing PRV on a major water transmission line from the Delta Creek water system. This project was not constructed due to poor economics.

Peter Pan Seafoods Emergency Water Supply, City of King Cove*, AK*
Wescott managed the design, materials procurement and delivery, and construction of an emergency pump system and waterline designed to provide necessary processing water to King CoveFhydro’s Peter Pan Seafoods processing plant. The project involved a custom-built pump skid and 7,500 linear feet of 6 inch pipe that was designed, delivered, installed, and operational in less than 2 months.

Kantishna Roadhouse – Micro Hydroelectric Turbine Feasibility Study, Doyon Ltd., *Kantishna – Denali National Park, AK*
Wescott provided technical guidance for a feasibility study of the potential for hydroelectric power generation on a small creek near the Kantishna Roadhouse in Denali National Park.

Confidential Mining Project/Client – Water Pipeline Energy Recovery Study, ***AK***
Wescott was the project manager and lead engineer on a water management engineering plan for a confidential mining project for a confidential client. Part of the engineering plan included a treated wastewater outfall pipeline with considerable elevation head. HDR performed a preliminary study of energy recovery with inline hydroelectric turbines.

Homer Water Treatment Plant Design, City of Homer, ***Homer, AK***
Wescott was a project engineer on the design and construction of a new membrane water treatment plant for the City of Homer. This was the first large-scale membrane water treatment plant in Alaska.

Eklutna Water Treatment Facility – Capacity Increase Study, Anchorage Water & Wastewater Utility, ***Anchorage, AK***
Wescott was the project manager and assistant process engineer on a study of alternatives to increase capacity of Anchorage's main WTP. The improvements considered included chemical mixing, plate settlers, and membrane filtration. The WTP includes an inline hydroelectric turbine and HDR included turbine capacity and generation increase in the evaluation.

Pelican Water Treatment Plant and Hydroelectric Project, Village Safe Water, ***Pelican, AK***
Wescott was the project engineer and later project manager of a project for the town of Pelican to design a new water treatment plant, raw water supply system, water storage tank, and circulating water distribution system. The raw water supply for the drinking water system is from Pelican's hydroelectric dam and penstock, therefore modifications to the drinking water system must carefully evaluate impacts to the hydroelectric system, and vice-versa.
During the Pelican Village Safe Water project, HDR was contracted to provide hydroelectric engineering services to the Alaska Energy Authority, which was in the process of a major project to reconstruct the Pelican hydroelectric system including the intake, flume, penstock, and controls. HDR provided peer review services of the design by others. Wescott assisted on this with technical review and coordination with the parallel water treatment plant project.

Juneau Salmon Creek UV Disinfection Water Treatment Plant, ***Juneau, AK***
Wescott was the project manager on the process engineering of a UV disinfection system for the Salmon Creek WTP in Juneau. As a sub to Carson-Dorn, HDR provided preliminary design of the UV system, piping layout, and a performance specification for UV equipment procurement.

Atka Water & Sewer Project, Village Safe Water, ***Atka, AK***
Wescott was a project engineer on the design of water and sewer improvements for the Aleutian village of Atka. The project included a new water treatment plant which includes pressure filtration and disinfection.

Kenai Water Treatment Plant Design, HDL / City of Kenai, ***Kenai, AK***
Wescott was a technical advisor on the design and construction of a new water treatment plant for the City of Kenai. The project involved extensive pilot testing of process alternatives. The selected process design is addition of poly alumina chloride and polymer, followed by pressure filtration and disinfection.

David Summers, PE

Senior Engineer, Quality Control

David Summers has 38 years of experience in the mechanical design and operational support of hydroelectric generating facilities including equipment assessment, systems design, equipment specification, and procurement. Mr. Summers' work experience includes feasibility study, design, construction, project engineering, and startup of very small energy recovery projects such as Uanalska's Pyramid Creek and Sheridan, Wyoming's recently completed GPRV as well as large-scale hydroelectric systems including Duke Power's 1,065 MW Bad Creek Pumped Storage Project. His hydroelectric experience also includes major refurbishment projects for conventional hydroelectric facilities with responsibilities for project management and mechanical systems design.

EDUCATION

MBA, Wingate University, 2002

B.S., Mechanical Engineering, North Carolina State University, 1980

REGISTRATIONS

Professional Engineer, Wyoming, South Carolina, North Carolina, Virginia, Texas, Colorado, and California

INDUSTRY TENURE

38 years

HDR TENURE

13 years

RELEVANT EXPERIENCE

Beckton Hall PRV Energy Recovery Project, City of Sheridan, Wyoming

Served as Mechanical Lead for feasibility study, economic analyses, design, and installation of an energy recovery turbine (GPRV) at the Beckton Hall pressure reducing valve (PRV) vault. This PRV station is one of the main drinking water supplies of the City of Sheridan, WY. The system consists of a single SOAR 240 kW Francis turbine-generator installed in parallel with the three existing PRVs. The turbine-generator and associated piping was installed within the existing vault and a small prefabricated equipment enclosure was added above ground to house the electrical equipment and controls. The project was installed in 2017-2018 and began operating in the spring of 2018.

Unalaska Pyramid Creek WTP Inline Energy Recovery Turbine Preliminary Design Study, City of Unalaska, Alaska

As part of the Pyramid Creek WTP LT2 regulatory compliance, HDR studied the potential of generating energy in the Pyramid Creek watershed. HDR was tasked with a feasibility study of installing an inline hydroelectric turbine in the pipe that supplies raw water to the WTP. Using 2007 and 2008 daily flow data provided by the City, HDR developed a flow duration curve that statistically projects future flows from past records. HDR expanded the statistical hydrology study to include generation percent exceedance curves for both a single inline turbine-generator and two turbine-generators. HDR developed cost estimates and performed conceptual layout studies to determine the required footprint of the equipment. The results of the study indicated that it is technically feasible to install in-line energy recovery turbine-generators at the Pyramid Creek site. The estimated installed capacity is approximately 64 kW, with an average annual energy production of approximately 281 MWh, representing a utilization factor of approximately 50 percent.
David served as the lead engineer for the study, preliminary design, and cost estimates for this project.

Bozeman Hyalite/Sourdough WTP, Energy Recovery, City of Bozeman, Montana

HDR designed and provided construction administration services for a new 22-mgd membrane WTP and raw water supply. The $32 million project included design and construction of a new raw water intake, raw water supply pipelines, and a new state-of-the-art pressure membrane. David served as the lead engineer for the feasibility study, conceptual design and cost estimates of an in-line energy recovery system.

Cooper Lake Hydroelectric Station, Conceptual Design Study, Alaska, Chugach Electric Association
Part of an engineering team that performed conceptual design studies for modernization and uprate study on the two-unit hydro station near Anchorage, Alaska. Responsibilities included tunnel loss and turbine performance calculations.

Cooper Lake Pumped Storage Study, Alaska, Chugach Electric Association
Part of an engineering team that performed conceptual design studies of the potential for adding pumped storage facilities to the existing Cooper Lake Hydroelectric Project.

Loma Rica Hydroelectric Energy Recovery System, Nevada Irrigation District
HDR is currently designing a large hydroelectric system for energy recovery in Loma Rica, California. David is providing technical support and review.

Lower Bear Hydroelectric Facility, Micro Turbine Design, California, Pacific Gas & Electric
Served as Mechanical Lead for design of an energy recovery micro turbine.

Coleman Hydroelectric Station, Penstock Replacement Project - Transient Analysis, California, Pacific Gas & Electric
Served as Mechanical Lead for hydraulic head loss and transient analysis for the Coleman Station for design of a single new penstock to replace two penstocks.

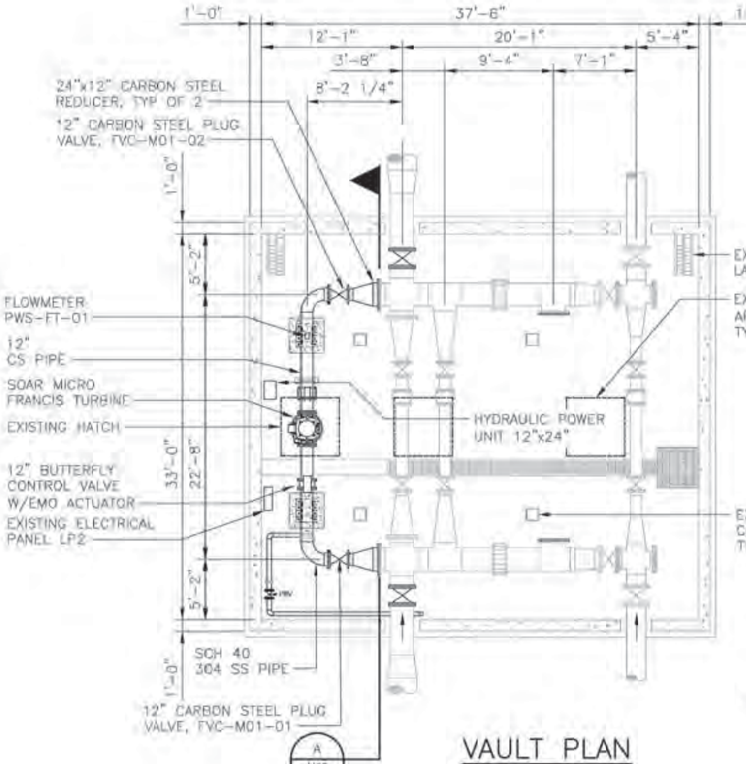
Britton Hydroelectric Station, Powerhouse & Penstock Design - Transient Analysis Project, California, Pacific Gas & Electric
Served as Mechanical Lead for hydraulic transient analysis for the new Britton Powerhouse. Transient analyses were performed to evaluate bypass valve and turbine operational impacts on penstock pressure.

Potter Valley Hydroelectric Station, Bypass Valve & Penstock Design - Transient Analysis Project, California, Pacific Gas & Electric
Served as Mechanical Lead for hydraulic transient analysis for the bypass valve addition at the Potter Valley Powerhouse. Transient analyses were performed to evaluate bypass valve operational impacts on penstock pressure.

New Linville Hydroelectric Station, Transient Analysis Project, North Carolina, Duke Power
Served as Mechanical Lead for hydraulic transient analysis for the new Linville Hydroelectric Station.

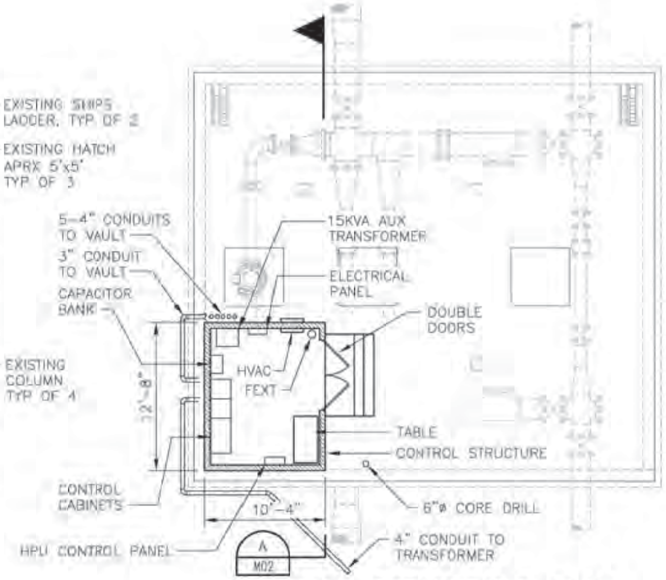
Deep Creek Hydroelectric Station, Transient Analysis Project, Maryland, Brookfield Power
Performed hydraulic transient analysis to assess governor timing impacts for the Deep Creek Hydroelectric Station.

Nantahala Hydroelectric Projects, Modification Design, North Carolina, Duke Power
Served as Mechanical lead for minimum flow modification designs at the Wolf Creek, White Oak and Cedar Cliff projects and cost estimates.



VAULT PLAN

SCALE: 3/16"=1'-0"



CONTROL STRUCTURE PLAN

SCALE: 3/16"=1'-0"

HDR

HDR Engineering, Inc.

440 S. Church Street, Suite 1000
Charlotte, NC 28202-2075
704.338.6700

ISSUE	DATE	DESCRIPTION
0	12/05/16	ISSUED FOR CONSTRUCTION BID ONLY

PROJECT MANAGER D. SUMMERS, P.E.

DESIGNED BY	M. NAPOLEONE
DRAWN BY	B. CARVER
CHECKED BY	D. SUMMERS
PROJECT NUMBER	000000000268865

DAVID N. SUMMERS
WYOMING
12/5/16

Beckton Hall Energy Recovery Project

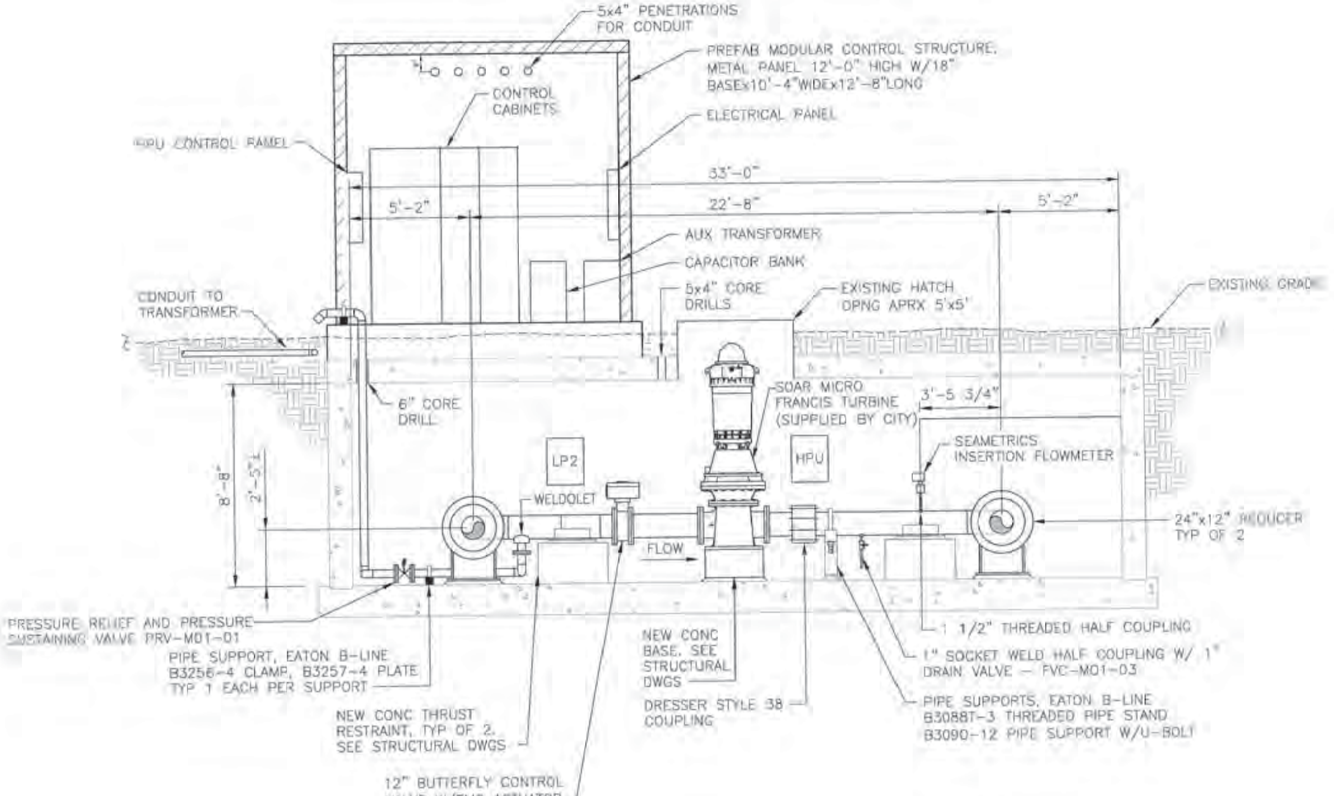
Contract Drawings

CITY OF SHERIDAN WYOMING

SITE WORK
VAULT PLAN & CONTROL STRUCTURE PLAN

FILENAME 1-0M-01.dwg
SCALE AS NOTED

SHEET 1-0M-01



SECTION

A
M01

SCALE: 3/8"=1'-0"

HDR Engineering, Inc.

440 S. Church Street, Suite 1000
Charlotte, NC 28202-2075
704.338.6700

ISSUE	DATE	DESCRIPTION
0	12/08/16	ISSUED FOR CONSTRUCTION BID ONLY

PROJECT MANAGER D. SUMMERS, P.E.

DESIGNED BY	
DRAWN BY	
CHECKED BY	
PROJECT NUMBER	0000000009268855

DAVID N. SUMMERS
12/8/16

Beckton Hall Energy Recovery Project

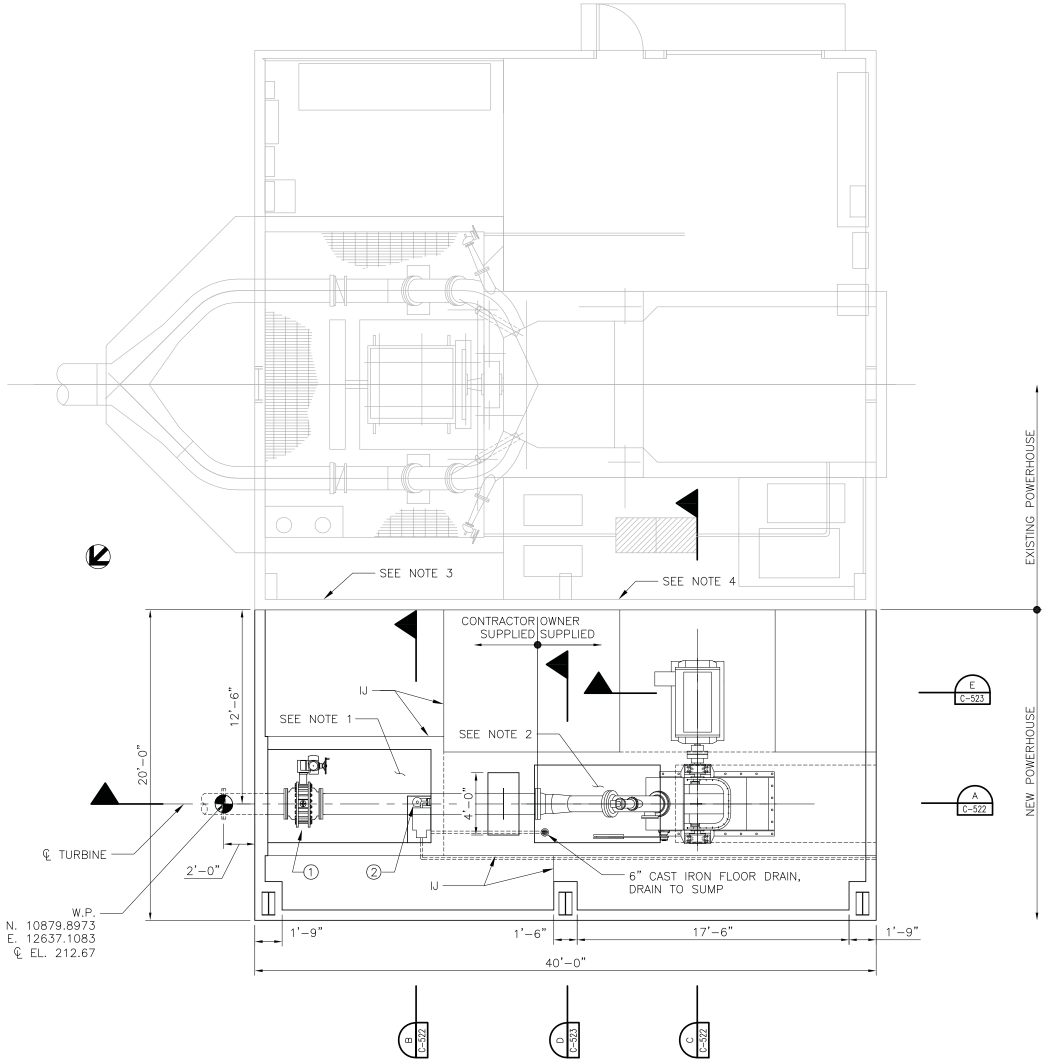
Contract Drawings

CITY OF SHERIDAN WYOMING

SITE WORK VAULT SECTION

FILENAME 1-0M-02.dwg
SCALE AS NOTED

SHEET 1-0M-02



NO.	QTY.	EQUIPMENT SPECIFICATION
①	1	Butterfly Valve, 16-inch diameter, AWWA Class 250, cast iron body, wafer type, cast iron disc with SS edge, 304 SS shaft, Buna-N seat ring on an adjustable SS backing support ring, teflon/epoxy shaft, bearings for cold water service, with integral dismantling flang,with electric actuator, NEMA-4 enclosure, 48 VDC motor, reversing starter, manual clutch and back-up manual operator with handwheel, torque overload switches, local 3-push button control station, adjustable travel limit switches, remote position indication, local/remote select switch, remote on/off contacts, compartment heater, mounted and factory tested.
②	1	Sump Pump, 115 VAC, single phase, 60 Hz, 1/2 Hp motor, 15 feet of head, integrated float switch with automatic operation, thermal overload protection, McMaster-Carr, Model 9989K62 or approved equal

NOTES:

1. SLOPE FLOOR TO SUMP
2. SLOPE FLOOR TO DRAIN
3. REMOVE EXTERIOR PANELS AND PURLINS THIS BAY.
4. REMOVE EXTERIOR PANELS, CROSSBRACING AND PURLINS THIS BAY.
5. PROVIDE PROTECTION FROM WEATHER FOR EXISTING POWERHOUSE EQUIPMENT DURING CONSTRUCTION.

4 0 4 8 FEET
1/4" = 1'-0"

HDR Alaska, Inc.

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	B.BUTERA
DESIGNED	P. BERKSHIRE
DESIGNED	
CHECKED BY	
DRAWN BY	
DESIGNED	
DESIGNED	
CHECKED BY	
PROJECT NUMBER	

Paul A. Berkshire
No. C-8657
9-5-2014

WATERFALL CREEK
HYDROELECTRIC PROJECT

King Cove, AK

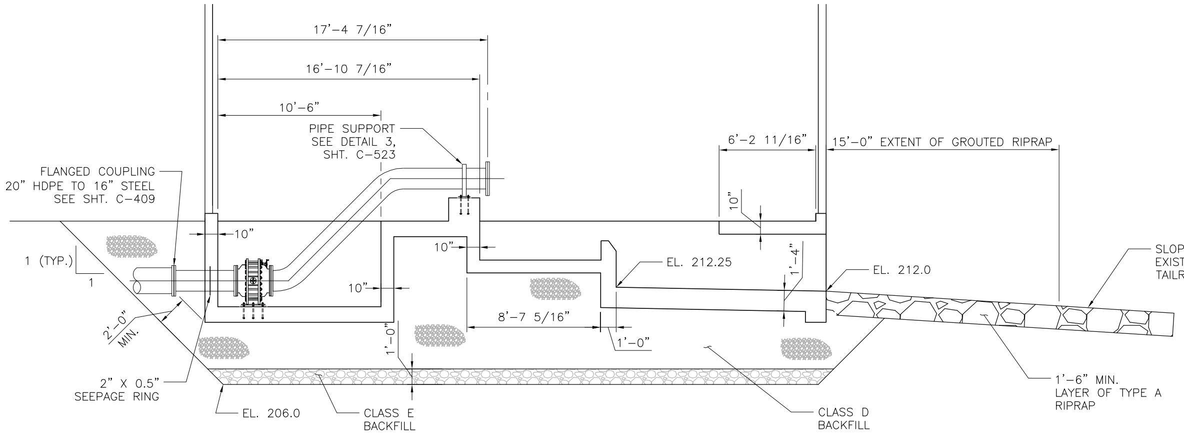
POWERHOUSE
PLAN

FILENAME 01C-521.DWG
SCALE 1/4"=1'-0"
SHEET C-521

FILE PATH:00000000189714/13.00_CAD/WCH_Design _Documents/WCH_Sheet Files/01C-521.DWG PLOT DATE:9/3/2014 1:01 PM PLOT SCALE: 1:2 USER:lwilhelm

NOTES:

1. REMOVE EXTERIOR SIDING AND INSULATION ALONG ENTIRE NORTH WALL. PROVIDE PROTECTION FROM WEATHER FOR EXISTING POWERHOUSE EQUIPMENT.
2. REMOVE 6" CURB BETWEEN EXISTING COLUMN BASES. PROVIDE SMOOTH FINISH AT EL. 216.5.
3. NEW BUILDING ROOF SLOPE TO MATCH EXISTING ROOF SLOPE.
4. CONCRETE FINISH SCHEDULE:
   A. TROWEL FINISH ON INTERIOR FLOOR SLABS AND EQUIPMENT BASES.
   B. BROOM FINISH ON ALL EXTERIOR WALKING SURFACES.
   C. GROUT CLEANED FINISH ON REMAINDER OF ALL EXPOSED CONCRETE SURFACES.



SECTION A C-521
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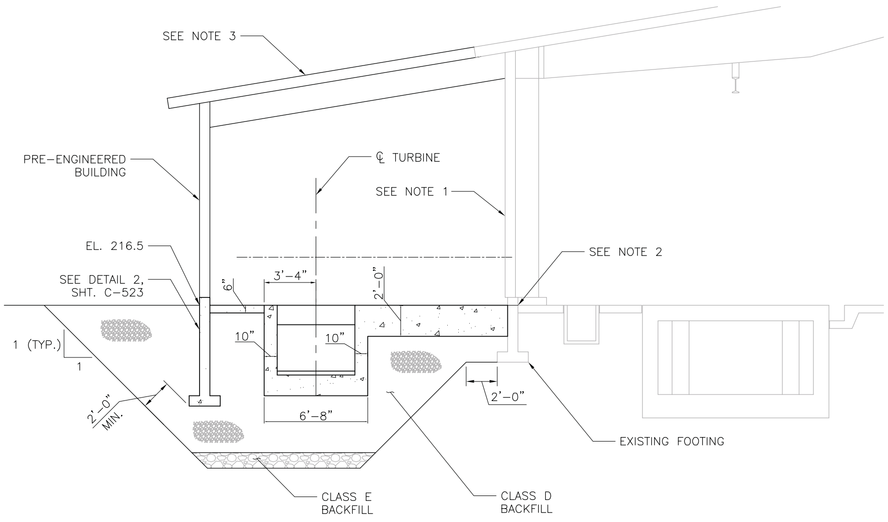
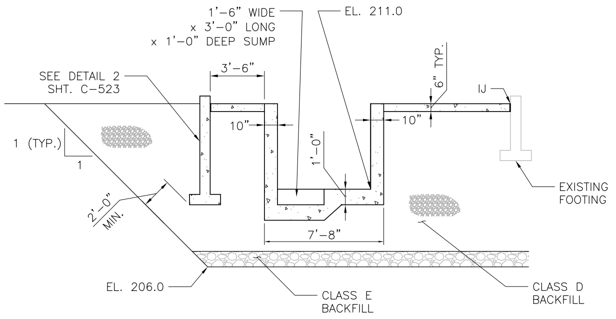




SECTION B C-521
SCALE: 1/4"=1'-0"

SECTION C C-521
SCALE: 1/4"=1'-0"

4 0 4 8 FEET
1/4" = 1'-0"

FILE PATH:000000000189714/13.00_CAD/WCH_Design _Documents/WCH_Sheet Files/01C-522-523.DWG PLOT DATE:9/3/2014 1:04 PM PLOT SCALE: 1:2 USER:wilhelm

HDR Alaska, Inc.

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	B.BUTERA
DESIGNED	P. BERKSHIRE
DESIGNED	
CHECKED BY	
DRAWN BY	
DESIGNED	
DESIGNED	
CHECKED BY	
PROJECT NUMBER	

Paul A. Berkshire
No. C-8657
9-5-2014

WATERFALL CREEK HYDROELECTRIC PROJECT

King Cove, AK

POWERHOUSE SECTIONS

SHEET 1

FILENAME 01C-522-523.DWG
SCALE AS SHOWN
SHEET C-522

Attachment 4C
Coffman

Coffman Interview Response and Statement of Qualifications

CITY OF UNALASKA
PYRAMID WATER TREATMENT PLANT INLINE MICROTURBINES DESIGN
PROSPECTIVE CONSULTANT INTERVIEWS
FEBRUARY 21ST, 2018

888-363-4734
1258939
2149

I. Introductions:

City of Unalaska:

Tom Cohenour	DPW Director
Dan Winters	DPU Director
JR Pearson	Deputy DPU Director
Jeremiah Kirchhofer	Water Utility Supervisor
Erik Hernandez	Water Utility Operator
Kevin Kloft	Water Utility Operator
Lori Gregory	DPW Admin
Robert Lund	City Engineer
Mark Morrow	Engineering Technician

Consultant:	Coffman Engineers
Martin Miller, P.E.	Project Manager
Carl Garrison, P.E.	Mechanical Engineer
Lon Johannes, P.E.	Electrical Engineer

II. Questions:

a) **Compare and contrast a similar project you have worked on from scoping and pre-design through construction and final completion. What is something would you do the same and something you do differently on this project?**

Coffman's experience scoping and designing municipal and process piping systems and power generation systems gives us a deep understanding of the key factors that ultimately make this type of project successful. The project highlighted below is one recent example from a similar municipal water facility.

In 2018, Coffman completed scoping and design work on an existing City of Anacortes, Washington, pump station. Coffman's design was to reconfigure the pump station to cost effectively accommodate increased design flow and pressure requirements without having to increase the electrical feed requirements or generator size. The project had a design flow up to 2,200 gpm and required increasing pressure from 107 psi to 137 psi. The existing pump station used two 3 hp pumps, one 20 hp pump, and one 125 hp pump. We evaluated several pump configurations and decided on three 5 hp variable speed drive pumps and upsizing the impeller in the large 125 hp pump. The design used all available power without requiring electrical upgrades, saving thousands of dollars. If Coffman did a similar project, the one thing we would do differently is upsize the supply and discharge headers by 2” in diameter to reduce as many dynamic pipe losses as possible. By having larger pipes, we could have likely improved the peak flow by 2-4%. Two of the biggest benefits to our re-design, aside from not having to upgrade the electrical systems, were that (1) we used a sch. 10 stainless steel pipe header that the contractor appreciated for its ease in manufacture and its salt air corrosion protection; and (2) we simplified maintenance by staging three identical stainless vertical turbine type domestic pumps. The new configuration simplified maintenance, eliminated water hammer issues and efficiently met the new design flow and pressure requirements. Coffman signed all paperwork for State Health approval. The pump station has worked without incident for approximately 6 months.

On the energy modeling side, recent experience in Galena, Alaska (Biomass & district heating), and Bethel, Alaska (Combined Heat and Power) highlight the need to develop energy and cost modeling with full consideration of equipment limitations, control sequences, time of use, and uncertainty. In both cases, the upfront energy modeling resulted in successful projects by helping to identify risks, and reliable economic models, but resulted in conceptual designs that differed from the Owner’s original intent.

Success in the case of the Bethel CHP project involved stopping work at completion of the conceptual design as the economics were not as favorable as originally anticipated by the Owner.

In the case of the Galena project, the design team incorporated design of a water distribution network and services to a 14-building campus, in addition to the biomass boiler and district heating upgrades. Coffman provided engineering support for the City’s efforts to secure additional funding and the project schedule was maintained.

b) Discuss the top 3 critical functions and related control/flow sequences you envision in the current versus and flow scenarios.

Our design intent is to leave existing control functions intact and unchanged to the extent possible. We believe that piping the turbine in parallel with the existing PRVs would (1) minimize impact to the Water Treatment Plant (WTP) controls and (2) maximize energy capture by bypassing the PRVs under normal conditions. We propose to incorporate the turbine to provide the same control functions currently being provided by the PRVs.

Primary control:
Under normal operating conditions, the wicket gates that come integral with the inline turbine(s) would be controlled to modulate flow through the turbine(s) in order to maintain CT tank level, essentially replacing the primary control function of the existing PRVs. If the turbine is installed in parallel with the PRVs, the PRVs would be normally closed to prevent bypassing flow around the turbine(s). The PRVs would maintain their existing functionality during any planned or unplanned turbine outage or as needed at times of high demand, which may exceed the maximum turbine flow capacity.

Although installing PRVs in series with the turbine(s) is not preferred from a power generation standpoint due to pressure loss across the valves, the system can be modified to function in this configuration. If the PRVs are installed in series with the inline turbine(s), the valve harnessing would be modified to maintain full-open position while the turbine is operating but keep the existing CT tank level control functionality. The PLC would be set up to select the operating mode.

Low Reservoir Level Control:
The turbine response to a low-reservoir water level condition will be coordinated with the PRVs and WTP inlet valve response, including ramping down flow and actuating a turbine inlet shutoff valve as needed to shut off flow to the WTP. PRVs would normally be closed while the turbine is operating. We do not anticipate impacting the response time or overall system hydraulics.

High Turbidity & Low UVT Control:
The turbine response to either a high turbidity or low-ultraviolet transmittance condition will be similar to the PRV response to these events. The turbine wicket gates and inlet valve will close, in conjunction with opening the WTP bypass valve. We do not anticipate impacting the response time or overall system hydraulics.

There may be opportunities to improve project economics by looking at adjusting the CT tank control sequence. For instance, if the CT tank were allowed to fluctuate between, say, 70% and 90% full, we may be able to reduce the turbine size, but would require more time to fill the tank back up to 90% after a period of high-water use. An hourly analysis of the WTP flow meter data would be used to determine if this is feasible.

c) How would you accommodate an emergency such as a fast input requiring diversion and auto flush of 5,000 gpm to discharge due to a turbidity spike or a CT Tank overflow alarm?

A turbine installed in parallel with the PRVs would not impact the WTP's current bypass and auto flush control logic. The turbine inlet valve will shut off flow to the turbine using the same logic as the existing PRV controls. Diversion and turbidity sensing occur upstream of the turbine inlet pipe and would remain.

Alternately, if the turbine is installed in series with the PRVs, upstream of the WTP bypass, a new control sequence will need to be developed for a diversion and auto flush scenario. The turbine would ramp up in conjunction with opening the bypass valve, likely controlled to maintain the desired flow rate at the main WTP flow meter.

d) Discuss the technical possibilities of replacing an existing PRV with a flow control valve or modifying a PRV for "net zero" head loss to control CT Tank Level, or? What are the related permitting challenges?

In the preferred piping arrangement, with the turbine installed in parallel with the PRVs, there is no need to reduce pressure drop across the existing PRVs. PRVs would remain in place and would be reconfigured to be fully closed under normal conditions, forcing all water through the turbine.

In the alternate piping arrangement, with the turbine installed in series with the PRVs, minimizing PRV pressure drop will be an important aspect of the design, and careful analysis of this issue is warranted to ensure that flow duration curves, pressure drops and valve control sequences are fully understood and modeled correctly in order to generate accurate energy modeling and resulting economic calculations.

The existing PRVs are industry standard for the application. Review of the Cla-val cutsheet indicates that even at full open position, the 16" valve will see a significant pressure drop at anticipated flow rates. Replacing an existing PRV with a different type of valve may be feasible, but presents numerous design challenges, including:

- Valve selection – tradeoffs between control authority and full-open pressure drop
- Actuator selection – tradeoffs with respect to failure position (spring return required?) actuator size, closure time to prevent water hammer
- Safety – Process Hazard Analysis or similar evaluation may be warranted to determine reliability requirements, levels of redundancy, etc.

We do not expect that water rights, water quality or fish habitat permitting would be impacted by the project, whether valves are replaced or not. If additional water rights are pursued, the Alaska Department of Natural Resources, Department of Environmental Conservation and Department of Fish and Game approval would be required. FERC licensing would only be required if an existing FERC permit would need to be modified or if development on land owned by the federal government is required.

III. Open Discussion:

a) Questions for the City?

Has the City considered piping the turbine in parallel with the PRVs?

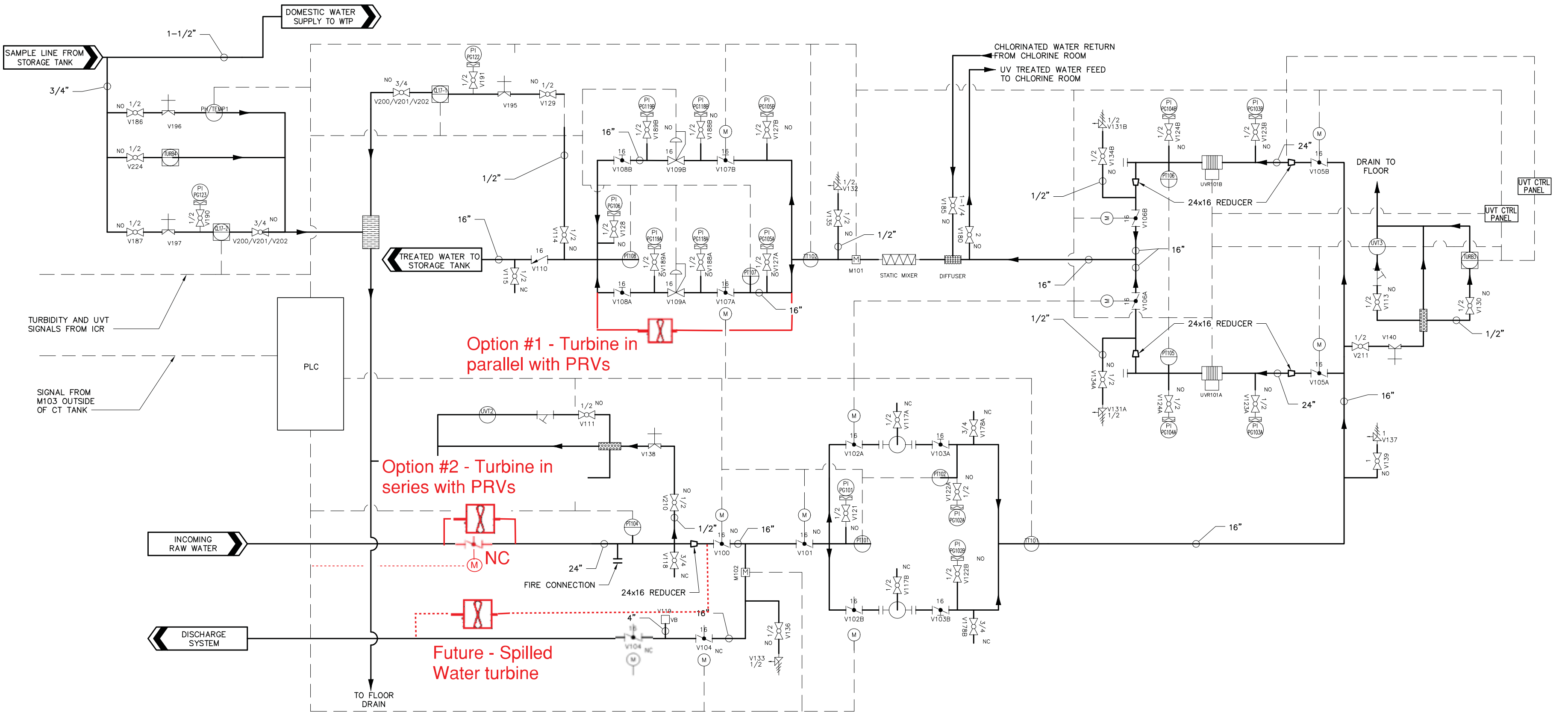
IV. Schedule:

a) The City will re-score the SOQs by March 1st, 2019 and send the results to respondents the following week.

b) Develop the scope of work for and negotiate fees for City Council award in early April 2019.

P&ID LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
—	PROCESS FLOW	⊩	BLIND FLANGE	PT106	PRESSURE TRANSDUCER	CL17-1	HACH CL-17 CHLORINE ANALYZER	M 16 V102B	AUTOMATIC BUTTERFLY VALVE	PH/TEMP1	HACH DPD1P1 PH TEMPERATURE SENSOR
— — —	CONTROL SIGNAL LINE		UV REACTOR	UVT1	UV TRANSMITTANCE MONITOR	16 V108A	MANUAL BUTTERFLY VALVE	16 V109A	ALTITUDE FLOW CONTROL VALVE		DIAPHRAGM VALVE
—▶—	FLOW DIRECTION		STRAINER	16 V110	CHECK VALVE	V132 1/2	AIR RELIEF VALVE	TT101	TEMPERATURE SENSOR	☐VB	VACUUM BREAKER
	PIPE REDUCER	NO 1/2 V129	BALL VALVE NO-NORMALLY OPEN NC-NORMALLY CLOSED		DIFFUSER	PI PG106 1/2 V128	PRESSURE GAUGE WITH ISOLATION VALVE				BUBBLE TRAP
	STATIC MIXER	CL-1	CHEMTRAC CHLORINE MONITOR		STRAINER						
M	MAGNETIC FLOW METER	TURB2	TURBIDIMETER		ACTIVATED CARBON FILTER						



FLOW PROCESS & INSTRUMENTATION DIAGRAM

SCALE: NOT TO SCALE

Plotted By: Curtis
Date/Time: 02 Dec 2013 10:35 am
Layout: P&ID
Filename: F:\Civil Projects\850.01_Unalaska_WTP\dwg\850.01_DSI_Piping_Unalaska.dwg

STATE OF ALASKA 49TH
Jon Michael Menough
CE-12301
12/2/13
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	BY	REVISION
△	12/2/13	JM	ISSUED FOR BID

LCG
LARSEN CONSULTING GROUP, Inc.
architecture · engineering · surveying
3710 Woodland Dr.
Suite 2100
Anchorage, AK. 99517
(907) 243-8985

CITY OF UNALASKA

PYRAMID WTP
UNALASKA, ALASKA

FLOW PROCESS AND
INSTRUMENTATION DIAGRAM

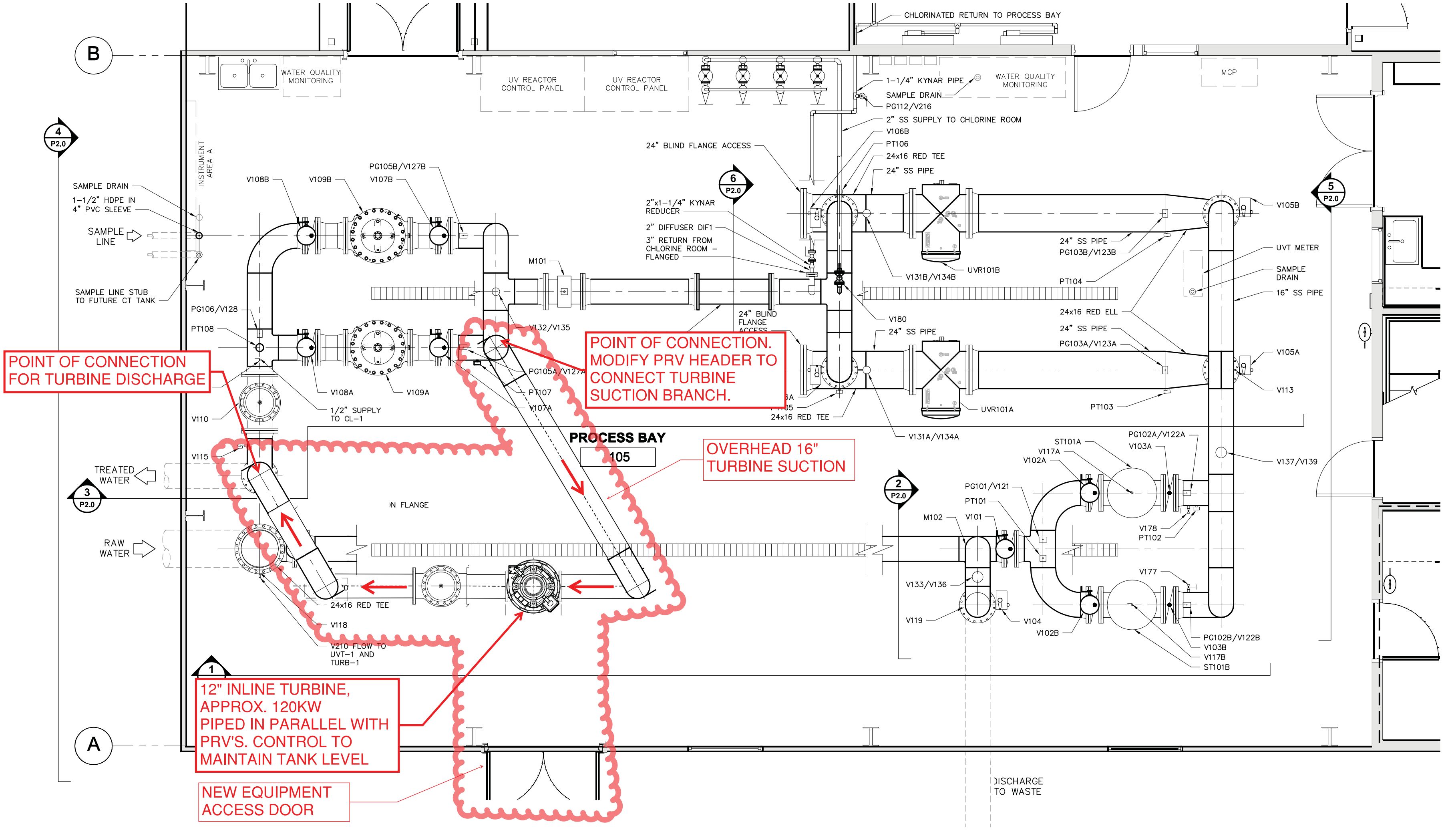
SCALE: AS SHOWN
DESIGNED BY: JM
DRAWN BY: CRS
CHECKED BY: GWF
DATE: 12/2/13
FILE NO. 850.01

SHEET NUMBER
P1.3 OF

Option 1 - Turbine in parallel with PRVs

NOTES

1. ALL PROCESS STREAM PIPING IN THE PROCESS BAY SHALL BE 16-INCH DIAMETER STAINLESS STEEL, UNLESS CALLED OUT OTHERWISE.
2. FOR THE PROCESS STREAM PIPE SUPPORTS, SEE STRUCTURAL. FOR FIRE LINE PIPE SUPPORTS, SEE MECHANICAL. FOR THE OTHER PIPING, COORDINATE WITH BUILDING MANUFACTURER AND PROVIDE PIPE SUPPORTS AS NECESSARY PER THE PIPE MANUFACTURER'S RECOMMENDATIONS.
3. WALL SUPPORT FOR MONITORING, PANELS, PUMPS, PIPING, AND APPURTENANT EQUIPMENT SHALL BE IN ACCORDANCE WITH BUILDING AND EQUIPMENT MANUFACTURER RECOMMENDATIONS.



POINT OF CONNECTION FOR TURBINE DISCHARGE

POINT OF CONNECTION. MODIFY PRV HEADER TO CONNECT TURBINE SUCTION BRANCH.

OVERHEAD 16" TURBINE SUCTION

12" INLINE TURBINE, APPROX. 120KW PIPED IN PARALLEL WITH PRV'S. CONTROL TO MAINTAIN TANK LEVEL

NEW EQUIPMENT ACCESS DOOR

PIPING PLAN

SCALE: 3/8"= 1'-0"

Plotted By: Curtis
Date/Time: 02 Dec 2013 10:35 am
Layout: Piping Plan
Filename: F:\Civil Projects\850.01_Unalaska_WTP\dwg\850.01_DSI_Piping_Unalaska.dwg

Jon Michael Menough
CE-12301
12/2/13

NO.	DATE	BY	REVISION
1	12/2/13	JM	ISSUED FOR BID

LARSEN CONSULTING GROUP, Inc.
architecture · engineering · surveying
3710 Woodland Dr.
Suite 2100
Anchorage, AK. 99517
(907) 243-8985

CITY OF UNALASKA

PYRAMID WTP
UNALASKA, ALASKA

PIPING PLAN

SCALE:	AS SHOWN
DESIGNED BY:	JM
DRAWN BY:	CRS
CHECKED BY:	GWF
DATE:	12/2/13
FILE NO.	850.01

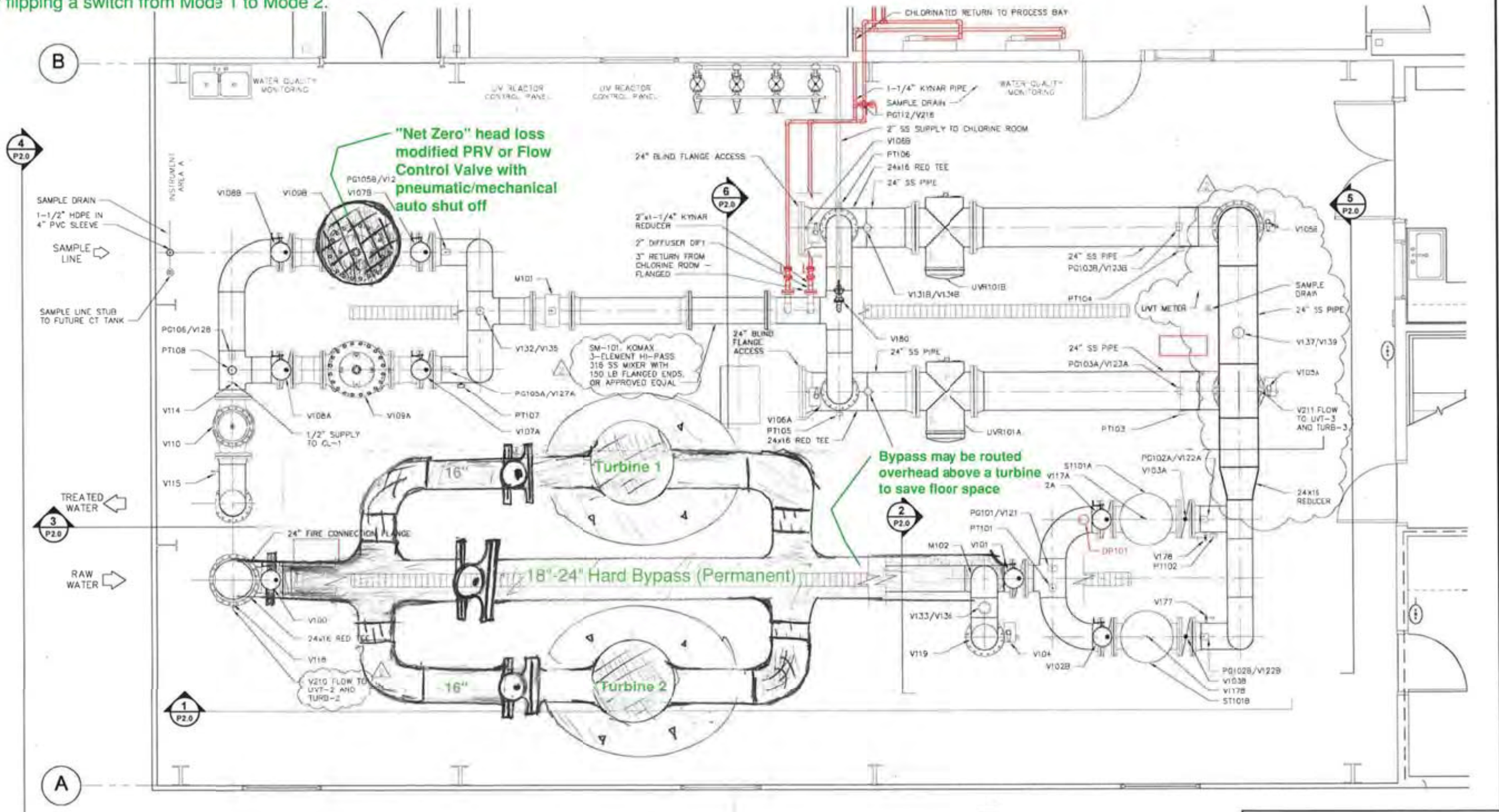
SHEET NUMBER
P1.6 OF

This layout is only a conceptual sketch to indicate what the City has been thinking to date as far as a GPRV flow sequence. It is purely intended serve as a springboard for discussion. The utilities intent is that the plant can operate without any reliance on the GPRVs and that a future high flow scenario is initiated by flipping a switch from Mode 1 to Mode 2.

S STEEL.
TS. SEE
MDE PIPE
SHALL BE IN

Option 2 - Turbine in series with PRVs

CONTRACTOR MAY SUBSTITUTE 1-1/2" KYNAR PIPING FOR 1-1/4" KYNAR PIPING.



RECORD DRAWINGS

THESE RECORD DRAWINGS HAVE BEEN PREPARED FROM INSPECTIONS, CONTRACTOR FURNISHED INFORMATION, AND BASED ON PERIODIC FIELD OBSERVATIONS BY THE ENGINEERS. THE CONTRACTOR PROVIDED INFORMATION APPEARS TO REPRESENT THE PROJECT AS CONSTRUCTED. ANY USE OF THESE DRAWINGS SUBSEQUENT TO THIS DATE SHALL BE FOR INFORMATION AND RECORD PURPOSES ONLY AND NOT FOR CONSTRUCTION.

BY: Thomas Regan, P.E. Thomas Regan DATE: Sept 1, 2016

PIPING PLAN

SCALE: 3/8" = 1'-0"

NO	DATE	BY	REVISION
△	9/7/16	TF	RECORD DRAWINGS
△	4/7/14	JM	CONFORMED DOCUMENTS
△	12/2/13	JM	ISSUED FOR BID

LCG Lantech Inc
architecture · engineering · surveying

250 H Street
Anchorage, AK 99501
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F (907) 243-5629
www.lcgak.com

CITY OF UNALASKA

PYRAMID WTP
UNALASKA, ALASKA

PIPING PLAN

SCALE:	AS SHOWN
DESIGNED BY:	JM
DRAWN BY:	CRS
CHECKED BY:	CWF
DATE:	12/2/13
FILE NO:	850.01

SHEET NUMBER
P1.6 OF

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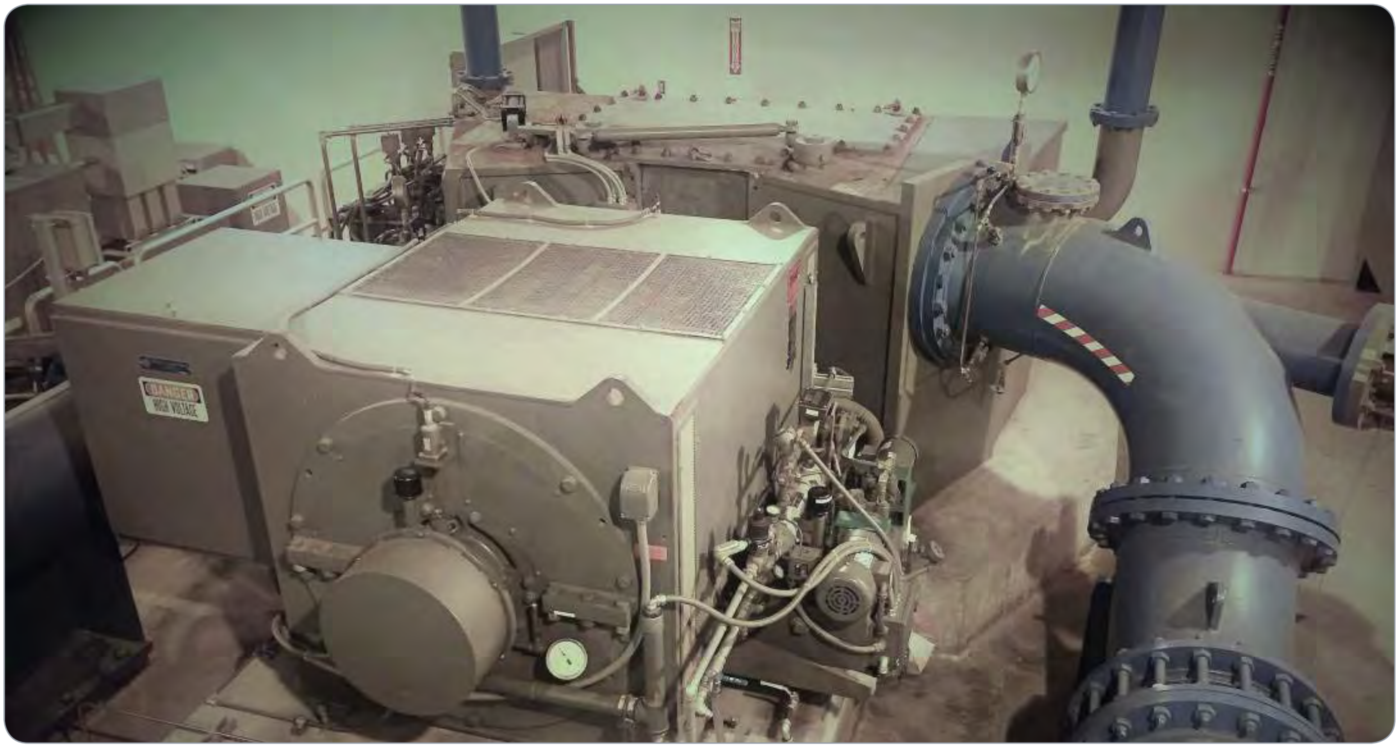
SOQ for the City of Unalaska
Pyramid Water Treatment Plant Inline MicroTurbines Design

DPU Project Number: 17401

January 17, 2019



Eklutna Water Treatment Plant Turbine

800 F Street | Anchorage, Alaska 99501

COFFMAN
ENGINEERS

January 17, 2019

City of Unalaska - Department of Public Works
Robert Lund, PE, City Engineer
rlund@ci.unalaska.ak.us
PO Box 610
Unalaska, AK 99685

Subject: City of Unalaska Pyramid Water Treatment Plant Inline MicroTurbine Design

Dear Robert:

Coffman Engineers, Inc. (Coffman) appreciates the opportunity to provide this statement of qualifications for engineering services for the Pyramid Water Treatment Plant (WTP) Inline Microturbine project. On the following pages we present our qualifications and recommended methodology to accomplish the Phase 2 scope of work. As a full-service, multi-discipline engineering firm, we have the resources in place to move directly into detailed design and construction support and can meet the schedule outlined in the City's RFQ.

We look forward to the opportunity to work with the City of Unalaska on this exciting project. If you have any questions or would like further information, please don't hesitate to contact me.

Sincerely,

Martin Miller, PE
Project Manager, Mechanical Engineering
Coffman Engineers
800 F Street
Anchorage, AK 99501
(907) 257-9292
millerm@coffman.com

PROFESSIONAL QUALIFICATIONS

Coffman has provided multidiscipline engineering services in Alaska since establishing our Anchorage office in 1979. We provide mechanical, electrical, control system, fire protection, civil, structural, and corrosion engineering, along with landscape architecture and project management services. Our clients include water/waste water utilities, power generation, oil & gas industry, commercial and government entities.

Coffman excels at working in concert with our clients to understand their unique challenges and develop creative solutions. Our decades of experience with similar projects in municipal water pumping, treatment and pressure reducing facilities gives us the necessary experience to successfully execute this project and maximize long-term benefit to the City of Unalaska.

Coffman has over 100 employees in Anchorage, and approximately 500 staff overall. Our Anchorage staff has a long history of providing engineering solutions to water utility and power generation clients throughout Alaska on projects of similar size and complexity to the Pyramid WTP Inline MicroTurbine Project.

For this project, we intend to manage the work from our Anchorage office, while drawing on the deep technical expertise of our Burlington, Washington office (formerly Garrison Engineering), which has specialized in public and municipal water system consulting and design services since 1994.

The Coffman team will leverage our experience in municipal water system and power generation planning, design and operations to focus on the key attributes of reliability, maintainability, upfront cost, and energy yield to make this project a success.

We intend to work with Electric Power Systems (EPS) and Boreal Controls for this project to complete the scope of work, as outlined in the RFQ. We will draw on their knowledge of the City of Unalaska infrastructure to ensure that the project design integrates with existing operations as seamlessly as possible. We have recent success working alongside EPS at AWWU's Eklutna Power Plant and on ConocoPhillips' CD5 bridge signal project, among others. We are open to subcontracting to these firms or working alongside them, through the City's existing term contracts.

Other subconsultants for this project include HMS Estimating (Cost Estimating) and Solstice Alaska Consulting (Permitting). Both have significant experience on similar projects in the Aleutian region and throughout rural Alaska. We intend to leverage SolsticeAK's local employee in Unalaska to help facilitate coordination with local entities as needed and support information gathering efforts, helping to minimize project costs and risk.

KEY PERSONNEL

PROJECT MANAGER
Martin Miller, PE (AELM 12030)
COFFMAN - ALASKA

Martin has 15 years of design and project management experience in Alaska and abroad including experience in all stages of project development, planning, energy auditing, design, installation, commissioning, and operations. He is responsible for design and construction administration for utility, commercial, and industrial projects throughout Alaska. Martin also provides project management and design of energy projects with a focus on integrating renewable energy generation into existing isolated electrical grids for power plants in Teller and St. Mary's.

MECHANICAL ENGINEER
Carl Garrison, PE (31581 WA)
COFFMAN - WASHINGTON

With 30 years of experience in water system design, treatment and rehabilitation, Carl will be an integral part of concept development and QA/QC for this project. Carl founded Garrison Engineering in 1994, and has spend the past 25 years working with municipal water utilities on a wide range of engineering and planning projects in Washington and the surrounding areas. His experience includes water storage, pumping, treatment, and pressure regulation.

QA/QC

Lon Johannes, PE (AELE12169)

COFFMAN - ALASKA

Lon has 16 years of multidiscipline experience as an electrical designer and project manager. His experience includes a variety of electrical engineering applications with special emphasis in SCADA system design, programming, and commissioning. Lon has a deep understanding of water utility operations through his extensive work with AWWU, where he works hand in hand with AWWU's operators and engineers to develop, implement, and test all types of municipal water projects.

Key Personnel Rates and Availability (%)

Company	Name	Role	Rate	%
Coffman	Martin Miller, PE	Project Manager	180	50
Coffman	Carl Garrison, PE	Mechanical	180	35
Coffman	Lon Johannes, PE	QA/QC	180	40

We anticipate additional support from other disciplines and team members, and rates are available upon request.

PROJECT REFERENCES

Our goal as a company is to work with our clients to provide designs that result in successful long-term relationships. We measure that goal by providing engineering to the same clients on many projects over several years, becoming a part of their team. We understand our utility and industrial clients are very knowledgeable about the operation and function of their facilities and leveraging that knowledge through collaboration is the best method to incorporate that knowledge into the designs we produce for them. Some of our long-term Municipal Water and Electric Utility clients are:

Sample of Municipal Water Utility Clients:

- Anchorage Water and Wastewater Utility (AWWU)
- Town of Cusick, WA
- City of Anacortes, WA
- Juniper Beach Water District, Camano Island
- Town of Hamilton, WA
- Silver Springs, NV
- Beatty, NV
- Yearington, NV
- Skagit Public Utility District

Sample Electric Utility Clients:

- Chugach Electric Association
- Municipal Light & Power
- Kodiak Electric
- Department of Defense
- Alaska Village Electric Cooperative

We encourage the review committee to contact our references:

Reese Cheney – ICS Manager
AWWU
(907) 564-2700 (main), (907) 550-5901

Jeff Marrs - WTP Manager
City of Anacortes
(360) 428-1598

Kevin Plambeck - President
Juniper Beach Water District
(425) 508-5010

Mike Maloney – Chief Executive Officer
Canyon Hydro
(360) 592-5552

Dustin Highers – Senior Manager Production
Chugach Electric
(907) 563-7494

PROJECT EXPERIENCE

Coffman's project history in this market is wide ranging and includes municipal and small water systems. Our projects include water system planning, pump station and pressure reducing station design, SCADA design, programming and implementation, computer modeling, wells, pump testing, storage reservoirs, new and replacement pipelines, water treatment for a variety of contaminants, and pilot testing. The sample projects listed below highlight our experience working in similar municipal water and related projects.

Eklutna Water Treatment Plant Turbine
AWWU
Anchorage, Alaska

Coffman developed a root cause analysis and repair design for an arc-fault event in the Eklutna Water Treatment Facility (EWTF) energy recovery system switchgear. The facility consists of a 750kw induction turbine generator, and a 30-in submerged sleeve valve for control of flow when the induction turbine-generator is not in operation or when the available flow exceeds the turbine's capacity. Work included review of the existing turbine and turbine control system, specification of new medium voltage fused contactors with modern protection relay, controls verification and integration with the existing energy recovery control system, and commissioning and start-up support. **Reference: Reese Cheney – ICS Manager AWWU;** (907) 564-2700 (main), (907) 550-5901

Inline turbine regenerative blowers – Soar Hydropower Technologies
Multiple sites, Hawaii

Coffman worked with Soar Technologies (now Canyon Hydro) to specify and design the piping, controls, and a regenerative blower assembly for two microhydro turbine installations on the Big Island of Hawaii (one at Volcano, HI; the other at Kaloko, HI). The blowers were used to pressurize the cavity of the 30 hp turbines so that water could discharge above the elevation of the turbine outlet. The blowers were cast aluminum rather than steel for corrosion resistance to the Big Island's volcanic gases (VOG). These blowers replaced compressors that failed due to corrosion issues. **Reference: Mike Maloney – Chief Executive Officer - Canyon Hydro;** (360) 592-5552

Anchorage Water and Wastewater Utility (AWWU)

Coffman has performed a wide range of engineering projects for AWWU over the past 20+ years, including:

- Eklutna Water Treatment Facility filter to waste cycle engineering: electrical, mechanical and structural design
- AWWU / Municipal Light and Power Heat exchanger: feasibility and cost/benefit analysis of using powerplant cooling water to heat AWWU water service
- Eklutna pipeline valve control study
- Corrosion Control engineering term, including cathodic protection designs; soil corrosivity evaluations; coating specifications; NACE certified coating inspectors

Coffman has performed several engineering projects in Washington, including:

- City of Anacortes, WA - Mechanical and Electrical redesign of a municipal pump station to increase the flow from 1,000 gpm to 1,850 gpm and increase the pumping pressure from 107 to 137 PSI
- Juniper Beach Water District, WA - Long term client since 2003. Projects include development of a comprehensive plan, and design of a concrete storage tank, pipeline replacement, addition of fire pumps, and a 125kVA back-up generator
- Town of Cusick, WA - Redesign of a 25+ year old 400 GPM surface water treatment plant, including updated controls, addition of filter to waste, and management of a grant and two loans to complete the work


Unalaska

Kodiak Electric Cooperative
Terror Lake Penstock Integrity Evaluation
Coffman supported development of a penstock integrity inspection plan and supported implementation of the inspection once approved by the Federal Energy Regulatory Commission (FERC).

NARRATIVE WORK PLAN AND METHODOLOGY

The project execution methodology outlined in the RFQ is in line with the Front End Loading (FEL) engineering process that we use on a daily basis for other utility and industrial clients, and is a good fit for this type of project.

The goal of our Phase 2 effort will be to confirm the project feasibility from a technical and economic perspective in order to proceed with public outreach, equipment procurement, and project financing for the inline microturbine configuration. Our focus will be to:

1. Clarify equipment performance requirements for inclusion in the turbine RFP

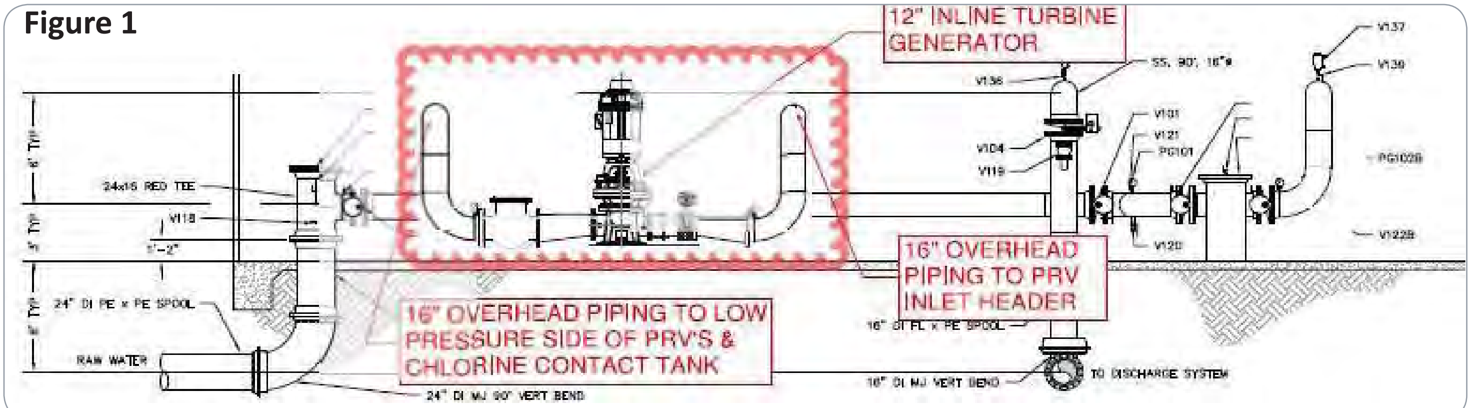
2. Define significant installation scope, as well as shutdown duration and timing, temporary facilities, and coordination with operations and other ongoing projects. This effort will help establish project requirements and reduce uncertainty with respect to cost and benefits of the project

Based on an initial review of the 20136 Pyramid WTP design drawings and the City's water flow data, there appears to be adequate space within the existing facility to install 1 or 2 inline turbines of an appropriate size (see attached concept sketch). The turbine should be installed in parallel with the existing PRVs and modulated via internal wicket gates to maintain the desired chlorine contact tank level. This arrangement will maximize energy capture by eliminating throttling across the PRVs under most operating scenarios. The PRVs are then only used when the municipal flow exceeds maximum turbine flow, or if the turbine requires maintenance.

Our Phase 2 efforts will focus on the following specific areas:

Clarify operational requirements and constraints
The Coffman team will define the constraints in the equipment RFP and require the turbine suppliers to address the requirements in their response. We plan to develop a Piping and Instrumentation Diagram (P&ID) and Electrical One-Line diagram, as well as narrative operational and cut-over requirements for the new work. We intend to work closely with Cla-Val to develop a solution that minimizes required PRV pressure drop for the rapidly changing flow conditions. Turbine installation in parallel with the PRVs would maximize energy capture while leaving open the option of a second turbine upstream of treatment to capture spilled water once water rights are in place.

Figure 1



3. **Define physical parameters for new equipment**
   Coffman will confirm or develop equipment weight and dimensional requirements/ limitations for installation. Such limitations will include consideration of transportation, staging, lifting/crane work, maintenance access once installed. Due to existing equipment and piping layout, new equipment will need to be located near the raw water entrance to the facility, as shown in the attached concept sketch, Figure 1. We expect the turbine to be approximately the same footprint as a PRV, with the motor mounted vertically upwards. However, our intent is to maximize flexibility for the equipment manufacturer without impeding on the City's ability to use the facility as needed during construction and maintain the new equipment over the life of the project. For this "Pre-design Scoping" level of study, and based on the limited budget identified in the RFQ for Phase 2 work, onsite investigative work can be shifted to a later project phase, when appropriate. Such decisions would be made in concert with the City of Unalaska.

4. **Define installation requirements**
   Careful consideration of all major systems required for construction – civil/structural, mechanical, electrical, controls, corrosion – as well as evaluation of any impact to operations of the water or power utility is needed to ensure that all major cost items are identified and quantified in the Total Installed Cost (TIC) estimate.

5. **Confirm Energy Modeling results**
   Our prior experience indicates that the energy modeling needs to be revisited throughout the design process to confirm validity as the design progresses. We intend to review modeling results in light of operational constraints and final turbine sizing to ensure that the economic calculations are consistent with the planned infrastructure. Equipment selection will need to consider adaptability, such as seasonal nozzle replacement, to maximize energy capture. Prior studies indicated the intent to use the onsite generation to offset facility electricity consumption. While this is a worthy first step, the possibility of selling power to the utility should also be evaluated even if the revenue would be limited to the avoided cost of offset diesel.

6. **Customer water use and water rights/ permitting**
   Water rights play a key role in economic calculations for this project, with impacts to basic infrastructure such as turbine sizing. Coffman and Solstice, our permitting consultant, are prepared to investigate the likelihood of obtaining additional water rights, and the timeline for doing so, under this Phase 2. This work will only be undertaken at this time if needed to properly select the turbines or evaluate project economics.

Our team is looking forward to helping the City of Unalaska develop this important project.

Eklutna Water Treatment Plant Turbine

KEY PERSONNEL RESUMES

MARTIN J. MILLER, PE

Project Manager, Mechanical Engineering

Martin has 15 years of design and project management experience in Alaska and abroad including experience in all stages of project development, planning, energy auditing, design, installation, commissioning, and operations. He is responsible for design and construction administration for utility, commercial, and industrial projects throughout Alaska. Martin also provides project management and design of energy projects with a focus on integrating renewable energy generation into existing isolated electrical grids.

Years of Experience

With this Firm: 5

With Other Firms: 10

Education

BS Mechanical Engineering; University of Virginia; 2002

License

Alaska; Licensed Mechanical Engineer; AELM12030; 2008

Professional/Community Activities

Refrigerating and Air Conditioning Engineers (ASHRAE)

IEEE Power and Energy Society

References

Dustin Highers, Chugach Electric Cooperative, (907) 762-4775

Jim Taiclet, Alyeska Pipeline Service Company, (907) 787-8807

Kris Manke, Yukon-Kuskokwim Health Corporation (907) 543-6054

Project Experience:

Yukon Kuskokwim Health Corporation
Bethel Hospital CHP Microturbines, Bethel, AK

Martin led a multi-discipline team in developing a concept for YKHC to self-generate heat and power onsite at their Bethel facility, The work included civil, structural, fire, electrical and mechanical facilities design, along with detailed energy analysis and cost estimating to enable comparison of the cost of ownership of the project vs. purchasing heat and power from the local utility.

AVEC Power Plant Engine Coolant Heat Exchanger Design, Bethel, AK

Martin was involved throughout the development of this project from concept development to commissioning. He was the project technical lead for the design development and supported final design of the new heat exchanger module for upgrades to the Bethel power plant heat recovery system. Upgrades included a new module to house heat exchangers totaling 30MMBTU/hr capacity and total pumping capacity of 2,850 GPM to serve current and anticipated future loads. During design, Coffman provided all engineering disciplines and management of cost estimating, architecture and geotechnical of sub-consultants. Martin was the project manager and primary technical representative during fabrication, installation and commissioning.

2016 Alyeska G004 PS01 Black Start Generator,Anchorage, AK

Martin was project manager for an alternatives analysis and front end engineering and design (FEED) to support upgrades to the onsite power generation system. He led Coffman's efforts from a technical and administrative perspective. The analysis included a review of reliability for equipment and fuel supplies to an isolated industrial facility, powered primarily by two gas turbines in the 5-13MW capacity range. Reciprocating and turbine generators in the 1MW capacity range were considered to meet blackstart and contingency power needs. The scope of work included project management
(project engineering), preliminary design, close coordination with Operations, and cost estimating to support the business case for recommended upgrades.

Solar PV 500kW Concept, Anchorage, AK

Martin was the project manager for this multi-stage solar PV project. The initial phase was a concept development to demonstrate commercial/utility scale photovoltaic (PV) in Anchorage up to 500kW DC, and to evaluate technologies and grid integration issues. Considerations included; siting options (ground-mount, rooftop, canopy, and wall mounted) on the main Chugach Electric Campus; construction cost and risk; levelized cost of energy; review of incentives like tax and financing, and PV panel efficiency -standard vs. premium. As project manager, Martin supported development of the concept, led development of the proposal response, provided bidding support, and is now acting as the Owner's Technical Representative during project execution.

CARL GARRISON, PE

Operations Manager

Carl Garrison is the operations manager of Coffman's office in Burlington, Washington and has been providing engineering services for nearly three decades. He has worked on various types of buildings including residential,commercial, institutional, and industrial projects. His experience includes water systems and treatment, HVAC, plumbing, fire protection, supervision of multi-disciplined engineering projects, and business management.

Total Years of Experience: 30

Education

Bachelor of Science in Mechanical Engineering; California State University, Chico 1989

License

Washington; Mechanical #31581

(also licensed in 6 additional states)

NCEES Certified

Professional/Community Activities

American Water Works Association (AWWA)

Sedro-Woolley Rotary, 1995-Present

Project Experience:

City of Anacortes Rock Ridge Pump Station, Anacortes, WA 2017

Project manager and engineer of record for modifications to this city owned pump station. The design pressure was raised from 103 to 107 PSI and the flow was increased from 1,100 GPM to over 1,800 GPM without increasing the generator size or electrical service size. The selected VFD pumps were 4 – 5 HP vertical inline type, as well as replacing the impeller on the larger 125 HP fire protection pump. Included in the design was a new pump header and related fittings, system hydraulic analysis, and electrical upgrades.

Juniper Beach Water District, Camano Island, WA

Water systems engineer for Juniper Beach Water District projects since 2003. Projects include: two system mergers. One for a small transient public water supply and one for a group of 24 homes. In each case, a low interest loan and/or grant was obtained through the government to replace the systems so that it met the requirements of the larger utility. Carl designed and managed the projects on behalf of the JBWD to replace approximately 8500 lf of pipeline in the beach area homes and he assisted in setting up a utility local improvement district (ULID). Other projects include: design of a 120,000 concrete storage tank; the addition of twin 20–hp booster pumps and a 125 KVA 3-phase generator for new development and for fire protection; and major upgrades to iron and manganese filters and booster pumphouse.

Soar Technologies, Big Island of Hawaii

Provided engineering services in collaboration with Soar Technology for micro hydro turbines. Carl assisted Mike Maloney of Soar Technologies in developing plans and a process diagram for two projects; one in Volcano, HI and one in Kaloko, HI. Both micro hydro turbines had about 400’ of head and generated 30 Hp. Each installation used 5 hp regenerative blowers to evacuate the turbine blade housing so water could be discharged approximately 15 feet upgradient of the outlet of the turbine. A specific design consideration was the use of aluminum parts as the previous carbon steel compressor system failed after a year due to corrosion from the Big Island’s volcanic gases or VOG.

LON JOHANNES, PE

Engineer, Electrical Engineering

Lon's 16 years of multidiscipline experience as an electrical designer and project manager includes a variety of electrical engineering applications with special emphasis in applications for industrial and commercial and public safety projects. Lon commonly performs internal electrical QA/QC reviews on a number of projects for various clients. His SCADA experience includes remote project site monitoring systems, local platform PLC Systems, logic modifications, facility HMI screen updates and more.

Years of Experience

With this Firm: 10

With Other Firms: 6

Education

BS Electronics Engineering Technology; Western Washington University; 2002

License

Alaska; Licensed Electrical Engineer; AELE12169; 2008

Professional/Community Activities

Institute of Electrical and Electronic Engineers (IEEE)

International Society of Automation (ISA)

Project Experience:

Anchorage Water and Wastewater Utility (AWWU)
Eklutna Water Treatment, Anchorage, AK

Electrical engineer for designing and preparing construction documents to implement filter to waste cycle for the existing filter beds. Coffman provided the all the associated design components for bidding, permit and construction to include specifications, drawings, and assistance with cost estimating.

Anchorage Water and Wastewater Utility (AWWU) SCADA Support
Anchorage, AK

Electrical engineer for SCADA technical services to support the maintenance and upgrade of AWWU’s 130+ SCADA monitored and controlled sites. The sites are located across the Anchorage Bowl from Girdwood to Eklutna. The Term contract has included integration of a new generator at the Eklutna water treatment plant, programmable automation controllers at over 100 of the water and waste water distribution sites, integration of a new aeration system at the Eagle River waste water treatment plant and renovation of the Ship Creek Energy Recovery Station to include new controllers, motorized operated valves, pressure reducing valves and heat exchanger.

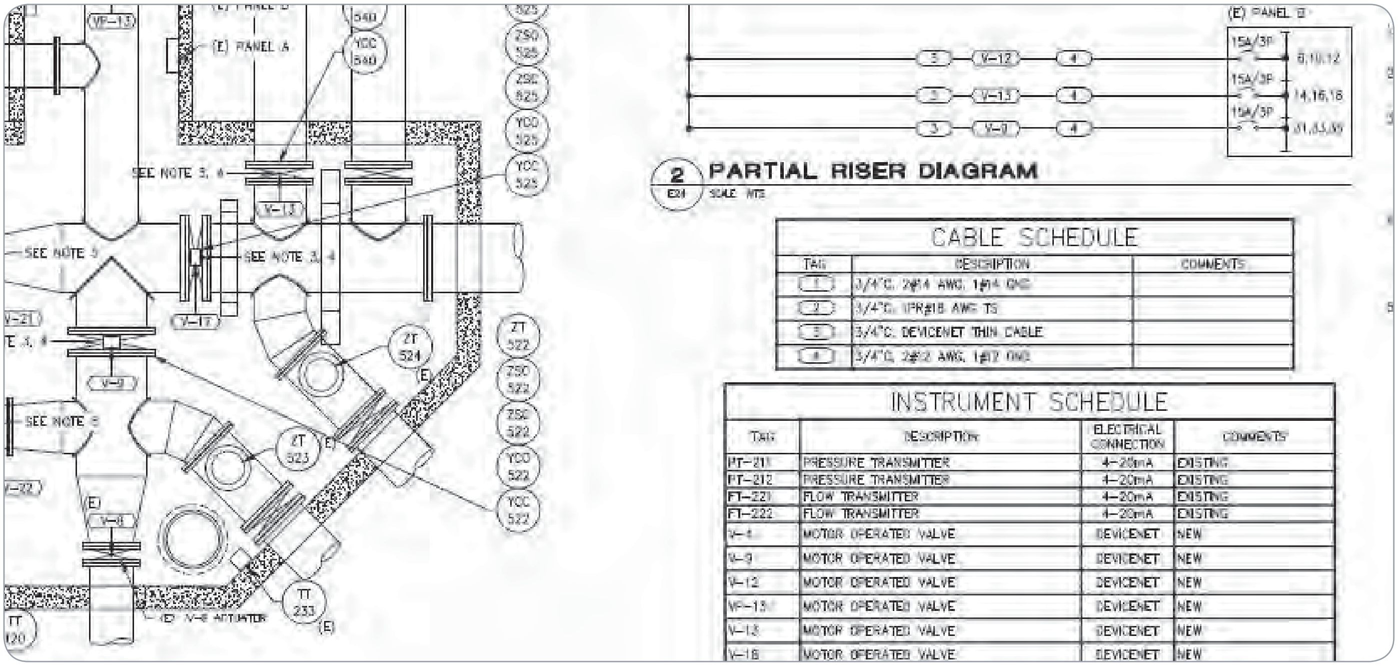
Finegayan Tank Replacement
Naval Base Guam Telecommunications Site (NBGTS)

The objective of the project was to replace the North and South Finegayan elevated water tanks with 500,000 gallon ground level, pre-stressed cylindrical concrete water storage tanks located on the Naval Base Guam Telecommunications Site. Coffman's scope of work included the design of PLC based control systems for the two replacement water storage tanks and their associated booster pump stations. The system design included installation of new motor control centers (MCC), new back-up generators, new flow, temperature, and pressure instrumentation and controls for the elevated water tanks and booster pumps. The solution included wireless Ethernet communication integration for each site into the existing remote monitoring system. The design was scheduled to occur between December 2015 and March 2016 and was completed on time and for the contracted budged without any contract change orders. 15 RFIs were issued during construction, which was completed between March 2016 and June 2017. The construction schedule was extended four months due to delays in pump procurement. There were no disputed changes or claims that remained at substantial completion.

Baza Gardens Cross-Island Pumping and Conveyance System
Hagatna, Guam

The objective of the project was to install a cross island wastewater pumping and conveyance system including Screening and Grit Removal headworks, Equalizing Tanks, and three Effluent Pump Stations. Coffman's scope of work included the electrical and instrumentation and controls design for the headworks screening and accumulation facility, 8 miles of sewage pipe and three pump stations. Each facility had generator backup power, PLC based control systems and wireless Ethernet communication integration into the existing Guam Water Association control network.

SAMPLE DRAWINGS



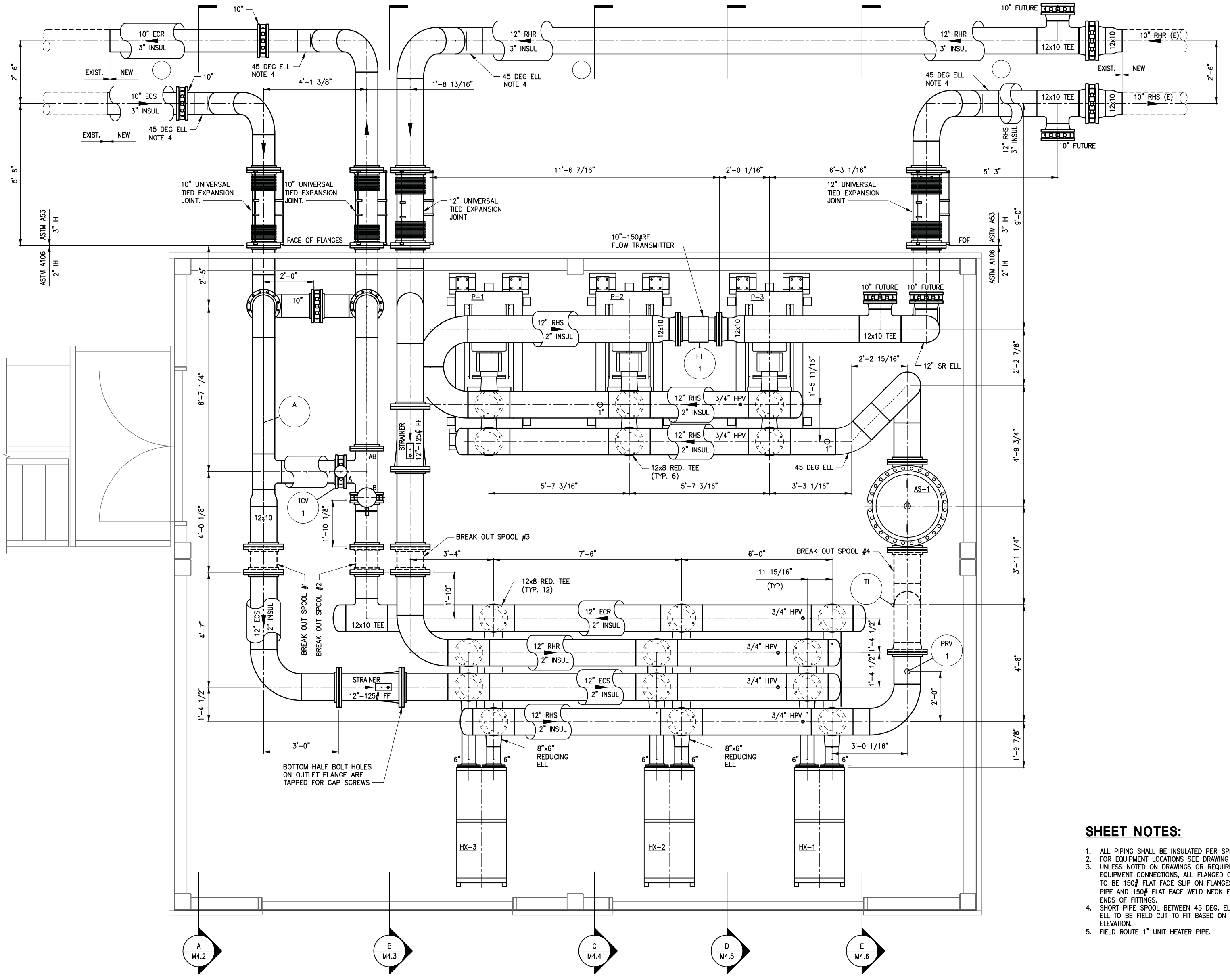
CABLE SCHEDULE

TAG	DESCRIPTION	COMMENTS
1	3/4"C, 2#14 AWG, 1#14 GND	
2	3/4"C, 1PR#18 AWG TS	
3	3/4"C, DEVICENET THIN CABLE	
4	3/4"C, 2#12 AWG, 1#12 GND	

INSTRUMENT SCHEDULE

TAG	DESCRIPTION	ELECTRICAL CONNECTION	COMMENTS
PT-211	PRESSURE TRANSMITTER	4-20mA	EXISTING
PT-212	PRESSURE TRANSMITTER	4-20mA	EXISTING
FT-221	FLOW TRANSMITTER	4-20mA	EXISTING
FT-222	FLOW TRANSMITTER	4-20mA	EXISTING
V-4	MOTOR OPERATED VALVE	DEVICENET	NEW
V-9	MOTOR OPERATED VALVE	DEVICENET	NEW
V-12	MOTOR OPERATED VALVE	DEVICENET	NEW
VP-13	MOTOR OPERATED VALVE	DEVICENET	NEW
V-13	MOTOR OPERATED VALVE	DEVICENET	NEW
V-18	MOTOR OPERATED VALVE	DEVICENET	NEW

COFFMAN ENGINEERS



PLAN NORTH TRUE NORTH

1
M4.1

PIPING PLAN

SCALE: 1/2" = 1'-0"

0 1 2 4 6
1/2"=1'-0"

SHEET NOTES:

1. ALL PIPING SHALL BE INSULATED PER SPECIFICATION.
2. FOR EQUIPMENT LOCATIONS SEE DRAWING M4.0
3. UNLESS NOTED ON DRAWINGS OR REQUIRED AT EQUIPMENT CONNECTIONS, ALL FLANGED CONNECTIONS TO BE 150# FLAT FACE SLIP ON FLANGES AT ENDS OF PIPE AND 150# FLAT FACE WELD NECK FLANGES AT ENDS OF FITTINGS.
4. SHORT PIPE SPOOL BETWEEN 45 DEG. ELL AND 90 DEG. ELL TO BE FIELD CUT TO FIT BASED ON FINAL MODULE ELEVATION.
5. FIELD ROUTE 1" UNIT HEATER PIPE.

ISSUED FOR CONSTRUCTION

Feb 10, 2017
No. ME10943

COFFMAN ENGINEERS
AECC249
800 F Street
Anchorage, Alaska 99501
907.276.6664 www.coffman.com

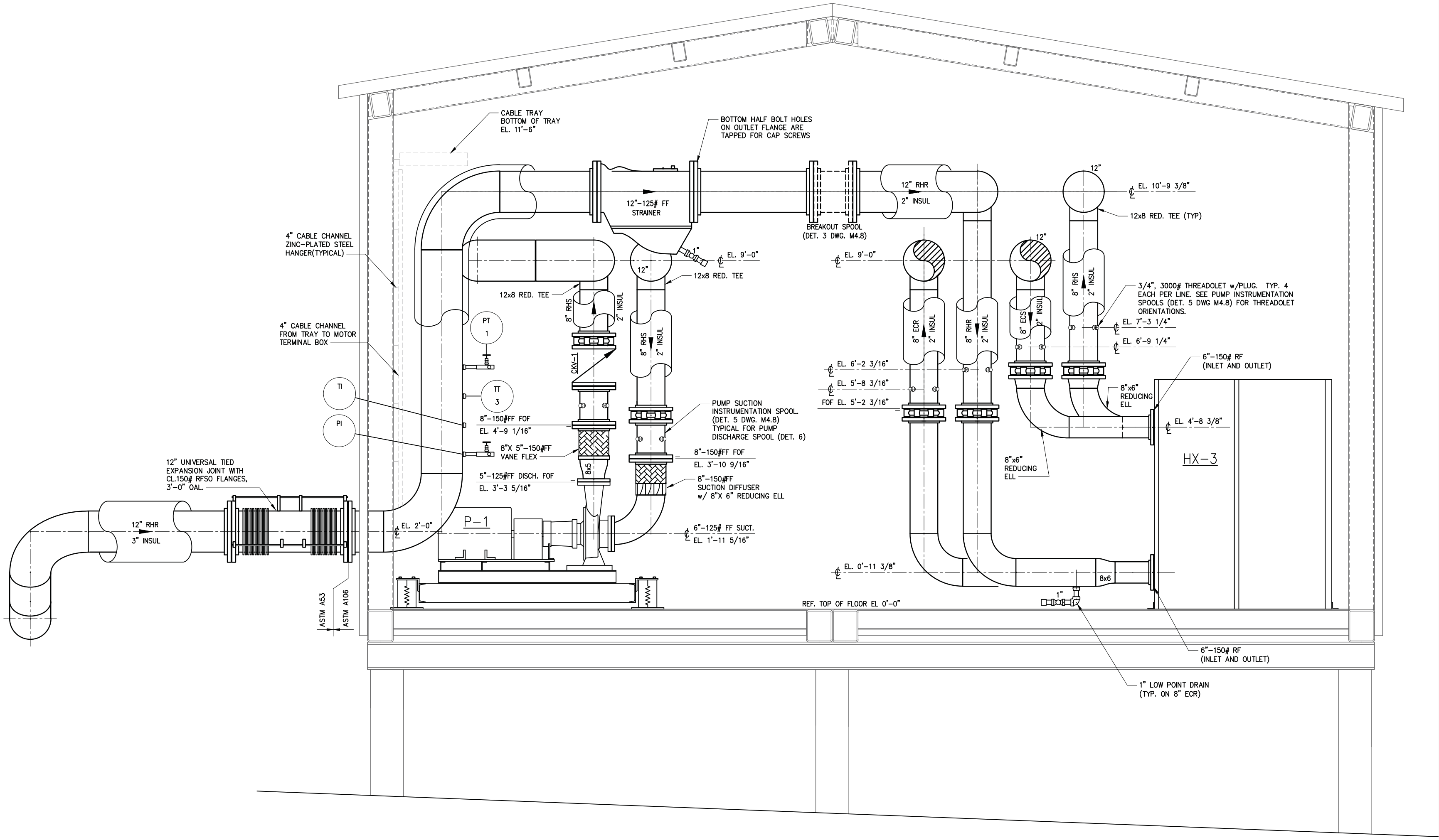
NO.	DATE	BY	REVISIONS
0	02/10/17		ISSUED FOR CONSTRUCTION
A	07/22/16		ISSUED FOR 95% DESIGN REVIEW

SCALE	DATE	SHEET
AS NOTED	02/10/17	
NO.	M4.1	REV. 0

User: WALKER Feb 10, 2017 – 10:25pm
Drawing: P:\ANC\16JOBS\160318 AVEC BETHEL HX AE FINAL\0.0 DWGS\160318_M4.1.DWG – Layout: PIPING PLAN

SHEET NOTES:

1. ALL PIPING SHALL BE INSULATED PER SPECIFICATION.
2. FOR EQUIPMENT LOCATIONS SEE DRAWING M4.0
3. UNLESS NOTED ON DRAWINGS OR REQUIRED AT EQUIPMENT CONNECTIONS, ALL FLANGED CONNECTIONS TO BE 150# FLAT FACE SLIP ON FLANGES AT ENDS OF PIPE AND 150# FLAT FACE WELD NECK FLANGES AT ENDS OF FITTINGS.
4. ELECTRICAL ITEMS NOT SHOWN FOR CLARITY.



B
M4.1
PIPING SECTION B
SCALE: 3/4" = 1'-0"

3/4"=1'-0" 0 1 2 4

ISSUED FOR CONSTRUCTION

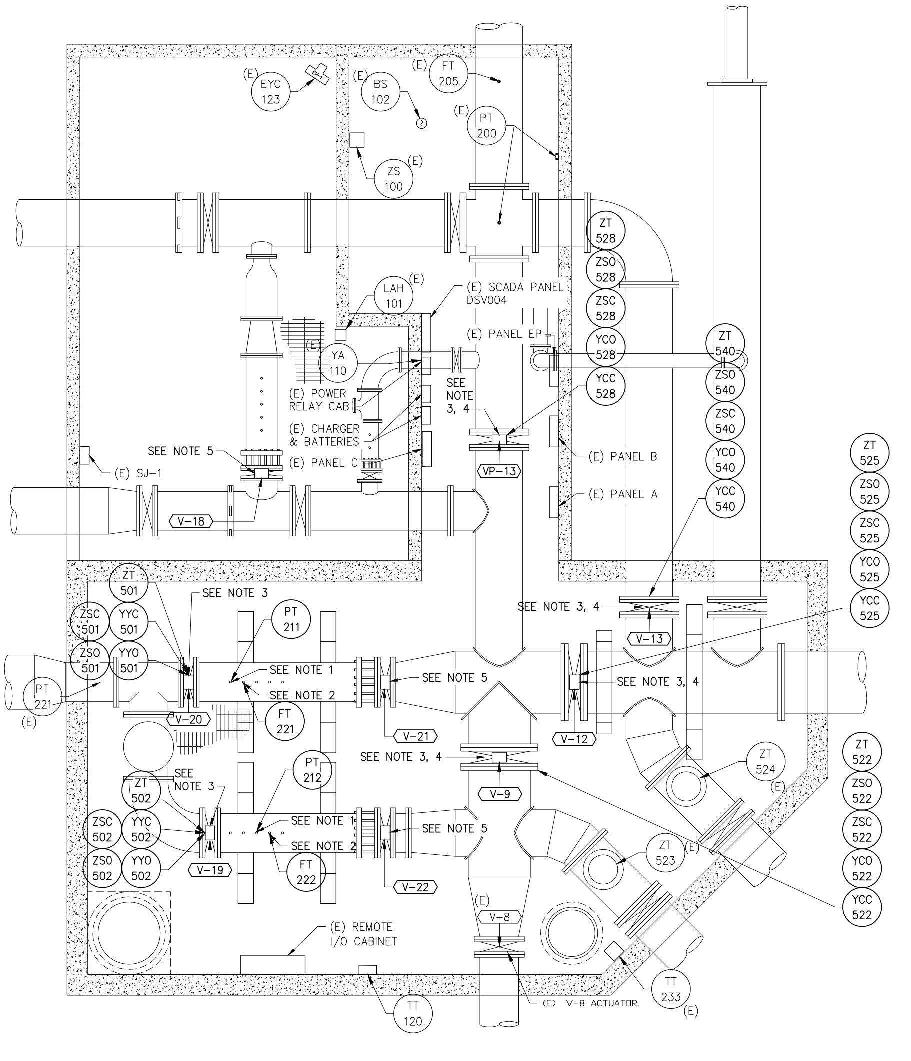
User: WALKER Feb 10, 2017 – 10:26pm
Drawing: P:\ANC\16JOBS\160318 AVEC BETHEL HX AE FINAL\0.0 DWGS\160318_M4.3.DWG – Layout: PIPING SECTION B

JEFFREY L. GILES
Feb 10, 2017
No. ME10943

COFFMAN ENGINEERS
AECC249
800 F Street
Anchorage, Alaska 99501
907.276.6664 www.coffman.com

NO.	DATE	BY	REVISIONS
A	07/22/16		ISSUED FOR 95% DESIGN REVIEW
0	02/10/17		ISSUED FOR CONSTRUCTION

SCALE	DATE	SHEET
AS NOTED	02/10/17	
NO. M4.3		REV. 0

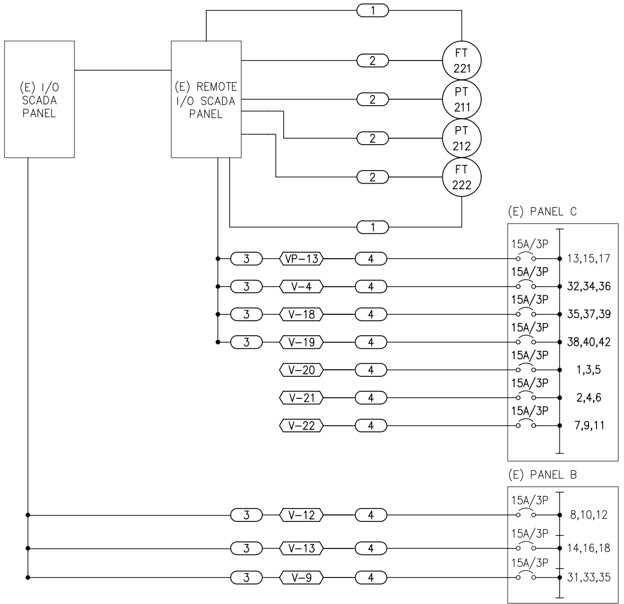


1 PRV STATION 04 CENTENNIAL - NEW

E24

SCALE: 1/4" = 1'-0"

1/4"=1'-0" 0 1 2 3 4 6 8 12



2 PARTIAL RISER DIAGRAM

E24

SCALE: NTS

SHEET NOTES:

1. RELOCATE IDENTIFIED INSTRUMENTATION AS SHOWN ON NEW PLAN. EXISTING RACEWAYS MAY BE REUSED IF THE FILL CAPACITY DOES NOT EXCEED THE NEC OR SPECIFICATION REQUIREMENTS.
2. REMOVE ALL ABANDONED RACEWAYS.
3. SEE SHEETS E25-E27 FOR ADDITIONAL INFORMATION.
4. SEE E28 FOR DETAILS.
5. SEE SHEET E29 FOR PANEL SCHEDULE.

LEADER NOTES:

1. LOCATION OF RELOCATED PRESSURE TRANSMITTER.
2. LOCATION OF RELOCATED TEMPERATURE TRANSMITTER.
3. MOTOR OPERATED VALVE (MOV) CONTROL AND STATUS SIGNALS ARE TRANSMITTED VIA DEVICENET COMMUNICATION NETWORK. PROVIDE DEVICENET CABLE FROM EXISTING SCADA PANEL TO MOV OPERATOR. SEE SHEET E25 FOR MORE INFORMATION.
4. PROVIDE NEW WIRING TO V-13, VP-13, V-9, AND V-12 ACTUATORS FROM THEIR EXISTING CIRCUIT BREAKERS IN PANEL C AND PANEL B. FOR ADDITIONAL INFORMATION SEE PANEL SCHEDULES ON SHEET E30.
5. PROVIDE NEW WIRING TO V-20, V-21, AND 22 TO NEW CIRCUIT BREAKERS IN PANEL C. FOR ADDITIONAL INFORMATION SEE PANEL SCHEDULES ON SHEET E30.

CABLE SCHEDULE

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V-9	MOTOR OPERATED VALVE	DEVICENET	NEW
V-12	MOTOR OPERATED VALVE	DEVICENET	NEW
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V-13	MOTOR OPERATED VALVE	DEVICENET	NEW
V-18	MOTOR OPERATED VALVE	DEVICENET	NEW
V-19	MOTOR OPERATED VALVE	DEVICENET	NEW
V-20	MOTOR OPERATED VALVE	208VAC	NEW
V-21	MOTOR OPERATED VALVE	208VAC	NEW
V-22	MOTOR OPERATED VALVE	208VAC	NEW

0000006556

VERIFY SCALE

THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING. 0" 1"

IF BAR IS NOT ONE INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE
HORZ SCALE: N/A
VERT SCALE: N/A

DATA	DRAWN BY	CHECKED BY	DATA	DRAWN BY	CHECKED BY	REV	DATE	DESCRIPTION	BY
BASE	---		TELEPHONE	---					
TOPOGRAPHY	---		ELECTRIC	JPW					
PROFILE	---		CABLE TV	---					
SANITARY SEWER	---		TRAFFIC SIGNAL	---					
STORM SEWER	---		DESIGN	---					
WATER	---		QUANTITIES	---					
GAS	---		MUN. FINAL CHECK	---					
PLAN CHECK						REVISIONS			

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: ______
This will serve to certify that these Record Drawings are a true and accurate representation of the project as constructed.
CONTRACTOR: ______
BY: ______ TITLE: ______
DATE: ______
2. DATA TRANSFERRED BY: ______
COMPANY: ______
DATE: ______
3. Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor-provided data appears to represent the project as constructed.
DATA TRANSFER CHECKED BY: ______
COMPANY: ______
BY: ______ TITLE: ______
DATE: ______

REUSE OF DOCUMENTS

THIS DOCUMENT AND THE IDEAS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF AWWU AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT WRITTEN AUTHORIZATION OF AWWU.

COFFMAN ENGINEERS
800 F Street | Anchorage, Alaska 99501
ph 907.276.6664 | fax 907.276.5042
coffman.com
LASTING creativity | results | relationships

CONSULTANT

SEAL

Attachment 4D
EPS

EPS Statement of Qualifications

Electric Power Systems, Inc. (EPS)

Corporate Headquarters:
3305 Arctic Blvd. Suite 201
Anchorage, Alaska 99503
Tel: (907) 522-1953
Fax: (907) 522-1182
eps@epsinc.com

Point of Contact:
Bill Farrell, P.E., PMP
2213 North Jordan Ave.
Juneau, AK 99801
Tel: (907) 523-3104
Fax: (907) 522-1182

STATEMENT OF QUALIFICATIONS

The City of Unalaska

Pyramid Water Treatment Plant Inline Microturbines Design

DPU Project No 17401

Submitted: January 17, 2019

Comprehensive Multidisciplinary Electric Power Systems Service

Electric Power Systems inc.
Consulting Engineers

3305 Arctic Blvd. Suite 201
Anchorage, Alaska 99503
Ph: (907) 522.1953
Fax: (907) 522.1182
Email: eps@epsinc.com

City of Unalaska
Department of Public Works
Attn: Robert Lund, P.E., City Engineer

January 17, 2019

Re: Pyramid Water Treatment Plant Inline Microturbines Design

Electric Power Systems, Inc. (EPS) is pleased to present our qualifications for the *Pyramid Water Treatment Plant Inline Microturbines Design*.

EPS is a full-service, multidisciplinary consulting firm specializing in electrical and mechanical utility engineering with offices in Anchorage and Juneau, as well as several locations in Washington. We assemble highly-qualified multidisciplinary teams, including sub-consultants as needed, to meet the specific needs for our projects. For this project we are proposing personnel from our active mechanical design group, supplemented by Travis/Peterson Environmental Consulting, Inc. as a subcontractor.

Thank you for the opportunity to provide our qualifications for this project. We have delivered a great number of services to the City, and we look forward to working with Unalaska again. The attached pages briefly provide our qualifications in accordance with the Utility's request. We have the right resources available to commit to this project, and look forward to working with and developing a long and successful relationship with the Utility. Please contact me at (907) 646-5119 with any questions you have.

Sincerely,

Electric Power Systems, Inc.
David W. Burlingame, P.E.
Principal, President

Table of Contents

5.1 PROFESSIONAL QUALIFICATIONS

Electric Power Systems, Inc., is pleased to present this statement of qualifications to the City of Unalaska to deliver inline microturbine designs for your Pyramid Water Treatment Plant.

The key personnel assigned to this project are industry experts in their respective fields and will be able to professionally and efficiently accomplish the goals of Phase II, pre-design scoping. We propose approaching this project with a small team of experts, each of whom is supported by qualified professional staff. All members of the project team will participate in developing the conceptual design report and conceptual plans.

We note in Section 4.0, Selection Process, that it is recommended that the statement of qualifications should "focus on the project management and architectural team rather than other disciplines." To clarify, we do not see any reason for an architectural team to be involved at this stage of the project. If building or life/safety changes are identified in the 15% designs, we will recommend the involvement of an architect during Phase III.

Bill Farrell, PE, PMP will be the lead electrical engineer and project coordinator for this project. Mr. Farrell has managed and designed multiple utility projects from electrical controls to medium voltage power distribution. His responsibilities started with project conceptualization and scoping all the way through the project life cycle to final testing and commissioning. His expertise and leadership, combined with experience and ability to prioritize and facilitate, make him an asset on any project. Mr. Farrell works out of EPS' Juneau office.

Jason Rowland, PE will provide mechanical engineering for this project and draft the RFQ package for microturbine procurement. Mr. Rowland has wide-ranging experience designing industrial mechanical systems for Alaska's climate and has become a leading expert in power generation mechanical systems. He is currently the Mechanical Engineering department manager and has served as the lead project manager coordinating complete power plant design and construction projects. Prior to joining EPS, Mr. Rowland spent 4-years working with an environmental engineering firm that specializes in water and wastewater treatment. One of Mr. Rowland's recent accomplishments was resolving control stability problems at the domestic water pressure reducing station at Kodiak Electric's Terror Lake Hydro Plant. Mr. Rowland works out of EPS' Anchorage office.

Mike Travis, PE will review all environmental permits related to this project and provide a comprehensive plan to apply for new permits and update permits during Phase III. Mike's vast education and expertise with State agencies, Federal laws and statutes, and working with local communities enables him to effectively manage projects throughout Alaska. He is a registered civil engineer in Alaska. Mr. Travis works out of Travis/Peterson's Anchorage offices that shares the same building as EPS.

5.2 – EXPERIENCE AND REFERENCES

City of Unalaska - ORC

EPS, working with other members of the Engineered Solutions Group, Inc. (ESG), delivered complete engineering, design, procurement, construction management, and commissioning to the City of Unalaska during a recent $2.35 Million dollar upgrade to their Unalaska Power Plant. This successful project enhanced powerhouse efficiency by adding water jacket heat capture equipment to the existing thermal generation units. Based on an average of data collected over a nearly one year period following project completion, the City can realize an estimated savings of 45-50K gal. of fuel/year. The new systems had 98% operational availability in the first 15,000 hours.

Petro Star Valdez Refinery Waste Water Treatment Plant
Starting in 2013, EPS teamed with Travis/Peterson to design and construct a new stormwater treatment system at the Petro Star Valdez Refinery. The design utilized a 10,000 bbl surge tank, a floating skimmer, and an air stripping tower to remove residual product from storm water collected throughout the facility. The new plant was installed and commissioned in 2015 following extensive and complex permit negotiations with ADEC. The new project was intended to replace an existing failing system and required detailed onsite asbuilting of process piping and equipment to determine routing and tie-in points. Following a mandate from our client, we also reused and repurposed existing installed equipment wherever possible.

Travis/Peterson and EPS are currently in the design and permitting phase for an additional upgrades to the treatment system to expand the intended purpose and functionality of the facility. The expanded facility requires the addition of multi-stage media filters and an automatic filter press in a new process building.

Dutch Harbor Powerhouse Thermal Discharge Modeling and Permitting
The Travis/Peterson team, with assistance from EPS, Modeled and permitted the thermal discharge effluent from the Dutch Harbor Powerhouse. EPS provide a model of plant heat inputs into the seawater cooling system under different electrical loads. Travis/Peterson acquired an Alaska Pollutant Discharge Elimination System (APDES) discharge permit from the ADEC based on the thermal modeling and other site data.

References:
These past and current clients will vouch for the quality and value of EPS' work.

Dan Winters
City of Unalaska, Director of Public Utilities
907-581-1260
dwinters@ci.unalaska.ak.us

JR Pearson
City of Unalaska, Deputy Director of Public Utilities
907-581-1260
jrpearson@ci.unalaska.ak.us

Lloyd Shanley
Kodiak Electric Association, Generation Manager
(907) 654-7763
lshanley@kodiak.coop

Lisa Lewis, Director of Government Compliance and Safety
Petro Star, Inc.
Anchorage, Alaska
(907) 339-6630

5.3 NARRATIVE WORK PLAN

If awarded this project, we will first seek to survey available microturbine vendors and review existing and potential new permits. The goal of the vendor survey will be to establish an initial vendors list and define available technology. The goal of the permit review will be to establish overall permitting requirements for the various directions that this project may take; this will inform scoping decisions during the kickoff meeting.

We will schedule a project kickoff meeting with the City following our survey of vendors and permits. EPS will provide a meeting agenda and take meeting minutes. Our primary goal during the project kickoff meeting will be to further define the scope, especially as it relates to whether the City wishes to pursue a permit to allow higher power generation through excess bypass discharge. We will also present our findings from our initial survey of vendors and permit requirements.

The environmental team at Travis/Peterson will review FERC licensing requirements for small turbine projects, estimate flow requirements and timing for turbine operations, and estimate amount of Icy Creek Reservoir storage. Travis/Peterson will then determine if the discharge to Pyramid Creek would be affected. If the discharge will be significantly lower than normal, Travis/Peterson will coordinate with ADF&G under Title 16.05.871 (anadromous fish habitat) to determine permitting requirements. In addition, Travis/Peterson will coordinate with ADNR to expand water rights for power use. This project should not require an Alaska Pollutant Discharge Elimination System permit as nothing is being added to the water. ADEC Drinking Water Division must review the turbine system to ensure it will not affect drinking parameters.

10% designs will begin following the kickoff meeting. After an interim design review meeting with the City, we will complete the final 15% designs that will include conceptual floor plans, flow schematics, control network topology, and one-line diagrams. We have supplied one possible arrangement of the turbine installation as part of this proposal (attached redline drawing). We believe that this arrangement will have the lowest installation cost, the highest generation efficiency, will be easiest to control, and allow 100% flow control redundancy. This design can also be installed while maintaining 100% uptime at the treatment facility. This arrangement can be modified with an upstream diversion branch and second turbine installation if permit modifications allow excess flow. This plan will also resolve the following scope item listed in the request for qualifications without costly replacements: "It is critical that we reconfigure or replacing the existing in-plant PRVs with automatic flow control valves to repurpose the 30 PSI head loss incurred to operate PRVs to the GPRVs."

We will perform preliminary pressure surge calculation to determine if surge arrestors or fast-opening valves may be needed to stabilize the system during abnormal events. In addition, our controls and mechanical engineers will review an array of possible system stability risks and incorporate mitigation measures into our 15% design. We will work directly with Boreal Controls to develop an integration plan for the new process controls. Regardless of the turbine technology selected, we will attempt to tune the CT Tank level control loop to reduce rapid control valve fluctuations.

Our electric engineering group will review the capacity of the existing 34.5 kVA 3-phase primary and outline a net-metering and protection relay scheme. If needed, the turbine's control valve will be configured to automatically modulate to limit power output to the primary capacity. We will also recommend a feeder voltage study if it appears to be necessary. If significant excess generation is available, we will include a design basis for an energy storage solution.

The microturbine vendor RFQ package will include the 15% plans as a basis of design. The RFQ will be a complete document that includes flow profiles, electrical and mechanical specifications, proposed project schedule, and a clear list of deliverables. Travis/Peterson will provide a list of allowable materials that may be in direct contact with the water supply. One way that we create the best possible vendor RFQs is to provide a list of deliverables for each phase of the project. For example, the RFQ will have a separate list of deliverables required for the bid, pre-production, shipment, commissioning, and post-commissioning phases. Defining the deliverables for each step levels the bid values and circumvents potential conflicts.

We will create a Total Installed Cost (TIC) estimate that will develop as the design progresses. The cost estimate will include materials, construction, and engineering. We will work directly with one of the more promising vendors to define a budgetary estimate for the turbine package.

We will supply the City with a draft review copy of the project deliverables and schedule a final review meeting. Following the review meeting, we will complete and deliver the final documents. We expect that the City will directly issue the RFQ package to GPRV vendors. EPS will be available to assist with proposal reviews and questions during the bid phase as they come up.

A detailed list of our deliverables will include:

- Provide draft meeting agendas and meeting minutes for the kickoff and review meetings.
- 15% design documents to define the scope of the project clearly and to assist in the identification and selection of a suitable GPRV vendor. The 15% designs will include conceptual floor plans, flow schematics, control network topology, and one-line diagrams.
- A design basis narrative with our findings and a detailed engineering scope for Phase III.
- Complete preliminary pressure surge modeling and control dynamic analysis.
- Work with the City to develop a qualified GPRV vendors list.
- Develop a technical specification and related RFQ documents for the City's use in the procurement of a GPRV. The technical specification will identify project requirements and deliverables for the microturbine suppliers.
- Support the City with RFI responses and qualification reviews from GPRV vendors.
- Identify communications infrastructure requirements for Powerhouse control of microturbine.
- Identify of all required permits and estimated timelines for obtaining these permits
- Provide a cost estimate for the remainder of the project, including GPRV procurement, engineering, construction, and commissioning. The estimate will be based on the 15% design and information from the GPRV vendor.

Attachments:
Billing rates of key personnel
Sample floor plan and details
Possible turbine arrangement

William Brown-Farrell, PE, PMP

PROFESSIONAL ELECTRICAL ENGINEER

Contact:

2213 North Jordan Ave.
Juneau, AK 99801
Email: bfarrell@esgrp.net
Ph: (907) 523-3104
Fax: (907) 522-1182

Professional Registrations

Professional Engineer, State of Alaska	**License No. 14082**
Project Management Professional, Project Management Institute	**No. 2436212**

William has designed and managed multiple electric utility projects ranging from generation to distribution. His responsibilities started with project conceptualization and scoping all the way through the project lifecycle to final testing and commissioning. His expertise and leadership, combined with experience and ability to prioritize and facilitate, make him an incredible asset on any project.

Relevant Experience

Flywheel Energy Storage System **ongoing**
City of Unalaska, Unalaska, Alaska
Provide design engineering and project management for the development of the City's Flywheel Energy Storage System (FESS) project. Tasks have included development of a technical RFQ for the FESS equipment supply, research of possible vendors, determination of site plan options and the design of system configuration changes to accommodate the new equipment.

Captain's Bay 35kV Feeder Upgrade **2015**
City of Unalaska, Unalaska, Alaska
Provided electrical design engineering and project management for a new 35 kV underground power line to provide increased utility power capacity to Westward Seafoods. Design deliverables included signed stamped drawings, construction specifications and complete contract documents. The project also included construction engineering support and project management assistance for the City during bidding and construction phases.

Headworks **2016**
City and Borough of Juneau, Juneau, Alaska
Provide design engineering services as a subcontractor to Dowl Engineers for CBJ. Worked with Dowl to develop design to replace existing auger system with new headworks screens. Design required that the plant was to be kept operational throughout the construction project.

KEA Port Lions Standby Generator **2016**
Kodiak Electric Association, Port Lions, Kodiak Island, Alaska
Provide design engineering and project management services for project to install a standby generator to support the remote town of Port Lions in the event of a system outage. Developed generator specifications and worked with manufacturer and client to procure generator and to incorporate KEA owned PLC into generator controls. The new generator is remotely monitored and operated by KEA SCADA.

Arc Flash Relay Upgrades **2016**

Hecla Greens Creek Mine, Juneau, Alaska

Provide installation oversight, inspection and commissioning services for new arc flash protective relays in the Powerhouse 4.16kV switchgear. Develop and test relay programming.

Valdez Diesel Plant Caterpillar Installation **2015/2016**

Copper Valley Electric Association, Valdez, Alaska

Provide design engineering services for Copper Valley Electric Association's project to install two 2.0 MW diesel generators and 4.16 kV switchgear into an existing power plant. Design tasks include incorporating new controls into existing systems and planning project phasing to keep plant online at all times.

Westward Alyeska Plant Utility Tie **2015**

Westward Seafood

Design, installation inspections and commissioning for protective relay replacement and power import/export control devices for new utility tie. Project scheduling and coordination to complete installation work in operating facility.

Install Unit 12 Generator **2014/2015**

City of Unalaska, Unalaska, Alaska

Working for the City of Unalaska, provided on site construction project management and field engineering services for the installation of a new 4.4MW diesel generator in the City's existing power plant.

Electrical Engineering **2009/2014**

Doyon Utilities, Fairbanks, Alaska

Provided engineering and project management on multiple concurrent electric utility projects with a total project load of approximately $30MM. Developed the current utility design and construction standards. Performed service and pole line extension design and inspections. Provided frequent project construction and budget updates to senior management and Government (customer) representatives. Worked with contractors to develop system documentation including one-lines, sectionalizing maps and system maps.

Education

B.S. Electrical Engineering, University of Alaska Fairbanks, 2009

Jason Rowland, P.E.

PROFESSIONAL MECHANICAL ENGINEER

Contact:

3305 Arctic Blvd. Suite 201
Anchorage, AK 99503
Ph: (907) 522-1953
Fax: (907) 522-1182

Professional Registrations

Professional Mechanical Engineer	**State of Alaska, License No. 13143**
Professional Mechanical Engineer	**State of Washington, License No. 52931**

Mr. Rowland has wide-ranging experience designing industrial mechanical systems for Alaska's climate. He has also had the opportunity to see many of his project through to completion and participate in the commissioning phase. Mr. Rowland credits much of his design quality to his background working with his hands as a machinist/welder in industrial fabrications shops.

Relevant Experience

Naknek Electric Association Power Plant Expansion **(in construction)**
Naknek, Alaska
Mr. Rowland directly managed the design team, oversaw mechanical engineering, and provided construction support for a new 6.6MW powerhouse with two EPA Tier IV certified 3.3 MW CAT C280-12 generators. Mr. Rowland's team completed all required civil, structural, mechanical, and electrical designs. Rapid expansion of the fish processing industry required that the Utility purchase and install new generation. Although the technology has been in place for several years, Naknek Electric was one of the first remote Alaska utilities to install EPA Tier IV certified generators requiring Diesel Exhaust Fluid (DEF).

A new fuel system was engineered by Mr. Rowland to supply each generator with fuel cooling, filtration, and temperature-compensated metering based on our extensive past experience with C280 generator installations. The fuel system tied to to an existing bulk tank farm with a new above ground fuel line with redundant safety and control systems connected to the plant's PCMS and new day tanks. EPS was responsible for designing and installing the plant's PCMS controlling the fuel system and will be commissioning the new fuel system and PCMS in early 2019.

Kodiak Electric Association Terror Lake Pressure Reducing Station **2016**
Kodiak, Alaska
A pressure reducing station that supplies domestic and fire water from the Terror Lake penstock had a perpetual occurrence of hammering during operation. The system was intended to reduce pressure from the 570psi penstock to the 80psi water distribution pressure at 80gpm. Mr. Rowland evaluated the system and determined that the root cause was an incorrect pilot configuration and small-diameter elbows immediately upstream and downstream of the first and second stage PRVs. As a solution, Mr. Rowland provided a pre-fabricated piping design to resolve the configuration of the two PRVs and coordinated with the valve manufacturer to reconfigure the control pilots. The utility was able to resolve the issues with minimal field work and avoid replacing the existing control valves.

Homer Electric Association Gerry Willard Generating Station Upgrade
Seldovia, Alaska - 2015 Design, 2016 Completion
Provided a complete design for a new fuel distribution system for a 2.2MW standby generation plant. The project included integrating a new CAT C32 generator package alongside an older 1.2MW unit. A new fuel offloading station and bulk tank controls were installed for an existing tank. A day tank was added for the new generator and the existing tank was refurbished with new controls. As an unmanned plant, the facility required a high level of redundancy in the fuel controls to reduce spill risk during automatic forwarding operations. The fuel control system was integrated with the plant's PCMS with redundant shut off and level controls for the highest level of reliability and remote monitoring capability.

Kodiak Electric Association Swampy Acres Emergency Substation Design-Build
Kodiak, Alaska - 2014 Design, 2015 Completion
Mr. Rowland designed mechanical HVAC, engine cooling, and fuel system, and provided construction support for a new 10 MW standby powerhouse. The project included installing a new 4.4MW CAT C280 diesel generator alongside two older CAT 3516 diesel generators. As a standby plant, this design required a minimalistic approach to develop the highest value for the client; a task that the EPS/EPC design team was able to accomplish while keeping the same level of vertical integration that we provide in prime power installations.

This was a design/build project with EPC, EPS, Mechanical Builders, Inc. (MBI), and other members of Engineered Solutions Group working together from project planning, to final commissioning. Our work on this project included the installation of a new Cat C-280 4.4 MW generator, and relocation of two Cat 3516 generators. MBI installed the generators, including the fuel, exhaust and cooling systems.

Petro Star Valdez Refinery Storm Water Treatment
Valdez, Alaska
Mr. Rowland designed mechanical systems and provided construction support for a new stormwater treatment system at the Petro Star Valdez Refinery. The design utilized a 10,000 bbl surge tank, a floating skimmer, and an air stripping tower to remove residual product from storm water collected throughout the facility.

Education

M.S. Mechanical Engineering, University of Alaska Fairbanks, 2010
B.S. Mechanical Engineering, University of Alaska Fairbanks, 2007

Michael D. Travis, P. E.

Environmental Engineer

Mike has over 38 years of experience in environmental projects in Alaska. He currently is a Principal owner in Travis/Peterson Environmental Consulting, Inc., specializing in site remediation throughout Alaska.

Mike's vast education and expertise with State agencies, Federal laws and statutes, and working with local communities enables him to effectively manage projects throughout Alaska. He is a registered civil engineer in Alaska.

Work Experience

Principal, Travis/Peterson Environmental Consulting, Inc. (1997 to present)

Responsibilities: Co-Owner and Principal of an environmental engineering consulting firm. Provided a wide range of environmental and engineering services for private and governmental agencies. Performed environmental impact analysis for new and expanded highways, airports, mines, and power plants. Impact analysis involved air and noise modeling, storm water planning, public involvement, and social-economic analysis. Designed corrective action plans to respond to hazardous waste spills and assess the area of contamination. Performed Phase I and Phase II environmental site assessments for properties throughout Alaska. Designed soil and groundwater remediation systems.

Chief of Professional Services, Alaska Department of Transportation and Public Facilities (DOT&PF) (1996-1997)

Responsibilities: Supervised the contracting and negotiating of engineering and construction projects within the Central Region of DOT&PF. Assisted in the final design of the Whittier Tunnel Access project. Provided environmental expertise for DOT&PF defense of a lawsuit within the Ninth Circuit Court of Appeals.

Vice President, AGRA Earth and Environmental, Inc. (1991 – 1996)

Responsibilities: Managed geotechnical and environmental engineering offices in Fairbanks and Anchorage, Alaska. Reviewed final work products before submitting them to clients. Designed hazardous waste remediation treatment systems for remote canneries. Headed the Whittier Tunnel Access Environmental Impact Statement project team and lead all public relations. Performed Environmental Assessments to fulfill requirements of the National Environmental Policy Act for construction projects throughout Alaska. Environmental Manager for the Whittier .Tunnel EIS. Supervised 30 employees. Developed corrective action plans for spill sites.

Education

University of Alaska Fairbanks

B.S. Fishery Biology -1981

M.S. Environmental Quality Science - 1986

Certifications

Hazardous Waste Operations and Emergency Response Certification, Supervisors Course

Registered Civil Engineer in Alaska. Registration number CE 8048

Certified Fishery Scientist. American Fishery Society

Travis/Peterson Environmental Consulting, Inc.

Pertinent Experience:
New Unalaska Power Plant: Performed site remediation and received cleanup approval from the Alaska Department of Environmental Conservation (ADEC), developed National Environmental Policy Act (NEPA) documentation, and assisted in acquiring Title V air permit.

Old Dutch Harbor Powerhouse Cooling Water Discharge: Modeled and permitted the thermal discharge effluent from the Dutch Harbor Powerhouse. Coordinated with City engineers and operators to determine plant cooling needs. Acquired an Alaska Discharge Elimination System discharge permit from the ADEC.

Unalaska Electrical Master Plan: Participated in the development of the City of Unalaska Electrical Master Plan. Scoped the various permits required for future projects.

Nome Snake River Powerhouse: Performed site remediation and received cleanup approval from the ADEC, developed NEPA documentation, and assisted in acquiring Title V air permit.

Togiak Seafood Plant Water Treatment System: Designed, permitted, and installed a new reverse osmosis drinking water treatment plant. Negotiated with ADEC for authority to construction and operate.

Red Salmon Cannery Water Treatment Plant: Designed, permitted, and installed a new ozone-disinfectant drinking water treatment plant. Negotiated with ADEC for authority to construction and operate.

Travis/Peterson Environmental Consulting, Inc.

ATTACHMENT B: BILLING RATES

Mike Travis: $195/hr
Jason Rowland: $182/hr
Bill Farrell: $168/hr

Support staff bill between $130 and $160

Electric Power Systems inc.
Consulting Engineers

Electric Power Systems, Inc. Fee Schedule

Valid through 12/31/2019

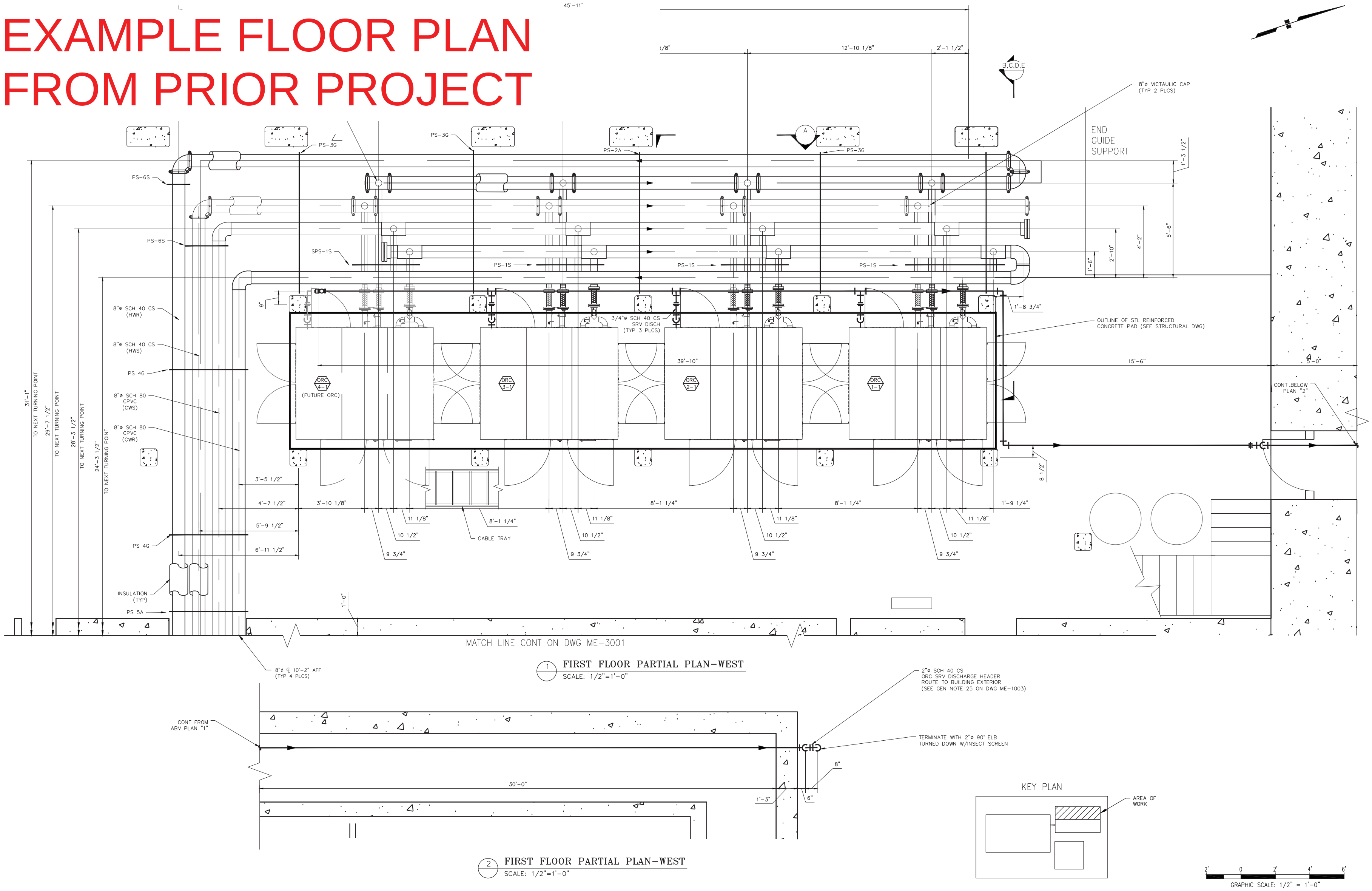
Testimony, deposition/expert witness	$437.00
Engineer XII	$233.00
Engineer XI	$215.00
Engineer X	$200.00
Engineer IX	$182.00
Engineer VIII	$175.00
Engineer VII	$168.00
Engineer VI	$162.00
Engineer V	$156.00
Engineer IV	$146.00
Engineer III	$130.00
Engineer II	$117.00
Engineer I	$109.00
Project Manager VI	$215.00
Project Manager V	$200.00
Project Manager IV	$182.00
Project Manager III	$175.00
Project Manager II	$168.00
Project Manager I	$162.00
Engineer Tech VI	$175.00
Engineer Tech V	$162.00
Engineer Tech IV	$139.00
Engineer Tech III	$121.00
Engineer Tech II	$107.00
Engineer Tech I	$90.00
ROW Manager	$178.00
ROW Senior Agent	$155.00
ROW Agent	$112.00
ROW Assistant	$82.00
Professional Land Surveyor	$167.00
Expeditor	$90.00 ST / $119.00 OT
Clerical	$62.00
Office Manager	$77.00

1. The above listed rates are per hour.
2. The fee schedule is subject to review on January 1, 2020, and on January 1 of each year thereafter.
3. Expenses incurred, as necessary part of engineering services under this contract will be billed at cost plus 10%. Incidental expenses, such as computer usage, local phone service, and copying are included in the above rates. If Per Diem is utilized (vs. expenses and markup), it will be at the Federal Rates.
4. Services and materials purchased by Electric Power Systems, Inc. at the request of the owner will be billed at cost plus 10%.
5. Services and materials provided by other Engineered Solutions Group, Inc. companies will not be subject to intra-company markup, and are subject to the above fee schedule.
6. Interest at the rate of 1.5% per month (less, if restricted by law) may be charged for invoices greater than 60 days past due.

Electric Power Systems, Inc.
A division of Engineered Solutions Group, Inc.
3305 Arctic Blvd., Suite 201, Anchorage, AK 99503
Phone (907) 522-1953, Fax (907) 522-1182, www.esgrp.net

ATTACHMENT C: FLOOR PLAN AND POTENTIAL TURBINE ARRANGEMENTS

EXAMPLE FLOOR PLAN FROM PRIOR PROJECT



PROJECT: ORC DESIGN SERVICES
DESIGNER/PROJECT ENGINEER: E. GEORGE/M. HAUKE – EPS
JOB #: 13-0124

NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED BY/DATE
0	ISSUED FOR CONSTRUCTION	TJG/07-17-2014	MJH/07-17-2014
1	AS-BUILT	XJH/11-05-2014	MJH/11-05-2014

ENG. STAMP

Electric Power Systems Inc.
Consulting Engineers
TEL: (907) 522-1953
FAX: (907) 522-1182
WEB: WWW.EPSINC.COM

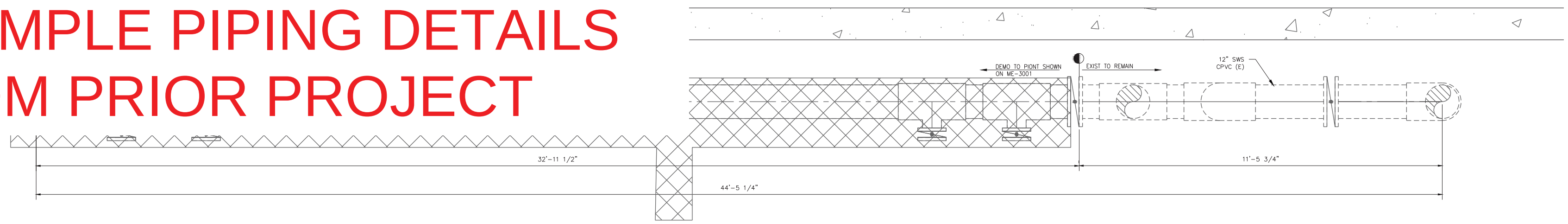
NO.	DRAWING NO./SHEET	REFERENCE DRAWING/DETAIL/PLAN/SECTION DESCRIPTION
A	ORCD-ME-3101	ORC REAR SECTION LOOKING EAST
B	ORCD-ME-3101	ORC HOT WATER SUPPLY LOOKING SOUTH
C	ORCD-ME-3101	ORC HOT WATER RETURN LOOKING SOUTH
D	ORCD-ME-3101	ORC COLD WATER SUPPLY LOOKING SOUTH
E	ORCD-ME-3101	ORC COLD WATER RETURN LOOKING SOUTH

DRAWING NAME:
CITY OF UNALASKA
MECHANICAL
FIRST FLOOR PARTIAL PLAN-WEST
orcd-me-3000_1.dwg

REF DWG(S):

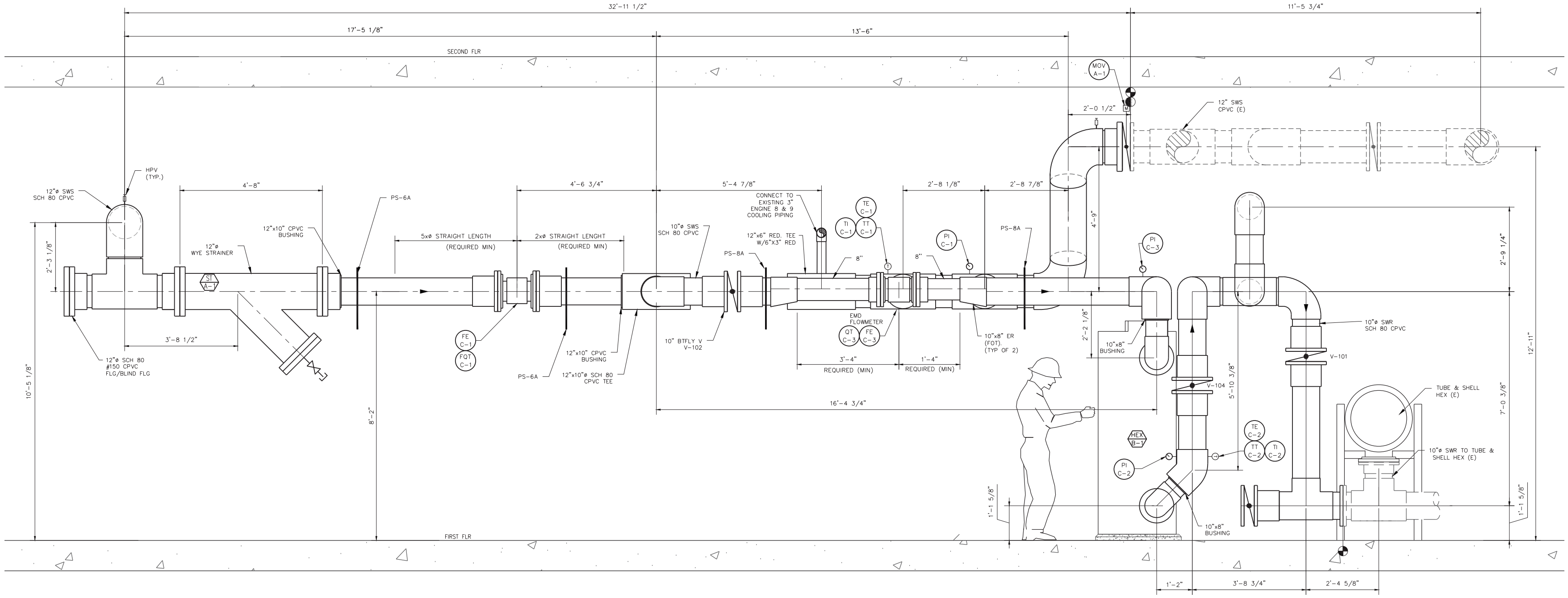
DRAWING NO.: ORCD-ME-3000
SHEET 1 OF 1

EXAMPLE PIPING DETAILS
FROM PRIOR PROJECT



A SEAWATER SUPPLY LOOKING EAST – DEMO

SCALE: 3/4" = 1'-0"



B SEAWATER SUPPLY LOOKING EAST

SCALE: 3/4" = 1'-0"

PROJECT: ORC DESIGN SERVICES

DESIGNER/PROJECT ENGINEER: E. GEORGE/M. HAUKE – EPS JOB #: 13-0124

NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED BY/DATE
0	ISSUED FOR CONSTRUCTION	TJG/07-17-2014	MJH/07-17-2014
1	AS-BUILT	XJH/11-05-2014	MJH/11-05-2014

ENG. STAMP

Electric Power Systems Inc.

Consulting Engineers

TEL: (907) 522-1953
FAX: (907) 522-1182
WEB: WWW.EPSINC.COM

NO.	DRAWING NO./SHEET	REFERENCE DRAWING/DETAIL/PLAN/SECTION DESCRIPTION

DRAWING NAME:

CITY OF UNALASKA
MECHANICAL
SEAWATER PIPING DEMO & NEW
SECTIONS

orcd-me-3102_1.dwg

REF DWG(S):

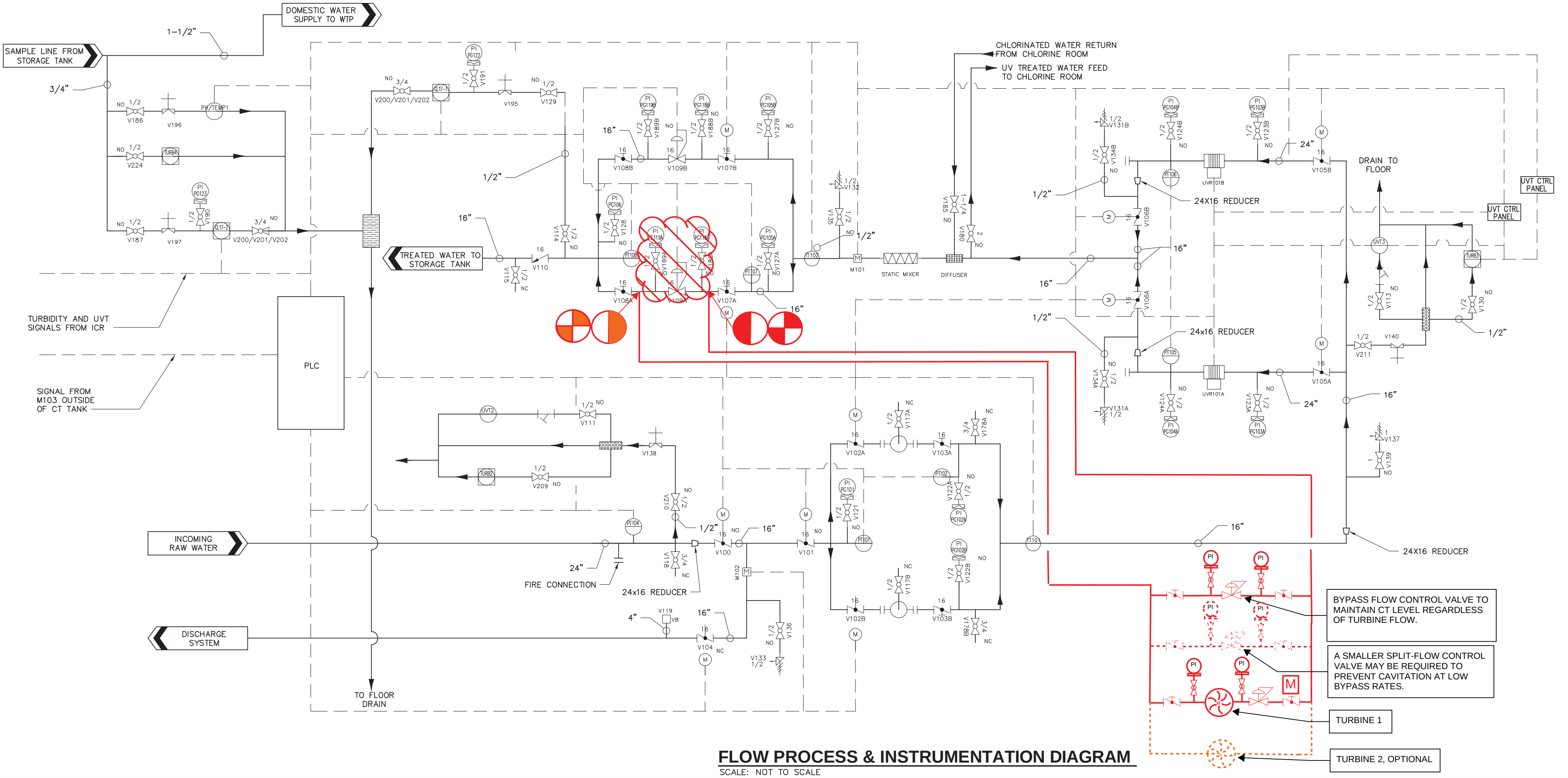
DRAWING NO.: ORCD-ME-3102

SHEET 1 OF 1

CONCEPTUAL TURBINE INSTALLATION P&ID

P&ID LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PROCESS FLOW		BLIND FLANGE	PIT06	PRESSURE TRANSDUCER	CL17-1	HACH CL-17 CHLORINE ANALYZER	M 16 V102B	AUTOMATIC BUTTERFLY VALVE	PH/TEMP1	HACH DPD1P1 PH TEMPERATURE SENSOR
	CONTROL SIGNAL LINE		UV REACTOR	UVT1	UV TRANSMITTANCE MONITOR	16 V108A	MANUAL BUTTERFLY VALVE				DIAPHRAGM VALVE
	FLOW DIRECTION		STRAINER	16 V110	CHECK VALVE	V132 1/2	AIR RELIEF VALVE			VB	VACUUM BREAKER
	PIPE REDUCER	NO 1/2 V129	BALL VALVE NO—NORMALLY OPEN NC—NORMALLY CLOSED		DIFFUSER	PI PG106 1/2 V128	PRESSURE GAUGE WITH ISOLATION VALVE	16 V109A	ALTITUDE FLOW CONTROL VALVE		BUBBLE TRAP
	STATIC MIXER	CL-1	CHEMTRAC CHLORINE MONITOR		STRAINER						
M	MAGNETIC FLOW METER	TURB2	TURBIDIMETER		ACTIVATED CARBON FILTER						



BYPASS FLOW CONTROL VALVE TO MAINTAIN CT LEVEL REGARDLESS OF TURBINE FLOW.

A SMALLER SPLIT-FLOW CONTROL VALVE MAY BE REQUIRED TO PREVENT CAVITATION AT LOW BYPASS RATES.

TURBINE 1

TURBINE 2, OPTIONAL

FLOW PROCESS & INSTRUMENTATION DIAGRAM

SCALE: NOT TO SCALE

Plotted By: Curtis
Date/Time: 04 Oct 2016 11:47 am
Layout: P&ID
Filename: P:\800-850\850 unalaska\850.05 pyramid wtp construction support_Civil\dwg\850.01_DSI_Piping_Unalaska.dwg

NO.	DATE	BY	REVISION
3	9/2/16	TR	RECORD DRAWINGS
2	4/7/14	JM	CONFORMED DOCUMENTS
1	12/2/13	JM	ISSUED FOR BID

LCG Lantech Inc
architecture · engineering · surveying
250 H Street
Anchorage, AK 99501
P (907) 243-6985
F (907) 243-5629
www.lcgak.com

CITY OF UNALASKA

PYRAMID WTP
UNALASKA, ALASKA

FLOW PROCESS AND
INSTRUMENTATION DIAGRAM

SCALE: AS SHOWN
DESIGNED BY: JM
DRAWN BY: CRS
CHECKED BY: GWF
DATE: 12/2/13
FILE NO. 850.01

SHEET NUMBER
P1.3 OF

Attachment 4E
KGS

KGS Statement of Qualifications

KGS
GROUP
International Inc. | USA

CONSULTING
ENGINEERS

CITY OF UNALASKA
DEPARTMENT OF PUBLIC WORKS

PYRAMID WATER TREATMENT PLANT INLINE MICRO TURBINES DESIGN

REQUEST FOR QUALIFICATIONS
DPU Project No. 17401

Proposal for Engineering Services
KGS Group 18-000-1938

January 2019

PREPARED BY:

Andi Bogdanovic, M.Sc., P.E., P.Eng.
Regional Director

APPROVED BY:

Stefan Kohnen, MBA, P.Eng.
Regional Manager

TABLE OF CONTENTS

LIST OF APPENDICES

SECTION A PROFESSIONAL QUALIFICATION

KGS Group is a consulting engineering, design, and project management firm with 31 years of experience. We are an employee owned multi-disciplinary engineering firm of 400, with 6 office locations across North America, including our local office in Bellevue, Washington. We are staffed by an experienced team of engineers and scientists, the majority holding advanced degrees. Services are provided to government, public, and private sector Clients in Canada and the United States.

KGS Group has experienced steady growth since its inception by expanding services in the areas where the firm is active. Clients are offered a complete range of services in these areas to ensure a project proceeds successfully from the concept stage through to implementation. This “Total Service” approach also ensures that a Client’s budget and time constraints are respected. To maintain a high level of service to Clients, KGS Group has a high ratio of senior level professionals on staff. This philosophy has allowed KGS Group to expand its client base and stay successfully active in numerous project types and major disciplines such as:

- Dams and Hydroelectric Projects
- Hydraulic Design
- Hydroelectric Engineering and Design
- Dam Safety
- Project & Construction Management
- Geotechnical and Foundation Engineering
- Structural Engineering
- Instrumentation and Controls
- Hydrogeology / Geo-Environmental
- Civil / Municipal Engineering
- River Ice Engineering
- Sediment and Erosion Control
- Mechanical Engineering
- Geographical Information Systems (GIS)
- Electrical Engineering
- Industrial Design

For additional information, please refer to the turbine generator supply brochure in Appendix C and KGS Group’s web-site at www.kgsgroup.com.

KGS Group proposes a team of senior engineers, experienced in developing and managing a financially viable solution for site layout. This would include the capability to develop solutions for power generation using turbine technologies, securing permits, completing all procurement, and preparing all designs for construction. The key staff identified for this project have been selected for their extensive knowledge, proven expertise, and experience with similar or related projects in providing these identified services.

The KGS Group team members below have worked together on many previous projects across North America including extensive experience in developing and designing hydro sites and water treatment plants. KGS Group’s management structure is designed to support effective networking so that each team member within various disciplines can easily get any assistance needed to perform their best work. Our “No boundaries” philosophy for work sharing among our offices is among the best in the industry and supports the most capable design professionals on projects throughout our system. Our team was composed to ensure expedited project delivery using technical expertise and understanding of regulations while executing and delivering projects, similar to those identified in Section B below. The team will ensure the quality and efficient delivery of the project by using proven processes, systems, and resources to maintain a cohesive team that understands expectations and communicates effectively.

During the initial project meeting, we will work with the City to develop a communications plan for the project. This includes weekly status meetings and real-time communication enabled by our customizable web-based collaboration tool “KGS Resources”. A project dashboard provides a comprehensive overview of progress and status, so everyone is aware of project expectations at any given time. The dashboard contains multiple modules that allows everyone on the project team, regardless of physical location, to access the latest project information and communicate instantly with the entire project team. Accessible information includes quality, budget, schedule, construction management, document management, and health and safety. By using this technology and working together, we create a high-performance team to meet the City’s needs. Past projects have proven our teaming approach not only enables us to deliver a successful project, it enables us to build strong relationships along the way. Additional support from senior, intermediate and junior engineers at KGS Group is available as needed to assist with all assessment activities.

The Key Team Member Resumes listed below are provided in Appendix B. The team members we have assembled are capable of meeting the goals and objectives of the City of Unalaska and are available to perform and lead the project work deliverables throughout each stage. KGS Group team members are committed to the City of Unalaska’s schedule and budget cost that has been presented in the RFQ. The table below shows the billing rates for the key personnel identified for this project.

Andi Bogdanovic, M.Sc., P.E., P.Eng.

Project Manager and Structural Engineer – Seattle Office

Mr. Bogdanovic has more than 17 years of combined experience in the project management and structural engineering, inspection, analysis, design, planning, environmental approvals, and retrofit of hydropower, dams/hydraulic structures, water retaining structures, and water conveying facilities. Mr. Bogdanovic's responsibility for this project will be overall project management and tracking of the project's performance metrics (scope, time, schedule, quality). This includes communication with the City of Unalaska Project Manager on all project management items. As the overall project manager, Andi is responsible for making sure the goals of the project are clearly understood between the City and the design team including generating status reports as required. He is also responsible for establishing the communication channels among team members at the outset of the project to ensure that the project moves ahead in a timely and productive manner. Andi believes that one of the greatest assets an engineering consultant can offer is commitment to communication and being responsive to the client's needs. He is an exceptional listener and communicator and will assure that your needs and preferences are well understood and relayed to the team.

Stefan Kohnen, MBA, P.Eng,

Regional Manager – Mechanical/Turbine Lead Engineer – Toronto Office

Stefan Kohnen has over 29 years of experience as a business manager and mechanical engineer in the hydropower and manufacturing industries. He has been involved in all aspects of hydropower development from feasibility to implementation with a focus on the selection, supply and commissioning of equipment both domestically and internationally. In the manufacturing sector he has been involved in the development and implementation of manufacturing processes, maintenance management and management of capital projects with specific experience in machining and metrology. For the reference project listed in Section B, he served as project manager and technical lead for the development of this 3 MW generating station adjacent to Lock 25 on the Trent Severn waterway. The scope of the project includes developing an economically viable solution to this very low head site. The project has identified viable solution, completed the procurement for the turbine/generator solution, the contractor and is developing the final concept using an Early Contractor Involvement approach. Construction is scheduled for 2019. Mr. Kohnen will act as the lead mechanical engineer for this project and the Set Based Design process. He will lead the efforts associated to defining operational constraints, turbine sourcing, coordinate with others to optimize the solution and prepare report and estimate.

Sean Bayer, M.Eng, P.Eng, PMP

Department Head – Municipal Lead Engineer– Regina Office

Mr. Bayer is a Professional Engineer with 20 years of experience in both the private and public sectors. His specializations include design and project management work for clients in water treatment, distribution and collection, wastewater management, subdivision development, environmental water monitoring, regulatory compliance, and environmental reporting. For the reference project listed in Section B, he served as project manager and technical lead for the City of Meadow Lake's Water Treatment and Distribution Pumping Upgrade projects. Mr. Bayer will act as the lead municipal engineer for this project. His historical regulatory experience will allow for strong formal regulatory communication on the project. In addition Mr. Bayer will focus on ensuring positive direction on PRV issues, and there relevant hydraulic impacts as well as the long term control narrative.

Key Personnel Role	Team Member	Hourly Billing Rates
Project Manager and Structural Engineer	Andi Bogdanovic, P.E., P.Eng.	$ 200
Lead Municipal Engineer	Sean Bayer, M.Eng, P.Eng, PMP	$ 200
Lead Mechanical/Turbine Engineer	Stefan Kohnen, MBA, P.Eng,	$ 216

SECTION B EXPERIENCE AND REFERENCES

Two reference projects that demonstrate similar complexity and size, with recent and relevant experience, and successful past performance in the stated provision of services to the Pyramid Water Treatment Plant Inline MicroTurbines Design are provided below.

CITY OF MEADOW LAKE

Distribution System Modeling (2013)

In 2013, KGS Group performed a detailed distribution and pumping system evaluation which included extensive water modeling using Bentley ® WaterCAD © V8i. The modeling work for the water distribution system in Meadow Lake was undertaken in two phases – preliminary and detailed. Based on both the WaterCAD modeling and engineering analysis, it was recommended that a third distribution pump be installed at the water treatment plant (WTP) and completely replace the two distribution pumps at Reservoir No. 1.

Distribution System Upgrades (2014 - 2015)
Following the distribution system modeling, KGS Group was again retained to provide detailed design services for the installation of the recommended pumping systems at the WTP and Reservoir No. 1. The work also involved the installation new standby generators at two of the City’s reservoirs.

Mechanical improvements were also incorporated to improve water circulation within the reservoirs and eliminate short circuiting.

Water Treatment Plant Upgrades (2016 – 2018)
KGS Group provided detail design and engineering services during construction for the recently completed water treatment upgrade for the City of Meadow Lake. The primary focus was to remove organics to lower trihalomethane (THM) levels to below the regulated maximum acceptable concentration (MUL) of 0.1 mg/L.

The upgrades included construction of a new building to house two nanofiltration units, one ultraviolet (UV) unit and a chlorine gas room; conversion of the three clarifiers to a day well, clear well and waste well; installation of a generator; addition of a pump well; and modifications of all associated mechanical, process and instrumentation, and electrical components. Construction Budget $ 4,547,000.00 and Construction Schedule: 14 months.

Relevancy- Similar to the proposed project, KGS Group has previously performed detailed design / engineering and resident inspection for the construction of water treatment plants of similar size.

Reference
Tracey Wolfe- Waterworks Manager
City of Meadow Lake, Saskatchewan
Phone: 1-306-240-9996 / Email: waterworksmanager@meadowlake.ca

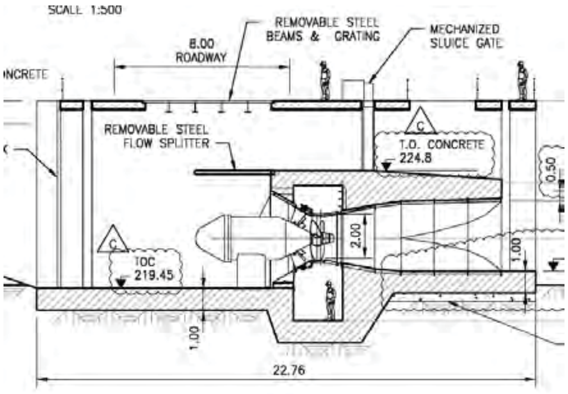
Key KGS Group Personnel
Sean Bayer, P.Eng.

LOCK 25 GENERATING STATION

The Lock 25 GS was a very low head hydroelectric project with a proposed capacity of approximately 3 MW, featuring a net head of 9.84 feet (3.0 m) and a plant flow of 4,590 ft3/s (130 m3/s). The project was situated adjacent with the existing Lock 25 Sawyer dam on the Otonabee River, part of the Trent-Severn Waterway in Ontario which creates a navigational link between Lake Ontario and Lake Huron. The planned project was developed in coordination with a Parks Canada replacement project for Sawyer dam.

KGS Group was retained by Bawitik Power Corporation to develop a financially viable solution for this site, secure permits, complete all procurement and prepare all designs for construction. The following services in a phased release methodology, including:

- Complete the Environmental Assessment of the project and all required public engagement activities. Working with the Owner secure approvals and permits.
- Define and secure interconnection approvals and cost estimates.



- Phase 1 – Review the site conditions and information and prepare a first estimate for energy and development costs for approval to proceed to the next phase.
- Phase 2 - Site concept development, verification of interconnection points, transmission line routing and site design optimization with updated estimates.
- Phase 3 - Complete site hydraulic and geotechnical studies and turbine procurement. Detailed site conceptual design optimization, energy modeling and establishment of the overall project capacity. Using a Set based Design approach identify optimum solutions and update project estimates for approval of the next phase.
- Phase 4 – Coordinate with Parks Canada to reach agreement on the site development approach. Select a contractor and using an Early Contractor Involvement approach develop a construction methodology to further optimize the site design for constructability and to finalize turbine selection. Prepare a final target budget and project schedule for release to detail design and final construction contracts negotiation.

Reference	**Key KGS Group Personnel**
Paul Young- Bawitik Power Corporation Phone: 1-416-999-7877/ Email: pyoung@orilliapower.ca	Stefan Kohnen, P.Eng.

SECTION C METHODOLOGY

The proposed methodology has evolved over many years of working with clients to develop solutions for power generation with turbine technologies that must achieve stringent economic results. The two overarching philosophies include:

- Staged approach with updated cost and confirmation of technical compliance with go/no go decision points.
- Use a Set Based Design approach to identify the optimum solution. With set-based design, you can continue weighing all possibilities until you gather enough data to narrow down your options. Set-based design has built-in learning points - places where a piece of data helps you eliminate another option. This enables a process where you actively select options with your desired specifications, rather than constantly adjusting to the situation at hand, creating a less-than-ideal result.

The RFP demonstrates that a significant amount of thought has been put into the development of this project by the project proponents. KGS Group has adapted its methodology to align with the requirements of the RFP.

PHASE II

The objective of this phase is to assess the technical information to date, secure turbine technology details and develop the solution to a level of detail that allows improved cost estimates to validate previous estimates and feasibility. The associated activities are described below:

- Collect data and review studies – The KGS Group team representing the mechanical, electrical, civil and process expertise will collect the existing information and familiarize itself with the project information. This may initiate a round of inquiries with Owner representatives.
- Define Operational Constraints – KGS Group will confirm the operational modes for this facility and define the operational constraints be they technical, administrative or regulatory.
- KGS Group clearly acknowledges that PRV energy loss must be addressed in order for the project to be viable and focus on this issue early will be paramount to the success of the project. Transient analysis in concert with a thorough capacity review of the existing PRV's (CLA-VAL) will be conducted and a decision matrix utilized to provide decision makers with a clear and defensible assessment of PRV direction at the facility (replace or reconfigure).
- KGS Group has assessed a significant amount of water treatment plants utilizing historical operational data, and understands clearly that no hydrology study is required to quantify impacts/ensure CT compliance as it relates to a full CT tank. Prioritization with regards to the utilization of the facility (water production over power) will be clearly understood throughout the process.
- Turbine Sourcing – KGS Group proposes to prepare and issue a Request for Quotations document to various proponents to secure technical data and equipment cost estimates for the equipment. This package will

include tender documents and forms, specifications and other supporting documents. The specifications may be preliminary and allow for further refinement later in the development stage if acceptable to the City of Unalaska representatives. On receipt of the proposals KGS Group proposes to perform a triage of the bids to eliminate unsuitable solutions. KGS Group proposes an approach developed over many projects to completing the development without committing to a supplier until the final concepts are finalized. It is particularly important where the solutions have materially different total project cost and energy impacts.

- Develop Layouts – Based on technical information of the existing facilities and the turbine solutions, KGS Group would prepare drawings of the possible solutions to prepare estimates for the "Set" of options as per the Set Based Design approach. KGS Group would also prepare basic Single Line Diagrams and Control Architectures for each solution based on detail discussions with Owner representatives and possibly the named suppliers in this RFP. These drawings will define the Bill of Quantities for estimates.
- Issue preliminary documents for review – KGS Group would submit the preliminary layouts for discussion and critique to assess technical and operational concerns. A control narrative will be developed and discussed at this time, with input from operations staff encouraged.
- Prepare Estimates – KGS Group will prepare two estimates for the solutions defined in the "Set". KGS Group will develop an energy model for production estimates. Simultaneously, KGS Group will update the project cost estimates for one or more solutions.
- Prepare Draft Report – A draft report will be prepared comparing and making recommendations on the best solution with associated energy and project cost estimates. The report would naturally address the means for managing the technical constraints identified in the RFP documents and further refine the operations strategy that underpins the energy estimates.
- Presentation – Whether this is done online or in person there is good value in presenting the report recommendations.
- Issue Final Report – Based on feedback from the presentation and other comments on the draft report KGS Group would issue the report in final form.

PHASE III

The purpose of this phase is to prepare all documentation and design for construction while ensuring the financial and commercial constraints are maintained.

It is expected that prior to the start of this phase there will be a period in which the City of Unalaska will consider the recommendations of Phase II and finalize decisions to proceed. KGS Group would prepare estimates for the next phase for negotiation. KGS Group is willing to define target budgets for this phase early in the project once there is a chance to discuss the methodology with the City of Unalaska. KGS Group proposes to lead Phase III with three activities:

- Begin the process for selection of the main contractor(s) using an Early Contractor Involvement approach. If this is not possible then this will occur after the design process.
- Perform any final site measurements or investigations as may be required for designers.
- Initiate the designs on the basis of the Phase II results.

If the City of Unalaska agrees to an Early Contractor Involvement approach, KGS Group proposes a review of the designs with them to improve constructability and address the risks and indirect costs. This optimization will be conducted as a collaborative discussion including the City of Unalaska representatives, the contractors, and suppliers and KGS Group. The discussion will result in freezing the final solution.

Based on any refinements from these discussions KGS Group will finalize the designs. The contractor and suppliers participate in the review of design submittals to ensure continued budget compliance. The contractors will develop the final cost estimates and project schedule that will be incorporated into the contract.
KGS Group will work with the City of Unalaska to negotiate the final terms and specifications to be included in the supply and construction contracts. The final package of negotiated contracts, project prices, drawings and specifications will be submitted to the City of Unalaska to approve the release to construction.

This approach has a proven record of resulting in prompt mobilization and good cost and schedule certainty. However it does not appear to be simple on the surface. Due to this KGS Group strongly recommends a chance to present our methodology during the bid evaluation stage to ensure the assumptions are understood and, for example, why KGS Group proposes Early Contractor Involvement and the approach to selecting a turbine supplier.

APPENDIX A

DRAFT CONSULTING SERVICES AGREEMENT

APPENDIX B

CURRICULUM VITAE

KGS GROUP
International Inc. | USA
CONSULTING ENGINEERS

ANDI BOGDANOVIC, P.E., P.ENG
REGIONAL DIRECTOR
SENIOR CIVIL / STRUCTURAL ENGINEER & PROJECT MANAGER

EXPERIENCE & RESPONSIBILITIES

Mr. Bogdanovic has more than 17 years of combined experience in the project management and civil/structural engineering field for hydropower service, dams/hydraulic structures, water retaining structures, water conveying facilities, petrochemical facilities, heavy industrial and marine facilities. His experience involves civil/structural engineering evaluation, licensing support, design, planning, analysis and construction support. This includes overseeing construction and structural site inspections, and coordination of draftspersons, clients and contractors. His experience also includes condition assessments, cost analysis and feasibility studies. With a comprehensive knowledge of design standards/codes, Mr. Bogdanovic has a demonstrated ability to work on complex projects, coordinate with other engineering disciplines, and provide cost effective/constructible designs.

As the Regional Director of the Bellevue office of KGS Group the current responsibilities include the day to day management and performance of the business unit and business development activities in Western United States and Canada.

Mr. Bogdanovic's experience in the design and construction of hydroelectric projects includes serving as project lead civil/structural engineer on a number of projects. Design and analysis services include foundations, battery building, actuator supports, penstock modification, access platforms, powerhouse superstructures, crane upgrades and monorails, intake trash racks, retaining walls, and stability of dams and spillway structures. Also, he has experience with water retaining structures such as intakes, spillways, trash racks, bulkhead gates, and radial gates. He has experience overseeing construction activities to ensure compliance with the design intent, drawings, specifications and permits obtained, and field inspections. Project management responsibilities include development of project scope, schedules and budgets, supervision of multi-disciplinary design teams, preparation of design criteria, coordination of work between the owner, engineer, sub-consultants, contractors and subcontractors, and tracking of project progress and scope changes.

He has been responsible for the design and analysis of steel and concrete structures for process equipment, storage tanks, pipe rack systems, and horizontal and vertical vessels. He has experience serving as a site engineer at a refinery plant for the turnaround of a heater stack and the removal and replacement of several heater units. Mr. Bogdanovic has designed lifting components for rigging procedures, including lifting lugs, spreader beams, monorail beams, lifting frames, and trunnions. He has also completed the design and analysis of marine breasting structures and marine components for ship dock facilities, including field inspection, verification, and measurements.

Mr. Bogdanovic is also experienced in performing Dam Safety Reviews for hydroelectric and water storage projects in Canada and the US.

EDUCATION

- **University of Manitoba**
  Master of Science, Civil / Structural Engineering (2003)
- **University of Manitoba**
  Bachelor of Science, Civil Engineering (2001)

REGISTRATIONS

- **Professional Engineer (USA)**
  California, No. C 80759
  Washington, No. 51840
- **Professional Engineer (Canada)**
  Manitoba, No. 23252
  Alberta, No. 143440
  British Columbia, No. 35400
  Ontario, No. 100180335
  Saskatchewan, No. 28712

SPECIALIZED TRAINING

- Occupational Safety & Health Administration (OSHA) – OSHA 30-Hour Construction Safety: Certification, No. 6745_1124131
- OSHA 510 – Standards for the Construction Industry – Federal OSHA policies, procedures, and standards, as well as construction safety and health principles
- HDR Permit Required Confined Space Training
- HDR Fall Protection Training
- Structural Analysis, Design and Modelling
- Design of Fall Arrest Systems
- Advanced Behaviour and Design of Steel Structures
- Behaviour and Design of Reinforced Concrete Structures
- High Performance Concrete
- Design and Analysis of Composite Materials (FRP) in Civil Engineering
- Finite Element Analysis
- ASCE Manual and Reports on Engineering Practice No. 79 – Steel Penstocks Training
- Pre-Stressed Concrete Cylinder Pipe Seminar – Design, Fabrication, Installation, Operation & Maintenance
- ASCE Design Building with Overhead Cranes
- Bolting and Welding for Design Engineers
- Practical Design of Bolted and Welded Steel Connections
- ASCE 7-10 Wind & Seismic Load Provisions
- Steel Framed Commercial Building Design (Wind & Seismic Loading)
- California Seismic Principles Exam – Fundamental principles, tasks and knowledge underlying those activities involved in the California practice of seismic design, seismic analysis or seismic evaluation of new and existing structures
- Engineering Surveying Exam – Activities involved in the practice and application of surveying principles for the location, design, construction and maintenance and operation of engineered projects
- Software: MicroStation, AutoCAD, Microsoft Office, Mathcad 15
- Structural Finite Element Software: RISA 3D, RISA Foundation, STAAD.Pro, Visual Analysis, SAP2000, ENERCALC

PROFESSIONAL ASSOCIATIONS

- Board for Professional Engineers, Land Surveyors, and Geologists of California & Washington
- ASCE – American Society of Civil Engineers
- AISC – American Institute of Steel Construction
- USSD- United States Society on Dams
- CDA – Canadian Dam Association
- Association of Professional Engineers and Geologists and Geophysicists of Alberta
- Association of Professional Engineers & Geoscientists of the Province of BC
- Professional Engineers and Geoscientists of Saskatchewan

ANDI BOGDANOVIC, P.E., P.ENG.
REGIONAL DIRECTOR
SENIOR CIVIL / STRUCTURAL ENGINEER & PROJECT MANAGER

- Engineers and Geoscientists of Manitoba
- Professional Engineers Ontario

HONORS & AWARDS

- University of Manitoba Graduate Studies in Structural Engineering: Douglas Grimes Fellowship Award (2002)
- HDR Honors - Associate (2011)
- Energy NextGen Class HDR, 2012 (Selected for Business Development and Leadership Internal Program)

EMPLOYMENT HISTORY

2017 – Present	Regional Director, KGS Group International USA
2013 – 2017	Civil/Structural Engineering Manager, HDR Inc.
2009 – 2013	Civil/Structural Engineer, HDR Inc.
2008 – 2009	Civil Structural Engineer, JVIC Industrial
2003 – 2008	Civil Structural Engineer, KGS Group

PROJECT EXPERIENCE

Relevant Project Experience, USA

- **L&S Electric - BC Hydro, Seton Hydroelectric Facility, Seismic Evaluation, British Columbia**
  Project Manager and Structural Engineer of Record performing an analysis and evaluation for structural equipment, and anchorage support of five plant control equipment components (Governor Control Cabinet, HPU, Accumulator Rack, Servomotor, Piping), and qualifying the conformance of the equipment, and support or means of anchorage to withstand seismic event loading, using the IEEE 693-05 *Recommended Practice for Seismic Design of Substations* and British Columbia Building Code (BCBC). In addition, performing an FEA dynamic analysis using SAP2000 Version 20 Advanced, on the HPU and Accumulator Rack assembly. The seismic analysis qualification method that is being used is a dynamic analysis to evaluate whether the equipment can withstand seismic loading. The equipment finite element model is analyzed using modal spectrum analysis. The Seismic Qualification reports provided descriptions of the equipment, mass distribution, spectral acceleration, and structural modeling. Results included modal responses, displacements, shell stresses, and frame forces. The frame forces were coded checked against AISC Manual of Steel Construction and CSA S16-14.

- **Confidential Client, Seismic/Dynamic Assessment Phase 1 for 6 high consequence dams.**
  Project Manager**/**Structural lead responsible in selecting the key sections of the critical components of the dam and appurtenant structures identified for the analyses at each site, based on the review of the background information, and field inspection of the facilities. Assessed the vulnerability of chosen structures to Induced (near field) and Natural Tectonic (far field) earthquakes. Perform a dynamic analyses of the selected critical dam and appurtenant structural components to assess the sensitivity of each structural system under the dynamic loading conditions. Newmark deformation analyses were completed for the earth dams. Performed a 2D stability assessments under dynamic loading conditions using equivalent-linear site response analysis and traditional rigid body / slope stability methods. Also, a nonlinear dynamic time-history analysis for Induced and Natural Tectonic earthquakes using OpenSees and ANSYS software. Prepared a calculation package for the evaluation and a report summarizing the analysis, results and providing recommendations.

- **Imperial Irrigation District, East Highline Reservoir, California**
  New reservoir sites located in close proximity to the All American Canal (AAC) and the East Highline Canal (EHC) to provide greater operational flexibility, meet water deliveries and conserve water. Served as Project manager and Lead Structural Engineer in the analysis and design for several different types of concrete structures for the reservoir site

using Finite Element Analysis software SAP2000. The reservoir site structures include: Concrete Double box culvert, Concrete Inlet Structure, Concrete Outlet Structure, Concrete Meter Vault Structure, Concrete Outfall Structure, Transition upstream and downstream structures, and Steel Stoplogs. Analyzed and generated a 3D model for each of the structures in SAP2000 and defined boundary conditions, different load cases (including seismic, hydrostatic, impulsive and convective dynamic pressure, etc.), and load combinations based on Bureau of Reclamation Water Conveyance Systems Design Standard Chapter 12, and ASCE7-10. The design for different elements such as walls, slabs, decks and bulkhead skin plate and frame members was based on ACI318-14 and AISC 360 14th edition.

- **Ketchikan Public Utilities, Ketchikan Lakes and Beaver Falls FERC Part 12D Independent Consultant Services, Alaska**
  The project involved assessing safety inspections in accordance with FERC Part 12D Guidelines, Dam Safety Performance Monitoring Program. Served as a project manager and civil structural engineer to perform a comprehensive field inspection of the existing Ketchikan Lake and Beaver Falls Dam facilities, which included the reservoir rim, several storage dams (rockfill embankment structure with a wood core wall), spillways, reservoir outlet facilities, power intake facilities, and multiple powerhouses. Work included on-site inspection, document review, and participation as a core team member in the PFMA review session for the development. HDR provided analyses, evaluations and assessments of project facilities, documents, plans, and programs to ascertain compliance with FERC regulations, and prepared a CSIR report and associated documentation for Ketchikan submittal to FERC.

- **USACE Bonneville Powerhouse No. 2 Tailrace Gantry Crane Replacement, Portland, Oregon**
  Structural Lead for the development of plans and specifications for the supply and erection of a new, 65-ton main hoist with a 15-ton auxiliary hoist gantry crane. This work included design for the removal of the existing Powerhouse 2 tailrace gantry crane, which was original, and its replacement with a new gantry crane of the same rated capacity, along with upgrades to the crane electrical bus system and enhancements to improve operations and safety. Deliverables included a Design Documentation Report, development of an interactive 3D model that will be used to assist the client with identifying the most efficient location for the crane cab on the new crane, preparation of the procurement specification package and supporting calculations. This included weight calculations of existing tailrace stoplogs, friction forces associated with the removal of the gates, and analysis of lifting beams and spreader beams using the ASME BTH-1 2014. The standards used for the structural procurement specification preparation were CMAA#70-2014, OSHA, ASCE7-10, AISC 9th Ed., and AWS. Recommendations from the Crane Programmatic VE study will be incorporated into the project.

- **USACE Big Cliff Intake Gantry Crane Replacement, Salem, Oregon**
  Structural Lead for the development of plans and specifications for the supply and erection of a new, 40-ton gantry crane. This work included design for the removal of the existing intake gantry crane, which was original, and its replacement with a new gantry crane, along with upgrades to the crane electrical bus system and enhancements to improve operations and safety. Deliverables included a Design Documentation Report, development of an interactive 3D model that will be used to assist the client with identifying the most efficient location for the crane cab on the new crane, preparation of the procurement specification package, and supporting calculation. This includes weight calculations of existing intake gates and stoplogs, friction forces associated with the removal of the gates, and analysis of lifting beams and spreader beams using the ASME BTH-1 2014. A stability analysis was performed to determine the minimum stability factor against overturning when specified loads were applied in the least favorable manner using the load combinations per CMAA#70 and applied reactions were compared to allowable deck limit constraints. The standards used for the structural procurement specification preparation were CMAA#70-2014, OSHA, ASCE7-10, AISC 9th Ed., and AWS. The project was eligible for the National Register of Historic Places and emphasis was placed on maintaining the original design

features of the gantry crane as feasible. Recommendations from the Crane Programmatic VE study will be incorporated into the project.

- **Cascade Water Alliance, Intake Design, Mud Mountain Dam Fish Passage Facility, King County, Washington**
  Lead Structural Engineer in the analysis and design for a concrete intake structure modification using Finite Element Analysis. A BIM model REVIT to SAP2000 was used and the 3D model was modified into SAP2000 to defined boundary conditions, different load cases (including seismic, hydrostatic, impulsive and convective dynamic pressure), and load combinations based on ASCE7-10. Intake design included intake deck using an HS-20 loading, intake piers, training walls, sluiceway, foundations, bulkhead gate and a review of radial gates design.
- **PacifiCorp, Merwin Dam Spillway Gate Retrofit, Ariel, Washington**
  Assisted in project management and Structural Engineer of Record in retrofitting four 39-foot-wide by 35-foot-high tainter gates at Merwin Dam based on the previous analysis performed in 2016. The deliverables included a design documentation report, structural plans, technical specifications, and an opinion on the probable cost of construction for upgrades to the gates. The retrofit involved: upgrades to the main top strut arms that included adding 1-1/8 inch thick partial-length cover plate to the top flange of the struts; addition of horizontal members (trunnion ties) that tied together the main struts on each side of the gate; upgrade of the main top and bottom strut to trunnion connections by replacing the A307 bolts with A325 bolts and the existing angle sections that splice the strut to the trunnion casting with new splice angles of same size; and replacement of the lowest diagonal brace in the internal vertical frames of the gate.
- **Alabama Power Company, Weiss, Neely-Henry, and Logan Martin Development Draft Tube Working Platform, Coosa River Project, Alabama**
  Part of a team in a structural design of three different draft tube platforms for a turbine aeration enhancement project to install an aeration ring at the draft tube liner. The platform was designed using steel members and bolted/welded connections supported on the draft tube liner. Design of steel pipe supports and steel platforms for the new piping system.
- **Idaho Power Company, Oxbow Development Penstock and Penstock Dresser Coupling Structural Condition Assessment, Adams County, Idaho**
  As Lead Structural Engineer performed a condition assessment and structural evaluation of four 23 foot diameter penstocks and bolted sleeve type couplings. The analysis consisted of evaluating the internal hoop stresses at two sections of the exposed penstocks and dresser couplings in accordance with ASCE MOP79 2nd edition and ASME2010. Prepared a calculation package using Mathcad 15 for the evaluation and a technical memo summarizing the results and providing recommendations.
- **Sutter Butte Flood Control Agency TO 15Basis of Design, Sewer Pipe Cap and Footing Design, California**
  As Lead Structural Engineer performed design and analysis of two sewer line cap structures comprised of a concrete structural slab and footing. Loading requirements were based on HS-20 truck loading and design was based on IBC2015. SAP2000 and RISA Foundation were used to analyse the slab and footing.
- **USACE, The Dalles Lock & Dam & Sam RayBurn Dam, USA**
  Provided structural support for upgrade and design components for a new fish unit breaker replacement project at The Dalles and a transformer upgrade at Sam Rayburn. Some of the tasks were based on analysis and design of existing and new lug plates, anchors design, transformer hold downs, concrete pad, transformer demo, and cable tray and bus duct supports.
- **USACE, Sacramento County, American River Common Features, Basin Reach I, California**
  Structural Engineer responsible for a new concrete vault design for existing water main and storm drainage lines at the top of a levee for the Sacramento Department of the Army Corps of Engineers (USACE). The applicable codes and specifications used for the vault

design were the US Army Corps of Engineers EM1110-2-2104 reinforced-concrete hydraulic structures and ACI 350-06.

- **Chehalis Basin Dam and Fish Passage, Bulkhead and Radial Gate Preliminary Design, State of Washington, Chehalis, Washington**
  Structural Engineer responsible for the preliminary conceptual design of high head fixed wheel gates and radial gates using the USACE manuals for concrete hydraulic structures, spillway tainter gates design, and hydraulic steel structures. Preliminary design consisted of calculating some of the loads on the bulkhead and the gates and refining the thickness and gate member sizes.
- **City of Port Townsend, Big Quilcene Dam & Headwork Rehabilitation Evaluation & Design, Quilcene, Washington**
  As Lead Structural Engineer and assisted as Project manager, Phase 1, performed condition assessment of a timber crib rock fill dam and headwork facility. Headwork facility consisted a concrete sluiceway with a bypass/sluice gate, and concrete intake structure with a trash rack and a control gate. Conducted an alternatives analysis to determine the best approach for repair or replacement of the timber crib dam and associated head work structure. Prepared conceptual layouts of project structures and estimated construction costs for feasibility. Assessment of alternatives, considered both operational and physical constraints, environmental impacts, and addressed the sediment issues currently present at the headwork structure and dam. Also, a project description and construction plan was developed to assist the permitting approval stage with the agencies. The alternative chosen was the in-kind repair of the diversion dam. Phase 2, responsible for the design of the in-kind repairs to the dam, and providing the construction drawings, specifications, and bid package for the dam and apron modifications. Also, assisted with temporary diversion bypass and care of water for the construction repair. The repairs of the dam consisted of replacement of upstream/downstream timber facing boards, selective crib bent face and anchor logs with new logs and mechanically spliced to existing logs, and misc. hardware such as plate connectors and fasteners, rock fill restored, and concrete apron rehabilitation. Phase 3, provided engineering services during construction, including structural observation, review of submittals and RFIs, attended meetings, and answered design and construction questions.
- **Washington Department of Fish & Wildlife, Minter Creek Hatchery Intake and Dam Facility Predesign, Washington**
  Lead Structural Engineer responsible for a condition assessment of two low hazard dams (concrete dam and steel sheet pile dam) and their associated concrete gravity intake structures. Evaluated alternatives per hydraulic structure to rehabilitate or replace the existing structures, intakes, and pipeline. Determine the preferred alternative for the repair or replacement of the intakes including automated cleaning systems, associated controls and pipeline modifications. Prepared conceptual layouts of project structures and estimated construction costs for feasibility. Assessment of alternatives, considered both operational and physical constraints, environmental impacts, and addressed the sediment issues at the intake structure facility.
- **Tazimina Hydroelectric Plant, Trash Rack & Bulkhead for Intake structure, Alaska**
  Design and analysis of the trash rack intake. The trash rack assembly was comprised of fabricated wedge-shaped tubing welded to a square tube frame, with intermediate stiffeners. The trash rack design incorporated hollow steel tubing filled with a recirculating heated glycol mixture to aid in reducing icing. The tube rack design consisted of evaluating static stress, ice impact loads, head loss versus design head loss, and avoiding operating under resonance conditions. The natural frequency of the rack was checked versus the forcing frequency to prevent a resonant condition from developing. Design and analysis of an intake bulkhead using both a steel and aluminum structure.
- **Idaho Power Company, Brownlee Power Plant Parking Ledge Platform, Cambridge, Idaho**
  Project Manager and Lead structural engineer on a parking ledge platform design for maintenance work to the bottom ring of a Francis Unit. The platform was designed in two half sections, using steel members and bolted/welded connections.

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- **USACE, Howard A. Hanson Dam Spillway Gate Analysis, King County, Washington**
  Structural Engineer responsible for the analysis of the trunnion girder, post-tensioned anchorage, and pier evaluation for the respective reaction loads generated by the SAAP 2000 tainter gate model. The evaluation was in accordance with EM 1110-2-2702, EM 1110-2-2105, and ETL 110-2-584.

- **Enel, Lower Valley Powerhouse Stability Analysis, Claremont, New Hampshire**
  Evaluated the stability/overturning of Lower Valley Powerhouse structure in accordance with current industry state-of-the- practice for the analysis of water retaining structures, and in conformance with the current Federal Energy Regulatory Commission's Engineering Guidelines. The stability analysis load cases and the associated factors of safety were in accordance to Ch. 10, Section 8, and Ch. 3 of the FERC guidelines.

- **Duke Energy, Steam Station Groundwater Assessment Program, North Carolina**
  Site Manager at Cliffside and Marshall for an environmental groundwater assessment program for ash basins located at Duke Energy fossil stations. Responsibilities were to manage the drilling operation of the well, installation of the wells, development of the wells, and sampling and testing of the wells. This included speciation sampling and slug testing. Responsibilities also included overseeing construction to ensure compliance with the design intent, drawings, specifications and permits obtained.

- **PacifiCorp, Merwin Dam Gate Extension Replacement, Ariel, Washington**
  Structural engineer responsible for the design layout of the new gate extensions for the tainter gates, performing the associated design calculations to size members and connections, reviewing production drawings, and developing the technical specifications.

- **Cascade Water Alliance, Fish Barrier Structure Apron Repair, Washington**
  The Lead Structural Engineer for the temporary fix of an apron on the timber crib dam. Assisted in the design of a steel cofferdam and connections for the phase 1 and 2 apron repair.

- **Confidential Client, Due Diligence Engineering Assessment, Ontario, Canada & New York, United States**
  As part of a large team, provided support for a due diligence effort associated with the acquisition of ten project facilities located in New York and Ontario. The activities in support of the due diligence effort were: review of design, construction, operating and maintenance documents; perform site visit; develop a CAPEX and major maintenance expenditure, and a technical memo documenting the findings of the due diligence engineering assessment.

- **PacifiCorp Energy, Prospect No. 1, 2 & 4 Hydroelectric Project North Fork Dam Stress and Stability Analysis, Oregon**
  Evaluated the stress/stability of the North Fork Dam for the concrete Non-overflow, Sluiceways and Intake Structure in accordance with current state-of-the-industry practice for the analysis of dams, and in conformance with the current Federal Energy Regulatory Commission's Engineering Guidelines. The load cases analyzed included normal, unusual and extreme loading conditions.

- **Cascade Water Alliance, Lake Tapps Headgates Improvement, Washington**
  Structural Engineer for the design of a steel platform for a mechanical actuator used to lift head gates. Existing Head gates were inspected, analyzed and modified for new pick points and to bring them back up to standards by strengthening the gate. Production of gate design drawings, and response to the corresponding fabricator/contractor RFIs and submittals.

- **Puget Sound Energy, Upper Baker Dam, Foundation Drain Cleaning, Whatcom County, Washington**
  This concrete dam had several drain systems in place to reduce uplift pressure with instrumentation in place to monitor the uplift pressures. Developed firm criteria to indicate when drains should be cleaned, and for documenting drain performance, and how it is affected by cleaning activities. Served as Project manager and technical lead in the efforts to develop and prepare a monitoring procedure, drain cleaning plan, and piezometer

maintenance and testing procedure for these foundation drains. Also led the field crew in the inspection of the drains and implemented the actual drain cleaning activities.

- **Elwha Temporary Diversion Pumping Facility, Olympic National Park, Washington**
  Structural Engineer for this project, which included the design of a temporary diversion pumping station as well as the design various concrete and steel structures including HDPE Restraints, HDPE Anchor Blocks, and generator foundations for the pump station.
- **Coleman-Asbury Pipe Project, Pacific Gas and Electric Company, Coleman, California**
  Provided project support and design review of a 36-inch-diameter steel penstock using the ASCE Manual 79 for steel penstocks.
- **Ragsdale Spill Gate Controller Project, Pacific Gas and Electric Company, California**
  This project involved the replacement of actuators on spill gates for a canal with modifications to the support structure and components. Served as the Design and Analysis Lead for support structure beams, and hold down supports and anchors including preparation of the design criteria, scope, schedule and budget.
- **Drum YB-137 Gate Controller & Building/Structure Replacement Project, Pacific Gas and Electric Company, California**
  This project involved replacement of actuators for the existing radial spill gate system and reconstructing the support structures, hoist housing buildings and new foundations with modifications to existing electrical and mechanical components. Served as Lead Structural Engineer in the design of a new support hoist housing structure and foundation. Assisted in the preparation of the scope, schedule and budget on the civil section of this project, as well as in the preparation of the design criteria and response to client needs on constructability issues and constraints. Dynamic response spectrum analysis was performed due to the various irregularities of the structure.
- **Catalyst Energy Development Corporation, Rio Bravo Hydro Electric Project, California**
  Performed a stress analysis of the diversion dam due to the proposed modifications to the dam. These modifications included adding two piers on the crest of the dam to support the access bridge and adding two holes through the dam for sluicing the sediment.
- **Stanislaus Battery Building, Pacific Gas & Electric, California**
  Design of a one level concrete building, concrete shear walls, foundation and roof system for a battery building enclosure.
- **Bucks Creek Intake Valve House Standpipe Replacement, Pacific Gas & Electric, California**
  Assisted in the inspection and evaluation of the existing standpipe and developed various retrofit alternatives in a report. Completed the detailed structural design for the selected retrofit alternative to replace the standpipe, including an access platform design with skillet flange details.
- **Study of Sediment Management Alternative, Rio Bravo Hydroelectric Project, Kern Hydro Partners, Bakersfield, California**
  Assisted in the assessment of alternatives, both operational and physical, to pass sediment through the Rio Bravo Diversion Dam. These alternatives addressed the problems of reduced powerhouse capacity due to flow blockage by the accumulated sand and damage to the turbines due to the entrainment of the sand in the water. Assisted in managing/coordinating with HDR personnel in providing estimates for each alternative of the construction consideration costs and prepared a study report.
- **Study of Sediment Management Alternatives, Kern Diversion Dam, Pacific Gas & Electric, California**
  Assisted in the assessment of alternatives, both operational and physical, to pass sediment through the Kern Diversion Dam. Assisted in managing/coordinating with sub-consultants (Kleinfelder & Syblon Reid) to provide estimates for each alternative on the construction and geotechnical considerations/exploration costs.

- **Balch 1 Powerhouse Seismic Analysis and Support/Anchorage Design, Pacific Gas & Electric, California**
  Assisted in the seismic analysis and structural design requirements for the support system required for cable trays. Also provided assistance in the analysis and evaluation for anchorage of three plant control equipment components (two transformers, and a MCC) using the IBC and ASCE standards in accordance with design guidelines and applicable industry standards to comply with the recommended practice for Seismic Design of electrical/mechanical equipment.

- **Alta Line Breaker Seismic Analysis and Anchorage Design, Pacific Gas & Electric, California**
  Performed an analysis and evaluation for anchorage support of 17.5 kV breaker, for conformance of the structural support and anchorage using the IBC and ASCE standards in accordance with design guidelines and applicable industry standards to comply with the recommended practice for Seismic Design of electrical/mechanical equipment.

- **Pit 3, 4, & 5 Hydroelectric Project Design-Build, Pacific Gas & Electric, Burney, California**
  Full-time Field Site Engineer during construction, reporting to the Engineer of Record and Barnard Construction Company's (BCCI) Project Manager for an $80 million design-build project. Responsibilities included overseeing construction activities to ensure compliance with the design intent, drawings, specifications and permits obtained. Also, performed regular inspections of both concrete and steel platforms, pipe supports, penstock, valve house superstructure/substructure, gate supports, and concrete foundations. Additional responsibilities included overseeing and interacting with site inspectors, reviewing and approving inspection reports, identifying technical support needed by HDR or its sub-consultants URS, Mead & Hunt, or SAGE throughout the construction process. Managed and approved requests for information/changes (RFIs) or design changes (DCNs) required to be prepared by HDR and its sub-consultants. Single-point-of-contact for BCCI and PG&E on all technical matters and staffing issues related to design support during construction. Interaction with agencies having jurisdiction over the project such as FERC, DSOD, USFS, and California Park Service. Designed review of new civil components or modifications to existing/new structures, including design check, Quality Assurance/Quality Control, and drawing review. Lead in managing/coordinating the project closeout as construction was completed. Prepared and finalized the As-Built drawings and FERC exhibit drawings.

- **Confidential Client, Due Diligence Engineering Assessment, Chile**
  As part of a large team, provided support for a due diligence engineering review of two Chilean hydroelectric projects to assess condition, value and life and, therefore, the viability of potential acquisition of two small run-of river hydroelectric plants in Chile, near Linares in Region VII. Design, construction, operating and maintenance documents were reviewed in detail. In addition, review of project cost, O&M costs, remaining useful life, and future capital cost replacement and upgrade costs associated with those life projections. The team identified potential risks and deficiencies, and provided information on the potential future project risks.

Relevant Project Experience, Canada

- **DMS Contractor, Vertical Pressure Vessel & Skirt Evaluation, Saskatchewan.**
  Served as Project manager and technical lead in performing an FEA model using SAP2000 structural software to evaluate and determine the allowable stress levels on the existing vertical pressure vessel and support skirt for the construction rehabilitation work. The construction work required the support skirt sections to be temporarily cut-out in the skirt to allow for replacement of the pipe elbow coming off the bottom of the vessel. The evaluation was to determine the safe stress levels in the opening and to come up with a reinforcing detail modification to allow for the rehabilitation of the vessel. The load case used were ambient empty dead load case with wind pressures on the vessel.

- **Mosaic, South Thickener Concrete Repair Steel Tank Evaluation, Saskatchewan.** Performed an FEA model using SAP2000 structural software to evaluate and determine the allowable stress levels on the existing steel tank wall and floor plate for the different construction demo constraints using the same operational loading conditions. The FEA model started with a 10ft long demo concrete ring wall section (tank wall being unsupported by removal of the concrete ring wall below) and was run iteratively by incrementally increasing the length of demolition section until a reasonable stress limit in the tank was reached. Provided a sketch and limits to the extent of the repair of the concrete tank ring wall foundation.
- **L&S Electric, BC Hydro Bridge River Hydroelectric Facility, Seismic Evaluation, British Columbia.** Served as Project manager and technical lead. Performed an analysis and evaluation for structural support and anchorage of five plant control equipment components (a governor control cabinet, a Hydraulic Pump Unit, an accumulator bank, and two servomotors), and qualify the conformance of the support or means of anchorage to withstand seismic event loading, using the British Columbia Building Code (BCBC), IEEE 693-2005 Recommended Practice for Seismic Design of Substations (IEEE).
- **SaskPower, Coteau Creek Life Assessment Inspection, Saskatchewan** Part of the team inspecting, assessing, and providing a condition assessment report for the turbine pit, discharge ring, runner, stay vanes, wicket gates, bottom ring, head cover, servomotor, operating ring, wicket gates links and levers, intake service gate and bulkhead gate, and hoist machinery equipment.
- **BC Hydro, GM Shrum Hydroelectric Facility, Seismic Evaluation, British Columbia** Served as Project manager and technical lead. Performed an analysis and evaluation for structural support and anchorage of four plant control equipment components (sump tank, Governor Actuator Cabinet, and two accumulator tanks), and qualified the conformance of the support or means of anchorage to withstand seismic event loading, using the British Columbia Building Code (BCBC), National Building Code (NBC), and IEEE 693-2005 Recommended Practice for Seismic Design of Substations (IEEE). Also, performed a FEA dynamic analysis using ANSYS on a new governor control cabinet and distribution valve assembly. The seismic analysis qualification method used was a dynamic analysis to evaluate whether the equipment can withstand seismic loading capacity and conform to industry standards.
- **SaskPower, Head Gate & Trashrack Technical Specification, Saskatchewan** Part of a team that contributed to the technical specifications for a single leaf, fixed wheel, vertical lift head gate and intake trash rack. The intent of the Technical Specifications was to describe certain materials, features, and design requirements of the Work. The specification would provide the basis of the design, supply, install, and commission of the head gate and trash rack. The goal was to have a new trash rack with reduced losses, an improved cleaning provision, a new trash rack follower; new head gates with reduced maintenance, better sealing capacity, and new or refurbished embedded parts. The team also coordinated with mechanical engineers concerning the gate seals, hydraulic hoists, and gate assembly.
- **Pine Falls Generating Station Thrust Bearing High Lift Modifications, Winnipeg River, Manitoba** As part of Manitoba Hydro’s upgrades to their Pine Falls Generating Station, high lift systems were added to each of the 15 MW Kaplan units. As a subcontractor to Wartsila Hydro & Industrial services, HDR assisted with the design of the thrust bearing high pressure lift shoe modifications, addition of RTDs, and hydraulic piping. Reviewed and approved the thrust bearing calculations, thrust bearing machining details, pump and orifice sizing, hydraulic piping design, component selection, and design drawings.

- **Fortis Generation, Fortis Generation East Dam Structures, Three Developments, Ontario**
  HDR provided analyses, evaluations and assessments of project facilities, documents, plans, and programs to ascertain compliance with Canadian Dam Association (CDA), Ontario Ministry of Natural Resources Regulation, and FERC regulations. Served as the project engineer, engineer of record and assisted with the evaluation of the Dam Condition Assessment Report based on the site reconnaissance of the facilities, provided stability analysis, and hazard classification assessment of the three dams/control structures (Marble Rock, Hart Lake and Devil Lake) located in the Gananoque and Cataraqui watersheds. Based on the engineering stability analysis and design, provided modifications and repairs to the dam structure to meet current standards.
- **Three Sisters and Canyon Dam Hydropower Development Dam Safety Review, TransAlta, Alberta**
  Served as Project Manager and Project Engineer/Engineer of Record for the Safety Review Inspection and Potential Failure Modes Analysis (PFMA) review at Three Sisters and Canyon Hydropower developments. The review was to demonstrate compliance with the *Water Act* and accompanying Ministerial Regulations, the *Dam and Canal Safety Regulation*, and general conformity to the requirements of the *Canadian Dam Association (CDA) Dam Safety Guidelines*. Work included on-site inspection, document review, and participation in the PFMA review session for the development. The project included the review of existing geotechnical information and the performance of screening level pseudo-static slope stability and liquefaction analyses for each dam (Three Sisters & Canyon). The DSR was conducted in three phases, beginning with reconnaissance and document review, continuing with a site visit and detailed DSR activities, and ending with preparation of a draft and final report. Specific dam safety categories evaluated included the dam safety management system, operation, maintenance, surveillance, emergency planning/preparedness and dam design and capability.
- **Life Extension and Upgrade Program, Spray Hydroelectric Station, TransAlta, Alberta**
  HDR served as Owner's Engineer for TransAlta's multi-year hydro redevelopment program for the Spray (103 MW) hydroelectric facility, which was intended to extend the service life of the facility to the year 2050 and beyond. HDR's approach to the programmatic life extension program assessed the maintenance and rehabilitation needs of the facility and its components. HDR conducted detailed condition assessments of civil works such as powerhouse superstructure/substructure, overhead crane, intakes, penstocks, and discharge structures. Served as lead technical civil structural engineer for conducting the condition assessment and estimating the powerhouse crane, head gate, tailrace gate, penstock, and turbine inlet valve upgrade alternatives at the Spray Hydroelectric Station. Coordinated development of the final balance of plant, civil, electrical, and mechanical scopes of work based on TransAlta's desired objectives. Led the civil structural portion of the site evaluation, reviewed existing operational data and drawings, and prepared a work plan specification report to assist in the inspection of the Powerhouse 145/10 Ton Crane Condition Assessment for an uprate capacity. The project included the rebuild of Units 1 and 2 scheduled to begin in the year 2014 and required replacing the existing power house crane to achieve larger lifting capacities. Led and supported the structural evaluation of the Powerhouse frame superstructure, roof structure, crane runway support structure as well as any proposed modifications to meet loading requirements. This analysis included FEM modeling to existing steel superstructure, runway and roof framing, and generation of all existing and new loads, analysis of existing members, connections, base plates, anchor rods, as well as new member design and details. Also, Rock anchors were determined to be necessary to stabilize the powerhouse superstructure for the design lateral loads (side thrust) imposed during the crane operation. Led the design of new modifications to the balance of plant overhaul in the powerhouse, which included design and analysis of cable tray supports, pipe supports, concrete foundation for mechanical and electrical equipment, and modification to the control room. Also, provided construction engineering services during construction related to all modifications of the superstructure, runway, and new rock anchors/connection support, including structural observation,

review of submittals and RFIs, attended meeting, and answered design construction questions. In addition, assisted in acceptance testing of the new crane and the modification of the powerhouse superstructure. This included review and support in the load test requirements for the capacity within the hook approach.

- **Spray and Rundle Hydropower Development Dam Safety Review, TransAlta, Alberta**
  Served as Project Manager and Lead Engineer/Engineer of Record and assisted in the support of a Dam Safety Review Inspection and Potential Failure Modes Analysis (PFMA) review at Spray and Rundle Hydropower Developments. Work included on-site inspection, document review, and participation as a core team member in the PFMA review session for the development. HDR provided analyses, evaluations and assessments of project facilities, documents, plans, and programs to ascertain compliance with the CDA, Alberta Provincial Regulation, and FERC regulations, and prepared a Dam Safety Review Report and associated documentation for TransAlta. The activities included the following: conducted a DSR in three phases, beginning with reconnaissance and document review, continuing with a site visit and detailed DSR activities, and ending with preparation of a draft and final report. Specific dam safety categories that were evaluated included a dam safety management system, operation, maintenance, and surveillance, emergency planning/preparedness and dam design and capability.
- **Dam Safety Review, Albany River Sites, Three Developments, Ontario Power Generation, Ontario**
  A safety assessment of the Cedars Dams (Albany River) and associated structures was completed in accordance with the accepted engineering standards of Ontario Power Generation's Dam Safety Program, Ontario Ministry of Natural Resources Regulation, and the *Canadian Dam Association Dam Safety Guidelines*. Served as a Project Engineer, Engineer of Record and assisted with the evaluation of the hydrotechnical, stability analysis, and flow control study for the dam safety review of Ontario Power Generation-owned dams and associated structures located on the Albany River System. The sites reviewed included the Root River (Lake St. Joseph) Dam, the Rat Rapids Dams, and the Cedars Dams and associated structures. Structural Engineer for the analysis of the log lifters capacity rating and condition assessment.
- **BC Hydro, Ruskin Hydroelectric Facility, Seismic Evaluation, British Columbia**
  Performed an analysis and evaluation for structural support and anchorage of two plant control equipment components (an accumulator, and a hydraulic power unit), and qualified the conformance of the support or means of anchorage to withstand seismic event loading, using the British Columbia Building Code (BCBC), IEEE 693-2005 Recommended Practice for Seismic Design of Substations (IEEE).
- **Dam Safety Review of Ladore Dam, Sugar Lake & Wilsey Dam, Three Developments, BC Hydro, British Columbia**
  As Dam Safety Engineer, was responsible for reviewing and sealing the repoquarts in accordance with the requirements of the British Columbia professional engineering code. The project consisted of a Dam Safety Review to identify possible hazards and the associated failure modes of the dam. HDR conducted the DSR in three phases, beginning with reconnaissance and document review, continuing with a site visit and detailed DSR activities, and ending with preparation of a draft and final report.
- **Corra Linn - Trash Rack for Intake Structure, FortisBC, British Columbia**
  Structural Engineer for the design and analysis of the trash rack Unit 3 intake. The bar design consisted of evaluating static stress, head loss versus design head loss, and avoidance of operating under resonance conditions. The natural frequency of the bar was checked versus the forcing frequency to prevent a resonant condition from developing. Designed trashrack support steel beams and connections to replace deteriorated steel framing.
- **Lac la Ronge Control Structure, Saskatchewan**
  Completed detailed design of walkways, monorail hoist beams, support frames, stoplogs, stoplog follower, and stoplog storage cart.

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- **Wuskwatim Generating Station Powerhouse, MB Hydro, Manitoba**
  Performed detailed analysis and design of new spillway hoist housing structure including the design of moment and bolted connections, and new stoplogs, service bay, gravity structural sections, retaining walls, and powerhouse. The analysis and design included concrete and steel components, such as two way slabs, columns, walls, foundation etc.

- **Alexander Dock, City of Winnipeg, Manitoba**
  Responsible for design and analysis of new timber piles and the rehabilitation of the old wooden dock with new wooden and steel construction. Also performed structural site inspections and was a part time project manager.

- **Sewer Culverts, Pump House & Flap/Sluice Gate & Concrete/Steel Structures Inspections, City of Winnipeg, Manitoba**
  Field inspection to assess the existing conditions of the sewer system facilities. Inspection included pumps, gates, concrete foundation, buildings, mechanical components, and sewer culverts (concrete lined, steel pipe, corrugated metal) and weirs. The inspections included thickness measurement to evaluate shell corrosion, pitting and visual inspection of rust blisters, plate joints, and rivet heads. Evaluated, assessed and provided recommendations for each component and foundation conditions.

- **Town of The Pas, Manitoba**
  Assisted in residential basement inspections for the Town of The Pas, which were required due to flooding of the domestic sewage system.

- **Cost Estimate and Feasibility Study, Pointe du Bois Spillway, Manitoba Hydro, Manitoba**
  Prepared a detailed cost estimate of various options for increasing the spillway capacity, which included upgrading and repairing existing systems and building new.

- **Pembina Highway Flood Protection Works, City of Winnipeg, Manitoba**
  Construction Inspector for all aspects of the project, including regular site meetings with the contractors. This included site preparation, excavation, concrete wall dike, clay backfill, internal drainage and site restoration.

- **Oil & Gas Industry Refinery Projects, JV Industrial Companies – Engineering Division, Corpus Christi, Texas (2008-2010)**
  Involved in petrochemical facilities-design and analysis of steel and concrete structures to provide sound but economical support systems for process equipment, storage tanks, pipe rack systems, and horizontal and vertical vessels. Inspection and conditions assessment of existing platforms, support structures, frame systems (heavy industrial buildings) to evaluate and analysis new loading conditions and to determine if the structure is fit for purpose. Experienced in supervising and checking construction drawing packages prepared by draftspersons and attending regular progress meetings, as well as field inspection for the civil/structural engineering scope of the project. Experienced in design and analysis for marine breasting structures and marine components of ship dock facilities including field inspection, verification, and measurements. Performed an analysis check for monopile and tripod type breasting dolphin structures consisting of either straight or battered piles used for docking large ships. Unified Facilities Criteria Standards were used to calculate wind loads, currents, and passing vessel forces for large ships and applied to mooring bollards and to the marina structures. Site Engineer in Illinois, where he provided assistance at a refinery plant for the turnaround of a heater stack and the removal and replacement of several heater units. Worked closely with several parties to meet deadlines for the shutdown of these units and with the crane contractor on the critical lifts needed to remove the units, resulting in the use of his design of lifting components for the different rigging procedures. This included design and analysis of existing and new lifting lugs, spreader beams, monorail beams, lifting frames, and trunnions.

ANDI BOGDANOVIC, P.E., P.ENG.
REGIONAL DIRECTOR
SENIOR CIVIL / STRUCTURAL ENGINEER & PROJECT MANAGER

Industrial Experience

- **Fall Protection Life Safety, Manitoba Hydro, Manitoba**
  Project Manager, Main Structural Site Inspector, and Design Engineer. The fall protection life safety program included many sites in the Manitoba Hydro fleet of generating stations and associated spillway structures. Some of the sites included: Slave Falls, Seven Sisters, Pointe du bois, Pine Falls, Brandon. Design and analysis of life lines, anchor points, handrails, platforms and support structures.
- **Mill Building, Manitoba Rolling Mills, Manitoba**
  Completed inspection, analysis, design, and planning for several mezzanine steel platforms and steel superstructures to evaluate the adequacy of new loading conditions due to the new/relocated units. Assisted with the design and detailing requirements for structural steel and reinforced concrete structures using appropriate combinations of design loads.
- **Empire Iron, Winnipeg, Manitoba**
  Assisted with the analysis and design of a new top running bridge multiple girder overhead crane.
- **Maintenance, Stores & Garage Building, Manitoba Rolling Mills, Selkirk, Manitoba**
  Completed structural modifications to existing steel trusses and purlins to support additional snow load from drifting and ventilation system.
- **Pork Pretreatment Building, Maple Leaf, Winnipeg, Manitoba**
  Work included structural modifications to an existing pre-engineered building to support additional equipment. Also, a detailed inspection, analysis and design was required for existing beams and support structure.
- **Melt Shop Facility, Manitoba Rolling Mills, Selkirk, Manitoba**
  Work included analysis and design modifications of several existing monorails to support higher loading.
- **Manitoba Hydro Generating Stations, Manitoba**
  Completed design of fall arrest and fall protection systems for various different applications required on site. Included was extensive use of CSA Standard Z259.16-04 for Design of Active Fall-Protection Systems, Z259.13-04 for Flexible Horizontal Lifeline Systems and CSA Z259.2.1-98 for the Design Of Fall Arresters, Vertical Lifelines and Rails. This also included a complete design of fall prevention systems such as platforms, handrails, ladders, cages and stairs.

STEFAN KOHNEN, MBA, P.ENG.

REGIONAL MANAGER/MECHANICAL/ELECTRICAL DEPARTMENT HEAD

EXPERIENCE & RESPONSIBILITIES

Stefan Kohnen has over 29 years of experience as a business manager and mechanical engineer in the hydropower and manufacturing industries. He has been involved in all aspects of hydropower development from feasibility to implementation with a focus on the selection, supply and commissioning of equipment both domestically and internationally. In the manufacturing sector he has been involved in the development and implementation of manufacturing processes, maintenance management and management of capital projects with specific experience in machining and metrology.

As the Regional Manager of the Mississauga office of KGS Group the current responsibilities include the day to day management and performance of the business unit and business development activities in Ontario and Eastern Canada.

EDUCATION

- **Queens University**
  Masters of Business Administration (Year)
- **APICS The Association for Operations Management**
  Completion of certification in Production and Inventory Control Management (1999)
- **McGill University**
  Bachelor of Mechanical Engineering (1988)
- **Dawson College(**
  Diploma of Mechanical Engineering Technology (1984)

PROFESSIONAL ASSOCIATIONS

- PEO – Professional Engineers Ontario
- APEGS – Association of Professional Engineers & Geoscientists of Saskatchewan
- Ontario Waterpower Association
    - Volunteer Public Outreach Committee
    - Volunteer Power of Water Conference Committee

EMPLOYMENT HISTORY

2010 to Present	Regional Manager and Mechanical/Electrical Department Head, KGS Group
2008 – 2010	Operations Manager, Andritz Hydro Canada
2006 – 2008	Project Manager, Andritz Hydro Canada
2004 – 2006	Manager Toronto Service Center, WEIR Canada
2003 – 2004	General Manager, Elimetal Inc.
1992 – 2003	Manufacturing Engineering Manager, Sybron Dental Specialties
1988 – 1992	Production Manager, Elimetal Inc.

STEFAN KOHNEN, MBA, P.ENG.

REGIONAL MANAGER/MECHANICAL/ELECTRICAL DEPARTMENT HEAD

PROJECT EXPERIENCE

- **Calabogie GS Re-development**
  Client: Ontario Power Generation (2017 – present)

- Project Engineer for the assignment as Owner’s Engineer for the re-development of the 6MW generating station that has reached end of life. Duties include the development of viable options, support the election of the Design Build Contractor, support for the development of specificatons, budgets, the environmental assessment and all aspects of the development and executions phase.

- **Lock 25 Generating Station**
  Client: Bawitik Power Corporation (2016 to present)
  Project Manager for the development of this 3 MW generating station adjacent to Lock 25 on the Trent Severn waterway. The scope of the project includes developing an economically viable solution to this very low head site. The project has identified viable solution, completed the procurement for the turbine/generator solution, the contractor and is developing the final concept using an Early Contractor Involvement approach. Construction is scheduled for 2019.

- **North Bala Falls Generating Station**
  Client: Swift River Energy Limited (2016 to present)
  Project Manager for providing Owner’s Engineer services for the construction of this 4MW generating station. Led the re-procurement fo the project to reduce cost and ahceive an economically viable solution. Managing weekly and monthly progress, providing support for permitting and regulatory approvals, managing claims and interfaces among the various vendors. The facility os scheduled to be in service in 2019.

- **Smooth Rock Falls Generating Station**
  Client: Gemini SRF Power (2015-2018)
  Project Manager for the refurbishment and upgrading of this 100 year old facility from 7.4 to 9.2 MW. The services including developing specifications and procure contracts for the replacement of two generators, the refurbishment of the turbines, the replacement of the reunners, the upgrading of the protection and controls system and modifications ot eh electrical and station service system.

- **Chaudiere Falls Generating Station Lender’s Engineer**
  Client: Chaudiere Hydro Limited Partnership (2015 – 2018)
  Project Manager for the provision of independent engineer services for the lenders for this 30MW hydropower development. The services included performing regular inspections of the progress of the construction activities and issuing the requisite certificates at specific milesotnes.

- **Due Diligence Services**
  Client: Oakville Hydro (2014)
  Project Manager for the evaluation of hydropower projects identified for acquisition.

- **Okikendawt Hydropower Project – Mechanical Site Inspection**
  Client: Okikendawt Hydro L.P. (2014-2016)
  Project Manager for the supervision of mechanical erection of 2 X 5MW ECOBULB units.

- **Okikendawt Hydropower Project – Manufacturing Inspection**
  Client: Okikendawt Hydro L.P. (2013-2015)
  Project Manager for factory inspection of main components of the 2 X 5MW ECOBULB turbine generators in China and Europe

KGS GROUP
CONSULTING ENGINEERS

- **Tazi Twe Hydropower Project – Early Contractor Involvement Phase**
  Client: SaskPower (2013-2017)
  - Lead for turbine generator selection and procurement for the planned 50 MW
  - greenfield hydropower development
  - Responsibilities include the preparation of specifications, tender support and bid evaluation
  - Also provided support in preparation of final layouts, budgets and project schedules
  - Negotiations of final specifications and contract terms with turbine supplier.

- **Chenaux Periodic Facility Condition Assessment**
  Client: Ontario Power Generation (2013)
  - Project Manager for the periodic condition assessment of the 144 MW Chenaux generating station.
  - The project scope included inspections activities and consolidation of findings from all inspectors from the client, KGS, and other participants in to a final report.

- **Peter Sutherland Sr. Generating Station**
  Client: Ontario Power Generation/Coral Rapids Power (2011-Present)
  - Project Manager for the Definition Phase of the 28MW greenfield development Owner's Representative contract
  - Project Engineer for the Execution Phase
  - Support for development of commercial agreements
  - Prepare development of site optimal site concepts
  - Support development of contracting strategies and cost estimating
  - Development of specifications and procurement of Contractors
  - Support business case development and approvals
  - Support to Environmental Assessment

- **Kapuskasing Hydropower Project QA/QC Program, Ontario**
  Client: AMIK/NIPIY HYDROKAP L.P. (2012-2014)
  - Program Manager for the inspection program of installation activities
  - Coordinated inspection activities and performed final review of reports
  - Provided support in resolution of site issues and technical concerns
  - Providing ongoing support in post commissioning resolution of deficiencies.

- **Kapuskasing Hydropower Project QA/QC Program, Ontario**
  Client: AMIK/NIPIY HYDROKAP L.P. (2011-2012)
  - Program Manager for the inspection program for manufacturing of eight turbine and generators to be delivered in stages until 2012 from Chinese suppliers
  - Reviewed and finalized inspection programs with suppliers
  - Management of inspection teams and execution of inspection events

- **Kabinakagami Hydropower Project, Ontario**
  Client: Northland Power (2012)
  - Project Manager for the development of construction specification for this multi site hydropower project
  - Assisted the client in the evaluation and selection of Water to Wire proposals
  - Assisted the client in the development of performance guarantees

- **Saunders GS, Des Joachims Station Service Upgrade Projects, Ontario**
  Client: Ontario Power Generation (2011-2013)
  - Project Manager for several large and medium sized replacement projects of station service systems at different OPG facilities
  - Projects include the development of concepts, specifications and monitoring installation

- **Mayo B Water to Wire Supply QA/QC Program, Mayo, Yukon**
  Client: Yukon Energy (2010 - 2011)
  - Program Manager for manufacturing monitoring and inspection program for equipment supply from China and North America
  - Development of independent Inspection & Test Plan for the complete supply
  - Development and execution of factory inspections until release for shipping
  - Planning and execution of inspections
  - Monitoring and evaluation of schedule progress
  - Resolution of quality and schedule issues with all parties

- **Lac Seul Generating Station, Ear Falls, Ontario**
  Client: SNC Lavalin (2008 – 2010)
  - Assumed Project Manager responsibilities during the commissioning phase of the work.
  - Managed the team to achieve plant acceptance by Ontario Power Generation
  - Established, maintained and resolved outstanding deficiencies through engineering activities and execution of site outages
  - Closed out project documentation and commercial conflicts with clients and suppliers

- **Ashlu Creek Generating Station, Squamish, British Columbia**
  Client: Ashlu Creek Limited Partnership (Innergex) (2007 – 2010)
  - As Project Manager led an international team of staff and suppliers for the design, supply and installation of a 54MW plant comprised of three horizontal Francis units, an energy dissipation system and all balance of plant supply.
  - Coordinated the design process with multiple domestic and international participants and successfully commissioned a solution for dissipating 60MW of plant bypass water in a site with limited space. This was considered a first in Canada and is now a reference plant as a successful solution for energy dissipation.

- **Trent Rapids Generating Station, Peterborough, Ontario**
  Client: Trent Rapids Power Corporation (Peterborough Utilities) (2006 – 2009)
  - As Project Manager led an international team of staff and suppliers for the design, supply and installation of two horizontal ECOBULB type Kaplan turbines and all balance of plant with a capacity of 8MW.

- **Umbata Falls Generating Station, Marathon, Ontario**
  Client: Umbata Falls Limited Partnership (Innergex) (2006 – 2008)
  - As Project Manager led an international team of staff and suppliers for the design, supply and installation of two high head (34m) horizontal S-type Kaplan units with a combined output of 23MW with all balance of plant supply

- **Magueyal, Brazo Derecho and Hatillo Generating Station, Dominican Republic**
  Client: Corporación Dominicana de Empresas Electricas Estatales (2006 – 2008)
  - As Project Manager developed an international consortium of suppliers for the development of water to wire packages of three hydro power plants.
  - Led the team of staff and suppliers for the design, supply and installation of a total of four units including both Francis and Kaplan units.
  - Completed the installation and commissioning of one plant and the supply for the other two plants.

- **Healey Falls Generating Station, Campbellford, Ontario**
  Client: Ontario Power Generation (2007-2010)
  - As Project Manager and Program Manager led an international team of staff and suppliers for the design, supply and installation of one vertical Kaplan unit with an output of 7MW with all balance of plant supply.

- The work involved installation in an operating plant considered a heritage site.

- **Aberfeldie Generating Station, Cranbrook, British Columbia**
  Client: BC Hydro (2009-2010)
  - Assumed Project Manager responsibilities after the units were placed in service.
  - Developing and implemented solutions to plant deficiencies
  - Negotiating closure of outstanding commercial issues with client and suppliers
  - Negotiated technical solutions and achieved client approval of unit bearings that were not conforming to specifications.

SIGNIFICANT PROJECTS IN MANUFACTURING

- **Manufacturing Plant Layout Design & Construction Monitoring, Sybron Dental Specialties**
  - As Project Manager led a team consisting of internal staff, consulting engineers and a general contractor for the expansion of the manufacturing space in a high volume manufacturing facility
  - Performed flow analysis and developed a floor plan for the expansion of the manufacturing facility solution to suit product flow and inter-departmental relationships.
  - Developed the construction plan details with engineers and architects
  - Monitored construction progress
  - Planned and executed the moving of processes and equipment including re-validation of manufacturing processes.

- **Packaging Process Development, Sybron Dental Specialties**
  - Researched packaging technologies and developed new packaging concepts with marketing staff
  - Developed the packaging system concepts including equipment, data handling, mix and capacity plans to determine the layout and capital needs
  - Sourced and installed the equipment
  - With the assistance of consultants and an internal team developed the integrated algorithms and automation solution used to develop packaging production schedules integrated into the packaging line data flow.
  - Selection and implementation of printing technologies to adapt to changing package information in process.

- **Development of High Volume CNC Grinding Equipment, Sybron Dental Specialties**
  - As Program Manager, developed and implemented a series of projects to develop the necessary technology to perform high volume grinding with a goal to replace aging technologies and improve output rates and quality.
  - The program involved the development of mechanical solutions to withstand the rigours of 24 hour per day operation in highly abrasive environments and control and software solutions to achieve product variety and motion control.
  - The units were highly successful and improved output and product range by 30 to 80% depending on product line with very low capital cost to construct.

- **Oil Mist Capturing and Filtering, Sybron Dental Specialties**
  - The operations included a department with over 250 units generating oil mist in grinding operations. The scale of the situation made the problem intractable.
  - As Program Manager managed a team of engineers and suppliers to improve air quality and reduce oil loss in a series of parallel projects
  - Developed the capital plan and implemented the necessary HVAC equipment and process changes.
  - Achieved a tenfold improvement in air quality and a 30% reduction in oil loss

STEFAN KOHNEN, MBA, P.ENG.

REGIONAL MANAGER/MECHANICAL/ELECTRICAL DEPARTMENT HEAD

- **Product Washing and Waste Treatment, Sybron Dental Specialties**
  - As Program Manager led a series of project teams to eliminate the use of solvents in a high volume production with no impact on product cleanliness or impact on product cost or production leadtimes.
  - Selected technologies and implemented aqueous washing solutions while accommodating product flow and material handling requirements
  - Selected and implemented waste reduction technologies to reduce waste

KGS GROUP
CONSULTING ENGINEERS

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CONSULTING ENGINEERS

SEAN BAYER, M.Eng., P.Eng., PMP

DEPARTMENT HEAD - MUNICIPAL

EXPERIENCE & RESPONSIBILITIES

Mr. Bayer is a Professional Engineer with 20 years of experience in both the private and public sectors. His specializations include design and project management work for clients in water treatment, distribution and collection, wastewater management, subdivision development, environmental water monitoring, regulatory compliance, and environmental reporting.

EDUCATION

- **Project Management Professional (2014)**
- **University of Regina**
  Master of Engineering, Environmental (2009)
- **University of Regina**
  Bachelor of Applied Science, Environmental Systems Engineering (1995)
- **University of Regina**
  Bachelor of Mathematics (1995)

PROFESSIONAL ASSOCIATIONS

- Association of Professional Engineers and Geoscientists of Saskatchewan Member of K to 12 Committee
- Western Canada Water and Wastewater Association – Editorial Committee Member
- American Water Works Association
- Consulting Engineers of Saskatchewan - Water Resources Chairperson

EMPLOYMENT HISTORY

2016 - Present	Department Head – Municipal, KGS Group
2012 - 2016	Assistant Department Head – Municipal Group, KGS Group
2011 - 2012	Canadian Environmental Manager, EVRAZ NA INC (key KGS client)
2009 - 2011	Project Manager, KGS-MR2 Group, Regina
2006 - 2009	Project Manager, M•R•2 - McDonald & Associates
2004 - 2006	Approvals Engineer, Saskatchewan Environment
2001 - 2004	Environmental Project Officer, Saskatchewan Environment

PROJECT EXPERIENCE

Department Experience

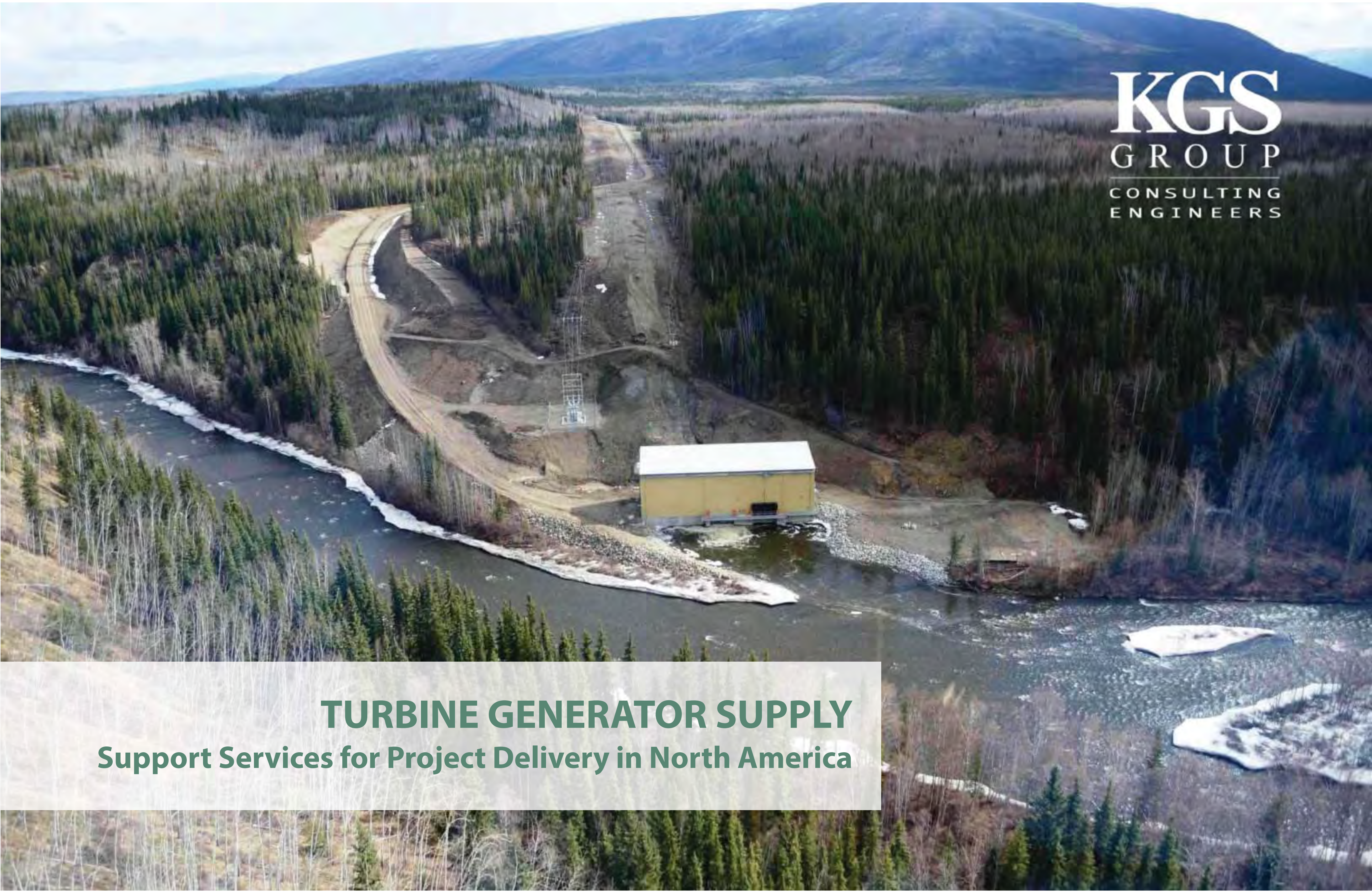
- **Waste Management Centre**
  Project Manager for the Civil Servicing at the City of Regina Waste Management Centre. Supervision of flow modeling, coordination of design staff and communication with Owner.
- **College Avenue Campus Revitalization Project**
  Project Manager for the College Avenue Campus Revitalization. Coordination of design staff which included engineering services during construction. Oversight to design and flow modeling phases.
- **Conexus Building Communities Project**
  Project Manager for the Conexus Building Communities Project. Communication with Owner and design staff. Coordination of engineering services during construction. Supervision of design and flow modeling stages.

- **White City**
  Project Manager of the White City development project. Supervision of flow modeling, communication with Owner and their representatives.
- **Meadow Lake Water Distribution**
  Project Manager for the upgrades to the City of Meadow Lake distribution system. Supervision of modeling work along with design coordination and client communication.
- **Meadow Lake Water Treatment**
  Project Manager for the upgrades to the City of Meadow Lake water treatment plant including the addition of a pump well and membrane treatment system
- **EVRAZ NA INC**
  Project Manager of various indoor air quality projects as well as ensured environmental compliance for four sites in Canada. Reviewed NPRI and GHG submissions and reviewed various Provincial regulatory submissions.
- **Island Lake Manitoba Water Treatment Plant, 2014**
  Project managed and conducted design work related to the process design portion of the design build.
- **City of Moose Jaw Sanitary Landfill**
  Did various sampling, monitoring and reporting.
- **City of Lloydminster Landfill**
  Provided project management oversight on the civil, structural, and electrical components for the project to date, presently the project is on hold
- **Northwest Regional Landfill**
  Provided project management and design assistance on the leachate management review and detailed design of cell number 2.
- **City of Moose Jaw**
  Annual monitoring, analysis and reporting of the city's wastewater effluent discharge program. Provided detailed engineering and project management services, specifications assistance on the high service and north east reservoir booster chlorination projects.
- Assisted in the detailed design of the booster chlorination at Buffalo Pound Provincial Park and also assisted with the wastewater facility review at Moose Mountain Provincial Park.
- Authoring Numerous Waterworks System Assessment s (730) including providing authoring assistance with the City of Melville, City of Regina and City of North Battleford.
- Predesign, detailed design work and project management with the **City of Moose Jaw Booster Chlorination projects.**
- Predesign, detailed design and project management at the **Village of Frontier water treatment plant.**
- Predesign, detailed design and project management at the **Town of Kipling wastewater treatment plant.**
- Predesign, detailed design and project management assistance at the **Town of Regina Beach water treatment plant.**
- Predesign, detailed design and project management assistance at **Thomson Lake Regional Park wastewater treatment plant.**
- Detailed design and project management assistance for water treatment and wastewater system at **Golden Band Resources mine sites**.
- Reviewed alternative coagulants and disinfection regimes for multitude of clients (for THM reduction) as well as authored a revised powdered chlorine dioxide as part of a masters project.

- Involved with reviews of modified slow sand both at regulatory and consultant level.
- Detailed design and project management of **Village of North Portal water treatment plant**.
- Project management assistance during construction phase at **Town of Broadview water treatment plant.**
- Project Management lead work on Electro coagulation wastewater treatment trial at Evraz.
- **RM of Lac Pelletier Lagoon Expansion**
  Provided project management services related to pre-design, detailed design and Engineering services during construction.
- **Mainprize Regional Park Lagoon Expansion**
  Provided project management services related to pre-design, detailed design and Engineering services during construction.
- **Town of Kipling Lagoon Expansion**
  Provided project management services related to pre-design, detailed design and Engineering services during construction.
- **White City Development Servicing Investigation Work**
  Project Manager of the White City development project. Supervision of flow modeling, communication with Owner and their representatives.
- **White City, Sewage Pumping Station #3**
  Project Manager for the Sewage Pumping Station upgrades that involved pumping capacity flow and operational upgrades, including the addition of backup power.
- **White City, Phase 1 Waterline Upgrades**
  Project Manager for the addition of a 400 mm line leaving the water treatment plant, the first phase in a long term servicing approach for growing population at the Town of White City.
- **SaskWater, White City Mechanical/Electrical Water Plant Upgrades**
  Project Manager for Water Treatment Upgrades including the Addition of new filtration, distribution and appurtenances.

APPENDIX C

BROCHURE - TURBINE GENERATOR SUPPLY



KGS GROUP
CONSULTING ENGINEERS

TURBINE GENERATOR SUPPLY

Support Services for Project Delivery in North America

We are a well-established engineering firm with a history of leading the planning, design and management of significant public and private hydropower projects across Canada and internationally.

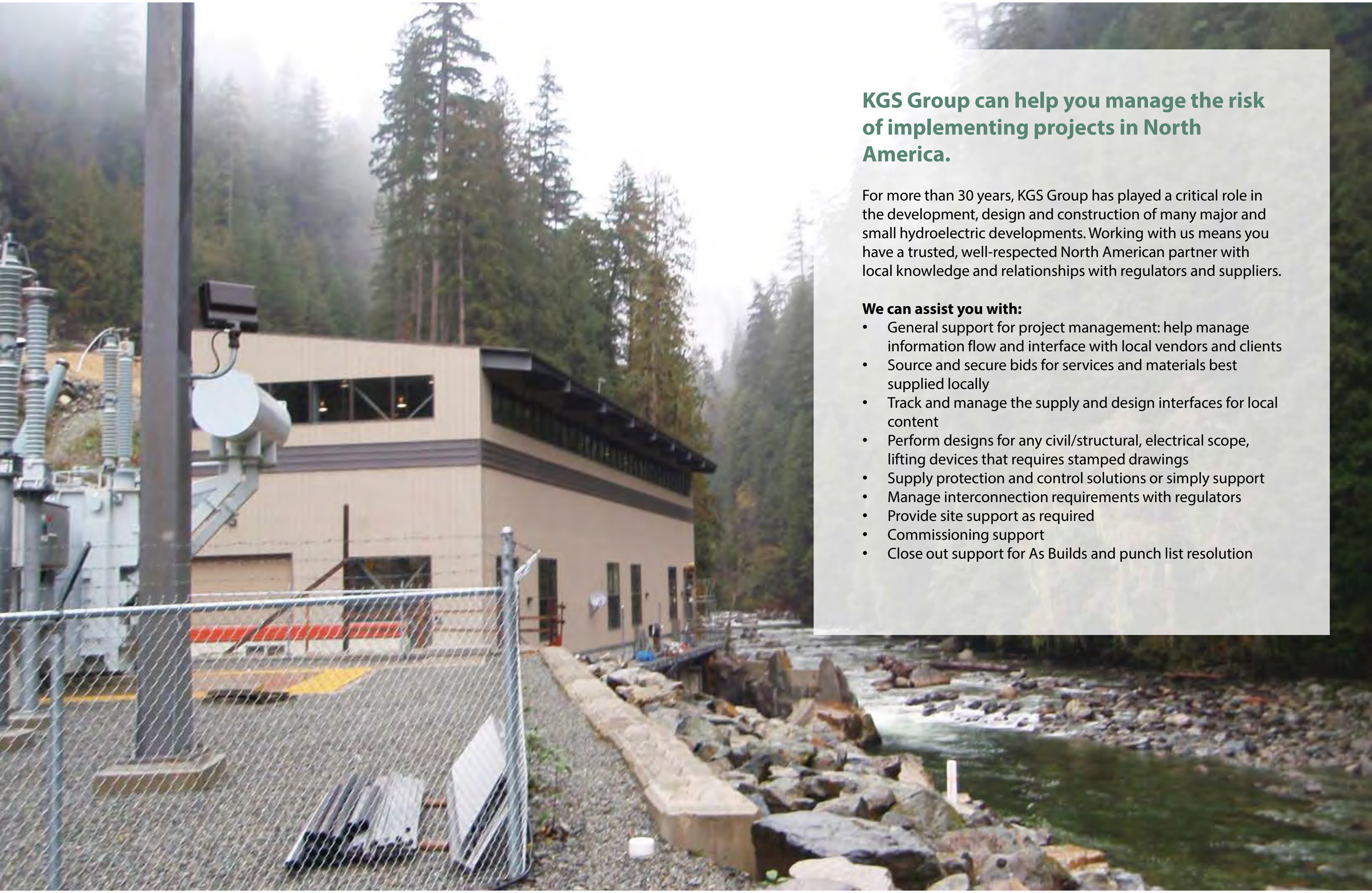
Our highly experienced team of engineers, scientists and technologists, provide a complete range of engineering services.

400+
staff across
Canada/US

6
cities with
KGS Group
offices

PROJECT & CONSTRUCTION MANAGEMENT
HYDRAULICS/WATER RESOURCES
STRUCTURAL
GEOTECHNICAL
MECHANICAL
ELECTRICAL
ENVIRONMENTAL
CIVIL/MUNICIPAL
INDUSTRIAL
SURVEYING/GIS

KGS Group is certified to ISO 9001 and our health and safety program is registered with several certification agencies.



KGS Group can help you manage the risk of implementing projects in North America.

For more than 30 years, KGS Group has played a critical role in the development, design and construction of many major and small hydroelectric developments. Working with us means you have a trusted, well-respected North American partner with local knowledge and relationships with regulators and suppliers.

We can assist you with:

- General support for project management: help manage information flow and interface with local vendors and clients
- Source and secure bids for services and materials best supplied locally
- Track and manage the supply and design interfaces for local content
- Perform designs for any civil/structural, electrical scope, lifting devices that requires stamped drawings
- Supply protection and control solutions or simply support
- Manage interconnection requirements with regulators
- Provide site support as required
- Commissioning support
- Close out support for As Builds and punch list resolution

OUR EXPERTISE

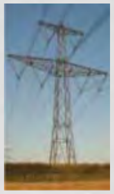
Turbines & Generators
- Equipment selection, specification and technical review
- Condition assessments and rehabilitation
- Technical and economic evaluation of equipment up-rating options including re-runnering, generator rewind and unit replacement
- Site supervision during installation, overhauls and commissioning
- Performance evaluation, index testing
- Failure analysis

Mechanical & Electrical
- Protection and control
- Interconnection approvals
- Hydropower and balance of plant
- Process piping & equipment
- Cranes and hoists
- HVAC/water/sewage systems
- AC and DC station service
- Emergency/backup power
- Grounding systems
- Power systems and distribution
- Substations and transmission lines

Flow Control Facilities, Gates & Gates Handling
- Detailed design of new spillway and intake gates, stoplogs, hoists and guides
- Inspection, testing, condition assessment of spillway and intake gates
- Failure mode and effect analysis
- Life extension measures
- Risk analysis

Manufacturing & Commissioning
- Manufacturing QA/QC services
- Commissioning

Hydraulics/Hydrology
- Design of hydraulic structures
- Energy production optimization
- Reservoir simulation & operation optimization
- Transient analysis
- Flood control, water supply, drainage & irrigation
- Ice jam remediation
- Dam safety and FMEA evaluations
- Fishery and fish passage design

We have close to 100 people in our hydropower group

Our industry-leading hydro team brings dams and generating stations online across Canada and in the United States.

Key staff from the former Andritz Hydro Compact office in Toronto (below):

- Implemented Francis, Pelton and Kaplan projects in Canada, the US and the Caribbean
- Executed projects from complete water to wire including gates and substation to simpler supply and commissioning of turbines, generators and auxiliaries
- Are familiar with implementing energy dissipation solutions for flow bypass frequently encountered in high head projects

Stefan Kohnen
Regional Manager &
Head of Mechanical/
Electrical Department

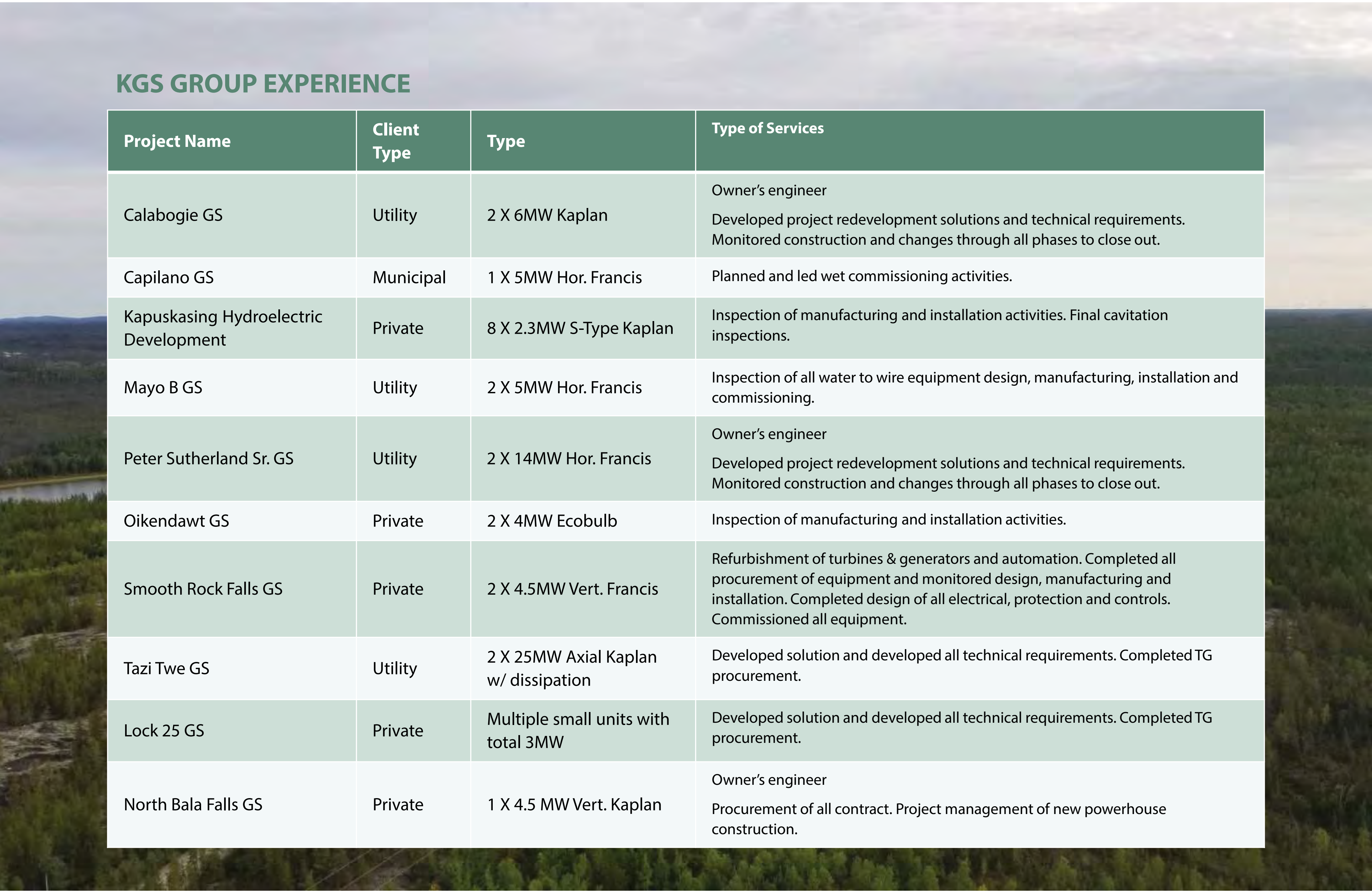
Michael Vance
Senior Mechanical
Project Manager

Monish Bhowmik
Senior Electrical Engineer
& Project Manager

Ken Besser
Senior Mechanical
Engineer

EXPERIENCE OF THE PROPOSED TEAM (ANDRITZ HYDRO COMPACT PROJECTS)

Project Name	Client Type	Type	Location
Aberfeldie GS	Utility	3 X 8MW Hor Francis	British Columbia, Canada
Abiquiu GS	Private	1 X 3MW Hor Francis	New Mexico, USA
Ashlu Creek GS	Private	3 X 18MW Hor Francis with 60MW Dissipation	British Columbia, Canada
Brazo Derecho GS	Utility	1 X 3MW Vert CAT Kaplan	Dominican Republic
Fitzsimmons Creek GS	Private	1 X 7MW Pelton	British Columbia, Canada
Hatillo GS	Utility	1 X 12 MW Hor S-type Kaplan	Dominican Republic
Healey Falls GS	Utility	1 X 7MW Hor CAT Kaplan	Ontario, Canada
Kwalsa GS	Private	8 X 7MW Hor Francis/ Pelton w/ Energy Dissipation	British Columbia, Canada
Lac Seul GS	Utility	1 X 12MW Pit Kaplan	Ontario, Canada
Magueyal GS	Utility	2 X 1.5MW Hor Francis	Dominican Republic
Trent Rapids GS	Private	2 X 4MW Ecobulb	Ontario, Canada
Umbata Falls GS	Private	2 X 12MW Hor S-type Kaplan	Ontario, Canada
Upper Stave GS	Private	6X 7MW Hor Francis/ Pelton w/ Energy Dissipation	British Columbia, Canada



KGS GROUP EXPERIENCE

Project Name	Client Type	Type	Type of Services
Calabogie GS	Utility	2 X 6MW Kaplan	Owner's engineer Developed project redevelopment solutions and technical requirements. Monitored construction and changes through all phases to close out.
Capilano GS	Municipal	1 X 5MW Hor. Francis	Planned and led wet commissioning activities.
Kapuskasing Hydroelectric Development	Private	8 X 2.3MW S-Type Kaplan	Inspection of manufacturing and installation activities. Final cavitation inspections.
Mayo B GS	Utility	2 X 5MW Hor. Francis	Inspection of all water to wire equipment design, manufacturing, installation and commissioning.
Peter Sutherland Sr. GS	Utility	2 X 14MW Hor. Francis	Owner's engineer Developed project redevelopment solutions and technical requirements. Monitored construction and changes through all phases to close out.
Oikendawt GS	Private	2 X 4MW Ecobulb	Inspection of manufacturing and installation activities.
Smooth Rock Falls GS	Private	2 X 4.5MW Vert. Francis	Refurbishment of turbines & generators and automation. Completed all procurement of equipment and monitored design, manufacturing and installation. Completed design of all electrical, protection and controls. Commissioned all equipment.
Tazi Twe GS	Utility	2 X 25MW Axial Kaplan w/ dissipation	Developed solution and developed all technical requirements. Completed TG procurement.
Lock 25 GS	Private	Multiple small units with total 3MW	Developed solution and developed all technical requirements. Completed TG procurement.
North Bala Falls GS	Private	1 X 4.5 MW Vert. Kaplan	Owner's engineer Procurement of all contract. Project management of new powerhouse construction.

Project Highlight –

ABERFELDIE GENERATING STATION, BC HYDRO, BRITISH COLUMBIA, CANADA

- Redevelopment of existing facility
- New 24MW powerhouse and penstock
- 3 Unit Horizontal Francis turbine layout
- Transmission connected
- Utility client

Responsible for supply, installation and commissioning of:

- Turbines, generators and auxiliaries with turbine inlet valves
- Protection and control system

Project Highlight –
ASHLU CREEK GENERATING STATION, INNERGEX, BRITISH COLUMBIA, CANADA

- New 56 MW greenfield site
- 3 Unit Horizontal Francis turbine layout
- 60MW energy dissipation solution
- Transmission connected
- Private client

Responsible for supply, installation and commissioning of:

- Turbines, generators and auxiliaries with turbine inlet valves
- Energy dissipation solution



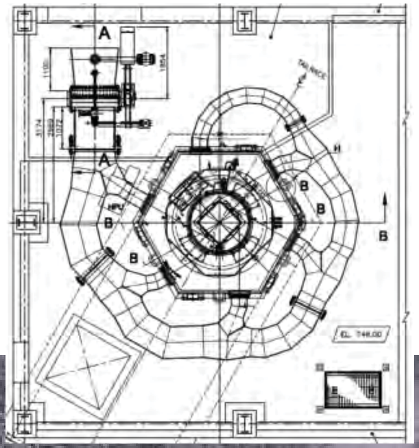

Project Highlight –

FITZSIMMONS CREEK GS, LEDCOR, BRITISH COLUMBIA, CANADA

- New 7 MW greenfield site
- Single 6 nozzle vertical Pelton turbine layout
- Distribution connected
- Private client

Responsible for supply, installation and commissioning of:

- Turbines, generators and auxiliaries with turbine inlet valves



KGS GROUP
CONSULTING ENGINEERS

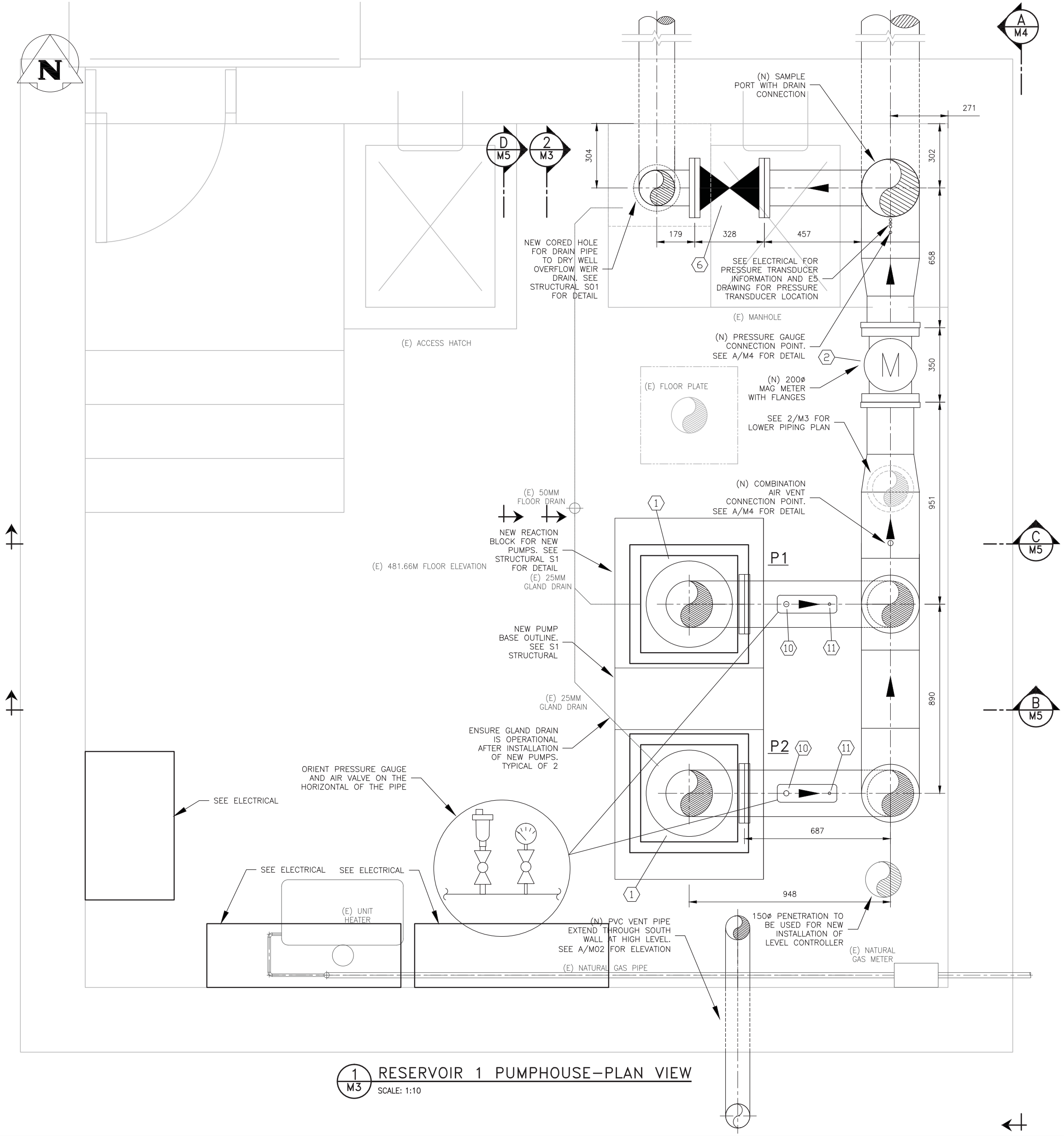
Contact

Email: skohnen@kgsgroup.com
Phone: 1 (905) 848-7876
Mobile: 1 (905) 484-3880

www.kgsgroup.com

APPENDIX D

FLOOR PLANS AND DETAIL SHEET EXAMPLES



1
M3
RESERVOIR 1 PUMPHOUSE–PLAN VIEW
SCALE: 1:10

DESIGNATED MATERIALS AND EQUIPMENT LIST			
	SIZE	MATERIAL	DESCRIPTION
1	150		2 – VERTICAL TURBINE PUMPS MOTOR 575V 3PH 60HZ, 40 HP/29.82 KW 1770 RPM
2	200		1 – MAG WATER METER, 200MM
3	150		1 – MAG WATER METER 150MM
4	250		1 – CLASS 150 IRON BODY GATE VALVE, FLANGED, NON–RISING STEM WITH HANDWHEEL
5	200		2 – CLASS 150 IRON BODY GATE VALVE, FLANGED, NON–RISING STEM WITH HANDWHEEL
6	150		3 – CLASS 150 IRON BODY GATE VALVE, FLANGED, NON–RISING STEM WITH HANDWHEEL
7	200		1 – SILENT CHECK VALVE, CLASS 125, CAST IRON VALVE BODY.
8	150		1 – PRESSURE REDUCING VALVE, CLASS 150, FLANGED, STAINLESS STEEL PILOT 0–75 PSI WITH ELECTRIC SOLENOID ACTUATION.
9	12,25		1 – 25 TWO–PIECE STAINLESS STEEL BALL VALVE – FULL PORT, 3 – 12 TWO–PIECE STAINLESS STEEL BALL VALVE – FULL PORT
10	25		4 – AIR RELEASE VALVE
11	12.5		3 – PRESSURE GAUGES, 75MM DIAL WITH SNUBBER
12	250	C.S.	SCHEDULE 40 PIPE & FITTINGS
13	200	C.S.	SCHEDULE 40 PIPE & FITTINGS
14	150	C.S.	SCHEDULE 40 PIPE & FITTINGS
15	150	PVC	SCHEDULE 80 PIPE & FITTINGS

NOTE: QUANTITIES TO BE FIELD VERIFIED ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED

GENERAL NOTES:

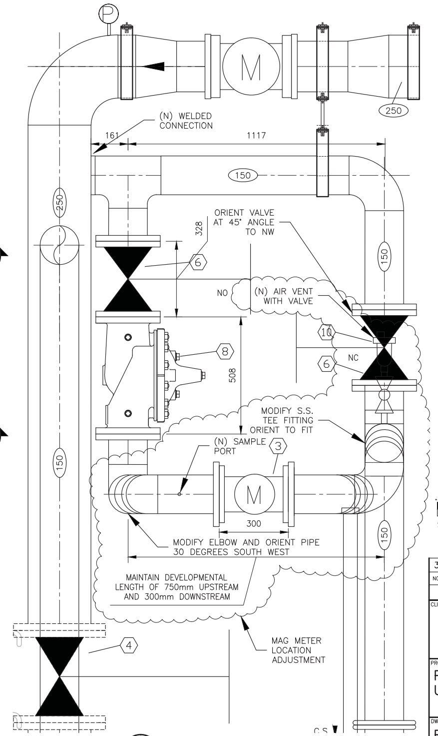
1. DRAWINGS WERE CREATED USING UMA RECORD DRAWINGS DATED 1971.
2. LOCATIONS OF UTILITIES ARE SHOWN AS APPROXIMATE ONLY AND MUST BE FIELD VERIFIED PRIOR TO WORK COMMENCING.
3. CONTRACTOR TO FOLLOW ALL CEC REQUIREMENTS FOR PUMP CONNECTIONS.

NOTES:

1. CONFIRM ALL DIMENSIONS BEFORE CONSTRUCTION.
2. ELEVATIONS (EL.) PROVIDED IN METRES.
3. TOP OF EXISTING FLOOR ELEVATION IS 481.66.
4. SUPPLY AND INSTALL DISMANTLING JOINTS FOR PUMPS IF NECESSARY FOR PLACEMENT OR FUTURE REMOVAL.
5. ALL NEW PIPE TO BE SCH. 80 PVC OR SCH. 40 C.S. UNLESS NOTED OTHERWISE.
6. SUPPORT PIPING AS REQUIRED.
7. PROVIDE FLANGED SPOOL PIPE FOR ALL MAG METERS.
8. SEE ELECTRICAL FOR PRESSURE TRANSDUCER INFORMATION.
9. REFER TO STRUCTURAL DRAWING S1 FOR NEW CORING PENETRATIONS.

LEGEND:

- ⋈ – GATE VALVE
- ⧓ – GLOBE VALVE
- ⊘ – BUTTERFLY VALVE
- ⊳| – CHECK VALVE
- ⋈ – BALL VALVE
- ⊽ – AIR RELEASE VALVE
- ⊸ – PRESSURE GAUGE
- ⊛ – PRESSURE TRANSDUCER
- ⋈ – SAMPLE COCK
- [M] – FLOW METER
- ◁ – REDUCER
- (300) – PIPE DIAMETER
- NO – NORMALLY OPEN
- NC – NORMALLY CLOSED
- (N) – NEW
- (E) – EXISTING



2
M3
LOWER PIPING PLAN
SCALE: 1:10

.2 0 .2 .4 .6 .8m
SCALE: 1:10 METRIC 24"x36"
1:20 METRIC 11"x17"

AS–BUILT
AS–BUILT DRAWING REVISIONS ARE BASED SOLELY ON DRAWING MARKUPS OR OTHER FIELD DOCUMENTATION PROVIDED BY:
CONTRACTOR
THESE CHANGES HAVE NOT BEEN VERIFIED IN THE FIELD BY KGS GROUP.

ENG. STAMP
ORIGINAL DRAWING
SEALED BY:
R.A. MCDONALD
2014/12/01

NO.	YY/MM/DD	DESCRIPTION	BY
3	17/07/11	ISSUED FOR AS–BUILT	RAM

REVISIONS / ISSUE

CLIENT:
CITY OF MEADOW LAKE

PROJECT:
POTABLE WATER DISTRIBUTION UPGRADES

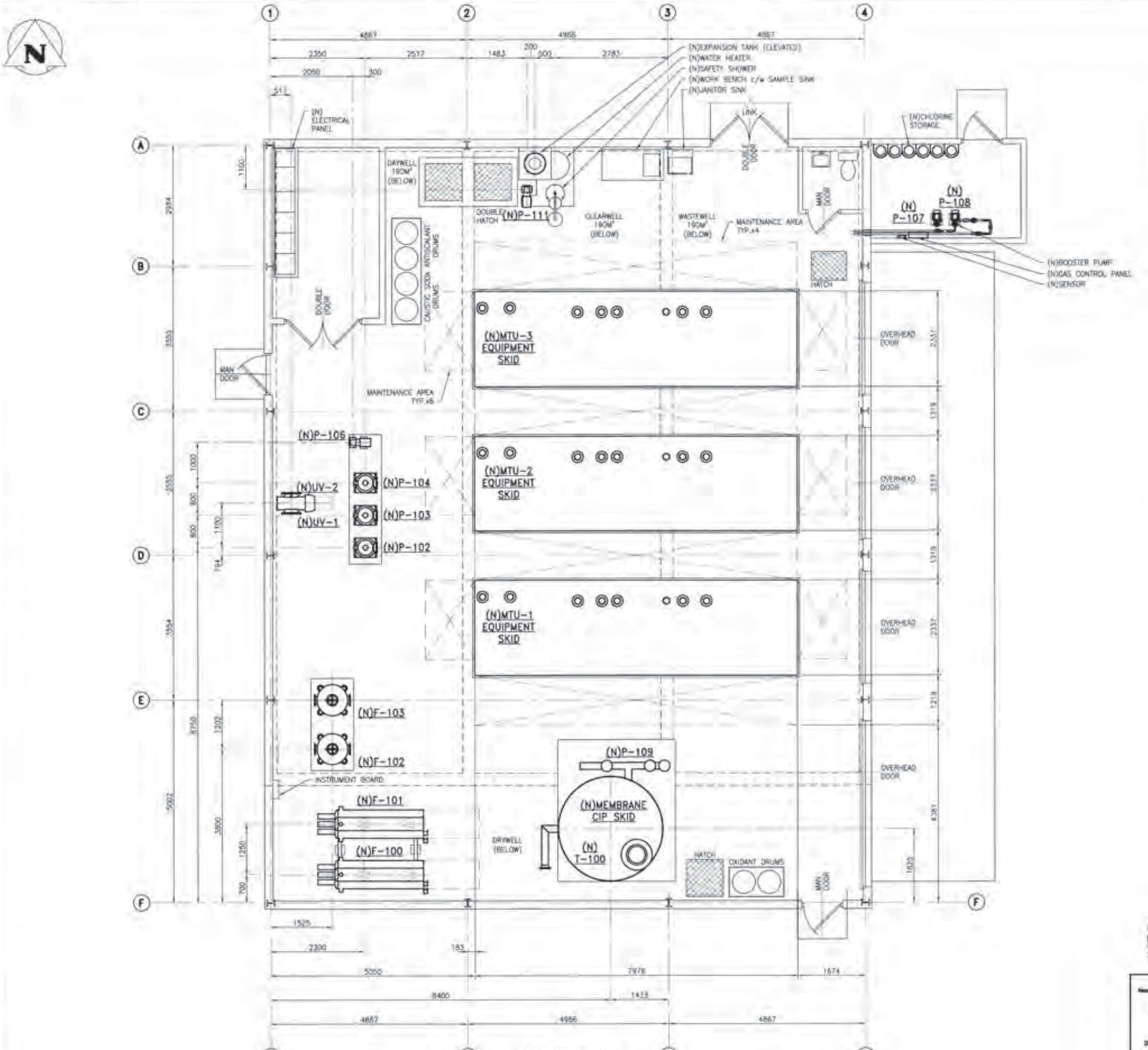
DWG. DESCRIPTION:
RESERVOIR 1 PUMPHOUSE
PLAN VIEW AND LOWER PIPING PLAN

KGS GROUP
CONSULTING ENGINEERS

DESIGN BY:	DATE (YY/MM/DD):
DMN	14/11/20
DESIGN CHECK: AMD	DATE: 14/11/21
DRAWN BY: DMN	DATE: 14/11/21
DWG CHECK: RAM	DATE: 14/11/21

DWG. NO.
13–1784–001 M3
REV:
3

KGS24x36B
FileName: P:\Projects\2013\13-1784-001\Dwg\Mech\13-1784-001_M01_Pumphouse_ASBUILT.dwg – Tab: M3 Plotted By: bwelta 07/17/2017 [Mon 10:12am]
24"x36"/PLOT SCALE: 1:1



FLOOR PLAN

SCALE 1:50

LEGEND

———	EQUIPMENT
(N)	NEW
(E)	EXISTING

GENERAL NOTES:

1. THE CONTRACTOR SHALL REVIEW ALL PROJECT DRAWINGS AND DOCUMENTS PRIOR TO ANY CONSTRUCTION ON SITE. ANY DISCREPANCIES, MISSING DIMENSIONS AND/OR REQUIRED DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSULTANT BEFORE ANY WORK AFFECTED IS COMMENCED.
2. THE CONTRACTOR SHALL CO-ORDINATE WITH THE OWNER TO ENSURE THAT THE WORK DOES NOT DISRUPT NORMAL PLANT OPERATIONS.

EQUIPMENT INSTALLATION NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. UNLESS OTHERWISE NOTED, ALL HORIZONTAL PUMPS ARE LOCATED BY CENTRE LINE OF SUCTION FLANGES.
3. UNLESS OTHERWISE NOTED, ALL TANKS AND VESSELS SHALL BE INSTALLED WITH 0 DEGREES (FROM SHOP DRAWING) ORIENTED TO "BUILDING NORTH".
4. INSTALL ALL EQUIPMENT AS PER MANUFACTURER'S INSTALLATION MANUALS AND RECOMMENDATIONS.
5. REFER TO EQUIPMENT VENDOR DRAWING FOR ANCHOR BOLT DETAILS.
6. ALL EQUIPMENT SHALL BE INSTALLED WITHIN ± 3mm OF ELEVATION SPECIFIED ON DRAWINGS.
7. THE EQUIPMENT SHALL BE INSTALLED WITHIN ± 3mm OF COLUMN CENTRE LINE NORTH-SOUTH AND EAST-WEST AS MARKED ON PILE CAPS.
8. SHIM PLATES TO BE USED FOR LEVELLING EQUIPMENT SHALL BE CUT FROM STANDARD SHIM STOCK MATERIAL (ASTM A36).
9. ALL SHIMS SHALL BE A MINIMUM OF 75x75. SHIMS SHALL BE LARGER OR IN MULTIPLE STACKS FOR LARGER EQUIPMENT.
10. VERTICAL VESSELS SHALL BE INSTALLED TO A TOLERANCE OF 1/1000 OF VERTICAL TO A MAXIMUM DEVIATION OF 25mm AND WITHIN ± 3mm WITH RESPECT TO COORDINATES.
11. HORIZONTAL VESSELS SHALL BE INSTALLED TO THE TOLERANCE AS FOLLOWS:
    ELEVATION: ± 3mm
    CO-ORDINATES: ± 3mm
    TILT: ± 3mm

EQUIPMENT INSTALLATION TABLE

EQUIPMENT		ELEVATIONS		
TAG	DESCRIPTION	ELEV.(M)	REMARKS	GROUT(mm)
F-100	SELF CLEANING FILTER	481.225	INLET FLANGE	
F-101	SELF CLEANING FILTER	481.225	INLET FLANGE	
F-102	CARTRIDGE FILTER	479.915	U/S OF BASE	40
F-103	CARTRIDGE FILTER	479.915	U/S OF BASE	40
P-102	VERTICAL TURBINE PUMP	479.915	U/S OF SOLE PLATE	40
P-103	VERTICAL TURBINE PUMP	479.915	U/S OF SOLE PLATE	40
P-104	VERTICAL TURBINE PUMP	479.915	U/S OF SOLE PLATE	40
P-106	BLEND PUMP	479.965	U/S OF BASE	40
P-111	DOMESTIC WATER PUMP	479.915	U/S OF BASE	40
MTU-1	MEMBRANE TREATMENT UNIT	479.915	U/S OF SKID	40
MTU-2	MEMBRANE TREATMENT UNIT	479.915	U/S OF SKID	40
MTU-3	MEMBRANE TREATMENT UNIT	479.915	U/S OF SKID	40
CIP SKID	FILTER, HEATER, TANK, PUMP	479.915	U/S OF SKID	40
UV-1	ULTRAVIOLET UNIT	481.219	INLET CENTERLINE	
UV-2	ULTRAVIOLET UNIT	480.219	INLET CENTERLINE	

NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
0	17/05/30	ISSUED FOR TENDER	AMB	AHD

REVISIONS / ISSUE

CLIENT:
Meadow Lake
Gateway to Pure Air & Water

PROJECT:
WATER TREATMENT PLANT EXPANSION
HWY 55
MEADOW LAKE, SASKATCHEWAN

DWG. DESCRIPTION:
MECHANICAL – MEMBRANE PLANT EQUIPMENT
GENERAL ARRANGMENT

1 0 1 2 3 4m
SCALE: 1:50 mm (24"x36")

Association of Professional Engineers & Geoscientists of Saskatchewan
CERTIFICATE OF AUTHORIZATION
KGS Group
Number C0620
Permission to Consult held by:

Discipline	Sk. Reg. No.	Signature
Mechanical	20402	

AUTHENTICATION FOR CURRENT REVISION

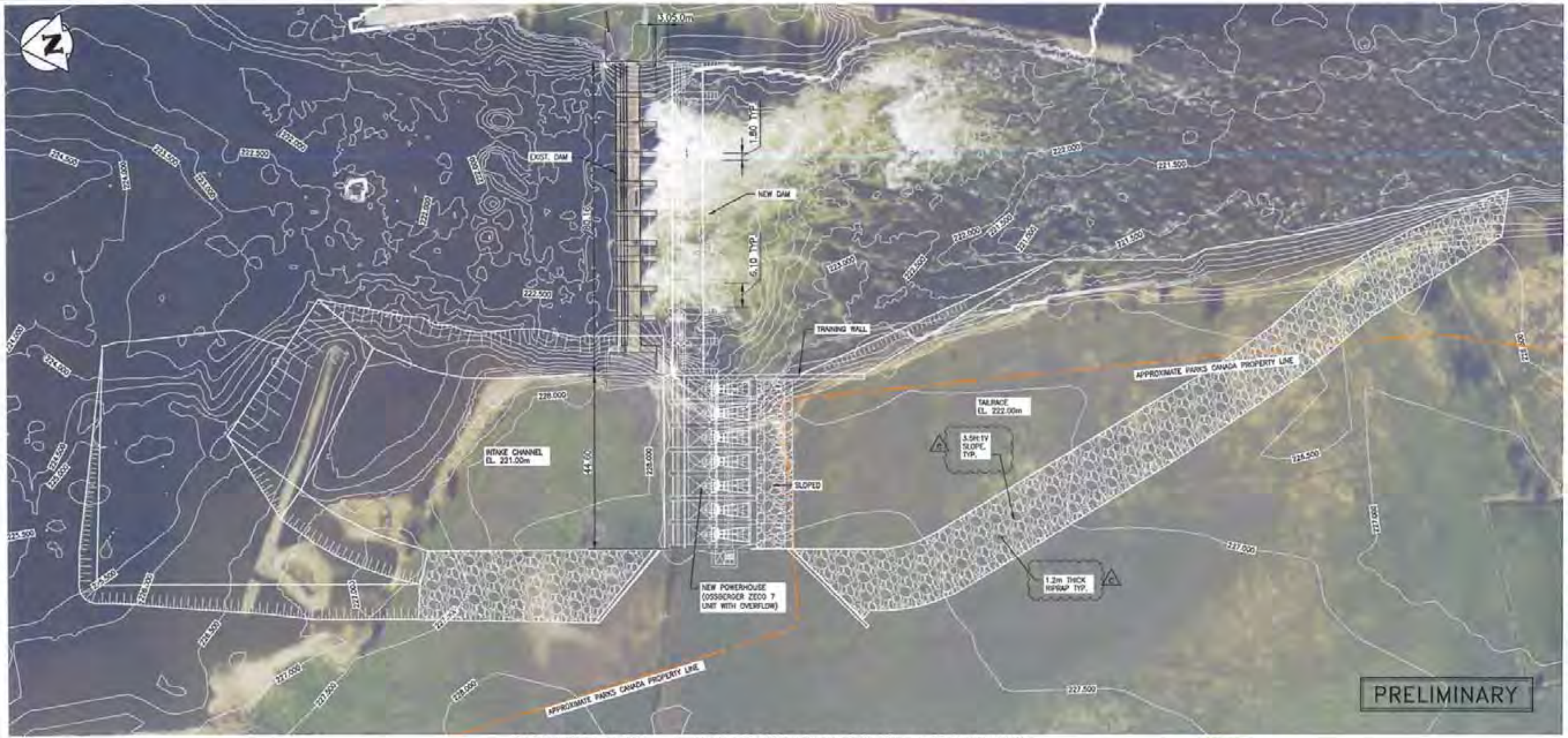
ENG. STAMP
K.S. BORN
MEMBER 20402
17 06 30

KGS GROUP
CONSULTING ENGINEERS

DESIGN BY:	AMB	DATE (YY/MM/DD):	17/03/18
DESIGN CHECK:	AHD	DATE:	17/03/30
DRAWN BY:	SJB	DATE:	17/03/18
DWG. CHECK:	ADR	DATE:	17/05/30

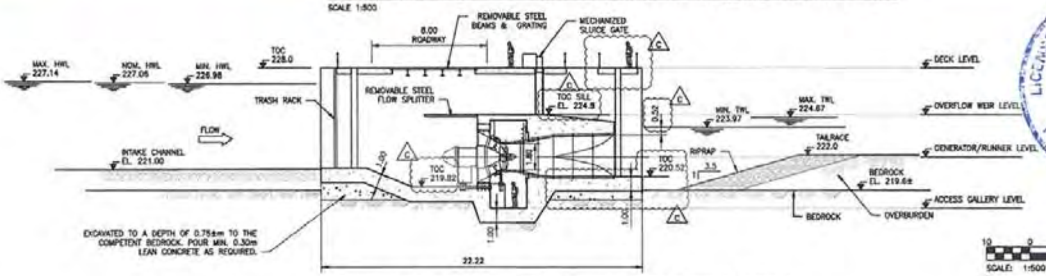
DWG NO.: 15-1784-002 M01
REV: 0

Filename: P:\Projects\2015\15-1784-002\Design\Mech\PLANT 30\MEADOW LAKE WTP EXPANSION\Offline\Dwgs\15-1784-002_M01.dwg - Tab: Layout1 Plotted By: Afletcher 17/05/30 [Tue 2:33pm]
24"x36"/PLOT SCALE 1"=1"



OSSBERGER ZECO – 7 UNIT POWERHOUSE GENERAL ARRANGEMENT

SCALE 1:500



OSSBERGER ZECO – 7 UNIT WITH OVERFLOW SECTION

SCALE 1:150

10 0 10 20 30 40m
SCALE: 1:500 METRIC 24"x36"
5 0 5 10m
SCALE: 1:150 METRIC 24"x36"

C	18/07/11	REVISIONS AS NOTED	
B	18/06/25	ISSUED FOR INFORMATION	
A	18/06/21	ISSUED FOR INFORMATION	
NO.	YY/MM/DD	DESCRIPTION	

REVISIONS / ISSUE

KGS GROUP
CONSULTING ENGINEERS

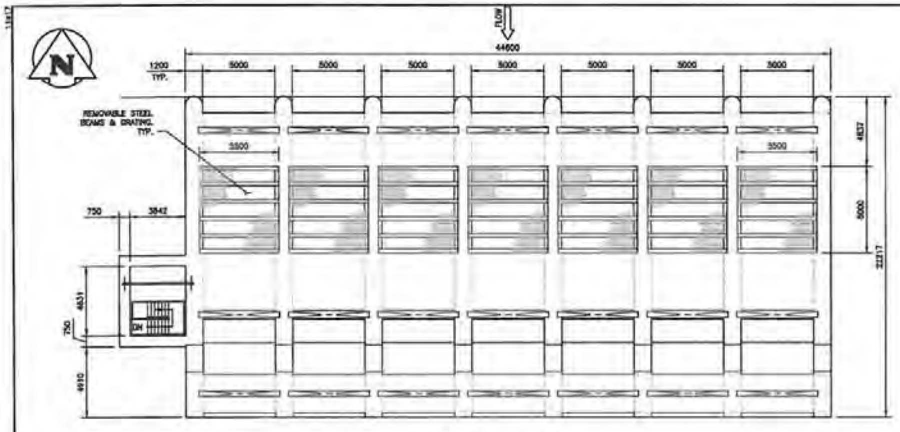
BAWITIK POWER CORPORATION

LOCK 25 GENERATING STATION

OSSBERGER ZECO – 7 UNIT WITH OVERFLOW
GENERAL ARRANGEMENT PLAN &
POWERHOUSE CROSS SECTION

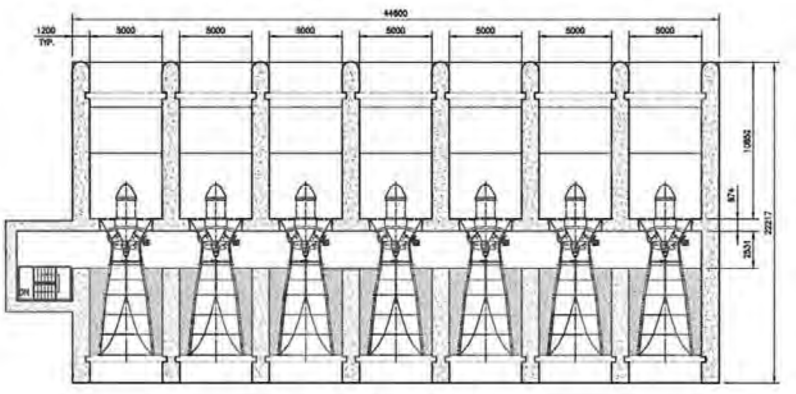
JUNE 2018 | FIG 2A | REV. C

Filename: U:\FMS\16-3077-001\FIG 2A - OSSBERGER ZECO 7 UNIT SITE LAYOUT.dwg - Tab: Layout1 Plotted By: JCorlow 18/07/11 [Wed 11:21am]
11"X17" PLOT SCALE: 1"=2"



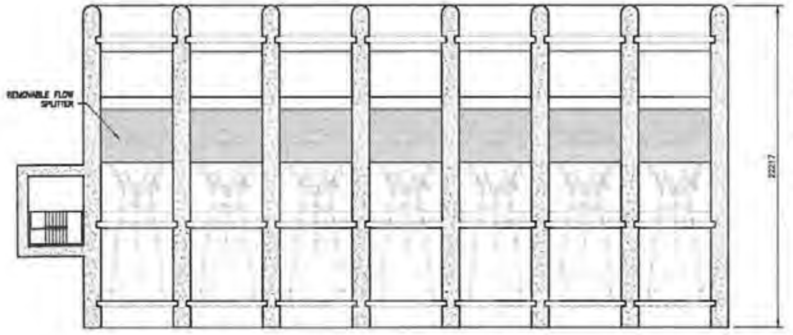
DECK LEVEL PLAN

SCALE 1:150



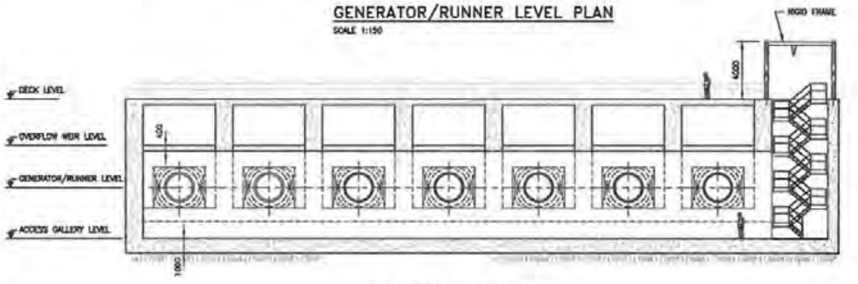
GENERATOR/RUNNER LEVEL PLAN

SCALE 1:150



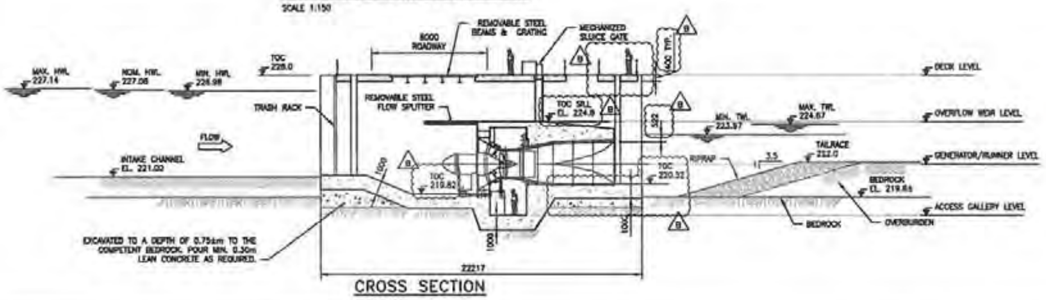
OVERFLOW WEIR LEVEL PLAN

SCALE 1:150



LONGITUDINAL SECTION

SCALE: 1:150



CROSS SECTION

SCALE 1:150

5 0 5 10m

SCALE: 1:150 METRIC 24"x36"

G. S. KONNEN

PRELIMINARY

NO.	YY/MM/DD	DESCRIPTION	
B	18/07/11	REVISIONS AS NOTED	
A	18/06/26	ISSUED FOR INFORMATION	

REVISIONS / ISSUE

KGS GROUP
CONSULTING ENGINEERS

BAWITIK POWER CORPORATION

LOCK 25 GENERATING STATION

OSSBERGER ZECO – 7 UNIT WITH OVERFLOW
PLANS AND SECTIONS

JUNE 2018 | FIGURE 2B | REV. B

Filename: U:\PMS\16-3077-001\VG 2B – OSSBERGER ZECO 7 UNIT PLAN & SECTION.dwg – Tab: LAYOUT Plotted By: JCorbe 18/07/11 [Wed 11:22am]
11"x17" PLOT SCALE: 1"=2"

KGS
GROUP
International Inc. | USA

CITY OF UNALASKA
UNALASKA, ALASKA

RESOLUTION 2019-13

A RESOLUTION OF THE UNALASKA CITY COUNCIL CONFIRMING THE MAYOR'S APPOINTMENTS TO THE PARKS, CULTURE AND RECREATION COMMITTEE AND THE PLANNING COMMISSION AND PLATTING BOARD AND THE HISTORIC PRESERVATION COMMISSION

WHEREAS, terms of office have expired for members of the Parks, Culture and Recreation Committee and the Planning Commission and Platting Board, and the Historic Preservation Commission, creating vacancies; and

WHEREAS, Unalaska City Code § 2.60.040 states that board members shall be appointed by the Mayor, subject to approval of the City Council; and

WHEREAS, Mayor Kelty has appointed Greg Peters to the Parks, Culture and Recreation Committee and Travis Swangel to the Planning Commission and Platting Board and to the Historic Preservation Commission, and submits these names to the City Council for approval.

NOW THEREFORE BE IT RESOLVED that the Unalaska City Council confirms the appointment of Greg Peters to the Parks, Culture and Recreation Committee and Travis Swangel to the Planning Commission and Platting Board and to the Historic Preservation Commission, both for three year terms.

PASSED AND ADOPTED by a duly constituted quorum of the Unalaska City Council on March 12, 2019.

____
Frank Kelty
Mayor

ATTEST:

____
Marjie Veeder
City Clerk

BOARD, COMMITTEE & COMMISSION APPLICATION

RECEIVED
FEB 26 2019
BY:

APPLYING FOR (check one):

☒ Planning Commission, Platting Board and Historic Preservation Commission
☐ Parks, Culture & Recreation Committee
☐ Library Advisory Committee
☐ Museum of the Aleutians Board of Directors
☐ Iliuliuk Family & Health Services Clinic Board

Name: Travis Swangel
Mailing Address: PO box 920522 Dutch Harbor 99692
Telephone: 907 359 6108
Email: travisswangel@gmail.com
Occupation: Mechanic \ Operator
Employer: Matson

Previous Board/Committee/Commission Experience (attach additional pages if necessary):

Check the primary reason(s) for your interest:

☒ I am a returning board, committee or commission member whose term recently expired.
☐ I have expertise I want to contribute.
☒ I am interested in the activities the board, committee or commission handles.
☐ I want to participate in local government.
☒ I want to make sure my segment of the community is represented.
☐ Other

Please explain in greater detail the reasons you checked above: I would like to continue learning by Participating in community growth and development.

It is suggested you attach an outline of your education, work and volunteer experience, and other interests.

How did you learn of this vacancy (please check one):

☒ Media ☐ Word of Mouth ☐ Solicitation ☐ Other

Date: 2-13-19
Signature:

THANK YOU FOR YOUR INTEREST IN SERVING

Applications expire one year from date received by City Clerk

Please return completed Application to the City Clerk's Office in City Hall, 43 Raven Way, Unalaska
Or mail to City Clerk, City of Unalaska, P. O. Box 610, Unalaska, AK 99685

RECEIVED
FEB 21 2019
BY: [illegible] - Clerk's Ofc

BOARD, COMMITTEE & COMMISSION APPLICATION

APPLYING FOR (check one):

- ☐ Planning Commission, Platting Board and Historic Preservation Commission
- ☒ Parks, Culture & Recreation Committee
- ☐ Library Advisory Committee
- ☐ Museum of the Aleutians Board of Directors
- ☐ Iliuliuk Family & Health Services Clinic Board

Name: Greg Peters

Mailing Address: P.O. Box 431

Telephone: 581-5233 Email: greg.peters@wsi.us

Occupation: QA Director Employer: Westward Seafoods

Previous Board/Committee/Commission Experience (attach additional pages if necessary):

Aleutians West Coastal Resource Service Area Board

City of Unalaska Capital Improvement Committee

Fishery Industrial Technology Center Policy Council Advisory Board

Check the primary reason(s) for your interest:

- ☐ I am a returning board, committee or commission member whose term recently expired.
- ☐ I have expertise I want to contribute.
- ☒ I am interested in the activities the board, committee or commission handles.
- ☒ I want to participate in local government.
- ☐ I want to make sure my segment of the community is represented.
- ☐ Other ______

Please explain in greater detail the reasons you checked above:

It has been a while since I've served on a local board and want to start participating again.

My family and I use the PCR facilities regularly and I would like to contribute to its operation.

It is suggested you attach an outline of your education, work and volunteer experience, and other interests.

How did you learn of this vacancy (please check one):

☒ Media ☐ Word of Mouth ☐ Solicitation ☐ Other ______

Date: 2/19/2019 Signature: ______

THANK YOU FOR YOUR INTEREST IN SERVING

Applications expire one year from date received by City Clerk

Please return completed Application to the City Clerk's Office in City Hall, 43 Raven Way, Unalaska
Or mail to City Clerk, City of Unalaska, P. O. Box 610, Unalaska, AK 99685

Gregory J. Peters

P.O. Box 431
Unalaska, AK 99685
(907) 581-5233 home (907) 581-7543 work
email: Petersg@arctic.net

EDUCATIONAL BACKGROUND

Ph.D., Bioresource Engineering, Ph.D., Food Science, Dual Major
Oregon State University. Sept., 1991 to Dec., 1995.

M.S., Oceanography/Marine Resource Management Program
Minor: Marine Economics, Oregon State Univ. Sept., 1989 to April, 1991

B.S., Agricultural Engineering Technology.
Oregon State University. Sept., 1986 to June, 1989

EMPLOYMENT

Alyeska Seafoods/Westward Seafoods, Inc. Feb., 1996 to present
Corporate Director of Environmental Compliance and Quality Assurance
Duties: Supervise and perform environmental and quality analyses of the environment, wastewater, and seafood products. Liaison to U.S. Environmental Protection Agency, Food and Drug Administration, Alaska Department of Environmental Conservation, U.S. Department of Commerce, Nuclear Regulatory Commission and other government agencies.
Compile and distribute product quality information for customers and agents.
Develop and maintain food safety, food security, and food quality programs including BRC certification program.

Maruha, Inc. Oct., 1998 to April, 1999
Consultant.
Duties: Compare and Contrast Proprietary Seafood Products of Maruha and Competitors for Possible Patent Infringement Lawsuit.

Crowley Maritime, Inc. Nov., 1998 to February, 1999
Oil spill response vessel captain.
Duties: pilot vessel and supervise crew to recover oil spilled from beached freighter. Tow containment and absorbent boom to recover oil.

Sea Lord, New Zealand, June, 1995 to February, 1996
Consultant.
Duties: Use artificial intelligence methods to model the New Zealand hoki fishery relating harvesting methods and fish characteristics to fillet quality.

Oregon State University, September, 1991 to December, 1995
Systems Modeling. OSU Seafood Lab. Graduate Research Assistant.
Duties: Develop a comprehensive interactive model relating harvesting and processing strategies and fish characteristics of Pacific whiting to its expected quality. This model is used for optimizing quality and yield while maximizing profitability.

Oregon State University, May, 1991 to September, 1991
Technician, OSU Seafood Lab.
Duties: Develop Quality Evaluation Technique for Pacific whiting.

Oregon State University, January, 1990 to May, 1991
Fisheries Marketing Graduate Research Assistant.
Duties: Determine the potential markets for Pacific whiting through extensive national interviews with handlers of similar products. Analyze and publish results and present to industry and government agencies.

Main Charters, Winchester Bay, Oregon. Summers, 1988-1989
Charter Boat Captain.

Main Charters, Winchester Bay, Oregon. Summers, 1985-1987
Deck hand on charter boat.

Holiday Charters, Winchester Bay, Oregon. Summer, 1984
Deck hand on charter boat.

Miss Dee II, Winchester Bay, Oregon. Summers, 1980 to 1989
Commercial Salmon Fisherman.

ACTIVITIES, AWARDS, & HONORS

EPA Method 9, Visual Emissions Certification

U.S. Coast Guard Captain's License Certification

H.A.C.C.P. Certification

H.A.C.C.P. Trainer Certification

Appointed to Alaska Governor's Climate Change Sub-Cabinet Advisory Panel.

Appointed to University of Alaska Fisheries Industrial Technology Center Policy Council.

Appointed to State of Alaska Water Quality Anti-Degradation Panel.

Published Featured article in Journal of Food Science. Sept-Oct, 1996.

Elected to Board of Directors-Aleutians West Coastal Resource Service Area. September, 1998 to Present

Appointed to Capital Improvement Committee Board - City of Unalaska

HAZWOPER-hazardous materials handling and response certification

Selected as Professional Adviser/Reviewer for Congressional Committee on International Seafood Trade.\

Water Quality Standards Academy Training Certification.

Scoutmaster and Cubmaster for Local Boy Scouts and Cub Scouts
2006-Present

Member of American Mensa

Pesticide Applicator License

Bill Wick Memorial Sea Grant Award for Students in Fisheries Science

Graduate Researcher, Small Business Associations Grant.
Pacific whiting surimi process modeling for Pt. Adams Packing Co.

Awarded Best Master's-level paper in "Human Dimensions" category;
National panel - Sea Grant Association, 1992.

Phi Tau Sigma/Proctor & Gamble Graduate Research Paper Competition
Best Paper. 1995. Institute of Food Technologists.

Received Oregon State University Presidential Scholarship

Oregon State University Honors Graduate

Received OSU Outstanding Agriculture Student Award. 1989

Agriculture Honors Scholarship

PUBLICATIONS & PRESENTATIONS

Peters, G. By-Product utilization in the Seafood Industry. Presented at International By-Products Symposium. October 24, 2011

Peters, G., M. Morrissey, G. Sylvia, and J. Bolte. 1996. Linear Regression, Neural Network and Induction Analysis to Determine Harvesting and Processing Effects on Surimi Quality. *Journal of Food Science* (61), No. 5.

Peters, G., G. Sylvia, and M. Morrissey. 1995. Determination of Quality Parameters for Pacific whiting (*Merluccius productus*), in **Hake**, Eds. T. Pitcher and J. Alheit, Chapman and Hall, London.

Peters, G. 1995. Reality of Salmon Populations, in *Land Use Chronicle*, Ed. A. Gustin, Riverton, Wyoming.

Morrissey, M., G. Peters, and G. Sylvia. 1992. Quality Issues in the Pacific Whiting Fishery, in **A Pacific Whiting Workshop on Harvesting, Processing, Marketing, and Quality Assurance**, eds. G. Sylvia, and M. Morrissey, Oregon Sea Grant: pp. 9-16

Morrissey, M., G. Peters, and G. Sylvia. 1992. Product Characteristics and Market Demand for Pacific Whiting, in **A Pacific Whiting Workshop on Harvesting, Processing, Marketing, and Quality Assurance**, eds. G. Sylvia, and M. Morrissey, Oregon Sea Grant: pp. 82-86

Sylvia, G. and G. Peters. 1991. Market Opportunities for Pacific Whiting. Report prepared for the Oregon Dept. Of Agriculture and Oregon Dept. of Economic Development. Published by the Oregon Coastal Zone Management Association, Newport, OR.

Peters, G., and M. Morrissey. 1995. Computer Systems and Surimi Quality. Presented at 3rd annual OSU Surimi Technology School, March 28-30.

Morrissey, M., and G. Peters. 1995. Computer-based HACCP. Presented at 3rd annual OSU Surimi Technology School, March 28-30.

Peters, G., G. Sylvia, and M.T. Morrissey. 1992. Developing Quality Standards for Pacific Whiting (*Merluccius productus*). Presented at the Pacific Fisheries Technologists Meeting, San Pedro, CA.

MEMORANDUM

To: Unalaska City Council Members,

CC: City Manager Thomas, City Clerk Veeder

From: Frank V Kelty, Mayor

Date: March 7, 2019

RE: Request for Mayor Kelty and Council Members to travel to the April meeting of the North Pacific Fishery Management Council in Anchorage, Alaska April 4-1-9-2019

MEETING OVERVIEW

The April North Pacific Fishery Management Council Meeting (NPFMC) will be held in Anchorage. At this meeting the Council will address Bering Sea Aleutian Islands (BSAI) Pacific Cod Catcher Vessels Trawl analysis the Council will review the document, for final action at this meeting. This is a very important issue which deals with catcher vessels cod deliveries to Mothership operations in the Bering Sea. This is an important issue for the shoreside industry, revenues to Unalaska, and is support sector businesses. You may recall the concerns voiced during numerous City Council meetings testimony from the shoreside personal and Bering Sea other communities on the impacts from a decline in catcher vessels deliveries. This issue is very important and we should be in attendance at this meeting.

The Council has 1 crab issues they will address at this meeting, which is Bering Sea Snow Crab bycatch reduction data report. The Council will receive the annual year end Cooperative Reports from the following sectors, AFA, A80,CGOA Rockfish, and Bering Sea Crab.
The Council has two Halibut issues to address; the first is final action on Halibut medical leasing and beneficiary designations. The second is on Halibut abundance operation model. The Council will also take final action on fixed gear catcher vessels on full retention of Rockfish. The Council a will receive one reports on Observer issues, the first being the Initial Review of Observer fees. The Council will approve the Scallop Safe Document, which sets the Overfish Limit and the Allowable Biological Catch amounts.

The Council also will address some miscellanies items such as reports on Economic Data sets, the Council will review an IFQ eligibility criteria discussion paper they will also receive a report from the IFQ committee. The Council will review another discussion paper on adding Sculpins to the ecosystem component. The Council will review a discussion paper on Sablefish discards. Lastly the Council will work on through Staff Tasking Issues.

PREVIOUS COUNCIL ACTION:

The Unalaska City Council for many years approved travel for the Mayor and Council members to attend North Pacific Fishery Management Council meetings.

BACKGROUND:
The North Pacific Fishery Management Council meets 5 times a year, and is the management agency for the federal waters fisheries of the Bering Sea / Aleutian Islands. The sustainability of fisheries is of critical importance for the economic wellbeing of seafood industry, the City of Unalaska, the support sector businesses, and the entire community of Unalaska.

DISCUSSION:
I believe it is important for the Mayor / Unalaska City Council members to stay involved with the North Pacific Fishery Management Council, the revenues generated from the federal water fisheries of the BSAI is what drives the economy of this community. The need for the Mayor and Council is even more important to monitor these fisheries meeting since we no longer have a fisheries resource person on staff to attend these meeting.

ALTERNATIVES:
The Council can make a motion in support of Mayors and Council Travel to the NPFMC meeting; or they can decline to support a motion for travel to this meeting.

FINANCIAL:
Council has the sufficient funding available in the City Council travel budget line item. Attached to this memo is the travel cost summary.

STAFF RECOMMENDATION:
N/A

PROPOSED MOTION:
I move to support travel to the North Pacific Fishery Management Council for the Mayor/ Council Members

MANAGERS COMMENTS:
N/A

ATTACHMENTS:
North Pacific Fishery Management Council, February preliminary meeting agenda.

North Pacific Fishery Management Council (https://www.npfmc.org/)

HOME (/)

NPFMC April 2019 - 244th

Download Attachments
Printable Agenda (/Meeting/PrintableAgenda/583)

Open for comment until 03/29/2019 12:00 PM ADT

0 Comments

All comments are part of the public record.

Meeting Time: 04/01/2019 08:01 AM ADT

AGENDA - 244th Plenary Session

The North Pacific Fishery Management Council will meet the week of April 1st at the Hilton Hotel, 500 W 3rd Ave., Anchorage, AK. Other meetings to be held during the week are:

Scientific and Statistical Committee: April. 1-3, 2019 – King Salmon/Iliamna
Advisory Panel: April 2-6, 2019 – Dillingham/Katmai
IFQ Committee: April 1, 2019 – 8am-5pm, Dillingham/Katmai
Ecosystem Committee: April, 1 2019 – 10:30am-5pm Birch/Willow
Fishery Monitoring Advisory Committee: April 2, 2019 – 8am-5pm, Aspen/Spruce
Cook Inlet Salmon Committee: April 2,2019 – 9am-5pm, Birch/Willow
Enforcement Committee: April 2, 2019 – 1-5pm, Boardroom

All meetings are open to the public except for executive sessions. Information on submitting comments in writing or in person can be found in the Public Comment Information attached under A1 below. The deadline for written comments—online or received through mail—is **12:00 pm (AST) on Friday, Marcy 29, 2019**. Click on the comment link for the agenda item you wish to comment on or mail to: NPFMC, 605 W. 4th Avenue, Anchorage, AK 99501. The Council meeting will be broadcasted. Motions are posted following the meeting.

A. CALL MEETING TO ORDER

A1 Comment Now (0) Agenda and Meeting Information

Attachments:

Review Doc Schedule (https://www.npfmc.org/wp-content/PDFdocuments/meetings/ReviewDocSchedule_0419.pdf) - Uploaded: 02/22/2019 04:54 PM AST

Schedule (https://www.npfmc.org/wp-content/PDFdocuments/meetings/SCHEDULE_0419.pdf) -Uploaded: 02/27/2019 01:32 PM AST

Public Comment Info (https://www.npfmc.org/wp-content/PDFdocuments/meetings/PublicCommentInfo_0419.pdf) - Uploaded: 02/27/2019 01:36 PM AST

A2 Comment Now (0) In Meeting Minutes (committee minutes and reports drafted during this meeting)

B. REPORTS

B1 Comment Now (0) B1 Executive Director's Report

B2	Comment Now (0)	B2 NMFS Management Report (including reports on annual cost recovery, annual EFH consultation, decksorting (T), seabird bycatch workgroup)
B3	Comment Now (0)	B3 Alaska Fisheries Science Center Report
B4	Comment Now (0)	B4 NOAA General Counsel Report
B5	Comment Now (0)	B5 ADF&G Report
B6	Comment Now (0)	B6 USCG Report
B7	Comment Now (0)	B7 USFWS Report
B8	Comment Now (0)	B8 NIOSH Report
B9	Comment Now (0)	B9 US Navy Report on Northern Edge 2019

C. MAJOR ISSUES / FINAL ACTION ITEMS

C1	Comment Now (0)	C1 IFQ medical, beneficiary lease provision – Final Action
C2	Comment Now (0)	C2 Fixed gear CV rockfish retention – Final Action
C3	Comment Now (0)	C3 BSAI Trawl CV Pacific cod mothership adjustments – Final Action
C4	Comment Now (0)	C4 Scallop SAFE report – ABC/OFL specifications, Scallop Plan Team Report
C5	Comment Now (0)	C5 Bering Sea Snow Crab bycatch – Data Report / Initial Review
C6	Comment Now (0)	C6 CQE Fish-up in 3A – Initial Review
C7	Comment Now (0)	C7 Observer Program Fees – Initial Review and FMAC report

D. OTHER ISSUES

D1	Comment Now (0)	D1 Cooperative Reports (AFA, A80, CGOA Rockfish, BSAI Crab)
D2	Comment Now (0)	D2 Cook Inlet Salmon – Committee report, SSC review
D3	Comment Now (0)	D3 Sculpins to ecosystem component – Discussion paper
D4	Comment Now (0)	D4 BSAI Halibut ABM – Review of operating model and scenarios for analysis (SSC only)
D5	Comment Now (0)	D5 Economic Data Reports – Discussion paper
D6	Comment Now (0)	D6 IFQ eligibility criteria – Discussion paper
D7	Comment Now (0)	D7 IFQ committee report

D8	Comment Now (0)	D8 Sablefish discards – Discussion paper
D9	Comment Now (0)	D9 Economic SAFE Report – Review (SSC only)

E. STAFF TASKING

E1	Comment Now (0)	E Staff Tasking

(http://www.akfin.org) Website hosted by Alaska Fisheries Information Network

Agenda SCHEDULE *(updated 2/27/2019)* APRIL 2019

	SSC King Salmon/Iliamna	AP Dillingham/Katmai	Council Aleutian
Monday April 1 8a-5p IFQ Committee – AP room 10.30a-5p Ecosystem Cmte – Birch/Willow 5-7p Workshop on sablefish coop res.- AP room	8:00 am D2 Salmon SDC		
	1:00 pm C4 Scallop SAFE C6 CQE fish up in 3A ACLIM report		
Tuesday April 2 8a-5p FMAC – Aspen/Spruce 9a-5p CI Salmon Cmte – Birch/Willow 1-5p Enforcemt Cmte - Boardroom	8:00 am D4 Halibut ABM	8:00 am C2 Rockfish retention C3 BSAI cod trawl CV	
	1:00 pm *Work on minutes* 2:00pm D5 EDR disc paper D9 Econ SAFE reports	1:00 pm C3 BSAI cod (cont) C5 BS snow crab PSC	
Wednesday April 3 5.30-7 ACLIM workshop – Aleutian	8:00 am C7 Obs fee analysis	8:00 am C4 Scallop SAFE C6 CQE fishup	8:00 am B reports
	1:00 pm *Work on minutes*	1:00 pm C7 Obs fee analysis	1:00 pm B reports (cont) C1 IFQ leasing
Thursday April 4		8:00 am C7 Obs fee (cont) D2 Salmon Cmte report	8:00 am C1 IFQ leasing (cont) C2 Rockfish retention
		1:00 pm D3 Sculpins D5 EDR disc paper	1:00 pm C3 BSAI trawl CV cod
Friday April 5		8:00 am D6 IFQ eligibility D7 IFQ cttee report	8:00 am C4 Scallop SAFE C5 BS snow crab
		1:00 pm D8 Sablefish discards E staff tasking	***1:00 pm Balance of SSC report*** C6 CQE fishup in 3A C7 Obs fee analysis
Saturday April 6			8:00 am C7 Obs fees (cont)
			1:00 pm D1 Coop reports ***3:00 pm Executive Session***
Sunday April 7			8:00 am D1 Coop reports (cont) D2 Salmon Cmte report
			1:00 pm D3 Sculpins D5 EDR disc paper
Monday April 8			8: 00 am D6 IFQ eligibility D7 IFQ committee
			1:00 pm D8 sablefish E staff tasking
Tuesday April 9			8:00 am continue as necessary
			1:00 pm continue as necessary

NOTE: The above agenda items may not be taken in the order in which they appear and are subject to change as necessary. All meetings are open to the public (with the exception of Executive Sessions).

MEMORANDUM TO COUNCIL

To: Mayor and City Council Members
From: Shaina Schamp, Administrative Coordinator
Through: Thomas Thomas, City Manager
Date: March 12, 2019
Re: North Pacific Fishery Management Council

The North Pacific Fishery Management Council will meet April 1-9, 2019 in Anchorage.

Estimated travel costs for one traveler are:

Air Fare	$	1,000.00
Lodging in Anchorage	$	990.00
Vehicle Rental	$	-
Registration	$	-
Per Diem	$	1,430.00
TOTAL	$	3,420.00

As of March 7, 2019, the available funds in the Council travel budget are: $28,523.27.

The Travel Policy for the Mayor and Council indicates that no more than three Council Members are to travel to the same meeting or conference; that travel be conducted in the most direct and economic manner possible to accomplish City business; and that at least twenty-one days prior to an upcoming trip, the council will discuss the travel, identify the Council Members to travel, and approve the travel by motion.