



CITY OF ABERDEEN

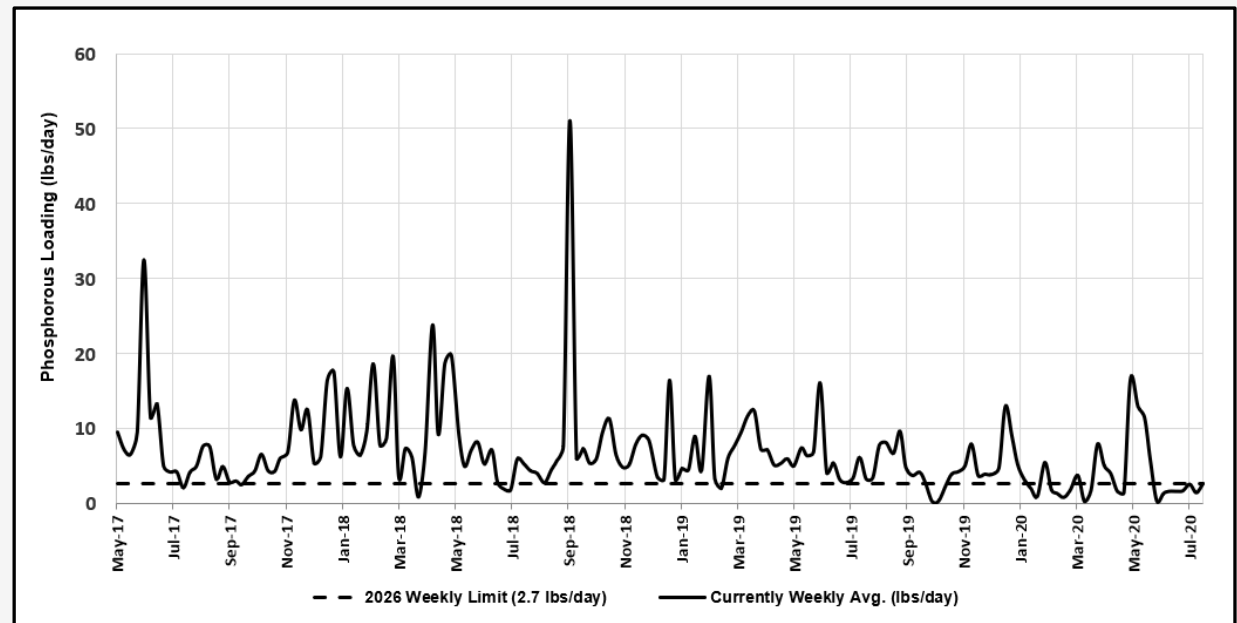
Wastewater Facility Planning Study Open House

March 3, 2021

GROWING POSSIBILITIES ►

Phosphorous Removal Requirement

- Phosphorus is a new NPDES permit requirement that Aberdeen must comply with by 2026 to continue discharging.
- Phosphorus can be difficult to reduce to acceptable levels within a treatment plant.
- If phosphorus limits were in place today, the City would be in violation the majority of the time.
- Currently discharging a weekly average of **6.8 lbs** per day, while the future limit is **2.7 lbs** per day
- Civil penalties may be imposed if limits are not met.



Example: Heyburn, ID - \$53,000/day/violation in 2018 (largely due to phosphorus)

Wastewater Treatment Plant Limitations



- Existing facilities are not designed to remove phosphorus or ammonia
- Future wastewater treatment plant (WWTP) improvements for phosphorus removal were planned for in 2011
 - Phosphorus removal in the treatment plant is expensive and high tech
 - Future discharge permits could have even more stringent limits
- Treatment plant **will not** meet EPA/DEQ required phosphorus limit in current condition
- Improved solids handling is desperately needed – current sludge dewatering and drying method is very labor intensive for Operators



Compliance Schedule From US EPA

2022

*Begin PER in
Summer/Fall
2021*

March 1
Submit
Preliminary
Design
Progress
Report to
Idaho DEQ

2022

*Complete
Preliminary
Design in
Summer 2022*

September 1
Submit
Preliminary
Design
Report to
Idaho DEQ

2023

*Begin Final
Design in Fall
2022*

September 1
Complete
Final Design,
submit to
Idaho DEQ
for review

2024

*Bid in Winter
2023*

March 1
Award bid for
construction,
notify Idaho
DEQ

2025

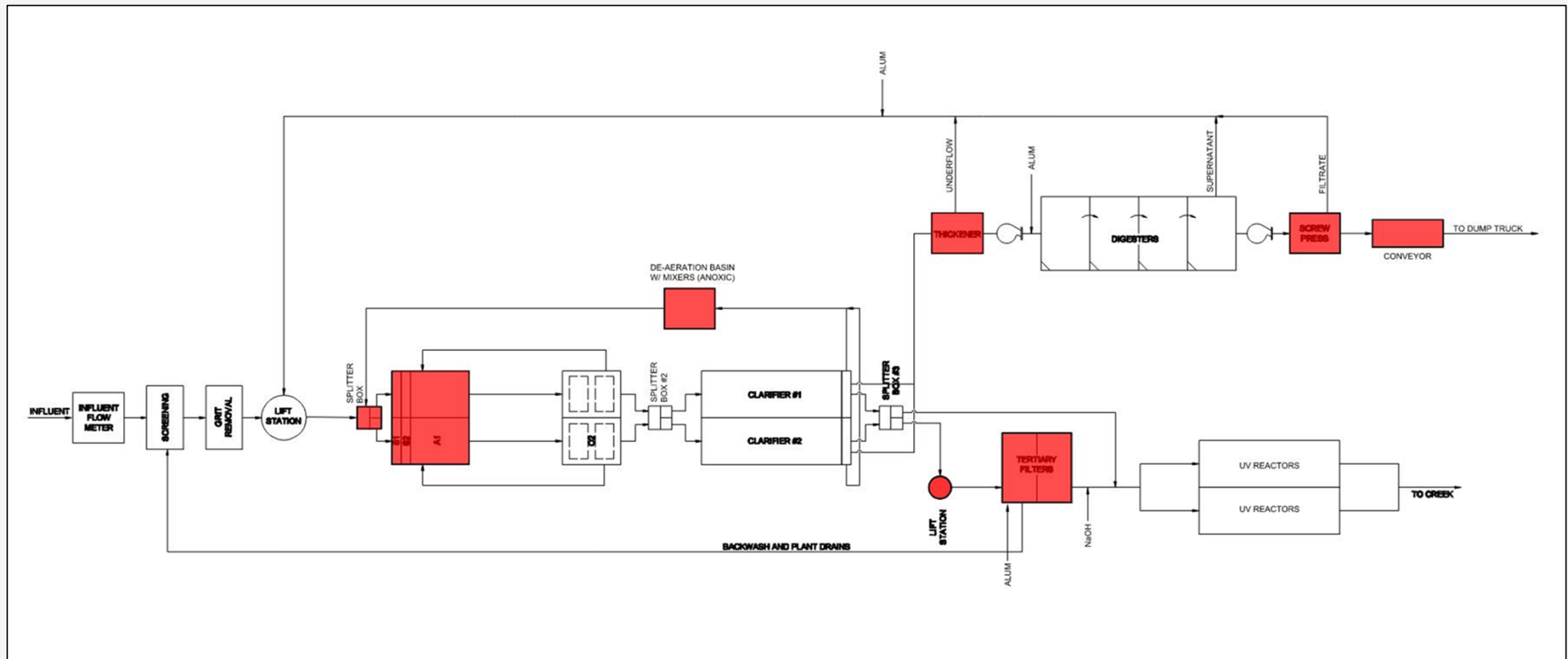
*Begin
Construction in
Spring 2024*

September 1
Construction
complete,
submit
completion
report to
Idaho DEQ

2026

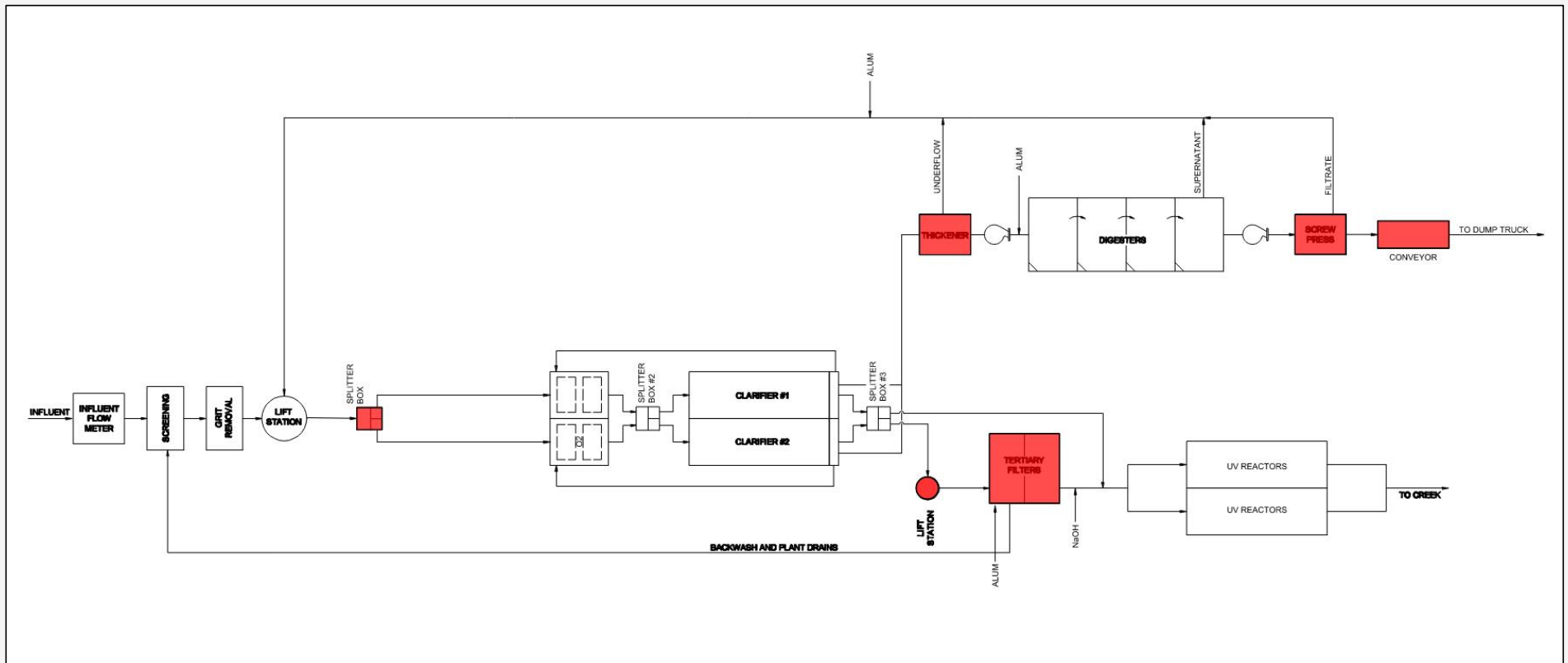
February 1
Notify Idaho
DEQ that
effluent
limitations
are achieved

Alternative 1 – Bio-P with Chemical Precipitation & Filtration



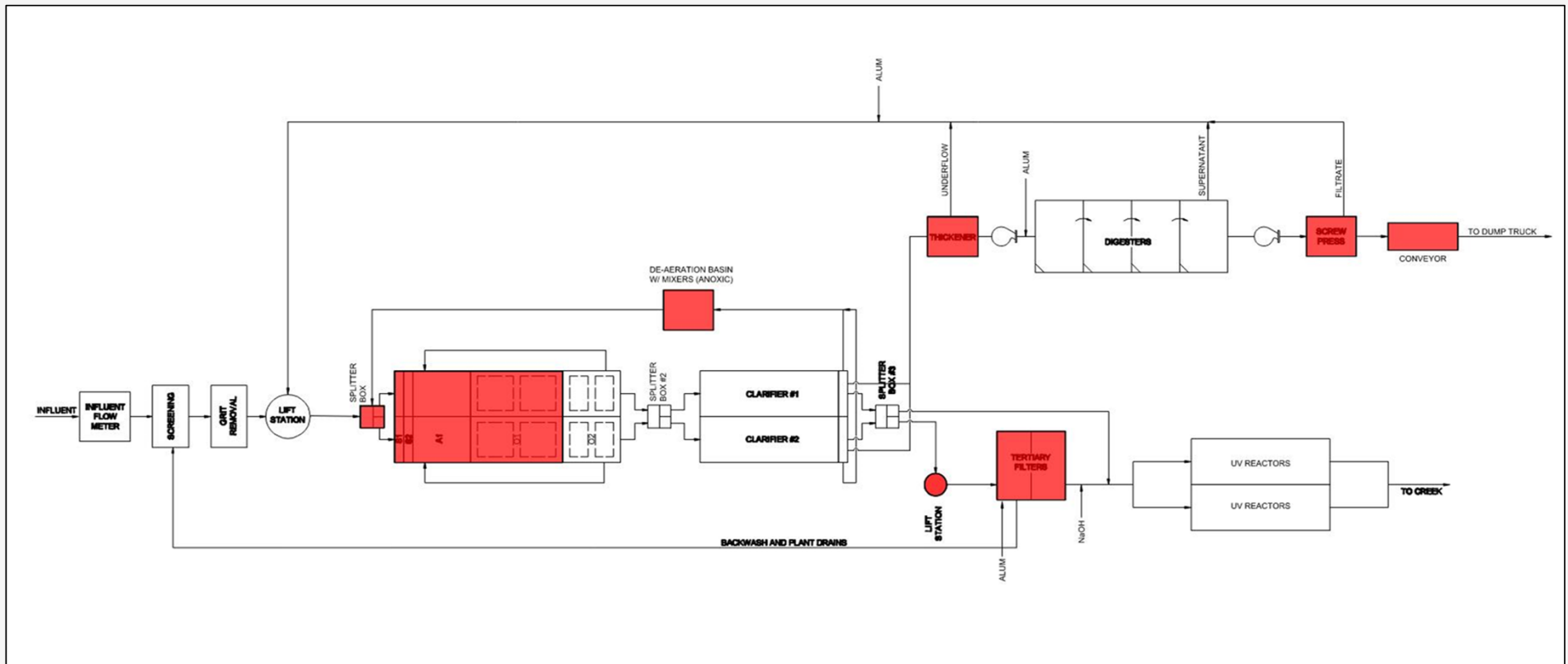
* Items in black are existing facilities with new construction needed for this alternatives shown in red.

Alternative 2 – Chemical Precipitation & Filtration



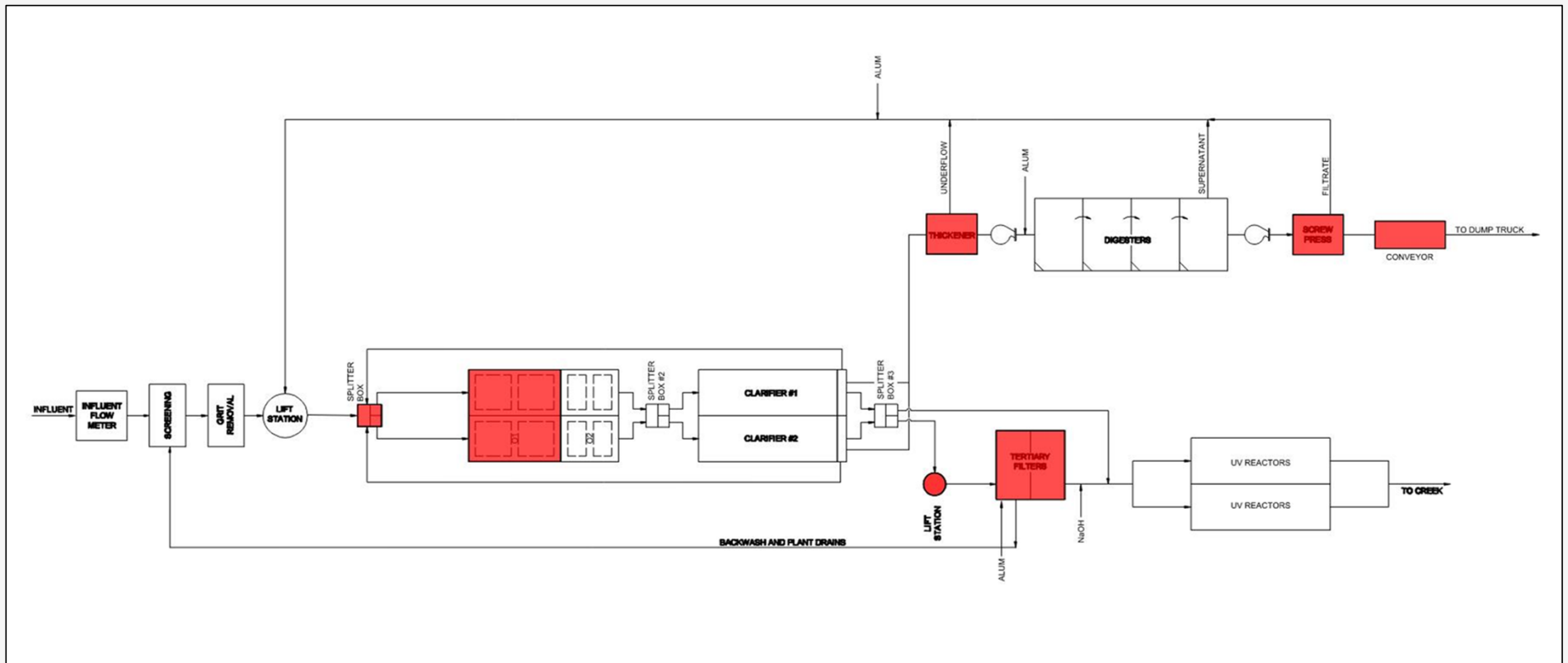
* Items in black are existing facilities with new construction needed for this alternatives shown in red.

Alternative 3 – Bio-P & Ammonia Removal w/ Chemical Precipitation & Filtration



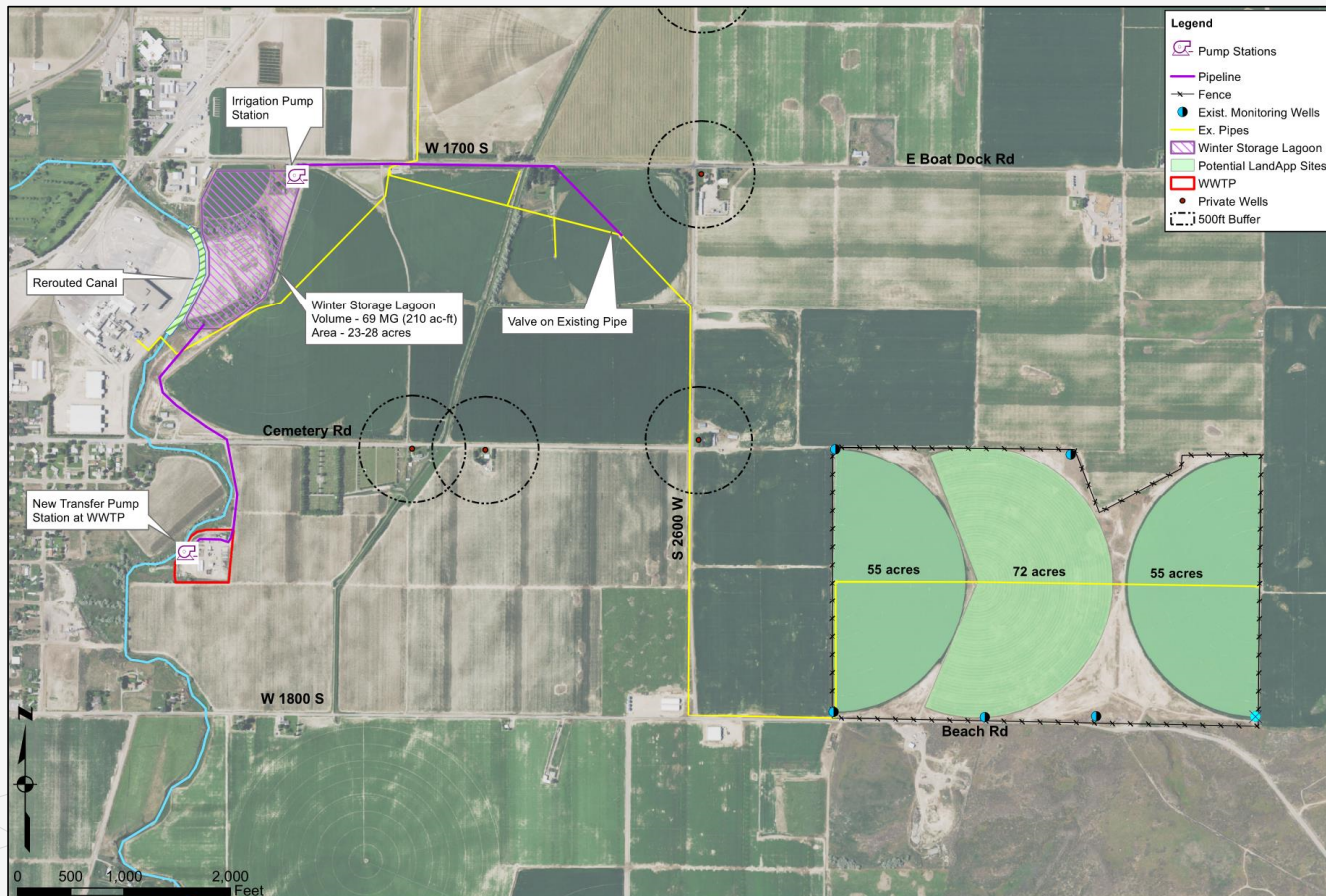
* Items in black are existing facilities with new construction needed for this alternatives shown in red.

Alternative 4 – Chemical Precipitation & Filtration w/ Aeration Basin for Ammonia Removal



* Items in black are existing facilities with new construction needed for this alternatives shown in red.

Alternative 5 – Land Application System & Winter Storage Lagoon



Environmental Considerations



Environmental Screening Matrix

Description	No Action Alternative	Bio-P w/ Chemical Precipitation & Filtration	Chemical Precipitation & Filtration	Bio-P & Ammonia with Chemical Precipitation & Filtration	Chemical Precipitation & Filtration w/ Ammonia Removal	Land Application System & Winter Storage Lagoon
Physical Aspects	No Adverse Impact	No Adverse Impact	No Adverse Impact	No Adverse Impact	No Adverse Impact	Large Lagoon and Rerouted Hazard Creek
Land Use	No Adverse Impact	No Adverse Impact	No Adverse Impact	No Adverse Impact	No Adverse Impact	Convert Agricultural Field to Winter Storage Lagoon
Wetlands and Water Quality	Exceeding Pollutant Discharge Limit	Improved Surface Water Quality	Improved Surface Water Quality	Improved Surface Water Quality	Improved Surface Water Quality	Relocated Floodplain, Reduced Surface Water Flows in Hazard Creek
Flora and Fauna	Continued Pollutant Discharge	Improved Surface Water Quality	Improved Surface Water Quality	Improved Surface Water Quality	Improved Surface Water Quality	Reduced Pollutant Discharging, Reduced Surface Water Flows in Hazard Creek
Cultural Resources	No Adverse Impact	No Adverse Impact	No Adverse Impact	No Adverse Impact	No Adverse Impact	No Known Adverse Impact
Air Quality	No Adverse Impact	Temporary Noise Mitigation During Construction	Temporary Noise Mitigation During Construction	Temporary Noise Mitigation During Construction	Temporary Noise Mitigation During Construction	Temporary Dust & Noise Mitigation During Construction
Energy	No Adverse Impact	Additional Energy for Pumping	Additional Energy for Pumping	Additional Energy for Pumping	Additional Energy for Pumping	Additional Energy for Pumping
Public Health	Downstream Water Quality Concerns	Improved Surface Water Quality	Improved Surface Water Quality	Improved Surface Water Quality	Improved Surface Water Quality	Restricted Areas and Buffer Zones at Lagoon and Land Application Site

Cost Estimate Comparison Analysis



Cost Estimate Comparison of Phosphorus Removal Alternatives Considered

Description	Bio-P w/ Chemical Precipitation & Filtration	Chemical Precipitation & Filtration	Bio-P & Ammonia with Chemical Precipitation & Filtration	Chemical Precipitation & Filtration w/ Ammonia Removal	Land Application System & Winter Storage Lagoon
Present Value (15-yr. components)	\$1M	\$1M	\$1M	\$1M	\$1M
Present Value (1-yr. components)	\$3k	\$3k	\$3k	\$3k	\$3k
Present Value of Annual O&M Costs (20-yr.)	\$4-5M	\$5M	\$5-6M	\$5-6M	\$5M
Construction & Non-Construction Cost	\$7-8M*	\$6-7M*	\$9-10M*	\$8-9M*	\$9-10M*
Net Present Value	\$12-14M	\$12-13M	\$15-17M	\$14-16M	\$15-16M

**Cost estimates are preliminary and are based on the current understanding of the project. Cost estimates will continue to be refined during the project planning and design process. Actual costs will be determined at time of bidding. The cost estimate herein is concept level information only based on our perception of current conditions at the project location and its accuracy is subject to significant variation depending upon project definition and other factors. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids, or actual construction costs will not vary from the cost presented herein.*

Proposed Alternative – Land Application System & Winter Storage Lagoon

- Lowest Risk
 - Decreases risk of need for additional WWTP upgrades in the future due to more stringent discharge limits (e.g. Ammonia limit)
 - Eliminates risk of DEQ/EPA fines due to discharge violations
- Reduced Burden on WWTP Operators
 - Avoids highly technical WWTP upgrades
 - Minimal increased licensure requirements
- Cost of alternative was reduced significantly due to land lease offer by Simplot
- Most sustainable alternative – treats phosphorus as fertilizer rather than a pollutant
- Construct new solids handling facilities to better meet system needs and improve operation.



Funding Opportunities

Project funding typically consists of a combination of grants and low-interest loans

Funding agencies consider demographics and user rates

Typical statewide user rates for sewer are ~\$50 to \$55/month

- Current Aberdeen Wastewater Rate - \$41.35/month
- Current Rates for Similar Communities Include:
 - American Falls – \$48.64/month
 - Chubbuck – \$55.95/month
 - Rigby – \$84.50/month
 - Soda Springs – \$58.00/month
 - Heyburn – \$63.70/month
 - Preston – \$84.00/month (anticipated)

Potential funding sources include:

- **Idaho DEQ** – 30 Year Loan @ 1.75%/year
- **United States Department of Agriculture – Rural Development** – Grants and Loans – 30 Year Loan @ 1.125%/year and 25% Grant
- **Community Development Block Grant (CDBG)** up to \$500,000
- **Army Corps of Engineers Grants and Loans (ACOE)**
- **Special Appropriation Grants (SAPP)**



Keller Associates is working with SICOG to obtain the best funding package possible for the City

Rate Analysis



Project funding typically consists of a combination of grants and low-interest loans

Item	DEQ Loan 30 yrs @ 1.75%	USDA-RD Loan 30 yrs @ 1.125%
Total Project Cost	\$9,203,000	\$9,203,000
Funding Agency & \$500k CDBG Grant (DEQ or USDA)	\$654,516	\$2,675,750
Loan Amount	\$8,548,484	\$6,527,250
Annual Loan Payment & Debt Service Reserve (10%)	\$405,563	\$283,318
Annual O&M Cost & Short-Lived Asset Increase	\$75,003	\$75,003
Total Annual Wastewater System Cost	\$480,566	\$358,321
Current Monthly User Rate	\$41.35	\$41.35
Estimated Monthly User Rate Increase	\$43.20	\$32.21
Estimated Final Monthly User Rate	\$84.55*	\$73.56*

**Final user rates are highly dependent on the amount of grant funding made available by the respective funding agencies, and total costs which are determined at the time of bidding. Grant amounts available vary year to year.*

QUESTIONS?

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