



THE STATE
of **ALASKA**
GOVERNOR MICHAEL J. DUNLEAVY

**Department of Environmental
Conservation**

DIVISION OF ENVIRONMENTAL HEALTH
Drinking Water Program

610 University Avenue
Fairbanks, Alaska 99709
Main: 907.451.2108
Toll free: 800.770.2137
Fax: 907.451.2188
dec.alaska.gov

May 14, 2026

Daisy Katcheak
City of Stebbins
PO Box 17022
Stebbins, AK 99671

Re: Stebbins Water System – First Service – Phase 1 – Water Supply (AN-21-N9N)
Drinking Water – Conditional Approval to Construct
PWSID: 340492; Classification: Community; Source: Surface Water

Dear Daisy Katcheak:

The Department received a submittal from CRW requesting approval to construct the First Service-Phase I- Water Supply project at the Stebbins public water system (PWS). The request and supporting information provided have been reviewed in accordance with state drinking water regulations 18 AAC 80, and **conditional approval to construct is granted**. Enclosed is the signed Construction and Operation Certificate. This approval is valid until May 14, 2028.

This approval is subject to the following condition:

1. The City water storage tank (WST) will need to be drained to make the necessary piping changes to reconfigure the existing backwash supply line connection to the WST. No work is planned on the inside of the tank or existing distribution supply piping. The existing distribution system will continue to be supplied from the School WST during this work and pressure will remain above 20 psi. It is expected this work will take place when the PWS is not treating water. If it is determined work is needed on the interior of the tank, there is a loss of pressure below 20 psi in the distribution system, or the work needs to be done when the PWS is making water, DEC must be contacted for evaluation of tank disinfection or boil water notice. If the School WST will be used for meeting contact time requirements, calculations must be verified.

Project Description

The Stebbins PWS will be expanded to include piped water distribution throughout the community to connect up to 188 homes to distribution. The project will be completed in several phases beginning in 2026. To accommodate the expansion, a year-round raw water supply will be constructed and the water treatment plant (WTP) pumping and piping will be upgraded (Phase 1). Future phases will include a wastewater disposal system (Phase 2), and water distribution and sewer collection systems to three areas; Southside, Northside, and Hillside (Phases 3-5).

This approval is for Phase 1 and includes replacement of the raw water intake structure, construction of a 12M-gallon raw water storage impoundment area, installation of approximately 8,580 feet (over 1.6 miles) of raw water transmission line (RWTL), and WTP upgrades to support the future distribution loops. During summer, raw water will be pumped from the replaced Clear Lake intake structure to the new impoundment and the stored water will gravity flow from the impoundment to the existing WTP year-round. All major components in contact with drinking water will be certified to NSF/ANSI Standard 61 or have been evaluated based on their suitability of materials.

The existing RWTL, WTP, and WSTs will remain in use until the new components are ready to be placed into service. The two existing storage tanks (the City WST is 500K gallons and the School WST is 750K gallons) will be filled prior to the start of work. Most of the new components in the WTP will not be put into operation until the other phases are constructed. The following sections describe Phase 1 of the project in more detail.

Intake

The intake structure will be replaced at Clear Lake. The new intake will consist of two identical intakes constructed of 12-inch HDPE pipes extending from shore and following the topography of the lake bottom for approximately 160 feet. The intake pipes will be spaced a minimum of 10 feet apart and will be anchored to the lakebed. At the farthest point, the intake pipes will be approximately 10 feet below the water surface and terminate with a vertical 3-foot-long stainless steel intake screen (0.125-inch slots rated for up to 300 gpm flow) with a cap on the end. A submersible pump (Goulds 120L 10) will be placed within each intake pipe and approximately 45 feet from the intake screen. The pumps will connect to 3-inch HDPE discharge pipes that extend to shore and have electric heat-trace.

On the shore end of the intake structures, the 3-inch HDPE pipes will be equipped with a quick connect fitting to connect a 3-inch diameter, 50-foot long, flexible hose (Continental Blue Clearwater) and expansion fitting to connect to the existing 6-inch RWTL. Only one intake will operate at a time and the other will be capped when not in use. Three-inch locking caps will be provided for both intakes for use during winter.

Raw Water Transmission Line A (to Impoundment)

Two new sections of RWTL will be installed in this phase of the project; RWTL A and RWTL B. RWTL A will tee off the existing RWTL to transport water to the new impoundment. RWTL B will be used to transport water from the impoundment to the WTP (described in later section). All HDPE pipe joints will be butt-fused. A bend-back test will be performed once a day and joint fusion logs will be maintained. Water piping will be pressure tested.

Water will be transferred from the intake to the new impoundment via 14,890 feet of the existing 6-inch HDPE RWTL and approximately 2,360 feet of the new 6-inch uninsulated HDPE RWTL A. RWTL A will tee off the existing RWTL approximately a mile from the WTP. It will be placed on the existing grade and anchored every 20 feet. When it reaches the impoundment, it will be direct bury approximately 2 feet below the top of the berm.

RWTL A will transition to 4-inch HDPE at the top of the impoundment berm and then come to the surface. The inlet assembly will consist of a butterfly valve, wye stainer, flow meter (Zenner ZTM OAE), and 4 feet of 4-inch HDPE outlet pipe suspended on timbers and extending over the side of the berm. The inlet pipe will discharge onto a splash guard near the top of the impoundment berm. The inlet assembly will be removed during winter months, and the RWTL will be capped.

Impoundment

A new 12M-gallon raw water storage impoundment will be constructed northeast of the community along the road to St. Michael and approximately 1.5 road miles from the WTP. The existing topography will be cut and filled to create a raw water reservoir that is approximately 1,200 feet long, 180 feet wide, and 19.5 feet deep from the top of the berm around the perimeter. The berm will be 15 feet wide at the top and sloped on both sides. A security fence will be installed around the impoundment perimeter.

An overflow channel will be located at a water level of 17.5 feet to account for wave action while water will be at the high water level (full) at 16.5 feet; the overflow will discharge to the tundra on the south side of the impoundment. The impoundment outlet to RWTL B will be at a water level of 4.5 feet, which equates to 12M-gallons of storage. This volume is adequate to supply the community with an annual demand of at least annual 10.8M gallons per year (27K gallons per day). An emergency outlet pipe will be at a water level of 0.5 feet which provides 2.5M gallons of additional volume if needed.

The impoundment will have a liner system consisting of a geotextile fabric base under a gas venting system, followed by a 40-mil potable water geomembrane (Seamann XR5-PW 8138) that will be in contact with the water. The potable water geomembrane will be applied in a double layer for the top 12 feet, where ice could potentially form. A drainage system will be installed to divert any water below the impoundment liner. A water level indicator will be welded to the impoundment floor for visual observation. Maximum ice thickness (estimated at 5 feet) and lowest water level (estimated at 6 feet) are expected to occur at the end of April. Pumping to the impoundment will take place from July to September each year.

The impoundment inlet will be the terminus of RWTL A (described above). The outlet pipes (primary and emergency) will be 6-inch HDPE, open ended in the impoundment, and will be adhered to the geomembrane where they penetrate it. Both outlet pipes will extend approximately 94 feet horizontally through the impoundment berm and combine to a single pipe in a below-ground HDPE service manhole just outside the berm. The manhole will contain valving to control use of the primary and emergency outlet pipes and flow through RWTL B to the WTP. The impoundment outlet will operate by gravity.

The impoundment and new RWTLs are planned to be placed into operation prior to when the rest of the distribution system is constructed. The impoundment will be filled and refilled each summer even though the community demand will be less between when the impoundment is placed into operation and when the full distribution system is in service.

Raw Water Transmission Line B (Impoundment to WTP)

RWTL B will connect the impoundment to the WTP. It will be constructed of 6,220 feet of 6-inch HDPE pipe in an 18-inch insulated outer pipe (6 x 18 arctic pipe). It will have a new 2-inch HDPE

propylene glycol supply/return heat trace. A causeway will be constructed to accommodate where pipes traverse a pond near the WTP. RWTL B will have an HDPE outer jacket where it travels through the impoundment berm (approximately 94 feet) and continuing to the causeway (approximately 5,340 feet). RWTL B will be below-ground for the first approximately 170 feet beyond the berm before it transitions to above-ground supported on timbers. The portion of water main on the causeway and extending to the WTP (approximately 790 feet) will have an aluminum jacket.

A section of existing RWTL between RWTL A and RWTL B (approximately 2,820 feet) will remain in place for use in an emergency to bypass the impoundment. This section will be normally physically disconnected but can be connected to the existing RWTL from the source and RWTL B using flexible hose (Continental Blue Clearwater) to allow water to be pumped from the intake directly to the WTP. The remaining existing RWTL extending to the WTP will be abandoned in place and the ends will be capped.

WTP Upgrades

There are no process changes to the WTP in Phase 1. The HDPE RWTL B will connect to the existing RW line in the WTP. Upgrades within the WTP will support the future distribution system expansion. A new flow control valve set to 80 gpm will be installed upstream of the existing polymer injection point and filters. The new propylene glycol heat trace system (not in contact with drinking water) for the RWTL B will be installed in the WTP.

The existing distribution system is supplied by an outlet pipe from the School WST and will remain unchanged with this project. The future distribution loops will be supplied by a new 6-inch pipe connected to the City WST outlet currently used for the filter backwash water supply. The backwash supply line will tee off of the new section of 6-inch pipe just downstream of the WST to reestablish the backwash system. The backwash line is equipped with an existing testable backflow preventer.

Distribution pressure will be supplied with three 90-gpm pressure pumps (Grundfos Hydro MPC-E). A 44-gallon pressure tank (Flexcon WWT45) will help maintain system pressure. A 385-gpm high demand pump skid (Grundfos NBS 020-095) will be installed on a bypass of the pressure pumps for use in flushing events. Downstream of the pressure pumps a circulation manifold will be constructed for each of the three future distribution loops (North, South, and Hillside). Each manifold will consist of two 112-gpm circulation pumps (Grundfos Magna3 65-150), a totalizing flow meter (Signet 2581), various valving and fittings, pressure gages, a heat-add system, and Schedule 80 PVC piping (primarily 6-inch with various smaller diameters).

The heat-add system on each distribution loop will include a double-walled heat exchanger (Taco TB12MT), and two 19-gpm circulation pumps (Grundfos Magna3 32-100). The heat exchangers are not certified to NSF/ANSI Standard 61 but are brazed plate construction with stainless steel plates and copper brazing and are accepted for use in this project. No other modifications to the WTP are included in this phase of the project.

The new components installed downstream of the backwash supply tee (all new pumps, pressure tank, and distribution supply and return piping) will be isolated from the system via butterfly valves until the rest of the distribution loops are constructed. These lines are not planned for operation potentially for several years.

Chlorine contact time will continue to be met in the existing 500K-gallon (444.16K-gal usable volume) City WST prior to distribution. The system demand is expected to increase as the distribution system is built and the design has accounted for changes to chlorine contact time to meet disinfection requirements in the future. At full build-out, it is estimated the system will have a peak demand at 86 gpm (based on a population of 780 people in year 2064) and average daily demand of 27,300 gallons. At this flow rate, contact time requirements can be met with the following assumptions: temperature = 4°C, pH = 7.8, baffle factor = 0.1, minimum tank volume = 211.5K gallons or 10 feet), chlorine residual = 0.3mg/L.

Operational Approval Requirements

An operational approval is required prior to making water available to the public from the new intake, RWTLs, and impoundment. To obtain final approval to operate, all the information listed below must be submitted after completion of construction. Alternatively, an interim approval to operate may be requested by addressing items 1 through 6 below:

1. Letter requesting operational approval
2. Documentation showing the condition of construction has been met
3. Explanation of any changes that were made
4. Documentation confirming the raw water piping and equipment have been cleaned and flushed in accordance with the project specifications
5. Documentation of the HDPE pipe used and confirmation it is certified to NSF/ANSI Standard 61
6. Confirmation the make/models of primary components have not changed since the design. If there are changes, provide NSF/ANSI Standard 61 documentation
7. Updated schedule of when then the new components downstream of the WST will be placed into service. Although not expected with this project, if any of these components will be placed into service the following must be submitted:
 - a. Letter requesting approval to operate
 - b. Documentation the piping and equipment have been flushed, disinfected, and sampled in accordance with AWWA C651
 - c. Results of total coliform samples collected in accordance with AWAA C651 confirming the absence of bacterial contamination (results must not be older than three weeks)
8. Record drawings as defined in 18 AAC 80.1990(a)(119), conforming to 18 AAC 80.210(f), and including the following:
 - a. Each page is labeled record drawing and is sealed, signed, and dated by the registered engineer in responsible charge
 - b. All construction changes are clearly shown

If an interim approval to operate is granted, it is typically valid for 90 days, and final approval to operate must be requested prior to expiration of the interim approval to operate. If more time is needed, please indicate that when requesting the interim approval or request an extension before the interim approval expires. Once the complete request for final approval to operate is received by the Department, the interim approval to operate will be automatically extended until the Department issues final approval to operate.

Disclaimers and Administrative Appeals Process

Approval of submitted plans is not approval of omissions or oversights by this office or noncompliance with any applicable regulation. The Department's approval does not guarantee correctness of functional design or waive the owner's responsibility for continued compliance with state regulations. Deviations from approved plans which affect capacity, flow, pressure, operation, compliance, or materials of major system components (particularly any components not certified to NSF/ANSI Standard 61) must be approved by DEC prior to their construction or implementation.

This approval does not relieve you from compliance with any other state, federal, or local authorizations which are required for your project. You are advised to obtain all other necessary authorizations before proceeding with your project.

This construction approval is valid for two years from the date of this letter. If during the two-year period the site conditions, plans, and design specifications do not change, the applicant may request an extension prior to expiration of this approval and after payment of the fee required by 18 AAC 80.1910(a)(12). Otherwise, the approval will be void and the plans and information required under 18 AAC 80.200(b) must be resubmitted for Department review and approval.

A person authorized under a provision of 18 AAC 15 may request an informal review of a contested decision by the Division Director in accordance with 18 AAC 15.185 and/or an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340. See DEC's "Appeal a DEC Decision" web page <https://dec.alaska.gov/commish/review-guidance/> for access to the required forms and guidance on the appeal process. Please provide a courtesy copy of the adjudicatory hearing request in an electronic format to the parties required to be served under 18 AAC 15.200. Requests must be submitted no later than the deadline specified in 18 AAC 15.

If you have any questions, you may contact me at 907-451-2165 or nellie.ballou@alaska.gov.

Sincerely,



Nellie Ballou, P.E.
Engineer I

Enclosure: Construction and Operation Certificate

cc: Chris Clark, P.E., CRW
Derek Hancey, P.E., ANTHC
Denise Michels, Norton Sound Health Corporation
Jenny Roberts, DEC Drinking Water Program
DEC Operator Training and Certification Program



State of Alaska Department of Environmental Conservation
Drinking Water Program



PUBLIC WATER SYSTEM
CONSTRUCTION AND OPERATION CERTIFICATE

Water System Name: Stebbins PWSID: 340492

Location: Stebbins, AK Classification: Community

☐ System-Wide Approval

☒ Modification Approval

Project Description: First Service – Phase 1 – Water Supply (RWTL, Impoundment, WTP Upgrades)

A. APPROVAL TO CONSTRUCT

Plans in accordance with 18 AAC 80.205 submitted by Click or tap here to enter text., have been received and are

☐ approved as submitted

☒ conditionally approved (see attached letter)

Nellie Ballou, P.E. Engineer I
Reviewer Name

Nellie Ballou
Reviewer Signature

May 14, 2026
Approval Date

May 14, 2028
Expiration Date

If applicant fails to complete the project by the expiration date, this approval is void and plans must be resubmitted for Department review and approval as per 18 AAC 80.215(b).

Approved Change Order

Change contract order number or description: _____

Reviewer Name

Reviewer Signature

Approval Date

B. APPROVAL TO OPERATE

This section must be completed and signed by the Department before any water is made available for public use.

Interim Approval to Operate

The project listed above is hereby granted **INTERIM APPROVAL TO OPERATE**. It is illegal to operate a public water system beyond the expiration date without final approval to operate from the Department.

Description	Reviewer Name	Reviewer Signature	Approval Date	Expiration Date
-------------	---------------	--------------------	---------------	-----------------

Description	Reviewer Name	Reviewer Signature	Approval Date	Expiration Date
-------------	---------------	--------------------	---------------	-----------------

Description	Reviewer Name	Reviewer Signature	Approval Date	Expiration Date
-------------	---------------	--------------------	---------------	-----------------

Description	Reviewer Name	Reviewer Signature	Approval Date	Expiration Date
-------------	---------------	--------------------	---------------	-----------------

Final Approval to Operate

The project listed above is hereby granted **FINAL APPROVAL TO OPERATE**. Record drawings and other documents submitted to the Department, or an inspection by the Department, has confirmed that the public water system was constructed in substantial conformance to 18 AAC 80.

Reviewer Name

Reviewer Signature

Approval Date