



State of Alaska
Department of Environmental Conservation
Village Safe Water Program

555 Cordova Street
Anchorage, AK 99501
evan.patterson@alaska.gov

September 18, 2024

To: Vendor List

Re: Amendment 2
ITB 25-VSW-PBV-006
Saint George Water Storage Tank Replacement
ITB Due Date: October 2, 2024 @ 2:00 PM AST

The following are vendor questions and the department's response:

1. Vendor: Does this project require piling?

Department: The project does not include piling.

2. Vendor: Can the bid date be extended one week.

Department: The ITB due date is extended from September 25, 2024 to October 2, 2024 @ 2:00 PM AST.

3. Vendor: Due to lead times and construction season constraints, can the substantial completion date and final completion dates be extended 45 days.

Department: The substantial and final completion dates are changed to:

- Substantial completion: 9/14/2025
- Final completion: 10/31/2025

4. Vendor: DWG G1.1 & C1.1 Please confirm that no ringwall (typically concrete) is required as referenced in G1.1, 11.B, and that a the new grade ring identified in C1.1 is to be installed.

Department: The design does not include a ringwall. Notes 11.A. and 11.B., Sheet G1.1, should refer to the “grade ring” rather than “ringwall”. A new grade ring is required, as shown on attached sheets C1.1 and C1.3.

5. Vendor: DWG C1.3 Is there a geotech report or bore hole logs available? Sheet C1.3 identifies weathered bedrock and existing fill of weathered bedrock and gravel from the Gray gravel pit.

Department: The attached record drawings of the existing tank include test hole logs (on Sheet C-1) for three test holes excavated prior to construction, and document construction of the existing tank pad. The attached report dated 3/17/2023 by WSP documents their reconnaissance and preliminary recommendations regarding the existing tank pad and construction of a new tank on the pad.

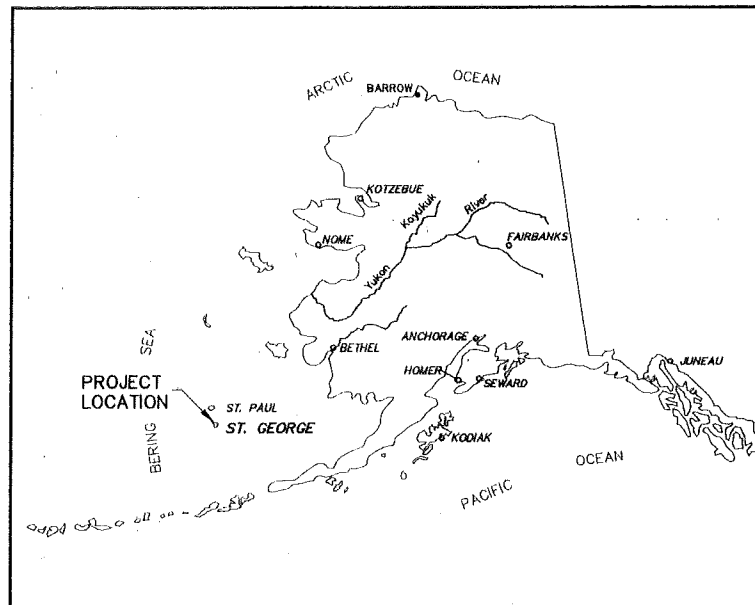
Evan Patterson



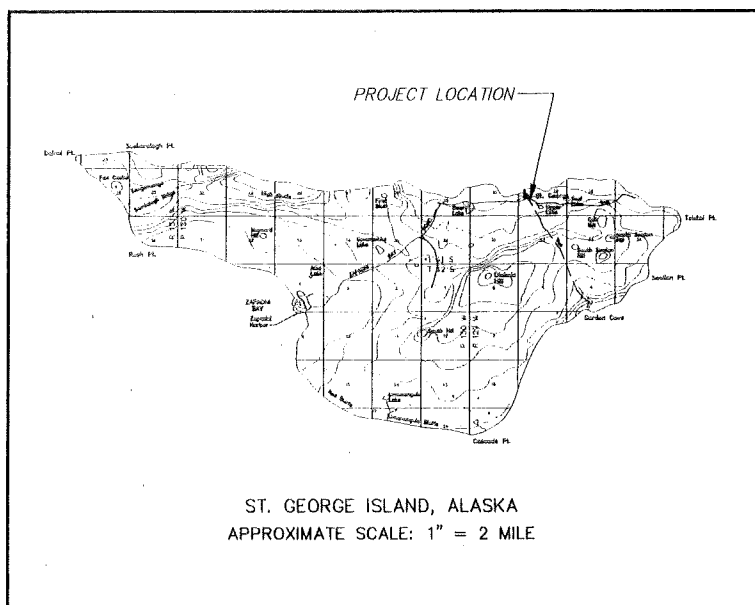
Procurement Specialist

CITY OF ST. GEORGE, ALASKA

286,000 GALLON BOLTED STEEL WATER STORAGE TANK (1998)

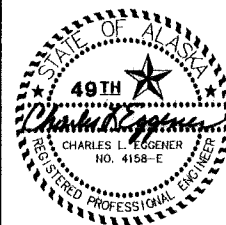


LOCATION MAP



VICINITY MAP

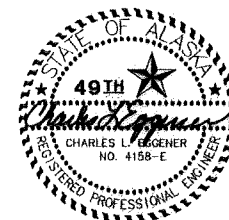
CE₂
ENGINEERS, INC.



ANCHORAGE, ALASKA

CONSULTANT

RECORD DRAWING CERTIFICATE



THESE DRAWINGS REFLECT RECORDED
INFORMATION OBTAINED DURING
CONSTRUCTION.
INFORMATION PROVIDED HEREIN IS
ACCURATE TO THE BEST OF MY
KNOWLEDGE.

Charles L. Eggen
NAME

2/5/99
DATE

Project Number (Consultant) _____ (PHS) AN 98-B68
PHS Project Manager _____ ANDY MELTZER, P.E.
Construction Foreman _____ BRUCE PETSKA
Final Design (Date) _____ AUGUST 1998
ADEC Approval (Date) _____ AUGUST 21, 1998
Construction Period (From) _____ 9/29/98 (To) 10/31/98
As-Builts (Date) _____ DECEMBER 1998

AS-BUILT

SHEET INDEX

No.	Title
	COVER SHEET
C-1	GENERAL NOTES, LEGEND & TANK SITE PLAN
C-2	TANK FOUNDATION AND CONNECTION DETAILS
C-3	TANK DETAILS

1. MATERIALS

A. Mainline Water

— 8 inch, class 52 ductile iron pipe with cement mortar lining conforming to the requirements of AWWA C104 / ANSI A 24.1

B. Mainline Valves

— Mechanical joint, iron body, fully bronze mounted, double disk, resilient seat, 2 inch operating nut, non-rising stem (AWWA C500). Mueller A-2360 or equal.

C. Bolted Steel Water Tank

— Refer to A.G. Smith Engineered Storage Products (1-800-421-2788, P.O. Box 996, Parsons, KS, 67357-0996) approved fabrication drawings (82342 D 10-55-82342-00, July 1998) for tank material specifications and construction sequence.

1) Product	Water
2) Specific Gravity	1.0
3) Capacity	277,800 Gallons (Based on 6" Freeboard)
4) Wind Load per AWWA	130 MPH
5) Seismic Zone per AWWA	3
6) Deck Live Load	30 PSF
7) Design Pressure	1.0 oz. per sq. in. positive 0.5 oz. per sq. in. negative
8) Design Specification	AWWA DD103-97
9) Tank Coating System	Interior- 5 mils Thermo-Thane 7000 Exterior- First Coat: 2.5 mils Inorganic Zinc Primer Second Coat: 2.5 mils Polyamide Epoxy Primer Third Coat: 2.5 mils Polyamide Epoxy Primer Fourth Coat: 1.5 mils Sky Blue Acrylic Urethane

2. All construction shall be done in a safe, workmanlike manner to industry standards and in conformance with applicable local, state and federal codes and regulations.
3. The vertical datum is the Brass Cap Monument at the southwest corner of the cemetery fence ("TBM 8"), elevation 231.84 feet (as shown in aerial mapping performed by R.F. Black Consulting Engineers, May 10, 1984)
4. The basis of bearing for horizontal control is the line from the found U.S. Department of the Interior (D.O.I.) Brass Cap Monument at the northwest corner of Parcel 8, Tract 51 and the found D.O.I Brass Cap Monument at the northeast corner of Parcel 7, Tract 51 (see site plan to right). The bearing of this line is S 75°46'27" W.
5. Existing utilities are shown in approximate location to the best knowledge of the engineer at the time of design. Records may not be completely accurate. The project superintendent shall verify horizontal and vertical location of utilities within each construction reach prior to construction.
NOTE: All utilities are buried unless otherwise identified.
6. The project superintendent shall be responsible for maintaining a clean set of as-built "red line" record drawings showing location of installed water tank appurtenances, and swing ties to all valves and bends and fittings. All elevations shall be marked ASB (as-built) or F.C. (field changed) with the correct value inserted. Drawings shall be kept current in red pencil on a daily basis in a neat and legible fashion. A copy of the as-built drawings shall be submitted to the Public Health Service and the City of St. George upon completion of construction.
7. Testing—
All testing shall be witnessed by an authorized representative of the City of St. George. Upon successful completion of a test, results of the test shall be documented on a test form and acknowledged by signature of the City's authorized representative and the project superintendent. The project superintendent's as built "red line" drawings shall also note for each segment of the system tested, the time and date of the test and the name of the City's authorized representative.

- A. Pressure Testing- Perform hydrostatic testing of water line after flushing. Fill the line with water and remove air prior to starting test. Pressurize to 100 psi and let the line pressure stabilize and begin a 1-hour test. For the water line to be accepted, there shall be no loss in pressure during the 1-hour test.
8. Disinfection-
 - A. Water Line Disinfection - All potable water pipelines shall be disinfected in accordance with the requirements of AWWA C651-92.
 - B. Water Tank Disinfection - Prior to use, the water tank shall be disinfected in accordance with the requirements of AWWA C652-92. Chlorine solution shall be neutralized prior to discharge to the ground surface.

<u>EXISTING</u>	<u>PROPOSED</u>	<u>DESCRIPTION</u>
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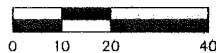
PLAN
VIEW

— W —

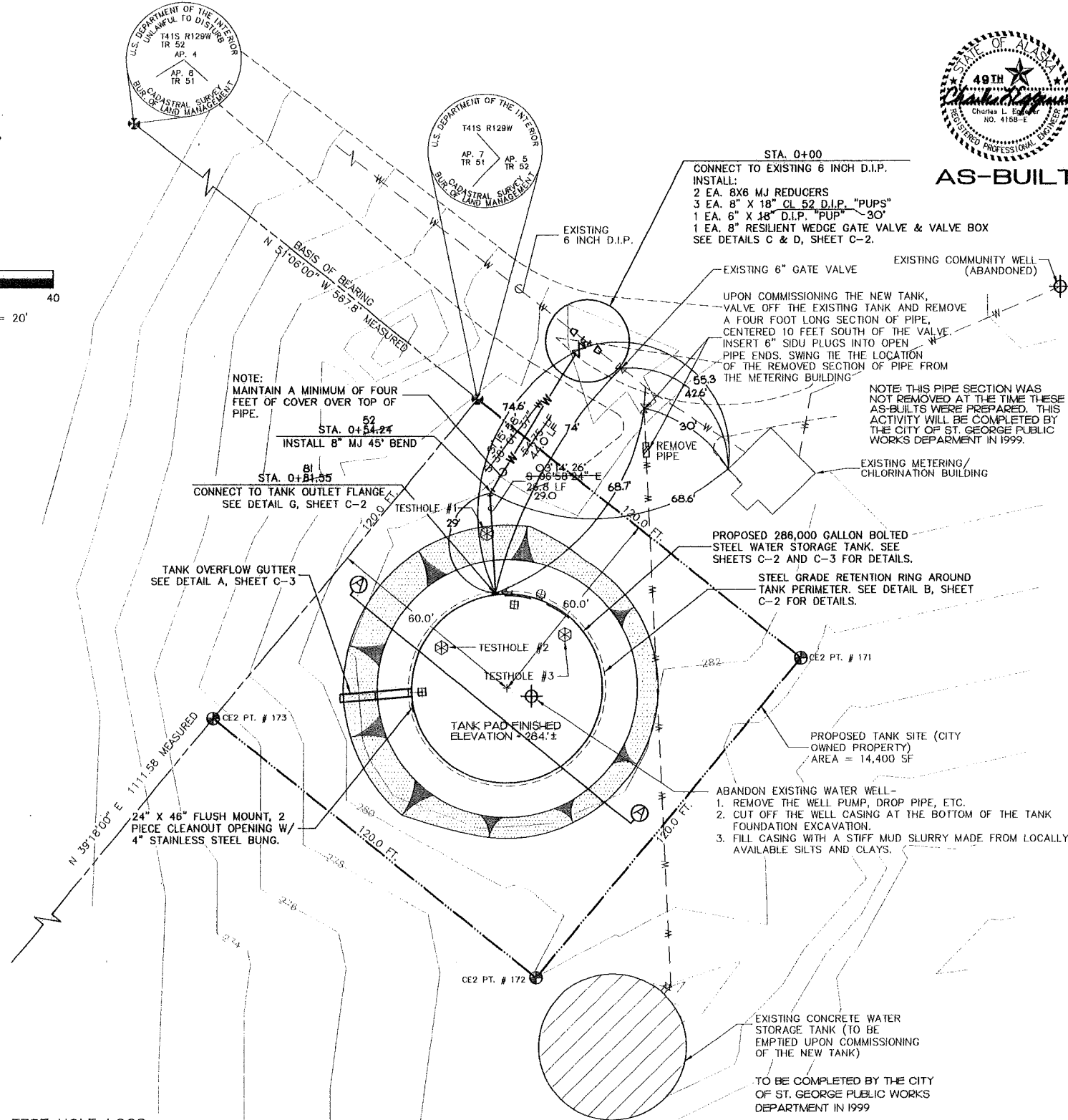
EXISTING STRUCTURE
CONTOUR INTERVAL
(### INDICATES ELEV.)

TANK SITE BOUNDARY

1/2" GALVANIZED STEEL ROD SET
BY CE2 ENGINEERS IN MAY 1998



SCALE: 1" = 20'



TESTHOLE #1

0-2 FT. SCORIA FILL
2-4.5 FT. ORGANICS AND ORGANIC SILT
4.5 FT. WEATHERED BEDROCK

<u>TESTHOLE #2</u>	
0-2 FT.	ORGANICS AND ORGANIC SILT
2-4 FT.	SILT
4 FT.	WEATHERED BEDROCK

TESTHOLE #3

0-2 FT.	ORGANICS AND ORGANIC SILT
2-5 FT.	SILT
5 FT.	WEATHERED BEDROCK

TESTHOLES LOGGED ON MAY 14, 1998 BY
C. EGGNER, P.E.

TANK SITE PLAN

SCALE: 1" = 20'

RECORD DRAWING CERTIFICATE

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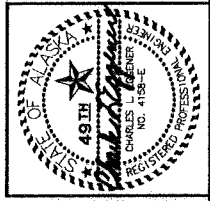
NAME Michael E. Eggen DATE 2/5/99

SCALE:
1" = 20'

BAR IS ONE INCH ON
ORIGINAL DRAWING

IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

CONSTRUCTION RECORD
FIELD BOOK: N/A
STAKING: N/A
FOREMAN: B. PETSKA
AS-BUILT: B. PETSKA
INSPECTOR: C. EGGNER



1998 WATER STORAGE
TANK CONSTRUCTION
LEGEND, GENERAL
NOTES, AND SITE PLAN
ST. GEORGE, ALASKA

CE2 INC.
CONSULTING ENGINEERS

ANCHORAGE, ALASKA

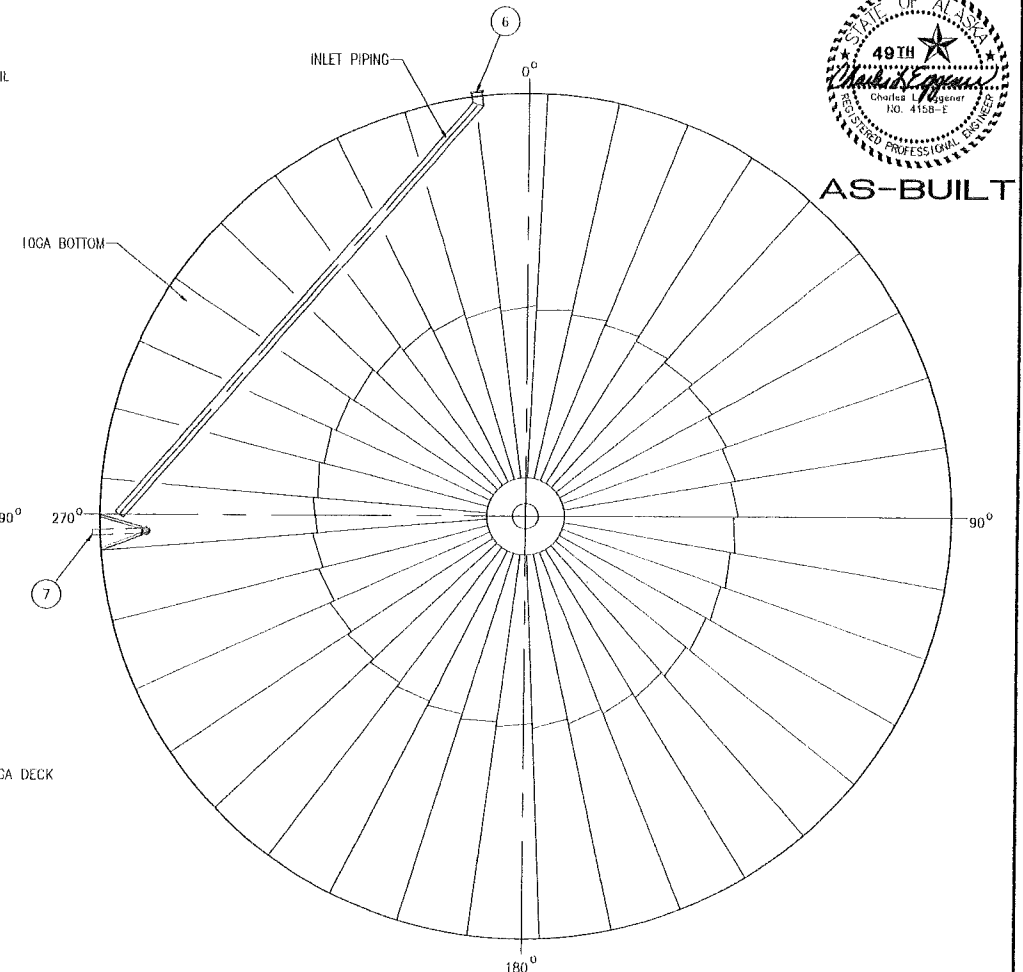
REVISION	BY	DATE
RELEASED FOR PLAN REVIEW	BTH	8/98
RELEASED FOR CONST.	BTH	8/98
ADDED AS-BUILT INFO.	BTH	12/98

Project	
No.	
Date	JULY 1998
Designed	BTH
Drawn	BTH
Approved	CLE

Sheet No. C-1
SHEET 2 OF 4

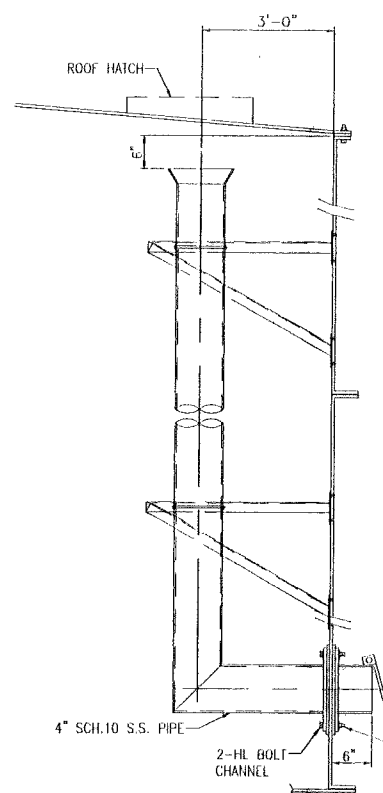


TANK DECK PLAN

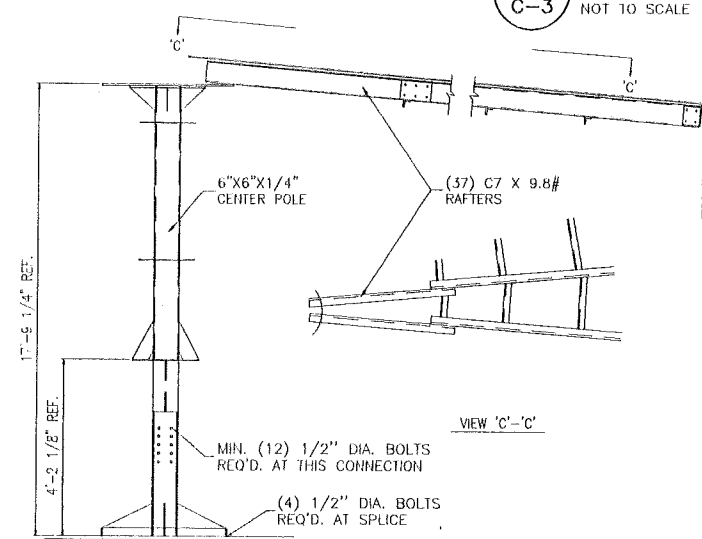


TANK BOTTOM PLAN

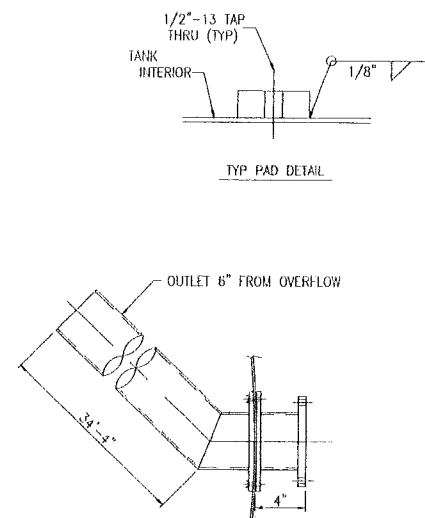
TANK ELEVATION DETAIL



INTERNAL OVERFLOW WEIR DETAIL



F CENTER SUPPORT DETAIL
C-3 NOT TO SCALE



TANK INLET/OUTLET DETAIL



AS-BUILT

THESE DRAWINGS REFLECT
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DURING CONSTRUCTION.
INFORMATION PROVIDED HEREIN
IS ACCURATE TO THE BEST OF
MY KNOWLEDGE.

Michael D. Eggen 2/5/99
NAME _____ DATE _____

SCALE.
AS NOTED

BAR IS ONE INCH ON
ORIGINAL DRAWING

IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY

FIELD BOOK: N/A
STAKING: N/A
FOREMAN: B. PETSKA
AS-BUILT: B. PETSKA
INSPECTOR: C. EGSENER



TANK DETAILS
ST. GEORGE, ALASKA

CE2 INC.
CONSULTING ENGINEERS
ANCHORAGE, ALASKA

REVISION	BY	DATE
RELEASED FOR PLAN	BTH	8/98
REVIEW	BTH	8/98
RELEASED FOR CONST.	BTH	8/98
RELEASED FOR CONST.	BTH	12/98

Project No.	Date	Designed	Drawn	Approved
	JULY 1998	BTH	BTH	CLE

Sheet No. **C-3**

SHEET 4 OF 4



March 17, 2023

31405768.000

Mike Erdman, PE

CE2 Engineers, Inc.
8221 Diamond Hook Drive
Anchorage, AK 99507

**GEOTECHNICAL RECONNAISSANCE OBSERVATIONS AND PRELIMINARY RECOMMENDATIONS,
REPLACEMENT WATER STORAGE TANK, ST GEORGE, ALASKA**

Mike:

WSP USA Inc. (formerly Golder Associates USA Inc.) has prepared this summary of our field reconnaissance and initial geotechnical laboratory results for the three test pits advanced around the existing water storage tank (WST) in St. George, Alaska. WSP USA engineer Richard Mitchells, PE travelled with CE2 Engineers representative Mike Erdman, PE to St. George on October 12, 2022 via round trip charter air flight from Anchorage, Alaska. We arrived around 12:30 PM and we immediately escorted by local personnel to the WST site. A local tire-mounted backhoe was on-site to advance test pits after a brief orientation and safety meeting. Weather was approximately 40°F, clear and light winds. We completed our field efforts and returned in Anchorage approximately 18:00 the same day. The existing WST is located immediately south of the village on a topographic rise. The area well drained with well-constructed gravel road access.



The WST is a bolted steel shell tank founded at-grade on a locally obtained granular fill. There were no obvious indications of settlements of the tank perimeter in excess of design or performance tolerances for a structure of its age and use. The existing WST is designated for replacement on the same pad of roughly the same general dimensions as part of a community-wide water and sewer upgrade. Raw water is provided through a series of water wells connected via buried pipelines to the WST.



St. George WST, view southwesterly, 12Oct202

Three shallow test pits were advanced round the WST (north, southwest and east perimeter) with a local backhoe. The test pits were advanced along the pad fill constructed for the WST with the intent to determine subsurface condition near the tank perimeter but avoiding undermining the existing tank bearing soils.

Test pits TP-1 (north side) and TB-2 (southwest side) were advanced to approximately 4 feet below existing grade, considered the safe working limited for the equipment, operator, and proximity to the tank to avoid the risk of damage to the existing structure. Two soil samples were retained from TH-1 at 1-1.5 feet and 2.5 to 3.5 feet below ground surface. One sample was retained from TP-2 at 2.5 to 3.5 feet below existing grade. TP-3 was advanced to 3 feet below grade encountering relict materials, possibly an abandoned pipeline, at that depth. TP-3 was terminated at the initial exposure of the relict materials. One sample was retained from TP-3 at 1.5 to 2.5 feet below grade. All test pits were backfilled with excavated material and tamp compacted to adjacent grade prior to demobilization.

Subsurface materials encountered in all three test pits are considered similar. The site consisted of a locally source aggregate apparently mechanically processed to a 3/4-inch minus sand with gravel and some fines (material passing the US Number 200 standard sieve size). The processed fill appeared to be basalt with some

larger dimensions (3 to 4 inch nominal diameter) andesitic aggregate placed as a thin, random layer at the surface as an apparent erosion protection measure. TP-1 and TP-2 may have initially encountered in-place fractured in-place basalt near the base of their excavations as noted by larger dimensioned (12-inch) basalt or other volcanic material recovered in the backhoe bucket. The operator recommended not attempting to advance deeper into the zone over concerns to equipment damage or test pit trench sidewall sloughing resulting from increased excavation effort.



TP-1, WST North Side



TP-2, WST Southwest Side



TP-3, WST Eastern Side

All four soil samples were delivered to Alaska Testlab (ATL) for moisture content and grain size distribution analysis following ASTM or Alaska Test Method recommended procedures and guidelines. The laboratory test results indicated all four soil samples were generally similar. Summary geotechnical engineering properties from the four tested samples are summarized below. Copies of the ATL laboratory results are attached for reference.

	TP1,S1	TP1,S2	TP2,S1	TP3,S1
D10 size =>	0.15 mm	0.30 mm	0.18 mm	0.07 mm
D30 size =>	0.41 mm	1.30 mm	1.13 mm	1.00 mm
D50 size =>	2.15 mm	3.08 mm	2.97 mm	2.70 mm
D60 size =>	4.54 mm	4.42 mm	4.42 mm	4.13 mm
Coeff. of Uniformity, Cu =	28.00	14.91	23.63	62.05
Coeff. of Curvature, Cc =	0.23	1.31	1.55	3.63
Gravel (+#4) percentage =	39%	38%	38%	37%
Sand percentage =	54%	58%	56%	52%
Fines percentage =	7%	4%	6%	11%
Unified Soil Class Symbol =	SP-SM	SW	SW-SM	SP-SM

Based on our field findings and review of the geotechnical laboratory data, the soils encountered in the test pits are considered relatively consistent with approximately 40-percent by dry mass fine grained gravel and 4 to 7-percent fines in TP-1 and TP-2. A slightly elevated fines content was noted in TP-3 but this test pit encountered some relict materials which may have included material with a slightly elevated fines content.

In general, the existing WST appears to be founded on a ¾-inch minus process material generally meeting the Alaska Department of Transportation and Public Facilities (ADOT/PF) gradation for D-1 Base Course. For initial planning, with careful site preparation and appropriate earthwork means and methods, the existing fill at the WST site is considered suitable for reuse as structural fill under load bearing states for the replacement WST, pending addition geotechnical and civil engineer review and analysis.

This submittal is provided for preliminary planning and conceptual-level analysis and engineering and should not be used for advanced design, cost estimating or construction bid documents. Additional geotechnical and civil engineering analysis and design is required prior to use of the summary findings provided with this submittal for the replacement WST at this site.

If there are significant changes in the nature, design, or location of the critical structures reviewed during our reconnaissance effort, we should be notified so that we may review our initial reconnaissance findings and geotechnical considerations in the light of the proposed changes and provide a written modification or verification of the changes.

Unanticipated soil and permafrost conditions are commonly encountered and cannot fully be determined by a reconnaissance effort or a limited number of explorations or soil samples. Such unexpected conditions frequently result in additional project costs in order to plan or construct improvements. Therefore, a contingency for unanticipated conditions should be included in the planning and if needed construction budget and schedule.

The work program followed the standard of care expected of professionals undertaking similar work in Alaska under similar conditions. Nor warranty expressed or implied is made. We appreciate the opportunity to assist you with this project. Please contact Richard Mitchells (907-865-2537) with any questions or comments.

WSP USA Inc.



Richard Mitchells, PE
Director