



City of Homer

www.cityofhomer-ak.gov

Public Works

3575 Heath Street
Homer, AK 99603

publicworks@cityofhomer-ak.gov

(p) 907- 235-3170

(f) 907-235-3145

Memorandum 21-030

TO: Mayor Castner and Homer City Council
Through: Robert Dumouchel, City Manager
FROM: Janette Keiser, PE, Director of Public Works/Acting City Engineer
DATE: February 2, 2021
SUBJECT: Woodard Creek Culvert Project – 35% Design

Issue: The design for the Woodard Creek Culvert Project is currently at 35% development. The purpose of this Memorandum is to discuss the cost increases we are anticipating and seek direction.

Background: The City issued a contract to design the Woodard Creek Culvert Project to Bishop Engineering, a Homer firm with extensive experience in structural engineering and local development. Bishop has progressed the design the 35% level, which is not enough to build from, but enough to envision what the project will look like and get a more reliable cost. For example, this level of design allows us to understand and work-around utility conflicts, plan for construction impacts and layout the basic dimensions of the new road/sidewalk cross-section.

The intent is to replacing the existing two 24” culverts that extend under Fairview Avenue with a single arch pipe that allows Woodard Creek to flow freely. Specifically, the smaller culverts will be replaced with 110 feet of corrugated arch pipe that is somewhat oblong, 73 inches (6’1”) wide and 55 inches (4’7”) high. This considerably increases the hydraulic capacity of the structure.

The estimated cost to construct the structure is \$417,813.33, which does not include any construction contingency. The cost of the design effort is \$45,540, bringing the total expected project cost to \$463,353.33. The Council approved, via Ordinance 20-40(A), \$350,000 for the design and construction of this project, leaving a balance of \$113,353.33.

Part of the extra cost is due to the effort to temporarily relocate the existing utilities, including a major water main, a primary gas main and a fiber optic cable. All of these utilities will need to be temporarily relocated and protected during the installation of the arch pipe. We knew these utilities existed, and we’ve added more conservative costs for their protection and relocation, to the cost estimate, in an abundance of caution. The updated cost estimate includes \$90,000 of utility protection costs. We also have a considerable cost, \$25,000, to divert the creek during construction. Obviously, this cost will depend on flow rates and we’ve taken a conservative approach. These costs for utility protection and creek diversion, would be incurred even if we replaced the two

existing culverts with the same size culverts. It's possible we could get lucky and not need to spend these amount of money on these items. We recommend continuing with the arch culvert project.

We will be sharing this information with the PARCAC at their February 4, 2021

How much money is in the HART-Roads Fund? According to a report distributed by Finance Director Walton on June 3, 2020, there was \$5,995,992 in the HART Roads fund as of March 31, 2020. Since then, my records show we have spent or obligated \$1,106,678 in projects in 2020 and I've asked for \$272,000 in Fleet Replacements for 2021. With these obligations, there is \$4,617,314 in the HART Roads Fund. Finance Director Walton told me there was \$6,472,383.26 in the HART Roads Fund as of December 31, 2020, but I'm not sure is that included all the various obligations made in 2020. Even so, there is sufficient funds in the HART Road Fund to cover the anticipated extra costs.

What other plans do we have for the HART-Roads Fund? As we promised last year, we are in the process of preparing a 5-year Roads Capital Improvement Plan, using our data-based Road Assessment Plan as a guide. We've identified several paved roads, assessed at a rating of Poor (2 out of a scale of 1-5), which would benefit from grinding and repaving this year. Further, we have some gravel roads that are poorly rated because of frost boils and thin driving surfaces. Our intent is to work on the roads rated Poor or worse, first, and then move on to roads that are rated Fair, to improve their condition before they deteriorate further. We're also looking at where drainage improvements need to be made, regardless of road condition. Further, we hope to be able to construct the Main Street side walk, whether grant funding is received or not, and start design on the next priority sidewalk. In short, we are working on a plan and hope to unveil it by the next budget cycle.

Finally, we have collected cost information from actual, local bids (Pioneer Avenue and Lake Street Reconstruction), which we will use to build a historical cost data base. This will improve our cost estimating methodology.

Recommendation:

That the City Council appropriate an additional \$113,353.33 for this project, from the HART Roads Fund.

ENGINEER'S CONSTRUCTION ESTIMATE

95% PLAN ESTIMATE 65% PLAN ESTIMATE GENERAL PLAN ESTIMATE (35%)

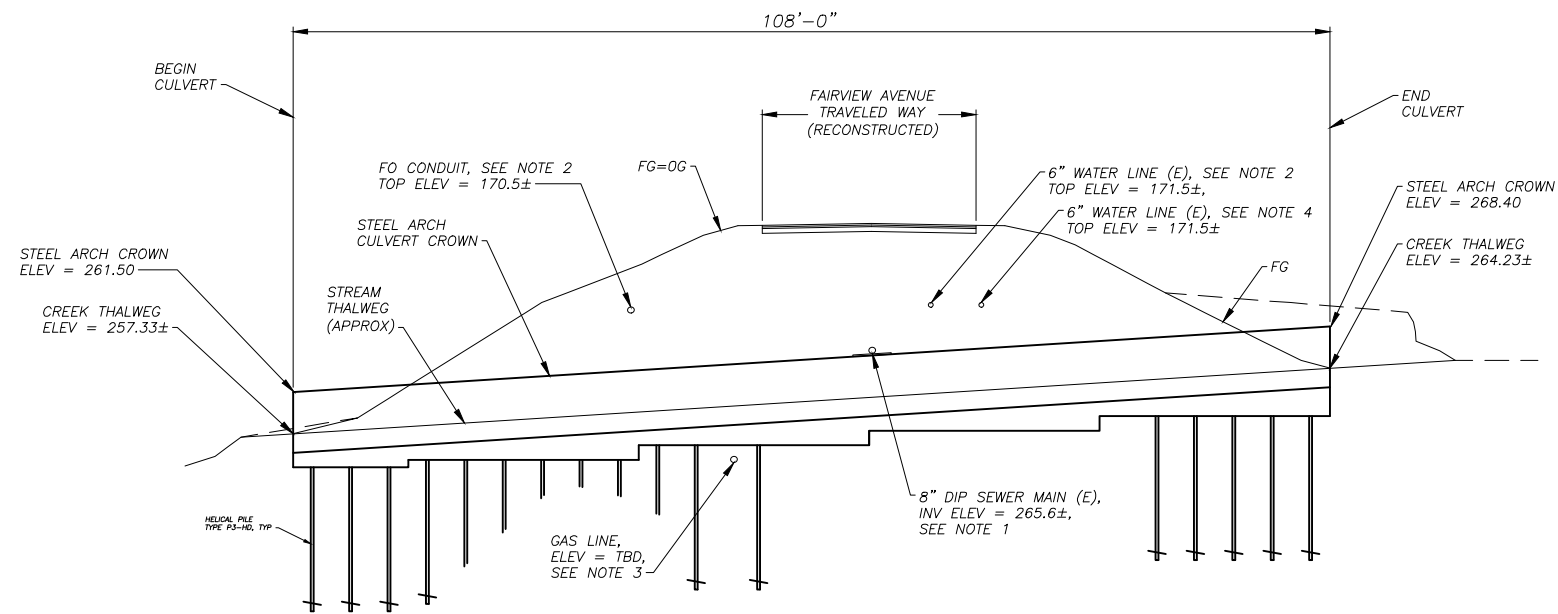
PROJECT NAME: Woodard Creek Culvert @ Fairview Avenue (Replace)
DESCRIPTION: Project Estimate - 110 feet of 73"x55" pipe arch culvert
 (3"x1" 14GA, Aluminized)
 (15% Contingencies)
PRICES BY : John S. Bishop
QUANTITIES BY: John S. Bishop
CHECKED BY:

IN EST:
OUT EST:
LOCATION: Homer, Alaska
DEPTH: 4'-7"
LENGTH: 110 feet
WIDTH: 6'-1"
AREA: N/A
DATE: 1/22/2021
DATE: 1/22/2021
DATE:

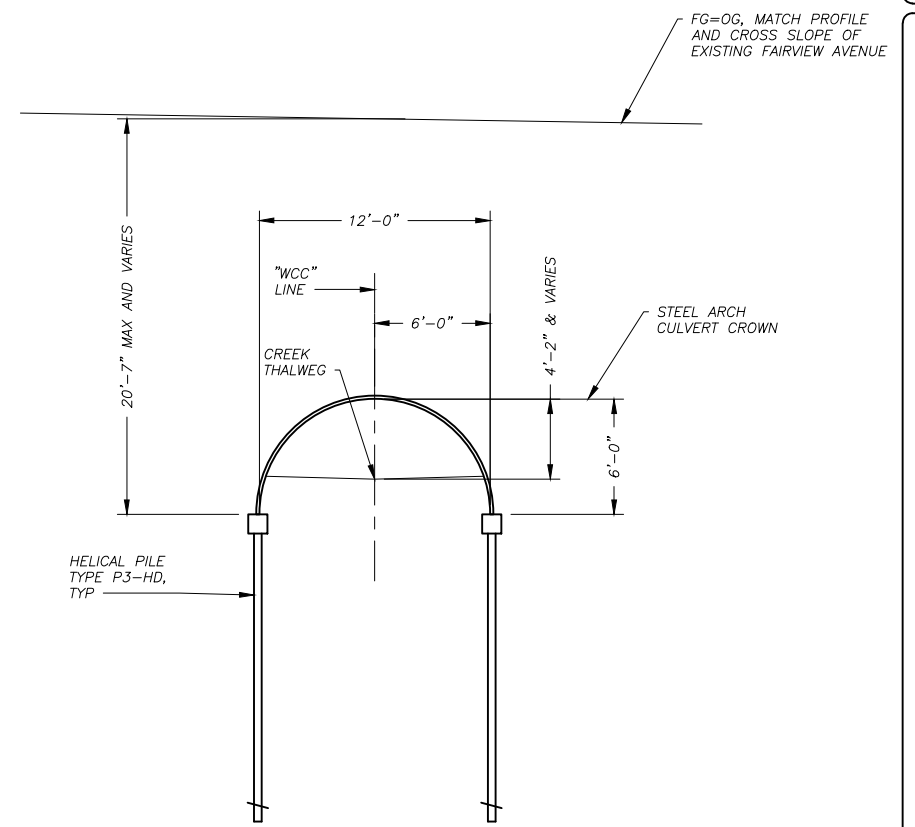
CONTRACT ITEMS		QUANTITY	UNIT PRICE	UNIT	ITEM COST
1	Traffic Control	1	\$ 10,000.00	LS	\$ 10,000.00
2	Construction Survey	1	\$ 18,500.00	LS	\$ 18,500.00
3	Pavement Removal	1,500	\$ 3.00	SQFT	\$ 4,500.00
4	Remove Existing Culvert and Headwall	1	\$ 18,000.00	LS	\$ 18,000.00
5	Roadway Excavation	2,400	\$ 15.00	CY	\$ 36,000.00
6	Structure Backfill	1,600	\$ 40.00	CY	\$ 64,000.00
7	Geotextile Fabric	1,500	\$ 2.50	SQFT	\$ 3,750.00
8	Asphalt Concrete Pavement	1,500	\$ 6.00	SQFT	\$ 9,000.00
9	Creek Diversion Culvert	1	\$ 30,000.00	LS	\$ 30,000.00
10	Structural Concrete (Headwall Reconstruction)	4	\$ 1,000.00	CY	\$ 4,000.00
11	Bar Reinforcing Steel (Headwall Reconstruction)	800	\$ 2.50	LBS	\$ 2,000.00
12	Furnish Open Arch Culvert (Galvanized 12GA Multi-Plate)	8,140	\$ 3.30	LBS	\$ 26,862.00
13	Install Pipe Arch Culvert (Galvanized 12GA Multi-Plate)	8,140	\$ 3.00	LBS	\$ 24,420.00
14	Rock Slope Protection	1	\$ 25,000.00	LS	\$ 25,000.00
15	Water Line Temporary Relocation on Bridge and Reinstallation	1	\$ 40,000.00	LS	\$ 40,000.00
16	Sanitary Sewer Temporary Relocation on Bridge and Reinstallation	1	\$ 25,000.00	LS	\$ 25,000.00
17	Fiber Optic Temporary Relocation on Bridge and Reinstallation	1	\$ 15,000.00	LS	\$ 15,000.00
18	Gas Main Temporary Relocation on Bridge and Reinstallation	1	\$ 10,000.00	LS	\$ 10,000.00
19	SWPPP Construction	1	\$ 10,000.00	LS	\$ 10,000.00
20				\$	-
21				\$	-
22				\$	-
23				\$	-
24				\$	-
25				\$	-
26				\$	-
27				\$	-
28				\$	-
29				\$	-
30				\$	-

Comments	MOBILIZATION	10%	\$ 41,781.33
	SUBTOTAL		\$ 417,813.33
	CONTINGENCIES	15%	\$ 62,672.00
	TOTAL		\$ 480,000.00

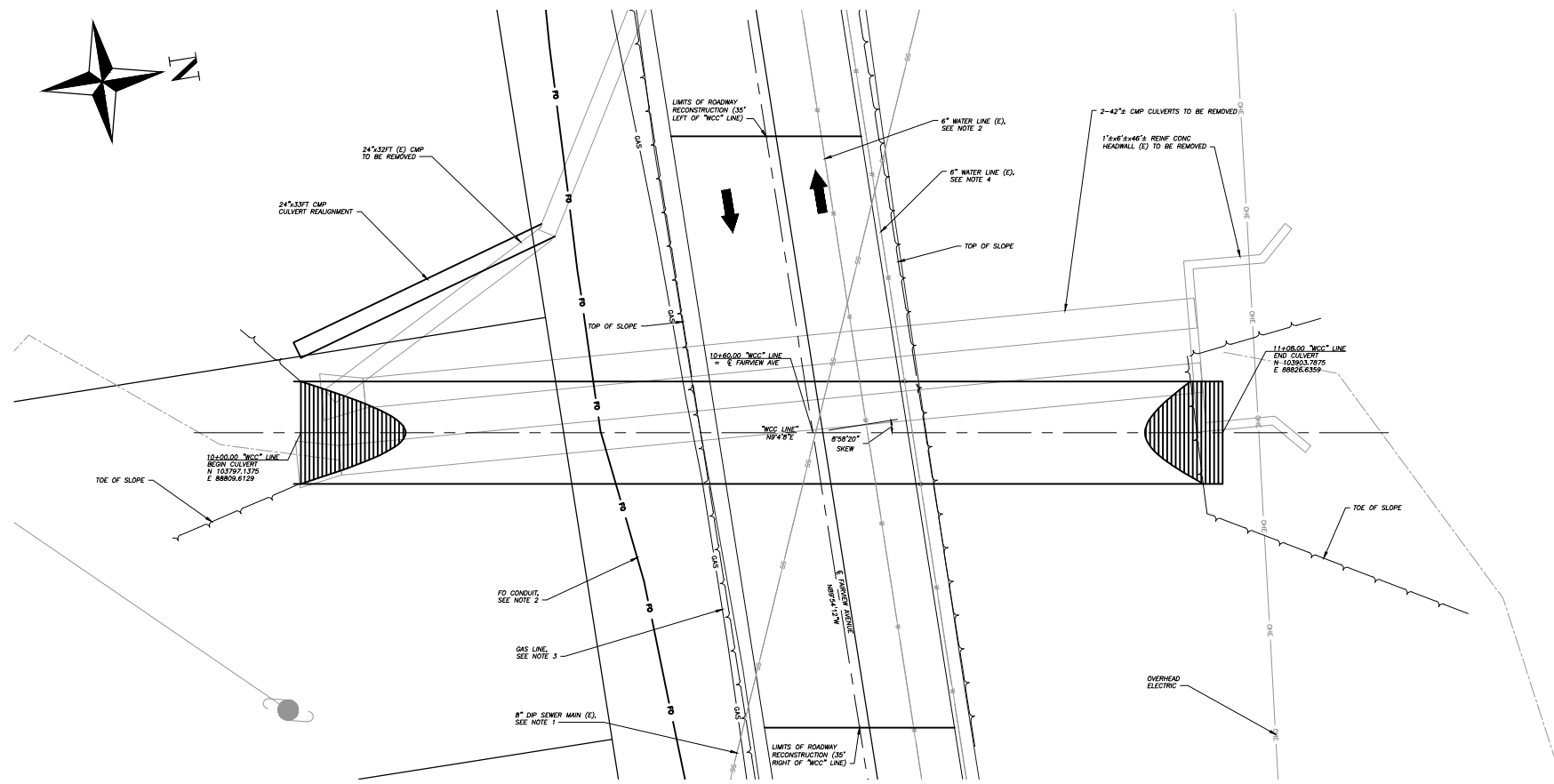
DESCRIPTION	PRICE	UNIT	COST
DEMOLITION			



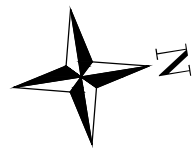
ELEVATION
1"=10'-0"



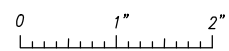
TYPICAL SECTION
1"=5'-0"



PLAN
1"=10'-0"



- NOTES:**
1. Utility to be relocated. Utility may be temporarily shut down during construction.
 2. Utility to be rerouted onto support bridge and remain in service during construction.
 3. Utility to be protected in place and remain in service during construction.
 4. Utility is abandoned and shall be removed within the limits of excavation.
 5. Before performing any excavations, call Alaska Digline at 811, (800) 478-3121, or (907) 278-3121.

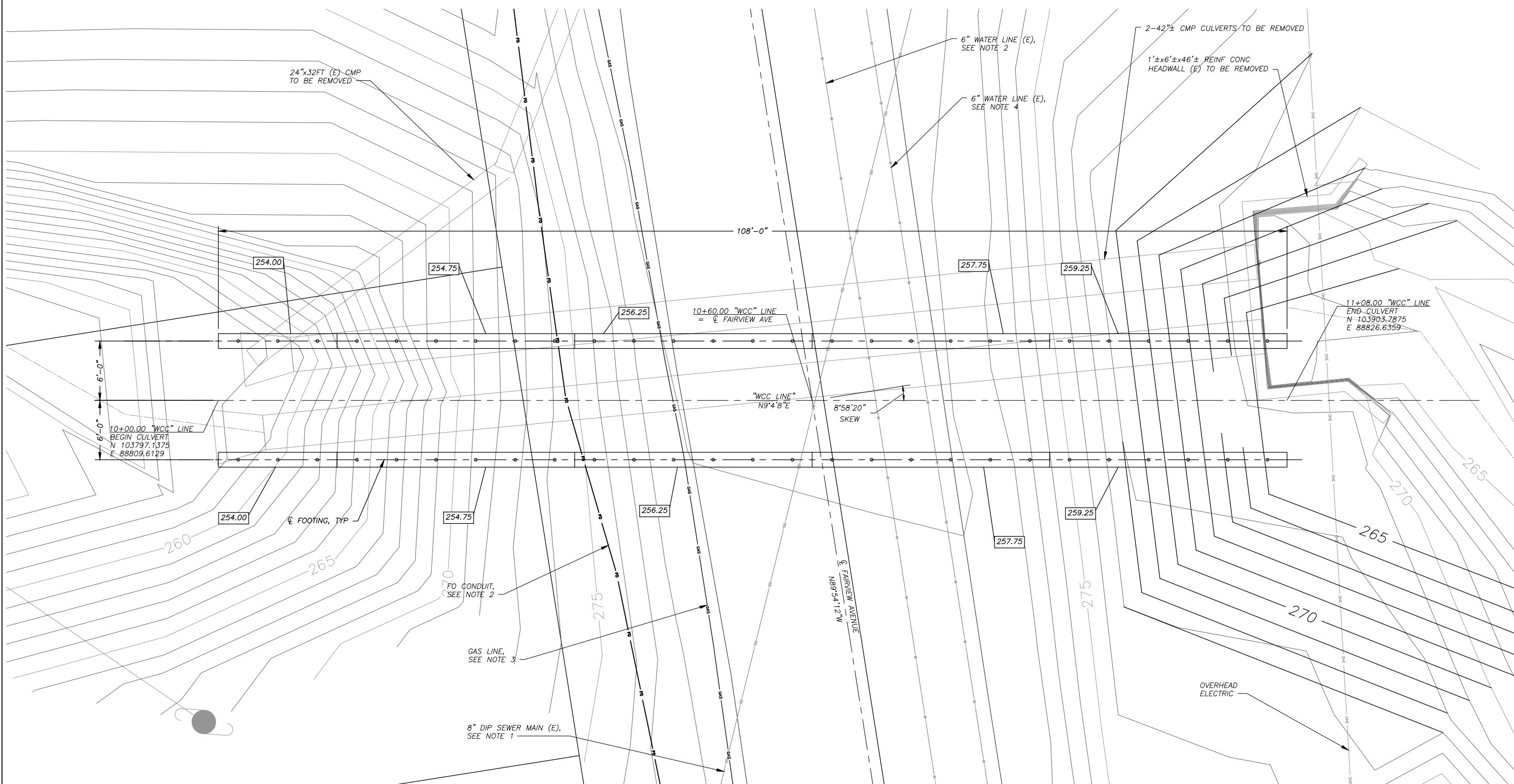
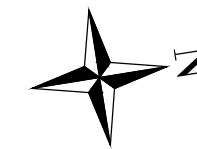


WOODARD CREEK CULVERT AT FAIRVIEW AVENUE (REPLACE)
 Homer, Alaska
GENERAL PLAN

BISHOP ENGINEERING, LLC
 PO BOX 2501 HOMER, ALASKA 99603
 (907) 299-7609

DATE: 11/6/2020
 CHK'D: JSB
 SCALE: As Noted
 PROJ. NO.: 2020142

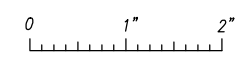
SHEET NO.:
S-1



LEGEND:
 DENOTES BOTTOM OF FOOTING ELEVATION

PLAN
 1"=5'-0"

- NOTES:**
1. Utility to be relocated. Utility may be temporarily shut down during construction.
 2. Utility to be rerouted onto support bridge and remain in service during construction.
 3. Utility to be protected in place and remain in service during construction.
 4. Utility is abandoned and shall be removed within the limits of excavation.
 5. Before performing any excavations, call Alaska Digline at 811, (800) 478-3121, or (907) 278-3121.



WOODARD CREEK CULVERT AT FAIRVIEW AVENUE (REPLACE)
 Homer, Alaska
 FOUNDATION PLAN

BISHOP ENGINEERING, LLC
 PO BOX 2501 HOMER, ALASKA 99603
 (907) 299-7609

DATE: 11/6/2020
 CHK'D: JSB
 SCALE: As Noted
 PROJ. NO.: 2020142

SHEET NO.:
 S-2

Conceptual Cost Estimate
Fairview Ave Woodard Creek Culvert Replacement

Assumptions:
 1/4 excavated material can be reused
 June-July Construction (2021)

	Units	Quantity	Unit Price	Cost
Mob/Demobilization	LS	1	\$65,000	\$65,000
Traffic Control	LS	1	\$16,500	\$16,500
Construction Survey	LS	1	\$18,500	\$18,500
Pavement Removal	SF	3000	\$3	\$9,000
Excavation (Offsite Disposal)	CY	1450	\$15	\$21,750
Remove Headwall/Existing Culvert	LS	1	\$17,500	\$17,500
F&I 60"x72" Pipe Arch Culvert	LF	65	\$300	\$19,500
Replace Headwall	LS	1	\$19,000	\$19,000
Outlet Erosion Control	LS	1	\$11,000	\$11,000
Classified Backfill	CY	1100	\$33	\$36,300
Geotextile Fabric	SF	3000	\$2.50	\$7,500
Slope Erosion Control	LS	1	\$11,000	\$11,000
Pavement Replacement	SF	3000	\$6	\$18,000
Protect Sewer Main	LS	1	\$25,000	\$25,000
Protect Water Mian	LS	1	\$40,000	\$40,000
Protect Gas main	LS	1	\$30,000	\$30,000
Protect Fiber Optic Cable	LS	1	\$15,000	\$15,000
Bypass Stream Flow	LS	1	\$30,000	\$30,000

Total Construction **\$410,550**

Design (12%) \$49,266.00

Permitting (4%) \$16,422.00

Inspection (5%) \$20,527.50

Contingency (8%) \$32,844.00

Total Project Cost **\$529,610**

	HART - Roads spent or obligated
Fund Balance thru 3/31/20	\$ 5,995,992.62
Fund balance remaining - \$4,517,992	\$ 4,617,314.62
Fuel Island Replacement - \$95,000	\$ 95,000.00
Small Works Drainage Improvement Program - \$110,000	\$ 110,000.00
Small Works Road Repair Program - \$175,000	\$ 175,000.00
Main Street Storm Drain and Sidewalk Project - Pioneer Avenue North - \$98,000	\$ 98,000.00
Update 1979 Drainage Management Plan - \$90,000	\$ 90,000.00
HSWCD Consulting Contract - \$25,000	\$ 25,000.00
Horizon Court Landslide	\$ 20,000.00
Woodard Creek Culvert - \$500,000	\$ 350,000.00
Mt. Augustine Drainage Improvements	\$ 97,000.00
Road elements of Seawall Armor Rock Revetment project	\$ 46,678.00
Requests for grader and two sanding trucks	\$ 272,000.00
Total Projects Spent or Obligated	\$ 1,378,678.00

