SHANNON & WILSON

July 10, 2023

Mr. Peter Campbell
Alaska Department of Environmental Conservation
43335 Kalifornsky Beach Road, Suite 11
Soldotna, Alaska 99669

RE: WORK PLAN FOR SITE CHARACTERIZATION; PORT GRAHAM OCEAN OUTFALL CONSOLIDATION, PORT GRAHAM, ALASKA

Dear Mr. Campbell,

On behalf of the Alaska Native Tribal Health Consortium (ANTHC) and our client, HDL Engineering Consultants, LLC (HDL) we are pleased to submit this work plan to conduct site characterization activities for the Port Graham Ocean Outfall Consolidation project located in Port Graham, Alaska. A vicinity map is included as Figure 1.

## BACKGROUND

We understand that the ANTHC intends to construct sewer mains in Port Graham, Alaska. A portion of the sewer construction project, from Manhole 19 to Manhole 20, will take place adjacent to an active Alaska Department of Environmental Conservation (ADEC) Contaminated Site "Port Graham Village Corp. Diesel Spill" (ADEC File # 2327.38,002). A design drawing showing the relevant portion of the sewer alignment is provided as Attachment 1.

During the construction project, ANTHC will excavate soil and bedrock along the alignment to install a sewer pipe. Shannon & Wilson will prepare a Soil Management Plan (SMP) which will detail screening, sampling, and management procedures for the potentially contaminated soil which may be encountered during the construction project in 2024. We have prepared this site characterization work plan for use in the creation of the SMP and to assist with identifying soil disposal options prior to the start of construction.

## PROJECT ACTIVITIES

The project will consist of advancing test pits, field screening, analytical sampling, and reporting. Test Pits will be advanced by ANTHC. Soil samples will be submitted to SGS North America Inc. (SGS), in Anchorage, Alaska for laboratory analysis. Shannon & Wilson will provide a Qualified Environmental Professional (QEP), as defined by 18 Alaska Administrative Code (AAC) 75.333(b), to conduct soil screening and analytical sampling.


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■ www.shannonwilson.com ■

## Test Pits

Six test pits will be advanced by ANTHC along the sewer alignment from Manhole 19 to Manhole 20. If time allows, additional test pits may be advanced along the sewer alignment towards Manhole 18. The test pits will be advanced to the depth of disturbance during construction, which is approximately 6 to 8 feet below ground surface (bgs). Soil will be temporarily stockpiled on the ground surface directly next to the test pits.

Field screening samples will be collected at approximately 2-foot intervals until the target depth is reached. Each soil sample will be visually described and "screened" for volatile organic compounds (VOCs) using a photoionization detector (PID) and ADEC-approved headspace screening techniques. The field screening samples will be collected in re-sealable plastic bags, warmed to at least 40 degrees Fahrenheit, and tested within 60 minutes of collection. To screen, the sample will be agitated for about 15 seconds, then permitted to develop for a minimum of 10 minutes before screening. Prior to screening, the sample will be agitated a second time, the seal of the bag will be opened slightly, the instrument probe will be inserted into the air space above the soil, and the bag held closed around the probe. The maximum ionization response as the PID draws vapor from the sample bag will be recorded. The PID will be calibrated with 100 parts per million (ppm) isobutylene in air standard gas.

Six soil samples will be submitted for laboratory analysis. The samples will be collected from a selection of test pits and depth intervals to assist with determining if contaminated soil is present in the proposed sewer alignment, as determined by the professional judgement of the Shannon & Wilson QEP and ANTHC Superintendent.

Analytical samples will be collected by quickly and completely filling laboratory-provided glass jars in decreasing order of volatility. For each volatile sample, at least 25 grams of soil, but no more than what can be completely submerged with 25-milliliters of methanol, will be placed into a pre-weighed, 4-ounce jar with a septa lid. A 25-milliliter aliquot of methanol containing laboratory-added surrogates will be added to the sample jar to submerge the soil sample. For each non-volatile sample, the laboratory-supplied jar will be completely filled with soil, taking care to exclude gravel and debris. Sample jars will be filled using dedicated stainless-steel spoons, placed in coolers with ice packs, and transferred to the laboratory using chain of custody procedures.

Soil samples will be analyzed for gasoline range organics (GRO) by Alaska Method (AK) 101, diesel range organics (DRO) by AK 102, VOCs by Environmental Protection Agency

(EPA) Method 8260D, and polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D SIM. For quality control purposes, one duplicate sample will be collected. The duplicate sample will be submitted blind to the laboratory. In addition, one trip blank per cooler containing volatile samples will be submitted for analysis.

After collection of screening and analytical samples, the test pits will be backfilled with the excavated soil. Soil will be backfilled to a similar depth from which it was excavated.

## Reporting

A report will be prepared summarizing our field activities and analytical results. The report will include a description of field procedures, a scaled site plan showing sample locations and analytical results, field notes, photographs taken during field activities, ADEC Laboratory Data Review Checklists (LDRCs), and tabulated field screening and laboratory analytical results. The report will also include conclusions and recommendations for use in the SMP, as appropriate.

# CHEMICAL QUALITY CONTROL PROCEDURES

## Quality Control Samples

Chemical data quality for this project will be assessed by comparing quality control sample results to pre-established numerical data quality objectives (DQOs).

### Field Samples

A trip blank sample, prepared by the project laboratory, will accompany each sample cooler containing samples for volatile analysis. The trip blank sample will remain in the cooler during the entire sampling process. Evaluation of the analytical results of the trip blank sample will determine if volatile contaminants have been introduced to the samples from an external source or from cross-contamination during sample transport and analyses.

### Laboratory Samples

Laboratory quality control samples include method blanks, laboratory control samples/laboratory control sample duplicates (LCS/LCSD), matrix spikes/matrix spike duplicates (MS/MSD), and surrogates. The MS/MSD samples will be selected by the laboratory and separate project samples specifically for MS/MSD analysis will not be collected. LCS/LCSD, MS/MSD, surrogate quality assurance data, and qualifiers not meeting laboratory's DQOs will be noted in the laboratory reports.

## Measurement Quality Objectives for Chemical Data

Data quality for this project will be assessed using internal laboratory procedures and field quality control data, in general accordance with the EPA's National Functional Guidelines for Inorganic Data Review and National Functional Guidelines for Organic Data Review. The quantitative Measurement Quality Objectives (MQOs) for this project will be used to assess precision and accuracy.

### Precision

Precision is the mutual agreement of discrete measurements of the same property, under similar conditions. For the purposes of this program, precision will be expressed as the relative percent difference (RPD) between primary and duplicate quality control samples, including the MS/MSD and LCS/LCSD results.

The RPD will be calculated by dividing the absolute difference between the values by their mean and multiplying by 100:

$$RPD = \frac{(|X_1 - X_2|)}{\frac{(X_1 + X_2)}{2}} \times 100$$

Where $X_1$ and $X_2$ are the primary and duplicate values, respectively.

### Accuracy

Accuracy is the degree of agreement of a measured value with the true or expected value of the measured quantity. The accuracy of control sample measurements is generally expressed as a percent recovery (%R).

For surrogates and samples without a background level of the analyte in the sample matrix, such as reference materials and LCS, the percent recovery is calculated from:

$$\%R = \frac{X}{T} \times 100$$

Where $X$ is the measured concentration and $T$ is the true or expected concentration.

The percent recovery for measurements in which a known amount of analyte is added to an environmental sample (such as MS/MSD) is calculated from:

$$\%R = \frac{X - B}{T} \times 100$$

Where $B$ is the background concentration of the spiked analyte in environmental sample and $X$ and $T$ are as defined above.

Accuracy will be determined for surrogate, MS/MSD, and LCS/LCSD spike recoveries and results will be included in the laboratory report. The data from each analytical batch will be compared to the laboratory control limits that are provided in each laboratory report, and the method-specified control limits for certain analytes (e.g. DRO).

## Sensitivity

Sensitivity is the ability of the laboratory methods to detect the analyte in the samples. Because the method detection limit is not generally practicable for environmental samples, sensitivity is evaluated using the laboratory limit of quantitation. The limit of quantitation (LOQ) values are effective reporting limits and are based on the method detection limits adjusted for dilutions, matrix inference, and other sample-specific considerations. Note that concentrations less than the LOQ are reported as estimates and concentrations not detected at the maximum detection limit are reported as non-detect at the level of detection.

## Blank Samples

Trip blank and method blank samples will be analyzed to check for possible contributions to the analytical results from cross-contamination between samples, or from sample-contamination from an outside source. If an analyte is reported in a method blank, all samples in the corresponding preparatory batch will be evaluated for that analyte. If an analyte is reported in a trip blank, all samples in the corresponding cooler will be evaluated for the detected analyte and, if necessary, qualified, as outlined below.

| Concentration in blank (y) | Concentration in corresponding project sample (z) | Action |
|---|---|---|
| DL < y < 2x LOQ | z = Not detected | No qualification |
| | z < LOQ | Flag "B" and report as nondetect at the LOQ |
| | LOQ ≤ z < 5y | Flag "B" and report as nondetect at the detected result (z) |
| | 5y ≤ z < 10y | Flag "B" and report at the detected result (z) |
| | 10y ≤ z | No qualification |
| y ≥ 2x LOQ | z = Not Detected | No qualification |
| | z = Detect | Reject |

DL = detection limit, LOQ = limit of quantitation

### Comparability/Representativeness

For the purpose of obtaining quality data, the sampling program design facilitates collection of sample data representative of environmental conditions at the project site. Comparability will be maintained by consistency in sampling conditions, selection of sampling equipment and procedures, sample preservation methods, analytical methods, trip blank analysis, and data reporting units.

## Data Assessment

For each chain-of-custody, the project lab will provide a Level II data deliverables package. The data will be reviewed and compared to the project's numerical MQOs. Any MQOs not met, through our evaluation, will be identified in the report and the effects, if any, on the usability of the data will be described.

## PROJECT SCHEDULE

We understand that ANTHC has tentatively planned to advance the test pits on July 19, 2023, pending approval of this work plan by the ADEC. Our draft report will be submitted within one month of receipt of the analytical laboratory data.

If you have any questions or comments, please contact the undersigned at (907) 561-2120.

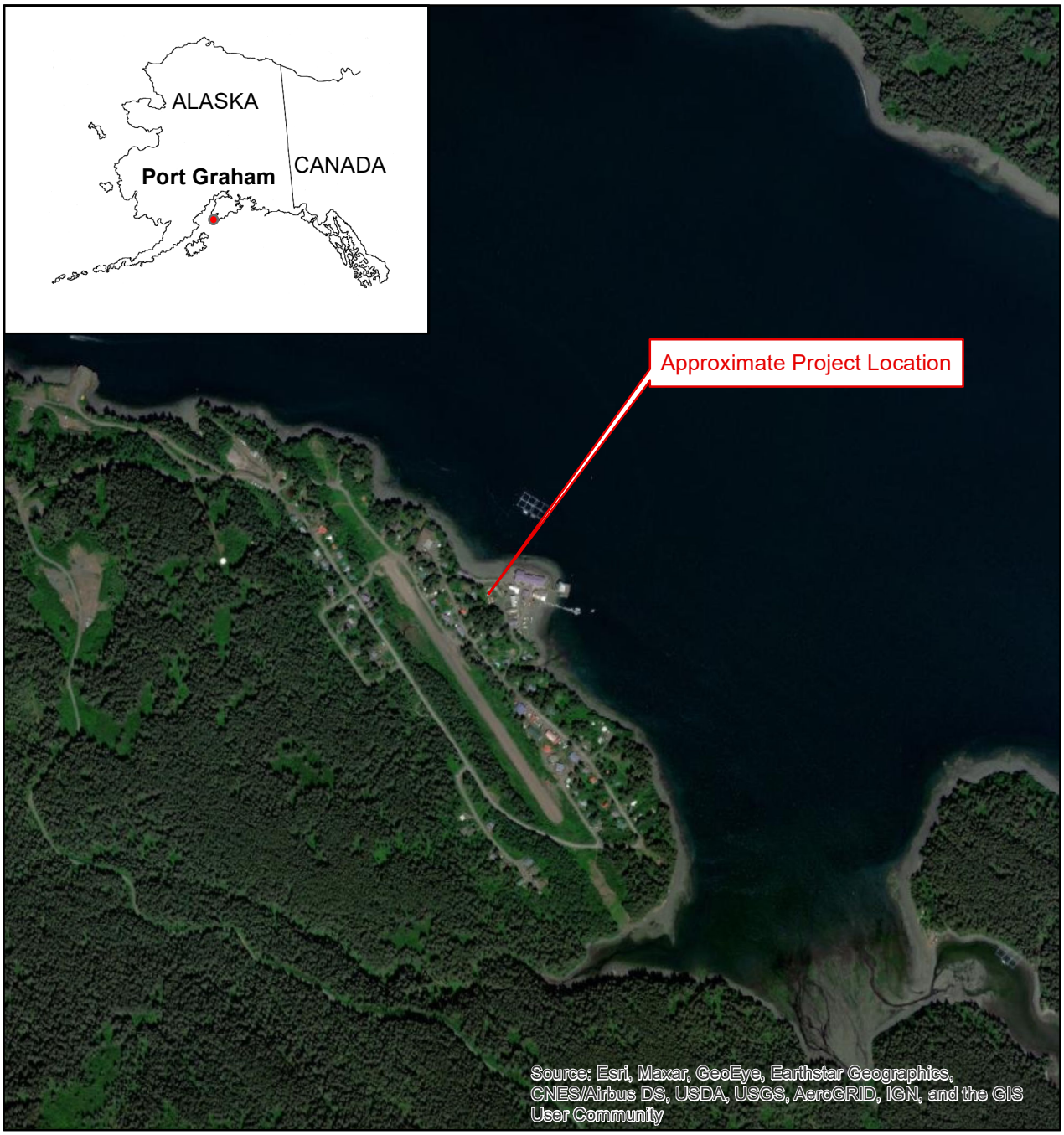
Sincerely,

SHANNON & WILSON

Digitally signed by
Alex Geilich
Date: 2023.07.10
12:03:20 -08'00'

Alex Geilich
Senior Environmental Scientist

Enc. Figure 1
Attachment 1

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Miles

Port Graham Ocean Outfall Consolidation
Port Graham, Alaska

**VICINITY MAP**

July 2023

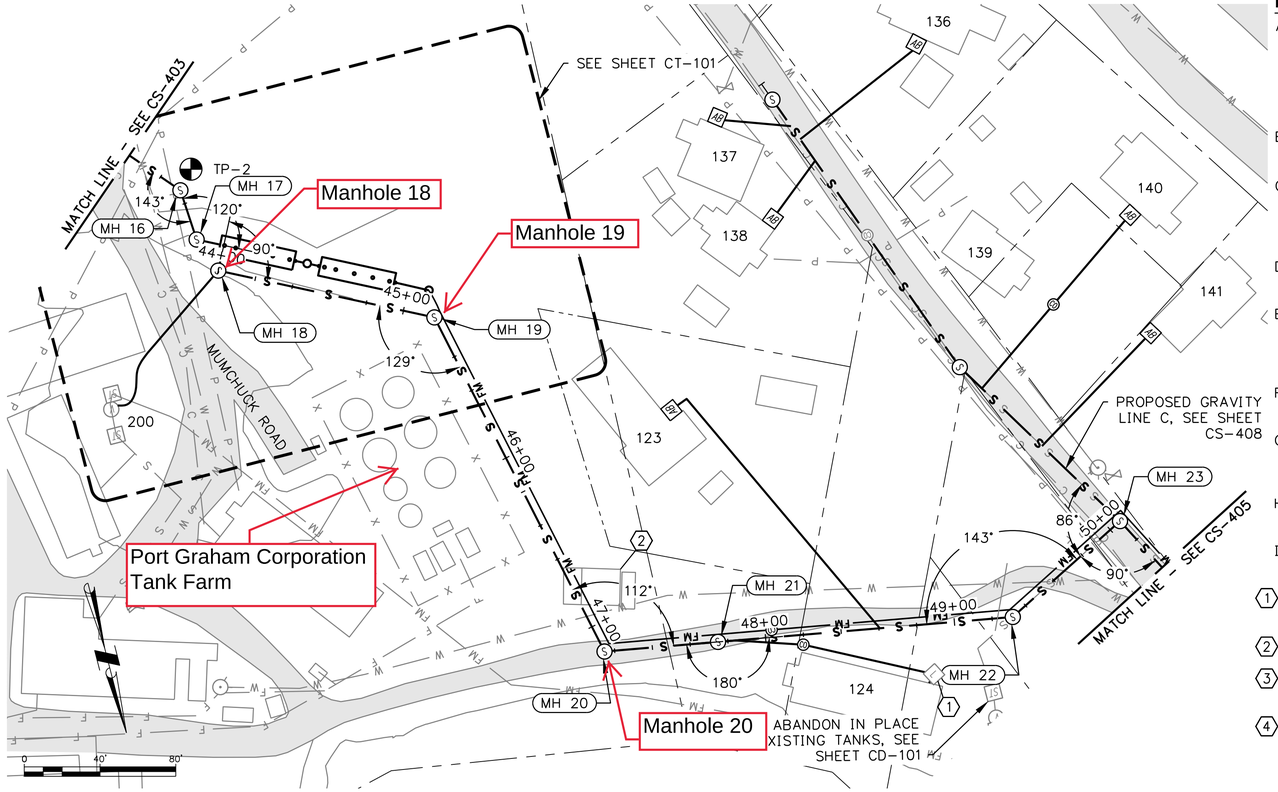
110918-001

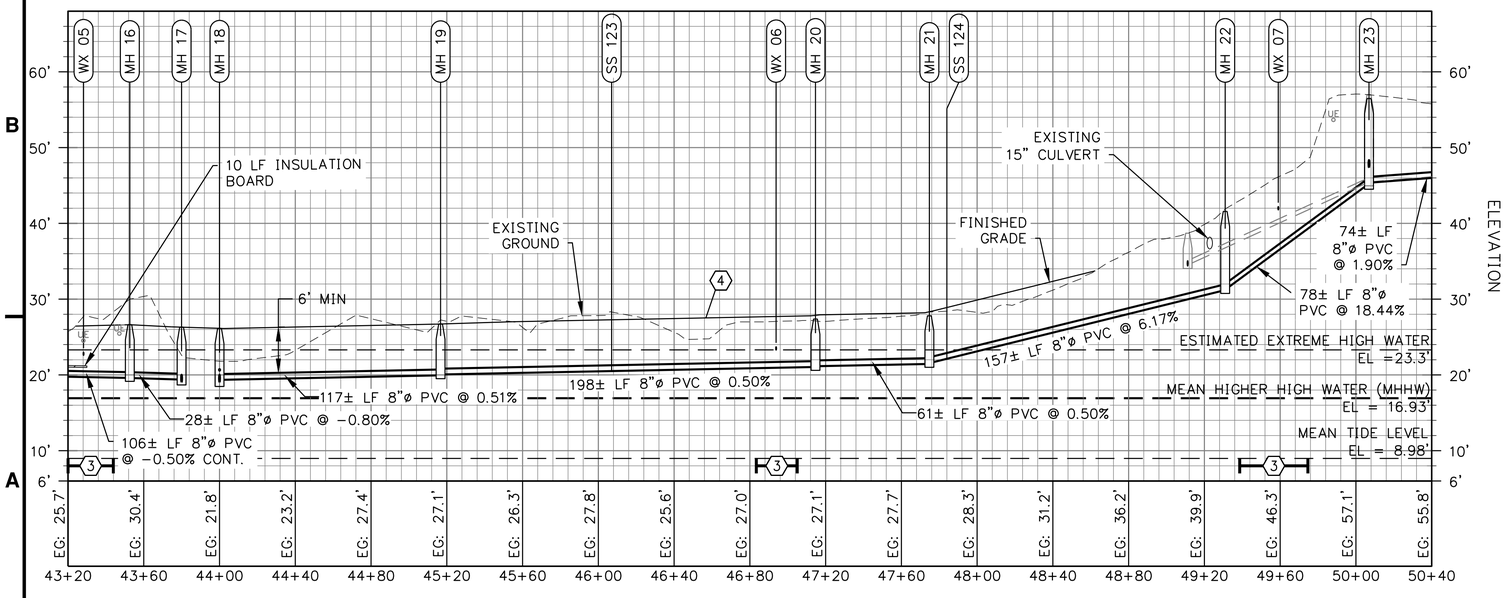
SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

**FIG. 1**

Attachment 1

# Design Drawing




## NOTES:

A. CONTRACTOR MAY ENCOUNTER BEDROCK IN AREAS WHERE GRAVITY MAIN ALIGNMENT HAS NOT BEEN DISTURBED FROM PREVIOUS CONSTRUCTION OR WHERE PIPE ELEVATION IS LOWER THAN EXISTING SEWER MAIN. SEE GEOTECHNICAL REPORT.

B. SEE SHEET CF-402 FOR PROPOSED FORCE MAIN PLAN AND PROFILE.

C. INSTALL 4" THICK X 6' WIDE RIGID INSULATION BOARD CENTERED OVER THE PIPE WHERE 6' BURIAL DEPTH CANNOT BE ACHIEVED. INSULATION NOT SHOWN IN PLAN FOR CLARITY.

D. SEE SHEET CD-101 FOR REMOVAL OF EXISTING FACILITIES.

E. EXISTING UTILITIES ARE SHOWN IN APPROXIMATE LOCATION. PROTECT IN PLACE AND WORK AROUND ALL EXISTING UTILITIES NOT SPECIFICALLY INDICATED TO BE RELOCATED.

F. SEE SHEET G-004 FOR SEWER SERVICE INFORMATION.

G. APPROXIMATE SEWER SERVICE ALIGNMENTS SHOWN, ADJUST ALIGNMENT AS NECESSARY TO ACCOMPLISH CONSTRUCTION.

H. MANHOLE LAYOUT IS TO CENTER OF STRUCTURE UNLESS NOTED OTHERWISE.

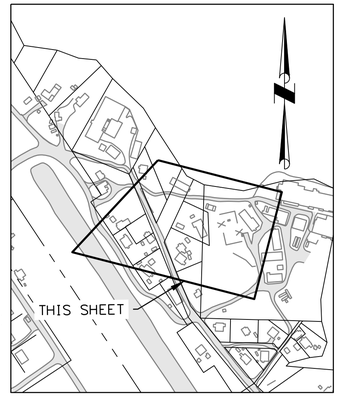
I. GRADE AREA TO ALLOW FOR POSITIVE DRAINAGE AND SLOPE TO EXISTING GRADE.

(1) EXISTING LIFT STATION TO BE REMOVED. INSTALL NEW SERVICE CONNECTION, SEE G-004.

(2) RELOCATE EXISTING STRUCTURES.

(3) HORIZONTAL SEPARATION DISTANCE WAIVER AREAS, SEE SHEET C-501.

(4) FURNISH AND INSTALL ADDITIONAL FILL MATERIAL AS REQUIRED TO PROVIDE 6' MIN COVER OVER PROPOSED GRAVITY SEWER LINE.




**VICINITY MAP**

### CROSSINGS

| ID # | STA | DESCRIPTION |
|---|---|---|
| WX 05 | 43+28± | WATER MAIN CROSSING |
| WX 06 | 46+94± | WATER MAIN CROSSING |
| WX 07 | 49+59± | WATER MAIN CROSSING |

### NEW STRUCTURES

| ID # | STA | DESCRIPTION | COORDINATES |
|---|---|---|---|
| MH 16 | 43+52.6 | CONVENTIONAL MANHOLE<br>RIM=26.6<br>INV IN=19.61<br>INV OUT=19.58 | N=1958992.4'<br>E=1299112.1' |
| MH 17 | 43+80.0 | TERMINAL MANHOLE<br>RIM=26.3<br>INV IN=19.40<br>INV OUT=19.20 | N=1959019.7'<br>E=1299110.3' |
| MH 18 | 44+00.0 | TERMINAL/TRANSITION MANHOLE<br>RIM=26.1<br>INV IN=19.40<br>INV OUT=18.97 | N=1959038.4'<br>E=1299103.3' |
| MH 19 | 45+16.7 | CONVENTIONAL MANHOLE<br>RIM=26.7<br>INV IN=20.07<br>INV OUT=19.94 | N=1959090.8'<br>E=1298998.9' |
| MH 20 | 47+14.6 | CONVENTIONAL MANHOLE<br>RIM=27.4<br>INV IN=21.16<br>INV OUT=21.04 | N=1959284.0'<br>E=1298955.9' |
| MH 21 | 47+74.8 | CONVENTIONAL MANHOLE<br>RIM=27.4<br>INV IN=21.71<br>INV OUT=21.44 | N=1959294.0'<br>E=1298896.6' |
| MH 22 | 49+31.0 | CONVENTIONAL MANHOLE<br>RIM=41.6<br>INV IN=31.68<br>INV OUT=31.06 | N=1959320.0'<br>E=1298742.6' |
| MH 23 | 50+06.9 | CONVENTIONAL MANHOLE<br>RIM=56.5<br>INV IN=46.72<br>LINE C INV IN=45.64<br>INV OUT=45.41 | N=1959285.1'<br>E=1298675.2' |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STATE OF ALASKA — DAVID EUGENE COOPER — No. CE-13892 — REGISTERED PROFESSIONAL ENGINEER — 49th

0 1"

BAR IS ONE INCH ON ORIGINAL DRAWING, IF NOT ADJUST SCALES ACCORDINGLY

**PORT GRAHAM, AK**
**OUTFALL CONSOLIDATION**
**ISSUED FOR CONSTRUCTION**

| INIT | DESCRIPTION | DATE |
|---|---|---|
| MRK | ISSUED FOR CONSTRUCTION | MAY 2020 |

| | |
|---|---|
| PLAN SET: | PGM-17-006 |
| PROJ MGR: | DEC |
| PROJ ENG: | DEC |
| DRUMS ENG: | ---- |
| DRAWN BY: | CMC |

SHEET TITLE

**GRAVITY MAIN PLAN AND PROFILE STA 43+20 TO STA 51+40**

**CS-404**

SHEET 5 OF 17

## A1 PLAN AND PROFILE - GRAVITY MAIN

HORZ. SCALE 1" = 40'
VERT. SCALE 1" = 10'