

GENERAL CONSTRUCTION  
CONTRACT DOCUMENTS

FOR

**SOUTH TONGASS WATER LINE IMPROVEMENTS  
PHASE V**

ISSUED FOR CONSTRUCTION

BY:

KETCHIKAN GATEWAY BOROUGH  
KETCHIKAN, ALASKA

PREPARED BY:

R&M ENGINEERING-KETCHIKAN, INC.  
KETCHIKAN, ALASKA

AUGUST, 2011

**KETCHIKAN GATEWAY BOROUGH**  
**SOUTH TONGASS WATER LINE IMPROVEMENTS PHASE V**

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**SECTION 1**

**NOTICE TO CONTRACTORS INVITING BIDS**

**KETCHIKAN GATEWAY BOROUGH  
INVITATION FOR BID**

**SOUTH TONGASS WATER IMPROVEMENTS  
PHASE V**

**THIS IS NOT AN OFFER**

**RELEASE DATE: "August 6, 2011"**

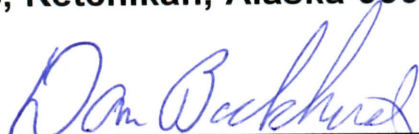
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The Ketchikan Gateway Borough (Borough) is soliciting sealed bids from qualified individuals, firms, or companies for:

**SOUTH TONGASS WATER IMPROVEMENTS  
PHASE V**

To receive the Invitation for Bid ), please contact: 907-228-6637, Office of the Borough Manager, Ketchikan Gateway Borough, 1900 First Avenue, Suite 210, Ketchikan, Alaska 99901. Requests for the IFB documents may be faxed to 907-228-6684 or emailed to [amyb@kgbak.us](mailto:amyb@kgbak.us). The IFB documents will also be posted on the Borough's website, <http://www.kgbak.us/>. Even though the IFB documents are provided online, each firm must register with the Borough by sending an email to: Amy Briggs, Purchasing Officer [amyb@kgbak.us](mailto:amyb@kgbak.us). **Bids from unregistered respondents will not be accepted.** The required email must include the firm name, address, telephone number, and fax number. No faxed or oral bids will be allowed.

**Bid Submission Deadline: To be considered, a complete sealed bid package in the format requested **must be received at the Office of the Borough Clerk, 1900 First Avenue, Suite 115, Ketchikan, Alaska 99901 by 3:00 PM local time, September 6<sup>th</sup>, 2011****

  
\_\_\_\_\_  
Dan Bockhorst  
Borough Manager

Borough Manager

**SECTION 2**

**SUBMITTALS**

## SUBMITTALS

### DEADLINE

All Bids must be received by the Borough no later than the date outlined in this IFB.

### SUBMITTALS

One copy of the bid documents must be submitted in a sealed envelope or box clearly marked on the outside with the project name, and must be delivered to the address outline, and in the required format, on or before the deadline.

One copy of price proposal must be submitted in a **separate sealed envelope or box** clearly marked on the outside with the project name, and must be delivered to the address outline, and in the required format, on or before the deadline.

Each price-proposal component must be signed and dated by the person who prepares it. If that person is not authorized to bind the respondent, the price-proposal component must also be signed by a person who is authorized to bind the respondent.

Surety bond, if required, shall be included in the **separate sealed envelope or box** containing the price proposal component.

***Respondent's failure to submit its bid prior to the deadline will cause the bid to be disqualified. Late bids or amendments will not be opened or accepted for evaluation. Bids submitted by fax will not be accepted.***

### BID DOCUMENTATION FORMS

To be considered, respondents must complete, sign, and include the bid Documentation Forms provided in the IFB with submitted bids.

### REQUIRED SIGNATURES

NOTE: The price-bid component forms must be signed and dated by a person who is authorized to bind the respondent.

In addition to the price-bid component, the bid itself must also be signed by a person who is authorized to bind the respondent. Specifically:

1. A bid by a corporation shall be executed in the corporate name by the president, vice-president, or other corporate officer. Evidence of authority to sign must also be provided. Such evidence may be in the form of a copy of the corporate bylaws, articles of incorporation, resolution of the board, corporate certificate, or other reliable evidence.
2. A bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence

of authority to sign. Evidence of authority to sign may be in the form of a copy of the partnership agreement or other reliable evidence.

3. A bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. Such evidence may be in the form of a copy of the corporate bylaws, articles of incorporation, resolution of the board, corporate certificate, or other reliable evidence.
4. A bid by an individual shall show the bidders' name and business address.

Failure to provide evidence of authority to sign on behalf of the respondent will not be grounds for rejection if the Borough is able to confirm the authority of the signer to bind the respondent.

### **INQUIRY DEADLINE**

Questions, objections, or protests relating to defects, errors, omissions regarding the project or this IFB should be submitted in writing no later than the date and time specified in this IFB. Substantive issues will be addressed in a written addendum to the IFB.

Address questions to:

**Borough Procurement Officer  
Amy Briggs  
Telephone: 907-228-6637  
Fax: 907-228-6684  
E-mail: amyb@kgbak.us**

### **DELIVERY INSTRUCTIONS**

Bids must be received by the Borough Clerk by the deadline specified in this IFB.

Be aware that Ketchikan is considered a remote location and, as such, mail and special deliveries by couriers to Ketchikan are commonly delayed beyond the advertised guaranteed arrival of carriers and couriers.

Bids must be delivered to:

**Borough Clerk  
Kacie Paxton  
Ketchikan Gateway Borough  
1900 First Avenue, Suite 115  
Ketchikan, Alaska 99901**

## **SECTION 3**

### **INSURANCE AND LEGAL REQUIREMENTS**

## INSURANCE AND LEGAL REQUIREMENTS

### INSURANCE

Before execution of a contract, and during the entire period of the project, the contractor shall provide the types of insurance listed below. All policies shall have a mandatory 30-day cancellation clause. The Borough shall be named as additional insured on all insurance policies except professional liability policies. Insurance certificates will be required to be submitted for review by the Borough's Risk Manager before the Borough will issue a notice to proceed. Unless specifically marked "not applicable" or "n/a", the following insurances are required:

\_\_\_\_\_ Workers' compensation as required by law and employer's liability coverage at a minimum of \$1,000,000. The Workers' compensation policy shall include a Waiver of Subrogation in favor of the Ketchikan Gateway Borough.

\_\_\_\_\_ Commercial general liability insurance, not excluding explosion, contractual liability or product/completed operation liability insurance - \$1,000,000 per occurrence and \$2,000,000 aggregate.

\_\_\_\_\_ Comprehensive automobile liability, bodily injury and property damage, including all owned, hired and non-owned, automobile - \$1,000,000 per each accident.

N/A Professional liability insurance covering errors and omissions at \$1,000,000 per claim.

N/A Builder's all risk (course of construction) in the amount of 100% of the total contract amount, including change orders, as well as materials in place and/or stored at the site, whether or not partial payment has been made by the Borough. Deductible to be no more than 10% of the total contract amount.

### SURETY REQUIREMENTS

All projects \$25,000 and over are subject to surety requirements as outlined below.

\_\_\_\_\_ IF checked, the Borough has waived the surety requirements for this project, and doing so is deemed to be in the Borough's best interest.

**BID BOND:** Bidder shall submit with their bid or price bid component, a bid bond accompanied by Power of Attorney, or cashier's check. Bids or price bids between \$25,000 and \$100,000 require a surety of 10% of the total bid or price bid. Bids or price bids greater than \$100,000 require a surety of 5% of the bid or price bid.

**PERFORMANCE BOND:** Performance Bonds are required on any and all contracts over \$100,000. All Performance Bonds will be in the amount of 100% of the contract.

**PAYMENT BOND:** Payment Bonds are required all construction contracts involving the use of subcontractors, where the total amount of the contract is \$100,000 or more. Payment Bonds shall be in the amount of 100% of the contract amount.

**BONDING INSURANCE:** The Bidder whose bid is accepted shall execute the Contract and furnish the required bonding insurance within ten working days after Notice of Award of the Contract is issued. The Contract shall be considered executed by the successful bidder when two copies of the Contract, signed by an authorized representative of the Contractor, the bond and required insurance are received by the Purchasing Officer. Failure or neglect of the Contractor to execute the Contract within the time specified may result in a forfeiture of the bid Guarantee and award of the Contract to the next lowest bidder.

### **LABOR AND WAGE RATES**

Respondents must comply with all State of Alaska Department of Labor and Workforce Development Labor Laws and Wage Rates as specified in AS 36.05.010 and AS 36.10 as applicable.

### **LICENSES AND REGISTRATION**

Before execution of a contract, the successful bidder or bidder must have a current State of Alaska business license; must have a current sales tax registration on file with the Borough, and must be in good standing in terms of sales tax, property tax, and all other taxes, fees, and monies due to the Borough.

### **COMPLIANCE WITH LAWS**

The Contractor shall observe and abide by all applicable laws, regulations, ordinances and other rules of the State of Alaska and/or any political subdivisions thereof, or any other duly constituted public authority wherein work is done or services performed, and further agrees to indemnify and save the Borough harmless from any and all liability or penalty which may be imposed or asserted by reason of the Contractor's failure or alleged failure to observe and abide thereby.

### **BIDDER CERTIFIES**

The bidder certifies that any and all prices which may be charged under the terms of this bid request do not and will not violate any existing federal, state, or municipal laws or regulations concerning price discrimination and/or price fixing. The bidder agrees to indemnify, exonerate, and hold harmless the Borough from liability for such violation now and throughout the term of the contract.

### **BIDDER RESPONSIBLE**

It is the responsibility of the Bidder to investigate and acquaint themselves with the conditions relating to the work and labor, including (if required) site visits, soil sampling, or other tests.

## **REJECTION OF BIDS**

The Ketchikan Gateway Borough (Borough) reserves the right to reject any or all bids. The Borough also reserves the right to reject any bid which is non-responsive, incomplete, obscure or irregular; any bid which omits any one or more items on which the bids are required; any bid in which unit prices are unbalanced in the opinion of the Borough; and any bidder who previously failed to perform properly or to complete on time contracts of any nature.

## **ADDENDA ACKNOWLEDGMENTS**

Addenda must be acknowledged in order for the bid to be deemed responsive. Addenda may also be acknowledged by written or facsimile notice to (907) 228-6697, provided such notice is received two (2) hours prior to the date and time set for receipt of bids, and, provided further, a written confirmation of the acknowledgment is mailed or shipped via overnight services to the Borough prior to the bid closing time.

## **WRITTEN WORDS**

In the case of a difference between written words and figures, the amount stated in written words shall govern. In the case of a difference between a unit price and the extended price, the unit price shall govern.

## **MODIFICATIONS**

Bids may be modified by written or facsimile notice to (907) 228-6697, provided such modifications are received prior to the date and time set for receipt of bids, and, provided further, a written confirmation of the modification is mailed or shipped via overnight service to the Borough prior to the bid closing time. The modification should not reveal the proposal price, but should provide the addition or subtraction (or other modification) so that the final price or terms will not be known to the Borough until the sealed price documentation is opened.

## **WITHDRAWAL OF BIDS**

Bids may be withdrawn only by written or facsimile notice to (907) 228-6697, provided such notice is received prior to the date and time set for receipt of bids, and, provided further, a written confirmation of the withdrawal is mailed or shipped via overnight service to the Borough prior to the bid closing time. Notice of withdrawals received after the bid opening will not be considered.

## **BID CANCELLATION**

The Borough reserves the right to cancel the procurement, IFB, or award without liability to the Bidder, except return of the bid security, at any time before the Agreement has been fully signed by all parties, including the Borough.

## **SECTION 4**

### **PROJECT OVERVIEW**

## PROJECT OVERVIEW

### PROJECT

This project is a continuation of water related improvements in the Mountain Point and Herring Cove Area. Phases I through IV installed water infrastructure to deliver raw water from Whitman Creek to the Mountain Point Water Treatment Plant as well as providing potable water to Herring Cove. This project will upgrade the pipes within Herring Cove to current standards.

### PROJECT GOALS

Provide potable water to all residents within the Herring Cove area and remove the permanent boil water notice for the existing system.

### PROJECT SITE

Mile 7 South Tongass Highway and Herring Cove including Old South Tongass Highway, Wood Road, Power House Road.

### PROJECT BUDGET AND FUNDING

This project is funded through the Alaska Department of Environmental Conservation drinking water grant and loan program.

### PROJECT SCHEDULE

- Invitation for Bids Issued: August 6<sup>th</sup>, 2011
- Deadline for questions, objections, or protests relating to defects, errors, omissions regarding the project or this IFB August 30<sup>th</sup>, 2011
- Bids Due: September 6<sup>th</sup>, 2011
- Notice of Intent to Award: September 8<sup>th</sup>, 2011
- Deadline for Appeal of Proposed Award: September 15<sup>th</sup>, 2011
- Approval of Contract Award by Assembly: September 19<sup>th</sup>, 2011
- Project Award September 20<sup>th</sup>, 2011

### SCOPE OF WORK

Construction of HDPE water lines in the South Tongass Service area at Herring Cove in South Tongass Highway, Wood Road, Power House Road and Old South Tongass Highway. Work includes installation of 6" water lines, services lines, fire hydrants, culverts, road resurfacing, and pavement patching. Refer to Specification Section 01010 Summary of Work and the contract drawings for additional information.

## **SECTION 5**

### **BID CHECKLIST**

## BID CHECKLIST

This BID Checklist is a summary of the forms and materials required as part of your firm's bid. Respondents are urged to thoroughly read the entire bid. It may be helpful to use this checklist to help ensure compliance with the submission requirements.

**Place a check mark (✓) in the box next to each qualification when completed.**

### PROCEDURAL QUALIFICATIONS

- Respondents must be registered (company name, address, telephone number, and fax number) with the Borough Procurement Officer as indicated in this solicitation.
- Bids must be received in the Office of the Borough Clerk no later than the date and time indicated in solicitation.

### FORM AND CONTENT OF BIDS

- Bids must be in a sealed envelope or box clearly marked with the name of the project on the outside of the envelope or box in order to be considered responsive.
- Respondents must list and acknowledge receipt of any Addenda issued on the Bid Documentation form by signing in the space provided.
- Respondents must fill out the Subcontractors List included in the Bid Documentation indicating the name(s) of any anticipated subcontractors for the proposed project. Use multiple pages if necessary. For portions of the work where a subcontractor will be selected by competitive proposals at a later date enter the type of Work to be subcontracted followed by "To be Determined". For example: "Electrical – To Be Determined". If the use of subcontractors is not anticipated, N/A or NONE is to be written on the form.
- Should the bidder have any deviations, modifications or proposed alternatives to the bid, they must be indicated on an Exception Summary included in the Bid Documentation. If there are no exceptions to the bid or any of the bids accompanying documents, N/A or NONE is to be written on the form.
- The Bid Documentation Forms must be signed by an individual authorized to bind the respondent. All bidders, other than individuals, must include evidence of authorization to sign on behalf of the corporation, partnership, limited liability company, or other organization. Failure to provide evidence of authority to sign on behalf of the respondent will not be grounds for rejection if the Borough is able to confirm the authority of the signer to bind the respondent.

## **SEPARATE SEALED PRICE PROPOSAL COMPONENT**

- One original of the Price Proposal must be submitted in a separate sealed envelope clearly marked "PRICE PROPOSAL COMPONENT FROM [NAME OF RESPONDENT] FOR [NAME OF PROJECT]. The separate sealed and marked envelope containing the price proposal must be placed within the sealed envelope or box containing the proposal. Price proposals must be submitted on the forms supplied.
- If required by the IFB, Respondents must provide a properly executed Bid Bond equal to 5% of the total amount shown on the Price Proposal. Use the Bid Bond Form included in the Price Proposal Form package. If a Bid Bond is not necessary for this project, N/A or NONE is to be written on the form.

**Completion of this checklist does not guarantee that a proposal will be considered to be responsive. The checklist is provided strictly as a courtesy to respondents.**

## **SECTION 6**

### **BID DOCUMENT FORMS**

# BID DOCUMENTATION FORMS

## GENERAL ACKNOWLEDGMENTS

### SOUTH TONGASS WATER IMPROVEMENTS PHASE V

Award of Project. The Borough shall have the right to reject this bid and such bid shall remain open and may not be withdrawn for a period of sixty (60) days after the date prescribed for its closing.

Notice of Acceptance. Notice of acceptance and award of the project or requests for additional information may be addressed to the undersigned Respondent at the business address set forth in this bid.

Minimum Standards. The required work and/or specifications attached herein shall be considered as the minimum standards acceptable to the Borough. Any deviations, modifications, or alternatives proposed shall be specified and clarified by the respondent on the provided form as an EXCEPTION SUMMARY. Insufficient information pertaining to exceptions shall be at the respondent's risk and may result in rejection of the bid.

Respondent certification.

By signature on this bid documentation, the undersigned respondent certifies that:

- a. The respondent will comply with all insurance requirements in this IFB;
- b. The respondent will comply with all applicable local, state, and federal laws, including but not limited to, wage and hour laws and non-discrimination laws;
- c. The respondent will comply with all terms and conditions set out in this IFB;
- d. The respondent's bid was independently arrived at, without collusion, under penalty of perjury; and
- e. The bid will remain open and valid for at least 60 days from the closing date of the IFB.

Receipt of Addenda. Receipt of the following Addenda to the IBF Documents is hereby acknowledged.

ADDENDA NO.	DATE OF RECEIPT OF ADDENDA	SIGNED ACKNOWLEDGMENT
1	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____

(Note: Failure to acknowledge receipt of any addenda will be considered an irregularity and will result in rejection of the bid.)

**RESPONDENT:**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Alaska Business License No. \_\_\_\_\_

Company/Firm Name \_\_\_\_\_

Telephone \_\_\_\_\_

Fax No. \_\_\_\_\_

Mobile No. \_\_\_\_\_

Business Address \_\_\_\_\_

Email \_\_\_\_\_

Pursuant to and in compliance with the Invitation for Bids, the undersigned respondent, being fully familiarized with all the terms of the specifications hereby proposes and agrees to deliver, within the time and in the manner stipulated in the bid for the following:

**SOUTH TONGASS WATER IMPROVEMENTS  
PHASE V**

\_\_\_\_\_  
Signature of Individual Authorized to Bind the Respondent

\_\_\_\_\_  
Printed Name and Title of Individual Authorized to Bind the Respondent

\_\_\_\_\_  
Date



## SUBCONTRACTOR LIST

SUBCONTRACTORS: The respondent may not subcontract greater than fifty percent of this project without prior written approval of the Borough. List all subcontractors who will be providing greater than 5 percent of the project work and an approximate percentage of their individual participation by discipline. Use additional copies of this form as needed.

SUBCONTRACTORS:

Company/Firm Name \_\_\_\_\_

Estimated percentage of subcontractor's participation by discipline \_\_\_\_\_

Telephone \_\_\_\_\_

Fax No. \_\_\_\_\_

Business Address \_\_\_\_\_

Company/Firm Name \_\_\_\_\_

Estimated percentage of subcontractor's participation by discipline \_\_\_\_\_

Telephone \_\_\_\_\_

Fax No. \_\_\_\_\_

Business Address \_\_\_\_\_

Company/Firm Name \_\_\_\_\_

Estimated percentage of subcontractor's participation by discipline \_\_\_\_\_

Telephone \_\_\_\_\_

Fax No. \_\_\_\_\_

Business Address \_\_\_\_\_

## **SECTION 7**

### **BID BOND**

**BID BOND**

KNOW ALL MEN BY THESE PRESENTS,

That we \_\_\_\_\_  
(Proposer) as PRINCIPAL, and \_\_\_\_\_  
Ketchikan Gateway Borough, a municipal corporation, hereinafter called the  
BOROUGH, as Obligee, in the penal sum of  
Dollars (\$\_\_\_\_\_), for the payment of which sum in lawful money of the  
United States, well and truly to be made, we bind ourselves, our heirs, executors,  
administrators, and successors, jointly and severally, firmly by these presents.

WHEREAS the PRINCIPAL has, by written proposal, submitted a proposal to the  
said BOROUGH on that certain contract for the performance of the work, services, and  
materials for which proposals are to be opened on \_\_\_\_\_, 2011, at \_\_\_\_\_.m.  
for:

**SOUTH TONGASS WATER IMPROVEMENTS  
PHASE V**

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH THAT  
if the aforesaid PRINCIPAL shall not withdraw said proposal within the period specified  
therein after the opening of the same, or, if no period be specified, within sixty (60) days  
after said opening, and, if awarded the Contract, shall within the period specified  
therefore, or such additional time as is allowed by the BOROUGH, or, if no period be  
specified, within ten (10) days after the prescribed forms are presented to said  
PRINCIPAL for signature, enter into a written contract with the BOROUGH in the  
prescribed form, in accordance with the proposal as accepted, and delivers to the  
BOROUGH good and sufficient performance and payment bonds on the forms and as  
required to guarantee the faithful performance of the terms and conditions of the  
Contract, and the required certificates or policies of insurance, and other instruments as  
called for by the Contract Documents, then this obligation shall be null and void;  
otherwise, it shall be and remain in full force and effect.

IN WITNESS WHEREOF, we have hereunto set our  
hands and seals on this \_\_\_\_\_ day of  
, 2011.

PRINCIPAL

By: \_\_\_\_\_

Title: \_\_\_\_\_

ATTEST: (If Corporation)

By: \_\_\_\_\_

Title: \_\_\_\_\_

Corporate Seal

SURETY

By: \_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_  
(Address)

Corporate Seal

**ATTORNEY-IN-FACT ACKNOWLEDGMENT OF SURETY**

STATE OF ALASKA )  
 ) ss.  
\_\_\_\_\_ JUDICIAL DISTRICT )

On this \_\_\_\_ day of \_\_\_\_\_, 2011, before me, \_\_\_\_\_, a notary public in and for said district and State personally appeared known to me to be the person whose name is subscribed to the within instrument as the attorney-in-fact of, \_\_\_\_\_, the corporation named as Surety in said instrument, and acknowledged to me that he subscribed the name of said corporation thereto as Surety, and his own name as attorney-in-fact.

**(SEAL)**  
\_\_\_\_\_

\_\_\_\_\_  
**NOTARY PUBLIC FOR**

My Commission Expires: \_\_\_\_\_

NOTE: Signature of those executing for Surety must be properly acknowledged.

The Attorney-in-Fact must attach a certified copy of the Power of Attorney.

## **BOND/SURETY INSTRUCTIONS**

1. This form shall be used whenever a bid bond is required.
2. The surety on the bond may be any corporation or partnership authorized to do business in Alaska as an insurer under AS 21.09. In lieu of furnishing a bid bond, the proposer may submit a certified check, cashier's check or money order payable to the Borough in the amount of the bid bond required.
3. The name, including full name and business or residence address of each individual party to the bond shall be inserted in the space provided therefore, and each party shall sign the bond with his usual signature on the line opposite the scroll seal.
4. If the principals are partners, their individual names shall appear in the space provided therefore, with the recital that they are partners composing a firm, naming it, and all members of the firm shall execute the bond as individuals.
5. If the principal or surety is a corporation, the name of the State in which incorporated shall be inserted in the space provided therefore, and said instrument shall be executed and attested under the corporate seal as indicated in the form. If the corporation has no corporate seal the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.
6. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary, according to the form herein provided. In lieu of such certificate there may be attached to the bond copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.
7. The date of this bond must not be prior to the date of the instrument in connection with which it is given.
8. Individual Surety will not be accepted as bid security.

**SECTION 8**

**PRICE PROPOSAL FORM**

**PRICE PROPOSAL FORM  
SOUTH TONGASS WATER PHASE V**

Contract Documents which are the basis for the proposal:

1. This IFB and any and all Addenda
2. Contract
3. Bidder's response to this IBF
4. Other

a. \_\_\_\_\_

b. \_\_\_\_\_

Clarifications and Assumptions made by Contractor (use additional sheets if required):

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\_\_\_\_\_  
Company

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature and Title

\_\_\_\_\_  
Printed Name

**SOUTH TONGASS WATER PHASE V**

**BID SCHEDULE**

**Base Bid**

ITEM NO.	WORK DESCRIPTION	EST. QTY.	UNIT BID PRICE	TOTAL BID PRICE
1	Mobilization ..... Per LS	All Req.		
2	Foundation Rock, 12" Minus ..... Per CY	1000		
3	Backfill Gravel, 12" Minus ..... Per CY	1100		
4	D1 Crushed Aggregate Surfacing ..... Per CY	1400		
5	Extra Trench Excavation ..... Per CY	1000		
6	Solid Rock Excavation ..... Per LF	1900		
7	Asphalt Concrete Pavement Repair ..... Per LS	1		
8	6" Gate Vales ..... Per EA	8		
9	6" HDPE Water Line ..... Per LF	3100		
10	Fire Hydrant Assembly ..... Per EA	6		
11	1" Water Service ..... Per EA	33		
12	1-1/2" to 2" Water Service ..... Per EA	6		
13	Connect to Existing Water Line	5		

	..... Per EA			
14	Rigid Insulation ..... Per BF	500		
15	Temporary Water ..... Per LS	All Req'd		
16	Construction Surveying ..... Per LS	All Req'd		
17	12" to 18" Culvert Installation ..... Per LF	390		
18	24" Culvert Installation ..... Per LF	50		
19	Install RBPB in Water Vault ..... Per LS	All Req.		

**TOTAL BASE BID AMOUNT** \$.....

**TOTAL AMOUNT BID IN WORDS** \$.....

**Additive Alternative No. 1 Bid - Wood Road From Station 5 + 25 to 19 + 00**

ITEM NO.	WORK DESCRIPTION	EST. QTY.	UNIT BID PRICE	TOTAL BID PRICE
1	Foundation Rock, 12" Minus ..... Per CY	1600		
2	Backfill Gravel, 12" Minus ..... Per CY	900		
3	D1 Crushed Aggregate Surfacing ..... Per CY	1000		
4	Extra Trench Excavation	1300		

	..... Per CY			
5	Solid Rock Excavation ..... Per LF	400		
6	6" HDPE Water Line ..... Per LF	1375		
7	Fire Hydrant Assembly ..... Per EA	3		
8	1" Water Service ..... Per EA	15		
9	1-1/2" to 2" Water Service ..... Per EA	3		
10	Rigid Insulation ..... Per BF	100		
11	Temporary Water ..... Per LS	All Req'd		
12	Construction Surveying ..... Per LS	All Req'd		
13	12" to 18" Culvert Installation ..... Per LF	75		
14	6" Gate Valve ..... Per LF	2		

**TOTAL ADDITIVE ALTERNATE No. 1 BID AMOUNT** \$.....

**TOTAL AMOUNT BID IN WORDS** \$.....

**Additive Alternative No. 2 Bid**

ITEM NO.	WORK DESCRIPTION	EST. QTY.	UNIT BID PRICE	TOTAL BID PRICE
----------	------------------	-----------	----------------	-----------------

1	Backfill Gravel, 12" Minus ..... Per CY	200		
2	D1 Crushed Aggregate Surfacing ..... Per CY	60		
3	Solid Rock Excavation ..... Per LF	100		
4	6" HDPE Water Line ..... Per LF	183		
5	Fire Hydrant Assembly ..... Per EA	1		
6	1" Water Service ..... Per EA	5		
8	Temporary Water ..... Per LS	All Req'd		
9	Construction Surveying ..... Per LS	All Req'd		

**TOTAL ADDITIVE ALTERNATE No. 2 BID AMOUNT** \$.....

**TOTAL AMOUNT BID IN WORDS** \$.....

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title



**PARTNERSHIP ACKNOWLEDGMENT** (if applicable)

STATE OF \_\_\_\_\_ )  
 ) ss.  
\_\_\_\_\_ JUDICIAL DISTRICT )  
COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, 2011, before me appeared \_\_\_\_\_ and \_\_\_\_\_ to me personally known, who, being by me duly sworn, did say that they are the Partners of \_\_\_\_\_, a \_\_\_\_\_ (State) Partnership and that said instrument was signed on behalf of said Partnership and said partner acknowledged said instrument to be the free act and deed of said Partnership.

**NOTARY PUBLIC**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(SEAL)

\_\_\_\_\_  
Notary Public, State of \_\_\_\_\_  
My Commission Expires \_\_\_\_\_



**INDIVIDUAL ACKNOWLEDGMENT** (If applicable)

STATE OF \_\_\_\_\_ )  
 ) ss.  
\_\_\_\_\_ JUDICIAL DISTRICT )  
COUNTY OF \_\_\_\_\_ )

**THIS IS TO CERTIFY** that on this \_\_\_\_\_ day of \_\_\_\_\_, 2011, before me, the undersigned, a Notary Public in and for the State of \_\_\_\_\_, duly commissioned and sworn, personally appeared \_\_\_\_\_ to me known to be the person(s) described in and who executed the foregoing instrument, and acknowledged to me that he/she/they signed the same freely and voluntarily for the uses and purposes therein mentioned.

**WITNESS** my hand and official seal the day and year in this certificate above written.

(Seal)

\_\_\_\_\_  
**NOTARY PUBLIC FOR** \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**SECTION 9**  
**PERFORMANCE BOND**

## PERFORMANCE BOND

### **KNOW ALL MEN BY THESE PRESENTS:**

**WHEREAS**, the Ketchikan Gateway Borough, Alaska, by motion passed on \_\_\_\_\_, 20\_\_ has awarded to \_\_\_\_\_, hereinafter designated as the **PRINCIPAL**, a contract for:

### **SOUTH TONGASS WATER IMPROVEMENTS PHASE V**

**WHEREAS**, said **PRINCIPAL** is required under the terms of said contract to furnish a bond for the faithful performance of said contract,

**NOW, THEREFORE**, we, the **PRINCIPAL** and \_\_\_\_\_, as **SURETY**, are held and firmly bound unto Ketchikan Gateway Borough hereinafter called the **OWNER**, in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

**THE CONDITION OF THIS OBLIGATION IS SUCH THAT** if the above bounden **PRINCIPAL**, his or its heirs, executors, administrators, successors or assigns, shall deliver, provide and perform all work, services, and materials, and in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said contract, and any alteration thereof made as therein provided, on his or its part, to be kept and performed at the time and in the manner therein specified, including any warranty, or guarantee, and during the period thereof, as provided for therein, and in all respects according to their intent and meaning, and shall indemnify and save harmless the **OWNER**, its officers and agents, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

And the said **SURETY**, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or contract documents, or the work to be performed thereunder, or the specifications accompanying the same, shall in any way affect its obligations on this bond, and said **SURETY** does hereby waive notice of any such change, extension of time, alteration, modifications, or additions to the terms of the contract or contract documents, or to the work or to the specifications.

As a part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs, expenses and fees, including attorney's fees, incurred by **OWNER** in enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

**IN WITNESS WHEREOF** \_\_\_\_\_  
identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the **PRINCIPAL** and **SURETY** above named, on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

TWO WITNESSES:  
  
\_\_\_\_\_  
  
\_\_\_\_\_

\_\_\_\_\_  
**PRINCIPAL**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Corporate Seal

\_\_\_\_\_  
**SURETY**

By: \_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_  
ADDRESS

Corporate Seal



**SECTION 10**  
**PAYMENT BOND**

## PAYMENT BOND

### KNOW ALL MEN BY THESE PRESENTS:

**WHEREAS**, the Ketchikan Gateway Borough, Alaska, by motion passed on \_\_\_\_\_, 20\_\_\_\_, has awarded to \_\_\_\_\_, (hereinafter designated as the **PRINCIPAL**), a contract for the work described as follows:

### **SOUTH TONGASS WATER IMPROVEMENTS PHASE V**

**WHEREAS**, under the terms of said contract, **PRINCIPAL** is required before entering upon the performance of the work, to file a good and sufficient payment bond with the Ketchikan Gateway Borough (hereinafter referred to as "**OWNER**") to secure the payment of the claims to which reference is made in Title 36, Chapter 25, commencing at Section 36.25.010, Statutes of the State of Alaska.

**NOW THEREFORE**, we, the **PRINCIPAL** and \_\_\_\_\_, as **SURETY**, are held and firmly bound unto the **OWNER** and any and all persons, companies or corporations furnishing materials, provisions, provender, or other supplies, used in, upon, or about the performance of the work contracted to be executed or performed under the hereinabove mentioned contract, and all persons, companies, or corporations renting or hiring implements or machinery, for or contributing to said work to be done, and all persons performing work or labor done upon the same, and all persons supplying both work and labor as aforesaid, and as referred to in said Chapter 25, Title 36, Statutes of the State of Alaska, in the penal sum of \_\_\_\_\_ Dollars (\$\_\_\_\_\_) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

**THE CONDITION OF THIS OBLIGATION IS SUCH THAT** if said **PRINCIPAL**, hers/his/its subcontractors, heirs, executors, administrators, successors and assigns, shall pay any and all persons, companies or corporations furnishing materials, provisions, provender, or other supplies, used in, upon, or about the performance of the work contracted to be executed or performed under the hereinabove mentioned contract, and all persons, companies, or corporations renting or hiring implements or machinery, for or contributing to said work to be done, and all persons performing work or labor done upon the same, and all persons supplying both work and labor as aforesaid, and as referred to in said Chapter 25, Title 36, Statutes of the State of Alaska, and shall indemnify and save the **OWNER** harmless from all cost, expense, and damage by reason of **PRINCIPAL'S** default or failure to do so, and shall pay any local sales or use taxes, then this obligation shall be void; otherwise said bond shall remain in

full force and effect and **SURETY** on this bond shall pay the same.

It is expressly agreed and understood that in addition to **OWNER**, this bond shall inure to the benefit of any and all of the persons named in Alaska Statutes, Title 36, Chapter 25, Sections 36.25.010, 36.25.020, and AS 23.20.265, et seq., so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

It is further stipulated and agreed that the **SURETY** on this bond shall not be exonerated or released from the obligation of this bond by any change, extension of time for performance, addition, alteration or modification in, to, or of any contract, plans, specifications, or agreement pertaining or relating to any scheme or work of improvement hereinabove described or pertaining or relating to the furnishings of labor, materials, or equipment therefor, nor by any change or modification of any terms of payment or extension of the time for any payment pertaining or relating to any scheme or work of improvement hereinabove described, nor by any rescission or attempted rescission of the contract, agreement or bond, nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond, nor by any fraud practiced by any person other than the claimant seeking to recover on the bond and that this bond be construed most strongly against the **SURETY** and in favor of all persons for whose benefit such bond is given, and under no circumstances shall **SURETY** be released from liability to those for whose benefit such bond has been given by reason of any breach of contract between the **OWNER** and the **PRINCIPAL** or on the part of any obligee named in such bond, but the sole conditions of recovery shall be that claimant is a person described herein and/or in Alaska Statutes Title 36, Chapter 25, Section 36.25.010, 36.25.020, et seq., and has not been paid the full amount of his claim and that **SURETY** does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned.

As a part of the obligation secured hereby and in addition to the face amount specified therefor, there shall be included costs and reasonable expenses and fees, including reasonable attorney's fees, incurred by **OWNER** or other person entitled to bring suit thereon in enforcing such obligation, all to be taxed as costs and included in any judgment rendered.

**IN WITNESS WHEREOF** this instrument has been duly executed by the Principal and Surety above named, on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_.

\_\_\_\_\_  
**PRINCIPAL**

By: \_\_\_\_\_

Title: \_\_\_\_\_

TWO WITNESSES:

\_\_\_\_\_

\_\_\_\_\_

ATTEST: (If Corporation)

By: \_\_\_\_\_

Title: \_\_\_\_\_

Corporate Seal:

\_\_\_\_\_  
**SURETY**

By: \_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_  
**ADDRESS**



**SECTION 11**  
**INSURANCE**

**SECTION 12**

**WAGE AND HOUR RATES  
STATE OF ALASKA**

For Laborers' & Mechanics' Minimum Rates of Pay, see Pamphlet 600, Title 36 Public Contracts, Wage and Hour Administration, Issue 18, effective April 1, 2011, on-line at following website:

<http://labor.state.ak.us/lss/pamp600.htm>

**SECTION 13**  
**AGREEMENT**

## AGREEMENT

### FOR

#### SOUTH TONGASS WATER IMPROVEMENTS PHASE V

**THIS AGREEMENT** made and entered into this \_\_\_ day of \_\_\_\_\_, 20\_\_\_, by and between the **KETCHIKAN GATEWAY BOROUGH**, a municipal corporation, 1900 First Street, Ketchikan, Alaska 99901, hereinafter called "**OWNER**," and \_\_\_\_\_, licensed and qualified to do business within the State of Alaska, hereinafter called "**CONTRACTOR**."

**NOW, THEREFORE**, for and in consideration of the terms, covenants, conditions, and provisions contained herein, and attached and incorporated herein and made a part hereof, the parties hereto agree as follows:

**Section 1: Scope of Work.** The **CONTRACTOR** shall perform and provide, within the time stipulated, the Contract as herein defined, of which this Agreement is a component part, and everything required to be performed including the providing of all work, labor, services, materials, utility, transportation and other acts necessary to perform the Contract in a workmanlike manner (hereinafter referred to as "Construction"), in connection with:

#### **SOUTH TONGASS WATER IMPROVEMENTS PHASE V**

and in strict conformity with the Contract Drawings and Engineering Specifications, including any and all Addenda issued by the **OWNER**, and with all of the other Contract Documents enumerated in Section 4 hereof, hereinafter collectively referred to as the "Contract."

#### **Section 2: Construction Time.**

(a) The **CONTRACTOR** agrees to complete all work and construction called for and as defined in the Contract Documents, to the satisfaction of the **OWNER** within the time for completion as specified in these Contract Documents.

**Section 3: Contract Amount.** As and for full payment, and in consideration of the timely and proper performance of all construction and work called for by the Contract, as defined herein, and performance of all the terms and conditions thereof, the **OWNER** shall pay the **CONTRACTOR** in currency of the United States, as follows:

(a) If the Bid Proposal calls for single lump sum price(s), the **OWNER** shall pay to the **CONTRACTOR** a Total Contract Amount of \_\_\_\_\_

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_  
\_\_\_\_\_).

(b) If the Bid Proposal calls for unit prices, the **OWNER** shall pay to the **CONTRACTOR** a Total Contract Amount computed from the unit prices set forth in the **CONTRACTOR'S** Bid Proposal and the actual quantities of units furnished. It is understood that the quantities stated are approximate only and are subject to either increase or decrease, and should the quantities of any of the units of work and construction be increased, the **CONTRACTOR** shall perform the additional work at the unit prices set forth in the Bid Proposal, and should the quantities be decreased, payment will be made based on the actual quantities installed at the unit prices set forth in the Bid Proposal and the **CONTRACTOR** will make no claim for anticipated profits, or cost recovery for any increase or decrease in the quantities except as specifically provided in the General Conditions. Based upon the unit prices set forth in the **CONTRACTOR'S** Bid Proposal and upon the quantities estimated from the Contract Drawings for bidding purposes, the estimated Total Contract Amount is \_\_\_\_\_ Dollars (\$ \_\_\_\_\_).

It is further agreed that the **CONTRACTOR** shall start all work and construction within ten (10) days after delivery of the **OWNER'S** Notice to Proceed, unless otherwise specified in such Notice to Proceed, and shall complete all work and construction in accordance with the construction schedule and time for completion as provided in the Contract Documents.

**Section 4: Contract Documents.** The Contract, and the component parts of this Contract, entered into by the acceptance of the **CONTRACTOR'S** Bid Proposal and the signing of this Agreement, consist of the following documents, all of which are component parts of said Contract and are as fully a part thereof as if herein set forth in full, and if not attached, as if attached hereto:

1. This Agreement;
2. Notice to Contractors Inviting Bids;
3. Information for Bidders;
4. Notice of Award;
5. Bid Proposal as accepted;
6. Change Orders;
7. Addendum No(s). \_\_\_\_\_;

8. Performance Bond;
9. Payment Bond;
10. Notice to Proceed;
11. Written amendments, including Change Orders, if any, to this Agreement signed by both parties entered into after execution of this Agreement.
12. Certificate of Insurance;
13. State of Alaska, Department of Labor, Schedule of Laborer's and Mechanic's Minimum Rates of Pay, dated September 1, 2011 as hereafter amended from time to time;
14. General Conditions;
15. Special Conditions consisting of four ( 4 ) pages;
16. Engineering Specifications bearing the title SOUTH TONGASS WATER PHASE V consisting of 240 pages.
17. Contract Drawings, consisting of \_\_\_\_\_ (\_\_\_\_) pages with each sheet bearing the general title SOUTH TONGASS WATER PHASE V.

**IN WITNESS WHEREOF**, the parties hereto have executed this agreement the day and year first above written.

**OWNER:**

**KETCHIKAN GATEWAY BOROUGH**

By: \_\_\_\_\_  
Dan Bockhorst, Borough Manager

ATTEST:

\_\_\_\_\_  
Kacie Paxton, Borough Clerk

Approved as to Form:

By: \_\_\_\_\_  
Scott Brandt-Erichsen, Borough Attorney

Certified Funds Available

By: \_\_\_\_\_  
Mike Houts, Finance Director  
Account No. \_\_\_\_\_

**CONTRACTOR:**

\_\_\_\_\_  
Name of Contractor

By: \_\_\_\_\_  
(Signature of authorized officer)

\_\_\_\_\_  
(Title of person signing)





**INDIVIDUAL ACKNOWLEDGMENT**

STATE OF ALASKA )  
 ) ss.  
FIRST JUDICIAL DISTRICT )  
COUNTY OF \_\_\_\_\_)

**THIS IS TO CERTIFY** that on this \_\_\_\_ day of \_\_\_\_\_, 200\_\_, before me, the undersigned, a Notary Public in and for the State of \_\_\_\_\_, duly commissioned and sworn, personally appeared \_\_\_\_\_ to me known to be the person(s) described in and who executed the foregoing instrument, and acknowledged to me that he/she/they signed and sealed the same freely and voluntarily for the uses and purposes therein mentioned.

**WITNESS** my hand and official seal the day and year in this certificate above written.

\_\_\_\_\_  
**NOTARY PUBLIC FOR ALASKA**  
My Commission Expires: \_\_\_\_\_

**PARTNERSHIP ACKNOWLEDGMENT**

STATE OF ALASKA )  
 ) ss.  
FIRST JUDICIAL DISTRICT )  
COUNTY OF \_\_\_\_\_)

**THIS IS TO CERTIFY** that on this \_\_\_\_ day of \_\_\_\_\_, 200\_\_, before me, a Notary Public, personally appeared \_\_\_\_\_ known to me to be (one of) the partner(s) of the partnership that executed the within instrument, and acknowledged to me that such partnership executed the same.

\_\_\_\_\_  
**NOTARY PUBLIC FOR \_\_\_\_\_**  
My Commission Expires: \_\_\_\_\_

(Seal)

**SECTION 14**

**STANDARD FORMS**

**Contractor's Request for Payment**

**Change Order**

**Release, Waiver, and Discharge of All Claims and Liens**

**Statement Concerning Claims**

**CONTRACTOR'S REQUEST FOR PAYMENT NO. \_\_\_\_\_**

**OWNER:** Ketchikan Gateway Borough      **CONTRACTOR:** \_\_\_\_\_

**CONTRACT: SOUTH TONGASS WATER IMPROVEMENTS PHASE V**

For period from \_\_\_\_\_ to \_\_\_\_\_.

In accordance with the attached schedule, the **CONTRACTOR** is entitled to payment of the amount as follows:

\$ _____	Original Contract Sum
\$ _____	Change Orders
\$ _____	Total Contract to Date
\$ _____	Total Completed to Date
\$ _____	Less Previous Payments
\$ _____	Amount this Payment
\$ _____	Less ___% Retainage
\$ _____	Due this Request

**CONTRACTOR'S Certification:**

The undersigned **CONTRACTOR** certifies that (a) all previous progress payments received from **OWNER** on account of Work done under the Contract referred to above have been applied to discharge in full all obligations of **CONTRACTOR** incurred in connection with Work covered by prior Requests for Payment numbered 1 through \_\_\_\_\_ inclusive; and (2) title to all materials and equipment incorporated in said Work or otherwise listed in or covered by this Request for Payment will pass to **OWNER** at time of payment free and clear of all liens, claims, security interests and encumbrances. The undersigned **CONTRACTOR** further certifies, represents and agrees that there are no claims for additional work or other claims not put in writing prior to this date.

DATED: \_\_\_\_\_, 20\_\_      Contractor: \_\_\_\_\_

By: \_\_\_\_\_

Payment of the above amount due this Request is recommended.

DATED: \_\_\_\_\_, 20\_\_      Project Manager: \_\_\_\_\_

By: \_\_\_\_\_

Payment of the above amount due this Request is approved.

DATED: \_\_\_\_\_, 20\_\_

Manager, Ketchikan Gateway Borough

By: \_\_\_\_\_

**KETCHIKAN GATEWAY BOROUGH**

**CHANGE ORDER NO. \_\_\_\_\_**

DATE: \_\_\_\_\_

CONTRACTOR/ADDRESS: \_\_\_\_\_

OWNER: **Ketchikan Gateway Borough**

PROJECT: **SOUTH TONGASS WATER IMPROVEMENTS PHASE V**

CONTRACT NO.: **10-02**

Description of change: \_\_\_\_\_

Original Contract Amount \_\_\_\_\_

Previous Change Order Amount \_\_\_\_\_

Amount This Change Order \_\_\_\_\_

Revised Total Contract Amount \_\_\_\_\_

Original Completion Date \_\_\_\_\_

Previous Change Order Time Changes \_\_\_\_\_

This Change Order Time Changes \_\_\_\_\_

Completion Date With This C.O. \_\_\_\_\_

ACCEPTED BY:

APPROVED BY:

\_\_\_\_\_  
Contractor

**KETCHIKAN GATEWAY BOROUGH**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

**Borough Project Manager:**

By: \_\_\_\_\_

Attest:

By: \_\_\_\_\_  
Kacie Paxton  
Borough Clerk

Approved as to Form:

By : \_\_\_\_\_  
Scott A. Brandt-Erichsen  
Borough Attorney

Certified Funds Available:

By: \_\_\_\_\_  
Michael J. Houts  
Finance Director

**BOROUGH ACKNOWLEDGMENTS**

STATE OF ALASKA                    )  
  ) ss.  
FIRST JUDICIAL DISTRICT        )

**THIS IS TO CERTIFY** that on this \_\_\_\_ day of \_\_\_\_\_, 2010, before me, the undersigned, a notary public in and for the State of Alaska, duly commissioned and sworn, personally appeared **Dan Bockhorst** to me known to be the **BOROUGH MANAGER** of the **KETCHIKAN GATEWAY BOROUGH**, a municipal corporation, the corporation which executed the above and foregoing instrument; who on oath stated that he was duly authorized to execute said instrument on behalf of said corporation; who acknowledged to me that he signed the same freely and voluntarily on behalf of said corporation for the uses and purposes therein mentioned.

**WITNESS** my hand and official seal the day and year in the certificate first above written.

(Seal)

\_\_\_\_\_  
**NOTARY PUBLIC FOR ALASKA**  
My Commission Expires: \_\_\_\_\_

STATE OF ALASKA                    )  
  ) ss.  
FIRST JUDICIAL DISTRICT        )

**THIS IS TO CERTIFY** that on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me, the undersigned, a notary public in and for the State of Alaska, duly commissioned and sworn, personally appeared **Kacie Paxton** to me known to be the **BOROUGH CLERK** of the **KETCHIKAN GATEWAY BOROUGH**, a municipal corporation, the corporation which executed the above and foregoing instrument; who on oath stated that she was duly authorized to execute said instrument on behalf of said corporation; who acknowledged to me that she signed the same freely and voluntarily on behalf of said corporation for the uses and purposes therein mentioned.

**WITNESS** my hand and official seal the day and year in the certificate first above written.

(Seal)

\_\_\_\_\_  
**NOTARY PUBLIC FOR ALASKA**  
My Commission Expires: \_\_\_\_\_

**INSERT APPROPRIATE NOTARY BLOCK (Corp, LLC, Partnership, Individual)**

**RELEASE, WAIVER AND DISCHARGE  
OF ALL CLAIMS AND LIENS**

**This Certificate and Affidavit** is made this \_\_\_\_ day of \_\_\_\_\_,  
20\_\_\_\_,  
by \_\_\_\_\_  
("Releasor"), the Contractor under that certain Agreement for the performing and/or  
furnishing of work, labor, service, materials and/or equipment in connection with the  
Agreement and Project known as **SOUTH TONGASS WATER IMPROVEMENTS  
PHASE V.**

For and in consideration of the total sum of

\_\_\_\_\_ Dollars (\$\_\_\_\_\_), and other  
good and valuable consideration, which sum is acknowledged as being the FINAL AND  
TOTAL AMOUNT due or alleged to be due or owing from the Ketchikan Gateway  
Borough (hereinafter referred to as "Releasee"), the receipt and payment of which sum  
is hereby acknowledged, the Releasor for and on behalf of itself and all parties claiming  
any interest in or through it, and for its successors and assigns, does hereby waive,  
release and discharge the Releasee from any and all causes of action, suits, debts,  
accounts, bonds, contracts, promises, damages, liens, encumbrances, judgment, claims  
and demands whatsoever, in law or equity which against the Releasee, jointly or  
separately Releasor ever had, now has, or might hereinafter have, relating directly or  
indirectly to the aforesaid Agreement and/or Project. The Releasor further hereby  
agrees to appear and defend and to indemnify and hold the Releasee harmless from  
any and all damages, costs, expenses, demands, suits, liens and legal fees, directly or  
indirectly relating to any claim for compensation by any other party for work, labor,  
service, materials and/or equipment which directly or indirectly relates to that which was  
performed or should have been performed by the Releasor, and from and against any  
claim relating to any work, labor, services, materials and/or equipment allegedly  
performed, supplied, or provided by the Releasor.

The Releasor further hereby represents, certifies and warrants that it has fully  
paid for any and all work, labor, services, materials and/or equipment provided to it in  
connection with the Contract and/or the Project. The Releasor hereby grants to the  
Releasee and its authorized representatives the right to review and audit any and all  
books and records of the Releasor at any time for verification of such payments.

**IN WITNESS WHEREOF**, this Release, Waiver and Discharge of Claims and Liens has been executed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, at \_\_\_\_\_.

\_\_\_\_\_  
Releasor

By: \_\_\_\_\_

Title: \_\_\_\_\_

**SUBSCRIBED AND SWORN** to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
**NOTARY PUBLIC FOR** \_\_\_\_\_  
My Commission Expires \_\_\_\_\_



**INDIVIDUAL ACKNOWLEDGMENT**

STATE OF ALASKA )  
 ) ss.  
FIRST JUDICIAL DISTRICT )  
COUNTY OF \_\_\_\_\_ )

**THIS IS TO CERTIFY** that on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_, before me, the undersigned, a Notary Public in and for the State of \_\_\_\_\_, duly commissioned \_\_\_\_\_ and \_\_\_\_\_ sworn, \_\_\_\_\_ personally appeared \_\_\_\_\_ to me known to be the person(s) described in and who executed the foregoing instrument, and acknowledged to me that he/she/they signed and sealed the same freely and voluntarily for the uses and purposes therein mentioned.

**WITNESS** my hand and official seal the day and year in this certificate above written.

\_\_\_\_\_  
**NOTARY PUBLIC FOR**  
My Commission Expires: \_\_\_\_\_

**PARTNERSHIP ACKNOWLEDGMENT**

STATE OF ALASKA )  
 ) ss.  
FIRST JUDICIAL DISTRICT )  
COUNTY OF \_\_\_\_\_ )

**THIS IS TO CERTIFY** that on this \_\_\_\_ day of \_\_\_\_\_, 200\_\_, before me, \_\_\_\_\_ a \_\_\_\_\_ notary public, \_\_\_\_\_ personally appeared \_\_\_\_\_ known to me to be one of the partners of the partnership that executed the within instrument, and acknowledged to me that such partnership executed the same.

DATED: \_\_\_\_\_

(Seal) \_\_\_\_\_  
**NOTARY PUBLIC FOR** \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**STATEMENT CONCERNING CLAIMS**

The **Contractor** under that certain contract dated \_\_\_\_\_, 20\_\_\_\_, by and between \_\_\_\_\_ (**Contractor**) and the **Ketchikan Gateway Borough (Owner)** for work and services for **SOUTH TONGASS WATER IMPROVEMENTS PHASE V** states, represents and warrants that **Contractor** has fully completed all work and services included in the Contract and all authorized change orders thereto, and has fully paid for all labor, services, materials, equipment, supervision, taxes, use of equipment, and all other costs and expenses of the Project and the contract and that there are no disputes, claims or liens against the **Owner**, the **Contractor**, or any subcontractor of **Contractor**, and that the **Contractor** will have no claims against the **Owner** of any kind whatsoever arising from or growing out of the Contract or the Project except as follows:

<u>Claimant</u>	<u>Description of Claim</u>	<u>Amount</u>

\_\_\_\_\_  
 (Contractor)  
 By: \_\_\_\_\_

STATE OF \_\_\_\_\_ )  
 ) ss.  
 \_\_\_\_\_ JUDICIAL DISTRICT )  
 COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_, being first duly sworn, on oath deposes and states, that he is the \_\_\_\_\_ of the aforesaid **Contractor**, that he makes this affidavit for and on its behalf and is authorized so to do, that he has read the foregoing Statement Concerning Claims and has personal knowledge of the facts contained therein and acknowledges said Statement Concerning Claims to be the free and voluntary act and deed of the **Contractor** for the purpose of obtaining final payment under the agreement described herein, that he was authorized to execute the same for and on behalf of the **Contractor** and that said Statement Concerning Claims is true and correct.

\_\_\_\_\_  
**SUBSCRIBED and SWORN** to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**NOTARY PUBLIC** for \_\_\_\_\_,  
 My Commission expires: \_\_\_\_\_

**PART 2**  
**GENERAL CONDITIONS**

## **GENERAL CONDITIONS**

### **Section 1: DEFINITIONS.**

(a) **ACT OF GOD** shall mean an earthquake, flood, cyclone or other cataclysmic phenomenon of nature. A rain, windstorm, high water or other natural phenomenon of unusual intensity for a specific locality, but which might reasonably have been anticipated from historical records of the general locality, shall not be construed as an Act of God.

(b) **ADDENDA** shall mean written modifications of the Contract Documents which may be issued by the Owner to holders of Contract Documents prior to opening Proposals.

(c) **BIDDER** shall mean any person, partnership, firm or corporation that submits a Bid Proposal and Bid Bond, if required, to the Owner.

(d) **CHANGE ORDER** shall mean a written supplemental agreement executed by the Owner and the Contractor to modify the Contract at the time of or after its execution.

(e) **CONSTRUCTION** shall mean:

1. All management, superintendence, labor, materials, use of equipment and tools, transportation and other facilities or services necessary to complete the Contract.

2. If the Contract includes the furnishing of manufactured equipment, "Construction" shall also include all management, superintendence, labor, materials, equipment components, tools, inspection, testing transportation and other facilities and services necessary to design, manufacture, fabricate, assemble, deliver and install equipment and complete the Contract.

3. Without limiting the generality of the foregoing, "Construction" shall also include delivery to the location of the job site all management, superintendence, labor, materials, equipment, tools, transportation and other facilities and services necessary to complete the Contract.

(f) **CONTRACT** shall mean the whole understanding between the Owner and the Contractor covering the furnishing of the construction and payment therefore and described or encompassed in the Contract Documents, including any addenda or change orders.

(g) **CONTRACT DOCUMENTS** shall mean the documents enumerated in the agreement which form the Contract.

(h) **CONTRACT DRAWING** shall mean a diagrammatic or pictorial description of the construction to be furnished, or copies thereof, which is included as a part of the Contract Documents as modified by Addenda and Change Orders to the Contract. Contract Drawings shall include Proposal Drawings issued to Bidders to delineate the scope of the construction and Construction Drawings issued to the Contractor during construction to further describe the details of the Project design.

(i) **CONTRACTOR** shall mean the person, partnership or corporation whose Bid Proposal has been accepted by the Owner and who has furnished suitable Performance Bond and Payment Bond, Insurance Certificate or Insurance Policies, Lump Sum Bid Breakdown and executed the Agreement.

(j) **ENGINEER** shall mean the duly authorized employee of the Owner or an engineer, architect or other consultant contracted to the Owner and authorized to perform the engineering or contract administration functions contemplated herein.

(k) **ENGINEERING SPECIFICATIONS** shall mean written descriptions, including performance, of the construction to be furnished which are part of the Contract Documents.

(l) **ENGINEER'S INSTRUCTION** shall mean a written interpretation of the Contract issued by the Engineer for the guidance of the Contractor.

(m) **OR EQUAL** shall mean construction items or materials substantially equal to that specified in the Contract Documents. The Engineer shall be the sole judge of the quality and suitability of proposed substitutions.

(n) **OWNER** shall mean the Ketchikan Gateway Borough, whose address is 1900 First Avenue, Suite 210, Ketchikan, AK 99901.

(o) **PERFORMANCE AND PAYMENT BONDS** shall mean the form of Performance Bond and the form of Payment Bond included in the Contract Documents which shall be furnished by the Contractor and its Surety as assurance to the Owner that the Contractor will furnish, pay for, and warrant the construction and perform all the requirements of the Contract.

(p) **PROJECT** shall mean the improvements and/or facility to be completed in whole or in part through the performance of the Contract.

(q) **BID PROPOSAL** shall mean a Bidder's offer to the Owner to contract for and undertake furnishing the construction for one (1) or more Bid Schedules.

(r) **SHOP DRAWING** shall mean a diagrammatic, pictorial or written description of the details of proposed materials, equipment components, construction, adjustment or operation, except drawings containing proprietary information, prepared by the Contractor or a Subcontractor and submitted for the review of the Engineer to

demonstrate that the construction when completed will meet the requirements of the Contract.

(s) **SUBCONTRACTOR** shall mean an independent person, partnership or corporation, other than an employee of the Contractor, supplying to and under agreement with the Contractor or any Subcontractor of the Contractor, any construction or equipment in connection with the Contract.

(t) **SUBSTANTIAL COMPLETION** shall mean that degree of completion of the construction necessary for the Project to function and operate at its intended location and for its intended use. Written approval of administrative authorities having jurisdiction approving occupancy by Owner for intended use must be submitted by Contractor as a condition of any determination of Substantial Completion.

(u) **SURETY** shall mean a corporation executing a Bid Bond, Performance Bond, Payment Bond or other bond payable to the Owner.

(v) **UNITS OF CONSTRUCTION.**

1. "Basic Unit of Construction" shall mean an elementary part of the total construction which includes like materials and labor, is repetitive in nature, and is readily and economically measurable, i.e., "cu. yd. of concrete in place," "lin. ft. of pipe installed," or "lb. of reinforcing steel furnished."

2. "Integrated Unit of Construction" shall mean a part of the total construction which combines various quantities of unlike materials, equipment and labor into a separate piece of construction where the component materials, equipment and labor are not in themselves readily and economically measurable, i.e., "road bridge complete" includes excavation, concrete, bridge work, backfill, etc.

(w) **UNIT PRICE** shall mean the amount bid by the Contractor for furnishing one (1) unit of construction, the quantities being subject to adjustment within the limits specified in the Contract Documents.

(x) **WRITTEN NOTICE** shall mean a handwritten or typewritten communication delivered in person, or sent to the individual, or to a partner of the partnership, or to an officer of the corporation, which is the Contractor, at the address set forth in the Contractor's Bid Proposal or, if to the Owner, addressed to the Borough Manager, Ketchikan Gateway Borough, 1900 First Avenue, Suite 210, Ketchikan, AK 99901, or such other address as may be specified for such purpose in writing by the Contractor or Owner.

## **Section 2: REFERENCED SPECIFICATIONS AND ABBREVIATIONS.**

(a) Any material specified by reference to number, symbol or title of a specific standard such as a code, commercial standard, Federal Specification, trade association standard, or other similar standard, shall comply with the requirements of the issue in effect on the date of the Notice to Contractors Inviting Bids unless a specific issue is indicated in the special conditions or Engineering Specifications.

(b) Those applicable provisions of and such specifications which are referred to as provided in (a) above, except as modified in the Engineering Specifications, shall have full force and effect as though included in the Engineering Specifications.

(c) The following is a general list of abbreviations which may appear on the Contract Drawings or in the Engineering Specifications.

AAMA	Architectural Aluminum Manufacturers' Association
AAN	American Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AEIC	Associated Edison Illuminating Companies
AGC	Associated General Contractors of America
AFBMA	Anti-Friction Bearing Manufacturers' Association
AGA	American Gas Association
AGMA	American Gear Manufacturers' Association
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ARA	American Railway Association
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ASE Code	American Standard Safety Code for Elevators, Dumbwaiters and Escalators
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers' Association
AWS	American Welding Society

AWWA	American Water Works Association
CSI	Construction Specification Institute
DCDMA	Diamond Core Drill Manufacturers' Association
DEMA	Diesel Engine Manufacturers' Association
EEl	Edison Electric Institute
EIA	Electronic Industries Association
EJMA	Expansion Joint Manufacturers' Association
FHWA	Federal Highway Administration
Fed.Spec.	Federal Specifications
FSS	Federal Specifications and Standards General Services Administration
F.S. Std.Specs.	Forest Service Standard Specifications for Construction of Roads and Bridges, E,-7720-100, 1979, Forest Service U.S. Department of Agriculture, Washington, D.C. 20013
ICC	Interstate Commerce Commission
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
ICEA	Insulated Cable Engineers' Association
JIC	Joint Industrial Council
NBS	National Bureau of Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
PCI	Prestressed Concrete Institute
SAE	Society of Automotive Engineers
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association, Inc.
SPR	Simplified Practice Recommendation
SSPC	Steel Structures Painting Council
TCA	Tile Council of America
TEMA	Tubular Exchanger Manufacturers' Association
UBC	Uniform Building Code
UL	Underwriters' Laboratories, Inc.
USASI	United States of America Standards Institute
WCLA	West Coast Lumbermen's Association
WWPA	Western Wood Products Association

### **Section 3: SUBCONTRACTS.**

(a) The Contractor shall perform with its own organization not less than one-third (1/3) of the total monetary amount of the Contract and shall not sublet to any one (1) Subcontractor more than one-half (1/2) of the total monetary amount of the Contract without the previous written consent of the Owner. After execution of the Contract and prior to the beginning of operations on a subcontract, the Contractor may, if approved by the Owner through execution of a Change Order, employ a different Subcontractor

than was offered in the Contractor's Bid Proposal. In this event the Total Contract Amount shall be reduced by an amount equal to the reduction, if any, in the cost to the Contractor as a result of the change of Subcontractor. The Contractor shall furnish to the Owner the detailed bids of both Subcontractors before execution of the Change Order.

(b) The Contractor shall be fully responsible to the Owner for the acts, errors and omissions of Subcontractors and of persons either directly or indirectly employed by them. The Contractor shall include all applicable provisions of these Contract Documents in all subcontracts for construction to be performed under this Contract.

(c) Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the Owner. The Owner's consent to or approval of any Subcontractor under the Contract shall not relieve the Contractor of its obligations under the Contract and no such consent or approval shall be deemed to waive or modify any provisions of the Contract.

#### **Section 4: PERFORMANCE AND PAYMENT BONDS.**

(a) Within ten (10) days after the Contractor receives the Notice of Award, and prior to the execution of the Contract by the Owner, the Contractor shall furnish a Performance Bond and also a Labor and Materials Payment Bond, on the forms included in the Contract Documents, with a corporate Surety satisfactory to the Owner, which bonds shall insure the full and faithful performance of the Contract, including payment of all obligations arising thereunder, and each bond shall be in an amount equal to one hundred percent (100%) of the total contract amount unless otherwise provided in the Special Conditions.

(b) The Surety on such Performance Bond and Labor and Material Payment Bond shall be a duly licensed surety corporation authorized to do business in the State of Alaska and shall be named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All bonds signed by an agent must be accompanied by a certified copy of the authority to act.

(c) Failure to timely provide the bonds on the required bond forms and as required herein shall be grounds for the Owner rescinding the award and awarding to another bidder or rejecting all bids. The Contractor in such event forfeits the Contractor's bid security.

**Section 5: EMERGENCY CONSTRUCTION.** If, in the opinion of the Owner, and the Contractor is so advised, certain emergency construction must be done immediately to safeguard life or property or to protect completed construction, or the building or site where work is to be performed, the Contractor shall proceed at once with such emergency construction. The omission or failure of the Owner to form such an

opinion or to advise the Contractor shall not excuse the Contractor from any obligation to safeguard life or property or to protect completed construction, or the buildings or site where work is to be performed. If such emergency construction is within the scope of the Contract, or is to protect completed construction, and is not caused by the negligence or acts or omissions of the Contractor, its employees, agents, representatives or subcontractors, the Contractor shall be paid as provided in the Contract. If such emergency construction is outside the scope of the Contract, the Contractor shall submit a written proposal within ten (10) days after commencement of the emergency construction and the construction shall be paid for as a change in construction; provided, however, the Owner shall have no obligation to compensate the Contractor for emergency construction required because of the Contractor's negligence or acts or omissions of the Contractor, its employees, agents, representatives, subcontractors, or other persons for whose acts the Contractor is liable or responsible. Failure to submit such a proposal within the specified time shall constitute waiver of any claim based upon such emergency construction.

#### **Section 6: CONTRACTOR'S DEFAULT.**

(a) If the Contractor becomes insolvent, is adjudged bankrupt or makes an assignment for the benefit of its creditors, or if a receiver, assignee or other liquidating officer is appointed for the Contractor, or if the Contractor fails to prosecute the work according to the Construction Schedule, or otherwise, or persistently or repeatedly refuses or fails to supply satisfactory superintendence, satisfactory numbers of properly skilled workmen or satisfactory construction or fails to make payment to employees or Subcontractors or payment for materials or equipment when due, or violates any law, ordinance, rule or regulation of any governmental authority having jurisdiction, or otherwise is in violation of any provisions of the Contract, the Contractor shall be in default under the Contract, and if such default continues for a period of ten (10) days after written notice thereof is served by the Owner upon the Contractor, the Owner, without prejudice to any other right or remedy, including termination, may declare the Contractor to be in default under the Contract by written notice thereof served upon the Contractor and its Surety.

(b) In the event of such declaration of default, the Surety shall have the obligation immediately to remedy the default or to undertake performance of the Contractor's obligations under the Contract; provided, however, that if the Surety does not remedy the default or does not undertake such performance within fifteen (15) days from the date of service of such declaration of default, the Owner may, but shall not be required to take possession of the construction and of all the Contractor's equipment, tools and materials used in connection therewith and complete the construction by whatever method the Owner may deem expedient. In such event, the Contractor shall not be entitled to receive any further payment until the construction is completed. If the unpaid balance of the total contract amount exceeds the cost to the Owner of completing the Contract, including reasonable compensation for additional administrative, engineering and legal costs of the Owner, and any damages incurred by the Owner by reason of such default, such excess shall be paid to the Contractor. If the

cost to the Owner of completing the Contract, including reasonable compensation for additional administrative, engineering and legal costs of the Owner, exceeds such unpaid balance, the Contractor shall immediately pay the excess to the Owner. The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to the Owner, including termination for default.

**Section 7: LIQUIDATED DAMAGES.**

(a) For each and every calendar day that any portion of the work and construction is not completed after the Construction Time fixed for completion in the Contract Documents, the Contractor shall pay the Owner, not as a penalty but as liquidated damages, such amount per calendar day as is specified in the Special Conditions.

(b) Because the difficulty in computing the actual damages which will result from failure to complete the construction on time, the said amount of liquidated damages is hereby estimated, agreed upon and determined in advance by the parties hereto as a reasonable evaluation of the actual damages which the Owner will suffer for each and every day during which the completion of the construction is delayed beyond the Construction Time herein fixed.

(c) Such monies due the Contractor, or to become due the Contractor at or after the Construction Time fixed in the Contract Documents, for all or any part of the construction, as may be necessary to pay said liquidated damages, may be retained by the Owner, and if such amounts are not sufficient to pay such liquidated damages, the Contractor shall immediately pay the deficiency to the Owner. Such deductions or amounts retained by the Owner shall not in any degree release the Contractor from further obligation and liability with respect to fulfilling the entire Contract.

(d) Nothing herein shall be construed to preclude claims by the Owner for damages caused by Contractor errors, omissions, or negligence unrelated to time delay in completing the construction on time.

**Section 8: CONTRACTOR'S CLAIMS PRIOR TO SUBSTANTIAL COMPLETION.**

(a) Written notice of any condition or event for which a claim is subsequently to be made by the Contractor shall be made to the Owner in writing within two (2) days after the first observance of such condition or event. A written claim for damages or additional compensation setting forth in full detail the labor, material and other costs and the total amount of the claim and the reasons therefor, shall be given to the Owner by the Contractor, with a copy to the Engineer, within fifteen (15) days after the first notice of such condition or event and if such condition or event continues, a similar written claim shall be presented every thirty (30) days thereafter. The Contractor expressly agrees that failure to give such notice of such condition or event and to present such detailed claims within the times specified shall constitute a binding waiver of any claim based upon such condition or event. Knowledge of the condition or event on the part of

the Owner shall not affect the requirements for such written notice and written claims within the specified times.

(b) The Contractor shall not cause a delay of construction during any dispute. If the Owner orders a modification of the Contract by issuing a Change Order which becomes a subject of dispute or if any interpretation of the Contract Documents, or Engineer's Instructions, becomes a subject of dispute, the Contractor, upon written notice from the Owner, shall proceed with the construction as modified by the disputed Change Order during the period required to resolve the dispute.

(c) Claims for additional payment for delay in the construction caused by any act or omission of the Owner shall be limited to damages, if any, sustained during the time reasonably required for the Contractor to discharge its employees and to move equipment to another construction project location which, in the opinion of the Engineer, is suitable for operations by such equipment. In no event shall such time exceed two (2) weeks for each such occurrence.

**Section 9: CONTRACTOR'S CLAIMS AFTER TERMINATION, SUBSTANTIAL COMPLETION OR DECLARATION OF CONTRACTOR'S DEFAULT.**

(a) When in the opinion of the Engineer the Contract is substantially completed, the Owner will send to the Contractor, by registered or certified United States mail, a written Opinion of Substantial Completion. Within thirty (30) days after delivery of such Opinion of Substantial Completion, and also in the event of a declared default of the Contractor or termination of the Contract before substantial completion, the Contractor shall give the Owner written notice of any claim it intends to make against the Owner arising out of or in relation to the Contract; provided, that written notice of a claim based upon an event which occurs after receipt by the Contractor of the Opinion of Substantial Completion may be so given within thirty (30) days after the occurrence of the event upon which the claim is based but in no event later than thirty (30) days after Owner has given Notice of Acceptance of the Construction. The notice of claim shall state the amount claimed and shall specify in detail the nature, grounds and manner of computation of the amount of the claim. The fact that the Contractor has given any notice or presented any claim required by any other provision of the Contract shall not relieve it from giving the notice required by this section of the Contract nor shall giving the notice required by this section relieve the Contractor from the effect of failure to give any notice or present any claim as required by any other paragraph or section of the Contract.

(b) Within sixty (60) days after receipt of such notice of claim, the Owner will give the Contractor written notice that the claim is allowed or rejected or allowed in part and rejected in part. Any claim or part thereof so allowed shall constitute an acknowledged obligation of the Owner under the Contract payable in due course. Failure to give such written notice of allowance or rejection within sixty (60) days after the Owner receives

the notice of claim shall constitute rejection thereof in full. The Contractor shall not start suit on any claim until the Owner has rejected the claim in whole or in part or has been accorded sixty (60) days in which to allow or reject the claim as above provided.

(c) The parties hereto expressly agree that the Contractor shall have thirty (30) days after receipt of written notice that the claim has been rejected in whole or in part, or ninety (90) days after the notice of claim is received by the Owner in case no notice of rejection is given, to bring suit against the Owner in the appropriate court sitting in the City of Ketchikan, First Judicial District, State of Alaska, and that otherwise, the claim, except the portion thereof allowed by the Owner, shall be forever barred. No suit shall be brought against the Owner on any claim arising out of or in connection with the Contract unless the requirements of this section applicable to the Contractor have been strictly complied with.

**Section 10: ASSIGNMENT OF CONTRACT.** The Contractor shall not assign, transfer, convey, pledge, hypothecate, or otherwise dispose of or encumber this Contract, or any rights thereunder, without the prior written consent of the Owner. Any such attempted assignment, transfer, conveyance, pledge, hypothecation, or other disposition shall be null and void and of no force or effect. No assignment of the Contract or funds due under the Contract by the Contractor with the consent of the Owner shall be valid unless it contains a provision that the funds to be paid to the assignee under the assignment are subject to all the Contractor's obligations under the Contract.

**Section 11: WAIVER OR MODIFICATION.** The failure of either party to the Contract to insist upon strict performance of any of the terms or provisions of the Contract Documents shall not constitute a waiver or relinquishment of any such terms or provisions, but the same shall be and remain in full force and effect. The making of any payment by the Owner to the Contractor, with or without knowledge of any default or breach of the Contract, shall not be deemed to be a waiver as to any default or breach of any term or provision of the Contract Documents. No waiver or modification of any term or provision of the Contract Documents shall be claimed by the Contractor unless the same be made by Change Order, and no such waiver or modification shall constitute a waiver or modification of any other term or provision.

**Section 12: SEVERABILITY AND HEADINGS.**

(a) If any part of the Contract Documents, including, but not limited to, any provision, paragraph, clause, phrase or words, is found to be in conflict with applicable law, such part shall be inoperative, null and void insofar as it is in conflict with said law, but the remainder shall be given full force and effect.

(b) The descriptive headings of the various parts, sections, paragraphs, and other portions of the Contract Documents have been inserted for convenience of reference only and shall in no way modify or restrict any of the terms and provisions of

the Contract Documents.

**Section 13: INTENT OF CONTRACT DOCUMENTS.**

(a) Except as otherwise provided in the Special Conditions, the intent of the Contract Documents is to include all plant, materials, equipment, tools, supplies, management, superintendence, Contractor's design and detailing, work, labor, transportation, fuel, power, water and all other utilities and services necessary for furnishing all of the construction required for the proper performance of the Contract.

(b) Except as may be otherwise provided in the Special Conditions, the intent of the Contract Documents is to specify and set forth a complete and operating unit or system ready for use regardless of whether or not every detail has been set forth in the Contract Documents. Any omission of details from the Contract Documents shall not be construed to mean that they are to be omitted by the Contractor or to affect in any way the completeness of the construction. The cost of such details shall be included in the prices in the Bid Proposal.

**Section 14: DISCREPANCIES IN CONTRACT DOCUMENTS.**

(a) If at any time the Contractor discovers that there is possible error, omission or discrepancy in any of the Contract Documents, the Contractor shall immediately notify the Engineer in writing. The Engineer shall promptly review the alleged error, omission or discrepancy and issue an Engineer's Instruction or the Owner may issue a Change Order. Any work done after such discovery and until receipt of an Engineer's Instruction or execution of a Change Order shall be at the Contractor's expense.

(b) To avoid any disputes which might arise as to the meaning of any engineering requirements in the Contract Documents or to any alleged error, omission or discrepancy therein, the Engineer's opinion as to the true intent and meaning, and the Engineer's interpretation thereof, shall be first obtained before any legal action is taken. All dimensions shall be taken from numerical figures on the Contract Drawings and no dimensions scaled from such drawings are valid. If dimensions are apparently missing from the Contract Drawings, work shall be suspended on that portion of the construction until the Owner has been notified and has made the necessary dimensions available via an Engineer's Instruction or on a Contract Drawing.

(c) Should any discrepancies or conflicting provisions among the various Contract Documents be discovered, precedence is hereby established in the following order:

1. Change Orders
2. Agreement
3. Addenda
4. Special Conditions
5. General Conditions

6. Engineering Specifications
7. Contract Drawings
8. Construction Schedule
9. Notice to Contractors Inviting Bids
10. Information for Bidders
11. Performance and Payment Bonds
12. Bid Proposal as Accepted.

**Section 15: DRAWINGS, SPECIFICATIONS AND INSTRUCTIONS.**

(a) The Owner has prepared designs and Contract Documents and may from time to time issue additional information during the term of the Contract, by means of Engineer's Instructions, Construction Drawings or otherwise, to add detail to the Contract Documents. All such Instructions, Drawings and additional information shall be consistent with the Contract Documents and shall be developments thereof.

(b) All construction shall be furnished in accordance with the Contract Documents and to the dimensions fixed thereby. The Owner reserves the right to make reasonable revisions in dimensions and relocations of construction; provided, however, that such revisions or relocations are made prior to construction of any item to be revised or relocated. If such revisions and relocations result in no additional cost to the Contractor, such revisions or relocations shall be made at no additional cost to the Owner.

**Section 16: SHOP DRAWINGS.**

(a) The Contractor shall prepare or secure, and submit to the Owner for review, not as a check of details but for the purpose of determining whether or not the general method of fabrication, quality of materials and equipment and detailing are in accordance with the Contract Documents, are suitable for instruction of operating personnel and for maintenance, such nonproprietary Shop Drawings as are necessary in the opinion of the Engineer for such purposes. Such Shop Drawings shall include, but not be limited to, general arrangement, outline, connection and external detail drawings and instruction, operation and maintenance booklets. Two reproducible prints and one contact print of each Shop Drawing shall be submitted to the Owner. Four (4) copies of all catalog cuts serving as Shop Drawings shall be submitted to the Owner over and above the number of copies the Contractor wants returned following Owner's review.

(b) The review of Shop Drawings shall not relieve the Contractor of the responsibility which it has under the Contract Documents, including but not limited to quality, quantity, performance characteristics, dimensions, adequate details, schedules and satisfactory coordination of all materials and equipment components. The Contractor shall submit such Shop Drawings with such promptness as to cause no delay in its own operations or that of its Subcontractors. Shop Drawings shall be

checked by the Contractor to determine that they do not deviate from the Contract Documents, and if they do, such Shop Drawings shall be accompanied by a written notice to the Engineer stating in detail the nature of and the reasons for any proposed deviations. Shop Drawings shall be submitted in such sequence as is necessary in the opinion of the Engineer to give them adequate review.

(c) The Engineer's review will be completed within a reasonable time after receipt by the Engineer of each Shop Drawing in proper sequence with markings as follows:

(1) **Reviewed**. Indicates Shop Drawing has been reviewed and appears to conform with the intent of the design concept. The Contractor shall make further distribution of the Shop Drawing and may proceed with fabrication shown on the Shop Drawing.

(2) **Resubmit**. Indicates Shop Drawing or part thereof does not appear to conform with the design concept. The Owner's comments will be noted on the Shop Drawing or in a separate letter. The Contractor shall recheck, make necessary revisions and resubmit for Owner's review.

(3) **Reference**. Indicates Shop Drawing gives information that is incidental to construction described in the Contract Documents and is for general information only.

(d) All Shop Drawings and data shall be concise and legible. Detailed information about the various components involved shall be clearly identified with the component designation. Shop Drawings shall include, as applicable, equipment outlines and dimensions, foundation requirements and wiring diagrams giving complete information for the installation and erection, maintenance and repair, or for identification of parts for ordering replacements on each item to be furnished under the Contract.

(e) The Contractor shall submit to the Owner three (3) sets of final Shop Drawings, showing all changes and revisions and shall furnish one (1) full-size black-on-white positive mylar transparency to the Owner.

**Section 17: CONTRACTOR'S COPIES OF DRAWINGS**. The Contractor will be supplied by the Owner without charge, not more than ten (10) sets of Contract Drawings. Additional copies of Contract Drawings, if desired by the Contractor, will be furnished by the Owner at cost. The Contractor shall keep at least one (1) record copy of all Contract Documents, including Plans, Shop Drawings, Modifications, etc., at the construction site in good condition in a weathertight enclosure to show all changes, revisions, and "as-built" notations made during the construction process. These are to be available to the Engineer and shall be delivered to him for the Owner upon completion of the project.

**Section 18: MATERIALS AND EQUIPMENT.**

(a) Unless otherwise provided in the Special Conditions, the Contractor shall furnish and fully pay for all construction prior to acceptance by the Owner. All materials and equipment incorporated in the completed construction shall be new and not previously used. If requested by the Owner, the Contractor shall provide satisfactory evidence of the kind and quality of materials and equipment to be furnished and that such have been paid for.

(b) If materials or equipment are specified in the Special Conditions to be furnished by the Owner, they shall be conclusively deemed acceptable for the purpose designed if received in satisfactory condition. The Contractor may continue to use such materials or equipment until otherwise directed; provided, however, that if the Contractor discovers any defect in materials or equipment furnished by the Owner, it shall immediately notify the Owner and the Engineer in writing and shall cease to use such defective items pending receipt of written instructions from the Owner or the Engineer.

(c) If materials or equipment are specified in the Special Conditions to be furnished by the Owner, they shall be received by the Contractor f.o.b. the point of delivery specified in the Special Conditions, and in the absence of such specification, receipt by the Contractor shall be f.o.b. the plant of the supplier of the materials or equipment to be so furnished. The Contractor shall receive, load and unload, transport, store and properly protect from damage or loss all such materials or equipment and the Contractor shall be responsible for loss or damage after receipt of materials or equipment and until final acceptance of the construction by the Owner. The Contractor shall immediately report to the Owner and the Engineer in writing in the form and manner prescribed by the Engineer the receipt of Owner-furnished materials and equipment.

**Section 19: WORKMANSHIP.** All construction shall be such that its several component parts function as a workable system, with all accessories necessary for its proper operation, and the construction shall be furnished with all components tested, properly adjusted, and in operation. The construction shall be furnished in conformance with the normally accepted standard practice of the trade so as to contribute to maximum efficiency of operation, accessibility and appearance and minimum cost of operation, maintenance and construction of future alterations and additions. It shall also be so furnished that the completed construction will conform and adjust to and operate in a coordinated manner with the existing installation, if any.

**Section 20: COMPLIANCE WITH CONTRACT DOCUMENTS.**

(a) Unless otherwise provided in the Special Conditions, whenever in the Contract Documents any material, equipment, method or process is indicated or specified without reservation, by patent or proprietary name, by name of the manufacturer or by catalog number, such specification shall be deemed to be used for

the purpose of establishing a standard of quality and for facilitating the description of the material, equipment, method or process desired, and shall be deemed to be followed by the words "or equal." In such event the Contractor may offer to furnish another material, equipment, method or process which shall be substantially equal in every respect to that so indicated or specified. The Engineer shall be the sole judge of the equality of such material, equipment, method or process offered in substitution.

(b) Offers of substitution for items described in the Contract Documents will be considered only upon the written request of the Contractor, and no requests for such substitutions will be acknowledged or considered from suppliers, distributors, manufacturers or subcontractors or any other source. Requests for approval of a substitution shall be by submitting Shop Drawings, where applicable, and shall be accompanied by documentary evidence of equality in the form of descriptive literature, samples, records of performance, certified copies of tests by independent recognized laboratories, and differences in prices and delivery, if any, in the form of certified quotations from suppliers of both the specified material, equipment, method or process and the proposed substitute.

(c) Such offers of substitution of materials or equipment shall include data to substantiate that the "or equal" product meets the following criteria applicable to the item submitted:

(1) The change is adaptable to the design, (2) the functional performance will be equal to or better than the item specified, (3) where the appearance affects the end product, the appearance of the item will be as good as or better than the item specified, (4) the maintenance cost for the product or item will be equal to or less than the item specified, (5) the quality of materials used and the level of construction of the item will be as good or better than the item specified, (6) the net price of the item will be within the same price range as the item specified and (7) installation cost of the item specified will be equal to or less than that of the item specified.

**Section 21: VALUE ENGINEERING.** (a) The Contractor may submit alternate construction details for consideration where these will result in reduced project cost without loss of essential function. Such alternates shall be in the form of written value engineering proposals indicating the nature of recommended revisions and the Contractor's proposed credit to the Owner.

(b) A value engineering proposal shall constitute a binding offer by and on the Contractor and may not be withdrawn. However, if not accepted within the time limits described in (c) below, the proposal shall become void. The terms and credits of the proposal may be changed by mutual agreement between the Owner and Contractor, or may be accepted without further modification by the Owner.

(c) The value engineering proposal shall be in sufficient detail to permit a reasonably complete evaluation of the costs and technical changes involved. Proposals

shall be addressed to the Owner's Engineer, who shall respond within fourteen (14) calendar days after receipt regarding functional acceptability or completeness of the proposal. In the event no response is made within this time period, the proposal shall be considered rejected. The judgment of the Owner's engineer shall be final regarding acceptability of Contractor's proposal.

(d) If a proposal is accepted, the Contract shall be amended by Change Order to reflect the modifications and the Contract amount shall be decreased by negotiated or offered credit amount.

**Section 22: SOIL AND/OR SUBSURFACE CONDITIONS.** Any data regarding soil and/or subsurface conditions which may be shown in the Construction Drawings, Engineering Specifications, or elsewhere in the Contract Documents, is not to be taken as a representation, but is based on limited information and is at best only an opinion; consequently, such data cannot and shall not be considered precise or complete and there is no guarantee or representation as to its completeness, accuracy, or precision and the Owner shall not be liable therefor. All Bidders and/or Contractors shall thoroughly familiarize themselves with the site and subsurface conditions at all locations on this project by their own independent investigation, including soils or other tests, and the nature of such condition shall be determined and ascertained by Bidders and Contractors on their own by independent investigations and to their own satisfaction.

**Section 23: STORAGE OF MATERIALS AND EQUIPMENT.** If any materials or equipment are stored, they shall be stored so as to ensure the preservation of their quality and fitness. Materials and equipment shall be placed on platforms or other hard, clean surfaces, and not on the ground, and shall be placed under cover and heated adequately to prevent condensation or freezing. Stored materials and equipment shall be located so as to facilitate observation. The Contractor shall be responsible for all damage to or loss of the materials or equipment that occurs until written acceptance by the Owner.

**Section 24: MANUFACTURER'S INSTRUCTIONS.** All instructions and directions of the manufacturer of material and equipment furnished to the Contractor shall be followed unless specified to the contrary. The Contractor shall obtain and furnish to the Engineer prior to use of materials or installation of equipment five (5) copies of all instructions and directions of the manufacturer of such materials and equipment.

**Section 25: DEFECTIVE MATERIALS AND WORKMANSHIP.**

(a) The Contractor shall promptly remove from the premises all materials and equipment and correct all construction which in the opinion of the Engineer is defective in workmanship or materials or fails to conform to the Contract, or the manufacturer's specifications or technical data, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute its own construction in accordance with the Contract and without cost or expense to the Owner, and shall bear the expense

of making good all construction of other contractors or the Owner's building or site, destroyed or damaged by such removal and replacement.

(b) If the Contractor does not remove construction which in the opinion of the Engineer is defective or fails to conform to the Contract, within a reasonable time, which shall be fixed by written notice from the Owner, the Owner may remove and store the materials and cause the correction of such construction at the expense of the Contractor. If the Contractor does not pay the expense of such removal and storage within ten (10) days after delivery of a notice of the cost of such removal and storage, the Owner may give written notice to the Contractor and ten (10) days after such notice the Owner may dispose of the material. Costs arising from such removal, storage or disposal of materials and correction of the construction shall be paid by the Contractor and may be deducted from any payment due the Contractor. The provisions of this section shall not impose any duty or responsibility on the Owner or Engineer to advise or inform Contractor of any materials or work considered to be defective and failure to do so shall not be deemed to be an acceptance of defective materials or work by the Engineer or by the Owner.

(c) All work such as pipes, wires, conduits, insulation and any other items designated by the Engineer shall be inspected prior to the work being covered.

All work requiring inspection that is covered prior to inspection by the Engineer shall be uncovered for inspection as requested by the Engineer and recovered at no cost to the Owner.

#### **Section 26: WARRANTIES.**

(a) The Contractor warrants to the Owner that the construction to be provided under the Contract shall be fit for the purpose specified when operated in accordance with generally accepted operating practices; shall be new and free from any defects in material, workmanship, and title; shall meet all specifications, including those relating to performance, contained or incorporated by reference in the Contract; and that the technical direction of installation will be performed in a competent, diligent manner in accordance with generally accepted professional standards.

(b) The foregoing warranties (except as to title) shall apply to defects or deficiencies occurring within a period of one (1) year from final acceptance of the Project by the Owner. If, however, during the above one (1) year warranty period the construction is not available for operation due to a failure to meet such warranties, such time of unavailability shall not be counted as part of the warranty period. The conditions of any field tests shall be mutually agreed upon, and the Contractor shall be notified of and may be represented at all tests that may be made.

(c) If the construction furnished does not meet the warranties specified above, assuming normal and proper use and maintenance, the Owner shall promptly notify the Contractor and make the construction available for correction. The Contractor shall

thereupon correct all defects, including nonconformance with the Engineering Specifications, at its expense, either by repairing or replacing any defective or damaged parts of the construction furnished under the Contract. All of the costs of labor, materials and equipment associated with such repair or replacement of the construction, including removal, loading and unloading, transportation to and from the repair site and reinstallation, shall be borne by the Contractor.

(d) Any repaired or replacement construction furnished under the aforesaid warranty shall also carry warranties for one (1) year on the same terms as set forth above from the date of its repair or replacement.

(e) The Contractor shall obtain written warranties from its Subcontractors and suppliers of material and equipment where such warranties are specifically required by the Special Conditions and shall deliver the original warranties to the Owner.

(f) Neither the final payment, nor any other provision of the Contract, nor partial or entire use of the construction by the Owner shall relieve the Contractor of liability with respect to the warranties referred to in the Contract or any other warranties express or implied.

(g) In the event the Contractor fails to accomplish the warranty work as required herein, the Owner may proceed to accomplish the same and the Contractor, and its Surety, shall be jointly and severally liable to the Owner for all costs and expenses in relation thereto.

#### **Section 27: PATENTS AND ROYALTIES.**

(a) The Contractor shall pay the costs of all royalties, permits, licenses or other fees necessary for the performance of the Contract.

(b) The Contractor warrants that the construction furnished hereunder, and any part thereof, shall be delivered free of any rightful claim of any third party for infringement of any patent. If notified promptly in writing and given authority and information, the Contractor shall appear and defend or may settle, at its expense, any suit or proceeding against the Owner so far as it is based on a claimed patent infringement which would result in a breach of this warranty and the Contractor shall pay all damages and costs awarded therein against the Owner due to such breach. In the event the construction or any part thereof is held to constitute such an infringement and the use of said construction or part is enjoined, the Contractor shall, at its expense and option, either procure for the Owner the right to continue using said construction or part, or replace same with non-infringing construction, or part, or modify same so it becomes non-infringing.

(c) The preceding subparagraph shall not apply to any construction or part manufactured to the Owner's design, or to the use of any construction furnished hereunder in conjunction with any other product in a combination not furnished by the

Contractor pursuant to the Contract. As to any such construction, part, or use of such combination, the Contractor shall have no liability for patent infringement.

**Section 28: LAWS AND REGULATIONS.**

(a) The Contractor shall give all notices required by law and comply with all laws, ordinances, rules and regulations relating to the conduct of the construction. The Contractor shall be liable for all violations of the law in connection with construction furnished by the Contractor.

(b) If the Contractor observes that the Contract Documents are at a variance with any law, ordinance, rule or regulation the Contractor shall promptly notify the Owner in writing and all necessary changes shall be made by Engineer's Instructions or Change Order. If the Contractor performs any work knowing or that the Contractor should have known to be contrary to such laws, ordinances, rules and regulations, and without giving such notice to the Owner, the Contractor shall bear all costs of required changes and be liable to the Owner for all damages arising therefrom.

**Section 29: PERMITS.**

(a) Permits, licenses and easements of a temporary nature which are necessary only for and during the construction, shall be secured and paid for by the Contractor, except those permits, licenses or easements of a temporary nature which are stated in the Special Conditions to be provided by the Owner.

(b) Permits, licenses, and easements of a permanent nature, which are necessary to be maintained after acceptance of construction, shall be secured and paid for by the Owner unless otherwise specified in the Special Conditions.

**Section 30: HOLD HARMLESS AND INDEMNITY.** The Contractor specifically obligates itself to the Owner in the following respects, to-wit:

(a) To indemnify and appear and defend and hold harmless the Owner, its elected and appointed officials and employees, from and against any and all claims, damages, losses, costs and expenses, including attorneys' fees and expenses incurred, whether or not suit is filed, and for injuries to or theft of property, including loss of use, injuries to persons, including death, and from any and all other claims, suits or liability, caused in whole or in part by any act or omission of the Contractor, or any of its officers, agents, employees, representatives, servants or subcontractors, or anyone employed by them, or for whose acts Contractor may be liable, in the performance or nonperformance of the work or construction, or of any of the terms and/or conditions of the Contract, or caused by or resulting from any act or omission of Contractor, or any of Contractor's employees, agents, representatives, licensees, contractors or representatives.

(b) To appear, defend, indemnify and hold harmless the Owner and its officers,

agents, and employees from and against any and all claims, judgments, liens, loss, damage, cost, charge or expense, including defense costs, court costs and attorneys' fees, whether direct or indirect, by reason of casualties to the construction whether completed or not, including loss of use thereof.

**Section 31: INSURANCE.** (a) Contractor shall not commence work under this Contract until all of the insurance required under this section has been obtained and Contractor has filed the certificates of insurance and copies of insurance policies with the Owner as required by the Contract Documents, and the Owner has approved the same, nor shall Contractor allow any subcontractor to commence work on his subcontract until the insurance required has been so obtained.

(b) **General Liability Insurance.**

(1) **Coverage.** The Contractor shall purchase and maintain General Liability Insurance covering bodily injuries, including death at any time resulting therefrom, sustained by any person or persons, and covering damages to property, including loss of use thereof, arising out of or in consequence of the performance of the Contract or the work or construction, whether such injuries to persons or damages to property are due or are claimed to be due to operations of the Contractor, its subcontractors, or any of their officers, employees, servants, partners, agents or representatives. The Owner shall be named as an additional insured on all such policies.

(2) **Insurance Amounts.** Such General Liability Insurance shall be in the amounts set forth on the form of Certificate of Insurance included in the Contract Documents and required herein to be filed with the Owner.

(3) **Insurance Period.** Such General Liability Insurance shall be maintained in effect at all times until final acceptance by the Owner of all of the completed construction, and products liability and completed operations liability for at least two (2) years thereafter.

(4) **Insurance Form.** Such General Liability Insurance shall indemnify and defend the Contractor, its subcontractors and the Owner, as an additional named insured, and all of their officers, employees, servants, partners, agents and representatives from and against any and all claims, judgments, liens, loss, damage, cost, charge or expense, including defense costs, court costs and attorneys' fees, whether direct or indirect, by reason of liability imposed by law or by contract upon said parties, including Operations/Premises Liability, Independent Contractor's Protective Liability/Owner's Protective Liability, Completed Operations and Products Liability, Broad Form Blanket Contractual Liability, Owner, Non-owned, and Hired Vehicles and Equipment, and Broad Form Property Damage, including explosion, collapse and underground damage and loss of use. Such General Liability Insurance shall be provided on a comprehensive bodily injury and property damage liability form satisfactory to the Owner and shall name the Owner as an additional insured and shall cover and include Contractor's contractual indemnity of Owner. The coverage shall not

include an unfunded self-insured retention. A Certificate of Insurance certifying such insurance policies have been issued to the Contractor shall be filed with the Owner in the amount and form and as required herein.

(c) **Worker's Compensation.**

(1) **Insurance Requirements.** The Contractor and its subcontractors shall purchase and maintain industrial accident or worker's compensation insurance issued by an insurance company authorized to write such insurance in the State of Alaska covering bodily injuries, including death at any time resulting therefrom, suffered or alleged to have been suffered by any employee of the Contractor or its subcontractors by reason of or in the course of operations under the Contract.

(2) **Insurance Amount.** The amount and type of such industrial accident or worker's compensation insurance shall be that required by law for all employees employed under the Contract who may come within the protection of such laws, and as required by the Certificate of Insurance required under (e) below.

(3) **Insurance Period.** Such industrial accident and worker's compensation insurance shall be maintained in effect until final acceptance of the completed work and construction.

(4) **Failure to Maintain Worker's Compensation Insurance.** The Contractor acknowledges and agrees that in the event it fails to maintain proper worker's compensation insurance coverage, the State and the Owner may pursue any remedies provided by AS 23.30.045, terminate the Contract without liability, and/or take or pursue any other remedies otherwise provided by law.

(d) **Builder's All Risk.** (Not required)

(e) **Certificates of Insurance.** Contractor shall deposit with the Owner not later than submittal of the signed Agreement and required bonds, Certificates of Insurance from its insurance companies certifying to the coverage of all of the insurance required in this section in the form, and in the amounts set forth on the form of Certificate of Insurance set forth in the Contract Documents, and as required herein, and shall furnish copies of all insurance policies at any time upon request of the Owner.

(f) **Cancellation of Insurance.**

(1) The Contractor shall not cause any insurance policy to be canceled or permit any policy to lapse or reduce the amount of such insurance during the period of the Contract. All insurance policies shall include a provision to the effect that the insurance policy shall not be subject to cancellation, lapse, or to a reduction in the amount of insurance until written notice has been first delivered to the Owner by the insuring company stating the date that such cancellation, lapse, or reduction shall be effective, which date shall not be less than thirty (30) days after the delivery of such

notice to the Owner.

(2) When a renewal of the policy is approaching, Contractor shall deposit evidence of renewal not less than twenty (20) days before expiration of the term of the policy.

(3) The Owner shall have the right to require Contractor provide verification, including the right to inspect Contractor's records at reasonable times, to confirm the insurance called for herein is in force. If the Contractor fails to provide verification of full coverage of all the insurance required by the Contract Documents, at all times, Owner may, without liability, direct the Contractor cease any further operations, and remove all personnel and equipment from the project site until all such insurance is verified as being in full force and effect, or may, without liability, deem such failure to verify full coverage as a material breach and default and terminate the Contract without liability.

(g) **Waiver of Subrogation.** Each of the policies of insurance required herein shall contain a clause or endorsement pursuant to which the insurance companies waive subrogation or consent to a waiver of right to recovery against the Owner.

(h) **Insurance Companies.** Unless such requirement is waived by the Owner in writing, all insurance companies issuing any insurance required in this section shall be member insurers included and covered under the Alaska Insurance Guarantee Association Act (Alaska Statutes, Section 21.80.010, et seq.).

### **Section 32: WAGE RATES.**

(a) Contractor shall pay not less than the minimum wage per hour for each classification of laborers, workers, or mechanics as set forth in the State of Alaska, Department of Labor, Wage and Hour Division, pamphlet entitled "Laborers' and Mechanics' Minimum Rates of Pay," reference information of which is included as part of these Contract Documents, and in the event the rates are amended at any time during the period of this Contract, Contractor shall adjust the rates paid in such manner as to at all times be not less than the then current prevailing wage rate schedule issued by the State of Alaska. Contractor shall in addition thereto comply with all other applicable provisions of Alaska Statutes, Title 36, Chapter 5 [Wages and Hours of Labor]. Contractor further expressly acknowledges and agrees that prior to bidding on this Contract and the Project, and at the time of submitting its bid and entering into the Contract, it has obtained and fully informed itself of the current wage rate schedule and Contractor by entering into this Contract, assumes full and sole responsibility to keep itself fully informed as to any changes made in the current wage scale required to be paid and will adjust and pay the prevailing wage rates, as such are modified from time to time, at all times during the performance of the Contract.

(b) The Contractor shall submit to the State of Alaska, Department of Labor, a certified payroll on a form suitable to the Department of Labor each week as required by

law, with copies thereof to the Owner if requested, and submit to the Owner an executed Minimum Wage Affidavit with each pay request and at the end of the project. The affidavit shall be in the form included in the Contract documents.

(c) Contractor agrees:

(1) that the Contractor, and his subcontractors, shall pay all employees unconditionally and not less than once a week;

(2) that wages shall not be less than those stated in the most current Minimum Wage Schedule published by the State Department of Labor regardless of the contractual relationship between the Contractor or subcontractors and laborers, mechanics, or field surveyors;

(3) that the scale of wages to be paid shall be posted by the Contractor in a prominent and easily accessible place at the site of the work;

(4) that the Owner is authorized to withhold so much of the accrued payments as is necessary to pay to laborers, mechanics, or field surveyors employed by the Contractor or subcontractors the difference between:

(a) the rates of wages required by the Contract to be paid laborers, mechanics, or field surveyors on the work, and

(b) the rates of wages in fact received by laborers, mechanics or field surveyors.

(d) If it is found that a laborer, mechanic, or field surveyor employed by the Contractor or Subcontractor has been or is being paid a rate of wages less than the rate of wages required by the Contract to be paid, the Owner may, by written notice to the Contractor, terminate the Contractor's right to proceed with the work or the part of the work for which there is a failure to pay the required wages and to prosecute the work to completion by contract or otherwise, and the Contractor and his sureties shall be liable to the Owner for all costs and expense incurred thereby and for any excess costs in completing the work. (AS 36.05.070).

**Section 33: AFFIRMATIVE ACTION.**

(a) Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. Contractor will take affirmative action to ensure the applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to

employees and applicants for employment, notices setting forth the provisions of this subsection.

(b) Contractor will, in all solicitations or advertisements for employees placed by or on behalf of Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

(c) Contractor will send to each labor union or representative of workers and with which it has a collective-bargaining agreement or other contract or understanding, a notice advising the said labor union or worker's representative of Contractor commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended by Executive Order No. 11375 of October 13, 1967, and the rules, regulations and relevant orders of the Secretary of Labor.

(e) Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, as amended, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

(f) The Contractor will include the provisions paragraphs (a) through (e) of this section in every contract, and will require the inclusion of these provisions in every subcontract entered into by any of its subcontractors, so that such provisions will be binding upon each Subcontractor, as the case may be. For the purpose of including such provisions in any construction, maintenance, or service contract or subcontract, as required hereby, the term "Contractor" and the term "Subcontractor" may be changed to reflect appropriately the name or designation of the parties of such contract or subcontract.

(g) The Contractor agrees that he will fully cooperate with the office or agency of the State of Alaska which seeks to deal with the problem of unlawful or invidious discrimination, and with all other State efforts to guarantee fair employment practices under this Contract, and said Contractor will comply promptly with all requests and directions from the State Commission of Human Rights or any of its officers or against relating to prevention of discriminatory employment practice.

(h) Full cooperation as expressed in the foregoing clause (g) shall include, but not be limited to, being a witness in any proceeding involving questions of unlawful or invidious discrimination if such is deemed necessary by any official or agency of the State of Alaska, permitting employees of said Contractor to be witnesses or complainants in any proceeding involving questions of unlawful or invidious discrimination, if such is deemed necessary by any official or agency of the State of Alaska, or the Owner, participating in meetings, submitting periodic reports on the equal

employment aspects of present and future employment, assisting in inspection of relevant facilities, and promptly complying with all State directives deemed essential by any office or agency of the State of Alaska, or the Owner, to insure compliance with all Federal and State laws, regulations, and policies pertaining to the prevention of discriminatory employment practices.

(i) Failure to perform any of the above agreements pertaining to equal employment opportunities shall be deemed a material breach of the Contract and sufficient grounds for termination thereof for cause.

**Section 34: EMPLOYMENT OF LOCAL RESIDENTS.**

Contractor shall, to the extent required by law, comply with the employment preference provisions of Alaska Statutes 36.10.010 et seq.

**Section 35: NOTICE TO PROCEED.**

Within ten (10) days after submittal by the Contractor of all required documents, and the execution of the Contract by the Owner, written Notice to Proceed will be given by the Owner to the Contractor. Unless otherwise specified in the Notice to Proceed, the Contractor shall begin construction immediately upon receipt of the Notice to Proceed and shall continue regularly thereafter, unless otherwise directed in writing by the Owner, with such work force, materials and equipment as to assure construction progress in accordance with the construction schedule, if any, and that construction is complete within the construction time stated in the Contract Documents.

**Section 36: TIME.**

All times and time limits stated in the Contract Documents shall be of the essence of the Contract. All references to days shall mean calendar days and the time within which acts are to be done shall be computed by excluding the first and including the last day, and if the last day is a Sunday or legal holiday where the act is to be performed, the act shall be completed on the next business day.

**Section 37: CONSTRUCTION TIME.**

The Contractor agrees to achieve Substantial Completion as called for in the Contract within the number of days, or by the date specified, for completion of Construction set forth in the Agreement, or in the event that the time for completion is extended by Change Order as provided herein, then within the additional days by which the time is so extended. All changes in Construction Time shall be made only by Change Orders to the Contract. Contractor further agrees to complete the work so that it is ready for final payment in accordance with Section 48.

**Section 38: CONSTRUCTION SCHEDULE.**

(a) A Construction Schedule, if required, shall be as required by the Special Conditions or Division 1 in the form of either a time bar diagram showing certain of the various operations necessary to complete the construction, including the starting and completion date of each operation shown, or the Construction Schedule shall be prepared by the critical path method and shall set forth a network analysis, which shall consist of an arrow diagram, tabulation of activities, estimated time and starting and completion date of each activity and an indication of the critical path.

(b) In the event progress payments are provided for and authorized in the Special Conditions, the Contractor's Requests for Payment will be considered and payments will be approved by the Owner on the basis of the Contractor's actual progress in relation to the dates shown in the Construction Schedule for completion of various parts of the operations. If the actual progress fails to meet the Construction Schedule, the Contractor shall increase its work force and equipment at its own expense as required to bring the actual progress of the operations into conformance with the Construction Schedule.

(c) During the course of construction the Contractor shall enter on the Construction Schedule its estimate of progress at the end of each calendar month, or at such more frequent intervals as directed by the Engineer, and shall deliver to the Owner two (2) copies thereof with each submittal of the Contractor's Request for Payment.

**Section 39: CHANGES IN CONSTRUCTION.**

(a) If the Contractor claims that the Engineer's Instructions or additional requirements of the Owner, by drawings or otherwise, entitle the Contractor to additional payment or extension of time under the Contract, or both, the Contractor shall deliver to the Owner a written proposal of changes in Total Contract Amount and Construction Time within ten (10) days after the receipt of such instructions or requirements and before proceeding to execute the changes. Failure of the Contractor to deliver such a proposal shall constitute a waiver by the Contractor of any claim for additional payment or extension of time. If the Owner and the Contractor are in agreement as to changes in Total Contract Amount and Construction Time, a Change Order to the Contract will be issued for approval and execution by the Owner and Contractor.

(b) By proper action of its governing body and without invalidating the Contract, the Owner may order changes in the Contract Documents requiring changes in the construction, order changes in the quantities of the unit price items or make other changes in the Contract provided such changes are within the general scope of the Contract. No official, employee, agent or representative of the Owner, with the exception of the governing body empowered to accept and authorize execution of the Contract, shall have power to authorize any change in the Contract. It shall be the responsibility of the Contractor, before proceeding with any change, except a change which is an emergency in the opinion of the Owner, to determine that the execution of a

Change Order has been properly authorized on behalf of the Owner by its governing body.

(c) When a change in construction is ordered by the Owner, a Change Order shall be executed by the Owner and the Contractor; except that the Contractor hereby agrees that changes in the construction for which the Special Conditions or other provisions of the Contract provides that the Contractor is to be reimbursed on the basis of cost plus certain allowances may be made by the Owner, and the Contractor hereby accepts such Change Orders.

(d) When a change in quantities is ordered by the Owner, a Change Order shall be executed by the Owner and the Contractor; except that the Contractor hereby agrees to (1) increases of quantities of unit price items of basic units of construction not exceeding twenty-five percent (25%) of the bid quantities unless otherwise specified in the Special Conditions, (2) increases in quantities of unit price items of integrated units of construction in the aggregate not exceeding twenty-five percent (25%) of the Total Contract Amount, (3) changes in work or quantities for which the Contract provides that the Contractor is to be reimbursed on the basis of cost plus certain allowances, and (4) reductions of quantities of unit price items of basic or integrated units of construction of any amount may be made by the Owner, and the Contractor hereby accepts such Change Orders.

(e) The Contractor shall notify the Engineer in advance of the exact time of commencing any change in the construction or change in quantities where payment is on the basis of cost plus certain allowances and shall keep the Engineer fully informed at all times of the progress of said change and the materials, equipment, and labor involved. The Contractor shall submit to the Engineer a written report of the progress and costs incident to such change on the day following the day during which said change was being carried on. Failure to do so shall constitute a waiver of any and all claims for additional compensation for such changes by the Contractor.

#### **Section 40: EXTENSION OF TIME.**

(a) Should the completion of the construction required under the Contract be delayed beyond the time herein specified for completion, the Owner may grant the Contractor additional time for completion by executing a Change Order modifying the Construction Time and Construction Schedule. If the failure of the Contractor to complete the construction within said specified time results from unavoidable delay as hereinafter defined, the Construction Time shall be extended by the number of days lost as a result of the unavoidable delay, provided, however, that the Constructor shall make a claim to the Owner in writing for such extension of time as herein provided. In considering applications for extension of time, the Engineer will classify delays according to the following definitions:

(l) Unavoidable delays in the prosecution or completion of the construction shall include all delays which result from causes beyond the control of the

Contractor and which could not have been avoided by the exercise of reasonable care, prudence, foresight and diligence on the part of the Contractor or its Subcontractors. Delay in completion due to contract modifications ordered by the Owner, unforeseeable delays in the completion of the construction of other contractors employed by the Owner, floods, fire, labor strikes, war, the public enemy and Acts of God will be considered unavoidable delays, insofar as they necessarily interfere with the Contractor's completion of the construction. DELAY DUE TO ADVERSE WEATHER CONDITIONS, WILL NOT BE REGARDED AS UNAVOIDABLE DELAYS AS THE CONTRACTOR MUST PLAN ITS CONSTRUCTION WITH PRUDENT ALLOWANCE FOR SUCH CONDITIONS AND IN PARTICULAR, AS SUCH CONDITIONS EXIST IN KETCHIKAN, ALASKA, AND ENVIRONS.

(2) Avoidable delays in the prosecution or completion of the construction shall include all delays which in the opinion of the Engineer could have been avoided by the exercise of care, prudence, foresight and diligence on the part of the Contractor or its Subcontractors. Delays in the prosecution of parts of the construction which may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of other parts of the construction nor the completion of the whole construction within the time herein specified; reasonable loss of time resulting from the necessity of submitting Shop Drawings to the Owner for review and from the making of surveys, measurements, and observations; and such interruptions as may occur in the prosecution of the work on account of the reasonable interference of other contractors employed by the Owner which do not necessarily prevent the completion of the whole construction within the time agreed upon and delays due to adverse weather conditions, shall constitute avoidable delays within the meaning of the Contract.

(b) Claims for extension of time shall be made in writing to the Owner no later than five (5) days after occurrence of the event causing the delay. In the event of continuing cause of delay, only one (1) claim shall be necessary. Contractor agrees that failure to make such claim within the time specified shall constitute a binding waiver of such claim.

(c) No claim for delay shall be allowed on account of failure to furnish Construction Drawings until ten (10) days after written request for such drawings has been made by the Contractor to the Owner. There may be some Construction Drawings which cannot be made until certain work has been done by the Contractor. Request for such Construction Drawings shall not be effective, so as to start the running of the ten (10) day period, until the Contractor's work has advanced to the point which will enable and require such Construction Drawings to be made.

**Section 41: OWNER'S USE OF CONSTRUCTION.**

(a) The Owner shall have the right to take possession of, use and collect revenues from any completed, partially completed, satisfactory or unsatisfactory portions of the construction after the time for completion of the entire construction has expired, but such taking possession and use shall not be deemed an acceptance of any construction not completed in accordance with the Contract Documents.

(b) The Contractor shall not be entitled to any extra compensation for or extension of time due to costs to the Contractor arising from the use of any portion of the construction by the Owner.

**Section 42: PAYMENT OF THE CONTRACT AMOUNT.**

(a) The Owner hereby agrees to pay to the Contractor as full compensation for the timely, proper and complete performance of the Contract a sum of money as follows:

(1) **Total of Lump Sum Prices.** If the Total Contract Amount is a lump sum price, or the total of lump sum prices, such amounts; or

(2) **Total of Unit Prices.** If the Total Contract Amount is computed from the actual measured quantities in the completed construction at the unit prices for construction listed in the Bid Schedule of the Contractor's Bid Proposal, such amounts; or

(3) **Total of Lump Sum Plus Unit Prices.** If the Total Contract Amount is a combination of (1) and (2) above, the total of such amounts;

provided, said sum of money is further properly adjusted in accordance with the applicable provisions of the Contract.

(b) The making of any payment to the Contractor under the Contract shall not relieve the Contractor of any obligations thereunder. The Contractor is obligated to complete the Contract in its entirety and to deliver to the Owner such completed construction as is specified in the Contract. The Contractor shall be obligated to repair, replace, restore, or rebuild any fully or partially completed construction required to be provided under the Contract until the Contract is fully performed and the Owner gives final acceptance in writing of the work, except that the Contractor's warranty and bonds shall remain in force for the period provided herein and the Contract Documents.

**Section 43: PAYMENT FOR CHANGES.**

(a) Payment for increases of quantities of unit price items of integrated units of construction which in the aggregate do not exceed twenty-five (25%) percent of the Total Contract Amount, and for increases of quantities of unit price items of basic units of construction which do not exceed twenty-five (25%) percent of the bid quantities, and for all quantities of basic and integrated units of construction less than the bid quantities, unless otherwise specified in the Special Conditions, shall be made at the unit prices in the Bid Schedule in the Contractor's Bid Proposal.

(b) Payment for all changes in lump sum items and for that part of the changes in quantities which are increases of quantities of unit price items in excess of twenty-five

percent (25%) of the bid quantities for basic units of construction or in excess of twenty-five percent (25%) of the Total Contract Amount for integrated units of construction shall, at the option of the Owner, be determined in one of the following ways:

(1) by Contractor's proposal and Owner's acceptance of reasonable unit prices, or

(2) by Contractor's proposal and Owner's acceptance of reasonable lump sum prices, or

(3) by payment to the Contractor on a cost basis plus certain allowances as follows:

<u>Items for which payment will be made on a cost plus basis</u>	<u>Percentage Allowance for Overhead and profit in addition to net costs</u>
Labor	20%
Materials and equipment	10%
Use of Equipment	15%

The net costs of items for which payment shall be made on a cost plus basis shall be computed as follows:

(a) **Labor**. For all labor, including such foreman supervision as may be necessary, the Contractor shall be paid the payroll cost of such labor and supervision, but not exceeding the current prevailing rates of wages in the locality where the work is performed, applicable health and welfare benefits, social security, unemployment compensation, and other occupational taxes, for each hour that labor and foreman supervision are actually engaged upon such construction, plus that portion of the cost prorated on the basis of time worked, of travel time, subsistence, and other labor benefits which are an obligation of the Contractor under the contractor-union labor agreement, if any, applicable to the Project.

(b) **Materials and Equipment**. For all materials and equipment incorporated in the completed construction, the Contractor shall be paid its actual invoice cost, including actual freight and express charges, less all offered or available discounts, regardless of whether or not they may have been taken.

The Contractor shall furnish as evidence of all charges for materials and equipment, valid copies of vendor's invoices, including freight and express bills. For such materials as may be furnished from the Contractor's stocks for which an invoice is not available, the Contractor shall furnish an affidavit certifying to its actual cost of such materials.

In the event that the Contractor's cost of such materials and equipment furnished is excessive in the opinion of the Engineer, or if the Contractor does not furnish

satisfactory evidence of its costs, the Owner reserves the right to establish the cost of all or a part of such materials delivered to the location of the Project at the lowest current wholesale prices less all applicable discounts at which said materials and equipment are available to the Contractor in the quantities required.

The Owner reserves the right to furnish such materials and equipment as it deems advisable, and the Contractor shall receive no payment for costs or allowances on such materials.

(c) **Use of Equipment.**

(1) **Contractor-Owned Equipment.** For Contractor-owned equipment, including machine-power tools, which is necessary or desirable for the construction in the opinion of the Engineer, the Contractor shall receive the rental rates in the current edition and appropriate volume of the "Rental Rate Blue Book for Construction Equipment" published by Dataquest, Inc., 1980 Ridder Park Drive, San Jose, California 95131, (hereinafter referred to as "Blue Book") and as modified by the Special Conditions, for the time that said equipment is in use on such construction, excluding therefrom all time that such equipment is inoperative because of malfunction or breakdown. Such rates shall be the monthly, weekly, daily or hourly rates applicable to the total period the equipment is in use on the project, whichever is lowest and results in the least total amount.

For equipment not listed in the Blue Book, the contractor shall receive a rental rate as agreed upon before such work is begun. If agreement cannot be reached, the Borough reserves the right to establish a rate based on similar equipment in the Blue Book on prevailing commercial rates in the area.

When Contractor-owned equipment is ordered by the Owner to be held at standby, the equipment rental will be paid at one-half (1/2) of the said rate; except, no percentage allowance shall be paid for equipment on ordered standby.

The said equipment rental rates are the maximum rates allowable for equipment of modern design in good working condition and shall include and be full compensation for depreciation, investment costs, and furnishing all fuel, oil, lubrication, repairs, maintenance, insurance and incidental expenses, and all other costs except labor for operation thereof. Individual pieces of equipment having a purchase price of Six Hundred Dollars (\$600.00) or less will be considered to be tools or small equipment, and no rental will be allowed on such tools or small equipment.

In the event the equipment is not at the Project site and the Engineer determines that such equipment would not have been required other than for the changed construction, and it is necessary to obtain such equipment exclusively for such changed construction, the actual costs of moving such equipment to and

from the Project site will be paid to the Contractor from the nearest point such equipment is available, plus rental time during movement of the equipment at fifty percent (50%) of said rental rates.

(2) **Equipment Furnished by Others.** If Contractor-owned equipment is not available and equipment is rented from outside sources, payment will be made on the basis of actual invoice cost, except that when the equipment is ordered standby no percentage allowances will be made. Use of non-owned equipment at rates higher than those established by the "Rental Rate Blue Book for Construction Equipment," and as modified by the Special Conditions will not be allowed, except upon prior written approval of the Owner.

(d) **Payment in Full.** The compensation as herein provided, including the percentage allowance, shall be payment in full for all construction furnished hereunder and all expenses of every nature, kind and description, including, but not limited to, social security, unemployment compensation, occupational taxes and any other federal, state or local taxes, premiums on public liability and property damage insurance, use of small tools and equipment for which no separate payment is allowed, overhead expense and profit.

When construction is furnished by a Subcontractor to the Contractor, the percentage allowances shall be allowed only on the costs to the Subcontractors of labor, material and use of equipment.

The Contractor's cost records pertaining to work paid for hereunder shall be open to inspection and audit by representatives of the Owner during the period of the Contract and for not less than one (1) year after the acceptance of all construction. Where payment for labor, materials or use of equipment is based on the cost thereof to a Subcontractor or material supplier to the Contractor, the Contractor expressly warrants that the cost records of such Subcontractor or material supplier shall be open to inspection and audit by representatives of the Owner on the same terms and conditions as the cost records of the Contractor. If an audit is to be started more than sixty (60) days after the acceptance of all construction under the Contract, the Contractor will be given reasonable notice of the time when such audit is to begin.

(e) **List of Construction Equipment.** Within fifteen (15) days after Notice to Proceed, the Contractor shall furnish to the Engineer a list of construction equipment to be used in the Construction together with applicable Blue Book rental rates. For construction equipment for which Blue Book rental rates are not available, the Contractor shall provide its fully documented and established rental rates for such equipment under similar usage. Such rental rates shall become effective when approved by the Engineer. The Contractor shall furnish copies of fuel, oil, lubrication and normal maintenance of construction equipment applicable to the project location.

**Section 44: PAYMENT FOR UNCORRECTED CONSTRUCTION.** If, in the opinion of the Engineer, it is inexpedient, impractical or otherwise not in the best interests of the Owner, to correct construction which has been damaged, which is faulty, or which has not been furnished in accordance with the Contract, the Owner shall have the right in its sole discretion, to accept such work and an equitable reduction in the Total Contract Amount shall be made.

**Section 45: PROGRESS PAYMENTS.**

(a) Partial payments of the Total Contract Amount, if such progress payments are to be allowed or made, will be made as specified in the Special Conditions. No progress payment will be allowed unless provided for in the Special Conditions.

(b) In the event progress payments are provided for in the Special Conditions, the Contractor may, unless otherwise provided in the Special Conditions, submit to the Engineer, not later than the tenth (10th) day of each calendar month, two (2) copies of a Contractor's Request for Payment for construction completed during the previous calendar month. Such Contractor's Request for Payment shall be in the form provided in the Special Conditions. With each Contractor's Request for Payment, the Contractor shall, if required, submit satisfactory evidence of payment for materials and labor, including payments to Subcontractors, made during the previous month. Each Contractor's Request for Payment shall be computed from construction completed on all items listed in the Bid Proposal less the amounts retained as provided in the Special Conditions or elsewhere in the Contract Documents, including any claims or offsets asserted against the Contractor, including any asserted by the Owner, and less all previously approved Contractor's Requests for Payment. Partial payment may be made for partially completed construction to the extent completed in the opinion of the Engineer.

(c) Partial payments on account of changes in construction may be made periodically in the same manner as partial payments on the Total Contract Amount.

(d) Within fifteen (15) days after proper submission of Contractor's Request for Payment by the Contractor, the Engineer will:

(1) recommend approval of the Contractor's Request for Payment submitted, or

(2) recommend approval of such other amount, if any, as is due the Contractor, in the opinion of the Engineer, informing the Contractor of the amount recommended, if any.

(e) The recommended Contractor's Request for Payment will be submitted to the Owner by the Engineer, and the Owner may authorize a partial payment to the Contractor, on the basis of the recommended Contractor's Request for Payment, but the Owner will withhold a retained amount as specified in the Special Conditions and such

other amounts as are recommended by the Engineer or allowed to be retained by the Owner, including any claims or offsets asserted against the Contractor.

**Section 46: PAYMENTS WITHHELD.**

(a) In addition to the amount retained as otherwise provided in the Contract Documents, the Owner may withhold such amounts from any payment as may be necessary in the opinion of the Engineer or Owner for protection from loss on account of

(1) defective work not remedied;

(2) claims filed or reasonable evidence indicating probable filing of claims;

(3) failure of the Contractor to make proper and full payments promptly to its own employees or to the Subcontractors for materials or labor within a reasonable time after the Contractor has received the material or labor for incorporation into the construction;

(4) a reasonable doubt that the Contract can be completed by another contractor for the balance then unpaid;

(5) damage to the Owner, its buildings, structures, or property, to another contractor or subcontractor, or any other person, caused or contributed to by the Contractor, its officers, employees, agents, representatives, subcontractors, or persons for whom Contractor is responsible;

(6) bankruptcy, receivership or insolvency of, or the pendency of such proceedings against the Contractor;

(7) costs of the Owner for engineering tests, inspection costs, or other work, costs or expenses, to be reimbursed to the Owner by the Contractor as provided in the Contract Documents;

(8) unsatisfactory prosecution of the work, or failure of the Contractor to complete any part of the construction in accordance with the Construction Schedule or the Contract;

(9) credits refused by the Contractor for construction deleted; or

(10) errors in previous partial payments, or claims by the Owner against the Contractor.

**Section 47: TERMINATION FOR CONVENIENCE.** (a) The performance of work under this Contract may be terminated by the Owner in accordance with this clause in whole, or from time to time in part, whenever the Owner shall determine that such termination is in the best interest of the Owner. Any such termination shall be

effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.

(b) After receipt of a Notice of Termination, and except as otherwise directed by the Owner, the Contractor shall:

(1) Stop work under the Contract on the date and to the extent specified in the Notice of Termination;

(2) Place no further orders or subcontracts for materials, services, or facilities except as may be necessary for completion of such portion of the work under the Contract as is not terminated;

(3) Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination;

(4) Assign to the Owner, in the manner, at the times, and to the extent directed by the Owner, all of the right, title, and interest of the Contractor under the orders and subcontracts so terminated. In which case the Owner shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;

(5) Settle in good faith all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the Owner to the extent Owner may require, which approval or ratification shall be final for all the purposes of this clause;

(6) Transfer title to the Owner, and deliver in the manner, at the times, and to the extent, if any, directed by the Owner, (i) the fabricated or un-fabricated parts, work in process, completed work, supplies, and other material produced as a part of, or acquired in connection with the performance of, the work terminated by the Notice of Termination, and (ii) the completed or partially completed plans, drawings, information, and other property which, if the Contract had been completed, would have been required to be furnished to the Owner;

(7) Use his best efforts to sell, in the manner, at the times, to the extent, and at the price or prices directed or authorized by the Owner, any property of the types referred to in (6) above: Provided, however, that the Contractor (i) shall not be required to extend credit to any purchaser, and (ii) may acquire any such property under the conditions prescribed and at a price or prices approved by the Owner; and provided further, that the proceeds of any such transfer of disposition shall be applied in reduction of any payments to be made by the Owner to the Contractor under this Contract or shall otherwise be credited to the price or cost of the work covered by this Contract or paid in such other manner as the Owner may direct;

(8) Complete performance of such part of the work as shall not have been terminated by the Notice of Termination; and

(9) Take such action as may be necessary, or as the Owner may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the Owner has or may acquire an interest.

(c) After receipt of a Notice of Termination, the Contractor shall submit to the Owner his termination claim, in the form and with the certification prescribed by the Owner. Such claim shall be submitted promptly but in no event later than sixty (60) days from the effective date of termination, unless one or more extensions in writing are granted by the Owner upon request of the Contractor made in writing within such sixty (60) day period or authorized extension thereof. However, if the Owner determines that the facts justify such action, he may receive and act upon any such termination claim at any time after such one-year period or extension thereof. Upon failure of the Contractor to submit his termination claim within the time allowed, the Owner may determine, on the basis of information available to the Owner, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

(d) Subject to the provisions of paragraph (c), the Contractor and the Owner may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the total or partial termination of work pursuant to this clause, which amount or amounts may include a reasonable allowance for profit on work done: Provided, that such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the contract price of work not terminated, and any claims or offsets against the Contractor pursuant to the Contract, or otherwise, by the Owner or other persons. The Contract shall be amended accordingly, and the Contractor shall be paid the agreed amount. Nothing in paragraph (e) of this clause, prescribing the amount to be paid to the Contractor in the event of failure of the Contractor and the Owner to agree upon the whole amount to be paid to the Contractor by reason of the termination of work pursuant to this section, shall be deemed to limit, restrict, or otherwise determine or affect the amount or amounts which may be agreed upon to be paid to the Contractor pursuant to paragraph (d).

(e) In the event of the failure of the Contractor and the Owner to agree as provided in paragraph (d) upon the whole amount to be paid to the Contractor by reason of the termination of work pursuant to this section, the Owner shall determine, on the basis of information available to it, the amount, if any, due to the Contractor by reason of the termination and shall pay to the Contractor the amounts determined as follows:

(1) With respect to all contract work performed prior to the effective date of the Notice of Termination, the total (without duplication of any items) of:

- (i) The cost of such work;
- (ii) The cost of settling and paying claims arising out of the termination of work under subcontracts or orders as provided in paragraph (b)(5) above, exclusive of the amounts paid or payable on account of supplies or materials delivered or services furnished by the Subcontractor prior to the effective date of the Notice of Termination of work under this Contract, which amounts shall be included in the cost on account of which payment is made under (i) above; and
- (iii) A sum, as profit on (i) above, determined by the Owner to be fair and reasonable: Provided, however, that if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, no profit shall be included or allowed under this subdivision (iii) and appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss; and

(2) The reasonable cost of the preservation and protection of property incurred pursuant to paragraph (b)(9); and any other reasonable cost incidental to termination of work under this contract, including expense incidental to the determination of the amount due to the Contractor as the result of the termination of work under this contract.

The total sum to be paid to the Contractor under (1) above shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the contract price of work not terminated, and any claims or offsets by the Owner. Except for normal spoilage, and except to the extent that the Owner shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the Contractor under (1) above, the fair value, as determined by the Owner, of property which is destroyed, lost, stolen, or damaged so as to become undeliverable to the Owner, or to a buyer pursuant to paragraph (b)(7).

(f) The Contractor shall have the right to dispute under Section 71 [Remedies] from any determination made by the Owner under paragraphs (c) or (e) above, except that, if the Contractor has failed to submit his claim within the time provided in paragraph (c) above and has failed to request extension of such time, he shall have no such right of appeal. In any case where the Owner has made a determination of the amount due under paragraphs (c) or (e) above, the Owner shall pay to the Contractor the following: (1) if there is no right of appeal hereunder or if no timely appeal has been taken, the amount so determined by the Owner or (2) if a proceeding is initiated under Section 71 [Remedies], the amount finally determined in such proceeding.

(g) In arriving at the amount due the Contractor under this clause there shall

be deducted (1) all un-liquidated advance or other payments on account theretofore made to the Contractor, applicable to the terminated portion of this contract, (2) any claim which the Owner may have against the Contractor in connection with this contract, and (3) the agreed price for, or the proceeds of sale of any materials, supplies, or other things kept by the Contractor or sold, pursuant to the provisions of this clause, and not otherwise recovered by or credited to the Owner.

(h) If the termination hereunder be partial, prior to the settlement of the terminated portion of this contract, the Contractor may file with the Owner a request in writing for an equitable adjustment of the price or prices specified in the Contract relating to the continued portion of the Contract (the portion not terminated by the Notice of Termination), and such equitable adjustment as may be agreed upon shall be made in such price or prices; however, nothing contained herein shall limit the right of the Owner and the Contractor to agree upon the amount or amounts to be paid to the Contractor for the completion of the continued portion of the Contract when said Contract does not contain an established contract price for such continued portion.

#### **Section 48: ACCEPTANCE AND FINAL PAYMENT.**

(a) When the Contractor has completed the construction in accordance with the terms of the Contract Documents and all construction has operated satisfactorily for not less than fifteen (15) days after completion, the Contractor shall submit to the Engineer a Contractor's Final Request for Payment; Statement Concerning Claims; Release, Waiver and Discharge of Claims and Liens on the forms included in the Contract Documents; and such other completed documents as may be required by the Owner for the release of any monies held.

(b) The Contractor's Final Request for Payment shall be prepared on the basis of the Contract, including all authorized Change Orders, but not inclusive of proposals or claims of the Contractor which have not been accepted by executed Change Order. The Contractor's Final Request for Payment shall constitute a complete waiver and release of any and all claims by the Contractor except for unsettled claims that have been properly and timely filed as provided in the Contract and as are expressly and specifically stated and set forth in the Contractor's Statement Concerning Claims on the form for such included in the Special Conditions.

(c) The Statement Concerning Claims shall warrant that the Contractor has fully completed the performance of the Contract and the construction included in the Contract and has fully paid for all labor, materials, equipment, services, taxes and all other costs and expenses of every nature and kind whatsoever resulting from the Contract, except for any itemized payments due but not yet made as set forth in the statement of claims. If any dispute exists between the Contractor and any person, firm or corporation to which the Contractor might be obligated in connection with the Contract, the Contractor shall state the name of claimant and amount and general nature of the claim against the Contractor. Such Statement Concerning Claims shall also state the amount and nature of all present and future claims that the Contractor

may have against the Owner relative to the Contract in addition to the Contractor's Final Request for Payment.

(d) After receipt of a properly completed Statement Concerning Claims and Contractor's Final Request for Payment, the Engineer will, within a reasonable time, make a recommendation to the Owner relative to acceptance of the construction. Such a recommendation shall not constitute a recommendation of acceptance of construction not furnished in accordance with the Contract. The Contractor's Final Request for Payment will be reviewed in the same manner as any other Contractor's Request for Payment.

(e) Upon receipt of the Statement Concerning Claims, and a Release and Waiver of Claims and Liens, in the form included in the Contract Documents, recommended Contractor's Final Request for Payment, any other documents necessary for the release of monies held, and the Engineer's recommendation relative to acceptance of the construction, the Owner will, within a reasonable time, take action on the Contractor's Final Request for Payment and on acceptance of the construction. Such action shall be subject to the conditions of the Performance Bond and Payment Bond, legal and contractual rights of the Owner, required warranties, and correction of faulty construction after final payment. The Owner shall have the right to retain from any payment then due the Contractor, so long as any bills or claims remain unsettled and outstanding, including any asserted by the Owner, a sum sufficient, in the opinion of the Owner to provide for the payment of the same. It is also understood and agreed that, in case of any breach by the Contractor of the provisions hereof, the Owner may retain from any payment or payments, which may become due hereunder, a sum sufficient, in the opinion of the Owner, to compensate for all damages occasioned by such breach, including in such damages any damages arising out of delay on the part of the Contractor.

(f) The acceptance of construction will be evidenced by a Notice of Acceptance of Construction in writing signed by a duly authorized official of the Owner in the manner provided for written notices. No other act of the Owner shall constitute acceptance of the construction.

(g) Thirty (30) days after the Owner has accepted the construction, as above provided, the Contractor may submit a Request for Payment of the Retained Amount; provided, however, that the Owner may also retain such additional amounts and for such lengths of time as may be required by law or by the Special Conditions. If any liens remain unsatisfied after Payment of the Retained Amount is made, the Contractor shall immediately reimburse the Owner such amounts as the Owner may have been compelled to pay in discharging such liens including all costs and reasonable attorneys' fees.

**Section 49: CONSTRUCTION FURNISHED PRIOR TO NOTICE TO PROCEED**

Notwithstanding any other provision of the Contract, the Owner shall not be obligated to accept or to pay for any construction furnished by the Contractor, prior to delivery of a written Notice to Proceed whether or not the Owner has knowledge of the furnishing of such construction.

**Section 50: SALES AND SIMILAR TAXES.** The Contractor shall timely pay all federal, state, and local sales, excise or other taxes or assessments incurred or required to be collected or paid by the Contractor.

**Section 51: CREDIT.** In the event construction is deleted or modified or specified material, equipment, method or process substituted so as to effect a reduction in cost, the Owner shall be entitled to a credit in an equitable amount.

**Section 52: OWNER'S OPERATIONS.** The Contractor shall schedule all construction so as not to interfere with the operations of the Owner. Where such interference is essential to prosecution of the construction special arrangements shall be made and the written consent of the Owner as to time and method obtained forty-eight (48) hours in advance of the construction.

**Section 53: OVERTIME INSPECTION.** In the event the Contractor elects to work on a Saturday, Sunday, a holiday, or longer than an eight-hour work shift on a regular working day, such work shall be considered as overtime work. On all such overtime work an Inspector, and a survey crew, if required, will be present, unless determined not necessary by the Owner. The Contractor shall reimburse the Owner for overtime costs to the Owner for employees of the Owner, consultants, or government agencies required to work overtime hours. The cost shall be \$30 per overtime hour.

The Contractor authorizes the Owner to deduct all such costs from any amounts due, or to become due the Contractor.

Overtime due to special construction problems, such as concrete finishing, asphalt rolling, making live sewer hookups, alleviating traffic problems, etc., will not be charged if the Engineer determines that the waiver of reimbursement of overtime charges is justified and deemed to be in the best interests of the Borough.

**Section 54: OWNER'S CONSTRUCTION.** The Owner reserves the right to furnish in connection with the Project, construction which is not included in the Contract either by the Owner's forces or by the forces of other contractors.

**Section 55: OTHER CONTRACTS.**

(a) The Contractor shall ascertain to its own satisfaction the scope of the Project and the nature of any other contracts that have been or may be entered into by the Owner in the prosecution of the Project, to the end that the Contractor may perform the

Contract in coordination with such other contracts, if any. Nothing herein contained shall be interpreted as granting to the Contractor exclusive occupancy of the Project site. The Contractor shall not cause any unreasonable hindrance or delay to any other contractor working on the Project. If, in the opinion of the Engineer, the performance of the Contract is likely to be interfered with by the simultaneous performance of some other contract or contracts to which the Owner is a party or by the Owner's own forces, the Owner may, but is not obligated to, decide which contractors shall cease a part of or all of their construction temporarily and which contractor shall continue, or whether the construction under all contracts can be coordinated so that all contractors may proceed simultaneously. The Owner shall not be responsible for any delays or damages suffered or extra costs incurred by the Contractor resulting directly or indirectly from the performance, failure to perform or attempted performance by any other contractor of any other contract.

(b) The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their construction at the Project site and shall properly connect and coordinate its construction with theirs. If another contractor or contractors are working in the same area, with equal rights and privileges, it shall be the responsibility of the Contractor to make whatever arrangements with said other contractors as are necessary for the proper execution and coordination of the construction.

(c) If any part of the Contractor's construction depends upon the construction of any other contractor for proper execution or results, the Contractor shall inspect the other contractor's construction and, at least ten (10) days prior to the time the Contractor begins construction on such part, report to the Engineer in writing any defects in such other contractor's construction that renders it unsuitable for such proper execution and results. Failure on the part of the Contractor to so inspect and report shall constitute an acceptance of the other contractor's construction as fit and proper for the reception of the Contractor's construction, except as to defects which may subsequently develop in the other contractor's construction.

(d) The Contractor agrees to save the Owner and the Engineer harmless from any claim, suit or demand of any other contractor by reason of the failure of the Contractor to conform with the Construction Schedule or construction time.

**Section 56: LANDS BY OWNER.** Unless otherwise provided in the Special Conditions, the Owner will provide the lands upon which the construction under the Contract is to be furnished, together with the right-of-access to such lands. The Contractor shall confine its equipment, storage of materials, and construction operations to such limits as may be directed by the Owner, and shall not unreasonably encumber the premises with its materials; provided, however, such discretion by the Owner shall not impose upon the Owner any duty or responsibility for the safety or loss or damage to any equipment, materials, other property or project safety, all of such to remain the responsibility of Contractor.

**Section 57: LANDS BY CONTRACTOR.** The Contractor shall provide at its own expense and with no cost or liability to the Owner, any additional land and access thereto, not shown or described in the Contract Documents as provided by the Owner that may be required for temporary construction facilities or storage of materials. The Contractor shall confine its equipment, storage of materials and operation of its workmen to those areas described in the Contract Documents and such additional areas as it provides at its own expense.

**Section 58: EMPLOYEES.** The Contractor shall at all times enforce strict discipline and good order among its employees and shall not employ or continue to employ on the Project anyone not skilled in the work assigned to it or any person unsatisfactory to the Owner. All employees who perform any work shall be properly licensed, and shall be the holders of all certificates of fitness, and permits as may be required by law.

**Section 59: PROJECT SAFETY.**

(a) The Contractor shall exercise all precautions for the safety of its employees and of the general public and of the Owner's employees and property, and shall comply with all applicable provisions of federal, state, and municipal safety laws, building and construction codes, and the safety rules and other regulations of the Owner, including, but not limited to, the requirements of the U.S. Occupational Safety and Health Administration (OSHA) or applicable state statutes in lieu thereof. The Contractor shall also comply with the recommendations in the "Manual of Accident Prevention in Construction of the Associated General Contractors of America" insofar as applicable, unless such recommendations are incompatible with federal, state or municipal laws or regulations. Monthly reports of all lost-time accidents shall be promptly submitted to and shall include such data as are requested by the Owner.

(b) The Contractor shall enforce all instructions of the Owner regarding signs, advertising, fires, danger signals, barricades, and smoking, and shall require all persons employed in the construction to comply with all building, post or institutional regulations while on the premises. The Contractor shall require all employees to be familiar with and comply with the Owner's safety regulations. The Contractor shall not permit any part of any structure to be loaded with a weight exceeding its maximum allowable loading or that will otherwise jeopardize its safety.

(c) Existing traffic and street name signs which will interfere with construction shall be removed by the Contractor and stored in a safe place. These signs shall not be removed until the Engineer has so directed and until the necessary measures have been taken to safeguard traffic after the signs have been removed. Preservation and maintenance of the signs shall be the sole responsibility of the Contractor. Upon completion of the project, the Contractor will reset all such signs in their permanent location at no cost to the Owner.

(d) The Contractor shall provide adequate signs, barricades, signal lights and

watchmen and take all necessary precautions for the protection of the construction and the safety of the public. All barricades and obstructions shall be protected at night by satisfactory signal lights which shall be kept lighted from sunset to sunrise. Barricades shall be constructed, painted, and placed in accordance with the manual on Uniform Traffic Control Devices, published by the United States Department of Transportation.

(e) The Contractor shall at all times so conduct its work as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the Project, and to ensure the protection of persons and property in a manner satisfactory to the Owner. No road or street shall be closed to the public except with the permission of the Owner and the proper governmental authority. Emergency traffic such as police, fire and disaster units, shall be provided reasonable access at all times. The Contractor shall be liable for any damages which may result from his failure to provide such reasonable access.

(f) When work is being performed below the standards required herein, or other applicable standards, or when the Engineer or Owner believes the condition endangers the safety of the general public, employees of the Project, or any property, including the buildings or property of the Owner, the Engineer may immediately issue a written stop-work order describing the substandard work and deliver the same to the Contractor. The Contractor shall cease work and not resume work on the stopped portion of the project until acceptable remedial action has been taken. Such protective measures shall not be construed as releasing the Contractor of any obligation or liability arising under the Contract and shall be at no cost, expense, or liability, for stopping the work of otherwise, to the Owner.

#### **Section 60: INSTRUMENT SURVEYS.**

(a) The Owner will furnish the instrument surveys necessary to establish certain bench marks, base lines and property boundaries specifically noted on the Contract Drawings and such construction surveys, if any, as are specifically required to be provided by the Owner in the Special Conditions. From the information provided by the Owner, the Contractor shall develop and make such additional detailed surveys as are needed for construction, such as slope stakes, batter boards, stakes for pile locations and other working points, lines and elevations.

(b) All bench marks, base lines, and property boundaries, as originally established by the Owner, shall thereafter be maintained by the Contractor who shall be responsible for keeping their accuracy and who shall pay to the Owner the reasonable cost to the Owner of re-establishing them if they are disturbed. The Contractor shall notify the Engineer in writing at least ten (10) days in advance of the time the Contractor will commence work on any parts of the construction requiring surveys to be furnished by the Owner.

(c) The Contractor shall provide reasonable and necessary opportunities and facilities to the Engineer for setting points and making measurements during

construction.

**Section 61: PROTECTION OF PROPERTY.**

(a) The Contractor shall continuously maintain full and adequate protection of all its construction, the Owner's buildings and other property and the adjacent public and private property from damage, injury, or loss arising from, or in relation to, the construction. The Contractor shall promptly pay for any damage, injury or loss resulting from the act or omission of Contractor or the lack of adequate protection, and upon the failure to do so the Owner shall be entitled to withhold and pay from any amounts otherwise due the Contractor, or from any retainage, any such claim for damages or pursue any other remedy, including suspension or termination of the Contract without liability.

(b) The Contractor shall not enter upon public or private property for any purpose without obtaining permission from the proper public authority or private property owner. In the event of construction on state highways, city or public roads, or any public right-of-way, it will be the Contractor's responsibility to notify the authority having jurisdiction thereover before beginning construction and to ascertain that the schedule of operations proposed is satisfactory to the authority.

(c) Wherever construction under the Contract is undertaken on easements or rights-of-way over private property, or public easements, rights-of-way, or franchise, all construction operations shall be confined to the limits of such easement, right-of-way or franchise and be completed so as to cause the least amount of disturbance and a minimum amount of damage.

(d) Construction across public or private property shall be carried out in one (1) continuous operation with immediate restoration and cleanup of the construction area. If the Contractor should fail to perform such construction, restoration and cleanup continuously, the Owner may give the Contractor a written notice to do so. In the event of failure by the Contractor to complete such construction, restoration and cleanup within five (5) days after receipt of such notice, the Owner may complete the same to the extent the Owner deems advisable. The cost of all labor, material, supervision and other expenses incurred by the Owner in so doing shall be paid by the Contractor to the Owner and may be deducted from any payments due the Contractor under the Contract.

(e) The Contractor shall protect and maintain all underground or above-ground utilities and structures affected by the construction and all lawns, shrubs, trees, fences, and other improvements on property crossed by or adjacent to its operations, and all damage shall be repaired and restored by the Contractor at its expense in a satisfactory manner. The Contractor will be responsible for all damage caused by its construction to roads, highways, ditches, walls, bridges, culverts, utilities, barricades, lights or other property, whether such damage be at the Project site or elsewhere and the Contractor shall repair or replace at its own expense all such damage in a satisfactory manner.

(f) It is expressly understood that the Contractor shall restore, at Contractor's sole cost and expense, all property, whether public or private, the use of which is obtained by easement, permit or right-of-way, to a condition at least equal to its original condition. Before beginning construction the Contractor shall file with the Engineer properly identified and dated photographs of such property as may be designated on the Contract Drawings or described in the Special Conditions.

**Section 62: CUTTING AND PATCHING.** The Contractor shall at its own expense do all necessary cutting and patching of its construction that may be required in order to properly receive the construction of other contractors on the project or as required by the Contract Documents. The Contractor shall restore all such cut or patched construction to a condition satisfactory to the Owner. The cost resulting from replacement of defective cutting and patching construction shall be borne by the Contractor.

**Section 63: CLEANUP.** At the time of termination or suspension for an extended period of all or any portion of the construction, or at completion but before final acceptance by the Owner, the Contractor at its own expense shall remove from the Owner's property and from all public and private property, all of its equipment and such unused materials as the Owner has made no payment for, temporary structures, rubbish and waste materials resulting from its operations and leave the Project site in a neat and orderly fashion satisfactory to the Owner. The Contractor shall at all times during the progress of the construction maintain the site in as neat and orderly a condition as construction operations will permit. In the event the Contractor fails to do so, in addition to any other remedy, including declaring the Contractor in default, the Owner may remove and store such equipment and unused materials and dispose of rubbish and waste at the expense of the Contractor. The cost of such removal, storage and disposal may be deducted from any payment due the Contractor.

**Section 64: SANITARY PROVISIONS.** The Contractor shall furnish and maintain temporary toilet facilities of a type, number and location satisfactory to the Owner and all public authorities having jurisdiction, for all workmen employed for the Project. The Contractor shall maintain the same in a sanitary condition from the beginning of the construction until completion and shall then remove the temporary toilet facilities and disinfect the premises.

**Section 65: INDEX OF ACCOUNTS.** Prior to final payment, or at any other time if requested by Owner to evaluate any claim, or potential claim by the Contractor, and at the option of the Owner, the Contractor shall furnish to the Owner a complete accounting of the actual costs of labor, material, and other charges, and certified copies of all invoices for materials and payrolls for all labor incorporated into the Project.

**Section 66: EXISTING UTILITIES AND IMPROVEMENTS.**

(a) The Contractor shall remove such existing improvements on the Project site as may be necessary for the performance of the construction and, unless otherwise specified in the Special Conditions, shall rebuild the existing improvements in as good a condition as found; provided that existing improvements which interfere with the performance of the construction shall be maintained by the Contractor until their removal is authorized or directed by the Owner.

(b) The Contractor shall make all necessary arrangements and do all things required to avoid interference with the maintenance and operation of power, telegraph, telephone, water, sewer, gas and other utility lines, properties, and facilities of every kind, all in a manner satisfactory to the owners and operators thereof.

(c) If construction under the Contract crosses highways, railroads, streets, or other utilities under the jurisdiction of the state, borough, cities, federal government, or other public body, public utility, or private entity, the Contractor shall secure written permission from the proper authority before executing such construction. A copy of this written permission shall be filed with the Owner before any construction is started. The Contractor shall furnish a written release from the proper authority before final acceptance of the construction by the Owner.

(d) Existing utilities indicated anywhere on the Contract Drawings have been plotted from information currently available to the Engineer. The source of information generally consists of construction records and other data obtained verbally from officials associated with the particular utility. The data is shown on the Contract Drawings for whatever benefit the Contractor may derive, and unless specific instructions or data concerning certain utilities are set forth in the Special Conditions, the data shown on the Contract Drawings shall not necessarily be considered precise or complete, and the Owner and the Engineer make no guarantee as to completeness, precision or dimensions, and that other aboveground or underground utilities or facilities not shown on the Contract Drawings may be encountered during the course of construction. In any case, minor lines, such as water, gas and sewer may not be indicated. This shall in no way relieve the Contractor from its responsibility for maintenance of existing utilities and performance of the Contract. Under no circumstances will errors or omissions in location of existing utilities or improvements, whether they be visible from the surface, buried or otherwise obscured, be considered as a basis for additional compensation to the Contractor.

(e) The Contractor shall be responsible for all damage to existing utilities and facilities during construction and shall restore all damaged facilities to their original condition to the satisfaction of the Owner and the Owner of the utilities and facilities at no cost to the Owner.

**Section 67: INDEPENDENT CONTRACTOR; NO AUTHORITY TO BIND OWNER.** The Contractor is an independent Contractor and is not, and shall not be construed to be a partner, joint-venturer, employee or agent of the Owner and shall not, and is not authorized to, enter into or make any contracts, agreements, or enter into any other understanding with any other person, corporation, partnership, joint-venturer, or other entity, in the name of the Owner.

**Section 68: NO THIRD PARTY BENEFICIARIES.** Nothing in this Contract shall be construed to give any person other than the Owner and the Contractor any legal or equitable right, remedy or claim under this Contract, but it shall be held to be for the sole and exclusive benefit of the Owner and the Contractor.

**Section 69: CONTRACTOR QUALIFIED.** The Contractor expressly represents and warrants it is the holder of all professional, business or other licenses or permits and is qualified and capable of performing all of the work covered or called for by the Contract and is presently ready, able and willing to undertake and perform all of such work and services, and supply all necessary materials, in a good, safe, and workmanlike manner, at the times, in the manner, and pursuant to the terms, conditions and provisions, and for the compensation and payments provided for in the Contract.

**Section 70: ENTIRE AGREEMENT.** This Contract, and any schedules, appendices or exhibits attached thereto set forth all the covenants, promises, agreements, conditions and understandings between the parties hereto, and there are no covenants, promises, agreements, conditions or understandings, either oral or written, between them other than as herein set forth. Except as herein otherwise expressly provided, no contemporaneous or subsequent agreement, understanding, alteration, amendment, change or addition thereto, or any schedule, appendix, exhibit or attachment thereto shall be binding upon the parties hereto. This Contract constitutes a final, complete and exclusive statement of the agreement between the parties.

**Section 71: LAW APPLICABLE.** The laws of the State of Alaska shall govern the construction, validity, performance and enforcement of this Contract. Venue as to any action, claim, or proceeding arising out of, or based upon this Contract, including, but not limited to, any action for declaratory or injunctive relief, shall be the appropriate court sitting in the City of Ketchikan, First Judicial District, Alaska.

**Section 72: REMEDIES.** Except as may be otherwise provided in this Contract, all disputes, claims, counterclaims, and other matters in question between the Owner and the Contractor arising out of or relating to this Contract or the breach thereof will be decided in a court of competent jurisdiction.

**PART 3**  
**SPECIAL CONDITIONS**

## **SPECIAL CONDITIONS**

The General Conditions are supplemented and/or amended by the following Special Conditions:

### **Section 1: PAYMENTS**

(a) **Retainage**

Until such time as the work is accepted by the Owner, the retained percentage may be ten percent (10%) of the value of the completed work, provided, however, when the dollar value of the completed work has reached fifty percent (50%) or more, the Contractor may request that the retainage be reduced to five percent (5%). The Owner may, but shall not be required to, reduce the retainage based on the Contractor's progress schedule, clean-up, contract completion cost, and other factors.

Should the amount due the Contractor under the estimate and Request for Payment for any given month be less than five thousand dollars (\$5,000), at the option of the Engineer, no payment shall be made for that month.

Partial payments shall not be construed as an acceptance or approval of any part of the work covered thereby, and they shall in no manner relieve the Contractor of responsibility for defective workmanship or material.

The estimates upon which partial payments are based are not represented to be accurate estimates, and all quantities shown therein are subject to correction in the final estimate. If the Contractor uses such estimates as a basis for making payment to subcontractors, he does so at his own risk, and he shall bear all loss that may result.

The making of partial payments under the Contract, either before or after the date set for completion of the work, shall not operate to invalidate any of the provisions of the Contract or release the surety.

At the time payment is made for any materials which have been stored at or near the site, the ownership of such materials shall be vest in the Owner, and they shall remain in storage until used on the work, however, the Contractor shall have the continuing duty and responsibility to protect all such items and any loss or damage thereto shall be at the cost and expense of, and shall be paid by the Contractor. Such materials shall not be used on other work.

(b) **Advances on Material**

For materials delivered and held in storage upon the work (or near the site

of the work if approved by the Engineer), allowances will be made in the partial payments to the Contractor. These allowances shall be in amounts not exceeding one hundred percent (100%) of the net cost to the Contractor of the material f.o.b. the work, and from such allowances there shall be retained the percentages regularly provided for in connection with partial payments.

At the option of the Engineer, no allowance for materials shall be made on any partial payment or estimate unless the total allowable value for all materials on hand is at least one thousand dollars (\$1,000) and no allowance shall be made upon any single class of material the value of which is not at least five hundred dollars (\$500). The inventory of materials for which advances are requested shall be kept to a reasonable size as approved by the Engineer. No allowance shall be made upon fuels, supplies, forms, lumber, falsework, or other materials, or on temporary structures of any kind, which will not become an integral part of the finished construction.

As a basis for determining the amount of advances on material, the Contractor shall make available to the Engineer such invoices, freight bills, and other information concerning the materials in question, as the Engineer may request.

Should there be reasonable evidence, in the opinion of the Engineer, that the Contractor is not making prompt payment for materials on hand, allowances for material on hand will be omitted from partial payment.

(c) **Allowances for Materials Left on Hand**

Materials not required by the unit or lump sum prices named in the Bid Proposal but delivered to the work at the order of the Engineer but left unused due to changes in plans, shall, if the materials are not practicably returnable for credit, be purchased from the Contractor by the Owner at their actual cost (without percentage allowance for profit), and shall thereupon become the property of the Owner.

(d) **Final Payment**

Final estimate and final request for payment shall be made as provided in Section 48 of the General Conditions.

(e) **Suspension of Payments**

No partial or final payment shall be made as long as any order made by the Engineer to the Contractor in accordance with the specifications or Contract Documents remains uncompleted with.

(f) **Correction of Work after Final Payment**

Neither payment of all or any portion of the contract price, final acceptance, notice of acceptance of construction, nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials or workmanship. Contractor shall remedy any defects due thereto and proceed as provided in Section 265, Warranties, and as otherwise provided in the Contract.

(g) **Payments**

Payments under the Contract shall be paid in cash (check) by the Owner unless otherwise provided.

(h) **Final Payment - Certificate of Compliance**

No final payment shall be made until the Contractor shall file with the Engineer, prior to acceptance of the work, a Certification of Compliance in form substantially as follows: "I (we) hereby certify that all work has been performed and materials supplied in accordance with the plans, specifications, and contract documents for the above work, and that:

- a. Not less than the prevailing rates of wages as ascertained by the governing body of the contracting agency has been paid to laborers, workmen and mechanics employed on this work;
- b. There have been no unauthorized substitutions of subcontractors; nor have any subcontracts been entered into without the names of the subcontractors having been submitted to the Engineer prior to the start of such subcontracted work;
- c. No subcontract was assigned or transferred or performed by any subcontractor other than the original subcontractor, without prior notice having been submitted to the Engineer together with the names of all subcontractors;
- d. All claims for material and labor and other service performed in connection with these specifications have been paid;
- e. All monies due to the State Industrial Accident Fund, the State Unemployment Compensation Trust Fund, the State Tax Commission, Hospital Associations, and/or others have been paid;
- f. No asbestos containing materials have been incorporated in the

project and the project is "asbestos-free".

(i) **Final Release**

Before the Owner pays the Contractor the final payment for the work, the Contractor shall sign and deliver to the Owner a statement of claims and final release sworn to under oath and duly notarized on the form included in these contract documents.

**Section 2: FORMS**

The form of Contractor's Request for Payment, the Statement of Claims, and the Final Release that shall be required and used shall be on the forms set forth and included in these contract documents.

**Section 3: LIQUIDATED DAMAGES**

Pursuant to Section 7 of the General Conditions, liquidated damages for failure to complete all work called for under the Contract Documents by the time required to complete such work, as specified in Section 2 (Construction time) of the Agreement and Section 6 of these Special Conditions, are fixed at Five Hundred Dollars (\$500.00) per calendar day.

**Section 4: CONSTRUCTION TIME**

All construction except the final pavement patch shall be substantially completed no later than 150 days from the date of execution of the Agreement. The permanent construction patch may be completed when weather allows in the spring of 2012 in accordance with the conditions of the utility permit.

**Section 5: UTILITY PERMIT**

A permit has been obtained from the Alaska Department of Transportation and Public Facilities which is attached to these special conditions. All conditions of the permit shall be part of this contract including allowable paving season and weather. The contractor shall be responsible for submitting to ADOT&PF a traffic control plan for review and approval prior to starting work.

## **DIVISION 1**

## SECTION 01010

### SUMMARY OF WORK

#### 1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Installation of approximately 4331 linear feet of 6" HDPE water main connected to 5 existing points along with; 7 fire hydrants, 57 water services and other water line devices. Construction will further include removal and replacement of existing C.M.P. storm drain pipes as necessary with C.P.P. pipe; and, saw cutting, removal and replacement of a portion across South Tongass Highway approximately 20' wide. During construction water service is to be maintained to each residence. Excavation will likely include rock, solid rock, silt, mud, trees and other organic and non-organic material.

The project will consist of a base bid including Power House Road, Old South Tongass Highway, South Tongass Highway and a portion of Wood Road to Station 5+25. The remainder of Wood Road is included in Additive Alternate No. 1. This section is subject to an easement to be issued by the State of Alaska Mental Health Trust. The application has been filed but the easement is pending and may not be issued in time for award. Additive Alternate No. 2 includes all work on Lake Road.

#### B. Contractor's duties:

1. Except as specifically noted, provide and pay for:
  - a. Labor, materials and equipment.
  - b. Tools, construction equipment and machinery.
  - c. Water, heat, and utilities required for construction.
  - d. Other facilities and services necessary for proper execution and completion of work.
2. Pay legally required sales, consumer, and use taxes.
3. Secure and pay for, as necessary for proper execution and completion of Work, and as applicable at the receipt of bids.
  - a. Permits
  - b. Government fees
  - c. Licenses
4. Give required notices.
5. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of Work.

6. Promptly submit written Notice to Owner of observed variance of Contract Documents from legal requirements. It is not Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.
7. Enforce strict discipline and good order among employees. Do not employ on Work:
  - a. Unfit persons
  - b. Persons not skilled in assigned task

## **1.02 CONTRACT DRAWINGS**

Detailed plans for this project are shown on the drawings which bear the general title:

**SOUTH TONGASS WATER IMPROVEMENTS  
PHASE V**

**END OF SECTION**

## **SECTION 01011**

### **GENERAL PROJECT REQUIREMENTS**

#### **1.01 PROJECT COORDINATION**

It shall be the responsibility of the Contractor to coordinate all work to be performed under this contract. This coordination shall encompass all work to be performed by the Contractor, his subcontractors, the Owner and any public agencies and utilities which may be involved.

#### **1.02 ACCESS TO THE WORK**

Access to the work shall be provided as may be required by the Owner or his representative. Also, the Contractor shall provide access to the work for representatives of the Alaska Department of Environmental Conservation for inspection of the progress of the work, the methods of construction and for any inspection required by the officials of the State of Alaska.

#### **1.03 OVERTIME INSPECTION**

Normal working time is defined as an eight-hour day and/or forty-hour week, including paid holidays. Any work performed by the Contractor beyond an eight-hour day and/or a 40-hour week shall be considered to be overtime work.

If the Contractor desires or, due to slow progress, is directed to work overtime (as defined above) he shall pay all costs of inspection by the Owner incurred during the overtime work period. Such costs shall include payroll, direct labor, overhead, and indirect labor overhead costs for the inspector(s), supervisory, and support personnel, plus subsistence costs and any and all other costs incurred in the execution of inspection during overtime work. The Contractor shall notify the Owner when overtime work will be performed and the anticipated duration. Adequate time shall be allowed for the Owner to arrange for overtime inspection. The Contractor shall not perform overtime work without approval of the Owner.

The Owner may withhold overtime charges from any payments due the Contractor.

#### **1.04 CONTRACTOR'S SUPERINTENDENT**

The Contractor shall at all times have a competent superintendent at the job site who shall be acceptable to the Owner and capable of reading and thoroughly understanding the plans and specifications and who shall have authority to receive instructions from the Owner. The superintendent shall have full authority to execute the orders or directions of the Owner without delay and to supply promptly such materials, tools, plant, equipment and labor as may be required regardless of whether or not work is to

be performed by the Contractor's own forces or those of a subcontractor. The fact that an approved subcontractor is performing any portion of the work shall not relieve the Contractor of this requirement.

#### **1.05 TRESPASS**

The Contractor will be solely responsible for any trespass upon adjacent property or injury thereto resulting from or in connection with his operations. He will be liable for any claims that may be made on account of trespass or the deposit of debris of any kind upon private property.

#### **1.06 WORK AREA RESTRICTIONS**

Contractor will keep community advised of work schedule and type of work activities. Work shall be performed to minimize disruption to pedestrians and vehicles.

**END OF SECTION**

## **SECTION 01025**

### **MEASUREMENT AND PAYMENT**

#### **1. GENERAL**

##### **1.01 CONTENTS**

This section deals with the measurement and payment provisions of the project and gives a general description of the various bid items.

##### **1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

Unit Prices: Section 01026

#### **2. MEASUREMENT**

##### **2.01 RESPONSIBILITY FOR MEASUREMENT**

The Owner's Resident Project Representative shall make all measurements, and determine all quantities and amounts of work done under the Contract. At the time measurements are made for quantity determinations, the Contractor or his or her authorized assistant shall be present to verify such measurements. From quantity figures so ascertained, it will be the Contractor's responsibility to prepare a monthly periodical estimate of the work accomplished to date. This estimate shall be submitted to the Resident Project Representative for his or her review and check not later than the twentieth day of each month. The form of such monthly estimates to be subject to the approval of the Resident Project Representative.

##### **DESCRIPTION OF TALLY METHOD FOR PAYMENT QUANTITIES:**

When items are specified to be paid for by the cubic yard, ton, or truck count, the following tally system will be used:

All trucks to be employed on this work shall be measured by the Resident Project Representative to determine the capacity of each truck. The Contractor shall verify any such measurements. Trucks shall not haul quantities in excess of state legal load limits.

Each truck shall be clearly numbered with no duplication numbers.

Duplicate tally tickets shall be prepared to accompany each truckload of material delivered on the project. The tickets shall bear at least the following information:

Truck Number.

Quantity delivered in cubic yards or tons as applicable.

Driver's name and date.

Location of delivery. By street and stationing on each street.

Place for receipting by the Resident Project Representative.

It will be the Contractor's responsibility to see that a ticket is given to the Resident Project Representative on the project for each truckload of material delivered. Pay quantities will be prepared on a basis of said tally tickets.

When the bid item stipulates quantities by weight they shall be weighed on scales that are in accordance with the requirements of the state highway department for similar use. Certified weight bills shall be furnished.

If this method is impracticable, or if the bid item stipulates payment by cubic yards, then the weight of the material delivered shall be computed from the volume of material delivered on the basis of one cubic yard of crushed or backfill gravel weighing 2,800 pounds and one cubic yard of crushed rock weighing 2,600 pounds.

## **2.2 PAYMENT FOR LUMP SUM ITEMS**

- A. Measurement shall be for work actually complete.
- B. Work is listed in the Schedule of Values, Section 01370.
- C. For Payment for Material on site, see the General Conditions.

## **2.3 PAYMENT FOR UNIT PRICE ITEMS**

A. Payments to be made to the Contractor will be made as set forth in the General Conditions according to the unit price schedule in Section 01160 provided, however, that partial payments for work performed but not completed may be made in accordance with following schedules:

- 1. Water Mains, Sanitary Sewers and Force Mains:
  - a. Materials on Project - 90% of cost of pipe and appurtenances as described below not to exceed 50% of the unit price for pipe in place.
  - b. Excavation Completed,- 80% of unit price for pipe in place less Pipe in Place, back-amount paid under item a. filled and compacted
  - c. Testing Completed - 10% of unit price for pipe in place.
  - d. Cleanup Completed - 10% of unit price for pipe in place.

B. Cleanup as the term is used in this Section shall include those items that are included as a part of the bid item being considered. Other restoration items for which a bid item is included in the bid form such as paving and crushed surfacing items do not need to be completed for payment of the clean-up portion of the bid items discussed in this section.

C. If, in the opinion of the Engineers, there develops a condition of: Failure on the part of the Contractor to coordinate all phases of the work and pursue a proper sequence of operations, particularly with regard to testing, cleanup and road restoration, it will constitute cause to cease this method of partial payment. Payment in that case would only be made upon satisfactory completion of all

phases of the work involved in each respective bid item.

D. Material paid for water lines shall be limited to pipe, valves 6 inches and larger, hydrants and cast iron fittings.

E. Material paid for sanitary sewer shall be limited to the sewer pipe. Cost of material for fittings and other appurtenances shall not be paid separately.

F. Material paid for sewer force mains shall be limited to pipe and cast iron fittings.

G. Contractor shall provide suitable evidence of cost of material and payment for material prior to submittal for payment.

H. Material shall be secured and properly protected by the Contractor and remains his responsibility. If the material is damaged, lost, stolen or used for other purposes the Contractor shall notify the Owner and promptly refund the applicable portion of the partial payment, if so requested by the Owner.

I. Partial payments for work performed but not completed as outlined herein shall be computed prior to calculation of any retainage provided in the Contract.

## **2.4 TEMPLATE QUANTITIES**

Where pay limit dimensions are shown on the Contract drawings for excavation, repaving, bedding, or other work the quantity to be measured for payment shall be the lesser of actual quantities furnished, or computed quantities to pay limit lines.

## **3. PAYMENT**

### **3.1 PAYMENT FOR ON-SITE MATERIALS**

Payment for Material on site may be made at invoice amount including freight only for materials landed in Ketchikan.

**END OF SECTION**

## SECTION 01026

### UNIT PRICES

#### 1. GENERAL

##### 1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Bid Form:
- B. Agreement:
- C. Measurement and Payment: Section 01025

##### 1.2 DESCRIPTION OF BID ITEMS

- A. The bid items described herein are applicable to all contracts where the bid item is listed in the Bid Form unless otherwise provided in the Contract Documents. Additional bid items may be included in the bid form. Payment will be made only for items listed in the proposal. All other items required for the work shall be considered as incidental to the construction.

##### 1.3 ESTIMATED QUANTITIES

- A. The estimated quantities shown in the bid forms are estimates only, being given only as the basis for the comparison of bids, and the Owner does not warrant, expressly or by implication, that the actual amount of work will correspond therewith. The right to increase or decrease the amount of any class or portion of the work, or to make changes in the work required as may be deemed necessary is reserved by the Owner as provided elsewhere in these specifications and General Conditions. The basis of payment will be the actual unit bid items of work performed and measured in accordance with the Contract. All prospective bidders should note that certain bid items may be included in the Contract Proposal to establish a unit price should the use of those items become necessary during construction. Allowance will not be made for loss of anticipated profits or additional compensation should the use of these items be deemed unnecessary.

##### 1.4 EARTHWORK BID ITEMS

- A. Backfill Gravel:
  - 1. The unit price bid per cubic yard for backfill gravel shall constitute full compensation for labor, material and equipment required to deliver and place the material at locations shown on the plans or as designated by the Owner.
  - 2. The unit price shall include all cost of excavation, removal and disposal of the unsuitable material.

3. Measurement for payment shall be based upon a truck count tally system or neat line measurements outlined in the Contract Documents and Contract Drawings, whichever is less.
- B. Furnish and Install Culvert:
1. The unit price bid per lineal foot of culverts when segregated in the proposal shall be full payment for all labor, material and equipment required for finish and install culverts as shown on the drawings or directed by the Engineer.
  2. The unit price bid shall include excavation, bedding, trench backfill and compaction. Use of import gravel backfill shall be paid separately under the appropriate bid item.
  3. Payment will not be allowed under this bid item for new culvert installation required due to damage of existing culverts by the Contractor's construction activities.
  4. Measurement for culvert installation shall be on a lineal foot basis. Bid items shall note pipe size.
- C. Rock Embankment
1. The contract unit price shall include all labor, equipment, and materials required to deliver and place the material at locations shown on the plans or as designated by the owner. The unit price shall include excavation, removal, and replacement of unsuitable material. Measurement for payment shall be based on the compacted in place quantity.
- D. Stacked Rock Wall
1. The unit contract price per square foot of exposed wall face shall include furnishing all equipment, labor, and materials to build a rock wall complete and in place as shown on the contract drawings.

## 1.5 WATER LINE BID ITEMS

- A. Water Pipe:
1. The unit price bid per lineal foot for furnishing and placing water pipe of the size, type and class specified shall constitute full compensation for all labor, material (including fittings) and equipment required for furnishing, excavating, placing, backfilling, thrust blocking, testing and disinfecting these items, complete in place, ready for use. Specifically included in the unit price, but not limited to, are all costs of clearing, grubbing, grading for the trenching operations, excavation, backfill, grading for the trenching operations, excavation, backfill, sheeting, shoring dewatering, compaction, disposal of debris, cleanup, surface shaping, road section regrading and easement restoration.
  2. The unit price shall include all costs and expenses involved in maintaining and/or replacing all public or private utilities, structures or improvements which may have to be moved, or which may in any way be damaged by operations of the Contractor. This shall include

- full compensation for extra depth excavation and added work, where required, to place pipe under ditches, streams, utilities, under or over culverts.
3. Also included in the unit cost shall be the following items unless a separate bid item is provided for in the bid schedule.
    - a. Rock Drilling and Blasting
    - b. Gravel Bedding
    - c. Connection to Existing Water Main
    - d. Remove and Replace Culvert
    - e. Remove and Replace Guardrail
    - f. Top Soil and Seeding
    - g. Asphalt Concrete Replacement
    - h. Backfill Gravel
  4. Measurement for payment shall be along the horizontal centerline of the pipe from center to center of fittings and through the valves.
- B. Gate Valves or Butterfly Valve Assemblies:
1. The unit price bid for each valve shall constitute full compensation for all labor, materials and equipment required to install each valve of the class and size specified, complete in place, including valve boxes set at the proper grade, the necessary jointing material and for furnishing and installing valve markers.
- C. Fire Hydrant Assembly:
1. Compensation for all labor, materials and equipment required to install the complete assembly, including excavation, backfill, painting with two coats of paint after installation, auxiliary gate valve, cast iron box, connecting pipe to main, connection tee, solid concrete block, a minimum of six (6) cubic feet of washed gravel, the necessary 6 mil PVC sheets to cover the gravel drain pocket prior to backfilling and installing hydrant markers.
  2. The unit price bid per hydrant shall also include the necessary excavation or fill to form a level area at least four (4) feet in radius around the hydrant and access to the roadway as shown on the drawings.
  3. Culverts, if required, will be paid for under separate bid item for furnish and install culverts.
- D. Water Service in Unpaved Roadway or Easement:
1. The unit price bid for each installation shall constitute full compensation for furnishing all labor, material and equipment required to furnish and install the customer service connection and make a connection to an existing service, complete in place as shown on the Contract Drawings.
  2. Specifically included but not limited to, shall be the cost of road restoration, easement restoration, rock drilling and blasting, excavation and backfill, compaction and connections to any existing piping.
  3. Open cut or jetted service installations shall be paid for under this bid

- item.
- 4. The service saddle, corp. cock, valve box and fittings shall be installed as required in the standard detail and shall be considered incidental costs.
- E. Connection to Existing System:
  - 1. The unit price bid for each connection to the existing water system shall constitute full compensation for furnishing all labor, material and equipment necessary to cut the main and make the connection, complete in place.
  - 2. Included, but not limited to, are the costs involved in cutting the main; furnishing and placing all fittings including tees, couplings, and adapters; concrete blocking and disinfection.
  - 3. Also included shall be any additional cost resulting when connection to the main is specified to be performed at other than normal working hours.
  - 4. The cost of pipe and valve assemblies four inches and larger shall be paid under separate bid items. Pipe and valve assemblies less than four inches are incidental to this bid item.
- F. Install Catch Basins
  - 1. The unit price for each catch basin shall constitute full compensation for all labor, materials, and equipment necessary for excavation of the site and installation of the catch basin. Backfilling shall be paid under a separate bid item.

## 1.6 PAVING AND SURFACING BID ITEMS

- A. General:
  - 1. Measurement for paving and surfacing bid items shall have the following limitations:
    - a. Measurement by the Ton:
      - 1) Measurement of hot-mix asphaltic paving materials, unless otherwise provided, shall be weighed on State certified truck scales approved by the Engineer. Asphalt concrete pavement shall be measured per ton of 2,000 pounds based on the amount of hot mix asphaltic material actually used in the completed and accepted work modified as follows: the quantity paid for shall not exceed 105% of tonnage determined on the basis of the average core density, the specified neat line thickness, and the completed area of asphaltic concrete pavement.
      - 2) Measurement of crushed aggregate surfacing shall meet the same requirements as hot mix asphaltic pavement except the quantity paid shall not exceed 110% of neat line thickness.
    - b. Measurement by the Square Yard:

- 1) Measurement of hot-mix asphaltic paving materials, including Bituminous Surface Treatment, unless otherwise provided, shall be measured by the completed and accepted work. The area measured will be that which is so shown on the plans plus any additional areas as authorized by the Engineer in writing.
  - 2) The tolerance for thickness of asphaltic concrete under square yard measurement shall be plus or minus one-fourth (1/4) of an inch from design matt thickness, as shown on the typical section. This one-fourth (1/4) inch variance shall be the exception only with the average variance for the job being plus or minus one-eighth (1/8) of an inch from the design matt thickness. All asphaltic concrete placed outside the variables allowed, will be corrected by the Contractor at his expense.
- B. Crushed Aggregate Surfacing:
1. The unit price bid per cubic yard or per ton for crushed aggregate surfacing when segregated in the bid proposal shall constitute full compensation for all labor, material and equipment required to furnish, deliver and place crushed aggregate on roads to the width and depth as prescribed and designated by the Owner.
  2. Also to be included in this item shall be the cost of all motor patrol or grader work, or any other equipment required to shape the roadway to proper grade before the crushed aggregate is placed, as well as all equipment required to spread and compact the crushed surfacing uniformly on the road. Grader work shall include necessary scarification of existing road surfacing that may be required to achieve proper grade and consolidation.
  3. During dry periods, the Engineer may require water sprinkling prior to placement of the crushed aggregate and while spreading the aggregate. The cost of such sprinkling shall be included in the unit price bid for crushed aggregate.
  4. Certified truck bills shall be furnished with each load of material delivered and payment quantities shall be measured as described in these Specifications.
- C. Curb & Gutter
1. The unit contract price per lineal foot shall include forming, furnishing and placing reinforced concrete curb and gutter sections in place as shown on the contract drawings.
- D. Sidewalk
1. The unit contract price per lineal foot shall include forming, furnishing and placing sidewalk sections in place as shown on the contract drawings.

## 1.7 MISCELLANEOUS BID ITEMS

A. Mobilization

1. This work shall consist of preconstruction costs of preparatory work and operations performed by the Contractor, including but not limited to, those necessary for the movement of his personnel, equipment, supplies and incidentals to the project site; for the establishment of his offices, buildings and other facilities necessary for work on this project; for premiums on bonds and insurance for the project, and for work and operations which he must perform or costs he must incur before beginning production work on the various items on the project site. Mobilization costs for all subcontracted work shall be considered to be included.
2. Items which are not to be included in this item include but are not limited to:
  - a. Any portion of the work covered by specific bid item or incidental work which is to be included in a bid item or items.
  - b. Profit, interest on borrowed money, overhead or management costs.
3. The lump sum contract price for "Mobilization", partial payments will be as follows:
  - a. When 5% of the total original contract amount is earned from other bid items, 50% of the amount bid for mobilization, or 5% of the total original contract amount, whichever is the least will be paid.
  - b. When 10% of the total original contract amount is earned from other bid items, 100% of the amount bid for mobilization, or 10% of the original contract amount, whichever is the least, will be paid.
  - c. Upon completion of all work on the project, payment of any amount bid for mobilization in excess of 10% of the total original contract amount will be paid.

**END OF SECTION**

## **SECTION 01030**

### **CONSTRUCTION SURVEYING**

#### **1. GENERAL**

##### **1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. Construction Schedules: Sections 01310.

##### **1.2 SCOPE OF WORK**

- A. The Contractor shall furnish all labor and materials necessary to perform all surveying and staking essential for the completion of construction in conformance with the plans, specifications, and contract documents. The Contractor shall perform all the necessary work and calculations required to accomplish the work in accordance with these Specifications and other portions of the Contract Documents.
- B. This section is intended to establish a standard minimum level of acceptable field survey specifications and procedures to properly control construction projects. It is the Contractor's responsibility to ensure proper survey methods and procedures are followed. Any errors resulting from the survey shall be corrected at the expense of the Contractor and at no additional expense to the Owner. Any method conflicting with these survey specifications must be approved by the Engineer prior to its use. All survey work performed shall be under the direct supervision of an Alaskan Registered Professional Land Surveyor.

##### **1.3 PROJECT CONTROL**

- A. The Owner may provide reference horizontal and vertical control data to facilitate construction staking. Some projects may require horizontal and vertical control to be established independent of the design survey or construction plan drawings. Whatever the case may be, it is the Contractor's responsibility to establish and check all survey control prior to any staking activity to ensure the project is properly located and constructed according to the construction documents. If discrepancies are found, the Engineer shall be notified immediately. The Contractor is responsible for preserving and protecting all line stakes, grade stakes, reference points, and hubs. In the event of their loss or destruction, the Contractor shall pay all costs for their replacement. The Contractor shall replace any monument that exists within the construction limits, if it is disturbed or removed due to construction project activity. All monumentation disturbed or removed shall be replaced with the same

- type monument or a monument approved by the Engineer.
- B. Horizontal Control Accuracy
1. The maximum permissible linear error allowed in establishing horizontal control is 1:5000 feet. The maximum error allowed in unadjusted angular closure shall be calculated by the formula "30 x the square root of N". The term "N" signifies the number of transit set-ups in the traverse and "30" signifies thirty seconds.
- C. Vertical Control
1. Elevations shall originate from a NGS Vertical Level Line System. All level circuits run to establish temporary bench marks shall have an accuracy no less than the value computed by the equation (0.03 feet x the square root of the distance in miles). Foresights and backsights shall be balanced. The maximum sighting distance shall not exceed 300 feet. All leveling circuits establishing TBM's will be adjusted utilizing recognized standard surveying adjustment methods. Side shots to establish an elevation on TBM's will not be allowed.
  2. A minimum of two known bench marks will be utilized when establishing TBM's to verify correct elevation information. A sufficient number of TBM's shall be set to control a project with a maximum spacing of 800 feet between marks. A TBM typically should not be greater than 200 feet outside the construction limits of the project. All TBM's shall be located and be comprised of sufficient materials such that their integrity will not be compromised throughout the life of the project.
- D. Construction Center Line
1. The construction center line, which may or may not be an existing survey line, shall conform to that shown on the plans. Any errors found in line shall be corrected and shown on the plans with reference to the plan centerline. The permissible error of closure for horizontal distances measured along the construction centerline shall be 1:5000 feet.
  2. At the time the construction centerline is established, or immediately thereafter, control points shall be referenced so that the line can be readily re-established when required. Each reference point shall be visible to at least one other reference point. The method of referencing control points shall be done in accordance to the standard details of these Specifications. Reference points shall be placed at locations where there is the least possibility of their being disturbed during the construction period and from which the centerline can be reset with a minimum of delay. Measurements and sketches of the reference points shall be kept in the alignment/horizontal control book. A minimum of two reference points shall be set to reference a project control point or monument.
  3. A centerline profile shall be run prior to establishing construction

grade stakes. The existing ground elevations shall be checked against the existing profile elevations shown on the plans to verify design grade relations to the existing ground conditions. The Contractor shall review the centerline profile information to determine if a discrepancy large enough to adversely impact the project design exists. It shall be the responsibility of the Contractor to immediately notify the Engineer in writing if the data provided does not match conditions encountered in the field.

#### **1.4 FIELD NOTES**

- A. The Contractor shall supply uniform hard backed write-in-rain survey field books. The Owner has the right to inspect and take possession of the field books at any time throughout the project. All field books will be identified on the outside spine. Each book shall be indexed and its contents referred to by page number prior to returning them to the Owner. The date, weather conditions, survey crew personnel, and instruments used shall be shown at the beginning of each day's notes. As a general rule field notes for each phase of the work shall be placed in a separate series of field books. All field books used in the process of the work are the property of the Owner and shall be submitted to the Owner upon completion of the work or the end of the construction season. All field books containing field note information shall be sealed and signed by a Registered Professional Land Surveyor on the title page of each field books.
- B. All observations shall be recorded directly into project field books. "Pegging" of notes will not be acceptable. All field notes shall be in pencil and recorded in standard bound field books. All field notes and drawings shall be completed and reduced before acceptance by the Owner. Control sketches and traverse data shall be graphic and show measured and recorded distances. The source of record shall be stated. Stationing shall increase from the bottom of the page to the top of the page. Notes shall be neat, legible, precise and sufficiently detailed. All survey work will be stopped until the notes are brought into conformance with this requirement. A copy of each days field book notes shall be reduced and delivered to the office of the Engineer by 12:00 Noon the following working day. The Engineer shall issue a stop work order at the Contractor's expense until the field notes are delivered within this time frame.
- C. Erasures of errors in field books will not be accepted. A line shall be drawn through those portions of the notes in error, leaving the original note legible, and the correction shall be noted above the original entry. Corrections shall be initialed and dated. Where appropriate a note of explanation shall be included.
- D. Failure on the part of the Contractor to keep and maintain complete and accurate field notes as required by this Section, shall be sufficient reason to withhold payment for those items of work where survey is required. No final project payment will be made to the Contractor until the field books

have been submitted to and approved by the Engineer.

## **1.5 PARTY CHIEF'S DAILY DIARY**

- A. The survey party chief shall keep a factual daily diary of all work performed by the survey crew on the project. The diary shall contain the following information:
  - 1. Date
  - 2. Crew
  - 3. Type and location of work performed
  - 4. Work accomplished
  - 5. Orders from the Engineer
  - 6. Signature
- B. This record shall be kept on the project site and submitted to the Engineer upon request. At completion of the project this diary shall become the property of the Owner.

## **1.6 CLEARING AND GRUBBING STAKES**

- A. The Contractor shall stake the clearing and grubbing limits and verified by the owner prior to commencing work.
- B. Distances shall be measured to the nearest foot and standard lath/flagging shall be placed to clearly designate the intended limits. Intervals for placement of lath/flagging shall vary based on the terrain and foliage density, spacing of 50 to 100 feet will generally be adequate.

## **1.7 CROSS SECTIONS**

- A. The Contractor shall perform all cross sections necessary for determination of excavation and fill or backfill quantities, including intermediate and/or remeasure cross sections as may be required. Original ground cross sections shall be taken at the centerline of construction according to the construction drawings and on each side of centerline at grade breaks, edge of pavement, curb and gutter, shoulder of road, toe of slope, centerline of ditch, top of bank, and at all other physical features within the project limits. Cross section stations shall be taken at all even stations identified on the construction plan drawings not to exceed 50 foot intervals and shall include intermediate stations wherever grade breaks occur. Additional cross sections must be taken at odd stations where structure exceptions begin or end. In areas where overbreak or slides are anticipated the sections shall be extended further to include the anticipated disturbed ground area.
- B. Cross sectioning may be accomplished with 1) an engineer's level, 2) a self compensating surveyor's level, 3) an electronic level, or 4) by electronic data collection and radial survey method. Neither radial

methods nor electronic leveling shall be employed without prior approval from the Engineer. When radial methods or electronic leveling methods are used the survey shall comply with or exceed the accuracies established in this article. Conditions under which these methods may be used shall be discussed at the initial preconstruction meeting with the Engineer. If an engineer's level, self compensating surveyor's level, or an electronic level is used, cross sections shall be taken perpendicular to the centerline along tangents and on radial lines along curves. Surveyors shall make use of a right angle prism to determine perpendiculars. H.I.'s shall be recorded to the nearest 0.01 foot. All cross sectioning work performed shall be part of a closed level loop. If only the TBM is used, the level set-up shall be broken and a different instrument height obtained before closing into the same TBM. The maximum allowable error for level loops used for cross sectioning shall be 0.03 foot. Cross section readings shall be recorded to the nearest 0.1 foot. Horizontal measures with a taper shall be horizontally accurate with a minimum sag and readings shall be recorded to the nearest 0.1 foot. Work shall not be paid for if it does not meet the stated accuracy requirements.

- C. When measurement of earthwork quantities is specified by cross section, the final cross sections shall be taken at the original cross section station before excavation. Before excavation, cross sections will be required unless otherwise specified. Where grubbing activity is included in the construction contract, the original cross sections shall be taken after the grubbing activity is complete. All cross sections taken for pay quantities shall clearly identify in the field book work done before and/or after excavation of quantities. Where usable and unusable material is part of the excavation it shall be clearly identified in the field book. Elevation shots shall be taken at the bottom of excavation at centerline and perpendicular to centerline on each side. The shots shall measure grade ground at least 10 feet beyond the limits of excavation. All work performed otherwise will not be accepted by the Engineer for quantities payment.
- D. The Contractor shall notify the Engineer 24 hours prior to conducting any survey measurements involving pay quantities. The Engineer or his representative shall approve the excavation prior to any cross sectioning taking place, and shall have the opportunity to be present during the survey. Any pay quantities work done without the Engineer's notification and approval, or any work covered up before proper remeasure is made, shall be just cause for nonpayment.

## **1.8 SLOPE STAKES**

- A. Slope stakes shall be required for each cross section station and at additional intervals such as points of curvature and tangency of curves, street intersections, vertical curve intermediate stations including the high or low point of the curve, and at grade breaks. The stakes are to be set at

points where the cut or fill slopes intersect the surface of the natural ground. Staking notes shall record the location of the slope stake in relation to the construction centerline, the elevation shot at the catch point, the planned elevation that the slope stake is identifying, what level of the design prism the catch point is identifying, i.e., top of unclassified fill, top of subbase, etc., the percent of slope for cut/fill, the distance to point slope staked, and the station of the slope stake. The minimum information that is to be shown on a slope stake is as follows:

1. The distance from the catch point to the point being staked.
  2. The percent of slope of the cut/fill.
  3. The amount of cut/fill.
  4. The stake's location in reference to the centerline.
  5. The centerline station of the slope stake written on the back of the stake.
- B. The use of hand levels for setting slope stakes shall be limited to one turning point up or down from the instrument to the catch point. Hand level turning points shall be clearly noted in the field book.
- C. A reference stake to each slope stake shall be set. The reference stake shall be set a minimum of 10 feet and a maximum of 20 feet beyond the slope stake. The reference shall convey the slope stake information in the event the slope stake is disturbed or destroyed. A hub shall be driven flush with the ground at the reference stake and all elevations referenced to the hub.

## **1.9 VERTICAL CUT STAKES, GRADE STAKES, AND FINISHING STAKES**

- A. Vertical cut/fill stakes may be used where the design prism does not contain sloped shoulders and ditches and a slope stake would not be needed. The reference point shall be a standard wood hub accompanied by a minimum 3 foot length lath with the cut, distance to the cut point, description of the point being cut to, and a distance from construction centerline to the stake. The centerline station shall be written on the back of the lath. Cuts shall be given to the nearest 0.1 feet. The stakes shall be set at the same points that were identified for the slope stakes in subsection 1.8. A record of the staking elevations, the designed grade, the location of stakes, the centerline station of the stake and feature which is being staked shall be made in the survey field book.
- B. Finish grade hubs (bluetops) shall be set to verify the design prism is at the correct elevation prior to the placement of leveling course material. Wooden hubs, painted or topped with colored whiskers shall be set at the top of classified fill, within 0.02 feet tolerance. Stationing shall be 50 feet on tangent and 25 feet on curves, unless the Engineer approves otherwise. All grade breaks, vertical curve intermediate points and the high/low point of the curve, PC and PT of horizontal curves, and street intersections shall be staked. Hubs shall be established on the centerline of the road prism as a minimum where poured curb and gutter is

incorporated into the designed road prism. Otherwise hubs shall be established at the shoulder of the designed road prism as well as the centerline of the road prism. When parking aprons are staked hubs will be set on a 50 foot grid pattern unless approved otherwise by the Engineer. The field book shall contain the centerline station, the design finish grade elevation of the point staked, the elevation shot the hub was set at, and a description of the point being staked.

## **1.10 DRAINAGE FACILITY STAKING**

- A. The location, type, size, length and invert elevations for drainage facilities shall be given on the construction plan drawings. Minor changes in locations and grades to meet existing field conditions may be made where necessary, but only with the approval of the Engineer. If a discrepancy large enough to adversely affect the planned design is discovered the Engineer should be notified immediately and all grade staking activity shall cease until further notice.
- B. A ground line profile shall be run prior to excavation of drainage facilities. The ground line profile shall be the elevation of the ground directly above the centerline of the pipe before trenching occurs. The Contractor shall stake the alignment of pipe, location of structures, and reference grades from which the system can be built.
- C. The line and grade for storm drain pipe shall be given from reference hubs offset from each manhole, catch basin, angle point, outfall or cleanout. Reference hubs for culvert installation shall be offset from the pipe ends on the extended centerline of the culvert. Guard stakes shall be provided for each hub and shall identify the following information.
  - 1. Station
  - 2. Size, length and type of pipe
  - 3. The amount of cut or fill from the top of the hub to the invert at the end of the pipe
  - 4. The horizontal distance from the reference hub to the center of a manhole, cleanout, catch basin, angle point in a pipe, outfall, or end of a culvert pipe.
- D. For each structure there shall be shown in the field book the location, type, and size with a staking diagram showing all distances and pertinent elevations. Two reference hubs shall be set for each manhole, cleanout, catch basin, angle point, and outfall. The reference hubs shall be offset no greater than 25 feet from the facility they are referencing. One reference hub is required at each end of a culvert.
- E. Headwalls for storm drains and culverts shall be staked by setting a hub accompanied by a guard stake on each side of the storm drain or culvert. The hubs shall be on line with the face of the headwall, or as directed by the Engineer. An elevation shall be established on the hubs and written on the guard stake along with the offset distance to the center of the headwall.

- F. Dikes/ditches shall be staked to the alignment, grade and slopes shown on the plans. Dikes/ditches shall be slope staked to the shoulder or flow line of the improvement with distances referenced to the improvement centerline. The criteria outlined in subsection 1.8, Slope Stakes, shall govern the establishment of slope stakes for this work.
- G. All riprap and slope protection shall be staked as soon as possible after the pipe, fill, channel change or dike has been constructed. Slope stakes shall be set if needed. See subsection 1.8, Slope Stakes, for staking criteria.
- H. Reference stakes shall be set at even 50 foot construction plan drawing stations on tangents and at 25 foot stations on horizontal curves. All grade breaks, PVC's, PVT's, low points and high points on vertical curves will also be staked. A hub and tack shall be set at an offset distance of 3 feet to the top back of the curb. A lath will be set behind the hub and tack with the offset distance marked at the top of the lath. The cut or fill will be marked below the offset and the station marked on the back of the lath. The cut or fill will be to the top back-of-curb within 0.03 feet. All radius points at curb returns will be staked and additional stakes set breaking up the arc of the curve between curb returns. If valley gutters are to be built, they will be staked and referenced.

#### **1.11 WATER SYSTEM STAKING**

- A. The Contractor shall stake in the field the alignment and grade for work to be done under the Contract. Two offset hubs and lath shall be set for each tee, hydrant, water service, valve, angle point, and grade break in the alignment. The lath shall identify the feature being staked and state the elevation of the hub, the offset distance to the center of the feature, and the station of the feature as shown on the construction plan drawings. The offsets shall be set at a reasonable distance to protect them from disturbance. Contractor shall be responsible for the transfer of control points from the reference hubs or batter boards as required for the prosecution of the work. An original ground line profile directly above the waterline shall be run prior to excavation. The ground line profile refers to the elevation of the ground directly above the centerline of pipe and the grade line refers to the elevation of the bottom of pipe, except where otherwise noted. The field notes shall record the profile, the hub elevations, offset of the hubs, and the station of the feature being staked.

#### **1.12 MAJOR STRUCTURE STAKING**

- A. Construction survey procedures shall be submitted to the Engineer prior to any construction staking. His review and approval is necessary for major structures such as bridges, docks, piling, drainage facilities, and large buildings.

### **1.13 MISCELLANEOUS CONSTRUCTION STAKING**

- A. The Contractor shall provide sufficient stakes for the adequate control of all structures and incidental construction not specifically covered above. A staking diagram with respect to centerline and measurements for pay quantities shall be maintained in the field notes. Other items such as horizontal and vertical control shall be shown in the field book and shall be governed by procedures established in previous articles of this Specification.

### **1.14 DETERMINATION OF ROCK ELEVATION**

- A. The Contractor shall be responsible for determining the actual rock elevation of the solid rock to be removed. The method of determining the rock elevation will be agreed to by the Owner and Engineer during the pre-construction meeting.

### **1.15 ELECTRONIC DATA COLLECTION AND RADIAL SURVEYS**

- A. When electronic data collection is used or radial methods are used, the following criteria must be maintained and submitted:
  - 1. A standard field book containing: date of survey, weather conditions, instrumentation used, crew, project description and sketch, listing of turning points and control points used, and other information needed to set up the reconstruction of the survey activity.
  - 2. A printout of the un-edited output from the data collector or a copy of the radial field book entries to include: code descriptors, horizontal circle information, vertical circle information based on Zenith, and slope distance expressed in feet. A sheet containing the explanation of the codes used to identify the various shots.
  - 3. A printout of the reduced and adjusted (ratios of error and magnitude of misclosures shown) data represented by X, Y, and Z coordinates, plus necessary descriptive information.
  - 4. A plot and/or line drawing showing the control points, point occupied, and the radial observations at a scale large enough to read the point number, elevation, point description, and coordinates.
  - 5. When cross-section data is collected by radial methods a printout/plot of the following data is required:
    - a. Each point identified as it relates to the centerline station,
    - b. The distance offset from centerline of the roadway or the construction centerline, whichever is applicable,
    - c. The elevation and description of the shot,
    - d. A cross section line plot of each station with the individual shots averaged out to produce the final interpolated cross

- section,
- e. The vertical angle and distance to the TBM's used for control and the instrument height, and the height of the prisms.

## 1.16 ASBUILT SURVEYS

- A. Asbuilt survey measurements shall be required which show changes and improvements which vary from the dimensions, lines, grades, locations, or materials as shown on the construction plan drawings. Also included on the as-builts shall be swing ties to all structures including manholes, stub outs, service laterals and valve boxes. Survey measurements shall be taken, field notes shall be kept, and accuracies shall be attained in accordance with the specifications of this section. Asbuilt information shall be marked on a clean set of blue line construction plan drawings and be submitted to the Engineer at the completion of construction activity. The drawings shall be clearly stamped "Record Drawings". No final project payment will be made to the Contractor until the Record Drawings have been submitted to and approved by the Engineer.
- B. **In addition to the swing ties, the contractor shall collect the northing, easting's, and elevations of all curb stops, corporation stops, hydrants, gate valves and major pipe bends using a total station instrument. The data shall be provided to the Borough in ASCII format using comma delimited point number, northing, easting, elevation, description. Progress payments will not be processed without verification of collection of asbuilt data.**

**END OF SECTION**

## **SECTION 01043**

### **JOBSITE ADMINISTRATION**

#### **1.01 INSPECTION BY OWNER**

Inspection and construction contract administration for this project will be performed by the Owner through designated authorized employees or by contract with a consultant.

#### **1.02 OWNER'S REPRESENTATIVE**

The Owner Shall designate an authorized employee or consultant to act as the Owner's Representative at the time of Notice to Proceed. The Owner's Representative shall be responsible for daily coordination with the Contractor, and for furnishing instructions to Contractor's field superintendent regarding the location and nature of desired improvements.

He or she shall also monitor equipment and workmen at the site, review Contractor quantity estimates and communicate with Contractor regarding Owner authorizations and instructions regarding mobilization, demobilization, and adjustments to the scope of work.

The Owner's Representative may be assisted by one or more inspectors, surveyors, or technical support staff.

#### **1.03 AUTHORITY OF INSPECTORS**

- A. Where the term "inspectors" is used in this section, it shall mean the Owner's Representative, inspectors, surveyors, or technical support staff.
- B. Inspectors may be on the job to keep the Owner informed as to the progress of the work and the manner in which it is being done; to keep the records; act as liaison between the Contractor and the Owner; also to call the attention of the Contractor to any deviations from the Contract Documents.
- C. Inspectors may reject or accept materials and equipment to be incorporated in the work.
- D. Since inspectors cannot control how the material is used, the responsibility for its safety and proper use will be the Contractor's. Until the job is finally completed, the Contractor might do work that changes or modifies work previously done and even though at any given time a piece of work might be well done and acceptable in quality, the responsibility for keeping it in that condition until the job is completed is the sole responsibility of the Contractor. For this reason, it is impossible to accept, finally, any portion

of a project until the project as a whole is acceptable and control of said project is withdrawn from the Contractor by final official written acceptance by the Owner.

- E. Any personal assistance or suggestions which an inspector or the Owner's Representative may give the Contractor will not be construed as the basis of any assumption of responsibility in any manner, financial or otherwise, by the inspector, the Owner, or the Owner's Representative.
- F. The presence or absence of an inspector on any job will be at the sole discretion of the Owner, and such presence, or absence, of an inspector will not relieve the Contractor of his responsibility to obtain the construction results specified in the Contract Documents.
- G. The inspector will not be authorized to approve or accept any portion of the work or to issue instructions contrary to the Contract Documents. Such approvals, acceptances, or instructions, when given, must be in writing and signed by the Owner. The inspector will have authority to reject defective material, however, the failure of the inspector to reject defective material or any other work involving deviations from the Contract Documents will not constitute acceptance of such work.
- H. Nothing in this subsection shall in any way be so construed as to require or to place responsibility for, the method, manner or supervision of the or supervision of the work under this Contract on the inspector, the Owner, or the Owner's Representative. Such responsibility rests solely with the Contractor.

#### **1.04 EXAMINATION OF MATERIALS**

The neglect or failure on the part of Owner to condemn or reject substandard material or work shall not imply an acceptance of the materials or work.

#### **1.05 SCHEDULING**

After receipt of Notice to Proceed, but prior to equipment mobilization, Contractor's superintendent shall walk the job with the Owner's Representative, at which time Owner's work priorities shall be discussed and a mobilization and initial work schedule established. The Contractor's Superintendent shall meet daily with the Owner's Representative to discuss job progress, establish types of work to be accomplished, and request any necessary authorizations or instructions.

**END OF SECTION**

## **SECTION 01050**

### **FIELD ENGINEERING**

#### **1. GENERAL**

##### **1.01 DESCRIPTION OF WORK**

The intent of this section is to delineate the responsibility for different aspects of the construction surveying associated with the work.

##### **1.02 SURVEY REFERENCE POINTS**

- A. The location of the improvements are shown relative to existing street centerlines, monumentation for which is a matter of public record. Plats and/or existing street plans may be examined in Ketchikan at the office of R&M Engineering-Ketchikan, Inc.

All elevations shown on the plans are referenced to Mean Lower Low Water tide datum, benchmarks for which are also of record.

- B. All survey and layout work shall be performed by the Contractor as part of the work. The Contractor shall transfer lines and grades from existing control to his own work at his own expense.

##### **1.03 RECORDS**

Maintain a complete, accurate log of all control and survey work as it progresses.

##### **1.04 SUBMITTALS**

In accordance with the requirements of section 01341, submit the following project data:

1. On request of the Engineer, submit documentation to verify accuracy of field engineering work.
2. Submit survey tie data in the form of sketches with information as indicated in paragraph 2.01, below.

#### **2. EXECUTION**

##### **2.01 SURVEY TIES**

The Contractor shall provide horizontal swing ties "as-built" survey ties and consisting of not less than three measured distances from points of reference not more than 100 feet away for the following items constructed as part of this project:

1. New curb and valve boxes
2. Buried wyes, tees, and abrupt alignment change locations for sanitary sewers and storm drains.
3. Location of connection to existing water, sewer, and storm drain.

The minimum angle between adjacent ties shall be 30 degrees. In addition to horizontal tie data, the Contractor shall measure the depth to top of pipe or fitting for items 2 and 3, above. Depth shall be relative to pavement, plus or minus .1 foot.

Contractor shall also conventionally survey the above items and provide the owner with northing's, easting's, and elevations of all points.

**END OF SECTION**

## SECTION 01220

### PROGRESS SCHEDULE AND MEETINGS

#### 1. GENERAL

##### 1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Summary of Work: Section 01010
- B. Job Site Administration: Section 01043

##### 1.02 CONSTRUCTION SCHEDULE

Within ten days after the effective date of the Agreement, Contractor shall submit to the Engineer for review:

Construction Schedule  
A preliminary schedule of Shop Drawing and Project Data submittals

All work performed by the Contractor shall be scheduled and monitored using appropriate scheduling techniques. The Contractor shall utilize this schedule in the preparation for and the execution of the work (including the activities of all contractor employees and equipment, subcontractors, equipment vendors, suppliers, etc.).

The schedule shall be developed by a scheduling consultant or by the Contractor. The schedule shall be developed and updated by personnel with expertise and experience in construction scheduling. The Contractor shall determine all the information necessary for development of a schedule which accurately demonstrates the Contractor's plan for execution and completion of all work and for updating of the schedule in accordance with the requirements of this section.

The Contractor shall furnish a preliminary example of the scheduling system to be employed. The Resident Project Representative will review the scheduling system and upon determining compliance with these specifications will approve the system. All modifications and additions required by the Resident Project Representative shall be incorporated and provided by the Contractor.

**Changes in the construction schedule shall be updated weekly by the contractor. Progress payments will not be processed without verification of the current construction schedule.**

The construction schedule shall:

- A. Be plotted to a calendar day based horizontal time scale.

- B. Clearly display the specific start and completion date of every activity in the schedule and the critical path of activities.
- C. Show the order and interdependence of the Contractor's planned activities.
- D. Identify phases or major areas of construction by logically grouping activities.
- E. Indicate all required actions of Owner or Engineer affecting progress or completion date.
- F. Include appropriate float time throughout the construction period.
- G. Indicate all effects on and interruptions to the existing operations of the existing facilities.
- H. Include estimated dollar value of work completed for each one month period.

The construction schedule shall be revised by the Contractor monthly to reflect the following:

- A. Change in sequence and/or duration of any work item.
- B. Delay in completion of any work item or sequence of work items.
- C. All change orders and other contract modifications.

Three (3) copies of the initial and revised schedules shall be provided to the Resident Project Representative immediately after completion by the Contractor.

In the event construction schedules are used as the basis for computing delay and impact costs, or time extensions for contract changes or claims, all "float" shall be considered as vested in the Owner.

### 1.03 MEETINGS

#### PRECONSTRUCTION CONFERENCE

Within 20 days after the effective date of the Agreement, but before the Contractor starts work at the site, a preconstruction conference shall be held in Ketchikan at the Borough Conference Room.

#### ATTENDANCE

1. The Contractor shall be represented at the conference by the following:
  - a. Job site superintendent
  - b. Project Manager (if other than job site superintendent)
  - c. Partner, Owner, or Corporate Officer responsible for execution of contract agreements (if other than project manager or job site superintendent)
  - d. Subcontractor superintendents for subcontracts in excess of \$100,000. This requirement does not apply to equipment suppliers.
2. The conference shall also be attended by the Owner, Engineer, and other parties as appropriate.
3. The Owner or Engineer shall take minutes of the meeting, and distribute them to attendees.

## AGENDA

At a minimum, the following items shall be reviewed and discussed at the Preconstruction Conference.

- (1) Introductions. Identify participants, affiliation, responsibility, mailing addresses, voice and facsimile telephone numbers.
- (2) Review status of construction transmittals, e.g., construction drawings.
- (3) Communication Procedures
- (4) Shop Drawing, Project Data Submittal Procedures
- (5) Payment Procedures
- (6) Schedule of Values
- (7) Contractor's Schedule and Work Sequence
- (8) Use of Premises
- (9) Progress Meetings
- (10) Project Records
- (11) Field Office Arrangements
- (12) Discrepancies in Contract Documents
- (13) Regulatory Requirements
- (14) Authority of Inspectors
- (15) School bus scheduling

The Conference shall be followed by a joint inspection of the site by Owner, Engineer, and Contractor.

## PROGRESS MEETINGS

- A. The Contractor shall attend progress meetings weekly or at other mutually agreed times.
- B. Hold Called Meetings as progress of work dictates.

- C. Location of meetings: In Ketchikan as designated during preconstruction conference.
  
- D. Attendance:
  - 1. Resident Project Representative
  - 2. Contractor.
  - 3. Other Contractors (if any).
  - 4. Subcontractors as pertinent to agenda.
  - 5. Safety Representative (Optional).
  - 6. Representatives of Governmental or other Regulatory Agencies.
  
- E. Minimum Agenda:
  - 1. Review, approve minutes of previous meeting.
  - 2. Review work progress since last meeting.
  - 3. Note field observations, problems and decisions.
  - 4. Identify problems which impede planned progress.
  - 5. Develop corrective measures and procedures to regain planned schedule.
  - 6. Revise Construction Schedule as indicated.
  - 7. Plan progress during next work period.
  - 8. Coordinate projected progress with other Contractors.
  - 9. Maintaining of quality and work standards.
  - 10. Review changes proposed by Owner for:
    - a. Effect on Construction Schedule.
    - b. Effect on Completion Date.
  - 11. Complete other current business.

**END OF SECTION**

## **SECTION 01340**

### **PROJECT DATA SUBMITTALS**

#### **1.0 GENERAL**

The Contractor shall assemble and submit, to the Engineer, project data and samples as specified in each specification section. The project data and samples shall be submitted to the Engineer for review and checking to determine conformance with the intent of the plans and specifications. The review and checking by the Engineer will be specifically limited to the project data and samples specified in these specifications.

#### **1.1 PROJECT DATA**

Project data and samples shall be approved by the Engineer prior to placement of purchase orders for equipment and materials. Equipment and materials for which project data and samples are specified, which are constructed, installed or incorporated prior to review, check and approval by the Engineer may not be accepted by the Owner.

The review by the Engineer of product data or other submittals is only for conformance with the general design concept of the project and does not extend to consideration of structural integrity, safety, detailed compliance with contract requirements or any other obligation of the Contractor. Any action shown is subject to the requirements of the plans and specifications.

The Contractor is responsible for preparation and review of all shop drawings confirming and correlating all dimensions; fabricating and construction techniques; coordinating his or her work with that of all other trades; and the satisfactory performance of his or her entire work in strict accordance with the contract documents. The review of project data by the Engineer shall not relieve the Contractor from his or her obligation fully to perform all contract requirements, nor shall such review give rise to any right of action or suit in favor of the Contractor or third persons, against the Engineer or the Owner.

#### **1.2 MINIMUM REQUIREMENTS**

1. Shop and supplemental drawings shall be assembled, labeled with reference to specification section and/or drawing number, detail number and location with the delivery date and all pertinent data needed to fully describe the element or item of the work.
2. Shop and supplemental drawings shall indicate all rough-in, backing or blocking, space requirements and that field measurements have been verified for conformity to the contract documents, code requirements, where applicable, and necessary coordination with any other parts of the

- work.
3. The Contractor shall sign the drawings or project data transmittal to certify that he or she has reviewed the shop and supplemental drawings submittal, verified all field measurements and complied with all applicable provisions of the contract documents. A sample transmittal form is provided at the end of this section. The Contractor shall reproduce and use this form for all project data submittals.

### **1.3 DISTRIBUTION**

The Contractor shall provide copies of project data and shop and supplemental drawings, as provided in the General Conditions, or six copies, whichever is greater. The Engineer shall return one marked copy to the Contractor.

### **1.4 LIMITATION OF SUBMITTALS AND REVIEWS**

The Contractor shall submit project data and samples for equipment and materials which meet or exceed the requirements of the specifications. Accordingly, it is considered reasonable that the Contractor provide project data and samples which are complete and acceptable, in the judgment of the Engineer, by the second submission of specific project data and samples. The Owner reserves the right to and will withhold such amount from payments due to the Contractor to cover the cost of review by the Engineer of third and subsequent submissions of specific project data and samples.

The Contractor's progress schedule shall include time for the submittal of project data and samples and for the resubmittal of project data and samples rejected by the Engineer.

### **1.5 PAYMENT**

No separate or additional payment will be made for the work and/or materials specified herein. All costs of such work and/or materials shall be considered as incidental to the project and shall be included in the appropriate lump sum or unit price bid.

END OF SECTION

## **SECTION 01400**

### **QUALITY CONTROL**

#### **1.0 GENERAL SAMPLING AND TESTING REQUIREMENTS**

All of the work, under this contract, shall be fully tested in accordance with the specifications. The Contractor shall furnish all labor and materials for the testing of the materials he or she proposes to employ.

It shall be the Contractor's responsibility to obtain and pay for the services of an approved testing laboratory which shall take all samples and perform all tests as stipulated, necessary for initial verification that the materials to be utilized in the construction do conform to the various specifications. The Contractor shall furnish two certified copies of the results of all tests to the Resident Project Representative and one to the Engineer.

#### **2.0 INITIAL TESTING**

All sampling and testing necessary to determine results of construction techniques and procedures shall be performed by the qualified laboratory retained by the Contractor. Such sampling and testing shall be as necessary to provide compliance with the requirements of the specifications and shall include the tests listed in the specifications and any and all additional tests which may be required or requested by the Engineer and/or Owner.

#### **3.0 SUBSEQUENT TESTING**

All sampling and testing necessary to determine results of construction and procedures shall be performed by the qualified laboratory retained by the Contractor. Such sampling and testing shall be as necessary to determine compliance with the requirements of the specifications and shall specifically include the tests listed in the specifications and any and all additional tests which may be necessary to properly identify components and control the work.

#### **4.0 OPERATIONAL TESTING**

It is the intent of the Owner to have a complete and operable system. All of the work shall be fully tested and inspected in accordance with the specifications.

A. PAYMENT

No separate or additional payment will be made for the work and/or materials specified herein. All costs of such work and/or materials shall be considered as incidental to the project and shall be included in the appropriate lump sum or unit price bid.

**END OF SECTION**

## **SECTION 01410**

### **TESTING LABORATORY SERVICES**

#### **1. GENERAL**

##### **1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. Quality Control: Section 01400.
- B. Testing Requirements: Various Sections.

##### **1.2 BIOLOGICAL TESTING**

- A. Biological tests required for disinfection of domestic water systems shall be by a laboratory approved by the Alaska Department of Environmental Conservation.

##### **1.3 CONTRACTOR WILL PAY FOR SERVICES OF AN INDEPENDENT TESTING LABORATORY FOR:**

- A. Concrete: Mix design, consistency, air content, yield, compressive test cylinder casting and compression testing per Section 03300.
- B. Other materials and/or workmanship tests where specified in Divisions 2 through 16.

##### **1.4 LIMITATION**

- A. Employment of a testing laboratory shall in no way relieve the Contractor of his or her obligation to perform Work in accordance with the Contract.

#### **2. QUALIFICATION OF LABORATORY**

##### **2.1 STANDARDS**

- A. Meet basic requirements of ASTM E329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."
- B. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during most recent tour of inspection; with memorandum of remedies of any deficiencies

reported by inspection.

C. Testing Equipment:

1. Calibrated at maximum 12-month intervals by devices of accuracy traceable to National Bureau of Standards.

Submit copy of certificate of calibration, made by accredited calibration agency.

**3. LABORATORY DUTIES**

**3.1 AUTHORITY AND LIMITATION**

- A. Cooperate with Owner, Engineer and Contractor.
- B. Provide qualified personnel promptly on notice.
- C. Perform specified inspections, sampling and testing of materials and methods of construction:
  1. Comply with specified standards; ASTM, other recognized authorities, and as specified.
  2. Ascertain compliance with requirements of Contract Documents.
- D. Promptly notify Resident Project Representative, and Contractor, of irregularities or deficiencies of Work which are observed during performance of services.
- E. Promptly submit 2 copies of report of inspections and tests to Resident Project Representative and one copy to the Engineer, in addition to those required by the Contractor including:
  1. Date issued.
  2. Project Title and Number.
  3. Testing Laboratory name and address.
  4. Name and signature of Inspector.
  5. Date of inspection of sampling.
  6. Record of temperature and weather.
  7. Date of test.

8. Identification of product and specification section.
  9. Location in project.
  10. Type of inspection or test.
  11. Results of Test.
  12. Observations regarding compliance with Contract Documents.
- F. Perform additional services as required.
- G. Laboratory is not authorized to:
1. Release, revoke, alter, or enlarge on, requirements of Contract Documents.
  2. Approve or accept any portion of work.

#### 4. **RESPONSIBILITIES**

##### 4.1 **CONTRACTOR**

- A. Cooperate with laboratory personnel, provide access to Work, comply with Manufacturer's requirements.
- B. Provide laboratory with representative samples of materials to be tested in required quantities.
- C. Furnish copies of mill test reports.
- D. Furnish casual labor and facilities:
  1. To provide access to work to be tested.
  2. To obtain and handle samples at the site.
  3. To facilitate inspections and tests.
  4. For laboratory's exclusive use for storage and curing of test samples.
- E. Notify Laboratory sufficiently in advance of operations to allow for his or her assignment of personal and scheduling of tests.

- F. Laboratory Tests: Where such inspection and testing are to be conducted by an independent laboratory or agency, the sample or samples of materials to be tested shall be selected by such laboratory or agency, or the Resident Project Representative or the Engineer, and shipped to the laboratory by the Contractor at his or her expense.

**END OF SECTION**

## **SECTION 01500**

### **TEMPORARY FACILITIES**

#### **1. GENERAL**

##### **1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. Temporary Water: Section 01515.

##### **1.02 CONTRACTOR FURNISHED**

- A. Water for construction, fire protection and all field offices.
- B. All gates, barricades, fences, handrails, guardrails, and security required by the Contract or by laws and regulations. Contractor shall maintain pedestrian access. Such access shall include temporary wood sidewalks where necessary. All pedestrian walkways shall be kept clean with sweeping and/or washing.
- C. Sanitary facilities adequate for all workers and complying with all codes and regulations.
- D. Shelter and drying facilities for workmen.
- E. Guards, masks, shields, protective clothing, rain gear, and other equipment required by law, ordinance, labor contracts, OSHA and other regulations for the maintenance of health and safety.
- F. First Aid Kits and equipment required by law and regulations.
- G. At the close of the Contract the Contractor shall:
  - 1. Pay all utility bills.
  - 2. Remove all electrical, sanitary, gas, telephone, water, offices and any other temporary service equipment that may remain.
  - 3. Arrange for transfer of electrical, and water accounts to the Owner's name.

**END OF SECTION**

## **SECTION 01515**

### **TEMPORARY WATER**

#### **1. GENERAL**

##### **1.1 DESCRIPTION OF SYSTEM**

The Contractor shall make arrangements for and provide all necessary facilities for water supply at his or her own expense, unless otherwise provided.

##### **1.2 COSTS**

- A. Pay costs of temporary water services, including costs of installations, maintenance and removal of facilities.
- B. Water for filling, testing and flushing of the new pipelines and the reservoir will be available from the existing water distribution system at no cost to the Contractor after obtaining prior permission from the Owner.

#### **2. PRODUCTS**

##### **2.1 MATERIALS**

Materials may be new or used but must be adequate for purpose required, sanitary and must not violate requirements of applicable codes.

#### **3. EXECUTION**

##### **3.1 GENERAL REQUIREMENTS**

- A. Ketchikan Gateway Borough Public Works Department shall be contacted to determine if sufficient water is available at the particular time before any use. Rate of use shall be restricted to limits set by Borough.
- B. Flushing overnight or excessive wasting will not be permitted.
- C. The Contractor shall not operate active hydrants. Only Borough personnel and the fire department are authorized to operate pressurized fire hydrants.

#### **4. REMOVAL**

Completely remove temporary materials and equipment upon completion of construction

**END OF SECTION**

## **SECTION 01545**

### **PROTECTION AND MAINTENANCE OF WORK AND PROPERTY**

#### **1. GENERAL**

##### **1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

A. Erosion Control: Section 01568

##### **1.2 PUBLIC AND PRIVATE PROPERTY**

A. The Contractor shall protect and maintain all underground or aboveground utilities and structures affected by the work and all lawns, shrubs, trees, fences, rockeries, etc., and parking strips or private property crossed by or adjacent to his operation, and any damage shall be repaired and restored by the Contractor to the satisfaction of the Owner.

B. The Contractor will be responsible for all damage to roads, highways, ditches, bulkheads, walls, bridges, culverts, utilities, barricades, lights, or other property, caused by the work, whether such damage be at the site of the work or caused by transporting or hauling to or from the work; and he shall repair or replace, or arrange for the repair or replacement of all such damage to the satisfaction of the Owner. Any material damaged by the Contractor's operations shall be replaced with new material.

C. Whenever construction work under this Contract is undertaken on easement, right-of-way, or franchise, all work shall be confined to the limits of such easement, right-of-way, or franchise, and accomplished so as to cause the least amount of disturbance and a minimum amount of damage.

##### **1.3 CARE OF EXISTING FACILITIES**

A. The Contractor shall take adequate precautions to protect existing sidewalks, curbs, pavements, utilities, adjoining property, and structures, and to avoid damage thereto, and he shall at his own expense completely repair any damage thereto caused by his operation. Access for fire fighting equipment shall be maintained at all times.

B. Any survey monuments disturbed by the construction shall be referenced and replaced by a surveyor licensed by the State of Alaska at Contractor's expense.

##### **1.4 SHORING, BRACING, ETC.**

A. The Contractor shall take adequate precautions to protect existing

sidewalks, curbs, pavements, utilities, adjoining property, and structures, and to avoid damage thereto, and he shall at his own expense completely repair any damage thereto caused by his operation. Access for fire fighting equipment shall be maintained at all times.

- B. Any survey monuments disturbed by the construction shall be referenced and replaced by a surveyor licensed in the State of Alaska at Contractor's expense.

### **1.5 SHORING, BRACING, ETC.**

The Contractor shall shore up, brace, under-pin, and protect as may be necessary, all foundations and other parts of all existing structures adjoining the site of the Project, which are in any way affected by the excavation or other operations connected with the completion of the work under this Contract. Whenever any notice is required to be given by the Owner or the Contractor to any adjoining or adjacent land owner, or other party before commencement of any work under this Contract, such notice shall be given by the Contractor. The Contractor shall indemnify Owner and Engineer and save them harmless from any damages on account of settlements or the loss of lateral or subjacent support of adjoining property and from all loss or expense and damages for which Owner may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

### **1.6 EMERGENCIES**

Whenever the Contractor's work endangers the safety of life or property including adjoining property or property in the immediate proximity of the Project, the Contractor shall take all reasonable precautions to prevent threatened loss or injury therefrom.

### **1.7 POWER AND TELEPHONE POLES**

The Contractor shall notify the affected companies prior to construction and make all the necessary arrangements for the protection of existing power and telephone lines in the vicinity of this Contract that interfere with construction. All costs of providing any required temporary protection shall be paid by the Contractor.

### **1.8 UNDERGROUND POWER AND TELEPHONE LINES**

The Contractor shall notify the power company and telephone company before starting construction. All costs of providing any required temporary or permanent protection to underground cables in accordance with the power or telephone company's requirements shall be paid by the Contractor.

**END OF SECTION**

## **SECTION 01567**

### **POLLUTION CONTROL**

#### **1. GENERAL**

##### **1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. Erosion Control: Section 01568.

##### **1.2 LAWS**

- A. Requirements of federal, state and local statutes and regulations dealing with pollution shall be strictly adhered to by the Contractor.

##### **1.3 SANITARY PROVISIONS**

- A. The Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees as may be necessary to comply with the requirements and regulations of the agencies or organizations having jurisdiction over sanitary and health conditions and of other bodies or offices having jurisdiction thereover. He shall permit no public nuisances.

**END OF SECTION**

## **SECTION 01568**

### **EROSION CONTROL**

#### **1. GENERAL**

##### **1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. Protection and Maintenance of Work and Property: Section 01545.

##### **1.2 PROVISION FOR WATER COURSES**

- A. The Contractor shall provide for the flow of all water courses, sewers or drains, intercepted or disturbed by the Contractor during the progress of the work, and shall replace the same in as good condition as he found them or shall make such final provisions for them as necessary.
- B. The Contractor shall not obstruct the gutter of any street, but shall use all proper measures to provide for the free passage of surface water.
- C. The Contractor shall make provisions to take care of all surplus water, mud, silt, or other runoff pumped from excavations or resulting from sluicing or other operations, and shall be responsible for any damage, of whatever nature, resulting from his failure so to provide.
- D. All work adjacent to or in the vicinity of streams, lakes, or such other water courses shall be accomplished in accordance with the requirements of the governmental agencies having jurisdiction.
- E. The Contractor shall be responsible for obtaining an NPDES Construction Permit and shall be solely responsible for meeting all requirements set forth in the NPDES Permit.

**END OF SECTION**

## **SECTION 01570**

### **TRAFFIC REGULATION**

#### **1.01 GENERAL**

##### DESCRIPTION

This work shall consist of the necessary measures to protect and control traffic during the life of the contract including, but not limited to, furnishing, erecting, maintaining, replacing, cleaning, moving and removing the traffic control devices required to insure the safety of the traveling public and all administrative responsibilities necessary to implement this work.

The Contractor shall maintain all roadways and pedestrian and bicycle facilities within the project limits and construct and maintain such approaches, crossings, intersections and other features as may be necessary throughout the life of the contract.

#### **1.02 REFERENCE STANDARDS**

The Alaska Traffic Manual, the Alaska Sign Design Specifications (ASDS), Standard Drawings, and Standard Specifications for Highway Construction, referenced in this section are all publications of the Alaska Department of Transportation and Public Facilities. Information on obtaining these publications may be obtained from the following agency:

State of Alaska  
Dept. of Transportation & Public Facilities  
P.O. Box Z  
Juneau, Alaska 99811  
(907) 465-2960

#### **1.03 EXECUTION**

##### **A. GENERAL CONSTRUCTION REQUIREMENTS**

The Contractor shall keep the entire project in such condition that traffic will be accommodated safely. Traffic control devices and services shall be provided and maintained both inside and outside the project limits both day and night as needed to facilitate traffic guidance.

Unless otherwise provided herein, the Contractor shall keep all roadways undergoing improvement open to traffic. Temporary closure of residential, commercial or street approaches requires prior approval of the Owner. The Contractor shall provide access through the project for emergency vehicles and make every effort to provide minimum

delay to U. S. Postal Service vehicles and school, private tour, and transit busses. All locations requiring redirection or stopping of the traveling public shall be properly signed and/or flagged by the Contractor.

The Contractor's equipment shall stop at all points of intersection with the traveling public unless satisfactory traffic control measures, approved in writing by the Owner are installed and maintained by the Contractor.

An illumination and signalization shall remain operational. Signal heads shall be re-aligned as necessary in accordance with the Alaska Traffic Manual when approach lanes are moved. Any modifications to existing traffic signals shall be coordinated with the agency responsible for their maintenance and operation. Flood lighting at night shall be in accordance with the Alaska Traffic Manual and be adjusted such that it does not shine into oncoming traffic.

## B. PUBLIC NOTICE

The Worksite Traffic Supervisor shall give notices of changes, delays or road closures to the following local officials and transportation organizations, including but not necessarily limited to:

- Alaska Carriers Association
- Alaska State Troopers
- Ketchikan Gateway Borough Public Works
- Local Police Department
- Local Fire Department
- Local School & Public Transit Authorities
- Local Emergency Medical Services
- Private tour bus operators
- Local Media
- U. S. Postal Service

The Contractor shall also provide the Alaska State Troopers, local police and fire department with the radio frequencies used on the project, and the 24-hour telephone numbers of the Worksite Traffic Supervisor and the Project Superintendent. These shall be for alerting the Contractor of emergencies which will require passage of emergency vehicles through the project. When so notified the Contractor shall use all equipment and effort necessary to expedite rapid passage.

## C. TRAFFIC CONTROL DEVICES

Prior to the start of construction operations, the Contractor shall erect such permanent and temporary traffic control devices as may be required by the approved TCPs. Traffic control devices shall be operated only when they are needed and only those devices that apply to conditions that exist shall be used. Advisory speeds, when necessary, shall be determined by the Owner.

For lane closures on multilane roadways, sequential arrow panels shall be used. For nighttime operations flashing warning lights shall be used to mark obstructions or hazards and steady-burn lights shall be used for channelization.

During non-working hours and following the completion of a particular construction operation, all traffic control devices except those necessary for the safety of the public shall be removed. Sign panels that are not removed shall be entirely covered with either metal or plywood sheeting.

Reflective sheeting on signs, drums, barricades and other devices shall be kept clean. Any devices with scratches, rips or tears in the sheeting will be deemed unacceptable and shall be promptly replaced by the Contractor.

Any devices provided under this Section that are lost, stolen, destroyed, inoperable or deemed unacceptable while their use is required on the project shall be immediately replaced by the Contractor.

#### D. CORRECTIVE ACTIONS

When, in the opinion of the Owner, conditions are such that the safety and/or convenience of the traveling public are adversely affected, the Contractor will be immediately notified in writing. The notice will state the defect(s), the corrective action(s) required, and the time required to complete such action(s). In no case shall this time exceed 24 hours. In the event that the Contractor fails to take the corrective action(s) within the specified time, (a) the Owner may immediately direct that the offending operations cease until the defect(s) is (are) corrected and (b) the Owner reserves the right to order the corrective action(s) be accomplished by outside forces. The cost of work by outside forces shall be deducted from any monies due or that may become due under the terms of this contract.

Any construction delays which occur as a result of the above-mentioned and uncorrected conditions shall be at no cost, expense, or liability, for stopping the work or otherwise, to the Owner as provided in the General Conditions

**END OF SECTION**

## SECTION 01631

### DEVIATIONS FROM PLANS AND SPECIFICATIONS

#### 1.1 GENERAL

Should the Contractor desire to utilize a product or design different from that required by the plans and specifications the Contractor shall propose such deviation and submit to the Owner for review and approval as specified.

No deviation from the requirements of the plans and Specifications shall be permitted without the express, written approval of the Owner.

The Owner may elect to reject any or all request for deviation at his sole discretion without cause or justification. The Contractor shall immediately proceed with the work in accordance with the plans and specifications upon notification of rejection of any request for deviation. All proposed deviations from the plans and specifications shall conform to the original defined and implied intent of the plans and specifications. The Contractor shall be responsible for and assume all costs of all elements involved in implementing and completing approved deviations including, but not limited to, coordination, confirming dimensions at the job site, design, preparation of plans, procurement of materials and equipment, fabrication, construction, installation and instigation of service. If, in the opinion of the Owner, the completed improvements of each deviation do not fulfill, provide and meet the defined and implied intent of the plans and specifications, the Contractor shall provide the labor, materials and equipment as required to modify the work to the satisfaction of the Owner.

Differences in cost between approved deviations and the original requirements of the plans and Specifications shall be distributed as specified herein.

#### 1.2 DEVIATION FROM SPECIFIED PRODUCT OR PRODUCT MANUFACTURER

Requests for approval of change of any product or manufacturer shall consist of three (3) copies of data substantiating compliance of proposed product or supplier with contract documents including:

Detailed description of the proposed change including:

- a. Product identification, including manufacturer's name and address.
- b. Manufacturer's literature:
  - (1) Product description
  - (2) Performance and test data
  - (3) Reference standards

- c. Samples.
- d. Name and address of similar projects on which product was used and date of installation.

Itemized comparison of proposed substitution with product or supplier specified.

Data relating to conformance with construction schedule.

Relation to separate subcontracts and trades.

Requests for change of products will be considered if:

They are indicated or implied on project data submittals without a formal request having been submitted.

Acceptance will not require substantial revision to the contract documents.

### 1.3 **DEVIATION FROM DESIGN**

Requests for approval of change of design shall include three (3) copies of data substantiating compliance of proposed design deviation with contract documents including:

Itemized comparison of proposed design deviation.

Data relating to conformance with construction schedule.

Relation to separate subcontracts and trades.

Detailed description of proposed design and how it conforms to the original defined and implied intent of the Plans and Specifications.

Drawings indicating horizontal and vertical details of all architectural, structural, mechanical and electrical elements of proposed change.

Manufacturer's detailed performance and construction data for all equipment.

Requests for change of design shall include certification by the Contractor that he or she:

- A. Has personally investigated the proposed product or design deviation and has determined that it is equal or superior in all respects to that specified.
- B. Will provide the same guarantee for product or design deviation as

for product or design specified.

- C. Will coordinate installation of accepted product or design deviation into work, making such changes as may be required for work to be complete in all respects.
- D. Will be responsible for and assume all costs of all elements involved in implementing approved product and/or design deviation including, but not limited to, coordination, confirming dimensions at the job site, design, preparation of plans, procurement of materials and equipment, fabrication, construction, installation and instigation of service. If, in the opinion of the Owner, the completed improvements of each product or design deviation do not fulfill, provide and meet the defined and implied intent of the Plans and Specifications, the Contractor shall provide the labor, materials, and equipment as required to modify the work to the satisfaction of the Owner.

Project cost savings resulting from product or design deviations shall be divided according with Paragraph 1.04, below.

#### **1.4 DISTRIBUTION OF COST SAVINGS OF APPROVED CHANGES**

- A. Savings in cost resulting from approved changes shall be shared by the Contractor and Owner on a 50 percent basis if the net capital savings is \$1,000 or more. Net capital savings is defined to be the initial construction cost minus the revised construction cost minus the development, implementation and administrative costs associated with the change.
- B. In addition to the requirements for requests for approval of changes as identified hereinbefore the Contractor shall provide the following:
  - 1. Name of individuals associated with the development and preparation of the change.
  - 2. A Summary of estimated costs to include the following:
    - a. Project construction costs before and after the deviation. This should be a detailed estimate identifying the following items for each trade involved.
      - (1) Quantities of materials and equipment
      - (2) Unit prices of materials and equipment
      - (3) Labor hours and rates for installation
      - (4) Subcontractor and prime Contractor mark-ups
    - b. Operation and maintenance costs before and after the deviation.
    - c. Costs for implementing the deviation not included in item 2a,

- above.
- d. Contractor's share of the savings as described above.
  - e. Time required for executing the proposed change.

**END OF SECTION**

## **SECTION 01700**

### **PROJECT CLOSEOUT**

#### **1.1 GENERAL**

The Contractor shall comply with all requirements stated in the General and Special Conditions of the Contract and in the Specifications for administrative procedures for closing out the work.

#### **1.2 SUBSTANTIAL COMPLETION**

- A. When Contractor considers the Work is substantially complete, he shall submit to Resident Project Representative:
  - 1. A written notice that the Work, or designated portion thereof, is substantially complete.
  - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, Owner will make an inspection to determine the status of completion.
- C. Should Owner determine that the Work is not substantially complete:
  - 1. Owner will promptly notify the Contractor in writing, giving the reasons therefore.
  - 2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Owner.
  - 3. Owner will re-inspect the Work.
- D. When the Owner finds that the Work is substantially complete, he will:
  - 1. Prepare a tentative Certificate of Substantial Completion, with a tentative list of items to be completed or corrected before final payment.
  - 2. After consideration of any objections as provided in conditions of the Contract, and when Owner considers the Work substantially complete, he will execute and deliver to the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

### 1.3 FINAL INSPECTION

- A. When Contractor considers the Work complete, he shall submit written certification of the following items:
  - 1. Contract Documents have been reviewed.
  - 2. Work has been inspected for compliance with Contract Documents.
  - 3. Work has been completed in accordance with Contract Documents.
  - 4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
  - 5. Work is completed and ready for final inspection.
  - 6. Any other items required by the Special Conditions.
- B. Owner will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should Owner consider that the Work is incomplete or defective:
  - 1. Owner will promptly notify the Contractor in writing, listing the incomplete or defective work.
  - 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to Owner that the Work is complete.
  - 3. Owner will re-inspect the Work.
- D. When the Owner finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make close out submittals.

### 1.4 REINSPECTION FEES

Should Owner perform re-inspections due to failure of the Work to comply with the claims of status of completion made by the Contractor, Owner will be authorized to deduct the amount of such re-inspection compensation for staff and/or consultants from the final payment to the Contractor.

**END OF SECTION**

## **SECTION 01710**

### **CLEANING**

#### **1. GENERAL**

##### **1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. Summary of Work: Section 01010
- B. Contract Closeout: Section 01700
- C. Cleaning for Specific Products or Work: Specification Section for that Work

##### **1.2 GENERAL REQUIREMENTS**

- A. Maintain premises and public properties free from accumulations of waste, debris, and rubbish caused by operations.
- B. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.
- C. Pipeline and work on public rights-of-way shall be kept cleaned up as specified in Division 2 for the work involved.

##### **1.3 SAFETY REQUIREMENTS**

- A. Standards: Maintain project in accord with the applicable federal, state and local safety standards.
- B. Hazards Control:
  - 1. Store volatile wastes in covered metal containers, and remove from premises daily.
  - 2. Prevent accumulation of wastes which create hazardous conditions.
  - 3. Provide adequate ventilation during use of volatile or noxious substances.
- C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
  - 1. Do not burn or bury rubbish and waste materials on project site unless approved by local fire and air pollution authorities.
  - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
  - 3. Do not dispose of wastes into streams or waterways.

## **2. PRODUCTS**

### **2.1 MATERIALS**

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

## **3. EXECUTION**

### **3.1 DURING CONSTRUCTION**

- A. Execute cleaning to insure that grounds and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off of Owner's property.
- D. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

### **3.2 FINAL CLEANING OF STRUCTURES**

- A. Employ experienced workmen, or professional cleaners, for final cleaning.
- B. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.
- C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials, from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
- D. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.
- E. Broom clean paved surfaces; rake clean other surfaces or grounds.
- F. Maintain cleaning until project is occupied by Owner.

### **3.3 GENERAL CLEANUP**

- A. Before final acceptance, the Contractor shall remove and obliterate, insofar as feasible, all objects or disturbances of the ground which mar the landscape and where caused by his operations, whether or not part of the improvement.
- B. Rubbish, excess materials, temporary structures, and discarded equipment shall be removed and disposed of.
- C. Sweep dock.

**END OF SECTION**

## **SECTION 01720**

### **PROJECT RECORD DOCUMENTS**

#### **1. GENERAL**

##### **1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. General Conditions
- B. Field Engineering: Section 01050
- C. Project Data Submittals: Section 01340
- D. Operating Instructions and Maintenance Manuals: Section 01730

##### **1.2 MAINTENANCE OF DOCUMENTS**

- A. Maintain at job site, one copy of:
  - 1. Contract Drawings.
  - 2. Project Manual.
  - 3. Addenda.
  - 4. Reviewed Shop Drawings.
  - 5. Change Orders.
  - 6. Other Modifications to Contract.
  - 7. Field Test Records.
  - 8. Maintenance Data Delivered with Equipment.
- B. Store documents in field office, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. Maintain documents in clean, dry legible conditions.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Engineer and Owner.

##### **1.3 RECORDING**

- A. Do not permanently conceal any work until required information has been recorded.
- B. Keep documents current.
- C. Contract Drawings: Legibly mark to record actual construction:
  - 1. Depths of various elements of foundation in relation to variances from plan. Elevations shall be accurate within 0.10 feet vertically. Reference dimensions shall be accurate to within 0.50 feet horizontally.

2. Horizontal and vertical location of underground utilities and appurtenances references to permanent surface improvements.
  3. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
- D. Specifications and Addenda: Legibly mark up each Section to record:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
  2. Changes made by Change Order or Field Order.
  3. Other matters not originally specified.
- E. Shop Drawings: Maintain as record documents; legibly annotate drawings to record changes made after review.

#### 1.4 **SUBMITTAL**

- A. At completion of project, deliver record documents to Engineer.
- B. Accompany submittal with transmittal letter, in duplicate, signed by Contractor, or his authorized representative.

**END OF SECTION**

## **DIVISION 2**

## SECTION 02010

### SUBSURFACE CONDITIONS

#### 1. GENERAL

##### 1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Jobsite Administration: Section 01043
- B. Shoring: Section 02400

##### 1.2 SOIL REPORTS

- A. Any data on soil and/or subsurface conditions shown in the Plans or Specifications is not to be taken as a representation, but is based on limited information and is at best only an opinion; consequently, such data cannot be considered precise or complete and there is no guarantee as to its completeness, accuracy, or precision.
- B. **Test borings using an air track drill were performed to estimate the amount of rock blasting that would be required and the amount of unsuitable material. The drilling was performed to a depth of 10 feet. There is no data more than 10' below the roadway surface.**
- C. Additional Investigation:
  - 1. Contractor should visit the site and acquaint himself with site conditions before submitting a bid, and the submission of a bid will be prima facie evidence that he has done so.
  - 2. Prior to bidding, Contractor may make his own subsurface investigations to satisfy himself with site and subsurface conditions.

##### 1.3 QUALITY ASSURANCE

- A. The Contractor shall readjust work performed that does not meet technical or design requirements.
- B. The Contractor shall make no deviations from the Contract Documents without specific and written approval of the Owner.
- C. The Contractor shall be responsible for obtaining approval from responsible agency or property owner before performing any exploratory excavations.

**\*\*\* END OF SECTION \*\*\***

## SECTION 02016

### EXISTING UTILITIES

#### 1. GENERAL

##### 1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Jobsite Administration: Section 01043
- B. Earthwork: Section 02200
- C. Grading: Section 02210
- D. Trenching, Backfilling and Compacting: Section 02221

##### 1.2 PUBLIC AND PRIVATE UTILITIES

- A. Existing above-ground utilities, including but not limited to power transmission and distribution, telegraph, telephone and traffic control systems, whether shown on the drawings or not, shall be maintained, relocated, rerouted, removed and restored as may be necessary by the Contractor in a manner satisfactory to owners and operators of the utilities.
- B. Existing major underground utilities and appurtenant structures, whether shown on the drawings or not, shall be maintained, relocated, rerouted, removed and restored by the Contractor. In the following special cases, the Contractor will be reimbursed in accordance with the General Conditions for all costs of modifying, rerouting, relaying or maintaining service of major underground utilities.
  - 1. An existing utility is found during construction to cross the ditch line at an elevation between the top and bottom of the proposed pipeline or structure to be constructed under this contract together with the required pipe zone.
  - 2. An existing underground utility is found during construction to cross or project within the utility conflict limits for the proposed work at an angle of 30° or less at any elevation.
  - 3. For the purposes of these special cases, utility conflict limit shall be two (2) feet either side of the edge of the pipe.
  - 4. The existing water line is excluded from this special case and no reimbursement will be made for conflicts.
  - 5. In no case shall the Contractor be reimbursed if the conflict is clearly shown on the drawings.
- C. Minor underground utility service lines, including but not limited to sanitary sewer services, gas services, water services, house or yard drains, and electricity or telephone services and driveway culverts shall be maintained, relocated, rerouted, removed and restored by the Contractor with the least possible interference with such services and in no case shall the interference of such service lines be considered for extra compensation under any of the special cases listed above, except sanitary sewer service occurring at an elevation between the top and bottom of the

- proposed pipeline or structure together with the pipe zone.
- D. The right is reserved by owners of public utilities and franchises to enter upon any street, road, right-of-way, or easement for the purpose of maintaining their property and for making necessary repairs or adjustments caused by the Contractor's operations. The Contractor shall save the Owner harmless of any costs so incurred.
  - E. For purpose of this section, "pipe zone" is defined as extending from the bottom of the required excavation to six (6) inches over the top of the pipe.

### 1.3 QUALITY ASSURANCE

- A. In addition to the General Conditions, the Contractor will be required to have available a pipe finder and a man capable in its use and to utilize same to satisfy himself as to exact location of such underground facilities in the interest of avoiding unnecessary damage, maintenance costs, and to insure continuity of customer service. It is recommended that the Contractor make arrangements with the applicable utility company or department to aid in the location and maintenance of existing utilities.

### 1.4 RESTORATION OF DRAINAGE FACILITIES

- A. Where it is necessary for drainage facilities to be removed and replaced, existing pipe and catch basins may be reinstalled when approved by the agency having jurisdiction.
- B. The materials shall be cleaned.
- C. When it is necessary to replace existing pipe or catch basins, the new materials shall be of equal strength and similar design to existing materials.
- D. Installation shall be in accordance with the applicable provisions of these specifications.
- E. All costs, whether new or existing facilities are installed, shall be considered to be included in the unit prices bid for the various items and no additional payment shall be allowed.

**END OF SECTION**

## SECTION 02110

### DEMOLITION

#### 1. GENERAL

##### 1.1 Related requirements specified elsewhere

- A. Division 1 Specifications
- B. Section 02200: Earthwork
- C. Section 02221: Trenching, Backfilling and Compaction for Utilities

##### 1.2 Protection

- A. Streets, roads, adjacent property and other work to remain shall be protected throughout the work.
- B. Pavement may be cut only where authorized and only to the extent specified.
- C. Any material damaged by Contractor's operations shall be replaced with new material by the Contractor.

#### 2. EXECUTION

##### 2.1 Cutting Pavement

- A. Unless specified otherwise by the authority having control over the pavement, cutting of pavement shall be as specified herein.
- B. All pavement shall be neatly cut by machine before excavation therein begins.
- C. Pavement shall be removed to a width that is at least 6 inches back of the anticipated width of the trench, except that strips of concrete remaining between the trench opening and expansion of contraction joints shall not be less than 6 feet in width.
- D. Pavement cuts shall be straight and parallel, and for concrete shall provide beveled edges such that the pavement cut is approximately 1-1/2 inch wider at the top of the slab than at the bottom.
- E. No undercutting shall be permitted, and where trenching operations result in undercutting of pavement beyond the cutting limits herein set forth, the Contractor shall at his own expense, make whatever repairs that may be required by the right-of-way owner.

## **2.2 Cutting Walks**

- A. Concrete sidewalk(s) shall be cut as specified above for concrete pavement, except that where such cutting would leave strips of walk less than 3 feet wide, or where in the opinion of the Engineer, the strips remaining would be damaged by the cutting, the entire walk shall be removed.

## **2.3 Private Driveways, Culverts And Miscellaneous**

- A. General:
  - 1. Pipe laying operations in the project area may necessitate temporary removal of mail boxes, newspaper tubes, landscaping logs, fences, private driveways, drains, service lines, conduits, etc., to facilitate construction.
  - 2. In the event that the Contractor finds it necessary to remove the above mentioned items, it is to be particularly understood that it will be his responsibility to restore these items in a manner equal to their original condition.
  - 3. The Contractor shall maintain adequate temporary provisions for domestic deliveries and utilities service and access for fire fighting equipment.
- B. The preceding requirement will be the same for any temporary removal of road culverts, whether under state, local, or private jurisdiction.
- C. The cost of the above described work shall be incidental to the pipe work and no additional compensation shall be made to the Contractor.
- D. The Contractor shall make every effort to prevent blocking private driveways for more than a reasonable time; and shall make such driveways immediately accessible on order of the Engineer.

**END OF SECTION**

## SECTION 02200

### EARTHWORK

#### 1. GENERAL

##### 1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Subsurface Conditions: Section 02010
- B. Trenching, Backfilling and Compacting: Section 02221
- C. Water Lines: Section 02555

##### 1.2 GENERAL REQUIREMENTS

- A. This section describes general requirements for all types of earthwork and is applicable to all earthworks required on the project.

##### 1.3 CLASSIFICATION

- A. All excavation is unclassified. The terms earthwork or excavation include all materials excavated or removed regardless of material characteristics. The Contractor shall make his own estimate of the kind and extent of materials, which will be encountered in the excavation.

##### 1.4 QUALITY CONTROL ASSURANCE

- A. Soils and Backfill: Moisture density standard ASTM D1557 or AASHTO T-180 method unless otherwise specifically approved.
- B. In-place Density Determination: Sandcone method ASTM D1556 or Nuclear Method ASTM D2922.
- C. Classification of Soils ASTM D2487.
- D. Quality control monitoring of subgrade backfill and embankment materials Shall be paid for by the Owner.
- E. Minimum frequency for testing is indicated below. Additional testing may be necessary depending on circumstances and failure rate.

#### 1. Mechanical Analysis on Imported Material

- a. One sample for approval, prior to use of the following, plus regular checks as shown:

<u>Material</u>	<u>Frequency</u>
Backfill gravel	One per 2000 tons
Foundation gravel	One per 600 L.F.
Bedding, all types	One per 600 L.F.
Crushed Top Course	One per 1000 tons

2. Mechanical Analysis on Native Soils
  - a. Street Improvements - minimum one per 600 feet on in place material prior to placement of fill.
3. Density - Trench Backfill
  - a. Dedicated Rights of Way - 3 per 300 L.F. of trench @ spring line, mid trench and surface.
  - b. Easements, one at spring line per 300 L.F.
4. Density - Street and Road Construction
  - a. One test per 400 L.F. on each lift of classified fill and backfill.
  - b. One test per 400 L.F. on completed subgrade prior to approval of concrete pour, or placement of leveling course.

## 1.5 SUBMITTALS

- A. Import backfill gradation and moisture density compaction curve test reports.
- B. Embankment and native backfill materials gradations and moisture density standards curve test reports.
- C. Certification of gradation and compliance with referenced standards, and moisture density standards test reports from qualified testing laboratory.
- D. Density test results in approved format.
- E. At any time the Contractor shall change the source and/or stockpile from which materials are obtained, certificates of gradation for these new sources will also be required. The Contractor shall make allowances in his unit prices bid for these items to cover expenses incurred in having this certification made and no additional compensation will be allowed.
- F. During construction, the Owner may elect to have further gradation testing completed on the materials being furnished by the Contractor. This testing will be at the expense of the Owner, however, the Contractor shall provide material samples as may be necessary to complete this testing and these material samples will be furnished from material available on the job site or from the Contractor's source and/or supplier.

## 2. PRODUCTS

### 2.1 BACKFILL MATERIALS

- A. These materials shall be native materials and as described in this section.

### 2.2 GRAVEL BEDDING MATERIAL

- A. Bedding material shall be a locally available clean natural occurring or crushed sand/gravel mixture free from organic matter and conforming to the following gradation when tested in accordance with ASTM D422.

U.S. Standard  
Sieve Size

Percent Passing,  
by Weight

3/4"	100
3/8"	70 - 100
No. 4	55 - 100
No. 10	35 - 95
No. 20	20 - 80
No. 40	10 - 55
No. 100	0 - 10
No. 200	0 - 3

- B. Aggregate material conforming to "Standard Specifications for Highway Construction", latest edition of the Alaska Department of Transportation and Public Facilities, untreated base classification D-1, will be acceptable in lieu of the gradations specified in paragraph 2.2A.

### 2.3 BACKFILL GRAVEL

- A. Backfill gravel shall be naturally occurring screened or crushed gravel. It shall be free from muck, frozen material, roots, sod or other extraneous or objectionable materials. It shall have such characteristics of size and shape that it will compact readily. It shall have a plasticity index not greater than six (6).
- B. All material shall have maximum size of four (4) inches and not more than ten (10) percent shall pass a No. 200 sieve. The percent of minus 200 will be determined on minus three (3) inch material.
- C. Tallying for pay quantities shall be as established by the Contractor and Engineer prior to construction.

### 2.4 CRUSHED AGGREGATE BASE COURSE

- A. Aggregate shall be crushed stone or crushed gravel, and shall consist of sound, tough, durable pebbles or rock fragments of uniform quality. All material shall be free from clay balls, vegetable matter or other deleterious matters. In addition, aggregate shall meet the following requirements:

Percent of Wear	AASHTO T-96	50 max.
Degradation Value	ATM T-13	45 min.
Percent Fracture	ATM T-4	70 min.

- B. Crushed aggregate base course shall meet the requirements of the State of Alaska "Standard Specifications for Highway Construction", latest edition, section 703-2.03. Gradation shall conform to the requirements of grading D-1 unless otherwise specified.
- C. A special gradation, E-1, for gravel road applications only shall meet all the requirements for grading D-1 except the percent passing the No. 200 sieve shall be between 6-10%.
- D.

## 2.5 SHOT ROCK EMBANKMENT

- A. Shot rock embankment shall be naturally appearing blasted rock from a quarry. It shall generally be 12 minus in size except that the top 12 inches of the embankment shall be 6 inch minus.

## 2.6 RIPRAP

- A. Riprap shall consist of broken stone, concrete in sacks, or concrete slabs placed on shoulders, slopes or such other places as may be indicated in the Plans or as directed by the Engineer.
- B. The stone for loose riprap shall be hard, sound and durable. It shall be free from segregation, seams, cracks, and other defects tending to destroy its resistance to weather.
- C. Spalls are defined as broken rock in sizes ranging from 3" to 1/3 cubic foot. Loose riprap shall be free of rock fines, soil or other extraneous material.
- D. Should the riprap contain insufficient spalls within the definition and gradation requirement listed above, the Contractor shall furnish and place supplementary spall material from a source approved by the Engineer, at the Contractor's expense.
- E. The grading of the riprap shall be determined by the Engineer by visual inspection of the load before it is dumped into place, or, if so ordered by the Engineer, by dumping individual loads on a flat surface and sorting and measuring the individual rocks contained in the load.
- F. Stone shall be hard angular quarry and have a percentage of wear of not more than 50 at 500 revolutions as determined by ASTM C-535. The least dimension of any piece of stone shall be not less than 160 pounds per dry cubic foot. Rock shall have an absorption rate greater than 2.5% as determined by ASTM C 97-83.
- G. The riprap stone shall form a smooth gradation curve without a large spread between median and maximum sizes and shall have the following gradation limits.
  - 1. CLASS I – No more than 10% of the stones by total weight shall weigh more than 400 pounds per piece and no more than 15% by weight of the stones shall weigh less than 50 pounds per piece. The stones shall be evenly graded and a minimum of 50% by weight of the stones shall weigh 200 pounds or more per piece.
  - 2. CLASS II – The following gradation is required:

Specific Stone Size Stone Wt. (lbs)	Percent Smaller By Weight %
300	100
150	50 - 80
75	20 - 50
50	0 - 20

3. CLASS III – No more than 10% by total weight of the stones shall weigh more than 140 lbs each, and not more than 50% by total weight of the stones shall weigh less than 70 lbs each.

### **3. EXECUTION**

#### **3.1 BEDDING MATERIALS**

- A. Bedding materials shall be placed in accordance with the requirements for the utility being installed. Refer to appropriate utility specification section.

#### **3.2 CRUSHED AGGREGATE BASE COURSE**

- A. Conform to Section 02212 for placement requirements.

#### **3.3 SHOT ROCK EMBANKMENT**

- A. Embankment shall be placed in lifts whose loose thickness does not exceed 1 foot. Material shall be dumped on the existing fill and dozed into place. In addition to mechanical compaction, it shall be compacted by routing the hauling and placing equipment over the entire area prior to placing the next lift.

#### **3.4 RIPRAP**

- A. A footing trench shall be excavated along the toe of the slope when shown on the plans. The stones shall be handled or dumped into place so as to secure a stone mass of the thickness, height, and length shown on the plans, or as staked with a minimum of voids. Undesirable voids shall be filled in with small stones or spalls. The rock shall be manipulated sufficiently by means of a bulldozer, rock tongs, or other suitable equipment to secure a reasonably regular surface and mass stability.
- B. Riprap protection shall be placed to its full course thickness at one operation and in such a manner as to avoid displacing the underlying material. Placing of riprap protection in layers or by dumping into chutes or by similar methods likely to cause segregation will not be permitted.

All material going into riprap protection shall be so placed and distributed that there will be no large accumulation or area composed largely of either the larger or smaller sizes of stone.

- C. Unless otherwise authorized, the riprap protection shall be placed in conjunction with the construction of the embankment with only sufficient lag in construction of the riprap protection as may be necessary to prevent mixture of embankment and riprap material.
- D. The Contractor shall provide a level compact area of sufficient size to

dump and sort typical loads of riprap at approved locations(s). He shall further dump loads specified in the area and assist the Engineer as needed to sort and measure the stones in the load for the purpose of determining if the riprap is within specifications. Mechanical equipment as needed to assist in the sorting shall be provided by the Contractor at not additional cost to the Owner.

**END OF SECTION**

## **SECTION 02221**

### **TRENCHING, BACKFILLING AND COMPACTING FOR UTILITIES**

#### **1. GENERAL**

##### **1.1 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. Subsurface Conditions: Section 02010
- B. Existing Utilities: Section 02016
- C. Earthwork: Section 02200

##### **1.2 QUALITY CONTROL ASSURANCE**

- A. Conform to Section 02200 and as specified herein.

##### **1.3 SUBMITTALS**

- A. Conform to Section 02200.

#### **2. PRODUCTS**

##### **2.1 MATERIALS**

- A. Materials used for backfill shall be native materials as described herein or imported materials as described in Section 02200.

#### **3. EXECUTION**

##### **3.1 TRENCHING**

- A. All material excavated from trenches and piled adjacent to the trench or in a roadway or public thoroughfare shall be piled and maintained so that the toe of the slope of the spoil material is at least two (2) feet from the edge of the trench. It shall be piled in such a manner that will cause a minimum of inconvenience to public travel, and provision shall be made for merging traffic where such is necessary. Free access shall be provided to all fire hydrants, water valves and meters, and clearance shall be left to enable the free flow of storm water in all gutters, conduits, and natural watercourses.
- B. All ledge rock boulders, or stones shall be removed to provide a minimum clearance of six (6) inches under and around the pipe.
- C. All materials removed shall be replaced with satisfactory waste materials from other trenches or from imported bedding or backfill, as determined by the Engineer. All costs for backfilling shall be considered as incidental to this item. Engineer shall determine if material conforms with the requirements of Specifications Section 02200.

### 3.2 TRENCHING FOR WATER LINES

- A. All trenches shall be dug to true and smooth bottom grades and in accordance with the grades indicated on the Drawings. Trench widths shall not exceed thirty six inches (36 inches) maximum or 12 times outside diameter of the pipe plus 18 inches whichever is greater. Standard excavation equipment shall be adjusted so as to excavate the narrowest ditch possible. Ditch sides shall be straight and vertical unless otherwise required by OSHA.
- B. The depth of trenching for water mains shall be such as to give a minimum cover of 48 inches over the top of the pipe unless otherwise specified. No additional compensation will be allowed for the small amount of deeper excavation which may be required, due to localized breaks in grade, or installing the new main under existing culverts or other utilities where necessary. Where profile of pipeline and ground surface is shown on the Plans, pipeline shall be laid to elevation shown unless directed otherwise by the Engineer.
- C. Excavation shall be to such depth that the minimum cover over the valve nuts shall be one foot. No valve shall be located in such a position as to be in any roadside ditch, drainage ditch or channel.
- D. The minimum amount of open trench shall conform to the ADOT&PF requirements.
- E. Trenches shall be over excavated below the specified grade to provide for bedding material specified.
- H. The length of trench excavated in advance of the pipe laying shall be kept to a minimum, and in no case shall more than 150 feet of trench be open unless specifically authorized by the Engineer.
- I. Pay limits for import backfill and surface restoration shall apply irregardless of trenching methods employed by Contractor to ensure safe operation and in order to meet OSHA trenching regulations.

### 3.3 TRENCHING FOR SEWERS

- A. All trenches shall be excavated true to lines and grades in accordance with the grades indicated on the Plans.
- B. Trenches shall be of sufficient width to permit proper jointing of the pipe and backfilling of material along the sides of the pipe.
- C. Trenches shall be excavated with ditch sides straight and vertical unless otherwise required by OSHA. Utilize shoring as required in accordance with Section 02150, Shoring.

- D. Excavation for manholes and other structures shall be sufficient to provide a minimum of 12 inches between their outside surfaces and the sides of the excavation.
- E. Trench width at the surface of the ground shall be kept to the minimum amount necessary to install the pipe in a safe manner.
- F. Trench width at the bottom of the trench and up to a point 6 inches above the crown of the pipe shall not exceed 36 inches or 1-1/2 times the outside diameter of the pipe plus 18 inches, whichever is greater, except as shown on the Plans.
- G. Unless otherwise specified, the trenches shall be excavated below the specified grade a sufficient distance to provide for bedding material as specified.
- H. The length of trench excavated in advance of the pipe laying shall be kept to a minimum, and in no case shall more than 150 feet of sewer line trench be open unless specifically authorized by the Engineer.
- I. Pay limits for import backfill and surface restoration shall apply irregardless of trenching methods employed by Contractor to ensure safe operation and in order to meet OSHA trenching regulations.

### 3.4 PIPE FOUNDATIONS

- A. Where the trench bottom is in a material which is unsuitable for foundation or material which will make it difficult to obtain uniform bearing for the pipe, such material shall be removed and a stable foundation provided in accordance with details on the Contract Drawings.
- B. Proper preparation of foundation and placement of foundation material where required, shall precede the installation of all pipe. This shall include the necessary preparation of the native trench bottom and/or the top of the foundation material to a uniform grade so that the entire length of pipe rests firmly on a suitable properly compacted material. Backfill material around the pipe will be placed in a manner to meet requirements specified in respective sections for installation of pipeline.
- C. Gravel to be used for foundation purposes shall be of a type and gradation to provide a solid compact bedding in the trench. Since trench conditions vary, foundation gravel requirements will change.
- D. Unsuitable material for foundation purposes below the depth required for the specified bedding shall be removed. Excavated materials shall be disposed of at an approved waste site and all costs involved in the excavating and wasting of this material shall be considered as incidental.

### 3.5 PIPE BEDDING

- A. Placement of bedding material in the pipe zone shall be as specified in the section regarding the pipeline being constructed.

### 3.6 BACKFILLING

- A. Pipe bedding and backfill to six inches (6") over the top of the pipe shall be completed before backfilling operations are started.
- B. The Contractor shall take all necessary precautions to protect the pipe from any damage, movement or shifting. In general, backfilling shall be performed by pushing the material from the end of the trench into, along and directly over the pipe so that the material will be applied in the form of a rolling slope rather than by side filling which may damage the pipe. Backfilling from the sides of the trench will be permitted after sufficient material has first been carefully placed over the pipe to such a depth to protect the pipe.
- C. The Contractor shall also provide for the proper maintenance of traffic flow and accessibility as may be necessary, and he shall also make adequate provisions for the safety of property and persons.
- D. Temporary cribbing, sheeting, or other timbering shall be removed unless specifically authorized in writing.
- E. The Contractor shall maintain the water level at the bottom of the trench. Where dewatering of the trench has been accomplished by well-points, wells or any other such methods that would lower the water table surrounding the trench areas, such dewatering shall be continued until the trench is completely backfilled.
- F. All brush, stumps, logs, planking, disconnected drains, boulders, etc., shall be removed from the material to be used for backfilling the trench. The cost of removal and disposal of these items shall be considered as incidental to the construction and no further compensation shall be allowed.
- G. Where original excavated material is unsuitable for trench backfill, backfill gravel shall be placed. The unsuitable material shall be removed to a disposal area. Backfill gravel shall be used for backfill only where original material is unsuitable and upon approval by the Engineer. Backfill gravel shall be as specified in Section 02200.
- H. Where it is required that a blanket of select material be placed on top of the native backfill, the backfill shall be placed to the elevations shown on the Plans, or to the elevation the Engineer may direct, and shall be leveled to provide for a uniform thickness of the selected material. Compaction of the native material shall be as required by the Owner and shall be performed prior to placing the select material.
- I. Backfill gravel: Wherever a trench is excavated in a paved roadway, sidewalk or other area where minor settlements would be detrimental and where the native excavated material is not suitable for compaction as backfill, the trench shall be backfilled to such depth as the Engineer may

direct with Backfill Gravel. Backfill Gravel shall be imported backfill gravel or may be suitable materials hauled from another portion of the project conforming to the requirements of Section 02200.

Engineer shall determine if material conforms with the requirements of Specifications Section 02200.

### 3.7 GENERAL COMPACTION REQUIREMENTS

- A. When working in an existing traveled roadway, restoration and compaction must be achieved as the trench is backfilled so as to maintain traffic.
- B. All trench backfill under roadways shall be mechanically compacted to 95% of maximum density. Maximum lifts shall be 12 inches.
- C. Any trench in which 95% density cannot be achieved with existing backfill, the top four feet shall be replaced with backfill gravel mechanically compacted to 95%. Placement shall be in 12 inch lifts maximum.
- D. All crushed aggregate base course shall be mechanically compacted to 98% of maximum density.
- E. Trench backfill in easements and lawn areas which do not support vehicle traffic shall be mechanically compacted to 90% of maximum density. Maximum lifts shall be 12 inches.

### 3.8 MECHANICAL COMPACTION

- A. The density of compacted backfill material shall meet 95% of the maximum density as outlined in Section 02200 or as outlined in the permit issued by the governing body responsible for the roadway.
- B. The Contractor shall be responsible to provide the proper size and type of compaction equipment and select the proper method of utilizing said equipment to attain the required compaction density.
- C. In place compaction tests shall be made. Contractor shall remove and recompact material that does not meet specified requirements.

**END OF SECTION**

## **SECTION 02400**

### **SHORING**

#### **1. GENERAL**

##### **1.1 RELATED WORK SPECIFIED ELSEWHERE**

- A. Trenching, Backfilling and Compacting: Section 02221
- B. Storm Drains: Section 02520
- C. Water Mains: Section 02555
- D. Sanitary Sewers: Section 02560

##### **1.2 QUALITY ASSURANCE**

- A. Contractor's sheeting and shoring plans shall be designed by a structural engineer with experience in the work.

#### **2. PRODUCTS**

##### **2.1 TRENCHES**

- A. Materials used shall be at the Contractor's option.

#### **3. EXECUTION**

##### **3.1 SAFETY REQUIREMENTS**

- A. Shoring shall be placed in accordance with federal, state and local safety requirements.

##### **3.2 CRIBBING AND SHEETING**

- A. Unless otherwise provided, the Contractor shall provide all cribbing and sheeting needed to protect the work, adjacent property and improvements, utilities, pavement, etc., and to provide safe working conditions in the trench.
- B. Removal of any or all cribbing and sheeting from the trench shall be accomplished in such a manner as to fulfill all of the above requirements and shall also be accomplished in such a manner as to prevent any damage to the work.
- C. Damages resulting from improper cribbing or from failure to crib shall be the sole responsibility of the Contractor. Cribbing will not be a pay item and the cost

thereof shall be included in the contract price for each of the various items of work included in the project unless otherwise provided.

- D. Whether cribbing and sheeting shall be left in place or removed shall be at the option of the Contractor, provided that removal of any an all sheet piling, sheeting or cribbing used in trench or structure excavation shall be accomplished in the manner as to prevent the settlement of the pipes or other work and to prevent increased backfill loading which might overload the pipe or walls of the structure. Should the Owner order that any sheeting or cribbing be left in place, the Contractor shall not remove the same but will receive payment for the materials left in place on a unit price basis, if such be in the Contract or at the market value thereof, if there be no such unit price.

### 3.3 SPECIAL REQUIREMENT FOR FLEXIBLE PIPE

- A. Shoring to be removed, or moveable trench shields or boxes, shall be located at least 2½ pipe diameters away from the pipe, if the bottom of the shoring, shield or box extends below the top of flexible pipe, unless a satisfactory means of reconsolidating the bedding or side support material disturbed by shoring removal can be demonstrated. Damages resulting from improper shoring or failure to shore shall be the sole responsibility of the Contractor.

**END OF SECTION**

## **SECTION 02520**

### **STORM DRAINAGE**

#### **1. GENERAL**

##### **1.1 RELATED WORK SPECIFIED ELSEWHERE**

- A. Subsurface Conditions: Section 02010
- B. Existing Utilities: Section 02016
- C. Earthwork: Section 02200
- D. Trenching, Backfilling and Compaction: Section 02221
- E. Shoring: Section 02400
- F. Dewatering: Section 02530
- G. Water Lines: Section 02555

##### **1.2 QUALITY ASSURANCE**

- A. Conform to the requirements of Section 02555.

#### **2. PRODUCTS**

##### **2.1 BEDDING MATERIALS**

- A. Refer to Section 02200.

##### **2.2 GENERAL REQUIREMENTS FOR PIPE MATERIAL**

- A. Pipe used for storm sewer and drainage culvert construction may be of any of the materials specified herein unless otherwise provided.

##### **2.3 GALVANIZED CORRUGATED STEEL PIPE**

- A. Galvanized corrugated steel pipe shall conform to the requirements of AASHTO Designation M36 or M167 as applicable, 16 gage unless otherwise provided.
- B. Coated uniformly inside and out with asphalt coating to meet the requirements of AASHTO Designation M190. The Contractor may substitute polymer coating such as "Black Klad", if approved by the Engineer. All fittings and couplings shall be coated.
- C. Coupling band shall meet the requirements AASHTO M36 and wide enough to cover at least two annular corrugations. Gasket shall be provided.
- D. When specified, galvanized steel end sections shall be flared, beveled shop-assembled units to serve as structural, hydraulic and aesthetic end treatment to corrugated steel culverts. They may be attached to corrugated steel culverts by

threaded rods, by riveting or bolting per manufacturer's standard procedure. End sections shall have a turned down lip or toe plate at the wide end to act as a cut-off. The material for the end section shall be galvanized steel meeting the requirements of AASHTO M36 or same gage as pipe.

### **3. EXECUTION**

#### **3.1 INSTALLATION**

- A. Conform to applicable requirements of Section 02560 except as modified herein.

#### **3.2 BEDDING FOR CORRUGATED PIPE**

- A. Material for sidefill around and to the crown elevation of corrugated metal pipe shall be selected and shall not contain stones larger than 3 inches in greatest dimension, frozen lumps, roots, or moisture in excess of that permitting thorough compaction.
- B. Material placed within the pipe compaction zone shall be brought up simultaneously on each side of the pipe to the top of the pipe and compacted to 95% as defined by Section 02200.

**END OF SECTION**

## **SECTION 02530**

### **DEWATERING**

#### **1. GENERAL**

##### **1.1 Related requirements specified elsewhere**

- A. Division 1 Specifications
- B. Section 02010: Subsurface Conditions
- C. Section 02221: Trenching, Backfilling and Compaction for Utilities

##### **1.2 Quality Control**

- A. It shall be the sole responsibility of the Contractor to control the rate and effect of the dewatering in such a manner as to avoid all objectionable settlement and subsidence.
- B. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the Contractor.
- C. Structures or Facilities:
  - 1. Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points should be established and observed at frequent intervals to detect any settlement which may develop.
  - 2. Should significant settlement be observed, recharge wells could be placed between the structure and the trench and water pumped under pressure back into the soil.
  - 3. The responsibility for conducting the dewatering operation in a manner which will protect adjacent structures and facilities rests solely with the Contractor.
  - 4. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the Contractor.

#### **2. PRODUCTS**

##### **2.1 Equipment**

- A. Before operations begin, the Contractor shall have available on this site of work sufficient pumping equipment and/or other machinery to assure that the operation of the dewatering system can be maintained.

#### **3. EXECUTION**

##### **3.1 Methods**

- A. Dewatering shall be done by such method as the Contractor may elect.

- B. Dewatering Operation:
1. Dewatering, sufficient to maintain the groundwater level at or below the surface of trench bottom or base of the bedding course, shall be accomplished prior to pipe laying and jointing, if not prior to excavation and placing of the bedding as called for in other sections of the specifications.
  2. The dewatering operation, however accomplished, shall be carried out so that it does not destroy or weaken the strength of the soil under or alongside the trench.
- C. The normal water table shall be restored to its natural level in such a manner as to not disturb the pipe and its foundation.
- D. Well Points or Wells:
1. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sandpacked and/or other means used to prevent pumping of fine sands or silts from the subsurface.
  2. A continual check by the Contractor shall be maintained to insure that the subsurface soil is not being removed by the dewatering operation.
- E. Dewatering of excavations shall be considered incidental to the construction and all costs thereof shall be included in the cost of work to which it relates.
- F. Dispose of water so as not to cause injury to public or private property or to cause a nuisance or menace to the public; construction of temporary facilities to dispose of water shall be incidental to the construction.
- G. Permanent piping systems may not be incorporated in the dewatering systems.

**END OF SECTION**

## SECTION 02550

### ASPHALT CONCRETE PAVEMENT

#### 1. GENERAL

##### 1.1 Related Requirements Specified Elsewhere

- A. General and Special Conditions
- B. Division 1 Specifications
- C. Section 02200: Earthwork
- D. Section 02552: Pavement Repair and Resurfacing

##### 1.2 References

- A. The publications listed below form a part of this specification to the extent referenced; the publications are referred to in the text by basic designation only.
  - 1. State of Alaska Department of Transportation and Public Facilities (ADOT&PF), Standard Specifications for Highway Construction (SSHC).
  - 2. American Association of State Highway and Transportation Officials (AASHTO):
    - a. M82, Cut Back Asphalt (Medium Curing Type)
    - b. M226, Viscosity Graded Asphalt Cement
    - c. T180, Moisture-Density Relations of Soils using a 10 lb. (4.54 kg) Rammer and an 18-inch (457 mm) Drop
    - d. T230, Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures
    - e. T245, Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
  - 3. American Society for Testing and Materials (ASTM): D-2397, Specification for Cationic Emulsified Asphalt.
  - 4. ADOT&PF Alaska Test Methods, Materials Section (ATM):
    - a. T-4, Determination of Percentage of Fractured Particles
    - b. T-7, Sieve Analysis of Fine and Coarse Aggregates
    - c. T-14, Coating and Stripping of Bitumen-Aggregate Mixtures
    - d. T-17, Bituminous Mix Design by Marshall Test Method
    - e. T-23, Determination of Asphalt Content by Means of a Nuclear Asphalt Content Gauge

##### 1.3 Submittals

- A. The following shall be submitted in accordance with Section 01340, Submittals, and the Special Contract Requirements:
  - 1. Job Mix Design:

- a. The Contractor shall furnish a job mix design to the Engineer for review prior to placement of the material.
  - b. The mix design shall conform to the criteria listed below, and shall use the same materials sources, aggregate gradations, and asphalt grade as will be used in the pavement.
  - c. The mix design shall be prepared by an independent commercial laboratory or by a State of Alaska laboratory.
  - d. The mix design shall have been prepared no earlier than 2 years prior to the start of placement of pavement.
2. Test reports for tests as specified below.
- B. Certify that materials comply with specification requirements.
  - C. Certificate shall be signed by asphalt concrete producer and Contractor.

#### **1.4 Quality Assurance**

- A. The Contractor shall establish and maintain control of the work covered under this section to insure compliance with the contract requirements, including but not limited to the items listed below.
  1. Hot mix tests shall be performed for gradation of aggregate materials, asphalt content, density and stability as follows, for each layer of material placed.
  2. Areas up to 6,000 square feet: A minimum of two tests or one test for each 1,500 square feet, whichever will provide the greater number.
  3. Areas between 6,000 and 20,000 square feet: A minimum of four tests or one test for each 3,000 square feet, whichever will provide the greater number.
  4. Areas over 20,000 square feet: A minimum of seven tests or one test for each 5,000 square feet, whichever will provide the greater number.
- B. Samples of the compacted pavement shall be removed and tested for density and thickness determination as follows, for each layer of material placed.
  1. Areas up to 6,000 square feet: A minimum of two tests or one test for each 1,500 square feet, whichever will provide the greater number.
  2. Areas between 6,000 and 20,000 square feet: A minimum of four tests or one test for each 3,000 square feet, whichever will provide the greater number.

3. Areas over 20,000 square feet: A minimum of seven tests or one test for each 5,000 square feet, whichever will provide the greater number.
  4. The Contractor shall be responsible for filling the sample holes with asphalt concrete.
- C. Grade and smoothness measurements shall be taken every 500 square feet or fraction thereof.

## 2. PRODUCTS

### 2.1 Materials

- A. Aggregate base course shall conform to Section 02200, Earthwork.
- B. Asphalt-concrete pavement shall conform to Section 401 of ADOT&PF-SSHHC in its entirety, with gradation meeting Type II of Table 703-3, except as otherwise specified herein.
1. Material:
    - a. Asphalt material shall be Grade AC-5 conforming to the requirements of AASHTO M-226.
    - b. Asphalt content shall be the optimum as determined by Alaska Test Method T-17, Standard Method of Test of Bituminous Mix Design by the Marshall Method with anti-strip additives in proportions determined by ATM T-14.
    - c. A single source of asphalt material shall be used for the entire job.
  2. The job mix design shall be prepared by Alaska Test Method T-17, using the criteria listed under paragraph E.4 therein for EALs greater than 1,000,000 (75 blows/face, airport construction).
  3. Maximum acceptable tolerance of asphalt content shall be within 0.4% from optimum asphalt content, except that asphalt content shall not be lower than 5.0% nor greater than 6.5%.
  4. The job design mix material for asphalt concrete mixture shall conform within the tolerances specified below:

<u>Sieve Size or Item</u>	<u>Tolerance % Passing</u>
3/4-inch	± 5
3/8-inch	± 5
No. 4	± 5
No. 10	± 4
No. 40	± 4
No. 200	± 2
Temperature	± 20 degrees F.

5. Percent fracture of aggregate, as determined by ATM T-4, shall be 85% minimum.
  6. Paragraphs 401-4.01, 401-4.03, and 401-5.01, regarding method of measurement, contract price adjustments, and basis of payment shall not apply.
- C. Tack coat and prime coat shall conform to Section 402 Tack Coat and Section 403 Prime Coat of ADOT&PF-SSHC in its entirety, except as otherwise specified herein.
1. Tack coat material shall be asphalt conforming to ASTM D-2397, Type CSS-1.
  2. Prime coat material shall be Grade MC-30 or MC-70 of AASHTO M-82.
  3. Paragraphs 402-4.01, 402-5.01, 403-4.01, and 403-5.01 regarding measurement and payment shall not apply.

### 3. EXECUTION

#### 3.1 Aggregate Base Course

- A. Testing and sampling of aggregates shall be as specified in ADOT&PF-SSHC.
- B. Sampling shall provide a representative sample of aggregate incorporated into the asphalt concrete mixture.
- C. Gradations of aggregates shall be within specified limits and verified by ATM T-7.
- D. Mixing and placing of materials shall avoid segregation and degradation of materials.
- E. Rolling of material shall be as specified in ADOT&PF-SSHC.
- F. Moisture content of materials shall be controlled to allow proper compaction of materials and compactive effort as specified in ADOT&PF-SSHC.
- G. Thickness tolerance shall be maintained within 1/4-inch to 1-inch of the specified thickness of aggregate base course.
- H. Grade shall be maintained such that specified thickness tolerances for asphalt-concrete pavement are achieved.

### **3.2 Asphalt-Concrete Pavement**

- A. Aggregates shall be properly stockpiled. Aggregates that have become mixed with earth or foreign material, or become coated with undesirable material shall not be used.
- B. Hot mix tests shall be performed to verify compliance with approved job mix design.
  - 1. Asphalt content shall be determined by ATM T-23. Samples taken for the determination of asphalt content shall be taken from behind the screed prior to initial compaction, or at the end of the auger.
  - 2. Density and stability shall be determined in accordance with ATM T-17.
  - 3. Aggregate gradation shall be determined in accordance with ATM T-7.
  - 4. Sampling shall provide a representative sample of aggregate incorporated into the asphalt concrete mixture.
- C. Placing and compacting operations shall be complied with as specified in ADOT&PF-SSHC.
- D. Rolling shall be continued until a relative density of not less than 96% in paved areas and in joints is obtained within the asphalt concrete.
- E. Compaction shall be determined in accordance with AASHTO T-230 except that the standard specimen shall be prepared in accordance with AASHTO T-245.
- F. Thickness tolerance shall be maintained within 1/8-inch to 1/2-inch of the specified thickness of asphalt-concrete pavement.
- G. The Contractor shall cover the asphalt concrete in trucks when:
  - 1. The temperature is below 50 degrees F and falling or 40 degrees F and rising.
  - 2. Rain is imminent or falling.

### **3.3 Tack Coat And Prime Coat**

- A. The tack coat shall be applied at a rate that will result in an asphalt residual covering of 0.015 to 0.045 gallons per square yard.
- B. Application Rate:
  - 1. The rate of application of the prime coat shall be from 0.1 to 0.3 gallons per square yard.

2. For MC-30, the specification is modified to allow 35% maximum (instead of 25%) distillate at 437 degrees F and a minimum of 100 poises (instead of 300) viscosity on residue from distillation at 140 degrees F.
- C. Tack coat and prime coat shall be applied only when the atmospheric temperature is above 50 degrees F in the shade.
- D. The proper cure period shall be allowed prior to placing any materials on top of prime coat or tack coat.

### **3.4 Cleaning Up**

- A. The Contractor shall at all times keep the construction area free from accumulations of waste materials or rubbish and, prior to completion of the work, remove any rubbish from and about the premises and all tools, equipment and materials not the property of the Government.
- B. Upon completion of the construction, the Contractor shall leave the work and premises in a clean, neat and satisfactory condition.

**END OF SECTION**

## SECTION 02552

### PAVEMENT REPAIR AND RESURFACING

#### 1. GENERAL

##### 1.1 Related requirements specified elsewhere

- A. General and Special Conditions
- B. Division 1 Specifications
- C. Section 02102: Clearing and Grubbing
- D. Section 02110: Demolition
- E. Section 02200: Earthwork
- F. Section 02210: Grading
- G. Section 02221: Trenching, Backfilling, and Compaction for Utilities
- H. Section 02550: Asphalt Concrete Pavement

##### 1.2 Quality Assurance

- A. Comply with Section 02550, Asphalt Concrete Pavement.
- B. Testing requirements to be performed at the Contractor's cost include:
  - 1. One truck sample of each day's run for Marshall series.
  - 2. One core sample correlated to truck sample for density and thickness.

##### 1.3 Paving Quality Requirements

- A. General: In addition to other specified conditions, comply with following minimum requirements.
  - 1. Comply with requirements of ADOT&PF.
  - 2. Provide final surfaces of uniform texture, conforming to required grades and cross-sections.
- B. Surface Smoothness:
  - 1. Test finished surface of each asphalt concrete course for smoothness, using a 10 foot straight edge applied parallel to and at right angles to centerline of paved areas.
  - 2. Surfaces will not be acceptable, if exceeding 1/4-inch in 10 feet, unless more rigid requirements are established by ADOT&PF.

##### 1.4 Job Conditions

- A. Weather Limitation:

1. Construct only when temperatures are above minimum specified in ADOT&PF Standard Specifications for Highway Construction unless waived by the agency having jurisdiction.
  2. Do not construct pavement or base when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration.
- B. Grade Control: Establish and maintain the required lines and grades, including crown, cross-slope, and super elevation for each course during construction operations.
- C. Traffic Control:
1. Maintain vehicular and pedestrian traffic during paving operations, as required for other construction activities.
  2. Provide flagmen, barricades, warning signs, and warning lights for movement of traffic and safety and to cause the least interruption of work.
  3. See Section 01570 Traffic Regulation, for additional requirements.

## **1.5 Road And Street Restoration Requirements**

- A. Road Restoration:
1. The Contractor's responsibility as to road restoration shall include, but not be limited to, proper backfill and compaction of excavation, shaping and general restoration of the roadway, restoration of public and private improvements when damaged by construction, restoration of drainage facilities, scarification of existing surfacing, if required, removal of debris and surplus material and all other requirements of these specifications.
  2. In addition, upon completion of the above restoration, backfill material and/or crushed aggregate surfacing shall be placed where required, as directed by the Engineer.
- B. Final Grade and Cross Section:
1. Unless specifically authorized by the authority responsible for the roadway, the final grade and cross section shall conform to applicable Borough or ADOT&PF standard cross sections.
  2. In case of existing private road they shall conform to the roadway that existed prior to construction.
  3. The removal and disposal of existing materials necessary to fulfill the above requirements shall be considered incidental to the construction and the costs thereof shall be included in the items for which payment is provided.

- C. Manhole rings, valve boxes, and monument cases shall be adjusted to final grade as shown on the Plans.
- D. The Contractor shall comply with all requirements of all permits for installation of pipelines in authorized rights-of-way.
- E. The Contractor shall place and maintain sufficient and proper lights and barricades at all locations on roads not accepted by the Borough and/or ADOT&PF.
- F. Pipeline Installation-General:
  - 1. After completion of pipeline installation the Contractor shall clean up drainage ditches and restore all existing drainage structures which may have been damaged during the course of construction.
  - 2. Contractor shall also comply with all drainage requirements of the agency involved upon which the agencies' acceptance of the roads is conditioned.
  - 3. Contractor shall restore any private improvement on road rights-of-way including, but not limited to, culverts, driveways, curbs, sidewalks, parking strips, parking areas, or other permanent improvements, whether or not a permit for such improvements has been obtained, and the cost of all such restoration shall be included in the unit bid price for the pipe, or material in place, and no additional compensation will be allowed.
- G. Pipeline Installation-Shoulders:
  - 1. On streets where the pipeline is located on the shoulder alongside existing bituminous or concrete surfacing, no payment shall be made for cost of restoring street surfacing which may be damaged by the Contractor's operations.
  - 2. If the Engineer requires crushed aggregate spread on the shoulder, it shall be paid under the crushed aggregate bid item.
- H. Pipeline Installation:
  - 1. Construction of pipelines in the Tongass Highway are intended to be constructed such that no more than one lane of asphalt is disrupted, except at roadway crossings.
  - 2. No payment will be made for asphalt restoration more than 12 inches beyond centerline.
  - 3. The Contractor is also cautioned that any disturbance of pavement beyond 12 inches from centerline will require complete lane replacement for minimum lengths as required by these Contract Documents, the Plans, and applicable agency standards.

4. No payment will be allowed for asphalt replacement required by ADOT&PF beyond the centerline limit.

I. Street Maintenance:

1. All streets in the construction area as well as any unpaved streets used by Contractor's trucks or any other equipment hauling material to and from the area, whether within the improvement district or adjacent thereto, and any unpaved streets used as detours during the construction shall be serviced with an application of oil or continuous use of sprinkler trucks to allay the dust, and the cost thereof shall be included in the various items for the improvements.
2. The oiling or sprinkling of the dust on roads or streets will continue until accepted by the Borough and/or ADOT&PF or the roads or streets have been graveled, dust oiled or resurfaced.
3. All streets, when required, shall be sprinkled at least twice daily.
4. Until accepted in writing by the Borough and/or ADOT&PF, the Contractor shall maintain all roads in a condition satisfactory to the agency concerned.
5. This shall include periodic grading of all streets on which traffic is allowed wherever in the opinion of the Engineer, such grading is required.
6. A suitable motor grader shall be available for this work.

J. It is specifically understood and agreed that the Contractor is responsible for complying with all requirements of the Borough or ADOT&PF necessary to obtain written acceptance of the roads by the agency concerned, and for such work the Contractor will be paid only for the items included in this Contract.

K. Any settlement and pavement damage which occurs during the first 2 years after final contract acceptance shall be repaired by the Contractor at his own expense.

2. PRODUCTS

**2.1 Crushed Aggregate**

A. Crushed aggregate base course shall comply with Section 02550, Asphalt Concrete Pavement.

**2.2 Asphalt Concrete Pavement**

A. Asphalt concrete pavement shall comply with Section 02550, Asphalt Concrete Pavement.

## **2.3 Asphalt Treated Base**

- A. Asphalt treated base shall conform to the ADOT&PF Standard Specifications for Highway Construction, latest edition.
- B. Asphalt Lifts:
  - 1. Unless otherwise noted, the asphalt treated base shall be applied in two lifts.
    - a. The first lift shall include application of 45 pounds per square yard of aggregate grading B and 0.6 gallons per square yard of CRS-2 liquid asphalt.
    - b. The second lift shall include application of 25 pounds per square yard of aggregate grading E and 0.4 gallons per square yard of CRS-2 liquid asphalt.
  - 2. The first lift shall be preceded by a prime coat applied at 0.25 gallons per square yard.

## **2.4 Prime Coat**

- A. Prime coat shall comply with Section 02550, Asphalt Concrete Pavement.

## **2.5 Tack Coat**

- A. Tack coat shall comply with Section 02550, Asphalt Concrete Pavement.

# **3. EXECUTION**

## **3.1 General Pavement Repair Requirements**

- A. Pavement patching shall be scheduled to accommodate the demands of traffic and shall be performed as rapidly as possible to provide maximum safety and convenience to public travel.
- B. The placing and compaction of the trench backfill, and the preparation and compaction of the subgrade shall be in accordance with the requirements of Section 02221, Trenching, Backfilling, and Compaction for Utilities.
- C. Prior to trench excavation on asphalt concrete surfaces, straight vertical trim lines shall be cut in order to minimize breakage and cracking of the remaining surfacing.
- D. Prior to trench excavation on cement concrete pavement, the pavement shall be cut with a concrete saw to a sufficient path to permit removal without damaging adjacent pavement to remain in place.

- E. Before the patch is constructed all pavement cuts shall be trued so that the marginal lines of the patch will form a rectangle with straight edges and vertical faces.
- F. Roadway Restoration:
  - 1. After completion of the patches, the entire roadway surface shall be cleaned by brooming, flushing, or such other methods as may be required.
  - 2. The early completion of this phase of the restoration is required, not only to facilitate public relations, control dust and traffic problems, but also to prevent the further break-up and cracking of the existing pavement.
  - 3. If, in the opinion of the Engineer, the Contractor is not diligently pursuing the work in such a manner as to place the patch as soon as reasonably possible, the Contractor may be required to re-trim and remove any and all cracked areas in such a manner to produce a straight uniform edge.
- G. All incidental work required to complete the patching of street surfaces as specified, including joints where required, shall be considered as incidental to the patching and the costs thereof shall be included in the items for which payment is provided.

### **3.2 Asphalt Concrete Trench Patch**

- A. Preparation:
  - 1. As soon after compacting the trench backfill, placing and compacting backfill material where required, and placing and compacting subbase material, the Contractor shall place and compact crushed aggregate surfacing in the trench area to a minimum depth of 4 inches.
  - 2. Additional existing asphalt paving shall then be cut back such that asphalt concrete trench patch is 20-feet wide (perpendicular to the traveled way) and centered on the constructed utility.
  - 3. Prime coat shall be applied at the rate of 0.02 to 0.08 gallon per square yard of retained asphalt through the use of mechanical equipment to all surfaces on which any course of asphalt concrete is to be placed or abutted.
  - 4. The spreading equipment shall be capable of uniformly distributing asphalt materials over any area in controlled amounts and shall be equipped with hand operated spray equipment for use only on inaccessible and irregularly shaped areas.
  - 5. Tack coat shall be applied to existing asphalt concrete that will be in contact with the new patch.

**B. Asphalt Lifts:**

1. Immediately after the subgrade has been properly prepared and prime coat applied, the Contractor shall place two lifts of asphalt concrete pavement as shown on the Plans for the typical roadway reconstruction section for Tongass Highway.
2. The top edge shall be hand raked to produce a smooth edge where the patch abuts the existing pavement.
3. The thickness shall be adjusted so that a smooth uniform grade exists after rolling.
4. The asphalt patch shall be rolled in such a way as to match the abutting surfaces, including wheel ruts if applicable.

**3.3 Cement Concrete Pavement Patch**

- A. After the subgrade for the pavement has been compacted and constructed to line and grade, the cement concrete pavement patch shall be placed, compacted and struck off to the grade of the adjacent pavement.
- B. Through and dummy joints shall be placed and edged to match existing joints.
- C. The surface shall be finished and brushed with a fiber brush.
- D. Approved curing compound shall be placed on the finished concrete immediately after finishing.
- E. Concrete used in patches shall be in accordance with Division 3 specifications unless Type III portland cement is required because of urgency of opening the street to traffic.

**3.4 Asphalt Concrete Pavement**

- A. Installation of full lane-width asphalt concrete pavement for resurfacing the Tongass Highway shall conform to the applicable requirements of ADOT&PF Standard Specifications for Highway Construction.
- B. After the subgrade has been properly prepared and prime coat applied, the Contractor shall place two lifts of asphalt concrete pavement as shown on the Plans for the typical roadway reconstruction section for Tongass Highway.
- C. The edges of the existing asphalt pavement and castings shall be painted with hot asphalt cement or tack coat immediately before placing the asphalt patching material.

- D. The asphalt concrete pavement shall then be placed, leveled, and compacted to conform to established cross section, grade, and super elevation to match adjacent paved surface.

### **3.5 Asphalt Concrete Overlay**

#### **A. Asphalt Preparation:**

1. Before construction of an asphalt concrete pavement overlay on an existing surface, all fatty asphalt patches, grease drippings, and other objectionable matter shall be entirely removed from the existing pavement.
2. All excess asphalt joint filler shall be completely removed and all premolded joint filler shall be removed to at least 1-1/2 inch below the surface of the existing pavement.
3. All types of existing pavement or bituminous surfaces shall be thoroughly cleaned by sweeping to remove dust and other foreign matter.

#### **B. Asphalt Placement:**

1. When the surface of the existing pavement or old base is irregular, it shall be brought to uniform grade and cross section as required by ADOT&PF.
2. Preleveling of uneven or broken surfaces over which asphalt concrete is to be placed is required and may be accomplished by the use of asphalt concrete placed with a motor patrol grader, a paving machine, by hand raking, or by a combination of these methods.
3. After placement, the asphalt concrete used for preleveling shall be compacted thoroughly with rollers.

#### **C. Existing Pavement / Oiled Surface:**

1. When asphalt concrete pavement is to be constructed over an existing paved or oiled surface, in addition to the preparation as outlined hereinbefore, all holes and small depressions shall be filled with an appropriate class of asphalt concrete mix.
2. The surface of all patched area shall be leveled and compacted thoroughly.
3. All previous patches that have settled shall be preleveled so that depth of overlay does not exceed 2 inches in thickness.

- D. All existing surfaces shall be treated with a tack coat prior to paving.

#### **E. Surfacing:**

1. After preparation of the base course, a 1-1/2 inch minimum compacted full width layer of Type II asphalt concrete shall be placed on top of an existing paving surface.
  2. Surfacing shall be placed in such a manner as to prevent disturbing existing drainage.
  3. Surfacing shall be feathered out as required to meet existing driveways, catch basins, traffic control pads, street intersections, etc., and shall include thickened edge paving where it is now existing.
- F. Asphalt overlay shall conform to ADOT&PF Standard Specifications for Highway Construction, latest edition.

### **3.6 Bituminous**

- A. Unless otherwise specified, all light bituminous surface treatment shall conform to ADOT&PF Standard Specifications for Highway Construction, latest edition.
- B. The subbase shall be treated with prime coat prior to application of the first lift of bituminous surface treatment.

### **3.7 Crushed Aggregate Surfacing**

- A. Existing crushed aggregate surfacing shall be replaced with new material.
- B. Thickness of the course shall be as shown on the Plans or as directed by the Engineer.
- C. When the utility line is along the shoulder of the roadway, the Contractor may be directed to place crushed surfacing along shoulder of the roadway; thickness shall be as required by ADOT&PF.
- D. During dry periods, the Engineer may require water sprinkling prior to and during the placement of crushed aggregate; the cost of such sprinkling shall be included in the unit bid for crushed aggregate.

### **3.8 Temporary Trench Patch**

- A. The Contractor may be required to furnish and install a temporary trench patch only when specifically directed by the Owner or as provided in the Plans.
- B. Patch shall be 2-inch thick course of crushed aggregate and a 2-inch thick course of cold asphalt plant mix placed over the trench area.
- C. The Contractor shall maintain temporary patch until the permanent patch is installed.

### **3.9 Dust Oil**

#### **A. General:**

1. All dust oil shall be PS-300 Fuel Oil or equivalent.
2. The dust oil shall be applied by means of a bituminous distributor, so that uniform distribution is obtained over all points of the surface to be treated.
3. The entire width of the roadway shall be treated.
4. Dust oiling will not be permitted at temperatures below 50°F.
5. Oiling shall not be started unless trenches have been compacted, streets cleaned and reshaped and base course of crushed rock or gravel applied.
6. Dust oil shall not be applied to top course material.
7. The allaying of dust prior to and subsequent to this application of dust oil shall be solely the Contractor's obligation in accordance with other provisions of these specifications.

### **3.10 Adjusting Manholes To Grade**

#### **A. Manholes:**

1. The Contractor shall adjust manhole castings to final grade by adding grade rings and/or mortar under the casting and patching with Type III asphalt concrete.
- B. The Contractor shall exercise extreme care in preventing foreign material from entering the sewer system.
- C. All manholes shall be adjusted to grade after the asphalt concrete surfacing has been placed.
- D. Disturbed area around cover shall be patched and sealed to the satisfaction of ADOT&PF.
- E. The Contractor shall take care not to extend the manholes above finished grade.

### **3.11 Adjusting Monument Cases And Valve Boxes To Grade**

- A. Monument cases and/or valve boxes shall be adjusted to final grade and patched with Type III portland cement concrete.
- B. Adjustment shall be made after the resurfacing.
- C. Patching around monument case and/or valve boxes shall be done to the satisfaction of ADOT&PF.

- D. Valve boxes shall be adjusted to the satisfaction of ADOT&PF.
- E. The Contractor shall take care not to extend the monument cases and/or valve boxes above the finished grade.

**END OF SECTION**

## SECTION 02555

### WATER LINES

#### 1. GENERAL

##### 1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. Jobsite Administration: Section 01043
- B. Field Engineering: Section 01050
- C. Subsurface Conditions: Section 02010
- D. Existing Utilities: Section 02016
- E. Earthwork: Section 02200
- F. Trenching, Backfilling and Compacting: Section 02221

##### 1.2 QUALITY ASSURANCE

- A. Testing by Manufacturer:
  - 1. Pipe manufacturer shall test all pipe as required by these Specifications and the standards referenced.
  - 2. Pipe manufacturer shall submit to the Engineer two (2) copies of all test results which shall include a certification that material to be delivered is represented by the samples tested and that such delivered materials meets or exceeds the Specification Requirements.
  - 3. No pipe shall be delivered until test results and certifications are in the hands of the Engineer.
  - 4. Engineer shall have free access to all testing and records pertaining to material to be delivered to the jobsite.
  - 5. The Engineer may elect to be present at any or all material testing operations.
- B. Testing Before Acceptance:
  - 1. The Engineer may require that the first section of pipe, not less than 1,000 feet in length, installed by each of the Contractor's crews, be tested in order to qualify the crew and/or the material.
  - 2. Pipe-laying shall not be continued more than an additional 1,000 feet until the first section shall have been tested successfully.
  - 3. The butt fusion of the pipe and fittings shall be performed in accordance with the pipe manufacturer's recommendations as to equipment and technique. The contractor's staff performing the pipe fusion shall be trained and certified by the fusion machine manufacturer for the pipe sizes in the project. Certification must be current.
  - 4. The fusion machine used shall be equipped with a data logger to record temperature and pressure during the pipe fusion process on all joints. Data logging results must indicate that temperature and pressure were within manufacturer's specifications.
  - 5.

### 1.3 PROTECTION OF LIVE WATER MAINS AND SERVICES

- A. All existing live water mains and services shall remain in service at all times, except for as noted in this Section.
- B. Any damage to the Owner's or a private party's existing system shall be repaired to condition equal to or better than that which existed prior to damage at no cost to the Owner or the private party.
- C. The existing system is identified as best known on the Contract Drawings and has not been field verified. The Contractor shall field verify the exact location of the existing systems in such a manner as to not damage the existing system(s), prior to any construction activities in the vicinity of existing water systems.
- D. The physical connection to an existing water system, main line or service connection(s) shall not be made until so authorized by the Owner. This authorization will not be given until connection location has been excavated, connection materials placed near work activity and verified for applicable use, and any residences affected by disruption of service contacted.
- E. Contractor shall submit a plan for the maintenance of existing live water mains and services as follows:
  - 1. Within five (5) days after the pre-construction conference, Section 01210 of the Engineering Specifications, the Contractor shall submit a plan identifying how the existing water mains and household service connects will be maintained.
  - 2. In development of this plan the following items must be addressed and approved by the Owner:
    - a. We anticipate that temporary water in many locations will need to be provided by above ground HDPE water lines with connections into the individual owners service lines. The extent and details of the temporary water shall be provided by the contractor.
    - b. Potable water shall be supplied by contractor during shut down and delivered using tankers certified to haul potable water.
    - c. Water pressure to be supplied at a minimum of 40 PSI.
    - d. Fire pumps shall be maintained.
    - e. **Notifications shall be made to the Borough, owners representative and each property owner 24 hours prior to any shut down of the water service.**
    - f. All temporary water activities shall be coordinated and approved by the Ketchikan Gateway Borough
    - g. All lines flushed and tested to meet DEC specification for potable water before and after hook up.
    - h. Contractor to supply all required adapters and hoses and pumps and personnel to maintain the water system during the construction.

#### 1.4 USE OF WATER MAINS AND SERVICES PRIOR TO COMPLETION

- A. The Owner hereby reserves the right to make use of any portion of the work prior to completion of the entire Contract without invalidating the Contract and without constituting acceptance of any of the work.

#### 1.5 SUBMITTALS

- A. Plan for maintenance of live water mains and household service connections as identified in this Section.

### 2. PRODUCTS

#### 2.01 BEDDING MATERIALS

- A. Conform to Section 02200.

#### 2.02 SERVICE SADDLES

- A. Service saddles for HDPE pipe shall be electrofusion type with a pressure rating of 160 psi. Valves shall be constructed of PE3408 Resin in compliance with ASTM D3350. The saddles shall have a minimum cell classification index of 345464C. Saddles shall conform to ASTM F1055. Saddles shall be NSF listed and meet AWWA C906. Corp Saddles shall have brass adaptive inserts. Owner shall furnish electrofusion machine for use during installation of service connection saddles.
- B. Tapped repair clamp type saddles may be used with the owner's permission for each installation. The service saddles shall have stainless steel shells and lugs per ASTM A 240, type 304, fully passivated. Bolts shall be stainless steel per ASTM A193, type 304. Nuts shall be stainless steel per ASTM A 194, type 304. Flat washers shall be stainless steel per ASTM A 240, type 304. Spring washers shall be special "spring" grade stainless steel. Gaskets shall be vergin SBR per ASTM D 2000 MAA 610 compounded for water use.

#### 2.03 RIGID FOAM INSULATION

- A. See section 2.12-a, page 02555-7.

#### 2.2 ALTERNATE PIPE MATERIALS

- A. Pipe used for main line water line construction, hydrant branches and branch mains shall be HDPE unless otherwise specified on the contract drawings.

#### 2.3 DUCTILE IRON PIPE

- A. Ductile iron pipe shall conform to AWWA C-151 (ANSI A21.51) and shall be Pressure Class 350, unless otherwise specified.
- B. Joints shall be mechanical joint or push-on joint and shall conform to AWWA C-111 (ANSI A21.11).
- C. Pipe and fittings shall have a cement mortar lining conforming to AWWA C-104 (ANSI A21.4).

2.4 FITTINGS FOR DUCTILE IRON OR PVC PIPE

- A. Conform to AWWA C110 (ANSI A21.10).
- B. Dimensions of fitting and design of bell may be modified to conform with the pipe being used.
- C. Gaskets for flat faced or raised faced flanges shall be 1/8-inch thick neoprene having a durometer of 60 plus or minus 5. Gaskets for flanges having a recess machined to receive an "O" ring shall be neoprene and shall have the dimensions and durometer as recommended for the particular service application by the flange manufacturer.
- D. Flexible couplings and coupling adapters shall be cast iron; Smith Blair, Dresser, Baker or equivalent.

2.5 POLYETHYLENE PIPE (LARGER THAN 2 INCHES)

- A. The material for polyethylene pipe shall comply with the requirements for Type III C 5 P34 as tabulated in ASTM D-1248 and have the PPI recommended designation of PE 3408.
- B. Pipe shall be manufactured from virgin materials.
- C. The pipe shall have a minimum cell classification index of 345464C as defined by ASTM D-3350.
  - 1. The polyethylene pipe shall have a manufacturer's recommended hydrostatic design stress rating of 800 psi based on a material with a 1600 psi design basis determined in accordance with ASTM D-2837, Standard Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
  - 2. The pipe shall have adequate strength and thickness.
  - 3. The pipe shall not fail, balloon, burst or weep as defined in ASTM D-1598, latest revision, when tested in accordance with Section 6 (g) of ASTM D-2239 and under the conditions hereinafter tabulated.

<u>Temperature</u>	<u>Time Hoop Stress, psi</u>	
73.4 degrees F	1000 hrs	1600
120 degrees F	1000 hrs	1000
140 degrees F	1000 hrs	800

- D. The pipe shall be designed in accordance with the relationships established in ASTM D-3035. **Pipe shall have a Standard Dimension Ratio (SDR) equal to 11 for water main. Design pressure shall be 160 psi.**
- E. The pipe shall be capable of withstanding the freezing of water, at its rated

- service pressure, without breaks, leaks, gross deformities or impaired service characteristics.
- F. Pipe shall bear the National Sanitation Foundation seal for use to transport potable water.
  - G. Workmanship shall be of the highest level compatible with current commercial practice. The PE pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, or other injurious defects. It shall be uniform in color, opacity, density, and other physical properties.
  - H. Marking on the pipe shall include the following at intervals of not more than five feet:
    - 1. Nominal pipe size.
    - 2. The type of plastic material, e.g., PE 3408.
    - 3. The standard thermoplastic pipe pressure rating in psi for water at 73.4°F for 110, 130, or 160 psi pipe.
    - 4. Manufacturer's name or trademark and code.
  - I. Fittings shall be molded or fabricated from high density polyethylene.
    - 1. Molded fittings shall be molded from high density polyethylene in accordance with these specifications.
    - 2. Fabricated fittings shall be prepared from polyethylene pipe by means of thermal fusion.
    - 3. All fittings shall be factory tested to design pressure.
  - J. Pipe and fittings shall be joined to one another by the thermal butt fusion system.
    - 1. Polyethylene pipe lengths, fittings, and flanged connections to be fused shall be of the same type, grade, and class of polyethylene compound and supplied by the same raw material supplier.
    - 2. A manufacturer's representative shall be on site for no less than the first full day of fusing pipe. Prior to his departure, he shall provide written certification that the contractor's operator of the fusion machine is qualified and making thermally welded joints in accordance with the manufacturer's instructions. He shall also certify that the machine is operating in a satisfactory manner.

## 2.6 POLYETHYLENE PIPE (2 INCHES AND SMALLER)

- A. Polyethylene plastic pipe shall conform to ASTM D2737 manufactured with PE 3408 material and meet the requirements specified in paragraph 2.7 above.
- B. Minimum wall thickness shall be equal to or greater than a standard dimension ratio of 11.
- C. Pipe shall bear the National Sanitation Foundation Seal for use to transport potable water.
- D. Fittings shall be brass flare or compression type not requiring heat, flame, cement or solvent weld to affect a seal.

## 2.7 VALVES

- A. Gate Valves shall be supplied for all valves.
  - 1. Gate valves shall conform to AWWA C509 and shall be iron body, resilient seat type. All bolts are to be greased prior to installation.
  - 2. Valves shall be non-rising stem, counterclockwise opening, with standard square stem nuts.
  - 3. Provide exterior bituminous coating for buried service. Provide epoxy coating, 10 mil DFT, for exposed service.
  - 4. All valves must have a fully unobstructed flow way free of cavities or projections. The sealing mechanism is withdrawn from the waterway in the full open position.
  - 5. All valves must be equipped with a replaceable, internally reinforced specially contoured molded rubber disc seat ring attached to the face of the disc with self-locking stainless steel screws.
  - 6. All valves shall be equipped with solid guide lugs on the disc to provide for a positive stop.
  - 7. All valves must pressure test at 200 psi seat test - 400 psi shell test.

## 2.8 VALVE BOXES

This section applies to valves larger than 2 inches.

Valve boxes for buried service shall be heavy-duty cast iron, buffalo and sliding extension type, bituminous coated, with lid with lifting handle marked "Water." Top section and lid shall be Inland Foundry Figure 2062 or approved equal. Valve boxes shall provide a minimum of 12 inches of adjustment after installation.

## 2.9 UTILITY MARKING POST

- A. Furnish and install blue "Carsonite Utility Markers" with each valve.
- B. The marker post shall be a minimum length of 72 inches, and be embedded 12 to 18 inches.
- C. Markers shall be placed behind the ditch with reflector facing the direction of travel.

## 2.10 TEST SADDLES

Service saddles for HDPE pipe shall be electrofusion type with a pressure rating of

160 psi. Valves shall be constructed of PE3408 Resin in compliance with ASTM D3350. The saddles shall have a minimum cell classification index of 345464C. Saddles shall conform to ASTM F1055. Saddles shall be NSF listed and meet AWWA C906. Corp Saddles shall have brass adaptive inserts. Curb stops, corporation stops, adapters and fittings for HDPE service lines shall be bronze alloy conforming to AWWA C800.

- A. Service valves shall be closed bottom design and sealed against external leakage at the top by means of a non-adjustable resilient pressure actuated seal, and shall be provided with a secondary resilient seal disposed above the pressure seal for added protection of the bearing surfaces against groundwater infiltration. Shut off shall be affected by a resilient pressure actuated seal so disposed in the key (or plug) as to completely enclose the inlet body port (flow way), in the closed position. All curb stop valves shall be quarter turn valve and the fully open and closed positions shall be controlled by check lugs which are integral parts of the key and body. The maximum pressure rating shall be 175 psi water at a maximum temperature of 180°F.

#### 2.11 REDUCED PRESSURE ZONE ASSEMBLIES

A reduced pressure zone assembly shall be installed to prevent backsiphonage and back pressure backflow of hazardous materials into the potable water supply. Backflow device will conform to AWWA C511-92.

- 1. The assembly shall consist of pressure differential relief valve.
- 2. Check valves and captured springs.
- 3. Two tightly closing shutoff valves.
- 4. Valve shall have non rising stem
- 5. Valve shall have epoxy coated cast iron bodies with bronze seats and stainless steel trim.
- 6. Valves shall be rated for 175 psi working pressure.
- 7. Valve shall be Watt Series 909 or approved equal.

#### 2.12 INSULATED EXTERIOR ENCLOSURE

- 1. Enclosure shall be constructed of 18 gage aluminum.
- 2. Enclosure shall be lockable
- 3. Enclosure shall be insulated to a minimum R value of 8.
- 4. Enclosure shall measure 29" width, 56" inside height, 86" length
- 5. Enclosure shall be equipped with (1) 2000 W wall heaters
- 6. Approved manufacturer: Hot Box HB3ES-AL or approved equal.

#### 2.13 PIPE INSULATION

- A. Insulation for trench installation shall be Dow Styrofoam Brand High Load HI-60 extruded polystyrene, Owens Corning Foamular 600 Extruded Polystyrene Insulation, or approved equal by Engineer. Insulation shall be installed wherever pipe burial is less than four (4) feet below surface grade.

### 3. EXECUTION

#### 3.1 BEDDING FOR PIPE

- A. Unless otherwise ordered, bedding material shall be carefully placed under the pipe and to a depth of at least six (6) inches over the top of the pipe.
- B. Bedding material shall be thoroughly rammed and tamped around the pipe with the proper tools, so as to provide firm and uniform support over the full length of all pipe, valves and fittings.
- C. Bedding shall be placed in more than one lift. The first lift is to provide at least six (6) inch thickness under any portion of the pipe and shall be placed before the pipe is installed, and shall be spread smoothly so that the pipe is uniformly supported along the barrel. Subsequent lifts of not more than 6-inch thickness shall be installed to six (6) inches over the crown of the pipe and individually compacted to 95 percent of maximum density.
- D. Care shall be taken to prevent any damage to the pipe or its protective coating.
- E. Bedding shall meet the requirements of Class F bedding as defined in Section 02560.

#### 3.2 PIPE LAYING

- A. Pipe laying shall be done in accordance with the Specifications and instructions of the manufacturer of the kind of pipe used.
- B. Tools designed especially for installing each particular type and kind of pipe shall be used.
- C. Short Lengths and Field Cut Joints:
  - 1. Short lengths of pipe supplied by the manufacturer shall be used whenever possible to provide the proper spacing of valves, tees or special fittings.
  - 2. Whenever it becomes necessary to cut a length of pipe, the cut shall be made by abrasive saw or by a special pipe cutter.
  - 3. All pipe ends shall be square with the longitudinal axis of the pipe and shall be reamed and otherwise smoothed so that good connections can be made.
  - 4. Threads shall be cleanly cut.
  - 5. Flaring of copper tubing shall be accurately and smoothly done.
  - 6. All operations for any connection shall be carefully done in accordance with the manufacturer's instructions.
- D. Laying of Pipe on Curves:
  - 1. Long radius curves, either horizontal or vertical, may be laid with standard pipe by deflections at the joints. If the pipe is shown curved on the Plans and no special fittings are shown, the Contractor can assume that the curves can be made by deflection of the joints with standard lengths of pipe. If shorter lengths are

2. When pipe is laid on a curve, the pipe shall be jointed in a straight alignment and then deflected to the curved alignment.
  3. Where field conditions require deflection or curves not anticipated by the Plans, the Contractor shall use deflected joints, short lengths or special fittings as required. No additional payment will be made for laying pipe on curves as shown on the Plans, nor for field changes involving pipe deflected at the joints. When special fittings not shown on the Plans are required to meet field conditions, additional payment will be made for fittings.
  4. Maximum deflections at pipe joints and laying radius for various pipe lengths shall be as recommended by the pipe manufacturer.
- E. Contamination Prevention:
1. All pipe fittings and valves shall be carefully cleaned of all dirt and foreign material as they are placed. The open ends of pipe and fittings shall be plugged with a temporary watertight plug whenever work is stopped and/or when water in the trench threatens to enter the pipe. Groundwater shall be excluded from the pipe at all times.
  2. Particular care shall be exercised to guard against the entrance of sewage into the water line trench during the course of construction. All sewer lines, house side sewers, or other subsurface drains should be located prior to excavation. Adequate provision shall be made for the flow of sewers, drains, and other watercourses during construction.
  3. Proper measures shall be taken to prevent urination or defecation, etc., in the trench by the workmen.
- F. Condition of Pipe and Fittings: The interior of all pipe, fittings and other accessories stockpiled on the project shall be kept free of dirt and other foreign matter at all times. Each pipe, fitting or other accessory shall be carefully inspected and thoroughly cleaned of any dirt or foreign matter, which might be present on the inside. Such cleaning shall be accomplished prior to lowering the pipe or other accessories into the trench; however, after the materials are placed in the trench, care shall be taken to keep them internally clean.

### 3.3 ELECTRICAL CONTINUITY

Not required

### 3.4 AUXILIARY EQUIPMENT INSTALLATION

- A. Underground Valve Setting: Valves shall be accurately set at places designated on the drawings. Before placing in the trench, each valve shall be carefully inspected for defects. The stuffing boxes shall be adjusted to ensure water-tightness without binding the stem.
- B. Hydrant Installation: Fire hydrant assemblies shall be installed according to the Standard Details. Each hydrant assembly shall be inspected and adjusted as above specified for valves.

- C. Combination Air Release Valve: Combination air release valves shall be installed in accordance with the Standard Details. Location shall be established so that the high point on the main is vented. Piping between the main and the valve shall slope upward. Valve pit shall be located adjacent to property line unless otherwise directed.
- D. Blocking and Bracing:
  - 1. Blocking and bracing of the pipe and fittings shall be placed so as to secure bearing on undisturbed earth. The blocking and bracing size shall be determined by the Contractor and shall be of sufficient proportions and installed so as to withstand the required test pressure and operating conditions. The Owner reserves the right to require the Contractor to retain a qualified soils engineer to determine adequate blocking size. Concrete shall be placed in back of all fittings with unbalanced thrust. Pre-cast blocking shall not be used. Blocking shall not be covered up without its having been seen by the Engineer. Unless otherwise called for in the Bid Form, the cost of furnishing and installing all blocking shall be included in the price bid per lineal foot of pipe, or lump sum bid if unit prices are not required. Blocking shall be formed so that bolts, joints, gaskets, and flanges of adjacent joints are clear of the concrete and so that bolts and joints can be dismantled without removing the concrete.
  - 2. At tees and crosses where future mains connect, a pre-cast concrete brick may be used between fittings and thrust block.
  - 3. Restrained joints such as megalug manufactured by EBAA Iron Sales, Inc., or approved equal may be used for block and bracing upon approval of the Engineer. Use of restrained joints shall be per manufacturer's recommendations.
- E. Service Connections: All service connections to water mains shall be made, using saddles as hereinbefore specified and of the size and type suitable for use with the pipe being installed. The depth of trenching for service connection piping shall be such as to provide three (3) feet of cover over the top of the pipe. Particular care shall be exercised to assure that the main is not damaged by installation of the service line.

### 3.5 CONNECTIONS TO EXISTING WATER MAINS

- A. Connections to the existing water main shall not be made without first making the necessary arrangements with the Owner in advance. Notification to the owner shall occur 72 hours in advance of the proposed work.
- B. Work shall not be started until all of the materials, equipment and labor necessary to properly complete the work are assembled on the site.
- C. When work is once started on this connection, it shall proceed continuously without interruption and as rapidly as possible until completed. No shut-off of mains will be permitted overnight or over weekends or holidays.

- D. If the connection to the existing system involves turning off the water, the Contractor shall be responsible for notifying the residents affected by the shut-off. The Owner will advise which owners are to be notified a minimum of 48 hours in advance of the proposed disruption in service.
- E. The Contractor may be required to perform the connection during times other than normal working hours.
- F. The Contractor shall not operate any valves on the existing system without specific permission of the Owner.
- G. The types of connections are varied and suggested pipe arrangements have been shown on the Plans. In general, they involve deflecting new pipe to match the existing pipe alignment and utilization of necessary fittings and new pipe.

### 3.6 EXISTING SYSTEM MAINTENANCE

- A. The Contractor shall acquaint himself with all aspects of the existing system prior to starting construction on new mains. Pertinent information concerning existing system may be obtained from the Owner and from the Owner's records.
- B. Materials, fittings, pumps, equipment and qualified personnel must be available on the project at all times during construction, so that in the event of damage to or disruption of the existing water system service there will be immediate repair and restoration by the Contractor. Any unnecessary delay in repairs or service restoration due to Contractor's failure to adhere to these requirements shall be reason to immediately suspend any further new main installation until repairs are completed to the Owner's satisfaction.
- C. Existing water services shall be located by the Contractor prior to beginning work so that it may be properly protected and maintained in service during construction and during the changeover from the existing pipes to the pipe installed under this Contract.

### 3.7 HYDROSTATIC PRESSURE TEST

- A. All water mains and appurtenances shall be tested in sections of convenient length under a hydrostatic pressure of 200 psi. The total test time will not exceed eight (8) hours at max pressure. Should the test take longer than eight (8) hours due to leaks or equipment the system will be de-pressurized and allowed to relax for 8 hours. The pumps, gauges, plugs, saddles, corporations, miscellaneous hose and piping, and measuring equipment necessary for performing the test shall be furnished and operated by the Contractor.
- B. Procedure:
  - 1. The testing procedure will consist of initial expansion and test phases.
    - a. Initial expansion
      - 1. In the initial expansion phase, the length of pipe to be

tested is pressurized to the test pressure.

2. Sufficient water is added re-pressurized to the initial pressure each hour for (3) hours.
3. After the initial expansion phase about four (4) the test phase begins.
  - b. Test Phase
    1. The test phase will last one (1), two (2) or (3) hours.
    2. After the desired time has elapsed a measured amount of make-up water is added to return to test pressure.
2. Acceptability of the test will be determined by two factors:
  - a. The amount of make up water needed to restore the pipe to the starting pressure does not exceed the limits in the table below.

Nominal Pipe Size, in	Make-up Water Allowances (U.S. Gallons per 100 ft of Pipe)		
	1 Hour Test	2 Hour Test	3 Hour Test
4	0.13	0.25	0.40
10	0.8	1.3	2.1

- b. There shall not be an appreciable or abrupt loss in pressure during the test period.
  3. Gauges used in the test shall be accompanied with satisfactory certifications of accuracy from the laboratory approved by the Engineer.
- C. All tests shall be made with the hydrant gate valves open and pressure against the hydrant valve. After the test has been completed, each gate valve shall be tested by closing each in turn and relieving the pressure beyond. This test of the gate valve will be acceptable if there is no immediate loss of pressure on the gauge when the pressure comes against the valve being checked.
- D. Sections to be tested shall normally be limited to 5,000 feet.
- E. Prior to calling out the Engineer to witness the pressure test, the Contractor shall have all equipment set up completely ready for operation and shall have successfully performed the test to assure himself that the pipe is in a satisfactory condition.

### 3.8 DISINFECTION OF MAINS

- A. Main sterilization shall be accomplished by either of the following two methods at the Contractor's option. Method No. 1 is, however, recommended as the most expedient manner in which good or satisfactory results may be obtained with a single application of disinfectant. No other method of sterilization will be accepted by the Engineer, unless prior to use, the Contractor obtains written approval from the Engineer.
- B. Method No. 1:
  1. A chlorine gas-water mixture, or dry chlorine gas may be applied by

means of a chlorinator, or the gas may be fed directly from a chlorine cylinder equipped with the proper devices for regulating the flow, and the effective diffusion of gas within the pipe. Use of the chlorinator is preferred to direct feed from the cylinder.

2. 2. The preferable point of application for the chlorinating agent is at the beginning of the pipe line extension, or any valved section thereof, and through a corporation cock inserted in the horizontal axis of the pipe. The water injector for delivering the gas-water mixture into the pipe may be supplied from a tap on the pressure side of the gate valve controlling the flow into the pipe line extension. In a new system, application may be at the pumping station, elevated tank, stand pipe, or reservoir.
  3. Water from the existing distribution system, or other source of supply, shall be controlled to flow very slowly into the newly laid pipe line during application of the chlorine. The rate of chlorine gas-water mixture or dry gas feed shall be in such proportion that the rate of water entering the newly laid pipe will be at least 50 parts per million. A color comparator set will be used to determine chlorine residual.
  4. Back pressure, causing a reversal of flow in the pipe being treated, shall be prevented.
  5. Treated water shall be retained in the pipe at least twenty-four (24) hours. After this period, the chlorine residual at pipe extremities and at other representative points shall be at least ten (10) parts per million.
  6. In the process of chlorinating newly laid water pipe, all valves or other appurtenances shall be aerated while the pipe line is filled with the chlorinating agent.
  7. Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity, until the replacement water throughout its length, upon test, shows the absence of chlorine or in the event chlorine is normally used in excess of that carried by the system.
  8. Should the initial treatment prove ineffective, the chlorination procedures shall be repeated until tests show that the water sample from the newly laid pipe conforms to the requirements of this Specification.
- D. Before placing the lines in service, a satisfactory report or approval shall be received from the local or state health department on samples collected from representative points in the new system. Sterilized sample bottles and/or instructions shall be obtained by the Contractor from the laboratory where the samples will be tested.
- E. The Contractor shall collect all samples for the bacteriological tests under direct supervision of the Engineer. The Owner will pay for initial testing and the Contractor shall pay for any required retesting.
- F. The environment to which the chlorinated water is to be discharged shall be inspected and if there is any question that the chlorinated discharge will cause damage to the environment, then a reducing agent shall be applied

to the water to be wasted to dechlorinate thoroughly the chlorine residual remaining in the water. Disposal may be made to any available sanitary sewer provided the rate of disposal does not overload the sewer and the disposal is approved by the sewer agency having jurisdiction. Where necessary, federal, state, and local regulatory agencies should be contacted to determine special provisions for the disposal of heavily chlorinated water.

- G. Dechlorination shall be performed using ascorbic acid or other EPA approved dechlorination agent. Dechlorination device shall be capable of dechlorinating 300 ppm at 1200 gallons per minute and capable of connecting to a standard fire hydrant.

### 3.9 FLUSHING THE MAINS

- A. Upon completion of pipe laying, chlorination and pressure testing, all dirt and foreign matter shall be removed by a thorough flushing through all hydrants, blowoffs or other approved means. Each section of newly laid pipe between valves or dead ends shall be flushed independently, and fire hydrants or other dead end appurtenances shall be flushed simultaneously with the parent line.
- B. The Contractor shall be responsible for rescheduling and organizing his work so as to use flushing water only during off-peak hours and in the most economical manner. No flushing shall be performed without the prior approval of the Owner.

### 3.10 PLACING IN OPERATION

- A. Upon completion of the work and before its final acceptance, the entire system shall be put in operation under normal pressure and operated at that pressure for a period of not less than ten (10) days by the Contractor.
- B. Any leaks or defects in the construction of the system, which may develop, shall be repaired and the test continued until the system is practically watertight.
- C. No provision of this Section shall be construed as waiving any provision of the Contractor's guarantee.

**\* \* \* END OF SECTION \* \* \***

## SECTION 02600

### SANITARY SEWERS

#### 1.0 GENERAL

##### 1.1 SCOPE

This section applies to the construction or repair of sanitary sewer pipelines that may be required as part of the work. Materials and installation requirements are also provided for reference on items, such as manholes, which may be cross-referenced by other specification sections.

##### 1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Trenching, Backfilling, and Compaction: Section 02221.

#### 2.0 MATERIALS

All new sewers shall be C-900 PVC, rated for 150 psi unless otherwise stated in the bid schedule. Patching of existing DI, CMP, RCP, or AC sewers, if required, may be with either C-900 PVC rated for 150 psi, or material matching existing, subject to approval of material and adapters by the Engineer.

##### 2.1 SEWER PIPE AND FITTINGS

- A. PVC C-900:

Polyvinyl chloride plastic sewer pipe shall be PVC C-900 rated for 150 psi, with integral bell and spigot joints and elastomeric seal (gasket). Pipe to fit industry standard cast iron fittings AWWA C-110.

Pipe to be AWWA-C900-81, made of compound 12454A as per ASTM D1784, and to meet the requirements of DR 18.

The elastomeric seal to meet ASTM F477. The gasketed joint assembly to meet ASTM D3139. The installation to meet UniB3, AWWA M23.

##### 2.2 MANHOLES

Precast concrete manholes shall conform to the requirements of ASTM C478 and details on Contract Drawings.

##### 2.3 CAST IRON FRAMES AND COVERS

- A. Cast iron frames and covers shall be 24-inch minimum opening for manholes, 18-inch minimum opening for cleanouts.

- B. Castings shall conform to ASTM A48, Class 30, bituminous coated, marked "Sewer."
- C. Manhole covers shall be 150-pound total minimum weight, 4 inches deep and frames shall be 210-pound minimum weight.
- D. Manhole covers to be Olympic MH30W/T or approved equal. Cleanout covers to be Inland Foundry 240 or approved equal.

## 2.4 SUBMITTALS

Provide catalog cuts for castings and manholes. Provide manufacturer's certification for pipe and fittings.

## 3. INSTALLATION

### 3.1 PIPE

- A. Survey line and grade for new sewers shall be taken from project benchmarks and reference points. The Contractor shall transfer line and grade at numerous intermediate points for control of his or her work. The Contractor shall retain the use of a pipe laser to set and lay all grades of sub-grade and pipe.
- B. The pipe bedding shall be placed so that the entire length of the pipe will have full bearing on the bedding. No blocking of any kind shall be used to adjust the pipe to grade. The pipe bedding shall be D-1 crushed surfacing.  
  
Bedding shall be placed in more than one lift. The first lift to provide at least 6-inch thickness under any portion of the pipe shall be placed before the pipe is installed and shall be spread smoothly so that the pipe is uniformly supported along the barrel. Bedding shall then be placed and compacted along the side of the pipe to a height equal to one half of the pipe diameter. Subsequent lifts of not more than 6-inch thickness of D-1 bedding shall be placed over the crown on the pipe and individually compacted to 95 percent of maximum density as shown in the contract plans.
- C. Where unauthorized excavation has been made below the established grade, the Contractor shall provide, place, and compact suitable bedding material to the proper grade elevation at his or her own expense.
- D. Laying of sewer pipe shall be accomplished to line and grade in the trench only after it has been dewatered and the foundation and/or bedding has been prepared. Mud, silt, gravel, and other foreign material shall be kept out of the pipe and off the jointing surfaces.
- E. All pipe laid shall be retained in position by mechanical means or otherwise, as to maintain alignment and joint closure until sufficient backfill has been completed to adequately hold the pipe in place.

- F. Variance from established line and grade shall not be greater than one quarter of an inch, provided that such variation does not result in a level or reverse sloping invert. Failure to be able to see a "full moon" or full diameter of pipe at the other end of each run shall be cause for rejection.
- G. The sewer pipe shall be laid upgrade. The sewer pipe shall be installed with the bell end forward or upgrade. No gravel, trash, or other foreign matter shall be allowed to enter the sewer system during construction. When pipe laying is not in progress, the forward end of the pipe shall be kept tightly closed with a temporary plug.
- H. As the pipe is installed, it shall be backfilled with the specified bedding material and selected native material as shown on the plans, taking care that the backfill is in contact with the entire periphery of the pipe. The backfill shall be so carefully placed and firmly compacted that the subsequent backfilling operations will not disturb the pipe in any way.
- I. All pipe branches, stubs or other open ends which are not to be connected immediately shall be plugged with approved material consistent with these Specifications and secured in place.
- J. Pipe Jointing:
  - 1. All extensions, additions and revisions of the sewer system, unless otherwise specified, shall be made with sewer pipe jointed by means of a flexible gasket which shall be fabricated and installed in accordance with these Specifications.
  - 2. Pipe handling after the gasket has been affixed shall be carefully controlled to avoid disturbing the gasket and knocking it out of position, or loading it with dirt or other foreign material. Any gaskets so disturbed shall be removed and replaced, cleaned and relubricated if required before the jointing is attempted.
  - 3. Care shall be taken to properly align the pipe before joints are entirely forced home. During insertion of the tongue or spigot, the pipe shall be partially supported by hand, sling or crane to minimize unequal lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned. Since most flexible gasketed joints tend to creep apart when the end pipe is deflected and straightened, such movement shall be held to a minimum once the joint is home.
  - 4. Sufficient pressure shall be applied in making the joint to assure that it is home, as described in the installation instructions provided by the pipe manufacturer. Sufficient restraint shall be applied to the line to assure that joints once home are held so, until fill material under and alongside the pipe has been sufficiently compacted. At the end of the

work day, the last pipe laid shall be blocked to prevent creep during "down time."

### 3.2 MANHOLES

- A. Standard manholes for sanitary sewers shall be constructed of precast concrete units.
- B. Adequate foundations for all new manhole structures shall be obtained by removal and replacement of unsuitable material with well graded granular material or by tightening with coarse ballast rock, or by such other means as provided for foundation preparation of the connected sewers.
- C. Base shall be a well-graded granular bedding course conforming to the requirements for sewer bedding but not less than 4 inches in thickness and extending either to the limits of the excavation or to a minimum of 12 inches outside the outside limits of the base section. In the latter case, the balance of the excavated area shall be filled with select material well tamped to the level of the top of the bedding to positively prevent any lateral movement of the bedding when the weight of the manhole is placed upon it. The bedding course shall be firmly tamped and made smooth and level to assure uniform contact and support of the pre-cast elements.
- D. All lift holes shall be thoroughly wetted and then be completely filled with mortar, smoothed and feathered both inside and out to ensure water-tightness.
- E. Final elevation and tilt of cover shall conform to the restored street surface unless otherwise specified. Manhole castings shall be readjusted to meet uniform street grades. Warping of surfacing to meet grade of castings will not be allowed. Not less than 6 inches or more than 12 inches shall be provided between the top of the cone or slab and the underside of the manhole casting ring for adjustment of the casting ring to street grade or ground surface. Plastic adjustment rings shall be utilized to adjust elevation between the top of the cone or slab and the underside of the manhole casting ring.
- F. Channels shall be made to conform accurately to the sewer grade and shall be brought together smoothly with well rounded junctions. Channel sides shall be carried up vertically to the crown elevation of the various pipes, and the concrete shelf between channels shall be smoothly finished and warped evenly with slopes to drain.
- G. A watertight joint shall be provided where the pipe passes through the manhole wall by utilizing a manhole entry pipe sleeve that is mortared into the wall. Pipe connection into entry coupling shall be sealed with a rubber ring. No pipe joint shall be placed within ten feet (10') of the manhole wall.

- H. The Contractor shall be responsible for repairing all damage to the manholes resulting from his or her operations.
- I. Manhole joints shall be assembled with a layer of butyl laid on a clean lip surface between the two pre-cast sections. Joints shall then be grouted to a water-tight seal inside and out. Manholes shall have no visible leaks at any joint.

### 3.3 CLEANING

New sewer sections shall be cleaned prior to testing.

### 3.4 TESTING

All new and replacement lines shall be air-tested to a minimum of 5 psi and shall hold at least 5 psi for one (1) hour. This requirement shall be waived for patches to existing services

At the Contractor's option, in lieu of either of the above, the gravity sewer pipe may be hydrostatically tested for water tightness. Where the leakage exceeds the rate of 0.05 gallons per hour per inch diameter per 100 feet of sewer pipe with a minimum test pressure of six (6) feet of water above the crown at the upper end of the pipe, or above the active ground water table, whichever is higher, the section so leaking will not be accepted until satisfactory repairs are made at the Contractor's expense. Maximum height of water column shall be limited to sixteen (16) feet above the invert of the pipe at the lower end of the test section. This requirement shall be waived for patches to existing services; however, upstream lines shall be flushed and the lines observed for leaks prior to completion of bedding above the pipe springline.

Mains and new services as far as test tees shall be tested at one time between adjacent manholes. Upstream sewage shall be bypassed by pumping during tests. Contractor shall notify property owners of affected services before and after test and advise them not to discharge during test period.

### 3.5 INFLOW PRECAUTIONS

The sanitary sewers discharge to pump stations with limited capacity. It is extremely important that groundwater and surface drainage be kept out of the collection system to keep sediments out of the pipelines and avoid overloading the pump stations, and the Contractor shall exercise all possible care to prevent such inflows during construction.

The Contractor shall advise the City of Ketchikan, Department of Public Works, in case of damage to sewers and prior to adjustments in any service line connections. Notify both the City Engineer (228-5606) and the wastewater treatment plant operator (225-8750).

**END OF SECTION**