



Haines Borough, Alaska

BARNETT DRIVE BOLTED STEEL WATER TANK CONTRACT DOCUMENTS

November 13, 2012

PROJECT DESIGN:

 Carson Dorn, Inc.

712 WEST 12TH STREET
JUNEAU, ALASKA 99801

(907) 586-4447

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**HAINES BOROUGH
BARNETT DRIVE BOLTED STEEL WATER TANK**

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SECTION 00030 NOTICE INVITING BIDS

**HAINES BOROUGH
BARNETT DRIVE BOLTED STEEL WATER TANK
REQUEST FOR BIDS**

A digital copy (Adobe Acrobat .pdf) of the Contract Documents may be obtained by contacting the Office of the Borough Clerk (907) 766-2231 Ext 31. A printed copy of the Contract Documents may be obtained at the offices of the Borough Clerk, 103 Third Avenue S., Haines, Alaska 99827 upon payment of \$50 (non-refundable) for each set of Contract Documents (including technical specifications and accompanying reduced scale drawings). The scale of the reduced drawings is about one-half of the original scale (11" x 17"). If full scale drawings (22" x 34") are desired they may be purchased at an additional cost of \$50 (non-refundable) from the ENGINEER.

MANDATORY PRE-BID CONFERENCE, Prospective Bidders are required to participate in a pre-Bid Conference to discuss the proposed WORK, which will be conducted by the OWNER, at 2:00 p.m. on November 26, 2012 in the Borough Administration Conference Room, 103 Third Avenue South, Haines Alaska. Prospective bidders may participate by teleconference. Those wishing to participate by teleconference should notify the Borough Clerk before the meeting. To participate by teleconference Dial 800-315-6338 and when prompted, enter 2885 followed by the # sign.

RECEIPT OF BIDS. Sealed Bids will be received at the offices of the Borough Clerk, 103 Third Avenue S., Haines, Alaska 99827 until 2:00 p.m. on December 3, 2012, for Barnett Drive Bolted Steel Water Tank. Opening date and time may be changed to a later date or time as announced by Addendum.

Bids must be delivered in person or by courier service to the physical location indicated. Bids Delivered by the U.S. Postal Service must be mailed to the address indicated. Mailing/delivery times to Alaska may take longer than other areas of the United States. Late bids will not be accepted.

PHYSICAL LOCATION:

Borough Clerk
Haines Borough Offices
103 Third Ave. South
Haines, AK 99827

MAILING ADDRESS

Borough Clerk
Haines Borough Offices
P.O. Box 1209
Haines, AK 99827

OPENING OF BIDS. The Bids will be publicly opened and read shortly after 2:00 p.m. on December 3, 2012, in the Haines Borough Offices 103 Third Avenue South, Haines, AK

DESCRIPTION OF WORK. The WORK includes removing and disposing of an existing pump station building and concrete tank foundation, furnishing and installing a 39' diameter by 20' high bolted steel water tank with an aluminum geodesic dome roof and concrete foundation, furnishing and installing a submersible mixer in the tank and installation of approximately 70' of 8" ductile iron. It also includes associated site grading and other miscellaneous work.

SITE OF WORK. The site of the WORK is located near Barnett Drive in Haines, Alaska.

COMPLETION OF WORK. All WORK within these Contract Documents shall be completed by August 1, 2013.

SECTION 00030 NOTICE INVITING BIDS

BIDDING, CONTRACT, or TECHNICAL QUESTIONS. All communications relative to this WORK, prior to opening Bids, shall be directed to the following:

Carson Dorn, Inc., 712 West 12th Street, Juneau, Alaska 99801
Attention: Jim Dorn
Telephone: (907) 586-4447

BID REQUIREMENTS. All Bids shall be accompanied by the following, as required by Haines Borough Code 3.60.100:

- Copy of a current Alaska business license;
- Copy of a current Haines Borough business license (or proof of registration and payment; forms are available on the borough’s website: www.hainesalaska.gov/forms);
- Copy of an Alaska contractor’s certificate of registration; and
- A certified or cashier's check or Bid Bond, in the amount of 5% percent of the Bid, payable to the Haines Borough, Alaska, as a guarantee that the Bidder, if its Bid is accepted, will promptly execute the Agreement. Checks and bid bonds will be returned to unsuccessful bidders.

BID TO REMAIN OPEN. The Bidder shall guarantee the Bid for a period of 120 Days from the date of Bid opening. Any component of the Bid may be awarded anytime during the 120 Days.

OWNER'S RIGHTS RESERVED. The OWNER reserves the right to reject any or all Bids, to waive any informality in a Bid, and to make award to the lowest responsive, responsible Bidder as it may best serve the interests of the OWNER.

OWNER: Haines Borough

By: _____
Julie Cozzi, MMC, Borough Clerk

Date

END OF SECTION

SECTION 00100 - INSTRUCTIONS TO BIDDERS

1.0 DEFINED TERMS. Terms used in these “Instructions to Bidders” and the “Notice Inviting Bids” which are defined in the General Conditions have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to the OWNER, as distinct from a sub-bidder, who submits a Bid to a Bidder.

2.0 INTERPRETATIONS AND ADDENDA.

A. **INTERPRETATIONS.** All questions about the meaning or intent of the Contract Documents are to be directed to the Owner. Interpretations or clarifications considered necessary by the Owner in response to such questions will be issued by Addendum, mailed, faxed, or delivered to all parties recorded by the Owner, or OWNER, as having received the Contract Documents. Questions received less than 7 Days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect.

B. **ADDENDA.** Addenda may be issued to modify the Contract Documents as deemed advisable by the OWNER. The OWNER may issue addenda by fax, with a follow-up addendum copy issued by regular mail. Addenda may be faxed and mailed less than seven Days prior to the anticipated Bid opening. The OWNER will make all reasonable attempts to ensure that all planholders receive faxed addenda, however, it is strongly recommended by the OWNER that Bidders independently confirm the contents, number, and dates of each Addenda prior to submitting a Bid.

3.0 FAIR COMPETITION. More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. If the OWNER believes that any Bidder is interested in more than one Bid for the WORK contemplated, all Bids in which such Bidder is interested will be rejected. If the OWNER believes that collusion exists among the Bidders, all Bids will be rejected.

4.0 RESPONSIBLE BIDDER. Only responsive Bids from responsible Bidders will be considered. A Bid submitted by a Bidder determined to be not responsible may be rejected. A responsible Bidder is one who is considered to be capable of performing the WORK.

A. The general standards for responsibility are to determine the CONTRACTOR’s ability to perform WORK adequately, considering the CONTRACTOR’s

1. Financial Resources
2. Ability to Meet Delivery Standards
3. Past Performance Record
 - a. References from others on CONTRACTOR’s performance
 - b. Record of performance on prior OWNER contracts
4. Record of Integrity
5. Obligations to OWNER
 - a. Bidders must be registered as required by law and in good standing for all amounts owed to the OWNER within ten Days of Owner's Notice of Intent to Award.

SECTION 00100 - INSTRUCTIONS TO BIDDERS

- B. Before a Bid is considered for award, a Bidder may be requested to submit information documenting its ability and competency to perform the WORK, according to general standards of responsibility and any special standards which may apply. It is Bidder's responsibility to submit sufficient, relevant, and adequate information. OWNER will make its determination of responsibility and has no obligation to request clarification or supplementary information.

5.0 RESPONSIVE BIDS. Only responsive Bids will be considered. Bids may be considered non-responsive and may be rejected. Some of the reasons a Bid may be rejected for being non-responsive are:

- A. If the Bid is on a form other than that furnished by the OWNER, or legible copies thereof; or if the form is altered or any part thereof is detached; or if the Bid is improperly signed.
- B. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.
- C. If the Bidder adds any unauthorized conditions, limitations, or provisions reserving the right to accept or reject any award, or to enter into a contract pursuant to an award. This does not exclude a Bid limiting the maximum gross amount of awards acceptable to any one Bidder at any one bid opening, provided that any selection of awards will be made by the OWNER.
- D. If the Bid does not contain a unit price for each pay item listed, except in the case of authorized alternate pay items.
- E. If the Bidder has not acknowledged receipt of each Addendum.
- F. If the Bidder fails to furnish an acceptable Bid guaranty with the Bid.
- G. If any of the unit prices Bid are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the OWNER.
- H. If a bid modification does not conform to Article 15.0 of this Section.

6.0 BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND SITE. It is the responsibility of each Bidder before submitting a Bid:

- A. To examine thoroughly the Contract Documents, and other related data identified in the bidding documents (including "technical data" referred to below):
 1. To visit the site to become familiar with and to satisfy the Bidder as to the general and local conditions that may affect cost, progress, or performance, of the WORK,
 2. To consider federal, state and local laws and regulations that may affect cost, progress, or performance of the WORK,
 3. To study and carefully correlate the Bidder's observations with the Contract Documents, and other related data; and

SECTION 00100 - INSTRUCTIONS TO BIDDERS

4. To notify the ENGINEER of all conflicts, errors, or discrepancies in or between the Contract Documents and such other related data.

7.0 REFERENCE IS MADE TO THE SUPPLEMENTARY GENERAL CONDITIONS FOR IDENTIFICATION OF:

- A. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by the Engineer of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such reports, however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with non-technical data, interpretations, and opinions contained therein or the completeness thereof is the responsibility of the Bidder.
- B. Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except underground utilities) which are at or contiguous to the site have been utilized by the Engineer of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such drawings, however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with nontechnical data, interpretations, and opinions contained in such drawings or the completeness thereof is the responsibility of the Bidder.
- C. Copies of such reports and drawings will be made available by the OWNER to any Bidder on request if said reports and drawings are not bound herein. Those reports and drawings are not part of the Contract Documents, but the technical data contained therein upon which the Bidder is entitled to rely, as provided in Paragraph SGC-4.2 of the Supplementary General Conditions, are incorporated herein by reference.
- D. Information and data reflected in the Contract Documents with respect to underground utilities at or contiguous to the site is based upon information and data furnished to the OWNER and the Engineer of Record by the owners of such underground utilities or others, and the OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary General Conditions, or in Section 01530 - Protection and Restoration of Existing Facilities.
- E. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground utilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.2, 4.3, and 4.4 of the General Conditions.
- F. Before submitting a Bid, each Bidder will, at its own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, and underground utilities) at or contiguous to the site or otherwise which may affect cost, progress, or performance of the WORK and which the Bidder deems necessary to determine its Bid for performing the WORK in accordance with the time, price, and other terms and conditions of the Contract Documents.
- G. On request in advance, the OWNER will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder

SECTION 00100 - INSTRUCTIONS TO BIDDERS

shall fill all holes and shall clean up and restore the site to its former condition upon completion of such explorations.

- H. The lands upon which the WORK is to be performed, rights-of-way and easements for access thereto and the lands designated for use by the CONTRACTOR in performing the WORK are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by the CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the OWNER unless otherwise provided in the Contract Documents.
- I. The submission of a Bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of Article 6, "Bidder's Examination of Contract Documents and Site" herein, that without exception the Bid is premised upon performing the WORK required by the Contract Documents and such means, methods, techniques, sequences, or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the WORK.

8.0 BID FORM.

- A. The Bid shall be made on the Bid Schedule(s) bound herein, or on the yellow bid packet provided, or on legible and complete copies thereof, and shall contain the following: Sections 00300, 00310, and the required Bid Security. The envelope enclosing the sealed Bids shall be plainly marked in the upper left-hand corner with the name and address of the Bidder and shall bear the words "BID FOR," followed by the title of the Contract Documents for the WORK, the name of the OWNER, the address where Bids are to be delivered or mailed to, and the date and hour of opening of Bids. The Bid Security shall be enclosed in the same envelope with the Bid.
- B. All blanks on the Bid Form and Bid Schedule must be completed in ink or typed.
- C. Bids by corporations must be executed in the corporate name by the president, a vice-president (or other corporate officer). The corporate address and state of incorporation must appear below the signature.
- D. Bids by partnerships must be executed in the partnership name and be signed by a managing partner, and the official address of the partnership must appear below the signature.
- E. The Bidder's Bid must be signed with ink. All names must be printed or typed below the signature.
- F. The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form. Failure to acknowledge Addenda shall render Bid non-responsive and shall cause its rejection.
- G. The address to which communications regarding the Bid are to be directed must be shown.

SECTION 00100 - INSTRUCTIONS TO BIDDERS

- H. All Bidders must provide evidence of authority to conduct business in Alaska to the extent required by law.
- I. On Projects including Federal funding any contractor otherwise qualified to perform the WORK, is not required to be licensed nor to submit application for license in advance of submitting a Bid or having such Bid considered; provided, however, that such exemption does not constitute a waiver of the OWNER's right under existing license laws to require a contractor, determined to be a successful Bidder, to be licensed to do business as a contractor in the State of Alaska in connection with the award of a contract to the successful Bidder.
- J. On Projects not including Federal funding, a Bid for the WORK will not be accepted from a contractor who does not hold a valid Alaska Business License and a valid Contractor's License in Alaska (applicable to the type of work bid upon) at the time of opening Bids.

9.0 QUANTITIES OF WORK. The quantities of WORK, or material, stated in unit price items of the Bid are supplied only to give an indication of the general scope of the WORK; the OWNER does not expressly or by implication agree that the actual amount of WORK, or material, will correspond therewith, and reserves the right after award to increase or decrease the amount of any unit price item of the WORK by an amount up to and including 25 percent of any Bid item, without a change in the unit price, and shall include the right to delete any Bid item in its entirety, or to add additional Bid items up to and including an aggregate total amount not to exceed 25 percent of the Contract Price (see General Conditions, Article 10 Changes In the Work).

10.0 SUBSTITUTE OR "OR-EQUAL" ITEMS. The procedure for the submittal of substitute or "or-equal" products is specified in Section 01300 - CONTRACTOR Submittals.

11.0 SUBMISSION OF BIDS. The Bid shall be delivered by the time and to the place stipulated in the Notice Inviting Bids. It is the Bidder's sole responsibility to see that its Bid is received in proper time. Oral, telegraphic, telephonic or faxed Bids will not be considered.

Bids must be delivered in person or by courier service to the physical location indicated. Bids Delivered by the U.S. Postal Service must be mailed to the address indicated. Mailing/delivery times to Alaska may take longer than other areas of the United States. Late bids will not be accepted.

PHYSICAL LOCATION:

Haines Borough
103 Third Avenue S.
P.O. box 1209
Haines, AK 99827

12.0 BID SECURITY, BONDS, AND INSURANCE. Each Bid shall be accompanied by a certified, or cashier's check, or approved Bid Bond in an amount of at least 5 percent of the total Bid price. The "total Bid price" is the amount of the base bid, plus the amount of alternate bids, if any, which total to the maximum amount for which the contract could be awarded. Said check or Bond shall be made payable to the OWNER and shall be given as a guarantee that the Bidder, if offered the WORK, will enter into an Agreement with the OWNER, and will furnish the necessary insurance certificates, Payment Bond, and Performance Bond; each of said Bonds, if required, and insurance amounts shall be as stated in the Supplementary General Conditions. In case of refusal or failure to enter into said Agreement, the check or Bid Bond, as the case may be, shall be forfeited to the OWNER. If the

SECTION 00100 - INSTRUCTIONS TO BIDDERS

Bidder elects to furnish a Bid Bond as its Bid security, the Bidder shall use the Bid Bond form bound herein, or one conforming substantially to it in form. Bid Bonds must be accompanied by a legible power of attorney.

13.0 RETURN OF BID SECURITY. Within 14 Days after award of the contract, the OWNER will return the Bid securities accompanying such of the Bids as are not considered in making the award. All other Bid securities will be held until the Agreement has been executed. They will then be returned to the respective Bidders whose Bids they accompanied.

14.0 DISCREPANCIES IN BIDS In the event there is more than one Pay Item in a Bid Schedule, the Bidder shall furnish a price for all Pay Items in the schedule, and failure to do so may render the Bid non-responsive and cause its rejection. In the event there are unit price Pay Items in a Bid Schedule and the "amount" indicated for a unit price Pay Items does not equal the product of the unit price and quantity, the unit price shall govern and the amount will be corrected accordingly, and the Bidder shall be bound by said correction. In the event there is more than one Pay Item in the Bid Schedule and the total indicated for the schedule does not agree with the sum of the prices bid on the individual items, the prices bid on the individual items shall govern and the total for the schedule will be corrected accordingly, and the Bidder shall be bound by said correction.

15.0 BID MODIFICATIONS AND UNAUTHORIZED ALTERNATIVE BIDS.

A. Any Bidder may modify a Bid by mail, telegram, or fax (**Fax: 907-766-2716**) prior to the scheduled closing time for receipt of Bids, provided. Bidders are strongly advised to telephone the Borough Clerk (**Telephone: 907-766-2231**), to confirm the successful and timely transmission of their Bid modification.

A telegram or fax modification should not reveal the Bid price but should provide the addition or subtraction or other modification so that the final prices will not be known by the Haines Borough until the sealed Bid is opened. Modifications shall include both the modification of the unit bid price and the total modification of each item modified. The Haines Borough shall not be responsible for its failure to receive fax modifications whether such failure is caused by transmission line problems, fax device problems, operator error or otherwise.

B. Unauthorized conditions, limitations, or provisos attached to the Bid will render it informal and cause its rejection as being non-responsive. The completed bid forms shall be without interlineation, alterations, or erasures in the printed text. All changes shall be initialed by the person signing the Bid. Alternative bids will not be considered unless called for.

16.0 WITHDRAWAL OF BID. The Bid may be withdrawn by the Bidder by means of a written request, signed by the Bidder or its properly authorized representative. Such written request must be delivered to the place stipulated in the Notice Inviting Bids for receipt of Bids prior to the scheduled closing time for receipt of Bids.

17.0 AWARD OF CONTRACT.

A. Award of a contract, if it is awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Technical Specifications and will be made to the lowest responsive, responsible Bidder whose Bid complies with all the requirements

SECTION 00100 - INSTRUCTIONS TO BIDDERS

prescribed. Unless otherwise specified, any such award will be made within the period stated in the Notice Inviting Bids that the Bids are to remain open. Unless otherwise indicated, a single award will be made for all the bid items in an individual Bid Schedule.

- B. In the event the WORK is contained in more than one Bid Schedule, the OWNER may award schedules individually or in combination. In the case of two Bid Schedules which are alternative to each other, only one of such alternative schedules will be awarded.
- C. If the OWNER has elected to advertise this Project with a Base Bid and Additive or Deductive Alternates, the OWNER may elect to award the contract for the Base Bid, or the Base Bid plus one or more Alternates selected by the OWNER. In either case, award shall be made to the responsive, responsible Bidder offering the lowest total Bid for the WORK to be awarded.

18.0 EXECUTION OF AGREEMENT.

- A. The Bidder to whom award is made for a Bid shall execute a written agreement with the OWNER on the Agreement form, Section 00500, and shall secure all insurance and any other documents required by the contract within 10 Days (calendar) from the date of the Notice of Intent to Award letter. Notice of Intent to Award will occur after the Subcontractor Report is received.
- B. Failure or refusal to enter into the Agreement as herein provided or to conform to any of the stipulated requirements in connection therewith shall be just cause for annulment of the award and forfeiture of the Bid security. If the lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the second lowest responsive, responsible Bidder. If the second lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the third lowest responsive, responsible Bidder. On the failure or refusal of such second or third lowest Bidder to execute the Agreement, each such Bidder's Bid securities shall be likewise forfeited to the OWNER.

19.0 LIQUIDATED DAMAGES. Provisions for liquidated damages if any, are set forth in Section 00500 - Agreement.

20.0 FILING A PROTEST.

- A. A Bidder may submit written protest of the proposed award of a competitive sealed bid by the Haines Borough within 7 days of the bid opening. The protest shall clearly detail the basis for the protest.
- B. Late protests shall not be considered by the Haines Borough.

21.0 PERMITS. The CONTRACTOR is responsible for all WORK associated with meeting any local, state, and/or federal permit requirements.

22.0 PROJECT FUNDING. This project is funded in part by a Federal US. Environmental Protection Agency Grant and by State grants and funds provided by the Haines Borough.

SECTION 00100 - INSTRUCTIONS TO BIDDERS

22.0 DBE/MBE/WBE REQUIREMENTS. This project is funded in part by a Federal US. Environmental Protection Agency Grant and by State grants and loans. The CONTRACTOR shall comply with the State and Federal Disadvantaged Business Enterprise (DBE) and the Small, Women and Minority Business Enterprises (MBE/WBE) requirements contained in Section 00400 DBE, EEO and Affirmative Action.

END OF SECTION

SECTION 00300 - BID

BID TO: THE HAINES BOROUGH

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the OWNER on the form included in the Contract Documents (as defined in Article 7 of Section 00500 - Agreement) to perform the WORK as specified or indicated in said Contract Documents entitled

Barnett Drive Bolted Steel Water Tank

2. Bidder accepts all of the terms and conditions of the Contract Documents, including without limitation those in the "Notice Inviting Bids" and "Instructions to Bidders," dealing with the disposition of the Bid Security.
3. This Bid will remain open for the period stated in the "Notice Inviting Bids" unless otherwise required by law. Bidder will enter into an Agreement within the time and in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders," and will furnish insurance certificates, Payment Bond, Performance Bond, and any other documents as may be required by the Contract Documents.
4. Bidder has familiarized itself with the nature and extent of the Contract Documents, WORK, site, locality where the WORK is to be performed, the legal requirements (federal, state and local laws, ordinances, rules, and regulations), and the conditions affecting cost, progress or performance of the WORK and has made such independent investigations as Bidder deems necessary.
5. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.
6. To all the foregoing, and including all Bid Schedule and information required of Bidder contained in this Bid Form, said Bidder further agrees to complete the WORK required under the Contract Documents within the Contract Time stipulated in said Contract Documents, and to accept in full payment therefor the Contract Price based on the total bid price(s) named in the aforementioned Bid Schedule.
7. Bidder has examined copies of all the Contract Documents including the following Addenda (receipt of all of which is hereby acknowledged by the Undersigned):

Addenda No.	Date Issued	Addenda No.	Date Issued

Give number and date of each Addenda above. Failure to acknowledge receipt of all Addenda will cause the Bid to be non-responsive and shall cause its rejection.

8. The Bidder has read this Bid and agrees to the conditions as stated herein by signing its signature in
Haines Borough **BID**
Barnett Drive Bolted Steel Water Tank **Page 00300-1**

SECTION 00300 - BID

the space provided below.

Dated: _____	Bidder: _____ (Company Name)
Alaska CONTRACTOR's Business License No: _____	By: _____ (Signature in Ink)
Alaska CONTRACTOR's License No: _____	Printed Name: _____ Title: _____
Telephone No: _____	Address: _____ (Street or P.O. Box)
Fax No: _____	_____ (City, State, Zip)

9. TO BE CONSIDERED, ALL BIDDERS MUST COMPLETE AND INCLUDE THE FOLLOWING AT THE TIME OF THE BID OPENING:

- Signed Bid, Section 00300 (includes Addenda receipt statement)
- Completed Bid Schedule, Section 00310
- Bid Security (Bid Bond, Section 00320, or by a certified or cashier's check as stipulated in the Notice Inviting Bids, Section 00030)
- Alaska Department of Environmental Conservation DBE (Minority and Women-Owned Business Enterprises) Compliance Statement (Section 00400).
- Copy of current Alaska Business License
- Copy of current Haines Borough Business License (or proof of registration and payment; forms are available on the Borough's website: www.hainesalaska.gov/forms)

10. The apparent low Bidder is required to complete and submit the following documents by 4:30 p.m. on the ***fifth business day*** following the date of the Bid Opening.

- Subcontractor Report, Section 00360

The apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in Section 00360 – Subcontractor Report will be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER will then consider the next lowest Bidder for award of the contract.

11. The successful Bidder will be required to submit, ***within ten Days (calendar)*** after the date of the "Notice of Intent to Award" letter, the following executed documents:

SECTION 00300 - BID

- Agreement Forms, Section (Section 00500)
- Performance Bond, Section (Section 00610)
- Payment Bond, Section (Section 00620)
- Certificates of Insurance, (CONTRACTOR) Section 00700 and Section 00800
- One executed copy of each subcontract for WORK that exceeds one half of one percent of the intended contract award amount.
- EEO Statement of Acknowledgement (Section 00400)
- DBE Participation Report (Section 00400)
- DBE Contact Documentation (if bidder did not meet established goal) (Section 00400)
- DBE Subcontractor Performance Form ADEC/EPA 6100-3 (Section 00400)
- DBE Subcontractor Utilization Form ADEC/EPA 6100-4 (Section 00400)
- EEO Employer Information Report

END OF SECTION

SECTION 00310 - BID SCHEDULE

Schedule of lump sum price for construction of the **Haines Barnett Drive Bolted Steel Water Tank** in accordance with the Contract Documents.

BASE BID - Furnish all labor and materials and perform all WORK as described in these Contract Documents.

BASE BID PRICE \$ _____
(PRICE IN FIGURES)

\$ _____
(PRICE IN WORDS)

Date: _____

Bidder: _____

By: _____

Title: _____

SECTION 00320 - BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that _____
_____ as Principal, and _____
as Surety, are held and firmly bound unto **THE HAINES BOROUGH** hereinafter called
"OWNER," in the sum of _____
_____ dollars, (not less than five percent of the total amount of the Bid) 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.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required
under the Bid Schedule of the OWNER's Contract Documents entitled

Barnett Drive Bolted Steel Water Tank

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and
in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders" enters into a written
Agreement on the form of Agreement bound with said Contract Documents, furnishes the required certificates
of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be
null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by
said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit,
including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this _____ day of _____, 20__

(SEAL) _____
(Principal)

(SEAL) _____
(Surety)

By: _____
(Signature)

By: _____
(Signature)

END OF SECTION

SECTION 00360 - SUBCONTRACTOR REPORT

LIST OF SUBCONTRACTORS (AS 36.30.115)

The apparent low Bidder must submit a list of Subcontractors that the Bidder proposes to use in the performance of this contract *by the fifth business day* following the Bid Opening. If the fifth day Day falls on a weekend or holiday, the report is due by close of business on the next business Day following the weekend or holiday. The Subcontractor Report list must include each Subcontractor's name, address, location, evidence of valid Alaska Business License, and valid Alaska Contractor's Registration under AS 08.18. *If no Subcontractors are to be utilized in the performance of the WORK, write in ink or type "NONE" on line (1) below.*

<u>SUBCONTRACTOR</u>	¹ AK Contractor <u>License No.</u>	¹ <u>Contact Name</u>	<u>Type of</u>	<u>Contract</u>	✓ if <u>DBE</u>
<u>ADDRESS</u>	² AK Business <u>License No.</u>	² <u>Phone No.</u>	<u>Work</u>	<u>Amount</u>	
1. _____ _____ _____	1 _____ 2 _____	_____ _____	_____ _____	\$ _____	<input type="checkbox"/>
2. _____ _____ _____	1 _____ 2 _____	_____ _____	_____ _____	\$ _____	<input type="checkbox"/>
3. _____ _____ _____	1 _____ 2 _____	_____ _____	_____ _____	\$ _____	<input type="checkbox"/>
4. _____ _____ _____	1 _____ 2 _____	_____ _____	_____ _____	\$ _____	<input type="checkbox"/>

I certify that the above listed Alaska Business License(s) and CONTRACTOR Registration(s), if applicable, were valid at the time Bids were opened for this Project.

CONTRACTOR, Authorized Signature

CONTRACTOR, Printed Name

SECTION 00360 - SUBCONTRACTOR REPORT

- A. A Bidder may replace a listed Subcontractor if the Subcontractor:
1. fails to comply with AS 08.18;
 2. files for bankruptcy or becomes insolvent;
 3. fails to execute a contract with the Bidder involving performance of the WORK for which the Subcontractor was listed and the Bidder acted in good faith;
 4. fails to obtain bonding;
 5. fails to obtain insurance acceptable to the OWNER;
 6. fails to perform the contract with the Bidder involving work for which the Subcontractor was listed;
 7. must be substituted in order for the CONTRACTOR to satisfy required state and federal affirmative action requirements;
 8. refuses to agree or abide with the Bidder's labor agreement; or
 9. is determined by the OWNER not to be responsible.
- B. If a Bidder fails to list a Subcontractor or lists more than one Subcontractor for the same portion of WORK, the Bidder shall be considered to have agreed to perform that portion of WORK without the use of a Subcontractor and to have represented the Bidder to be qualified to perform that WORK.
- C. A Bidder who attempts to circumvent the requirements of this section by listing as a Subcontractor another contractor who, in turn, sublets the majority of the WORK required under the contract violates this section.
- D. If a contract is awarded to a Bidder who violates this section, the OWNER may:
1. cancel the contract; or
 2. after notice and a hearing, assess a penalty on the Bidder in an amount that does not exceed 10 percent of the value of the subcontract at issue.
- E. For contract award, the apparent low Bidder must submit one copy of each subcontract, to the Owner, for WORK with a value of greater than one half of one percent of the intended award amount.
- F. An apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in this section will be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER will then consider the next lowest Bidder for award of the contract.

END OF SECTION

SECTION 00400 – ADEC DBE,EEO AND AFFIRMATIVE ACTION

**STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALASKA CLEAN WATER FUND AND ALASKA DRINKING WATER FUND
DISADVANTAGED BUSINESS ENTERPRISES OVERVIEW**

Project receiving State of Alaska Department of Environmental Conservation loans will require Contractor's to comply with the following Disadvantaged Business Enterprise Program. Section 00400 is attached and requirements are outlined herein. You will find in this Section:

ADEC Disadvantaged Business Enterprise Overview	6 Pages
ADEC DBE Compliance Statement	1 page
EEO Acknowledgment Statement	1 page
ADEC DBE Participation Report	1 page
ADEC DBE Contact Documentation	1 page
ADEC/EPA Form 6100-2 DBE Subcontractor Participation	1 page
ADEC/EPA Form 6100-3 DBE Subcontractor Performance	1 page
ADEC/EPA Form 6100-4 DBE Subcontractor Utilization	1 page
EEO Employer Information Report EEO-1	2 pages

The Alaska Unified Certification Program (AUCP) DBE directory is available at the following website:

<http://www.dot.state.ak.us/cvlrts/directory.shtml>

**STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALASKA CLEAN WATER FUND & ALASKA DRINKING WATER FUND**

**DISADVANTAGE BUSINESS ENTERPRISES
OVERVIEW**

The loan recipient, consultant and contractor of an Alaska Clean Water or Drinking Water Fund revolving loan project are required to comply with EPA regulations (40 CFR Part 33) concerning the use of disadvantage owned businesses enterprises (DBE). Also required is compliance with EEO/Affirmative Action Regulations of the Department of Labor (see attached Statement of Acknowledgement). These regulations help ensure that economic opportunities are available to all people of this country.

The expenditure of Federal funds must reflect equal opportunity, anti-discrimination provisions of the 1964 Civil Rights Act, affirmative action and DBE or more specifically small, minority and women-owned businesses utilization under EPA's DBE program. Utilization may be through prime contracting, subcontracting, joint-venture, procurement of supplies, material or equipment, or other business participation utilized in completing a project. For all situations, contractors must take necessary and reasonable steps to ensure DBE's have the maximum opportunity to compete for and/or perform contracts. Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of projects where assistance is provided from an ADEC revolving loan fund program.

NOTE: On March 26, 2008, the Environmental Protection Agency (EPA) Office of Small Business Programs (OSBP) published its final rule, "Participation by Disadvantaged Business Enterprises in Procurement under Environmental Protection Agency Financial Assistance Agreements (DBE Rule) in the Federal Register (40 CFR part 30-40). The final rule took effect on May 25, 2008. The EPA DBE Program encompasses many of the components of the former MBE/WBE Program and also includes changes.

Some changes are:

- Creation of the Disadvantaged Business Enterprise (DBE) Program (formerly the Minority Business Enterprise/Women's Business Enterprise (MBE/WBE) Program).
- Recipients receiving a total of \$250K or less in financial assistance in a given fiscal year are exempt from this requirement.
- The "Six Affirmative Steps" and "Six Positive Efforts" were combined into the "Six Good Faith Efforts."
- A recipient must require its prime contractor to pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the recipient.

- The loan recipient must be notified in writing by its prime contractor prior to any termination of a DBE subcontractor.
- If a DBE subcontractor fails to complete work under the subcontract for any reason, the prime contractor must use the Six Good Faith Efforts in selecting a replacement subcontractor.
- The prime contractor must employ the Six Good Faith Efforts even if the prime has achieved its Fair Share Objectives.
- Recipients who reported quarterly under the old MBE/WBE program will now report semi-annually.
- MBE's and WBE's can no longer self-certify. They must be certified by EPA, Small Business Administration (SBA), Department of Transportation (DOT) or by state, local, Tribal or private entities whose certification criteria match EPA's. (MBEs and WBEs must be certified in order to be counted toward a recipient's MBE/WBE accomplishments.) The new requirements affect all financial assistance agreements entered into from the effective date of the rule (May 25, 2008). The new DBE rule won't affect those financial assistance agreements entered into before May 25, 2008; those will still operate under the old MBE/WBE program requirements.

SUMMARY OF GOALS

Stated simply, in meeting DBE goals under this program, the prime contractor must either 1) achieve the goal of contracting to Minority or Women-Owned Enterprises (MBE/WBE), or 2) follow the proper procedures in thoroughly documenting good faith efforts to achieve MBE/WBE goal participation. A prime contractor who is an MBE/WBE firm can also be counted towards the goal.

REQUIREMENTS

A. Definitions

- Disadvantaged Business Enterprise – Per EPA requirements for projects funded under the Alaska Drinking Water Fund and Alaska Clean Water Fund loan programs, Disadvantage Business Enterprises only include entities owned and/or controlled by socially and economically disadvantaged individuals (as described in 4242 USC 7601 and 42 USC 4370d) – which includes Women's Business Enterprises (WBE) and Minority Business Enterprises (MBE). (for more information go to: <http://www.epa.gov/osbp/grants.htm>)

- Minority Business Enterprise or Women Owned Business Enterprise – means a small business concern which is owned and controlled by one or more minorities or women. Owned and controlled means a business:
 1. Which is at least 51 percent owned by one or more minorities or women, or in the case of a publicly owned business, at least 51% of the stock is owned by one or more minorities or women;
 2. Whose management and daily business operations are controlled by one or more such individuals.

- Socially Disadvantage Individual – means a person who is a citizen or lawful permanent resident of the United States and who is:
 - o Black;
 - o Hispanic;
 - o Portuguese;
 - o Asian American;
 - o American Indian and Alaskan Native; and
 - o Members of other groups, or other individuals, found to be economically and socially disadvantaged by the United States Small Business Administration under section 8(a) of the federal Small Business Act.

- Economically Disadvantaged Individual – those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital or credit opportunities, as compared to others in the same business area who are not socially disadvantaged.

B. Implementation for DBE Procurement

As part of ADEC’s capitalization grants for both the ADWF and ACWF loan programs, the programs have an overall Fair Share (or utilization goal) objective of: 4.58% for MBE entities and 2.04% for WBE entities for construction; 3.22% for MBE entities and 2.54% for WBE entities for services; and, 2.06% for MBE entities and 1.29% for WBE entities for supplies. The loan recipient, engineering firm responsible for construction phase services, and prime contractor are required to adopt this same fair objective. The fair share objective is not a quota, EPA cannot penalize ADEC, the loan recipient, engineering firm, of the prime contractor for not meeting MBE or WBE participation objectives.

The prime contractor and consulting engineer responsible for construction phase services are required to make the good faith efforts and apply necessary administrative requirements. If the good faith efforts are not made when subcontracts are considered for the prime construction contract or for engineering construction phase services, the ability of ADEC to fund the project, or portion thereof, may be jeopardized.

C. How To Count DBE (MBE/WBE) Goals

The proposed MBE/WBE firms to be used must be declared by the Bidder before contract award. The MBE/WBE may act as a prime contractor, subcontractor, joint venture partner, or supplier. To be counted toward a goal, the MBE/WBE must perform a commercially useful function. To calculate the minimum dollar value for MBE/WBE participation, multiply the total estimated contract price (including additives or alternates, if any) by the goal percentage.

D. How To Obtain DBE (MBE/WBE) Participation

Prior to the scheduled pre-bid conference, solicit MBE/WBE participation to meet the goal. By contract award, the Bidder must either meet the goal or have made good faith efforts to do so. Good faith efforts include, but are not limited to the following:

1. Including qualified small, minority and women's business enterprises on solicitation lists.
2. Assuring that small, minority and women's businesses are solicited. If the MBE/WBE is only certified as a DBE, such as through the Alaska Department of Transportation, and the bidder has exhausted all efforts to determine the subcontractor MBE/WBE status, the bidder may document either category of certification to meet goal objectives.
3. Dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of small, minority and women's businesses.
4. Establish delivery schedules, where requirements of the work permit, which will encourage participation by small, minority and women's businesses.
5. Using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce, as appropriate.
6. If the prime contractor or proposer awards subcontracts/procurements, require the subcontractor to take the affirmative steps 1 through 5 above.

E. How To Credit DBE (MBE/WBE) Participation

If the Bidder's firm is a qualified Minority or Women-Owned Business Enterprise, credit will be given for the portion of the contract for which the Bidder performs a commercially useful function, and for that portion that is subcontracted to other MBE/WBE firms. For example, a MBE/WBE prime contractor proposes to perform 60% of a project quoted at \$500,000, and subcontracts 20% to a majority firm and the remaining 20% to another MBE/WBE. This means the credited MBE/WBE participation will be 80% for the project (60% + 20%) or \$400,000.

F. The DBE (MBE/WBE) Reporting Package

To meet the MBE/WBE reporting requirements of the program, the following forms need to be submitted during the course of bidding, contract award, and administration of this project:

1. COMPLIANCE STATEMENT - acknowledges the MBE/WBE requirement by the bidder. It must be provided with the bid.
2. REPORT OF PARTICIPATION – documents the level of anticipated MBE/WBE participation. It is submitted after bid opening, but before contract award.
3. CONTACT DOCUMENTATION – documents the efforts taken to attain the MBE/WBE goals and it, or other documentation should be submitted with the Report of Participation if the bidder did not meet the established goal.
4. GOOD FAITH EFFORTS – Forms 6100-2, -3 and -4 that identify subcontractor participation, performance and utilization, respectively.

Form 6100-2: This form gives a DBE subcontractor the opportunity to describe the work the DBE subcontractor received from the prime contractor, how much the DBE subcontractor was paid, and any other concerns the DBE subcontractor might have.

This form must be provided to the DBE subcontractor. If the form is submitted by the DBE subcontractor it must be maintained in the file with the prime's contract.

Form 6100-3: This form captures an intended subcontractor's description of work to be performed for the prime contractor and the price of the work submitted to the prime.

This form must be **fully completed and signed** by every DBE subcontractor and the prime contractor and submitted as part of the bid or proposal package. It must be maintained in the file with the prime's contract.

Form 6100-4: This form captures the prime's intended use of an identified DBE subcontractor, and the dollar amount of the subcontract.

This form must be **fully completed and signed** by the prime contractor and submitted as part of the bid or proposal package. It must be maintained in the file with the prime's contract.

5. CONTRACT & PROCUREMENT SEMI-ANNUAL REPORT – documents the actual MBE/WBE contracts executed by the Prime Contractor and submitted to the Community/Owner. In the first week of April (reporting period, Oct – Mar) and October (reporting period, Apr – Sep), the Community/Owner will submit a listing of the executed contracts (for the previous reporting) to the Alaska Department of Environmental Conservation through use of “SRF LOAN - MBE/WBE UTILIZATION FORM.”(<http://dec.alaska.gov/water/OASysHelp/attachments/SRFAssistanceForm.pdf>)

G. Create and Maintain a Bidders List

Any entity that receives an ACWF or ADWF SRF loan is required to create and maintain a bidders list if the loan recipient is subject to, or chooses to follow, competitive bidding requirements. **The list must include all firms that bid or quote on prime contracts, or bid or quote subcontracts, including both MBE/WBEs and non-MBE/WBEs** and must be maintained until the end of the project.

H. DBE Anti-Discrimination Contract Clause

Under 40 CFR part 33, Appendix A, the following statement must be included in **every contract** issued by an ACWF/ADWF borrower to a prime contractor. The statement cannot be changed, modified, or altered in any way.

"The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies."

**STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

**DISADVANTAGE BUSINESS ENTERPRISES
(MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES)
COMPLIANCE STATEMENT**

To be eligible for award of this contract, the bidder/proposer must execute and submit, as part of his or her bid proposal, this statement relating to Disadvantage Business Enterprises (Minority and Woman-Owned Business Enterprises). This statement shall be deemed a material factor in the City's evaluation of this bid proposal. Failure to complete and submit this statement, or the inclusion of a false statement, shall render the bid proposal non-responsive.

The _____ (Company Name) acknowledges that Minority/Woman-Owned Business Enterprises (MBE/WBE) goal of ____%¹ participation (with a good faith effort of ____%² MBE and ____%³ WBE) has been established for this contract, and hereby assures that it will meet the goal or provide documentation to show that the mandatory good faith efforts have been made.

The undersigned certifies that this bidder/proposer is aware of and will comply with MBE/WBE goals of this project and all applicable federal and state statutes and regulations concerning Disadvantage Business Enterprises (Minority and Woman-owned Business Enterprises).

We certify that should we be declared successful bidder/best proposer we shall submit such data as required for award of the contract within the time limits set forth in the contract specifications unless otherwise specified. In addition, we acknowledge that Minority/Woman-Owned Business Enterprises Contract and Procurement Reports will be submitted to the City for each half year of active construction.

We understand that if we are the successful bidder/best proposer and we fail to meet the MBE and/or WBE goals, or fail to demonstrate that we have made the required good faith effort the City can render the bid proposal non-responsive.

Company Name _____ RFP/Contract _____

Authorized Signature _____

Title _____

Type	¹ Total	² MBE%	³ WBE%
Construction	6.62%	4.58%	2.04%
Services	5.76%	3.22%	2.54%
Supplies	3.35%	2.06%	1.29%

**STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

**EQUAL EMPLOYMENT OPPORTUNITY
STATEMENT OF ACKNOWLEDGEMENT**

This statement of acknowledgement is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)) and must be completed by each Bidder and proposed Subcontractor participating in this contract.

PLEASE CHECK THE APPROPRIATE BOXES

THE Bidder proposed Subcontractor hereby **CERTIFIES:**

PART A. Bidders and proposed subcontractors with 50 or more employees and a federal contract amounting to \$50,000 or more are required to submit one federal Standard Report Form 100 during each year the two conditions (50 employees and a \$50,000 federal contract) exist.

The company named below (Part C) is exempt from the requirements of submitting the Standard Report Form 100 this year.

NO (go to PART B) YES (go to PART C)

PART B. The company named below (Part C) has submitted the Standard Report Form 100 this year, or intends to at this time.

NO YES

NOTE: Bidders and proposed Subcontractors who file Standard Report Form 100 may also be required to file Form CC-257 Monthly Employment Utilization Report if the project has significant financial impact on a community, or the bidder/subcontractor has signed an agreement to do so. At a minimum, the bidder/subcontractor is required to maintain records which reflect the reporting requirements of CC-257. Standard Report Form 100 and instructions may be obtained by writing to:

EEO-1 Joint Reporting Committee
P.O. Box 19100
Washington, DC 20036-9100
Telephone (866) 286-6440
Email: el.techassistance@eoc.gov

PART C.

Signature of Authorized Representative of Company

Date

Name of Company

(_____)_____
Telephone No.

Address of Company

Zip Code

Project Name

Contract Number

**STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

**DISADVANTAGE BUSINESS ENTERPRISES
(MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES)
REPORT OF PARTICIPATION**

Project Name _____ RFP/Contract No. _____

Company Name _____ Prepared By _____

The successful bidder/proposer must complete and submit this form after bid time, but prior to contract award. Please list below the name and address of each DBE (MBE/ WBE) subcontractor who will perform work under this contract, along with the contracted amount that will be applicable to the goal. Indicate whether the firm is MBE or WBE, and include your own firm if MBE/WBE eligible. A proposal submitted without adequate MBE/WBE participation or showing of good faith efforts to achieve such participation can render the bid proposal non-responsive. One copy of each executed MBE/WBE subcontract must be provided to the City by the successful prime contractor. Any changes to the list below must have prior approval by the City. Please note, if the MBE/WBE is only certified as a DBE, such as through the Alaska Department of Transportation, and the bidder has exhausted all efforts to determine the subcontractor MBE/WBE status, the bidder may document either category of certification to meet goal objectives.

Firm Name	AK Contractor's License No.	Contact Name & Phone No.	Type of Work	Contract Amount	MBE/WBE
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____
_____	_____	_____	_____	\$ _____	_____

Contract(s) Total: \$ _____ MBE/WBE Goal: _____ % Achieved: _____ % = \$ _____

Authorized Representative's Signature _____ Date _____

**STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DISADVANTAGE BUSINESS ENTERPRISES
(MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISES)
CONTACT DOCUMENTATION**

Project Name _____ **RFP/Contract No.** _____

Company Name _____ **Authorized Signature/Title** _____

This form is provided for your convenience to document your efforts in meeting DBE (MBE/WBE) utilization goals. You may use additional sheets if needed. If you do not meet the MBE/WBE goal, you may return this form, or other supporting documentation (explanations, advertising notices, solicitations, etc.) with your MBE/WBE Report of Participation.

Firm _____ **MBE** _____ **WBE** _____
Address _____

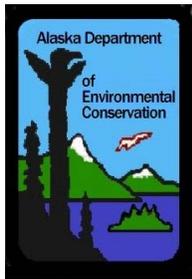
Type of Work _____ **Bid Amount \$** _____
Dates of Contact _____
Method of Contact _____
Contact's Name _____
Results of Contact _____
If rejected, why _____

Firm _____ **MBE** _____ **WBE** _____
Address _____

Type of Work _____ **Bid Amount \$** _____
Dates of Contact _____
Method of Contact _____
Contact's Name _____
Results of Contact _____
If rejected, why _____

Firm _____ **MBE** _____ **WBE** _____
Address _____

Type of Work _____ **Bid Amount \$** _____
Dates of Contact _____
Method of Contact _____
Contact's Name _____
Results of Contact _____
If rejected, why _____



Disadvantage Business Enterprise Program

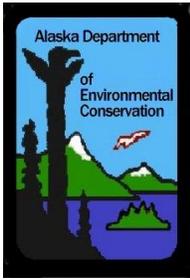
DBE Subcontractor Participation Form

NAME OF SUBCONTRACTOR*:	PROJECT NAME:
ADDRESS:	CONTRACT NO:
TELEPHONE NO:	E-MAIL ADDRESS:
PRIME CONTRACTOR NAME:	

Please use the space below to report any concerns regarding the above State-funded project (e.g., reason for termination by prime contractor, late payment, etc.).

CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES RECEIVED FROM THE PRIME CONTRACTOR	AMOUNT SUBCONTRACTOR WAS PAID BY PRIME CONTRACTOR
<hr style="width: 80%; margin-left: 0;"/> Subcontractor Signature		<hr style="width: 80%; margin-left: 0;"/> Title/Date

*Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an ADED award of financial assistance.

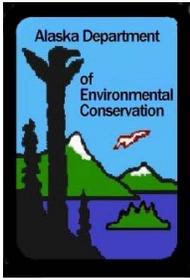


Disadvantage Business Enterprise Program

DBE Subcontractor Performance Form

NAME OF SUBCONTRACTOR*:		PROJECT NAME:
ADDRESS:		BID/PROPOSAL NO.:
TELEPHONE NO.:		E-MAIL ADDRESS:
PRIME CONTRACTOR NAME:		
CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES BID TO PRIME	PRICE OF WORK SUBMITTED TO PRIME CONTRACTOR
<p>Currently certified as an MBE or WBE under EPA's DBE Program? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Signature of Prime Contractor, Date, Print Name & Title</p> <p>_____</p> <p>Signature of Prime Contractor Date</p> <p>_____</p> <p>Print Name Title</p> <hr/> <p>Signature of Subcontractor, Date, Print Name & Title</p> <p>_____</p> <p>Signature of Subcontractor Date</p> <p>_____</p> <p>Print Name Title</p>		

*Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an ADED award of financial assistance.



Disadvantage Business Enterprise Program

DBE Subcontractor Utilization Form

BID/PROPOSAL NO.:	PROJECT NAME:
NAME OF PRIME BIDDER/PROPOSER:	E-MAIL ADDRESS:
ADDRESS:	
TELEPHONE NO.:	FAX NO.:

The following subcontractors will be used on this project:			
COMPANY NAME, ADDRESS, PHONE NUMBER, AND E-MAIL ADDRESS	TYPE OF WORK TO BE PERFORMED	ESTIMATED DOLLAR AMOUNT	CURRENTLY CERTIFIED AS AN MBE OR WBE?

I certify under penalty of perjury that the forgoing statements are true and correct. In the event of a Replacement of a subcontractor, I will adhere to the replacements set forth in 40 CFR Part 33 Section 33.302(c).

Signature of Prime Contractor	Date
Print Name	Title

*Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an ADED award of financial assistance.

- Joint Reporting Committee
- Equal Employment Opportunity Commission
 - Office of Federal Contract Compliance Programs (Labor)

EQUAL EMPLOYMENT OPPORTUNITY

EMPLOYER INFORMATION REPORT EEO-1

Standard Form 100
REV. 01/2006

O.M.B. No. 3045-0007
EXPIRES 01/2009
100-214

Section A—TYPE OF REPORT

Refer to instructions for number and types of reports to be filed.

1. Indicate by marking in the appropriate box the type of reporting unit for which this copy of the form is submitted (MARK ONLY ONE BOX).

(1) Single-establishment Employer Report

Multi-establishment Employer:

(2) Consolidated Report (Required)

(3) Headquarters Unit Report (Required)

(4) Individual Establishment Report (submit one for each establishment with 50 or more employees)

(5) Special Report

2. Total number of reports being filed by this Company (Answer on Consolidated Report only) _____

Section B—COMPANY IDENTIFICATION (To be answered by all employers)

1. Parent Company					OFFICE USE ONLY
a. Name of parent company (owns or controls establishment in item 2) omit if same as label					a.
Address (Number and street)					b.
City or town	State	ZIP code			c.
2. Establishment for which this report is filed. (Omit if same as label)					
a. Name of establishment					d.
Address (Number and street)	City or Town	County	State	ZIP code	e.
b. Employer identification No. (IRS 9-DIGIT TAX NUMBER)					f.
c. Was an EEO-1 report filed for this establishment last year? <input type="checkbox"/> Yes <input type="checkbox"/> No					

Section C—EMPLOYERS WHO ARE REQUIRED TO FILE (To be answered by all employers)

<input type="checkbox"/> Yes	<input type="checkbox"/> No	1. Does the entire company have at least 100 employees in the payroll period for which you are reporting?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	2. Is your company affiliated through common ownership and/or centralized management with other entities in an enterprise with a total employment of 100 or more?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	3. Does the company or any of its establishments (a) have 50 or more employees AND (b) is not exempt as provided by 41 CFR 60-1.5, AND either (1) is a prime government contractor or first-tier subcontractor, and has a contract, subcontract, or purchase order amounting to \$50,000 or more, or (2) serves as a depository of Government funds in any amount or is a financial institution which is an issuing and paying agent for U.S. Savings Bonds and Savings Notes?
If the response to question C-3 is yes, please enter your Dun and Bradstreet identification number (if you have one): <input style="width: 100px;" type="text"/>		

NOTE: If the answer is yes to questions 1, 2, or 3, complete the entire form, otherwise skip to Section G.

Section D-EMPLOYMENT DATA

Employment at this establishment - Report all permanent full- and part-time employees including apprentices and on-the-job trainees unless specifically excluded as set forth in the instructions. Enter the appropriate figures on all lines and in all columns. Blank spaces will be considered as zeros.

Job Categories	Number of Employees (Report employees in only one category)														
	Race/Ethnicity														
	Hispanic or Latino		Not-Hispanic or Latino												Total Col A - N
	Male	Female	Male						Female						
White			Black or African American	Native Hawaiian or Other Pacific Islander	Asian	American Indian or Alaska Native	Two or more races	White	Black or African American	Native Hawaiian or Other Pacific Islander	Asian	American Indian or Alaska Native	Two or more races		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
Executive/Senior Level Officials and Managers 1.1															
First/Mid-Level Officials and Managers 1.2															
Professionals 2															
Technicians 3															
Sales Workers 4															
Administrative Support Workers 5															
Craft Workers 6															
Operatives 7															
Laborers and Helpers 8															
Service Workers 9															
TOTAL 10															
PREVIOUS YEAR TOTAL 11															

1. Date(s) of payroll period used: _____ (Omit on the Consolidated Report.)

Section E - ESTABLISHMENT INFORMATION (Omit on the Consolidated Report.)

1. What is the major activity of this establishment? (Be specific, i.e., manufacturing steel castings, retail grocer, wholesale plumbing supplies, title insurance, etc. Include the specific type of product or type of service provided, as well as the principal business or industrial activity.)

Section F - REMARKS

Use this item to give any identification data appearing on the last EEO-1 report which differs from that given above, explain major changes in composition of reporting units and other pertinent information.

Section G - CERTIFICATION

Check 1 All reports are accurate and were prepared in accordance with the instructions. (Check on Consolidated Report only.)
 one 2 This report is accurate and was prepared in accordance with the instructions.

Name of Certifying Official	Title	Signature	Date
Name of person to contact regarding this report	Title	Address (Number and Street)	
City and State	Zip Code	Telephone No. (including Area Code and Extension)	Email Address

All reports and information obtained from individual reports will be kept confidential as required by Section 709(e) of Title VII. WILLFULLY FALSE STATEMENTS ON THIS REPORT ARE PUNISHABLE BY LAW, U.S. CODE, TITLE 18, SECTION 1001

SECTION 00500 - AGREEMENT

THIS AGREEMENT is between HAINES BOROUGH (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR) OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK.

CONTRACTOR shall complete the WORK as specified or as indicated under the Bid Schedule of the OWNER's Bid Documents entitled **Barnett Drive Bolted Steel Water Tank**

The WORK is generally described as follows: The WORK removing and disposing of an existing pump station building and concrete tank foundation, furnishing and installing a 39' diameter by 20' high bolted steel water tank with an aluminum geodesic dome roof and concrete foundation, furnishing and installing a submersible mixer in the tank and installation of approximately 70' of 8" ductile iron. It also includes associated site grading and other miscellaneous work.

The WORK to be paid under this contract shall include the following: Base Bid as shown in Section 00310 - Bid Schedule.

ARTICLE 2. CONTRACT COMPLETION TIME. All WORK within these Contract Documents shall be substantially completed August 1, 2013.

ARTICLE 3. DATE OF AGREEMENT

The date of this Agreement will be the date of the last signature on page three of this section.

ARTICLE 4. LIQUIDATED DAMAGES.

OWNER and the CONTRACTOR recognize that time is of the essence of this Agreement and that the OWNER will suffer financial loss if the WORK is not completed within the time specified in Article 2 herein, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual damages suffered by the OWNER if the WORK is not completed on time. Accordingly, instead of requiring any such proof, the OWNER and the CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) the CONTRACTOR shall pay the OWNER **\$1,000.00** for each Day that expires after the completion time specified in Article 2 herein. The amount of liquidated damages specified above is agreed to be a reasonable estimate based on all facts known as of the date of this Agreement.

ARTICLE 5. CONTRACT PRICE.

OWNER shall pay CONTRACTOR for completion of the WORK in accordance with the Contract Documents in the amount set forth in the Bid Schedule. The CONTRACTOR agrees to accept as full and complete payment for all WORK to be done in this contract for: **Barnett Drive Bolted Steel Water Tank**, the Lump Sum Price amount as set forth in the Bid Schedule in the Contract Documents for this Project.

The total amount of this contract shall be _____ (\$ _____), except as adjusted in accordance with the provisions of the Bid Documents.

SECTION 00500 - AGREEMENT

ARTICLE 6. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by the ENGINEER as provided in the General Conditions.

Progress payments will be paid in full in accordance with Article 14 of the General Conditions until ninety (90) percent of the Contract Price has been paid. The remaining ten (10) percent of the Contract Price may be retained, in accordance with applicable Alaska State Statutes, until final inspection, completion, and acceptance of the Project by the OWNER.

ARTICLE 7. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire Agreement between OWNER and CONTRACTOR concerning the WORK consist of this Agreement (pages 00500-1 to 00500-7, inclusive) and the following sections of the Contract Documents:

- Table of Contents (pages 00005-1 to 00005-2, inclusive)
- Notice Inviting Bids (pages 00030-1 to 00030-2, inclusive).
- Instructions to Bidders (pages 00100-1 to 00100-8, inclusive)
- Bid (pages 00300-1 to 00300-3, inclusive).
- Bid Schedule (pages 00310-1, inclusive).
- Bid Bond (page 00320-1, inclusive) or Bid Security.
- Subcontractor Report (pages 00360-1 to 00360-2, inclusive).
- DBE, EEO and Affirmative Action (16 pages inclusive)
- Performance Bond (pages 00610-1 to 00610-2, inclusive).
- Payment Bond (pages 00620-1 to 00620-2, inclusive).
- Insurance Certificate(s).
- General Conditions (pages 00700-1 to 00700-48, inclusive).
- Supplementary General Conditions (pages 00800-1 to 00800-4, inclusive).
- Alaska Labor Standards, Reporting, and Prevailing Wage Determination (page 00830-1).
- Technical Specifications as listed in the Table of Contents.
- Drawings, as listed in the Table of Contents.
- Addenda numbers ____ to ____, inclusive.
- Change Orders which may be delivered or issued after the Date of the Agreement and which are not attached hereto.

There are no Contract Documents other than those listed in this Article 7. The Contract Documents may only be amended by Change Order as provided in Paragraph 3.3 of the General Conditions.

ARTICLE 8. MISCELLANEOUS.

Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent

SECTION 00500 - AGREEMENT

(except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents. This Agreement shall be governed by the laws of the State of Alaska. Jurisdiction shall be in the State of Alaska, First Judicial District.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have caused this Agreement to be executed on the date listed below by OWNER.

OWNER:

CONTRACTOR:

_____ Haines Borough _____

_____ (Company Name) _____

_____ (Signature) _____

_____ (Signature) _____

By: _____ (Printed Name)

By: _____ (Printed Name, Authority or Title)

Date: _____

CONTRACTOR Signature Date: _____

OWNER's address for giving notices:

CONTRACTOR's address for giving notices:

_____ Haines Borough _____

_____ PO Box 1209 _____

_____ Haines, Alaska 99827 _____

_____ (Telephone) (Fax) _____

907-766-2231 907-766-2713

(Telephone) (Fax)

_____ (E-mail address) _____

Contractor License No. _____

SECTION 00500 - AGREEMENT

**CERTIFICATE
(if Corporation)**

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Board of Directors of the
_____ a corporation existing under the laws of
the State of _____, held on _____, 20____, the following resolution
was duly passed and adopted:

“RESOLVED, that _____, as _____ President
of the Corporation, be and is hereby authorized to **execute the Agreement** with the HAINES
BOROUGH and this corporation and that the execution thereof, attested by the Secretary of the
Corporation, and with the Corporate Seal affixed, shall be the official act and deed of this
Corporation.”

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the
corporation this _____ day of _____, 20_____.

Secretary

(SEAL)

SECTION 00500 - AGREEMENT

CERTIFICATE
(if Partnership)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Partners of the
_____ a partnership existing under the laws of the State
of _____, held on _____, 20____, the following resolution was duly
passed and adopted:

"RESOLVED, that _____, as _____ of the Partnership, be and is
hereby authorized to **execute the Agreement** with the HAINES BOROUGH and this partnership
and that the execution thereof, attested by the _____ shall be the official act
and deed of this Partnership."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of _____,
20_____.

Secretary

(SEAL)

SECTION 00500 - AGREEMENT

**CERTIFICATE
(if Joint Venture)**

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Principals of the
_____ a joint venture existing under the laws of the
State of _____, held on _____, 20____, the following resolution was duly passed and
adopted:

"RESOLVED, that _____, as _____ of the
Joint Venture, be and is hereby authorized to **execute the Agreement** with the HAINES
BOROUGH and this joint venture and that the execution thereof, attested by the
_____ shall be the official act and deed of this Joint Venture."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of
_____, 20_____.

Secretary

(SEAL)

END OF SECTION

SECTION 00610 - PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we _____
(Name of Contractor)

_____ a _____
(Corporation, Partnership, Individual)

hereinafter called "Principal" and _____
(Surety)

of _____, State of _____ hereinafter called the "Surety," are held and
firmly bound to the HAINES BOROUGH of HAINES, ALASKA hereinafter called "OWNER,"
(Owner) (City and State)

for the penal sum of _____

_____ dollars (\$ _____) in 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 whereas, the CONTRACTOR has entered
into a certain contract with the OWNER, the effective date of which is _____, a copy
of which is hereto attached and made a part hereof for the construction of:

Barnett Drive Bolted Steel Water Tank

NOW, THEREFORE, if the Principal shall truly and faithfully perform its duties, all the
undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof,
and any extensions thereof, which may be granted by the OWNER, with or without notice to the Surety, and
if it shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save
harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall
reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any
default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that 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 to the WORK to be performed
thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond,
and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of
the contract or to the WORK or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall
abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

SECTION 00610 - PERFORMANCE BOND

Barnett Drive Bolted Steel Water Tank

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

CONTRACTOR:

By: _____
(Signature)

(Printed Name)

(Company Name)

(Street or P.O. Box)

(City, State, Zip Code)

SURETY:

By: _____
(Signature of Attorney-in-Fact)

Date Issued: _____

(Printed Name)

(Company Name)

(Street or P.O. Box)

(City, State, Zip Code)

(Affix SURETY'S SEAL)

NOTE: If CONTRACTOR is Partnership, all Partners must execute bond.

END OF SECTION

SECTION 00620 - PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we _____
(Name of Contractor)

_____ a _____
(Corporation, Partnership, Individual)

hereinafter called "Principal" and _____
(Surety)

of _____, State of _____ hereinafter called the "Surety," are held and
firmly bound to the HAINES BOROUGH of HAINES, ALASKA hereinafter called "OWNER,"
(Owner) (City and State)

for the penal sum of _____

_____ dollars (\$_____) in 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 whereas, the CONTRACTOR has entered
into a certain contract with the OWNER, the effective date of which is _____, a copy
of which is hereto attached and made a part hereof for the construction of:

Barnett Drive Bolted Steel Water Tank

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms,
Subcontractors, and corporations furnishing materials for, or performing labor in the prosecution of the
WORK provided for in such contract, and any authorized extension or modification thereof, including all
amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools,
consumed or used in connection with the construction of such WORK, and all insurance premiums on said
work, and for all labor performed in such WORK, whether by Subcontractor or otherwise, then this obligation
shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that 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 to the work to be performed
thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond,
and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of
the contract or to the WORK or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall
abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

SECTION 00620 - PAYMENT BOND

Barnett Drive Bolted Steel Water Tank

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

CONTRACTOR:

By: _____
(Signature)

(Printed Name)

(Company Name)

(Street or P.O. Box)

(City, State, Zip Code)

SURETY:

By: _____
(Signature of Attorney-in-Fact)

Date Issued: _____

(Printed Name)

(Company Name)

(Street or P.O. Box)

(City, State, Zip Code)

(Affix SURETY'S SEAL)

NOTE: If CONTRACTOR is Partnership, all Partners must execute bond.

END OF SECTION

SECTION 00700 - GENERAL CONDITIONS

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SECTION 00700 - GENERAL CONDITIONS

ARTICLE 1 DEFINITIONS

Wherever used in these General Conditions or in the Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof. Where an entire word is capitalized in the definitions and is found not capitalized in the Contract Documents it has the ordinary dictionary definition.

Addenda - Written or graphic instruments issued prior to the opening of Bids which make additions, deletions, or revisions to the Contract Documents.

Agreement - The written contract between the OWNER and the CONTRACTOR covering the WORK to be performed; other documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form furnished by the ENGINEER which is to be used by the CONTRACTOR to request progress or final payment and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

Asbestos - Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the price or prices for the WORK.

Bonds - Bid, Performance, and Payment Bonds and other instruments which protect against loss due to inability or refusal of the CONTRACTOR to perform its contract.

Project Manager - The authorized representative of the Haines Borough, as OWNER, who is responsible for administration of the contract.

Change Order - A document recommended by the ENGINEER, which is signed by the CONTRACTOR and the OWNER and authorizes an addition, deletion, or revision in the WORK, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Documents - The Table of Contents, Notice Inviting Bids, Instructions to Bidders, Bid Forms (including the Bid, Bid Schedule(s), Information Required of Bidder, Bid Bond, and all required certificates and affidavits), Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary General Conditions, Technical Specifications, Drawings, Permits, and all Addenda, and Change Orders executed pursuant to the provisions of the Contract Documents.

Contract Price - The total monies payable by the OWNER to the CONTRACTOR under the terms and conditions of the Contract Documents.

Contract Time - The number of successive calendar Days stated in the Contract Documents for the completion of the WORK.

CONTRACTOR - The individual, partnership, corporation, joint-venture or other legal entity with whom the OWNER has executed the Agreement.

SECTION 00700 - GENERAL CONDITIONS

Day - A calendar day of 24 hours measured from midnight to the next midnight.

Defective WORK - WORK that is unsatisfactory, faulty, or deficient; or that does not conform to the Contract Documents; or that does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; or WORK that has been damaged prior to the ENGINEER's recommendation of final payment.

Drawings - The Drawings, plans, maps, profiles, diagrams, and other graphic representations which indicate the character, location, nature, extent, and scope of the WORK and which have been prepared by the ENGINEER and are referred to in the Contract Documents. Shop Drawings are not within the meaning of this paragraph.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

Engineer of Record - The individual, partnership, corporation, joint-venture or other legal entity named as such in the Contract Documents.

ENGINEER - The ENGINEER is the firm or person(s) selected by the Haines Borough to perform the duties of project inspection and management. The Owner will inform the CONTRACTOR of the identity of the ENGINEER.

Field Order - A written order issued by the ENGINEER which may or may not involve a change in the WORK.

General Requirements - Division 1 of the Technical Specifications.

Hazardous Waste - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 9603) as amended from time to time.

Holidays - The OWNER legal holidays occur on:

1. New Year's Day - January 1
2. Martin Luther King's Birthday - Third Monday in January
3. President's Day - Third Monday in February
4. Seward's Day - Last Monday in March
5. Memorial Day - Last Monday in May
6. Independence Day - July 4
7. Labor Day - First Monday in September
8. Alaska Day - October 18
9. Veteran's Day - November 11
10. Thanksgiving Day - Fourth Thursday and the following Friday in November
11. Christmas Day - December 25

If any holiday listed above falls on a Saturday, Saturday and the preceding Friday are both legal holidays. If the holiday should fall on a Sunday, Sunday and the following Monday are both legal holidays.

SECTION 00700 - GENERAL CONDITIONS

Inspector - The authorized representative of the ENGINEER assigned to make detailed inspections for conformance to the Contract Documents. Any reference to the Resident Project Representative in this document shall mean the Inspector.

Laws and Regulations; Laws or Regulations - Any and all applicable laws, rules, regulations, ordinances, codes, and/or orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

Mechanic's Lien - A form of security, an interest in real property, which is held to secure the payment of an obligation. When referred to in these Contract Documents, "Mechanic's Lien" or "lien" means "Stop Notice".

Milestone - A principal event specified in the Contract Documents relating to an intermediate completion date of a portion of the WORK, or a period of time within which the portion of the WORK should be performed prior to Substantial Completion of all the WORK.

Notice of Award - The written notice by the OWNER to the apparent successful bidder stating that the apparent successful bidder has complied with all conditions for award of the contract.

Notice of Completion - A form signed by the ENGINEER and the CONTRACTOR recommending to the OWNER that the WORK is Substantially Complete and fixing the date of Substantial Completion. After acceptance of the WORK by the OWNER's governing body, the form is signed by the OWNER and filed with the County Recorder. This filing starts the 30-day lien filing period on the WORK.

Notice to Proceed - The written notice issued by the OWNER to the CONTRACTOR authorizing the CONTRACTOR to proceed with the WORK and establishing the date of commencement of the Contract Time.

Notice of Intent to Award - The written notice by the OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the requirements listed therein, within the time specified, the OWNER will enter into an Agreement.

OWNER - The Haines Borough, acting through its legally designated officials, officers, or employees.

Partial Utilization - Use by the OWNER or a substantially completed part of the WORK for the purpose for which it is intended prior to Substantial Completion of all the WORK.

PCB's - Polychlorinated biphenyls.

PERMITTEE – See definition for CONTRACTOR.

Petroleum - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

Project - The total construction of which the WORK to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Radioactive Material - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

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Shop Drawings - All Drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the CONTRACTOR and submitted by the CONTRACTOR, to the ENGINEER, to illustrate some portion of WORK.

Specifications - Same definition as "Technical Specifications" hereinafter.

Stop Notice - A legal remedy for Subcontractors and suppliers who contribute to public works, but who are not paid for their WORK, which secures payment from construction funds possessed by the OWNER. For public property, the Stop Notice remedy is designed to substitute for mechanic's lien rights.

Sub-Consultant - The individual, partnership, corporation, joint-venture or other legal entity having a direct contract with ENGINEER, or with any of its Consultants to furnish services with respect to the Project.

Subcontractor - An individual, partnership, corporation, joint-venture or other legal entity having a direct contract with the CONTRACTOR, or with any of its Subcontractors, for the performance of a part of the WORK at the site.

Substantial Completion - Refers to when the WORK has progressed to the point where, in the opinion of the ENGINEER as evidenced by Notice of Completion as applicable, it is sufficiently complete, in accordance with the Contract Documents, so that the WORK can be utilized for the purposes for which it is intended; or if no such notice is issued, when final payment is due in accordance with Paragraph 14.8. The terms "substantially complete" and "substantially completed" as applied to any WORK refer to substantial completion thereof.

Supplementary General Conditions (SGC) - The part of the Contract Documents which make additions, deletions, or revisions to these General Conditions.

Supplier - A manufacturer, fabricator, supplier, distributor, materialman, or vendor.

Technical Specifications - Divisions 1 through 16 of the Contract Documents consisting of the General Requirements and written technical descriptions of products and execution of the WORK.

Underground Utilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: water, sewage and drainage removal, electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, traffic, or other control systems.

WORK - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. WORK is the result of performing, or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

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ARTICLE 2 PRELIMINARY MATTERS

- 2.1 DELIVERY OF BONDS/INSURANCE CERTIFICATES. When the CONTRACTOR delivers the signed Agreements to the OWNER, the CONTRACTOR shall also deliver to the OWNER such Bonds and Insurance Policies and Certificates as the CONTRACTOR may be required to furnish in accordance with the Contract Documents.
- 2.2 COPIES OF DOCUMENTS. The OWNER shall furnish to the CONTRACTOR the required number of copies of the Contract Documents specified in the Supplementary General Conditions.
- 2.3 COMMENCEMENT OF CONTRACT TIME; NOTICE TO PROCEED. The Contract Time will start to run on the commencement date stated in the Notice to Proceed.
- 2.4 STARTING THE WORK
- A. The CONTRACTOR shall begin to perform the WORK within 10 days after the commencement date stated in the Notice to Proceed, but no WORK shall be done at the site prior to said commencement date.
 - B. Before undertaking each part of the WORK, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. The CONTRACTOR shall promptly report in writing to the ENGINEER any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the ENGINEER before proceeding with any WORK affected thereby.
 - C. The CONTRACTOR shall submit to the ENGINEER for review those documents called for under Section 01300 - CONTRACTOR Submittals in the General Requirements.
- 2.5 PRE-CONSTRUCTION CONFERENCE. The CONTRACTOR is required to attend a Pre-Construction Conference. This conference will be attended by the ENGINEER and others as appropriate in order to discuss the WORK in accordance with the applicable procedures specified in the General Requirements, Section 01010 - Summary of WORK in the General Requirements.
- 2.6 FINALIZING CONTRACTOR SUBMITTALS. At least 7 days before submittal of the first Application for Payment a conference attended by the CONTRACTOR, the ENGINEER and others as appropriate will be held to finalize the initial CONTRACTOR submittals in accordance with the General Requirements. As a minimum the CONTRACTOR's representatives should include the project manager and schedule expert. The CONTRACTOR should plan on this meeting taking no less than 8 hours. If the submittals are not finalized at the end of the meeting, additional meetings will be held so that the submittals can be finalized prior to the submittal of the first application for payment. No application for payment will be processed until CONTRACTOR submittals are finalized.

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ARTICLE 3 CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 INTENT

- A. The Contract Documents comprise the entire Agreement between the OWNER and the CONTRACTOR concerning the WORK. The Contract Documents shall be construed as a whole in accordance with Alaska Law.
- B. It is the intent of the Contract Documents to describe the WORK, functionally complete, to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe work, materials, or equipment such words or phrases shall be interpreted in accordance with that meaning, unless a definition has been provided in Article 1 of the General Conditions. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the OWNER, the CONTRACTOR, or the ENGINEER or any of their consultants, agents, or employees from those set forth in the Contract Documents.
- C. If, during the performance of the WORK, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the WORK or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, the CONTRACTOR shall report it to the ENGINEER in writing at once, and the CONTRACTOR shall not proceed with the WORK affected thereby (except in an emergency as authorized by the ENGINEER) until a clarification field order, or Change Order to the Contract Documents has been issued.

3.2 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

- A. In resolving conflicts resulting from, errors, or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:
 - 1. Permits from other agencies as may be required by law, excepting the definition of "PERMITEE" in these permits.
 - 2. Field Orders
 - 3. Change Orders
 - 4. ENGINEER's written interpretations and clarifications.
 - 5. Agreement
 - 6. Addenda
 - 7. CONTRACTOR's Bid (Bid Form)
 - 8. Supplementary General Conditions
 - 9. Notice Inviting Bids

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10. Instructions to Bidders
11. General Conditions
12. Technical Specifications
13. Drawings

B. With reference to the Drawings the order of precedence is as follows:

1. Figures govern over scaled dimensions
2. Detail Drawings govern over general Drawings
3. Addenda/ Change Order drawings govern over Contract Drawings
4. Contract Drawings govern over standard drawings

3.3 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS. The Contract Documents may be amended to provide for additions, deletions, and revisions in the WORK or to modify the terms and conditions thereof by a Change Order (pursuant to Article 10 CHANGES IN THE WORK).

3.4 REUSE OF DOCUMENTS. Neither the CONTRACTOR, nor any Subcontractor or Supplier, nor any other person or organization performing any of the WORK under a contract with the OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Technical Specifications, or other documents used on the WORK, and they shall not reuse any of them on the extensions of the Project or any other project without written consent of the OWNER.

ARTICLE 4 AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

4.1 AVAILABILITY OF LANDS. The OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the WORK is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the OWNER, unless otherwise provided in the Contract Documents. Nothing contained in the Contract Documents shall be interpreted as giving the CONTRACTOR exclusive occupancy of the lands or rights-of-way provided. The CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment; provided, that the CONTRACTOR shall not enter upon nor use any property not under the control of the OWNER until a written temporary construction easement, lease or other appropriate agreement has been executed by the CONTRACTOR and the property owner, and a copy of said agreement furnished to the ENGINEER prior to said use; and, neither the OWNER nor the ENGINEER shall be liable for any claims or damages resulting from the CONTRACTOR's unauthorized trespass or use of any such properties.

4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES

A. Explorations and Reports. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those reports of explorations and tests of sub-surface conditions at the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, however, reports are not to be considered complete or comprehensive and nontechnical data, interpretations, and opinions contained in

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such reports are not to be relied on by the CONTRACTOR. The CONTRACTOR is responsible for any further explorations or tests that may be necessary and any interpretation, interpolation, or extrapolation that it makes of any information shown in such reports.

- B. Existing Structures. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Utilities referred to in Paragraph 4.4 herein) which are at or contiguous to the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, however, nontechnical data, interpretations, and opinions contained in such drawings are not to be relied on by the CONTRACTOR. The CONTRACTOR is also responsible for any interpretation, interpolation, or extrapolation that it makes of any information shown in such drawings.

4.3 DIFFERING SITE CONDITIONS

- A. The CONTRACTOR shall promptly upon discovery (but in no event later than 14 days thereafter) and before the following conditions are disturbed, notify the ENGINEER, in writing of any:
 - 1. Material that the CONTRACTOR believes may be material that is hazardous waste, as defined in Article 1 of these General Conditions, or asbestos, PCB's, petroleum or any other substance or material posing a threat to human or to the environment.
 - 2. Subsurface or latent physical conditions at the site differing from those indicated.
 - 3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the contract.
- B. The OWNER shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the CONTRACTOR's cost of, or the time required for, performance of any part of the WORK shall issue a Change Order under the procedures described in the contract.
- C. In the event that a dispute arises between the OWNER and the CONTRACTOR whether the conditions materially differ, or involved hazardous waste or other materials listed above, or cause a decrease or increase in the CONTRACTOR's cost of, or time required for, performance of any part of the WORK, the CONTRACTOR shall not be excused from any scheduled completion date provided for by the contract, but shall proceed with all WORK to be performed under the contract. The CONTRACTOR shall retain any and all rights provided either by contract or by Law which pertain to the resolution of disputes and protests between the contracting parties.

4.4 PHYSICAL CONDITIONS - UNDERGROUND UTILITIES

- A. Indicated. The information and data indicated in the Contract Documents with respect to existing Underground Utilities at or contiguous to the site are based on information and data furnished to the OWNER or the ENGINEER by the owners of such Underground Utilities or by others. Unless it is expressly provided in the Supplementary General Conditions and/or Section 01530 - Protection and Restoration of Existing Facilities of the General

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Requirements, the OWNER and the ENGINEER shall not be responsible for the accuracy or completeness of any such information or data, and the CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Utilities indicated in the Contract Documents, for coordination of the WORK with the owners of such Underground Utilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the WORK, the cost of which will be considered as having been included in the Contract Price.

- B. Not Indicated. If an Underground Utility is uncovered or revealed at or contiguous to the site which was not indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall identify the owner of such Underground Utility and give written notice thereof to that owner and shall notify the ENGINEER in accordance with the requirements of the Supplementary General Conditions and Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements.

4.5 REFERENCE POINTS

- A. The ENGINEER will provide one bench mark, near or on the site of the WORK, and will provide two points near or on the site to establish a base line for use by the CONTRACTOR for alignment control. Unless otherwise specified in the General Requirements, the CONTRACTOR shall furnish all other lines, grades, and bench marks required for proper execution of the WORK.
- B. The CONTRACTOR shall preserve all bench marks, stakes, and other survey marks, and in case of their removal or destruction by its own employees or by its Subcontractor's employees, the CONTRACTOR shall be responsible for the accurate replacement of such reference points by personnel qualified under the Alaska Statute governing the licensing of Architects, Engineers, and Land Surveyors.

ARTICLE 5 BONDS AND INSURANCE

5.1 PERFORMANCE, PAYMENT, AND OTHER BONDS

- A. The CONTRACTOR shall furnish, when required, Performance and Payment Bonds on forms provided by the OWNER for the penal sums of 100% of the amount of the Bid award. The surety on each bond may be any corporation or partnership authorized to do business in the State of Alaska as an insurer under AS 21.09. These bonds shall remain in effect for 12 months after the date of final payment and until all obligations and liens under this contract have been satisfied. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are 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 Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

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- B. If the surety on any Bond furnished by the CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days thereafter substitute another Bond and Surety, which must be acceptable to the OWNER.
- C. All Bonds required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety companies that are duly licensed or authorized in the State of Alaska to issue Bonds for the limits so required. Such surety companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions. The Engineer may, on behalf of the OWNER, notify the surety of any potential default or liability.

5.2 INSURANCE

- A. The CONTRACTOR shall purchase and maintain the insurance required under this paragraph. Such insurance shall include the specific coverages set out herein and be written for not less than the limits of liability and coverages provided in the Supplementary General Conditions, or required by law, whichever are greater. All insurance shall be maintained continuously during the life of the Agreement up to the date of Final Completion and at all times thereafter when the CONTRACTOR may be correcting, removing, or replacing Defective WORK in accordance with Paragraph 13.6, but the CONTRACTOR's liabilities under this Agreement shall not be deemed limited in any way to the insurance coverage required.
- B. All insurance required by the Contract Documents to be purchased and maintained by the CONTRACTOR shall be obtained from insurance companies that are duly licensed or authorized in the State of Alaska to issue insurance policies for the limits and coverages so required. Such insurance companies shall have a current Best's Rating of at least an "A" (Excellent) general policy holder's rating and a Class VII financial size category and shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.
- C. The CONTRACTOR shall furnish the OWNER with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be cancelled, reduced in coverage, or renewal refused until at least 30 days' prior written notice has been given to the OWNER by certified mail. All such insurance required herein (except for Workers' Compensation and Employer's Liability) shall name the OWNER, its Consultants and subconsultants and their officers, directors, agents, and employees as "additional insureds" under the policies. The CONTRACTOR shall purchase and maintain the following insurance:
 - 1. Workers' Compensation and Employer's Liability. This insurance shall protect the CONTRACTOR against all claims under applicable state workers' compensation laws. The CONTRACTOR shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a Workers' Compensation law. This policy shall include an "all states" endorsement.

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The CONTRACTOR shall require each Subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees to be engaged in such WORK unless such employees are covered by the protection afforded by the CONTRACTOR's Workers' Compensation Insurance. In case any class of employees is not protected, under the Workers' Compensation Statute, the CONTRACTOR shall provide and shall cause each Subcontractor to provide adequate employer's liability insurance for the protection of such of its employees as are not otherwise protected.

2. Commercial General Liability. This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims arising from injuries to persons other than its employees or damage to property of the OWNER or others arising out of any act or omission of the CONTRACTOR or its agents, employees, or Subcontractors. The policy shall contain no exclusions for any operations within the scope of this contract.
3. Comprehensive Automobile Liability. This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, and shall cover operation on or off the site of all motor vehicles licensed for highway use, whether they are owned, non-owned, or hired. Coverage for hired motor vehicles should include endorsement covering liability assumed under this Agreement.
4. Subcontractor's Commercial General Liability Insurance and Commercial Automobile Liability Insurance. The CONTRACTOR shall either require each of its Subcontractors to procure and to maintain Subcontractor's Commercial General Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amounts specified in the Supplementary General Conditions or insure the activities of its Subcontractors in the CONTRACTOR's own policy, in like amount.
5. Builder's Risk. This insurance shall be of the "all risks" type, shall be written in completed value form, and shall protect the CONTRACTOR, the OWNER, and the ENGINEER, against risks of damage to buildings, structures, and materials and equipment. The amount of such insurance shall be not less than the insurable value of the WORK at completion. Builder's risk insurance shall provide for losses to be payable to the CONTRACTOR and the OWNER, as their interests may appear. The policy shall contain a provision that in the event of payment for any loss under the coverage provided, the insurance company shall have no rights of recovery against the CONTRACTOR, the OWNER, and the ENGINEER. The Builder's Risk policy shall insure against all risks of direct physical loss or damage to property from any external cause including flood and earthquake. Allowable exclusions, if any, shall be as specified in the Supplementary General Conditions.

ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES

6.1 SUPERVISION AND SUPERINTENDENCE

- A. The CONTRACTOR shall supervise, inspect, and direct the WORK competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the WORK in accordance with the Contract Documents. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences,

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and procedures of construction and safety precautions and programs incidental thereto. The CONTRACTOR shall be responsible to see that the completed WORK complies accurately with the Contract Documents.

- B. The CONTRACTOR shall designate in writing and keep on the WORK site at all times during its progress a technically qualified, English-speaking superintendent, who is an employee of the CONTRACTOR and who shall not be replaced without written notice to the OWNER and the ENGINEER. The superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER and the ENGINEER only.
- C. The CONTRACTOR's superintendent shall be present at the site of the WORK at all times while WORK is in progress. Failure to observe this requirement shall be considered suspension of the WORK by the CONTRACTOR until such time as such superintendent is again present at the site.

6.2 LABOR, MATERIALS, AND EQUIPMENT

- A. The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the WORK and perform construction as required by the Contract Documents. The CONTRACTOR shall furnish, erect, maintain, and remove the construction plant and any temporary works as may be required. The CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the WORK or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all WORK at the site shall be performed during regular working hours, and the CONTRACTOR will not permit overtime work or the performance of work on Saturday, Sunday, or any legal holiday without the OWNER's written consent. The CONTRACTOR shall apply for this consent through the ENGINEER.
- B. Except as otherwise provided in this Paragraph, the CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of 8 hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in writing. Additional compensation will be paid the CONTRACTOR for overtime work only in the event extra work is ordered by the ENGINEER and the Change Order specifically authorizes the use of overtime work and then only to such extent as overtime wages are regularly being paid by the CONTRACTOR for overtime work of a similar nature in the same locality.
- C. All costs of inspection and testing performed during overtime work by the CONTRACTOR which is allowed solely for the convenience of the CONTRACTOR shall be borne by the CONTRACTOR. The OWNER shall have the authority to deduct the cost of all such inspection and testing from any partial payments otherwise due to the CONTRACTOR.
- D. Unless otherwise specified in the Contract Documents, the CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water,

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sanitary facilities, and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the WORK.

- E. All materials and equipment to be incorporated into the WORK shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of the OWNER. If required by the ENGINEER, the CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provisions of any such instructions will be effective to assign to the ENGINEER, or any of the ENGINEER consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraphs 9.9C and 9.9D.
 - F. The CONTRACTOR shall at all times employ sufficient labor and equipment for prosecuting the several classes of WORK to full completion in the manner and time set forth in and required by these specifications. All workers shall have sufficient skill and experience to perform properly the WORK assigned to them. Workers engaged in special WORK, or skilled WORK, shall have sufficient experience in such WORK and in the operation of the equipment required to perform all WORK, properly and satisfactorily.
 - G. Any person employed by the CONTRACTOR or by any Subcontractor who, in the opinion of the ENGINEER, does not perform the WORK in a proper and skillful manner, or is intemperate or disorderly shall, at the written request of the ENGINEER, be removed forthwith by the CONTRACTOR or Subcontractor employing such person, and shall not be employed again in any portion of the WORK without the approval of the ENGINEER. Should the CONTRACTOR fail to remove such person or persons as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the WORK, the ENGINEER may suspend the WORK by written notice until such orders are complied with.
- 6.3 ADJUSTING PROGRESS SCHEDULE. The CONTRACTOR shall submit monthly updates of the progress schedule to the ENGINEER for acceptance in accordance with the provisions in Section 01300 - CONTRACTOR Submittals in the General Requirements.
- 6.4 SUBSTITUTES OR "OR-EQUAL" ITEMS. The CONTRACTOR shall submit proposed substitutes or "or-equal" items in accordance with the provisions in Section 01300 - CONTRACTOR Submittals in the General Requirements.
- 6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS.
- A. The CONTRACTOR shall be responsible to the OWNER and the ENGINEER for the acts and omissions of its Subcontractors and their employees to the same extent as CONTRACTOR is responsible for the acts and omissions of its own employees. Nothing contained in this Paragraph shall create any contractual relationship between any Subcontractor and the OWNER or the ENGINEER nor relieve the CONTRACTOR of any liability or obligation under the prime contract.

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- B. The CONTRACTOR shall perform not less than 40% of the WORK with its own forces (i.e., without subcontracting). The 40% requirement shall be understood to mean that the CONTRACTOR shall perform, with its own organization, WORK amounting to at least 40% of the awarded contract amount. The 40% requirement will be calculated based upon the total of the subcontract amounts submitted for contract award, and any other information requested by the OWNER from the apparent low bidder.

6.6 PERMITS

- A. Unless otherwise provided in the Supplementary General Conditions, the CONTRACTOR shall obtain and pay for all construction permits and licenses from the agencies having jurisdiction, including the furnishing of insurance and bonds if required by such agencies. The enforcement of such requirements under this contract shall not be made the basis for claims for additional compensation. The OWNER shall assist the CONTRACTOR, when necessary, in obtaining such permits and licenses. The CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the WORK, which are applicable at the time of opening of Bids. The CONTRACTOR shall pay all charges of utility owners for connections to the WORK.
- B. These Contract Documents may require that the WORK be performed within the conditions and/or requirements of local, state and/or federal permits. These permits may be bound within the Contract Documents, included within the Contract Documents by reference, or included as part of the WORK, as designated in this Section. The CONTRACTOR is responsible for completing the WORK required for compliance with all permit requirements; this WORK is incidental to other items in the Contract Documents. Any reference to the PERMITTEE in the permits shall mean the CONTRACTOR. If any permits were acquired by the OWNER, this action was done to expedite the start of construction. If the CONTRACTOR does not complete the WORK within the specified permit window, the CONTRACTOR shall be responsible for the permit extension, and for completing any additional requirements placed upon the permit.

- 6.7 PATENT FEES AND ROYALTIES. The CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the WORK or the incorporation in the WORK of any invention, design, process, product, software or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the WORK and if to the actual knowledge of the OWNER or the ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by the OWNER in the Contract Documents. The CONTRACTOR shall indemnify, defend and hold harmless the OWNER and the ENGINEER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses, and expenses (including attorneys' fees and court costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the WORK or resulting from the incorporation in the WORK of any invention, design, process, product, or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

- 6.8 LAWS AND REGULATIONS. The CONTRACTOR shall observe and comply with all federal, state, and local laws, ordinances, codes, orders, and regulations which in any manner affect those engaged or employed on the WORK, the materials used in the WORK, or the conduct of the WORK. If any discrepancy or inconsistency should be discovered in this contract in relation to any such law,

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ordinance, code, order, or regulation, the CONTRACTOR shall report the same in writing to the ENGINEER. The CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, and their officers, agents, and employees against all claims or liability arising from violation of any such law, ordinance, code, order, or regulation, whether by CONTRACTOR or by its employees, Subcontractors, or third parties. Any particular law or regulation specified or referred to elsewhere in the Contract Documents shall not in any way limit the obligation of the CONTRACTOR to comply with all other provisions of federal, state, and local laws and regulations.

The OWNER may, per AS 36.30, audit the CONTRACTOR's or Subcontractor(s) records that are related to the cost or pricing data for this contract, all related Change Orders, and/or contract modifications.

- 6.9 TAXES. The CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by the CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the WORK.
- 6.10 USE OF PREMISES. The CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to (1) the Project site, (2) the land and areas identified in and permitted by the Contract Documents, and (3) the other land and areas permitted by Laws and Regulations, rights-of-way, permits, leases and easements. The CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the WORK. Should any claim be made against the OWNER or the ENGINEER by any such owner or occupant because of the performance of the WORK, the CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim through litigation. The CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify, defend, and hold the OWNER and the ENGINEER harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers attorneys, and other professionals and court costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any such owner or occupant against the OWNER, the ENGINEER, their Consultants, Sub-consultants, and the officers, directors, employees and agents of each and any of them to the extent caused by or based upon the CONTRACTOR's performance of the WORK.
- 6.11 SAFETY AND PROTECTION
- A. The CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
1. all employees on the WORK and other persons and organizations who may be affected thereby;
 2. all the WORK and materials and equipment to be incorporated therein, whether in storage on or off the site; and
 3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
- B. The CONTRACTOR shall comply with all applicable Laws and Regulations whether referred to herein or not) of any public body having jurisdiction for the safety of persons or

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property or to protect them from damage, injury, or loss and shall erect and maintain all necessary safeguards for such safety and protection. The CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the WORK may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

- C. The CONTRACTOR shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and program.
- D. Materials that contain hazardous substances or mixtures may be required on the WORK. A Material Safety Data Sheet shall be requested by the CONTRACTOR from the manufacturer of any hazardous product used.
- E. Material usage shall be accomplished with strict adherence to all safety requirements and all manufacturer's warnings and application instructions listed on the Material Safety Data Sheet and on the product container label.
- F. The CONTRACTOR shall be responsible for coordinating communications on any exchange of Material Safety Data Sheets or other hazardous material information that is required to be made available to, or exchanged between, or among, employers at the site in accordance with Laws or Regulations.
- G. The CONTRACTOR shall notify the ENGINEER if it considers a specified product or its intended usage to be unsafe. This notification must be given to the ENGINEER prior to the product being ordered, or if provided by some other party, prior to the product being incorporated in the WORK.

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6.12 SHOP DRAWINGS AND SAMPLES

- A. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, the CONTRACTOR shall submit to the ENGINEER for review, all Shop Drawings in accordance with Section 01300 - CONTRACTOR Submittals in the General Requirements.
- B. The CONTRACTOR shall also submit to the ENGINEER for review all samples in accordance with Section 01300 - CONTRACTOR Submittals in the General Requirements.
- C. Before submittal of each shop drawing or sample, the CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the WORK and the Contract Documents.

6.13 CONTINUING THE WORK. The CONTRACTOR shall carry on the WORK and adhere to the progress schedule during all disputes or disagreements with the OWNER. No work shall be delayed or postponed pending resolution of any disputes or disagreements, except as the CONTRACTOR and the OWNER may otherwise agree in writing.

6.14 INDEMNIFICATION

- A. To the fullest extent permitted by Laws and Regulations, the CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, their Consultants, Sub-consultants and the officers, directors, employees, and agents of each and any of them, against and from all claims and liability arising under, by reason of or incidentally to the contract or any performance of the WORK, but not from the sole negligence or willful misconduct of the OWNER, and the ENGINEER. Such indemnification by the CONTRACTOR shall include but not be limited to the following:
 - 1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR, its employees, or agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR, its employees, agents, or third parties;
 - 2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the CONTRACTOR's or Subcontractor's own employees engaged in the WORK resulting in actions brought by or on behalf of such employees against the OWNER, and the ENGINEER;
 - 3. Liability or claims arising directly or indirectly from or based on the violation of any law, ordinance, regulation, order, or decree, whether by the CONTRACTOR, its employees, or agents;
 - 4. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, its employees, or agents in the performance of this contract of any copyrighted or non-copyrighted composition, secret process, patented or non-patented invention, computer software, article, or appliance, unless otherwise specifically stipulated in this contract.

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5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the OWNER or any other parties by the CONTRACTOR, its employees, or agents;
 6. Liabilities or claims arising directly or indirectly from the willful or criminal misconduct of the CONTRACTOR, its employees, or agents; and,
 7. Liabilities or claims arising directly or indirectly from any breach of the obligations assumed herein by the CONTRACTOR.
- B. The CONTRACTOR shall reimburse the ENGINEER and the OWNER for all costs and expenses, (including but not limited to fees and charges of engineers, attorneys, and other professionals and court costs including all costs of appeals) incurred by said OWNER, and the ENGINEER in enforcing the provisions of this Paragraph 6.14.
- C. The indemnification obligation under this Paragraph 6.14 shall not be limited in any way by any limitation of the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any such Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- 6.15 CONTRACTOR'S DAILY REPORTS. The CONTRACTOR shall complete a daily report indicating total manpower for each construction trade, major equipment on site, each Subcontractor's manpower, weather conditions, etc., involved in the performance of the WORK. The daily report shall be completed on forms provided by the ENGINEER and shall be submitted to the ENGINEER at the conclusion of each workday. The report should comment on the daily progress and status of the WORK within each major component of the WORK. These components will be decided by the ENGINEER. CONTRACTOR shall record the name, affiliation, time of arrival and departure, and reason for visit for all visitors to the location of the WORK.
- 6.16 ASSIGNMENT OF CONTRACT. The CONTRACTOR shall not assign, sublet, sell, transfer, or otherwise dispose of the contract or any portion thereof, or its right, title, or interest therein, or obligations thereunder, without the written consent of the OWNER except as imposed by law. If the CONTRACTOR violates this provision, the contract may be terminated at the option of the OWNER. In such event, the OWNER shall be relieved of all liability and obligations to the CONTRACTOR and to its assignee or transferee, growing out of such termination.
- 6.17 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES. It is understood that any turn-on or turn-off, line locates and any other work or assistance necessary by the OWNER's Water Utilities Division, will be at the CONTRACTOR's expense unless otherwise stated in the bid documents. All cost must be agreed to prior to any related actions, and will be considered incidental to the project cost. Billing to the CONTRACTOR will be direct from the OWNER's Water Utilities Division.
- 6.18 OPERATING WATER SYSTEM VALVES
- A. The CONTRACTOR shall submit a written request, to the ENGINEER, for approval to operate any valve on any in-service section of the OWNER's water system. The request must be submitted at least 24-hours prior to operating any valves. The OWNER's Water Utilities Division reserves the right to approve or deny the request. The request shall specifically identify each valve to be operated, the time of operation, and the operation to be performed.

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The CONTRACTOR shall obtain the written approval of the ENGINEER for any scheduled operation before operating any valve.

- B. The CONTRACTOR shall be responsible for all damages, both direct and consequential, to the OWNER or any other party, caused by unauthorized operation of any valve of the OWNER's water system.

6.19 CONTRACTOR'S WORK SCHEDULE LIMITATIONS. Construction of Buildings and Projects. It is unlawful to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or similar heavy construction equipment before 7:00 a.m. or after 10:00 p.m., Monday through Friday, or before 9:00 a.m. or after 10:00 p.m., Saturday and Sunday, unless a permit shall first be obtained from the Haines Borough. Such permit shall be issued by the Borough only upon a determination that such operation during hours not otherwise permitted hereunder is necessary and will not result in unreasonable disturbance to surrounding residents.

ARTICLE 7 OTHER WORK

7.1 RELATED WORK AT SITE

- A. The OWNER may perform other work related to the Project at the site by the OWNER's own forces, have other work performed by utility owners, or let other direct contracts therefor which may contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to the CONTRACTOR prior to starting any such other work.
- B. The CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (or the OWNER, if the OWNER is performing the additional work with the OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the WORK with theirs. The CONTRACTOR shall do all cutting, fitting, and patching of the WORK that may be required to make its several parts come together properly and integrate with such other work. The CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of the ENGINEER and the others whose work will be affected.
- C. If the proper execution or results of any part of the CONTRACTOR's work depends upon the work of any such other contractor or utility owner (or OWNER), the CONTRACTOR shall inspect and report to the ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for such proper execution and results. The CONTRACTOR's failure to report such delays, defects, or deficiencies will constitute an acceptance of the other work as fit and proper for integration with the CONTRACTOR's work except for latent or nonapparent defects and deficiencies in the other work.

7.2 COORDINATION. If the OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary General Conditions, and the specific matters to be covered by such authority and

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responsibility will be itemized and the extent of such authority and responsibilities will be provided in the Supplementary General Conditions.

ARTICLE 8 OWNER'S RESPONSIBILITIES

8.1 COMMUNICATIONS

- A. The OWNER shall issue all its communications to the CONTRACTOR through the ENGINEER.
- B. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER.

8.2 PAYMENTS. The OWNER shall make payments to the CONTRACTOR as provided in Paragraphs 14.5, 14.8, 14.9 and 14.10.

8.3 LANDS, EASEMENTS, AND SURVEYS. The OWNER's duties in respect of providing lands and easements and providing surveys to establish reference points are set forth in Paragraphs 4.1 and 4.5.

8.4 CHANGE ORDERS. The OWNER shall execute Change Orders as indicated in Paragraph 10.1F.

8.5 INSPECTIONS AND TESTS. The OWNER's responsibility in respect of inspections, tests, and approvals is set forth in Paragraph 13.3.

8.6 SUSPENSION OF WORK. In connection with the OWNER's right to stop WORK or suspend WORK, see Paragraphs 13.4 and 15.1.

8.7 TERMINATION OF AGREEMENT. Paragraphs 15.2 and 15.3 deal with the OWNER's right to terminate services of the CONTRACTOR.

ARTICLE 9 ENGINEER'S STATUS DURING CONSTRUCTION

9.1 OWNER'S REPRESENTATIVE. The ENGINEER will be the OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of the ENGINEER as the OWNER's representative during construction are set forth in the Contract Documents.

9.2 VISITS TO SITE. The ENGINEER will make visits to the site during construction to observe the progress and quality of the WORK and to determine, in general, if the WORK is proceeding in accordance with the Contract Documents. Exhaustive or continuous on-site inspections to check the quality or quantity of the WORK will not be required of the ENGINEER. The ENGINEER will not, during such visits, or as a result of such observations of the CONTRACTOR's WORK in progress, supervise, direct, or have control over the CONTRACTOR's WORK.

9.3 PROJECT REPRESENTATION. The ENGINEER may furnish an Inspector to assist in observing the performance of the WORK. The duties, responsibilities, and limitations of authority are as follows:

- A. Duties, Responsibilities and Limitations of Authority of Inspector

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General. The Inspector, who is the ENGINEER's Agent, will act as directed by and under the supervision of the ENGINEER and will confer with the ENGINEER regarding its actions. The Inspector's dealings in matters pertaining to the on-site WORK shall, in general, be only with the ENGINEER and the CONTRACTOR, and dealings with Subcontractors shall only be through or with the full knowledge of the CONTRACTOR. Written communication with the OWNER will be only through or as directed by the ENGINEER.

Duties and Responsibilities. The Inspector may:

1. Review the progress schedule, list of Shop Drawing submittals and schedule of values prepared by the CONTRACTOR and consult with the ENGINEER concerning their acceptability.
2. Attend pre-construction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with the ENGINEER and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.
3. Serve as the ENGINEER's liaison with the CONTRACTOR, working principally through the CONTRACTOR's superintendent and assist said superintendent in understanding the intent of the Contract Documents. Assist the ENGINEER in serving as the OWNER's liaison with the CONTRACTOR when the CONTRACTOR's operations affect the OWNER's on-site operations.
4. As requested by the ENGINEER, assist in obtaining from the OWNER additional details or information, when required at the site for proper execution of the WORK.
5. Receive and record date of receipt of Shop Drawings and samples, receive samples which are furnished at the site by the CONTRACTOR and notify the ENGINEER of their availability for examination.
6. Conduct on-site observations of the WORK in progress to assist the ENGINEER in determining if the WORK is proceeding in accordance with the Contract Documents.
7. Report to the ENGINEER whenever the Inspector believes that any WORK is unsatisfactory, faulty, or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspection, tests or approval required to be made or has been damaged prior to final payment; and advise the ENGINEER when the Inspector believes WORK should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.
8. Verify that the tests, equipment, and systems startups and operating and maintenance instruction are conducted as required by the Contract Documents and in presence of the required personnel, and that the CONTRACTOR maintains adequate records thereof; observe, record and report to the ENGINEER appropriate details relative to the test procedures and start-ups.
9. Accompany visiting inspectors representing public or other agencies having jurisdiction over the WORK, record the outcome of these inspections, and report to the ENGINEER.
10. Transmit to the CONTRACTOR the ENGINEER's clarifications and interpretations of the Contract Documents.
11. Consider and evaluate the CONTRACTOR's suggestions for modifications in the Contract Documents and report them with recommendations to the ENGINEER.
12. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and sample submittals, reproductions of original Contract Documents

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including all addenda, Change Orders, field orders, additional Drawings issued subsequent to the execution of the contract, the ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other related documents.

13. Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list all project visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of performing and observing test procedures. Send copies to the ENGINEER.
14. Record names, addresses, and telephone numbers of the CONTRACTOR, Subcontractors, and major suppliers of materials and equipment.
15. Furnish the ENGINEER with periodic reports as required of progress of the WORK and the CONTRACTOR's compliance with the accepted progress schedule and schedule of CONTRACTOR submittals.
16. Consult with the ENGINEER in advance of scheduled major tests, inspections, or start of important phases of the WORK.
17. Report immediately to the ENGINEER upon the occurrence of any accident.
18. Review applications for payment with the CONTRACTOR for compliance with the established procedure for their submittal and forward them with recommendations to the ENGINEER, noting particularly their relation to the schedule of values, WORK completed, and materials and equipment delivered at the site but not incorporated in the WORK.
19. During the course of the WORK, verify that certificates, maintenance and operation manuals, and other data required to be assembled and furnished by the CONTRACTOR are applicable to the items actually installed; and deliver this material to the ENGINEER for its review and forwarding to the OWNER prior to final acceptance of the WORK.
20. Before the ENGINEER prepares a Certificate of Substantial Completion/Notice of Completion, as applicable, review the CONTRACTOR's punch list items requiring completion or correction and add any items that CONTRACTOR has omitted.
21. Conduct final inspection in the company of the ENGINEER, the OWNER, and the CONTRACTOR, and prepare a final punch list of items to be completed or corrected.
22. Verify that all items on the punch list have been completed or corrected and make recommendations to the ENGINEER concerning acceptance.

Limitations of Authority. Except upon written instruction of the ENGINEER, the Inspector:

1. Shall not authorize any deviation from the Contract Documents or approve any substitute material or equipment.
2. Shall not exceed limitations on the ENGINEER's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of the CONTRACTOR, Subcontractors or CONTRACTOR's superintendent, or expedite the WORK.
4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences, or procedures of construction unless such is specifically called for in the Contract Documents.
5. Shall not advise on or issue directions as to safety precautions and programs in connection with the WORK.

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- 9.4 CLARIFICATIONS AND INTERPRETATIONS. The ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as the ENGINEER may determine necessary, which shall be consistent with, or reasonably inferred from, the overall intent of the Contract Documents.
- 9.5 AUTHORIZED VARIATIONS IN WORK. The ENGINEER may authorize variations in the WORK from the requirements of the Contract Documents. These may be accomplished by a Field Order and will require the CONTRACTOR to perform the WORK involved in a manner that minimizes the impact to the WORK and the contract completion date. If the CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time, the CONTRACTOR may make a claim therefor as provided in Article 11 or 12.
- 9.6 REJECTING DEFECTIVE WORK. The ENGINEER will have authority to reject WORK which the ENGINEER believes to be defective and will also have authority to require special inspection or testing of the WORK as provided in Paragraph 13.3G, whether or not the WORK is fabricated, installed, or completed.
- 9.7 CONTRACTOR SUBMITTALS, CHANGE ORDERS, AND PAYMENTS
- A. In accordance with the procedures set forth in the General Requirements, the ENGINEER will review all CONTRACTOR submittals, including Shop Drawings, samples, substitutes, or "or equal" items, etc., in order to determine if the items covered by the submittals will, after installation or incorporation in the WORK, conform to the requirements of the Contract Documents and be compatible with the design concept of the completed project as a functioning whole as indicated by the Contract Documents. The ENGINEER's review will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto.
 - B. In connection with the ENGINEER's responsibilities as to Change Orders, see Articles 10, 11, and 12.
 - C. In connection with the ENGINEER's responsibilities in respect of Applications for Payment, see Article 14.
- 9.8 DECISIONS ON DISPUTES
- A. The ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the WORK thereunder. Claims, disputes, and other matters relating to the acceptability of the WORK; the interpretation of the requirements of the Contract Documents pertaining to the performance of the WORK; and those claims under Articles 11 and 12 in respect to changes in the Contract Price or Contract Time will be referred initially to the ENGINEER in writing with a request for formal decision in accordance with this paragraph, which the ENGINEER will render in writing within 30 days of receipt of the request. Written notice of each such claim, dispute, and other matter will be delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise thereto. Written supporting data will be submitted to the ENGINEER within 60 days after such occurrence unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

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- B. The rendering of a decision by the ENGINEER with respect to any such claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in Paragraph 14.12) will be a condition precedent to any exercise by the OWNER or the CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Law or Regulations in respect of any such claim, dispute, or other matter.

9.9 LIMITATION ON ENGINEER'S RESPONSIBILITIES

- A. Neither the ENGINEER's authority to act under this Article or other provisions of the Contract Documents nor any decision made by the ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any Subcontractor, any Supplier, any surety for any of them, or any other person or organization performing any of the WORK.
- B. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as reviewed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the ENGINEER as to the WORK, it is intended that such requirement, direction, review, or judgment will be solely to evaluate the WORK for compliance with the requirements of the Contract Documents, and conformance with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents, unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be effective to assign to the ENGINEER any duty or authority to supervise or direct the performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.9C or 9.9D.
- C. The ENGINEER will not supervise, direct, control, or have authority over or be responsible for the CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the CONTRACTOR to comply with Laws and Regulations, applicable to the performance of the WORK. The ENGINEER will not be responsible for the CONTRACTOR's failure to perform the WORK in accordance with the Contract Documents.
- D. The ENGINEER will not be responsible for the acts or omissions of the CONTRACTOR nor of any Subcontractor, supplier, or any other person or organization performing any of the WORK.

ARTICLE 10 CHANGES IN THE WORK

10.1 GENERAL

- A. Without invalidating the Agreement and without notice to any surety, the OWNER may at any time or from time to time, order additions, deletions, or revisions in the WORK; these will be authorized by a written Field Order and/or a Change Order issued by the ENGINEER.

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- B. If the CONTRACTOR believes that it is entitled to an increase or decrease in the Contract Price, or an extension or shortening in the Contract Time as the result of a Field Order, a claim may be made as provided in Articles 11 and 12.
- C. If the OWNER and CONTRACTOR agree on the value of any work, or the amount of Contract Time that should be allowed as a result of a Field Order, upon receiving written notice from the ENGINEER, the CONTRACTOR shall proceed so as to minimize the impact on and delays to the work pending the issuance of a Change Order.
- D. If the OWNER and the CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Field Order, the ENGINEER can direct the CONTRACTOR to proceed on the basis of Time and Materials so as to minimize the impact on and delays to WORK, and a claim may be made therefor as provided in Articles 11 and 12.
- E. The CONTRACTOR shall not be entitled to an increase in the Contract Price nor an extension of the Contract Time with respect to any work performed that is not required by the Contract Documents as amended, modified, supplemented by Change Order, except in the case of an emergency and except in the case of uncovering work as provided in Paragraph 13.3G.
- F. The OWNER and the CONTRACTOR shall execute appropriate Change Orders covering:
 - 1. changes in the WORK which are ordered by the OWNER pursuant to Paragraph 10.1A;
 - 2. changes required because of acceptance of Defective WORK under Paragraph 13.7;
 - 3. changes in the Contract Price or Contract Time which are agreed to by the parties; or
 - 4. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by the ENGINEER pursuant to Paragraph 9.8.
- G. If notice of any change is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be the CONTRACTOR's responsibility, and the amount of each applicable Bond shall be adjusted accordingly.

10.2 ALLOWABLE QUANTITY VARIATIONS

- A. In the event of an increase or decrease in Bid item quantity of a unit price contract, the total amount of WORK actually done or materials or equipment furnished shall be paid for according to the unit price established for such WORK under the Contract Documents, wherever such unit price has been established; provided, that an adjustment in the Contract Price may be made for changes which result in an increase or decrease in excess of 25% of the estimated quantity of any major item of the WORK. Major Item is defined as any bid item amount that is ten percent (10%) or more of the total contract amount.
- B. In the event a part of the WORK is to be entirely eliminated and no lump sum or unit price is named in the Contract Documents to cover such eliminated work, the price of the eliminated work shall be agreed upon in writing by the OWNER and the CONTRACTOR. If the

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OWNER and the CONTRACTOR fail to agree upon the price of the eliminated work, said price shall be determined in accordance with the provisions of Article 11.

ARTICLE 11 CHANGE OF CONTRACT PRICE

11.1 GENERAL

- A. The Contract Price constitutes the total compensation payable to the CONTRACTOR for performing the WORK. All duties, responsibilities, and obligations assigned to or undertaken by the CONTRACTOR to complete the WORK shall be at its expense without change in the Contract Price.
- B. The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 7 days) after the start of the occurrence or the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within 14 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of said occurrence or event. All claims for adjustment in the Contract Price shall be determined by the ENGINEER in accordance with Paragraph 9.8A if the OWNER and the CONTRACTOR cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this Paragraph 11.1B.
- C. The value of any WORK covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:
 - 1. Where the WORK involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
 - 2. By mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.4.
 - 3. On the basis of the cost of WORK (determined as provided in Paragraphs 11.3) plus a CONTRACTOR's fee for overhead and profit (determined as provided in Paragraph 11.4).

11.2 COSTS RELATING TO WEATHER. The CONTRACTOR shall have no claims against the OWNER for damages for any injury to WORK, materials, or equipment, resulting from the action of the elements. If, however, in the opinion of the ENGINEER, the CONTRACTOR has made all reasonable efforts to protect the materials, equipment and work, the CONTRACTOR may be granted a reasonable extension of Contract Time to make proper repairs, renewals, and replacements of the work, materials, or equipment.

11.3 COST OF WORK (BASED ON TIME AND MATERIALS)

- A. General. The term "cost of work" means the sum of all costs necessarily incurred and paid by the CONTRACTOR for labor, materials, and equipment in the proper performance of extra work. Except as otherwise may be agreed to in writing by the OWNER, such costs shall be

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in amounts no higher than those prevailing in the locality of the Project; shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.5 EXCLUDED COSTS.

- B. Labor. The costs of labor will be the actual cost for wages prevailing for each craft or type of workers performing the extra work at the time the extra work is done, plus employer payments of payroll taxes, worker's compensation insurance, liability insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. Labor costs for equipment operators and helpers shall be paid only when such costs are not included in the invoice for equipment rental. The labor costs for forepersons shall be proportioned to all of their assigned work and only that applicable to extra work shall be paid. Non-direct labor costs including superintendence shall be considered part of the mark-up set out in paragraph 11.4.
- C. Materials. The cost of materials reported shall be at invoice or lowest current price at which materials are locally available and delivered to the job in the quantities involved, plus the cost of freight, delivery and storage, subject to the following:
1. Trade discounts available to the purchaser shall be credited to the OWNER notwithstanding the fact that such discounts may not have been taken by the CONTRACTOR.
 2. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the ENGINEER. Mark-up except for actual costs incurred in the handling of such materials will not be allowed.
 3. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources on extra work items or the current wholesale price for such materials delivered to the work site, whichever price is lower.
 4. If in the opinion of the ENGINEER the cost of material is excessive, or the CONTRACTOR does not furnish satisfactory evidence of the cost of such material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the work site less trade discount. The OWNER reserves the right to furnish materials for the extra work and no claim shall be allowed by the CONTRACTOR for costs and profit on such materials.
- D. Equipment. The CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the Supplementary General Conditions. Such rental rate will be used to compute payments for equipment whether the equipment is under the CONTRACTOR's control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment shall be the rate resulting in the least total cost to the OWNER for the total period of use. If it is deemed necessary by the CONTRACTOR to use equipment not listed in the publication specified in the Supplementary General Conditions, an equitable rental rate for the equipment will be established by the ENGINEER. The CONTRACTOR may furnish cost data which might assist the ENGINEER in the establishment of the rental rate.

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1. All equipment shall, in the opinion of the ENGINEER, be in good working condition and suitable for the purpose for which the equipment is to be used.
 2. Before construction equipment is used on the extra work, the CONTRACTOR shall plainly stencil or stamp an identifying number thereon at a conspicuous location, and shall furnish to the ENGINEER, in duplicate, a description of the equipment and its identifying number.
 3. Unless otherwise specified, manufacturer's ratings and manufacturer approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
 4. Individual pieces of equipment or tools having a replacement value of \$200 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefor.
 5. Rental time will not be allowed while equipment is inoperative due to breakdowns.
 6. Equipment Rental Rates. Unless otherwise agreed in writing, the CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the current edition of the following reference publication: "Rental Rate Blue Book" as published by Dataquest (a company of the Dunn and Bradstreet Corporation), 1290 Ridder Park Drive, San Jose, CA 95131, telephone number (800) 227-8444.
- E. Equipment on the Work Site. The rental time to be paid for equipment on the work site shall be the time the equipment is in productive operation on the extra work being performed and, in addition, shall include the time required to move the equipment to the location of the extra work and return it to the original location or to another location requiring no more time than that required to return it to its original location; except, that moving time will not be paid if the equipment is used on other than the extra work, even though located at the site of the extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made for loading and transporting costs when the equipment is used at the site of the extra work on other than the extra work. The following shall be used in computing the rental time of equipment on the work site.
1. When hourly rates are listed, any part of an hour less than 30 minutes of operation shall be considered to be 1/2-hour of operation, and any part of an hour in excess of 30 minutes will be considered one hour of operation.
 2. When daily rates are listed, any part of a day less than 4 hours operation shall be considered to be 1/2-day of operation. When owner-operated equipment is used to perform extra work to be paid for on a time and materials basis, the CONTRACTOR will be paid for the equipment and operator, as set forth in Paragraphs (3), (4), and (5), following.
 3. Payment for the equipment will be made in accordance with the provisions in Paragraph 11.3D, herein.
 4. Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the CONTRACTOR to other workers operating similar equipment already on the work site, or in the absence of such labor, established by collective bargaining agreements for the type of worker and location of the extra work, whether or not the operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein in accordance with the provisions of Paragraph 11.3B, herein, which surcharge shall constitute full compensation for

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payments imposed by state and federal laws and all other payments made to or on behalf of workers other than actual wages.

- 5. To the direct cost of equipment rental and labor, computed as provided herein, will be added the allowances for equipment rental and labor as provided in Paragraph 11.4, herein.

F. Specialty Work. Specialty work is defined as that work characterized by extraordinary complexity, sophistication, or innovation or a combination of the foregoing attributes which are unique to the construction industry. The following shall apply in making estimates for payment for specialty work:

- 1. Any bid item of WORK to be classified as Specialty Work shall be listed as such in the Supplementary General Conditions. Specialty work shall be performed by an entity especially skilled in the work to be performed. After validation of invoices and determination of market values by the ENGINEER, invoices for specialty work based upon the current fair market value thereof may be accepted without complete itemization of labor, material, and equipment rental costs.
- 2. When the CONTRACTOR is required to perform work necessitating special fabrication or machining process in a fabrication or a machine shop facility away from the job site, the charges for that portion of the work performed at the off-site facility may, by agreement, be accepted as specialty work and accordingly, the invoices for the work may be accepted without detailed itemization.
- 3. All invoices for specialty work will be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not. In lieu of the allowances for overhead and profit specified in Paragraph 11.4, herein, an allowance of 5 percent will be added to invoices for specialty work.

G. Sureties. All work performed hereunder shall be subject to all of the provisions of the Contract Documents and the CONTRACTOR's sureties shall be bound with reference thereto as under the original Agreement. Copies of all amendments to surety bonds or supplemental surety bonds shall be submitted to the OWNER for review prior to the performance of any work hereunder.

11.4 CONTRACTOR'S FEE

A. Extra work ordered on the basis of time and materials will be paid for at the actual necessary cost as determined by the ENGINEER, plus allowances for overhead and profit. The allowance for overhead and profit shall include full compensation for superintendence, bond and insurance premiums, taxes, field office expense, extended overhead, home office overhead, and all other items of expense or cost not included in the cost of labor, materials, or equipment provided for under Paragraph 11.3. The allowance for overhead and profit will be made in accordance with the following schedule:

Actual Overhead and Profit Allowance

Labor	15 percent
Materials	10 percent
Equipment	10 percent

To the sum of the costs and mark-ups provided for in this Article, one percent shall be added as compensation for bonding.

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- B. It is understood that labor, materials, and equipment may be furnished by the CONTRACTOR or by the Subcontractor on behalf of the CONTRACTOR. When all or any part of the extra work is performed by a Subcontractor, the allowance specified herein shall be applied to the labor, materials, and equipment costs of the Subcontractor, to which the CONTRACTOR may add 5 percent of the Subcontractor's total cost for the extra work. Regardless of the number of hierarchical tiers of Subcontractors, the 5 percent increase above the Subcontractor's total cost which includes the allowances for overhead and profit specified herein may be applied one time only.

11.5 EXCLUDED COSTS. The term "Cost of the Work" shall not include any of the following:

- A. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, estimators, attorneys' auditors, accountants, purchasing and contracting agents, expenditures, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the work, or not specifically covered by paragraph 11.3, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.
- B. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.
- C. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the WORK and charges against CONTRACTOR for delinquent payments.
- D. Cost of premiums for all bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by paragraph 11.4 above).
- E. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of Defective WORK, disposal of materials or equipment wrongly supplied and making good any damage to property.
- F. Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in paragraph 11.4.

ARTICLE 12 CHANGE OF CONTRACT TIME

12.1 GENERAL

- A. The Contract Time may only be changed by a Change Order. Any claim for an extension of the Contract Time (or Milestones) shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within 60 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the

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CONTRACTOR's written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the ENGINEER in accordance with Paragraph 9.8 if the OWNER and the CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this Paragraph 12.1A. An increase in Contract Time does not mean that the Contractor is due an increase in Contract Price. Only compensable time extensions will result in an increase in Contract Price.

- B. All time limits stated in the Contract Documents are of the essence of the Agreement.
 - C. Where CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost on the critical path of the project due to such delay if a claim is made therefor as provided in paragraph 12.1. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, unprecedented weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.
 - D. Where CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost on the critical path of the project due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. In no event shall the OWNER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from (i) delays caused by or within the control of CONTRACTOR, or (ii) delays beyond the control of both parties including but not limited to fires, floods, epidemics abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.
- 12.2 EXTENSIONS OF TIME FOR DELAY DUE TO WEATHER. Contract Time may be extended by the ENGINEER because of delays in completion of the WORK due to unusually severe weather, provided that the CONTRACTOR shall, within 10 days of the beginning of any such delay, notify the ENGINEER in writing of the cause of delay and request an extension of Contract Time. The ENGINEER will ascertain the facts and the extent of the delay and extend the time for completing the work when, in the ENGINEER's judgment, the findings of fact justify such an extension. Unprecedented, abnormal, or unusually severe weather will be defined as an event, or events, with a greater than 50-year recurrence interval, as determined by the National Weather Service, or equivalent State or Federal agency

ARTICLE 13 WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

- 13.1 WARRANTY AND GUARANTEE. The CONTRACTOR warrants and guarantees to the OWNER and the ENGINEER that all work will be in accordance with the Contract Documents and will not be

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defective. Prompt notice of defects known to the OWNER or ENGINEER shall be given to the CONTRACTOR. All defective work, whether or not in place, may be rejected, corrected, or accepted as provided in this Article 13.

13.2 ACCESS TO WORK. OWNER, ENGINEER, their Consultants, sub-consultants, other representatives and personnel of OWNER, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the WORK at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

13.3 TESTS AND INSPECTIONS

- A. The CONTRACTOR shall give the ENGINEER timely notice of readiness of the WORK for all required inspections, tests, or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. If Laws or Regulations of any public body having jurisdiction other than the OWNER require any WORK to specifically be inspected, tested, or approved, the CONTRACTOR shall pay all costs in connection therewith. The CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the OWNER's or the ENGINEER's acceptance of a Supplier of materials or equipment proposed as a substitution or (or-equal) to be incorporated in the WORK, or of materials or equipment submitted for review prior to the CONTRACTOR's purchase thereof for incorporation in the WORK. The cost of all inspections, tests, and approvals in addition to the above which are required by the Contract Documents shall be paid by the OWNER (unless otherwise specified).
- C. The ENGINEER will make, or have made, such inspections and tests as the ENGINEER deems necessary to see that the WORK is being accomplished in accordance with the requirements of the Contract Documents. Unless otherwise specified in the Supplementary General Conditions, the cost of such inspection and testing will be borne by the OWNER. In the event such inspections or tests reveal non-compliance with the requirements of the Contract Documents, the CONTRACTOR shall bear the cost of corrective measures deemed necessary by the ENGINEER, as well as the cost of subsequent reinspection and retesting. Neither observations by the ENGINEER nor inspections, tests, or approvals by others shall relieve the CONTRACTOR from the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.
- D. All inspections, tests, or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to the ENGINEER and the CONTRACTOR.
- E. If any WORK (including the work of others) that is to be inspected, tested, or approved is covered without written concurrence of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for observation. Such uncovering shall be at the CONTRACTOR's expense unless the CONTRACTOR has given the ENGINEER timely notice of the CONTRACTOR's intention to perform such test or to cover the same and the ENGINEER has not acted with reasonable promptness in response to such notice.

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- F. If any WORK is covered contrary to the written request of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for the ENGINEER's observation and recovered at the CONTRACTOR's expense.
- G. If the ENGINEER considers it necessary or advisable that covered WORK be observed by the ENGINEER or inspected or tested by others, the CONTRACTOR, at the ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, material, and equipment. If it is found that such WORK is defective, the CONTRACTOR shall bear all direct, indirect, and consequential costs and damages of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction, including but not limited to fees and charges of engineers, attorneys, and other professionals. However, if such WORK is not found to be defective, the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, the CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.
- 13.4 OWNER MAY STOP THE WORK. If the WORK is defective, or the CONTRACTOR fails to perform work in such a way that the completed WORK will conform to the Contract Documents, the OWNER may order the CONTRACTOR to stop the WORK, or any portion thereof, until the cause for such order has been eliminated; however, this right of the OWNER to stop the WORK shall not give rise to any duty on the part of the OWNER to exercise this right for the benefit of the CONTRACTOR or any other party.
- 13.5 CORRECTION OR REMOVAL OF DEFECTIVE WORK. If required by the ENGINEER, the CONTRACTOR shall promptly, either correct all defective work, whether or not fabricated, installed, or completed, or, if the WORK has been rejected by the ENGINEER, remove it from the site and replace it with non-defective work. The CONTRACTOR shall bear all direct, indirect and consequential costs and damages of such correction or removal, including but not limited to fees and charges of engineers, attorneys, and other professionals made necessary thereby.
- 13.6 ONE YEAR CORRECTION PERIOD
- A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any work is found to be defective, the CONTRACTOR shall promptly, without cost to the OWNER and in accordance with OWNER's written notification, (i) correct such Defective WORK, or, if it has been rejected by the OWNER, remove it from the site and replace it with non-defective work, and (ii) satisfactorily correct or remove and replace any damage to other work of others resulting therefrom. If the CONTRACTOR does not promptly comply with such notification, or in an emergency where delay would cause serious risk of loss or damage, the OWNER may have the Defective WORK corrected or the rejected WORK removed and replaced, and all direct, indirect, and consequential costs and damages of such removal and replacement including but not limited to fees and charges of engineers, attorneys and other professionals will be paid by the CONTRACTOR.

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- B. Where Defective WORK (and damage to other WORK resulting therefrom) has been corrected, removed or replaced under this paragraph 13.6, the correction period hereunder with respect to such WORK will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

13.7 ACCEPTANCE OF DEFECTIVE WORK. If, instead of requiring correction or removal and replacement of defective work, the OWNER prefers to accept the WORK, the OWNER may do so. The CONTRACTOR shall bear all direct, indirect, and consequential costs attributable to the OWNER's evaluation of and determination to accept such defective work. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the WORK, and the OWNER shall be entitled to an appropriate decrease in the Contract Price.

ARTICLE 14 PAYMENTS TO CONTRACTOR AND COMPLETION

14.1 SCHEDULE OF VALUES (LUMP SUM PRICE BREAKDOWN). The schedule of values or lump sum price breakdown established as provided in the General Requirements shall serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to the ENGINEER.

14.2 UNIT PRICE BID SCHEDULE. Progress payments on account of Unit Price work will be based on the number of units completed.

14.3 APPLICATION FOR PROGRESS PAYMENT

- A. Unless otherwise prescribed by law, on the 25th of each month, the CONTRACTOR shall submit to the ENGINEER for review, an Application for Payment filled out and signed by the CONTRACTOR covering the WORK completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
- B. The Application for Payment shall identify, as a sub-total, the amount of the CONTRACTOR'S Total Earnings to Date, plus the Value of Materials Stored at the Site which have not yet been incorporated in the WORK, and less a deductive adjustment for materials installed which were not previously incorporated in the WORK, but for which payment was allowed under the provisions for payment for Materials Stored at the Site, but not yet incorporated in the WORK.
- C. The Net Payment Due the CONTRACTOR shall be the above-mentioned subtotal from which shall be deducted the total amount of all previous payments made to the CONTRACTOR. Progress payments will be paid in full in accordance with Article 14 of the General Conditions until 90% of the Contract Price has been paid. The remaining 10% of the Contract Price amount may be withheld until:
 - 1. final inspection has been made;
 - 2. completion of the Project; and
 - 3. acceptance of the Project by the OWNER.
- D. The Value of Materials Stored at the Site shall be an amount equal to the specified percent of the value of such materials as set forth in the Supplementary General Conditions. Said

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amount shall be based upon the value of all acceptable materials and equipment not incorporated in the WORK but delivered and suitably stored at the site or at another location agreed to in writing; provided, each such individual item has a value of more than \$5,000.00 and will become a permanent part of the WORK. The Application for Payment shall also be accompanied by an invoice (including shipping), a certification that the materials meet the applicable contract specifications, and any evidence required by the OWNER that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the OWNER's interest therein, all of which will be satisfactory to the OWNER. Payment for materials will not constitute final acceptance. It shall be the CONTRACTOR's responsibility to protect the material from damage, theft, loss, or peril while in storage. Unless otherwise prescribed by law, the Value of Materials Stored at the Site shall be paid at the invoice amount up to a maximum of 85% of the Contract Price for those items.

14.4 CONTRACTOR'S WARRANTY OF TITLE. The CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by an Application for Payment, whether incorporated in the WORK or not, will pass to the OWNER no later than the time of payment free and clear of all liens.

14.5 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

- A. The ENGINEER will, within 7 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to the OWNER, or return the Application to the CONTRACTOR indicating in writing the ENGINEER's reasons for refusing to recommend payment. In the later case, the CONTRACTOR may make the necessary corrections and resubmit the Application. If the ENGINEER still disagrees with a portion of the Application, it will submit the Application recommending the undisputed portion of the Application to the OWNER for payment and provide reasons for recommending non-payment of the disputed amount. Thirty days after presentation of the Application for Payment with the ENGINEER's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.5B) become due and when due will be paid by the OWNER to the CONTRACTOR.
- B. The OWNER may refuse to make payment of the full amount recommended by the ENGINEER because claims have been made against the OWNER on account of the CONTRACTOR's performance of the WORK or Liens have been filed in connection with the WORK or there are other items entitling the OWNER to a credit against the amount recommended, but the OWNER must give the CONTRACTOR written notice within 7 days (with a copy to the ENGINEER) stating the reasons for such action.

14.6 PARTIAL UTILIZATION

- A. The OWNER shall have the right to utilize or place into service any item of equipment or other usable portion of the WORK prior to completion of the WORK. Whenever the OWNER plans to exercise said right, the CONTRACTOR will be notified in writing by the OWNER, identifying the specific portion or portions of the WORK to be so utilized or otherwise placed into service.

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- B. It shall be understood by the CONTRACTOR that until such written notification is issued, all responsibility for care and maintenance of all of the WORK shall be borne by the CONTRACTOR. Upon issuance of said written notice of partial utilization, the OWNER will accept responsibility for the protection and maintenance of all such items or portions of the WORK described in the written notice.
 - C. The CONTRACTOR shall retain full responsibility for satisfactory completion of the WORK, regardless of whether a portion thereof has been partially utilized by the OWNER and the CONTRACTOR's one year correction period shall commence only after the date of Substantial Completion for the WORK.
- 14.7 SUBSTANTIAL COMPLETION. When the CONTRACTOR considers the WORK ready for its intended use the CONTRACTOR shall notify the OWNER and the ENGINEER in writing that the WORK is substantially complete. The CONTRACTOR will attach to this request a list of all work items that remain to be completed and a request that the ENGINEER prepare a Notice of Completion. Within a reasonable time thereafter, the OWNER, the CONTRACTOR, and the ENGINEER shall make an inspection of the WORK to determine the status of completion. If the ENGINEER does not consider the WORK substantially complete, or the list of remaining work items to be comprehensive, the ENGINEER will notify the CONTRACTOR in writing giving the reasons therefor. If the ENGINEER considers the WORK substantially complete, the ENGINEER will prepare and deliver to the OWNER, for its execution and recording, the Notice of Completion signed by the ENGINEER and CONTRACTOR, which shall fix the date of Substantial Completion.
- 14.8 FINAL APPLICATION FOR PAYMENT. After the CONTRACTOR has completed all of the remaining work items referred to in Paragraph 14.7 and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, record as-built documents (as provided in the General Requirements) and other documents, all as required by the Contract Documents, and after the ENGINEER has indicated that the WORK is acceptable, the CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the OWNER) of all liens arising out of or filed in connection with the WORK.
- 14.9 FINAL PAYMENT AND ACCEPTANCE
- A. If, on the basis of the ENGINEER's observation of the WORK during construction and final inspection, and the ENGINEER's review of the final Application for Payment and accompanying documentation, all as required by the Contract Documents, the ENGINEER is satisfied that the WORK has been completed and the CONTRACTOR's other obligations under the Contract Documents have been fulfilled, the ENGINEER will, within 14 days after receipt of the final Application for Payment, indicate in writing the ENGINEER's recommendation of payment and present the Application to the OWNER for payment.
 - B. After acceptance of the WORK by the OWNER's governing body, the OWNER will make final payment to the CONTRACTOR of the amount remaining after deducting all prior payments and all amounts to be kept or retained under the provisions of the Contract Documents, including the following items:
 - 1. Liquidated damages, as applicable.

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2. Two times the value of outstanding items of correction work or punch list items yet uncompleted or uncorrected, as applicable. All such work shall be completed or corrected to the satisfaction of the OWNER within the time stated on the Notice of Completion, otherwise the CONTRACTOR does hereby waive any and all claims to all monies withheld by the OWNER to cover the value of all such uncompleted or uncorrected items.

14.10 RELEASE OF RETAINAGE AND OTHER DEDUCTIONS

- A. After executing the necessary documents to initiate the lien period, and not more than 45 days thereafter (based on a 30-day lien filing period and 15-day processing time), the OWNER will release to the CONTRACTOR the retainage funds withheld pursuant to the Agreement, less any deductions to cover pending claims against the OWNER pursuant to Paragraph 14.5B.
- B. After filing of the necessary documents to initiate the lien period, the CONTRACTOR shall have 30 days to complete any outstanding items of correction work remaining to be completed or corrected as listed on a final punch list made a part of the Notice of Completion. Upon expiration of the 45 days, referred to in Paragraph 14.10A, the amounts withheld pursuant to the provisions of Paragraph 14.9B herein, for all remaining work items will be returned to the CONTRACTOR; provided, that said work has been completed or corrected to the satisfaction of the OWNER within said 30 days. Otherwise, the CONTRACTOR does hereby waive any and all claims for all monies withheld by the OWNER under the Contract to cover 2 times the value of such remaining uncompleted or uncorrected items.

14.11 CONTRACTOR'S CONTINUING OBLIGATION. The CONTRACTOR's obligation to perform and complete the WORK in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the ENGINEER, nor the issuance of a Notice of Completion, nor any payment by the OWNER to the CONTRACTOR under the Contract Documents, nor any use or occupancy of the WORK or any part thereof by the OWNER, nor any act of acceptance by the OWNER nor any failure to do so, nor any review of a Shop Drawing or sample submittal, will constitute an acceptance of work not in accordance with the Contract Documents or a release of the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

14.12 FINAL PAYMENT TERMINATES LIABILITY OF OWNER. Final payment is defined as the last progress payment made to the CONTRACTOR for earned funds, less monies withheld as applicable, pursuant to Paragraph 14.10A. The acceptance by the CONTRACTOR of the final payment referred to in Paragraph 14.9 herein, shall be a release of the OWNER and its agents from all claims of liability to the CONTRACTOR for anything done or furnished for, or relating to, the WORK or for any act of neglect of the OWNER or of any person relating to or affecting the WORK, except demands against the OWNER for the remainder, if any, of the amounts kept or retained under the provisions of Paragraph 14.9 herein; and excepting pending, unresolved claims filed prior to the date of the Notice of Completion.

ARTICLE 15 SUSPENSION OF WORK AND TERMINATION

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- 15.1 **SUSPENSION OF WORK BY OWNER.** The OWNER, acting through the ENGINEER, may, at any time and without cause, suspend the WORK or any portion thereof for a period of not more than 90 days by notice in writing to the CONTRACTOR. The CONTRACTOR shall resume the WORK on receipt from the ENGINEER of a notice of resumption of work. The CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if the CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.
- 15.2 **TERMINATION OF AGREEMENT BY OWNER (CONTRACTOR DEFAULT)**
- A. In the event of default by the CONTRACTOR, the OWNER may give 10 days written notice to the CONTRACTOR of OWNER's intent to terminate the Agreement and provide the CONTRACTOR an opportunity to remedy the conditions constituting the default. It shall be considered a default by the CONTRACTOR whenever CONTRACTOR shall: (1) declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors; (2) fail to provide materials or quality of work meeting the requirements of the Contract Documents; (3) disregard or violate provisions of the Contract Documents or ENGINEER's instructions; (4) fail to prosecute the WORK according to the approved progress schedule; or, (5) fail to provide a qualified superintendent, competent workers, or materials or equipment meeting the requirements of the Contract Documents. If the CONTRACTOR fails to remedy the conditions constituting default within the time allowed, the OWNER may then issue the Notice of Termination.
- B. In the event the Agreement is terminated in accordance with Paragraph 15.2A, herein, the OWNER may take possession of the WORK and may complete the WORK by whatever method or means the OWNER may select. The cost of completing the WORK shall be deducted from the balance which would have been due the CONTRACTOR had the Agreement not been terminated and the WORK completed in accordance with the Contract Documents. If such cost exceeds the balance which would have been due, the CONTRACTOR shall pay the excess amount to the OWNER. If such cost is less than the balance which would have been due, the CONTRACTOR shall not have claim to the difference.
- 15.3 **TERMINATION OF AGREEMENT BY OWNER (FOR CONVENIENCE).** The OWNER may terminate the Agreement at any time if it is found that reasons beyond the control of either the OWNER or CONTRACTOR make it impossible or against the OWNER's interests to complete the WORK. In such a case, the CONTRACTOR shall have no claims against the OWNER except: (1) for the value of work performed up to the date the Agreement is terminated; and, (2) for the cost of materials and equipment on hand, in transit, or on definite commitment, as of the date the Agreement is terminated which would be needed in the WORK and which meet the requirements of the Contract Documents. The value of work performed and the cost of materials and equipment delivered to the site, as mentioned above, shall be determined by the ENGINEER in accordance with the procedure prescribed for the making of the final application for payment and payment under Paragraphs 14.8 and 14.9.
- 15.4 **TERMINATION OF AGREEMENT BY CONTRACTOR.** The CONTRACTOR may terminate the Agreement upon 10 days written notice to the OWNER, whenever: 1) the WORK has been suspended under the provisions of Paragraph 15.1, herein, for more than 90 consecutive days through no fault or negligence of the CONTRACTOR, and notice to resume work or to terminate the

SECTION 00700 - GENERAL CONDITIONS

Agreement has not been received from the OWNER within this time period; or, 2) the OWNER should fail to pay the CONTRACTOR any monies due him in accordance with the terms of the Contract Documents and within 60 days after presentation to the OWNER by the CONTRACTOR of a request therefor, unless within said 10-day period the OWNER shall have remedied the condition upon which the payment delay was based. In the event of such termination, the CONTRACTOR shall have no claims against the OWNER except for those claims specifically enumerated in Paragraph 15.3, herein, and as determined in accordance with the requirements of said paragraph.

ARTICLE 16 MISCELLANEOUS

16.1 GIVING NOTICE. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

16.2 RIGHTS IN AND USE OF MATERIALS FOUND ON THE WORK

- A. The CONTRACTOR may use on the Project, with ENGINEER's approval, such stone, gravel, sand, or other material determined suitable by the ENGINEER, as may be found in the excavation. The CONTRACTOR will be paid for the excavation of such material at the corresponding contract unit price. No additional payment will be made for utilizing the material from excavation as borrow, or select borrow.
- B. The CONTRACTOR shall replace, at its own expense, with other acceptable material, all of that portion of the excavated material so removed and used which was needed for use on the project. No charge for the materials so used will be made against the CONTRACTOR except that the CONTRACTOR shall be responsible for payment of any royalties required.
- C. The CONTRACTOR shall not excavate or remove any material from within the Project location which is not within the grading limits, as indicated by the slope and grade lines, without written authorization from the ENGINEER.
- D. In the event the CONTRACTOR has processed materials from OWNER-furnished sources in excess of the quantities required for performance of this contract, including any waste material produced as a by-product, the OWNER may retain possession of such materials without obligation to reimburse the CONTRACTOR for the cost of their production. When such materials are in a stockpile, the ENGINEER may require: That it remain in stockpile; the CONTRACTOR level such stockpile(s); or that the CONTRACTOR remove such materials and restore the premises to a satisfactory condition at the CONTRACTOR's expense. This provision shall not preclude the OWNER from arranging with the CONTRACTOR to produce material over and above the contract needs, payment for which shall be by written agreement between the OWNER and the CONTRACTOR.
- E. Unless otherwise provided, the material from any existing old structure may be used temporarily by the CONTRACTOR in the erection of the new structure. Such material shall not be cut or otherwise damaged except with the approval of the ENGINEER.

SECTION 00700 - GENERAL CONDITIONS

- 16.3 **RIGHT TO AUDIT.** If the CONTRACTOR submits a claim to the OWNER for additional compensation, the OWNER shall have the right, as a condition to considering the claim, and as a basis for evaluation of the claim, and until the claim has been settled, to audit the CONTRACTOR's books to the extent they are relevant. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discover and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR's plants, or such parts thereof, as may be or have been engaged in the performance of the WORK. The CONTRACTOR further agrees that the right to audit encompasses all subcontracts and is binding upon Subcontractors. The rights to examine and inspect herein provided for shall be exercisable through such representatives as the OWNER deems desirable during the CONTRACTOR's normal business hours at the office of the CONTRACTOR. The CONTRACTOR shall make available to the OWNER for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the OWNER.
- 16.4 **ARCHEOLOGICAL OR HISTORICAL DISCOVERIES.** When the CONTRACTOR's operation encounters prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, such as shell heaps, land or sea mammal bones or tusks, or other items of historical significance, the CONTRACTOR shall cease operations immediately and notify the ENGINEER. No artifacts or specimens shall be further disturbed or removed from the ground and no further operations shall be performed at the site until so directed. Should the ENGINEER order suspension of the CONTRACTOR's operations in order to protect an archaeological or historical finding, or order the CONTRACTOR to perform extra work, such order(s) shall be covered by an appropriate contract change document.
- 16.5 **CONSTRUCTION OVER OR ADJACENT TO NAVIGABLE WATERS.** All work over, on, or adjacent to navigable waters shall be so conducted that free navigation of the waterways will not be interfered with and the existing navigable depths will not be impaired, except as allowed by permit issued the U.S. Coast Guard and/or the U.S. Army Corps of Engineers, as applicable.
- 16.6 **GRATUITY AND CONFLICT OF INTEREST.** The CONTRACTOR agrees to not extend any loan, gratuity or gift of money of any form whatsoever to any employee or elected official of the OWNER, nor will the CONTRACTOR rent or purchase any equipment or materials from any employee or elected official of the OWNER, or to the best of the CONTRACTOR's knowledge, from any agent of any employee or elected official of the OWNER. Before final payment, the CONTRACTOR shall execute and furnish the OWNER an affidavit certifying that the CONTRACTOR has complied with the above provisions of the contract.
- 16.7 **SUITS OF LAW CONCERNING THE WORK**
- A. Should a suit of law be entered into, either by the CONTRACTOR (or the CONTRACTOR's surety) against the OWNER, or by the OWNER against the CONTRACTOR (or the CONTRACTOR's surety), the suit of law shall be tried in the First Judicial District of Alaska.
 - B. If one of the questions at issue is the satisfactory performance of the work by the CONTRACTOR and should the appropriate court of law judge the work of the CONTRACTOR to be unsatisfactory, then the CONTRACTOR (or the CONTRACTOR's

SECTION 00700 - GENERAL CONDITIONS

surety) shall reimburse the OWNER for all legal and all other expenses (as may be allowed and set by the court) incurred by the OWNER because of the suit of the law and, further, it is agreed that the OWNER may deduct such expense from any sum or sums then, or any that become due the CONTRACTOR under the contract.

SECTION 00700 - GENERAL CONDITIONS

16.8 CERTIFIED PAYROLLS

- A. All CONTRACTORS or Subcontractor who perform work on a public construction contract for the OWNER shall file a certified payroll with the Alaska Department of Labor before Friday of each week that covers the preceding week (Section 14-2-4 ACLA 1949; am Section 4 ch 142 SLA 1972).
- B. In lieu of submitting the State payroll form, the CONTRACTOR's standard payroll form may be submitted, provided it contains the information required by AS 36.05.040 and a statement that the CONTRACTOR is complying with AS 36.10.010.
- C. A contractor or subcontractor, who performs work on public construction in the State, as defined by AS 36.95.010(3), shall pay not less than the current prevailing rate of wages as issued by the Alaska Department of Labor before the end of the pay period. (AS 36.05.010).

16.9 PREVAILING WAGE RATES

- A. Wage rates for Laborers and Mechanics on Public Contracts, AS 36.05.070. The CONTRACTOR, or Subcontractors, shall pay all employees unconditionally and not less than once a week. Wages may not be less than those stated in Paragraph 16.8C, regardless of the contractual relationship between the CONTRACTOR or Subcontractors and laborers, mechanics, or field surveyors. The scale of wages to be paid shall be posted by the CONTRACTOR in a prominent, easily accessible place at the site of the WORK.
- B. Failure to Pay Agreed Wages, AS 36.05.080. 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 or wages less than the established rate, the OWNER may, by written notice, terminate the CONTRACTOR or Subcontractors right to proceed with the work. The OWNER may prosecute the work to completion by contract or otherwise, and the CONTRACTOR and sureties will be held liable to the OWNER for excess costs for completing the WORK. (Section 2 ch 52 SLA 1959).
- C. Listing Contractor's Who Violate Contracts, AS 36.05.090. In addition, a list giving the names of persons who have disregarded the rights of their employees shall be distributed to all departments of State government and all political subdivisions. No person appearing on this list, and no firm, corporation, partnership or association in which the person has an interest, may work as a CONTRACTOR or Subcontractor on a public construction contract for the State, or a political subdivision of the state, until three years after the date of publication of the list. (Section 3 ch 52 SLA 1959; am Section 9 ch 142 SLA).

16.10 EMPLOYMENT REFERENCE. Workers employed in the execution of the contract by the CONTRACTOR or by any Subcontractor under this contract shall not be required or permitted to labor more than 8 hours a day or 40 hours per week in violation of the provisions of the Alaska Wage and Hour Act, Section 23.10.060.

16.11 COST REDUCTION INCENTIVE

- A. At any time within 45 days after the date of the Notice of Award, the CONTRACTOR may submit to the ENGINEER in writing, proposals for modifying the plans, specifications, or

SECTION 00700 - GENERAL CONDITIONS

other requirements of this contract for the sole purpose of reducing the total cost of construction. The cost reduction proposal shall not impair in any manner the essential functions or characteristics of the project, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance or design and safety standards.

- B. The cost reduction proposal shall contain the following information:
1. Description of both the existing contract requirements for performing the WORK and the proposed changes.
 2. An itemization of the contract requirements that must be changed if the proposal is adopted.
 3. A detailed estimate of the time required and the cost of performing the WORK under both the existing contract and the proposed change.
 4. A statement of the date by which the CONTRACTOR must receive the decision from the OWNER on the cost reduction proposal.
 5. The contract items of WORK effected by the proposed changes including any quantity variations.
 6. A description and estimate of costs the OWNER may incur in implementing the proposed changes, such as test and evaluation and operating and support costs.
 7. A prediction of any effects the proposed change would have on future operations and maintenance costs to the OWNER.
- C. The provisions of this section shall not be construed to require the OWNER to consider any cost reduction proposal which may be submitted; nor will the OWNER be liable to the CONTRACTOR for failure to accept or act upon any cost reduction proposal submitted, or for delays to the work attributable to the consideration or implementation of any such proposal.
- D. If a cost reduction proposal is similar to a change in the plans or specifications for the project under consideration by the OWNER at the time the proposal is submitted, the OWNER will not accept such proposal and reserves the right to make such changes without compensation to the CONTRACTOR under the provisions of this section.
- E. The CONTRACTOR shall continue to perform the work in accordance with the requirements of the contract until an executed Change Order incorporating the cost reduction proposal has been issued. If any executed Change Order has not been issued by the date upon which the CONTRACTOR's cost reduction proposal specifies that a decision should be made by the OWNER, in writing, the cost reduction proposal shall be considered rejected.
- F. The OWNER, shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in Contract Time and construction costs resulting from the adoption of all or any part of such proposal. Should the CONTRACTOR disagree with OWNER's decision on the cost reduction proposal, there is no further consideration. The OWNER reserves the right to make final determination.
- G. If the CONTRACTOR's cost reduction proposal is accepted in whole or in part, such acceptance will be made by a contract Change Order, which specifically states that the change is executed pursuant to this cost reduction proposal section. Such Change Order shall incorporate the changes in the plans and specifications which are necessary to permit

SECTION 00700 - GENERAL CONDITIONS

the cost reduction proposal or such part of it as has been accepted to be put into effect and shall include any conditions upon which the OWNER's approval is based, if such approval is conditional. The Change Order shall also describe the estimated net savings in the cost of performing the work attributable to the cost reduction proposal, and shall further provide that the contract cost be adjusted by crediting the OWNER with the estimated net savings amount.

- H. Acceptance of the cost reduction proposal and performance of the work does not extend the time of completion of the contract, unless specifically provided in the Change Order authorizing the use of the submitted proposal. Should the adoption of the cost reduction proposal result in a Contract Time savings, the total Contract Time shall be reduced by an amount equal to the time savings realized.
- I. The amount specified to the CONTRACTOR in the Change Order accepted in the cost reduction proposal shall constitute full compensation for the performance of WORK. No claims for additional costs as a result of the changes specified in the cost reduction proposal shall be allowed.
- J. The OWNER reserves the right to adopt and utilize any approved cost reduction proposal for general use on any contract administered when it is determined suitable for such application. Cost reduction proposals identical, similar, or previously submitted will not be accepted for consideration if acceptance and compensation has previously been approved. The OWNER reserves the right to use all or part of any cost reduction proposal without obligation or compensation of any kind to the CONTRACTOR.
- K. The CONTRACTOR shall bear the costs, if any, to revise all bonds and insurance requirements for the project, to include the cost reduction WORK.

END OF SECTION

SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

GENERAL. These Supplementary General Conditions make additions, deletions, or revisions to the General Conditions as indicated herein. All provisions which are not so added, deleted, or revised remain in full force and effect. Terms used in these Supplementary General Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

SGC 1 DEFINITIONS. *Remove* the definition for Contract Documents and *replace* with the following:

Contract Documents – The Table of Contents, Notice Inviting Bids, Instructions to Bidders, Bid Forms (including the Bid, Bid Schedule(s), Subcontractor Report, Bid Bond, and all required certificates and affidavits), Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary General Conditions, Alaska Labor Standards, Reporting, and Prevailing Wage Rate Determination, Special Provisions, Standard Specifications, Technical Specifications, Drawings, Permits, and all Addenda, and Change Orders executed pursuant to the provisions of the Contract Documents.

SGC 2.2 COPIES OF DOCUMENTS. *Add* the following:

The OWNER shall furnish to the CONTRACTOR up to five (5) copies of the Contract Documents which may include bound reduced Drawings, if any, together with up to two (2) sets of full-scale Drawings. Additional quantities of the Contract Documents and full-scale Drawings will be furnished at reproduction cost.

SGC 4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES. *Add* the following:

- C. In the preparation of the Contract Documents, the Engineer of Record has relied upon:
 - 1. Field measurements and visual inspection of the existing structures and surface conditions.

SGC 5.2 INSURANCE AMOUNTS. The limits of liability for the insurance required by Paragraph 5.2 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

- A. Workers' Compensation: (under Paragraph 5.2C.1 of the General Conditions) as in accordance with AS 23.30.045:
 - 1. State: Statutory
 - 2. Applicable Federal (e.g., Longshore): Statutory

Note: If the WORK called for in the Contract Documents involves work in or on any navigable waters, the CONTRACTOR shall provide Workers' Compensation coverage which shall include coverage under the Longshore and Harbor Workers' Compensation Act, the Jones Act, and any other coverage required under Federal or State laws pertaining to workers in or on navigable waters.

- 3. Employers Liability
 - Bodily Injury by Accident: \$100,000.00 Each Accident
 - Bodily Injury by Disease: \$100,000.00 Each Employee
 - Bodily Injury by Disease: \$500,000.00 Policy Limit

SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

- a. CONTRACTOR agrees to waive all rights of subrogation against the OWNER for WORK performed under contract.
- b. If CONTRACTOR directly utilizes labor outside of the State of Alaska in the prosecution of the WORK, "Other States" endorsement shall be required as a condition of the contract.

B. Commercial General Liability: (under Paragraph 5.2C.2 of the General Conditions):

1.	General Policy	\$1,000,000.00	Each Occurrence
		\$2,000,000.00	Annual Aggregate
2.	Products/Completed Operations	\$1,000,000.00	Each Occurrence
		\$2,000,000.00	Annual Aggregate
3.	Personal Injury	\$1,000,000.00	Each Occurrence

C. Commercial Automobile Liability: (under Paragraph 5.2C.3 of the General Conditions) including Owned, Hired, and Non-Owned Vehicles:

Combined Single Limit, Bodily Injury and Property Damage \$1,000,000.00

D. Builder's Risk: Builders risk does not apply to this project.

E. Policies shall also specify insurance provided by CONTRACTOR will be considered primary and not contributory to any other insurance available to the OWNER.

F. All policies will provide for 30 Days written notice prior to any cancellation or nonrenewal of insurance policies required under contract. "Will endeavor" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the Company, its agents or representatives" wording will be deleted from certificates.

G. The Haines Borough shall be named as an "Additional Insured" under all liability coverages listed in this Section, except for workers' compensation insurance.

SGC 6.20 ANTIDISCRIMINATION CLAUSE

The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.

SGC 14.3 APPLICATION FOR PROGRESS PAYMENT. Paragraph D.

D. The Value of Materials Stored at the site shall be an amount equal to 85%.

SGC 14.9 FINAL PAYMENT AND ACCEPTANCE. Add the following paragraph:

SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

- B. Prior to the final payment the CONTRACTOR shall contact the Alaska Department of Labor (ADOL) and provide the OWNER with clearance from the ADOL for the CONTRACTOR and all Subcontractors that have worked on the Project. This clearance shall indicate that all Employment Security Taxes have been paid. A sample letter for this purpose is at the end of this section.

SGC 16.8 CERTIFIED PAYROLLS. *Change* paragraph A. to read:

- A. All CONTRACTORS or Subcontractors who perform work on a public construction contract for the OWNER shall file a certified payroll with Alaska Department of Labor. See Section 00830 - Alaska Labor Standards, Reporting, and Prevailing Wage Rate Determination. Copies of the certified payroll shall be sent to:

Borough Clerk
Haines Borough Project Manager
P.O. Box 1209
Haines, Alaska 99827

Add the following SGC 17:

SGC 17 GENERAL INFORMATION. This Project is currently funded by grants and loans from the U.S. Environmental Protection Agency and the State of Alaska (Alaska Department of Environmental Conservation).

SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

Employment Security Tax Clearance

To: Alaska Department of Labor
Juneau Field Tax Office
Phone: 907-465-2787
Fax: 907-465-2374

From: _____

Subject: **Barnett Pump Station Replacement Project**

Timeframe of Contract _____

Please advise whether or not clearance is granted for the following CONTRACTOR or Subcontractor:

_____	_____
Name	Address

Per AS 23.20.265 of the Alaska Employment Security Act, this request is for tax liability clearance and release to make final payment for WORK performed under the subject contract. Please send your response to:

Brad Maynard, Haines Borough Project Manager
Haines Borough
103 Third Avenue South
Haines, Alaska 99827

- () Tax Clearance is granted.
- () Tax Clearance is NOT granted.

Remarks: _____

_____	_____
Signature	Date

Title

END OF SECTION

**SECTION 00830 - ALASKA LABOR STANDARDS, REPORTING, AND
PREVAILING WAGE RATE DETERMINATION**

State of Alaska, Department of Labor, Laborers' and Mechanics' Minimum Rates of Pay, AS 36.05.010 and AS 36.05.050, Wage and Hour Administration Pamphlet No. 600, the latest edition published by the State of Alaska, Department of Labor inclusive, are made a part of this contract by reference.

The CONTRACTOR is responsible for contacting the Alaska Department of Labor to determine compliance with current regulations relating to the Davis-Bacon Act.

Required Reporting During Contract (to be provided by every CONTRACTOR and Subcontractor):

- A. **Certified Payrolls must be submitted every two weeks. Before the second Friday**, each CONTRACTOR and Subcontractor must file Certified Payrolls with Statements of Compliance for the previous two weeks. If there was no activity for that pay period, indicate "**No Activity.**" Indicate "**Start**" on your first payroll, and "**Final**" on your last payroll for this Project. Send to:

Wage and Hour Section
State of Alaska
Department of Labor and Workforce Development
Labor Standards and Safety Division and
Wage and Hour Administration
P.O. Box 21149
Juneau, AK 99802-1449
907-465-4842

Borough Clerk
Haines Borough
103 Third Avenue South
Haines, AK 99827
(907) 766-2231

- B. **Within 10 Days of "Notice of Award/Notice to Proceed"** make a list of **all** Subcontractors. Include their name, address, phone, estimated subcontract amount, and estimated start and finish dates. Send to:

Borough Clerk
Haines Borough
103 Third Avenue South
Haines, AK 99827
(907) 766-2231

Wage and Hour Section
State of Alaska
Department of Labor and Workforce Development
and Labor Standards and Safety Division
Wage and Hour Administration
P.O. Box 21149
Juneau, AK 99802-1449

- C. As part of the **final payment request package**:

A completed Compliance Certificate and Release form (provided in Section 01700 - Project Closeout) from every CONTRACTOR.

A final Subcontractor list complete with final subcontract amounts and including all equipment rentals (with operators).

Tax Clearance letters from the Alaska Department of Labor (provided in Section 00800 Supplementary General Conditions).

END OF SECTION

**Haines Borough
Barnett Drive Bolted Steel Water Tank**

**ALASKA LABOR STANDARDS,
REPORTING, AND PREVAILING WAGE
RATE DETERMINATION
Page 00830-1**

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 GENERAL

- A. The work to be performed under this Contract shall consist of furnishing all plant, tools, equipment, materials, supplies, manufactured articles and furnishing all labor, transportation and services, including all fuel, power, water and essential communications and performing all WORK, or other operations required for the fulfillment of the contract in strict accordance with the Contract Documents. The WORK shall be complete, and all work, materials, and services, not expressly indicated or called for in the Contract documents which may be necessary for the complete and proper construction of the WORK in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the OWNER.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The WORK covered in the contract Documents generally includes: furnishing and installing an AWWA D-103 bolted steel water tank with a nominal 39' diameter and a nominal height of 20' with aluminum geodesic dome cover along with its associated concrete foundation and appurtenances.

- B. The site of the majority of WORK is at located in Haines, Alaska.

- C. OWNER:
Haines Borough
P.O. Box 1209
Haines, Alaska 99827

Engineer:
Carson Dorn Inc.
712 West 12th Street
Juneau, AK 99801
(907) 586-4447 Attn: Jim Dorn

1.3 CONTRACT METHOD

- A. The WORK, hereunder will be constructed under a unit price contract.

1.4 WORK BY OTHERS

- A. The CONTRACTOR's attention is directed to the fact that work may be conducted at the site by other contractors during the performance of the WORK under this Contract. The CONTRACTOR shall conduct its operations so as to cause a minimum of interference with the WORK of such other contractors, and shall cooperate fully with such contractors to provide continued safe access to their respective portions of the site, as required to perform work under their respective contracts.

SECTION 01010 - SUMMARY OF WORK

- B. Interference With Work On Utilities. The CONTRACTOR shall cooperate fully with all utility forces of the OWNER or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK, and shall schedule the WORK so as to minimize interference with said relocation, altering, or other rearranging of facilities.

1.5 CONTRACTOR USE OF PROJECT SITE

- A. The CONTRACTOR's use of the project site shall include construction operations and storage of materials, fabrication facilities, and field offices only in those areas identified on the plan drawings.

1.6 OWNER USE OF THE PROJECT SITE

- A. The OWNER may utilize all or part of the existing site during the entire period of construction for the conduct of the OWNER's normal operations. The CONTRACTOR shall cooperate and coordinate with the OWNER to facilitate the OWNER's operations and to minimize interference with the CONTRACTOR's operation at the same time. In any event, the OWNER shall be allowed access to the project site during the period of construction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1- GENERAL

1.1 SCOPE

- A. Payment for the lump sum of the Bid Schedule, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of WORK being described, as necessary to complete the various items of the WORK all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA) and Occupational Safety and Health Standards of the Alaska Department of Labor, Division of Labor Standards and Safety.
- B. No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs therefor shall be included in the prices named in the Bid Schedule for the various appurtenant items of WORK.
- C. In addition to other incidental items of WORK listed elsewhere in the contract, the following items shall also be considered as incidental to other items of WORK under this contract:
 - 1. All coordination of the WORK to be accomplished by the private utility companies.
 - 2. All construction surveying.
 - 3. Watering of the site as necessary for dust control.
 - 4. Removal and replacement of landscaping items, barricades, survey monuments and markers, whether shown on the plans or not.
 - 5. Erosion and sediment control from excavation and dewatering activities.
 - 6. Seeding and re-vegetating areas disturbed by construction of this Project.
 - 7. Maintenance of all services through the Project area, including private water systems, storm sewers, garbage pickup, mail delivery, other deliveries and emergency vehicles.
 - 8. Traffic control, including flaggers, and installation and maintenance of traffic control devices.
 - 9. Back fill with usable material from excavation.

2.1 PRICE BASED ON LUMP SUM PAY UNIT

- A. Measurement for payment for the Lump Sum Pay Unit will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.
- B. Payment will be made at the amount shown on the Bid Schedule, which payment will constitute full compensation for all WORK.

SECTION 01025 - MEASUREMENT AND PAYMENT

END OF SECTION

SECTION 01070 - ABBREVIATIONS OF INSTITUTIONS

PART 1 - GENERAL

1.1 GENERAL

- A. Wherever in these Specifications references are made to the standards, specifications, or other published data of the various international, national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these Specifications, the following acronyms or abbreviations which may appear in these Specifications shall have the meanings indicated herein.

1.2 ABBREVIATIONS

AAMA	Architectural Aluminum Manufacturer's Association
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturer's Association, Inc.
AGA	American Gas Association
AGMA	American Gear Manufacturer's Association
AHAM	Association of Home Appliance Manufacturers
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANS	American Nuclear Society
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ASA	Acoustical Society of America
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASLE	American Society of Lubricating Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
ATM	Alaska Test Methods
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
BHMA	Builders Hardware Manufacturer's Association
CBJ	City & Borough of Juneau
CBM	Certified Ballast Manufacturers

SECTION 01070 - ABBREVIATIONS OF INSTITUTIONS

CEMA	Conveyors Equipment Manufacturer's Association
CGA	Compressed Gas Association
CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
DCDMA	Diamond Core Drill Manufacturer's Association
EIA	Electronic Industries Association
ETL	Electrical Test Laboratories
FPL	Forest Products Laboratory
HI	Hydronics Institute
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IME	Institute of Makers of Explosives
IOS	International Organization for Standardization
IP	Institute of Petroleum (London)
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
MPTA	Mechanical Power Transmission Association
MTI	Marine Testing Institute
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NCCLS	National Committee for Clinical Laboratory Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NLGI	National Lubricating Grease Institute
NMA	National Microfilm Association
NSF	National Sanitation Foundation
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
RIS	Redwood Inspection Service
RVIA	Recreational Vehicle Industry Association
RWMA	Resistance Welder Manufacturer's Association
SAE	Society of Automotive Engineers
SAMA	Scientific Apparatus Makers Association
SMA	Screen Manufacturers Association
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SPIB	Southern Pine Inspection Bureau
SPR	Simplified Practice Recommendation
SSA	Swedish Standards Association
SSBC	Southern Standard Building Code, Southern Building Code Congress
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction

SECTION 01070 - ABBREVIATIONS OF INSTITUTIONS

TAPPI	Technical Association of the Pulp and Paper Industry
TFI	The Fertilizer Institute
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WCRSI	Western Concrete Reinforcing Steel Institute
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01090 - REFERENCE STANDARDS

PART 1 - GENERAL

1.1 GENERAL

- A. Titles of Sections and Paragraphs. Captions accompanying specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.
- B. Applicable Publications. Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the WORK is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- C. Specialists, Assignments. In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the WORK; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the CONTRACTOR.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of other requirements of the Specifications, all work specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents.
- B. References herein to "Building Code" or "Uniform Building Code" shall mean Uniform Building Code of the International Conference of Building Officials (ICBO).
- C. Similarly, references to "Mechanical Code" or "Uniform Mechanical Code," "Plumbing Code" or "Uniform Plumbing Code," "Fire Code" or "Uniform Fire Code," shall mean Uniform Mechanical Code, Uniform Plumbing Code and Uniform Fire Code of the International Conference of the Building Officials (ICBO). "Electric Code" or "National Electric Code (NEC)" shall mean the National Electric Code of the National Fire Protection Association (NFPA). The latest edition of the codes as approved by the Municipal Code and used by the local agency as of the date that the WORK is advertised for bids, as adopted by the agency having jurisdiction, shall apply to the WORK herein, including all addenda, modifications, amendments, or other lawful changes thereto.
- D. In case of conflict between codes, reference standards, Drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the ENGINEER for clarification and directions prior to ordering or providing

SECTION 01090 - REFERENCE STANDARDS

any materials or furnishing labor. The CONTRACTOR shall bid for the most stringent requirements.

- E. The CONTRACTOR shall construct the WORK specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein.
- F. Applicable Standard Specifications. References in Contract Sections 02801 -ASPHALT CONCRETE PAVEMENT to Standard Specifications shall mean the Alaska Department of Transportation and Public Facilities "STANDARD SPECIFICATIONS for Highway Construction - 1988" and any supplements or amendments thereto.
- G. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- H. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01300 - CONTRACTOR SUBMITTALS

PART 1 - GENERAL

1.1 GENERAL

- A. Wherever submittals are required hereunder, all such submittals by the CONTRACTOR shall be submitted to the ENGINEER.
- B. Within 14 days after the date of commencement as stated in the Notice to Award, the CONTRACTOR shall submit the following items to the ENGINEER for review:
 - 1. A preliminary schedule of Shop Drawing, Sample, and proposed Substitutes or "Or-Equal" submittals.
 - 2. A list of all permits and licenses the CONTRACTOR shall obtain indicating the agency required to grant the permit and the expected date of submittal for the permit and required date for receipt of the permit.
 - 3. A complete progress schedule for all phases of the project.
 - 4. All required Material Safety Data Sheets.
 - 5. A traffic maintenance plan, as required.
 - 6. A plan for temporary erosion control and pollution control, as required.
 - 7. A letter designating the CONTRACTOR's Superintendent, defining that person's responsibility and authority.
 - 8. A letter designating the CONTRACTOR's safety representative and the EEO Officer and that person's responsibility and authority.
- C. No payments shall be made to the CONTRACTOR until all these items are submitted in their entirety, as determined by the ENGINEER.

1.2 SHOP DRAWING SUBMITTAL

- A. Wherever called for in the Contract Documents, or where required by the ENGINEER, the CONTRACTOR shall furnish to the ENGINEER, for review, 4 copies of each shop drawing submittal. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, shop drawings, fabrication, and installation drawings, erection drawings, lists, graphs, operating instructions, catalog sheets, data sheets, and similar items.
- B. All Shop Drawing submittals shall be accompanied by the CONTRACTOR's standard submittal transmittal form. Any submittal not accompanied by such a form, or where all applicable items on the form are not completed, will be returned for re-submittal.
- C. Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal of various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole. A multiple-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the ENGINEER.
- D. Except as may otherwise be provided herein, the ENGINEER will return prints of each submittal to the CONTRACTOR with its comments noted thereon, within 30 calendar days following their receipt by the ENGINEER. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the ENGINEER by the

SECTION 01300 - CONTRACTOR SUBMITTALS

second submission of a submittal item. The OWNER reserves the right to withhold monies due the CONTRACTOR to cover additional costs of the ENGINEER review beyond the second submittal. The ENGINEER's maximum review period for each submittal including all re-submittals will be 30 days per submission. In other words, for a submittal that requires 2 re-submittals before it is complete, the maximum review period for that submittal could be 90 days.

- E. If 3 copies of a submittal are returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN," formal revision and re-submission of said submittal will not be required.
- F. If 3 copies of a submittal are returned to the CONTRACTOR marked "MAKE CORRECTIONS NOTED," formal revision and re-submission of said submittal will not be required.
- G. If one copy of the submittal is returned to the CONTRACTOR marked "AMEND-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the ENGINEER.
- H. If one copy of the submittal is returned to the CONTRACTOR marked "REJECTED-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the ENGINEER.
- I. Fabrication of an item may be commenced only after the ENGINEER has reviewed the pertinent submittal and returned copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Corrections indicated on submittal shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the Contract requirements. Only a change order can alter the contract price, time, or requirements.
- J. All CONTRACTOR shop drawing submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR, prior to submission to the ENGINEER. Each submittal shall be dated, signed, and certified by the CONTRACTOR, as being correct and in strict conformance with the Contract Documents. In the case of shop drawings, each sheet shall be so dated, signed, and certified. No consideration for review by the ENGINEER of any CONTRACTOR submittal will be made for any items which have not been so certified by the CONTRACTOR. All non-certified submittals will be returned to the CONTRACTOR without action taken by the ENGINEER, and any delays caused thereby shall be the total responsibility of the CONTRACTOR.
- K. The ENGINEER's review of CONTRACTOR shop drawing submittals shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions. The CONTRACTOR shall assume all responsibility and risk for any misfits due to any errors in CONTRACTOR submittals. The CONTRACTOR shall be responsible for the dimensions and the design of adequate connections and details.

1.3 SAMPLES SUBMITTAL

- A. Whenever in the Specifications samples are required, the CONTRACTOR shall submit not less than 3 samples of each such item or material to the ENGINEER for acceptance at no additional cost to the OWNER.

SECTION 01300 - CONTRACTOR SUBMITTALS

- B. Samples, as required herein, shall be submitted for acceptance a minimum of 21 days prior to ordering such material for delivery to the job site, and shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the WORK.
- C. All samples shall be individually and indelibly labeled or tagged, indicating thereon all specified physical characteristics and Supplier's names for identification and submitted to the ENGINEER for acceptance. Upon receiving acceptance of the ENGINEER, one set of the samples will be stamped and dated by the ENGINEER and returned to the CONTRACTOR, and one set of samples will be retained by the ENGINEER, and one set of samples shall remain at the job site until completion of the WORK.
- D. Unless clearly stated otherwise, it is assumed that all colors and textures of specified items presented in sample submittal are from the manufacturer's standard colors and standard materials, products, or equipment lines. If the samples represent non-standard colors, materials, products or equipment lines, and their selection will require an increase in contract time or price, the CONTRACTOR will clearly indicate this on the transmittal page of the submittal.

1.4 RECORD DRAWINGS SUBMITTAL

- A. The CONTRACTOR shall keep and maintain, at the job site, one record set of Drawings. On these, it shall mark all project conditions, locations, configurations, and any other changes or deviations which may vary from the details represented on the original Contract Drawings, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated, or which were not indicated on the Contract Drawings. Said record drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the WORK as actually constructed. These master record drawings of the CONTRACTOR's representation of as-built conditions, including all revisions made necessary by addenda, change orders, and the like shall be maintained up-to-date during the progress of the WORK.
- B. In the case of those drawings which depict the detail requirement for equipment to be assembled and wired in the factory, such as motor control centers and the like, the record drawings shall be updated by indicating those portions which are superseded by change order drawings or final shop drawings, and by including appropriate reference information describing the change orders by number and the shop drawings by manufacturer, drawing, and revision numbers.
- C. Record drawings shall be accessible to the ENGINEER at all times during the construction period and shall be delivered to the ENGINEER on the 20th working day of every third month after the month in which the Notice to Proceed is given as well as upon completion of the WORK.
- D. Final payment will not be acted upon until the CONTRACTOR-prepared record drawings have been delivered to the ENGINEER.

SECTION 01300 - CONTRACTOR SUBMITTALS

1.5 PROGRESS SCHEDULES

- A. The progress schedule shall be in Bar Chart or Critical Path Method (CPM) form, as required by the ENGINEER.
- B. The progress schedule shall show the order in which the CONTRACTOR proposes to carry out the work and the contemplated dates on which the CONTRACTOR and their subcontractors will start and finish each of the salient features of the work, including any scheduled periods of shutdown. The schedule shall also indicate any anticipated periods of multiple-shift work.
- C. Upon substantial changes to the CONTRACTORS progress schedule of work or upon request of the ENGINEER, the contractor shall submit a revised progress schedule(s) in the form required. Such revised schedule(s) shall conform with the contract time and take into account delays which may have been encountered in the performance of the Work. In submitting a revised schedule, the CONTRACTOR shall state specifically the reason for the revision and the adjustments made in his schedule or methods of operation to ensure the completion of all the work within the contract time.

1.6 PROPOSED SUBSTITUTES OR "OR-EQUAL" ITEM SUBMITTAL

- A. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words "or-equal" indicating that a substitution is permitted, materials or equipment of other Suppliers may be accepted by the ENGINEER if sufficient information is submitted by the CONTRACTOR to allow the ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named, subject to the following requirements:
 - 1. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the CONTRACTOR.
 - 2. The ENGINEER will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the ENGINEER's decision shall be final.
 - 3. The ENGINEER may require the CONTRACTOR, to furnish at the CONTRACTOR's expense, additional data about the proposed substitute.
 - 4. The OWNER may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.
 - 5. Acceptance by the ENGINEER of a substitute item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.
 - 6. The CONTRACTOR shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the CONTRACTOR's work, the work of its subcontractors and of other contractors, and shall effect such changes

SECTION 01300 - CONTRACTOR SUBMITTALS

without cost to the OWNER. This shall include the cost for redesign and claims of other contractor affected by the resulting change.

- B. The procedure for review by the ENGINEER will include the following:
1. If the CONTRACTOR wishes to furnish or use a substitute item of material or equipment, the CONTRACTOR shall make written application to the ENGINEER on the "Substitution Request" for acceptance thereof. The CBJ Engineering "Substitution Request Form" is located at the end of this Section.
 2. Unless otherwise provided by law or authorized in writing by the ENGINEER, the "Substitution Requests" shall be submitted within the 21-day period after Notice of Award.
 3. Wherever a proposed substitute material or equipment has not been submitted within said 21-day period, or wherever the submission of a proposed substitute material or equipment has been judged to be unacceptable by the ENGINEER, the CONTRACTOR shall provide material or equipment named in the Contract Documents.
 4. The CONTRACTOR shall certify that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified, and be suited to the same use as that specified.
 5. The ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. In no case will this reasonable time period be less than 30 days.
 6. As applicable, no shop drawing submittals will be made for a substitute item nor will any substitute item be ordered, installed, or utilized without the ENGINEER's prior written acceptance of the CONTRACTOR's "Substitution Request" which will be evidenced by a Change Order.
 7. The ENGINEER will record the time required by the ENGINEER in evaluating substitutions proposed by the CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not the ENGINEER accepts a proposed substitute, the CONTRACTOR shall reimburse the OWNER for the charges of the ENGINEER for evaluating each proposed substitute.
- C. The CONTRACTOR's application using the "Substitution Request" shall contain the following statements and/or information which shall be considered by the ENGINEER in evaluating the proposed substitution:
1. The evaluation and acceptance of the proposed substitute will not prejudice the CONTRACTOR's achievement of substantial completion on time.
 2. Whether or not acceptance of the substitute for use in the WORK will require a change in any of the Contract Documents to adopt the design to the proposed substitute.

SECTION 01300 - CONTRACTOR SUBMITTALS

3. Whether or not incorporation or use of the substitute in connection with the WORK is subject to payment of any license fee or royalty.
4. All variations of the proposed substitute for that specified will be identified.
5. Available maintenance, repair, and replacement service and its estimated cost will be indicated.
6. Itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including cost of redesign and claims of other contractors affected by the resulting change.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

(Substitution Request Form - next page)

SUBSTITUTION REQUEST FORM

TO: _____ Project: _____ Contract No. _____

OWNER:

SPECIFIED ITEM:

Section _____ Page _____ Paragraph _____ Description _____

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request. Applicable portions of the data are clearly identified.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitution does not affect dimensions shown on Drawings and will not require a change in any of the Contract Documents.
2. The undersigned will pay for changes to the design, including engineering design, detailing, and construction costs caused by the requested substitution which is estimated to be approximately \$_____.
3. The proposed substitution will have no adverse affect on other contractors, the construction schedule (specifically the date of substantial completion), or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.
5. The incorporation or use of the substitute in connection with the work is not subject to payment of any license fee or royalty.

The undersigned further states that the function, appearance, and quality of the proposed substitution is the equivalent of, or is superior to, the specified item.

Submitted by Contractor:

Reviewed by Architect/Engineer: _____ Signature

_____ Accepted

_____ Accepted as Noted

_____ Not Accepted

_____ Received Too Late

Firm:

By: _____

Date: _____

Title: _____

Telephone: _____ Date: _____

END OF SECTION

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.1 DEFINITION

- A. Specific quality control requirements for the WORK are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the WORK beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

1.2 INSPECTION AT PLACE OF MANUFACTURE

- A. Unless otherwise indicated, all products, materials, and equipment shall be subject to inspection by the ENGINEER at the place of manufacture.
- B. The presence of the ENGINEER at the place of manufacturer, however, shall not relieve the CONTRACTOR of the responsibility for furnishing products, materials, and equipment which comply with all requirements of the Contract Documents. Compliance is a duty of the CONTRACTOR, and said duty shall not be avoided by any act or omission on the part of the ENGINEER.

1.3 SAMPLING AND TESTING

- A. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, ATM, and AASHTO as applicable to the class and nature of the article or materials considered; however, the OWNER reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the ENGINEER will insure the OWNER that the quality of the work is in full accord with the Contract Documents.
- B. Any waiver by the OWNER of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial WORK, shall not be construed as a waiver of any requirements of the Contract Documents.
- C. Notwithstanding the existence of such waiver, the ENGINEER reserves the right to make independent investigations and tests, and failure of any portion of the WORK to meet any of the requirements of the Contract Documents, shall be reasonable cause for the ENGINEER to require the removal or correction and reconstruction of any such work in accordance with the General Conditions.

1.4 INSPECTION AND TESTING LABORATORY SERVICE

- A. Inspection and testing laboratory service shall comply with the following:
 - 1. OWNER will appoint, employ, and pay for services of an independent firm to perform inspection and testing or will perform inspection and testing itself.

SECTION 01400 - QUALITY CONTROL

2. The ENGINEER will perform inspections as specified in individual specification sections.
3. Reports will be submitted by the independent firm to the ENGINEER in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
4. The CONTRACTOR shall cooperate with the ENGINEER or independent firm and furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
5. The CONTRACTOR shall notify ENGINEER 24 hours prior to the expected time for operations requiring inspection and laboratory testing services.
6. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the ENGINEER. The CONTRACTOR shall bear all costs from such retesting at no additional cost to the OWNER.
7. For samples and tests required for CONTRACTOR'S use, the CONTRACTOR shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the CONTRACTOR'S use shall be included in the Contract Price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Inspection. The CONTRACTOR shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.
- B. Measurements. The CONTRACTOR shall verify measurements and dimensions of the WORK, as an integral step of starting each installation.
- C. Manufacturer's Instructions. Where installations include manufactured products, the CONTRACTOR shall comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.

END OF SECTION

SECTION 01505 – MOBILIZATION

PART 1 - GENERAL

1.1 GENERAL

- A. Mobilization shall include obtaining all permits; moving all plant and equipment onto the site; furnishing and erecting plants, temporary buildings, and other construction facilities; implementing security requirements, all as required for the proper performance and completion of the WORK. Mobilization shall include the following principal items:
1. Moving all the CONTRACTOR's plant and equipment required for operations onto the site.
 2. Providing all on-site communication facilities, including radios and cellular phones.
 3. Providing on-site sanitary facilities.
 4. Obtaining all required permits.
 5. Having all OSHA-required notices and establishment of safety programs.
 6. Having the CONTRACTOR's superintendent at the jobsite full time.
 7. Submitting initial submittals.

1.2 PAYMENT FOR MOBILIZATION

- A. The CONTRACTOR's attention is directed to the condition that no payment for mobilization, or any part thereof, will be approved for payment under the Contract until all mobilization items listed above have been completed as specified.
- B. As soon as practicable, after receipt of Notice to Proceed, the CONTRACTOR shall submit a breakdown showing the estimated value of each major component of mobilization to the ENGINEER for approval. When approved by the ENGINEER, the breakdown will be the basis for initial progress payments in which Mobilization is included.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

**SECTION 01530 - PROTECTION AND RESTORATION
OF EXISTING FACILITIES**

PART 1 - GENERAL

1.1 GENERAL

- A. The CONTRACTOR shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents.
- B. All utility locates shall be the responsibility of the CONTRACTOR. Call for locates of underground utilities within the WORK limits prior to any work.
- C. The CONTRACTOR shall verify the exact locations and depths of all utilities and the CONTRACTOR shall make exploratory excavations of all utilities that may interfere with the WORK. All such exploratory excavations shall be performed as soon as practicable after award of the contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR's work. Any utility or service in conflict with the WORK will be reburied by the CONTRACTOR prior beginning the WORK to avoid damage.
- D. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

1.2 RIGHTS-OF-WAY

- A. The CONTRACTOR shall not do any work that would affect any oil, gas, sewer, or water pipeline; any telephone, cable television, telegraph, or electric transmission line; any fence; or any other structure, nor shall the CONTRACTOR enter upon the rights-of-way involved until notified by the ENGINEER that the OWNER has secured authority therefor from the proper party. After authority has been obtained, the CONTRACTOR shall give said party due notice of its intention to begin work, if required by said party, and shall remove, shore, support or otherwise protect such pipeline, transmission line, ditch, fence, or structure or replace the same. When two or more contracts are being executed at one time on the same or adjacent land in such manner that work on one contract may interfere with that on another, the OWNER shall determine the sequence and order of the WORK. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the OWNER to the CONTRACTOR so desiring, to the extent, amount, in the manner, and at the times permitted.
- B. No such decision as to the method or time of conducting the WORK or the use of territory shall be made the basis of any claim for delay or damage, except as provided for temporary suspension of the WORK in Article 15 of the General Conditions of the Contract.

**SECTION 01530 - PROTECTION AND RESTORATION
OF EXISTING FACILITIES**

1.3 PROTECTION OF SURVEY MONUMENTS, STREET AND/OR ROADWAY MARKERS

- A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced. All survey monuments, markers or points disturbed by the CONTRACTOR shall be accurately re-established, at the CONTRACTOR's expense unless provided for elsewhere in the Contract, after all street or roadway resurfacing has been completed. Re-establishment of all survey monuments shall be by a Registered Alaskan Land Surveyor.

1.4 RESTORATION OF PAVEMENT

- A. General. All paved areas, including asphalt concrete berms, cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the affected pavement owner. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.
- B. Temporary Resurfacing. Wherever required by the public authorities having jurisdiction, the CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.
- C. Permanent Resurfacing. In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.
- D. Restoration of Sidewalks or Private Driveways. Wherever sidewalks or private roads have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks or roadways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions before proceeding with the final restoration or, if no such period of times is so fixed, the CONTRACTOR shall maintain said temporary sidewalks or roadways until the final restoration thereof has been made.

1.5 EXISTING UTILITIES AND IMPROVEMENTS

- A. General. The CONTRACTOR shall protect all Underground Utilities and other improvements which may be impaired during construction operations. It shall be the CONTRACTOR's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. The CONTRACTOR shall take all possible precautions for the protection of

**SECTION 01530 - PROTECTION AND RESTORATION
OF EXISTING FACILITIES**

unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.

- B. Utilities to be Moved. In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the CONTRACTOR, be notified by the OWNER to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the CONTRACTOR shall notify the ENGINEER a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.
- C. Where the proper completion of the WORK requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is indicated, the CONTRACTOR shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the ENGINEER and the owner of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the CONTRACTOR in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.
- D. OWNER's Right of Access. The right is reserved to the OWNER and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the WORK of this Contract.
- E. Underground Utilities Indicated. Existing utility lines that are indicated or the locations of which are made known to the CONTRACTOR prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired or replaced by the CONTRACTOR.
- F. Underground Utilities Not Indicated. In the event that the CONTRACTOR damages any existing utility lines that are not indicated or the locations of which are not made known to the CONTRACTOR prior to excavation, a written report thereof shall be made immediately to the ENGINEER. If directed by the ENGINEER, repairs shall be made by the CONTRACTOR under the provisions for changes and extra work contained in Articles 10, 11, and 12 of the General Conditions.
- G. All costs of locating, repairing damage not due to failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such utility facilities not shown in the Contract Documents with reasonable accuracy, and for equipment on the project which was actually working on that portion of the WORK which was interrupted or idled by removal or relocation of such utility facilities, and which was necessarily idled during such work will be paid for as extra work in accordance with the provisions of Articles 10, 11, and 12 of the General Conditions.
- H. Approval of Repairs. All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill or other work.
- I. Maintaining in Service. All oil and gasoline pipelines, power, and telephone, cable television or the communication cable ducts, gas and water mains, irrigation lines, sewer

SECTION 01530 - PROTECTION AND RESTORATION OF EXISTING FACILITIES

lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the WORK shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the ENGINEER are made with the owner of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The CONTRACTOR shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

1.6 TREES WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

- A. General. The CONTRACTOR shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or OWNER. All existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the CONTRACTOR or a certified tree company under permit from the jurisdictional agency and/or the OWNER. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.
- B. Trimming. Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to the trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over 1-1/2 inches in diameter shall be coated with an asphaltic emulsion material.
- C. Replacement. The CONTRACTOR shall immediately notify the jurisdictional agency and/or the OWNER if any tree is damaged by the CONTRACTOR's operations. If, in the opinion of said agency or the OWNER, the damage is such that replacement is necessary, the CONTRACTOR shall replace the tree at its own expense. The tree shall be of a like size and variety as the tree damaged, or, the CONTRACTOR shall pay to the owner of said tree a compensatory payment acceptable to the tree owner, subject to the approval of the jurisdictional agency or OWNER.

1.7 PROTECTION OF EXISTING STRUCTURES

- A. Compaction Equipment and Operations. The CONTRACTOR shall restrict compaction operations as necessary to assure no damage occurs to adjacent buildings. This may require the use of smaller compaction equipment than is usually employed for trench backfill and roadway embankment compaction operations when in the vicinity of buildings sensitive to vibrating or other impact-type activities. It shall be the CONTRACTOR's responsibility to determine in which areas of the project the compaction operations must be restricted, to avoid damage to existing buildings. The foregoing restrictions on the size of, and magnitude of impact energy exerted by, compaction equipment will in no way relieve the CONTRACTOR from the compaction requirements as specified in other Sections of the Contract.

**SECTION 01530 - PROTECTION AND RESTORATION
OF EXISTING FACILITIES**

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01550 - SITE ACCESS AND STORAGE

PART 1 - GENERAL

1.1 HIGHWAY LIMITATIONS

- A. The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.

1.2 TEMPORARY CROSSINGS

- A. General. Continuous, unobstructed, safe, and adequate pedestrian and vehicular access shall be provided to fire hydrants, commercial and industrial establishments, private residences, churches, schools, parking lots, service stations, motels, fire and police stations, and hospitals. Safe and adequate public transportation stops and pedestrian crossings at intervals not exceeding 200 feet shall be provided. The CONTRACTOR shall cooperate with parties involved in the delivery of mail and removal of trash and garbage so as to maintain existing schedules for such services. Vehicular access to residential driveways shall be maintained to the property line except when necessary construction precludes such access for reasonable periods of time, as approved by the ENGINEER.
- B. Temporary Bridges. Wherever necessary, the CONTRACTOR shall provide suitable temporary bridges or steel plates over unfilled excavations, except in such cases as the CONTRACTOR shall secure the written consent of the individuals or authorities concerned to omit such temporary bridges or steel plates, which written consent shall be delivered to the ENGINEER prior to excavation. All such bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges or steel plates for street and highway crossing shall conform to the requirements of the authority having jurisdiction in each case, and the CONTRACTOR shall adopt designs furnished by said authority for such bridges or steel plates, or shall submit designs to said authority for approval, as may be required.

1.3 MAINTENANCE OF TRAFFIC

- A. General. Unless otherwise provided, the roadway undergoing improvements shall be kept open to all traffic by the CONTRACTOR. Nothing herein shall be construed to entitle the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the WORK hereunder, and it shall so conduct its operations as not to interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas. The CONTRACTOR shall provide unimpeded access through the project limits for emergency vehicles and make every effort to provide minimum delay to United States Postal Service vehicles and garbage collection vehicles.
- B. The CONTRACTOR shall submit three (3) copies of a traffic control plan to City the ENGINEER for approval a minimum of two (2) weeks prior to construction. The ENGINEER reserves the right to observe these traffic control plans in use and to make any changes as field conditions warrant. Any changes shall supersede these plans and be done solely at the CONTRACTOR's expense.
- C. No street shall be closed to the public without first obtaining permission of the ENGINEER and proper governmental authority. Where so provided on the plans or otherwise approved by the ENGINEER, the CONTRACTOR may by-pass traffic over a detour route. When no longer required, the detour shall be removed and the approached obliterated.

SECTION 01550 - SITE ACCESS AND STORAGE

- D. Where excavation is being performed in primary streets or highways, one lane in each direction shall be kept open to traffic at all times unless otherwise indicated. Toe boards shall be provided to retain excavated material if required by the ENGINEER or the agency having jurisdiction over the street or highway. Fire hydrants on or adjacent to the WORK shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the CONTRACTOR to assure the use of sidewalks and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.
- E. 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 ENGINEER, are installed and maintained at CONTRACTOR's expense.
- F. When the CONTRACTOR is required to maintain traffic through grading, roadway excavation and embankment areas, the construction shall be conducted in such a manner as to provide a reasonably smooth and even surface satisfactory for use by public traffic at all times. The surface of the roadbed shall be properly crowned for drainage. In advance of other grading operations, sufficient fill shall be placed at culverts and bridges to permit traffic to cross unimpeded. Part width construction techniques shall be employed when the traffic is routed through roadway cuts or over embankments under construction. The material shall be excavated or placed in layers and the construction activities shall be alternated from one side to the other, with traffic routed over the side opposite the one under construction.
- G. During the removal and laying of culvert pipe, a maximum time of one hour of road closure may be permitted, providing the removal and laying of the culvert pipe cannot be completed for one-half width of the roadway and provided that a detour cannot be constructed around the culvert being laid. Closure shall be scheduled so as not to delay buses and peak hour traffic. The CONTRACTOR shall post, at the site of the closure within view of the waiting public traffic, the time the closure started and the time the road will again be open to traffic. The CONTRACTOR shall notify the Fire and Police Departments of such closures prior to commencement of work.
- H. At intervals of 48 hours and 24 hours prior to start up of construction operations, and at weekly intervals during the construction period, the CONTRACTOR shall advertise in the JUNEAU EMPIRE and have broadcast on all local radio stations the precise location, time of commencement, and proposed completion date of the WORK scheduled for the following week which will require detouring or otherwise effect public traffic. Detours shall be described in sufficient detail to efficiently inform the traveling public of the modified traffic pattern. The cost of these advertisements shall be considered incidental to other contract bid items. The CONTRACTOR will notify the property owners 24 hours prior to commencement of WORK.
- I. When, in the opinion of the ENGINEER, conditions are such that the safety and/or convenience of the traveling public is adversely affected, the CONTRACTOR will be immediately notified in writing. The notice will state the defect(s) and the corrective action(s) required. In the event that the CONTRACTOR neglects to take immediate corrective action, the ENGINEER may suspend all work on the project until satisfactory corrective action is performed. In the event the CONTRACTOR does not take corrective action within 24 hours, the ENGINEER may order such work as deemed necessary for public convince and safety accomplished by outside forces. The cost of this work shall be deducted from any monies due or that may become due under the terms or the contract.
- J. The CONTRACTOR shall bear all expense of maintaining the traffic over the section of road undergoing improvement, including dust control and snow plowing, and of constructing and maintaining such approaches, crossings, intersections, and other features as may be necessary, without direct compensation, except as provided below:

SECTION 01550 - SITE ACCESS AND STORAGE

1. Special Detours. When the proposal contains a bid item for detours, the payment for such item shall cover all cost of constructing and maintaining such detour or detours, including the construction of any and all temporary bridges and accessory features and the removal of the same, and obliteration of the detour road. Right-of-way for temporary highways or bridges will be furnished by the CBJ.
 2. Maintenance of Traffic During Suspension of WORK. The CONTRACTOR shall make passable and shall open to traffic such portions of the project and temporary roadways as may be agreed upon between the CONTRACTOR and the ENGINEER for the temporary accommodation of necessary traffic during the anticipated period of suspension. If the suspension is seasonal (winter shutdown), thereafter, and until an issuance of an order for the resumption of construction operations, the maintenance of the temporary route of line of travel agreed upon will be the responsibility of the CBJ. Prior to the CBJ accepting the project for winter shutdown, the CONTRACTOR shall do all work necessary to provide a roadway surface and subgrade that will not require the CBJ to perform additional maintenance work during the shutdown period, except for purpose of snow removal. If the WORK is suspended due to unfavorable weather, failure of the CONTRACTOR to correct conditions unsafe for the workers or the general public, failure to carry out provisions of the Contract, or for failure to carry out orders of the ENGINEER, all costs for maintenance of traffic during the suspended period shall be borne by the CONTRACTOR. When WORK is resumed, the CONTRACTOR shall replace or renew any WORK or materials lost or damaged because of temporary use of the project; shall remove, to the extent directed by the ENGINEER, any work or materials used in the temporary maintenance; and shall complete the project as though its prosecution had been continuous and without interference.
- K. Traffic Control. All locations requiring redirection or stopping of the traveling public shall be properly signed and/or flagged by the CONTRACTOR. For the protection of traffic in public or private streets and ways, the CONTRACTOR shall provide, flaggers and provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, and other safety devices in accordance with the requirements of the "Manual of Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations," (MUTCD) published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1) with the current State of Alaska supplements.
- L. The CONTRACTOR shall take all necessary precautions for the protection of the WORK and the safety of the public. All barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise. The CONTRACTOR shall station such guards or flaggers and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. All signs, signals, and barricades shall conform to the requirements of Subpart G, Part 1926, of the OSHA Safety and Health Standards for Construction.
- M. Special pedestrian detours are often necessary in areas adjacent to new construction or demolition of existing structures. The ENGINEER shall determine when walkways are required. Plans for walkways must be approved by the ENGINEER.
- N. The CONTRACTOR shall remove traffic control devices when no longer needed, repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.
- O. Temporary Street Closure. If closure of any street is required during construction, the CONTRACTOR shall apply in writing to the City ENGINEER and any other jurisdictional

SECTION 01550 - SITE ACCESS AND STORAGE

agency at least 30 days in advance of the required closure and again at 48 hours. A Detour and Traffic Control Plan shall accompany the application.

- P. The CONTRACTOR shall notify the Police and Fire Departments and any other affected agency of all planned street closures. Notification shall consist of giving the time of commencement and proposed date of completion of work and names of street, schedule of operations, and routes of detours. Such notification shall be given at least 48 hours before such closure is to take effect.
- Q. Temporary Driveway Closure. The CONTRACTOR shall maintain access to all residential, commercial and street approaches. Any temporary closures shall require prior approval by the ENGINEER. The CONTRACTOR shall notify the owner or occupant (if not owner-occupied) of the closure of the driveways to be closed more than one (1) eight-hour work day at least three (3) working days prior to the closure. The CONTRACTOR shall minimize the inconvenience and minimize the time period that the driveways will be closed. The CONTRACTOR shall fully explain to the owner/occupant how long the work will take and when closure is to start.
- R. On-Site Cellular Phones. The CONTRACTOR shall maintain one active cellular phone at the project site at all times with the phone number provided to the CBJ Fire, Police and Engineering Departments. The cellular phone shall be carried by the person in charge of the field operations. The CONTRACTOR shall provide and allow the use of the CONTRACTOR's radio frequency to facilitate communication between the CONTRACTOR and the ENGINEER.
- S. Street Closure Requirements. The following street closure allowances and limitations shall apply to this Contract, and shall take precedence over any conflicting public access requirements and limitations given elsewhere in the Contract Documents.
1. The CONTRACTOR will not be permitted to obstruct vehicular traffic between the hours of 4:30pm and 8:00am, seven days per week.
 2. Emergency vehicle, pedestrian, garbage, and mail delivery access is required at all times. The CONTRACTOR shall contact Arrow Refuse, Inc. regarding any work affecting scheduled garbage pickup.
 3. Street closure to vehicular traffic will not be permitted until all project site residents or other users of project site parking lots affected by the closure have been notified. This notification shall be given at least 8 hours prior to the closure.
 4. At the time of each road closure, the CONTRACTOR shall contact the Fire and Police Departments and inform them of the planned period of closure. Further contact shall be made when the planned closure period is changed.

1.4 CONTRACTOR'S WORK AND STORAGE AREA

- A. The CONTRACTOR shall make its own arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the WORK.
- B. Should the CONTRACTOR find it necessary to use any additional land for its camp or for other purposes during the construction of the WORK, it shall provide for the use of such lands at its own expense.
- C. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK.

SECTION 01550 - SITE ACCESS AND STORAGE

1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are all products labeled with any of the following terms: **Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive**. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.
2. The CONTRACTOR shall develop and submit to the ENGINEER a plan for storing and disposing of the materials above.
3. The CONTRACTOR shall obtain and submit to the ENGINEER a single EPA number for wastes generated at the site.
4. The separate storage area shall meet all the requirements of all authorities having jurisdiction over the storage of hazardous materials.
5. The separate storage area shall be inspected by the ENGINEER prior to construction of the area, upon completion of construction of the area, and upon clean-up and removal of the area.
6. All hazardous materials which are delivered in containers shall be stored in the original containers until use. Hazardous materials which are delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.

1.5 PARKING

- A. The CONTRACTOR shall direct its employees to park in areas as directed by the ENGINEER.
- B. Traffic and parking areas shall be maintained in a sound condition, free of excavated material, construction equipment, mud, and construction materials. The CONTRACTOR shall repair breaks, potholes, low areas which collect standing water, and other deficiencies.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01600 - MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 GENERAL

- A. The word "Products," as used herein, is defined to include purchased items for incorporation into the WORK, regardless of whether specifically purchased for project or taken from CONTRACTOR's stock of previously purchased products. The word "Materials," is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form units of work. The word "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, and other like items). Definitions in this paragraph are not intended to negate the meaning of other terms used in Contract Documents, including "specialties," "systems," "structure," "finishes," "accessories," "furnishings," "special construction," and similar terms, which are self-explanatory and have recognized meanings in the construction industry.
- B. Neither "Products" nor "Materials" nor "Equipment" includes machinery and equipment used for preparation, fabrication, conveying and erection of the WORK.

1.2 QUALITY ASSURANCE

- A. Source Limitations. To the greatest extent possible for each unit of work, the CONTRACTOR shall provide products, materials, or equipment of a singular generic kind from a single source.
- B. Compatibility of Options. Where more than one choice is available as options for CONTRACTOR's selection of a product, material, or equipment, the CONTRACTOR shall select an option which is compatible with other products, materials, or equipment already selected. Compatibility is a basic general requirement of product/material selections.

1.3 PRODUCT DELIVERY/STORAGE/HANDLING

- A. The CONTRACTOR shall deliver, handle, and store products in accordance with manufacturer's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long-term storage of products at site and overcrowding of construction spaces. In particular, the CONTRACTOR shall ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

1.4 TRANSPORTATION AND HANDLING

- A. Products shall be transported by methods to avoid product damage and shall be delivered in undamaged condition in manufacturer's unopened containers or packaging.
- B. The CONTRACTOR shall provide equipment and personnel to handle products, materials, and equipment by methods to prevent soiling and damage.
- C. The CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

SECTION 01600 - MATERIALS AND EQUIPMENT

1.5 STORAGE AND PROTECTION

- A. Products shall be stored in accordance with manufacturer's written instructions, with seals and labels intact and legible. Sensitive products shall be stored in weather-tight climate controlled enclosures and temperature and humidity ranges shall be maintained within tolerances required by manufacturer's written instructions.
- B. For exterior storage of fabricated products, they shall be placed on sloped supports above ground. Products subject to deterioration shall be covered with impervious sheet covering; ventilation shall be provided to avoid condensation.
- C. Loose granular materials shall be stored on solid surfaces in a well-drained area and shall be prevented from mixing with foreign matter.
- D. Storage shall be arranged in a manner to provide access for maintenance and inspection. The CONTRACTOR shall periodically inspect to assure products are undamaged and are maintained under required conditions.

1.6 MAINTENANCE OF STORAGE

- A. Stored products shall be periodically inspected on a scheduled basis. The CONTRACTOR shall maintain a log of inspections and shall make said log available to the ENGINEER on request.
- B. The CONTRACTOR shall verify that storage facilities comply with manufacturer's product storage requirements.
- C. The CONTRACTOR shall verify that manufacturer-required environmental conditions are maintained continually.
- D. The CONTRACTOR shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes does not occur.
- E. For mechanical and electrical equipment, the CONTRACTOR shall provide a copy of the manufacturer's service instructions with each item and the exterior of the package shall contain notice that instructions are included.
- F. Products shall be serviced on a regularly scheduled basis, and a log of services shall be maintained and submitted as a record document prior to acceptance by the OWNER in accordance with the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01700 - PROJECT CLOSE-OUT

PART 1 - GENERAL

1.1 FINAL CLEAN-UP

- A. The CONTRACTOR shall promptly remove from the vicinity of the completed work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the WORK by the OWNER will be withheld until the CONTRACTOR has satisfactorily complied with the foregoing requirements for final clean-up of the project site.

1.2 CLOSEOUT TIMETABLE

- A. The CONTRACTOR shall establish dates for equipment testing, acceptance periods, and on-site instructional periods (as required under the Contract). Such dates shall be established not less than one week prior to beginning any of the foregoing items, to allow the OWNER, the ENGINEER, and their authorized representatives sufficient time to schedule attendance at such activities.

1.3 FINAL SUBMITTALS

- A. The CONTRACTOR, prior to requesting final payment, shall obtain and submit the following items to the ENGINEER for transmittal to the OWNER:
1. Written guarantees, where required.
 2. Maintenance stock items; spare parts; special tools, where required.
 3. Completed record drawings.
 4. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
 5. Releases from all parties who are entitled to claims against the subject project, property,
 6. Or improvement pursuant to the provisions of law.
 7. Completed Certificate of Compliance and Release for all contractors involved in the WORK.

1.4 MAINTENANCE AND GUARANTEE

- A. The CONTRACTOR shall comply with the maintenance and guarantee requirements contained in Article 13 of the General Conditions.
- B. Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the CONTRACTOR which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work unless the CONTRACTOR shall have obtained a statement in writing from the affected private owner or public agency releasing the OWNER from further responsibility in connection with such repair or resurfacing.
- C. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order from the OWNER. If the CONTRACTOR fails to make such repairs or replacements promptly, the OWNER reserves the right to do the WORK and the

SECTION 01700 - PROJECT CLOSE-OUT

CONTRACTOR and the CONTRACTOR's surety shall be liable to the OWNER for the cost thereof.

1.4 BOND

- A. The CONTRACTOR shall provide a bond to guarantee performance of the provisions contained in Paragraph "Maintenance and Guarantee" above, and Article 13 of the General Conditions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01704 - FINAL CLEAN-UP AND SITE RESTORATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all supervision, labor, materials, tools and equipment necessary for final clean-up and restoration of all areas disturbed by construction activities, to a condition equal to, or better than, before construction started. This does not include clean-up or restoration incidental to, or directly provided for by, other construction items.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Any materials required shall conform to the appropriate Section of these Specifications.

PART 3 - EXECUTION

3.1 CONSTRUCTION

- A. The CONTRACTOR shall clean up all sites disturbed during construction of the project. This includes removal of all construction equipment, disposal of all excess materials, disposal of all rubbish and debris, removal of all temporary structures, and grading of the sites so that no standing water is evident.

END OF SECTION

SECTION 01850 ASBESTOS CEMENT (AC) PIPE WORK PLAN

BARNETT DRIVE BOLTED STEEL PIPE ASBESTOS CEMENT (AC) PIPE WORK PLAN

GENERAL

As noted on the contract drawings, a portion of the existing water line on the Barnett Drive Bolted Steel Water Tank site is asbestos cement (AC) pipe. The location of this pipe shown on the plans is based on the best information available from as-built drawings. The existing AC pipe is present in underground locations near the work for the new bolted steel water tank.

PROJECT APPROACH

The AC pipe is not expected to be disturbed during the contract work. The existing AC pipe is to be abandoned in-place. Please note the following:

NOTE: NEW BOLTED STEEL WATER TANK IS LOCATED IN THE VICINITY OF EXISTING ASBESTOS CEMENT WATERLINE. ABANDON EXISTING ASBESTOS CEMENT WATERLINE IN PLACE.

ENCOUNTERING AC PIPE

The following plan has been developed to advise the Contractor of the actions they should take in the event that AC pipe should be encountered during the project:

- 1) If AC pipe is encountered such that removal of a section of pipe would be required to install the new water main, the Contractor shall notify the Engineer immediately after the AC pipe is encountered. A certified abatement worker shall be contracted to remove the necessary length of pipe so that construction can be completed. All removal shall be done using wet methods, following OSHA Class 2 Work Practices as described in 29 CFR 2926.1101.
- 2) If AC pipe is found in the trench but is not required to be disturbed in order to install the new water main, the AC pipe should be left undisturbed. If the pipe that is encountered is broken, the AC pipe shall be covered with wet native material as an encapsulating layer and shall be pressed back into the embankment or the bottom of the trench with the excavator bucket only in contact with the wet native material. Under no conditions shall the Contractor's crew be in the trench when AC pipe is encountered, and under no conditions shall the Contractor's crew disturb AC pipe unless such crew member holds a current Certificate of Fitness for Asbestos Abatement issued by the Alaska Department of Labor and Workforce Development.

SECTION 02202 – EXCAVATION AND EMBANKMENT

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for excavation and embankment construction to the lines, grades and cross sections indicated in the Drawings or as directed by the ENGINEER.

1.2 SUBMITTALS

- A. Selected Embankment – sample for gradation analysis.
- B. Subbase Grading A – samples for gradation analysis.

PART 2 – PRODUCTS

2.1 EXCAVATION

- A. All excavation shall be unclassified excavation, and shall consist of excavation and disposal of all materials, of whatever character, encountered in the WORK.

2.2 EMBANKMENT

- A. Material for embankment construction shall consist of non-frost-susceptible earth, sand, gravel, fractured rock or combination thereof containing no muck, peat, frozen materials, roots, sod or other deleterious materials, and shall be compactable to the density required by the Specifications.

2.3 SELECTED EMBANKMENT

- A. Selected Embankment shall meet all the requirements for Embankment Material, and in addition, shall have a plasticity index not greater than 6 as determined by AASHTO T 90 and shall contain no more than 6% by weight of material passing the 200 mesh sieve. The percentage of material passing the 200 mesh sieve shall be determined using only the material which passes a 3 inch sieve.

2.4 SUBBASE, GRADING A

- A. Subbase, Grading A shall conform to the following gradation:

SIEVE DESIGNATION	PERCENT PASSING BY WEIGHT
4-Inch	100
2-Inch	85 - 100
No. 4	30-70
No. 200*	6 Max.

**Gradation shall be determined on that portion passing the 3-inch screen*

SECTION 02202 – EXCAVATION AND EMBANKMENT

- B. The amount of No. 200 material shall have no more than 3% by weight less than the 0.02 mm size.
- C. Subbase, Grading A, shall contain no muck, frozen material, roots, sod or other deleterious matter. It shall have a liquid limit not greater than 25 and plasticity index not greater than 6 as determined by AASHTO T 89 and T 90.
- D. Subbase, Grading A, shall meet the quality requirements of AASHTO M 147 except that ATM T-1 and T-7 will be substituted for AASHTO T 11, T 27, and T 88.

2.5 BORROW

- A. Borrow shall meet the requirements for Embankment above.

2.6 SELECTED BORROW

- A. Selected Borrow shall meet the requirements for Selected Embankment above.

2.7 SHOT ROCK BORROW

- A. Shot Rock Borrow shall conform to the following gradation:

SIEVE DESIGNATION	PERCENT PASSING BY WEIGHT
6 Inch	100
4 Inch	85 - 100
3 Inch	10 - 50
No. 200*	0 - 3

**Gradation shall be determined on that portion passing the 3-inch screen*

- B. At least 50% by weight of the particles retained on the 3/8-inch sieve shall have at least two fractured faces as determined by ATM T-4.
- C. Elongation Specification
The length of the crushed stone backfill shall not be more than twice the designated crest diameters.
- D. Sodium Sulfate Loss
Aggregate shall pass the percent sodium sulfate loss per AASHTO T 104 with 9% maximum.
- E. LA Abrasion
Percent of wear per AASHTO T 96 shall be 45% maximum.

PART 3 – EXECUTION

SECTION 02202 – EXCAVATION AND EMBANKMENT

3.1 EXCAVATION

- A. Clearing and grubbing in excavation areas must be completed prior to beginning excavation operations.
- B. Excavations shall be reasonably smooth and uniform to the lines, grades and cross sections shown in the Drawings or as directed by the ENGINEER. Excavations shall be conducted to ensure that material outside of excavation limits remains undisturbed.
- C. Excavations shall be protected from erosion and maintained to drain freely at all times.
- D. Excavation in rock shall be to a minimum depth of 12 inches below the top of the finished surface within the limits, unless otherwise shown in the Contract Documents. Undrained pockets shall not be left in the excavated surface of the rock.
- E. When excavation to the limits indicated on the Drawings encounters unsuitable underlying material, the ENGINEER may require the CONTRACTOR to remove the unsuitable material and backfill with approved material. The CONTRACTOR shall take the necessary cross section measurements before backfill is placed in order to measure the amount of unsuitable material removed.
- F. Excavated soils that do not meet the requirements for embankment material and surplus suitable excavation shall be disposed of by the CONTRACTOR at a location and in a manner approved by the ENGINEER. No material may be wasted without the prior approval of the ENGINEER.
- G. The CONTRACTOR is responsible for securing a waste disposal site if none is indicated on the Drawings. The CONTRACTOR shall obtain the written permission of the landowner for use of all disposal sites, and shall either obtain any required permits or assure that they have been obtained by others. If required by the ENGINEER, the CONTRACTOR shall furnish the permit numbers of all required permits for the disposal sites. The costs of securing such sites shall be borne by the CONTRACTOR.
- H. Waste areas shall be uniformly graded to drain, with the outer limits feathered to blend with the existing ground. Waste areas shall be seeded, capped with suitable material, or otherwise protected from long-term erosion.
- I. All excavated soils that meet the requirements for embankment material shall be placed in the embankment up to a distance of 300-feet from the point of excavation, prior to importing borrow. If the CONTRACTOR places more borrow, or selected borrow than is required and thereby causes a waste of useable excavation, the amount of such waste shall be deducted from the borrow quantity for purposes of payment.
- J. Temporary storage of useable or suitable excavation is the responsibility of the CONTRACTOR, and no additional payment will be made.

SECTION 02202 – EXCAVATION AND EMBANKMENT

- K. The CONTRACTOR shall conduct all operations to prevent contaminating useable excavation with unsuitable material.
- L. When frozen material is excavated and meets all other requirements for embankment material, it shall be allowed to thaw and drain prior to placing in the embankment. This material will be considered useable excavation and no additional payment will be made.
- M. All organic material shall be removed to a depth of five (5) feet within the road prism and pavement structure, unless otherwise shown in the Contract Documents, or as directed by the ENGINEER.
- N. The CONTRACTOR shall provide added care when excavating adjacent to existing retaining walls, fences and houses. Damage caused to existing walls, fences and houses by the CONTRACTOR shall be repaired at the CONTRACTOR's expense.
- O. After excavation to the subcut limit is complete and prior to placing separation and reinforcement fabric, if required, and backfilling with Borrow, Selected Borrow or Shot Rock Borrow, the bottom of the subcut shall be compacted with an excavator or backhoemounted vibrating compactor until a firm base for the backfill material is obtained.

3.2 EMBANKMENT

- A. Embankments shall be constructed to a reasonably smooth and uniform shape conforming to the lines, grades and cross sections indicated on the Drawings or as directed by the ENGINEER and shall be compacted to 95% of maximum density.
- B. The underlying ground shall be properly prepared prior to placing embankment material. Clearing and Grubbing in embankment areas must be completed prior to embankment operations. Debris shall be removed and surface depressions or holes shall be filled with suitable material to a level uniform surface and compacted before the embankment is constructed.
- C. When embankment is to be placed on hillsides steeper than a 4:1 slope, new embankment is to be placed alongside existing embankments, or embankments are to be built half width at a time; the foundation shall first be prepared by constructing benches of sufficient width to accommodate placing and compacting equipment. Each bench shall begin at the intersection of the original ground and the vertical side of the pervious cut. Material so excavated and suitable for embankment construction shall be incorporated into the new embankment. Benching is incidental to other items in the contract and no direct payment will be made therefor.
- D. Wherever an existing compacted roadway surface containing granular material lies within three (3) feet of the new embankment surface, such existing roadway shall be scarified to a depth of six (6) inches and incorporated into the first layer of embankment.

SECTION 02202 – EXCAVATION AND EMBANKMENT

- E. Rocks, broken concrete or other solid materials shall not be placed in embankment areas where piling is to be placed or driven, or where culvert placement is required.
- F. When frozen soils are encountered in clearing or stripping operations preparatory to the placement of embankment, or in the excavation, or in undercuts in excavation areas, the ENGINEER shall require timely placement of the backfill or embankment materials, if such action is deemed essential to minimize deterioration or degradation of the foundation material. Embankment shall not be placed over seasonally frozen ground except when written permission is received.
- G. When excavation is performed at a season of the year when freezing weather is imminent, the CONTRACTOR shall place the specified backfill promptly, following the excavation WORK, at least up to a level which will allow the surface to adequately drain. In order to assume compliance, the ENGINEER may require that arrangements be made for the timely availability of such embankment or backfill materials prior to commencement of the stripping or excavation operations.
- H. If embankment can be deposited on only one side of abutments, wing walls, piers or culvert headwalls, care shall be taken that the area immediately adjacent to the structure is not compacted to the extent that it will cause the overturning of, or excessive pressure against the structure.
- I. When embankment is to be placed on both sides of a concrete wall or box-type structure, operations shall be so conducted that the embankment is always at approximately the same elevation on both sides of the structure.
- J. The finish subgrade surface (bottom of base course level) shall not vary more than 0.05- foot when tested using a ten foot straightedge, nor vary more than 0.05-foot from the established grade. The bottom of subgrade surface shall not vary more than 0.10-foot from the established grade.
- K. If continued hauling over a completed or partially completed embankment causes loss of stability as evidenced by pumping or rutting, or other damage, the CONTRACTOR shall repair the damaged embankment at its own expense and adjust its hauling equipment and procedures so as to avoid further damage.

3.3 EMBANKMENTS CONSTRUCTED WITH MOISTURE DENSITY CONTROL

- A. Except for embankments constructed predominantly of rock fragments or boulders, all embankments shall be constructed with moisture density control. Embankments shall be placed in horizontal layers not to exceed eight inches in depth, loose measurement, for the full width of the embankment, except as required for traffic, and shall be compacted before the next layer is placed. A smaller depth will be required if the compaction equipment is considered by the ENGINEER to be insufficient to obtain the required densities. Embankments shall be compacted at the approximate optimum moisture content to not less than 95% of the maximum density as determined by AASHTO T 180 D or Alaska T-

SECTION 02202 – EXCAVATION AND EMBANKMENT

12. Embankment materials may require drying or moistening to bring the moisture content near to optimum. In place field densities will be determined by Alaska T-3 or T-11. Sufficient time shall be allowed between placement of layers to allow for field density tests.

3.4 EMBANKMENTS CONSTRUCTED FROM ROCK FRAGMENTS

- A. When embankment material consists predominantly of rock fragments or boulders too large to be contained in the lift thickness specified without crushing or further fracturing, such material may be placed in lifts not exceeding in thickness the approximate average size of the larger rocks, or two feet, whichever is less.
- B. This material shall not be dumped in final position but shall be deposited on the fill and distributed by blading or dozing so that voids, packets and bridging will be reduced to a minimum. Intervening spaces and interstices shall be filled with smaller stones and earth to form a dense, well compacted embankment. Hauling equipment shall be uniformly routed over the entire width of the embankment, and compaction equipment shall be utilized if necessary to assure that a well-compacted embankment is obtained.

3.5 OBLITERATION OF ROADWAYS

- A. Obliteration of roadways shall include all grading operations necessary to incorporate the roadway into the new roadway and surroundings in order to provide a pleasing appearance from the new roadway. Ditches not required for drainage courses shall be filled and the roadway shall be rough graded so as to restore approximately the original contour of the ground.

END OF SECTION

SECTION 02203 - TRENCHING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for the excavation and backfill required for installation of pipelines, manholes, vaults, diversion structures, and other appurtenances; and for ground surface restoration, including pavement.

PART 2 - MATERIALS

2.1 TRENCH EXCAVATION

- A. Trench excavation shall consist of all material, of whatever nature, excepting liquids excavated from trenches within the limits described in Section 01025 - Measurement and Payment.

2.2 BEDDING

- A. Bedding, Class A, shall be aggregate conforming to the following gradation:

Sieve Designation	Percent Passing by Weight
1-1/2"	100
No. 4	0-35
No. 200	0-8

- B. Bedding, Class B, shall be three inch minus material, free of muck, frozen material, lumps, organic material, trash, lumber or other debris, with no more than eight percent passing the No. 200 screen.
- C. Bedding material for pipe placement shall be non-frost susceptible material.

2.3 BACKFILL

- A. Backfill is defined as material placed above the level of bedding material. Backfill material consists of native material excavated from the trench that is determined by the ENGINEER to be suitable as backfill. Backfill material used under asphalt or concrete pavement, as shown on the Drawings, shall be non-frost-susceptible, granular material that is free of rocks larger than six inches, much, frozen material, lumps, organic material, trash, lumber, or other debris. All backfill material available from trench excavation shall be utilized prior to the use of the imported backfill.

2.4 IMPORTED BACKFILL

- A. Imported backfill shall be granular material, free draining, free of much, frozen material, lumps, or organic material and shall conform to the following gradation:

SECTION 02203 - TRENCHING

Sieve Designation	Percent Passing by Weight
3"	100
No. 4 *	20-70
No. 200 *	0-6

*Gradation shall be determined on that portion passing the three inch screen.

2.5 AGGREGATE BASE

- A. Aggregate base shall conform to Grading D-1 of Section 02204 - Base Course.

2.6 ASPHALT CONCRETE PAVEMENT

- A. Asphalt concrete pavement shall conform to that specified in Section 02801 – Asphalt Concrete Pavement. Aggregate gradation and asphalt cement percentages shall conform to Type II, Class B. Current safety and pollution controls shall be met.

2.7 PORTLAND CEMENT CONCRETE

- A. Portland cement concrete shall conform to that specified in Section 03301 – Structural Concrete.

PART 3 - EXECUTION

3.1 EXCAVATION

- A. Prior to excavating trenches, all necessary clearing and grubbing shall be completed in accordance with the provisions of Section 02201 - Clearing and Grubbing.
- B. Excavation for trenches shall conform to the lines and grades shown on the Drawings and to the limits depicted in the Standard Details. The CONTRACTOR shall also do any WORK necessary to prevent surface water from entering the trench.
- C. Excavation of any and all material more than six inches below the invert of the pipe as shown on the Drawings shall be done only when ordered in writing by the ENGINEER. The material so excavated will be handled in the manner described below:
1. All excavated material suitable for use as backfill shall be piled in an orderly manner separately from unsuitable material, at a sufficient distance from the edge of the trench to prevent material from sloughing or sliding back into the trench. When the trench is in a traveled roadway the ENGINEER may require removal and temporary storage of excavated material elsewhere.
 2. Materials unsuitable for use as backfill shall be hauled to a CONTRACTOR furnished disposal site off of the Project, unless otherwise directed in writing by the ENGINEER. The CONTRACTOR is responsible for securing waste disposal sites if none is indicated on the Drawings. The CONTRACTOR shall obtain the written permission of the landowner for use of all disposal sites, and shall either obtain any required permits or assure that they have been obtained by others. If requested by the ENGINEER, the CONTRACTOR shall furnish the permit

SECTION 02203 - TRENCHING

numbers of all required permits for the disposal sites. The cost of securing such sites shall be borne by the CONTRACTOR.

3. If the CONTRACTOR fails to comply with the provisions of any city ordinance or permit pertaining to waste disposal or disposal sites, the OWNER shall have the right, after giving 30 days written notice, to bring the disposal sites into compliance and collect the cost of the WORK from the CONTRACTOR, either directly or by withholding monies otherwise due under the contract.
- D. No more than 150 feet of trench shall be open in advance of laying the pipe, and no more than ten feet of trench shall remain open at the end of each working period. When the trench is in a traveled roadway, it shall be completely backfilled, in accordance with the Specifications, and opened to traffic at the end of each working period, unless otherwise approved by the ENGINEER.
- E. If explosives are used, the CONTRACTOR shall conduct the WORK in accordance with the requirements of Section 02090 - Blasting Controls.
- F. The CONTRACTOR shall protect and preserve all existing pavement not designated for replacement, throughout the entire construction period. No tracked equipment may be operated on any pavement without first protecting the pavement with pavement pads approved by the ENGINEER. All pavement which is damaged in any manner by the CONTRACTOR's operations shall be restored to original or better condition at the CONTRACTOR's expense. Repair WORK to state highways shall be in all ways satisfactory to the Alaska Department of Transportation and Public Facilities.
- G. Where required to prevent caving of the trench, or by any safety law or regulation such as OSHA, the CONTRACTOR shall furnish and install bracing and/or sheeting to protect the excavation. This bracing and/or sheeting shall be removed as trench backfill progresses.
- H. The CONTRACTOR shall remove and dispose of all water entering the excavation. Disposal of water shall be done in a manner to prevent damage or nuisance to adjacent property, and in accordance with all applicable laws and regulations. Pumps shall be adequate to maintain a dry trench during the bedding, pipe installation, and initial backfill to an elevation at least one foot above the top of pipe. No backfill may be placed in standing water under any circumstances, except when the Drawings and/or Specifications specifically permit installation of HDPE water pipe in a wet trench.
- I. Excavations for manholes and similar structures shall be large enough to provide proper working room. Any over depth excavation shall be backfilled with concrete or other approved material at the CONTRACTOR's expense.
- J. The CONTRACTOR shall provide temporary support of existing structures, as necessary, to protect the structures from settlement or other disturbances caused by construction activities. All structures disturbed by the CONTRACTOR's activities shall be returned to original condition, or better.

3.2 BEDDING

SECTION 02203 - TRENCHING

- A. Bedding shall be placed in conformance with the lines and grades shown on the Drawings and to the limits depicted in the Standard Details. Before placing any bedding material, the bottom of the trench shall be hand raked ahead of the pipe laying operation to remove stones and lumps which will interfere with smooth and complete bedding of the pipe. The specified bedding material shall then be placed in layer(s) the full width of the trench, each layer not exceeding eight inches in thickness loose measure, and compacted to 95% of maximum density as determined by AASHTO T 180 D, until the elevation of the plan grade for the pipe invert is attained. The pipe bed shall then be fine-graded by hand and compacted as above. Bell holes shall be hand dug at the location of joints and shall be of sufficient size to allow proper making of the joint and to prevent the collar or bell of the pipe from bearing on the bottom of the trench.
- B. After the pipe has been laid and approved for covering, the specified bedding material shall be placed evenly on both sides of the pipe for the full width of the trench. Approval for covering does not imply final acceptance of the pipe, or relieve the CONTRACTOR in any way of responsibility to complete the Project in conformance with the Drawings and Specifications. Bedding material shall be placed in layers. The thickness, loose measure, or the first layer shall be either one-half the outside diameter of the pipe plus two inches or eight inches, whichever is least. This layer shall be compacted as specified above to provide solid support to the underside of the pipe.
- C. The bedding material shall be placed and compacted in layers not more than eight inches in thickness, loose measure, up to a plane 12 inches above the top of the pipe.
- D. The initial density test at any location will be paid for by the OWNER. If the initial test shows that the material compaction is not as specified, the CONTRACTOR shall modify the compaction methods used, as approved by the ENGINEER, and have the material retested until the tests show that the compaction method meets with the Specification requirements. If the CONTRACTOR's compaction methods are not consistent and/or do not meet the requirements of these Specifications, the OWNER reserves the right to undertake additional compaction tests as necessary to determine the extent of substandard compaction, and to charge the CONTRACTOR for all such tests.

3.3 BACKFILL

- A. The trench shall be backfilled above the bedding material, as shown in the Standard Details, with approved material saved from trench excavation. If there is not sufficient approved material from the excavation, the backfilling of the trench shall be completed utilizing imported backfill. The backfill and/or imported backfill shall be compacted to 95% of optimum density within the street and sidewalk limits, as shown on the Drawings, and 90% elsewhere, as determined by AASHTO T 180 D. Lifts shall not exceed 12 inches in depth for loose material. After backfilling of the trench is completed, any excess material from trench excavation shall be hauled to a CONTRACTOR furnished disposal site off of the Project.
- B. Where trenches cross roadways, streets or driveways, airport aprons, taxi lanes, etc., backfilling shall be done immediately following excavation and laying of the pipe. All crossings shall be backfilled, compacted, and open to traffic at the end of each working period. Major road crossings shall be excavated and backfilled in half widths of the traveled way so that at least one-half of the roadway is open to controlled traffic at all times during the WORK. All WORK performed within a right-of-way shall be done in

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conformance with the appropriate permits issued by the respective agency having jurisdiction over the right-of-way.

- C. At least 24 hours prior to commencing backfilling operations, the CONTRACTOR shall notify the ENGINEER of the proposed method of compaction. No method will be approved until the CONTRACTOR has demonstrated, under actual field conditions, that such method will produce the degree of compaction required.
- D. The initial density test at any location will be paid for by the OWNER. If the initial test shows that the material compaction is not as specified, the CONTRACTOR shall modify the compaction methods used, as approved by the ENGINEER, and have the material retested until the tests show that the compaction meets the Specification requirements. If the CONTRACTOR's compaction methods are not consistent and/or do not meet the requirements of these Specifications, the OWNER reserves the right to undertake additional compaction tests as necessary to determine the extent of substandard compaction, and to charge the CONTRACTOR for all such tests.

3.4 AGGREGATE BASE

- A. Aggregate base shall be placed in layers not exceeding six inches compacted depth, extending the full width of the trench and compacted to 95% of maximum density as determined by AASHTO T 180 D. The thickness of the top layer shall be such that, after compaction, the surface shall be at the elevation shown in the Drawings or Standard Details. Care shall be taken to assure proper compaction near the sides of the trench, and to avoid segregation.

3.5 ASPHALT CONCRETE PAVEMENT

- A. Pavement to be removed shall be neatly saw cut full depth along straight lines. Only such pavement shall be removed as is necessary to excavate for the appurtenances, but the pavement shall be cut a sufficient distance outside the excavation to prevent damage to adjacent pavement by lifting or tearing the mat. All removed pavement shall be disposed of at the asphalt disposal stockpile in the CBJ/State Lemon Creek Gravel Pit.
- B. After trench backfilling is complete, the edges of existing pavement shall be neatly saw cut vertically as shown in the Standard Details. All loose, cracked or undermined sections of existing pavement shall be removed. A tack coat shall be placed on the existing pavement edge just prior to placing new pavement.
- C. Pavement shall be replaced in accordance with Section 02801 - Asphalt Concrete Pavement, and as shown on the Drawings and Standard Details. Pavement shall be placed in all streets and highways as soon as possible after completion of backfilling. All trenched highway crossings shall be patched within five days from the date each trench is first opened, unless otherwise shown in the Contract Documents, or approved by the ENGINEER. When weather conditions, unavailability of material, or time preclude placing permanent pavement within five days, temporary pavement shall be installed. Temporary paving will consist of at least a two inch thick layer of a pre-mixed, asphaltic surfacing material, and shall be installed and maintained flush with the existing surface until the permanent pavement is in place. Temporary pavement shall be removed prior to placing permanent pavement.

SECTION 02203 - TRENCHING

- D. There shall be zero grade change perpendicular to the trench.
- E. Permanently seal any cracks at joints with hot bitumenum after the permanent asphalt is in place. The CONTRACTOR shall repair all failed seals at joints during the 12 months after the date of final payment.

3.6 PORTLAND CEMENT CONCRETE

- A. Portland cement concrete shall be replaced in accordance with Section 03301 – Structural Concrete, and the details shown on the Drawings and Standard Details.

END OF SECTION

SECTION 02204 - BASE COURSE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The work under this section includes providing all labor, materials, tools and equipment necessary for furnishing and placing one or more layers of aggregate base or leveling course on a prepared surface to the lines and grades shown on the Plans.

PART 2 - PRODUCTS

2.1 MATERIAL

- A. Aggregate base course shall consist of crushed gravel or crushed stone, conforming to the quality requirements of AASHTO M 147. The aggregate shall be free from lumps, balls of clay, or other objectionable matter, and shall be durable and sound.
- B. Base course material shall conform to one of the following gradations as specified:

BASE COURSE GRADATIONS								
(Percent passing by weight)								
Sieve Designation	A	B	C	C-1	D	D-1	E	E-1
4	100							
2	85-100	100						
1 ½				100				
1			100	70-100		100		
¾				60-90	100	70-100		100
3/8				45-75		50-80		
#4	30-70	30-70	40-75	30-60	45-80	35-65		45-80
#8				22-52		20-50		32-80
#10			25-55		30-65			
#40				8-30		8-30		
#200	0-10	3-10	4-10	0-6	4-12	0-6	0-6	0-6

- C. For gradings C, D, & E, at least 50% by weight of the particles retained on the No. 4 sieve shall have at least one fractured face as determined by Alaska T-4.
- D. For gradings C-1, D-1 & E-1, at least 70% by weight of the particles retained on a No. 4 sieve shall have at least one fractured face as determined by Alaska T-4.

PART 3 - EXECUTION

3.1 CONSTRUCTION

- A. Prior to placement of the base course, the underlying surface shall be prepared by dressing, shaping, wetting or drying, and compacting of the underlying material to a minimum density

SECTION 02204 - BASE COURSE

of 95% as determined by AASHTO T 180-D. Surfaces shall be cleaned of all foreign substances and debris.

- B. Any ruts or soft yielding spots that may appear shall be corrected by loosening and removing unsatisfactory material and adding approved material as required, reshaping, and recompacting the affected areas to the lines and grades indicated on the Plans. If required by the OWNER, the CONTRACTOR shall proof load questionable areas with a loaded truck or other piece of equipment approved by the OWNER.
- C. Blue tops shall be set to the top of base course. They shall be set by the Contractor at breaks in grade and on even grade at intervals not to exceed 50', with additional stakes at vertical curves.
- D. Base course material shall be deposited and spread in a uniform layer to the required grades, and to such loose depth that when compacted to the density required, the thickness will be as indicated on the Plans. Portions of the layer which become segregated shall be removed and replaced with a satisfactory mixture, or shall be remixed to the required gradation.
- E. The maximum compacted thickness of any one layer shall not exceed six inches. If the required compacted depth exceeds six inches, the base shall be constructed in two or more layers of approximately equal thickness. Each layer shall be shaped and compacted before the succeeding layer is placed.
- F. The base course shall be compacted to at least 95% of maximum density as determined by AASHTO T 180-D. In places not accessible to rolling equipment, the mixture shall be compacted with hand tamping equipment.
- G. Blading, rolling, and tamping shall continue until the surface is smooth and free from waves and irregularities. If at any time the mixture is excessively moistened, it shall be aerated by means of blade graders, harrows, or other approved equipment, until the moisture content is such that the surface can be recompacted and finished as above.
- H. The finished surface of the base course, when tested using a 10-foot straightedge, shall not show any deviation in excess of 3/8-inch between two contact points. The finish surface shall not vary more than 1/2-inch from established grade. Additionally, the algebraic average of all deviations from established grade of the finish base course surface elevations taken at 50-foot intervals shall be less than 0.02-foot.
- I. The initial density test at any location will be paid for by the OWNER. If the initial test shows that the material compaction is not as specified, the CONTRACTOR shall modify the compaction methods used, as approved by the OWNER, and have the material retested until the tests show that the compaction meets the specification requirements. All tests, after the initial test at any given location, shall be paid for by the CONTRACTOR.

END OF SECTION

SECTION 02601 - WATER PIPE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing buried water pipe and fittings, thrust blocks, tie rods, electrical continuity, disinfection and testing. The CONTRACTOR shall install the water pipe and fittings to the horizontal and vertical alignment shown on the plans and shall complete all associated work described in this Section. Water pipe shall be NSF 61 listed.

PART 2 - PRODUCTS

2.1 PIPE

- A. Water pipe shall be ductile iron pipe conforming to the requirements of AWWA C151, with cement mortar lining conforming to the requirements of AWWA C104. Standard thickness Class 50 pipe shall be used. Water pipe shall have an exterior bituminous coating conforming to the requirements of AWWA C110 and shall be NSF listed. Lettering shall be legible and permanent under normal conditions of handling and storage.

2.2 JOINTS

- A. Unless otherwise shown on the plans, Standard Details, or as specified below, pipe joints shall be push-on rubber gasket type conforming to the requirements of AWWA C111.
- B. DIP placed within pipe casings shall have mechanical joint connections conforming to the requirements of AWWA C111. Refer to the Standard Detail.
- C. Restrained joint water pipe shall be U.S. Pipe TR FLEX, U.S. Pipe Field Loc Gasket, EBBA IRON "Megalug System," Griffin Snap Lock, Pacific State Lock Mechanical type, or approved equal. Restrained push-on joints for pipe shall be designed for a water working pressure of 250 psi and shall be capable of being deflected a minimum of 3E per joint, for pipe sizes through eighteen inches, after assembly.

2.3 FITTINGS

- A. Fittings for all water pipe and restrained joint water pipe shall be U.S. Pipe TR FLEX, push-on gasket fittings compatible with U.S. Pipe Field Loc Gasket, mechanical joint fittings with EBBA IRON "Megalug System," Griffin Snap Lock, Pacific State Lock Mechanical Type, or approved equal.
- B. For connecting to existing water mains, the CONTRACTOR shall use a mechanical joint tee and a mechanical joint cutting-in-sleeve similar to Clow F-1220 or Mueller H-843, or a cast iron coupling similar to Rockwell 431, or approved equal.

2.4 THAW WIRE

- A. Thaw wire and continuity straps shall be No. 2 copper wire, stranded, with THW insulation or equal. Exothermic welding to attach continuity straps on DIP and fittings shall be "Cadweld" or approved equal.

2.5 UNDERGROUND MARKING TAPE

SECTION 02601 - WATER PIPE

- A. Underground marking tape shall be blue, six-inch wide, 4-mil thick, polyethylene tape with black lettering with the following wording: "Caution: Water Line Buried Below". Marking tape shall be installed twelve inches above the top of all water pipe.

2.6 TIE RODS

- A. Tie rods shall be threaded black iron or mild steel with a 12-mil minimum asphaltic coating and shall be located symmetrically around the perimeter of the pipe using anchorage lugs of standard manufacture for attachment where required. Unless otherwise shown on the plans, the number and size of the rods shall be as shown in the table below:

PIPE SIZE	TIE ROD SIZE	NO. OF RODS
4" - 10"	3/4"	2
12" - 16"	3/4"	4
18" - 20"	3/4"	6
22"	1"	4
24"	1"	6

2.7 CONCRETE

- A. Concrete for thrust blocks shall conform with Section 03302.

PART 3 - EXECUTION

3.1 GENERAL

- A. The CONTRACTOR shall preserve and protect all existing utilities and other facilities including but not limited to: telephone, television, electrical, water and sewer utilities, surface or storm drainage, highway or street signs, mail boxes, or survey monuments. The CONTRACTOR shall immediately repair or replace utilities or other facilities damaged during construction. The CONTRACTOR shall support and protect any underground utility conduits, pipes, or service lines where they cross the trench.
- B. The CONTRACTOR shall give at least 24 hours notice to the City and Borough of Juneau, Utility Division prior to: (1) needing water or sewer main line locates; (2) interruption of water service in any area; or (3) use of water from any fire hydrant. Any water service disruption shall be restored as soon as possible. The CONTRACTOR shall comply with the current policy on "Water and Sewer Line Locates" of the City and Borough of Juneau, Public Works Department, Utilities Division. The CONTRACTOR shall notify all local radio stations and all customers that will be affected of a planned water service disruption.

3.2 INSTALLATION

- A. Water pipe shall be installed in accordance with the manufacturer's printed specifications and instructions, and in conformance with AWWA C151.

SECTION 02601 - WATER PIPE

- B. The water pipe shall be handled carefully to prevent damage to the pipe, pipe lining, or coating. Water pipe and fittings shall be loaded and unloaded using hoists and slings to avoid shock or damage, and under no circumstances shall they be dropped, skidded, or rolled. If any part of the coating or lining is damaged, repair thereof shall be made in a manner satisfactory to the OWNER at the CONTRACTOR's expense. All water pipe and fittings shall be inspected for defects. Damaged pipe will be rejected and the CONTRACTOR shall immediately place all damaged pipe apart from the undamaged and shall remove the damaged pipe from the site within 24 hours.
- C. Whenever it becomes necessary to cut a length of water pipe, the cut shall be made by abrasive saw or by special pipe cutter.
- D. All pipe ends shall be square with the longitudinal axis of the water pipe and shall be reamed and smoothed to assure a good connection.
- E. The water pipe shall be laid to the horizontal and vertical alignment shown on the plans. A minimum five foot cover shall be maintained from finish grade to top of water pipe. Fittings shall be installed at the location shown on the plans, or as required.
- F. Water encountered during trenching operations shall be removed and/or controlled to prevent entry of water and other deleterious material into the pipe and fittings.
- G. To prevent dirt and other foreign material from entering the pipe and fittings during handling and installation, the open end of the pipe shall be protected by a water-tight plug at all times, except when jointing the next section of pipe.
- H. Under no circumstances shall pipe deflections, either horizontal or vertical, exceed the manufacturer's printed recommendations. Where deflections would exceed the manufacturer's recommendations, fittings shall be used.
- I. Vertical deflections to avoid obstructions that exceed allowable water pipe joint deflections shall be accomplished by the use of fittings, and either joint restraints or vertical thrust blocking conforming to the Standard Details. Additional fittings to those indicated on the Plans will be required to accomplish these vertical deflections.
- J. Concrete thrust blocks shall be furnished and installed in accordance with the plans and Standard Details. Thrust blocks shall be installed on all water lines, whether or not the joints are otherwise restrained.
- K. Pressurized water pipe ends shall be plugged and thrust blocks installed, in addition to the required harness assembly. Volume and bearing area of thrust blocks for end plugs shall be equal to applicable standards for bends greater than 45°. Refer to the Standard Details.
- L. Existing water pipes and appurtenances to be abandoned shall be as designated on the plans or directed by the OWNER. Abandoned water services shall be capped at the water main. Abandoned water pipes shall be mechanically plugged.
- M. All pipe fittings shall be restrained with EBBA Iron "Megalug System", or approved equal.
- N. Continuous water service shall be provided for all structures, except for interruptions necessary for connection of temporary or new piping to the existing service or mainline piping.

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- O. Interruption of water services, disconnected or interrupted as a part of this project, shall be limited to four (4) hours.
- P. The CONTRACTOR shall maintain continuous water service at a volume and pressure to match existing, to all structures, with either existing, temporary or new piping, except as provided in this Section.

3.3 FLUSHING, TESTING AND DISINFECTION

- A. Prior to acceptance, the CONTRACTOR shall "Open-Bore" flush the water pipe, then perform hydrostatic tests, electrical continuity tests, and disinfection. Testing may be done in any sequence. However, in the event the disinfection and continuity tests have been performed and repairs are made to the water pipe system in order to pass the hydrostatic test, all previous tests and the "Open-Bore" flushing shall be repeated to the satisfaction of the OWNER.

3.4 OPEN-BORE FLUSHING

- A. Open bore flushing is required of all installed water pipes to remove any foreign matter. The CONTRACTOR shall furnish, install and remove all pumps, fittings and pipes necessary to perform the flushing; shall provide all additional excavation and backfill; and shall dispose of all water and debris flushed from the water pipe. Flushing through fire hydrants, reduced outlets or fittings shall not be permitted unless specifically authorized in writing by the OWNER. The CONTRACTOR shall notify the OWNER, in writing, 48 hours in advance of any flushing operation. All flushing will be done between the hours of 1:00 a.m. and 5:00 a.m. unless otherwise authorized by the OWNER. A flushing scheme shall be submitted by the CONTRACTOR for review and approval by the OWNER prior to flushing.

3.5 HYDROSTATIC TESTING

- A. Hydrostatic testing will be conducted in the presence of the OWNER on newly installed water pipes after "Open-Bore" flushing, in accordance with the requirements of AWWA C600 and as stated hereafter. The CONTRACTOR shall furnish all assistance, equipment, labor, materials, and supplies necessary to complete the test to the satisfaction of the OWNER. The CONTRACTOR shall suitably valve-off or plug the outlet to existing or previously-tested water pipe prior to performing the required hydrostatic test. Prior to testing, all air shall be expelled from the water pipe. If permanent air vents are not available to accommodate testing, the CONTRACTOR shall install corporation stops and blow-off lines so the air can be expelled as the line is filled with water.
- B. The hydrostatic pressure shall be a minimum of 150 psi or 1-1/2 times the operating pressure of the water pipe, whichever is greater, unless otherwise directed by the OWNER. Acceptance pressure testing shall be done with all service lines installed, corporation stops open, and pressure against the closed curb stops. The duration of each hydrostatic pressure test shall be one hour. Pumping will cease after the required test pressure has been reached. If the pressure remains constant for one hour without additional pumping, that section of water pipe is acceptable.
- C. If the pressure drops 5 psi or more during the initial one-hour hydrostatic pressure test, the CONTRACTOR shall conduct a leakage test. Leakage shall be determined by measuring

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"make-up" water necessary to restore the specified test pressure. The quantity of water lost from the water pipe shall not exceed the number of gallons per hour as determined by the following formula:

$$L = \frac{ND(P)^{0.5}}{7400}$$

L = Allowable leakage in gallons per hour

N = Summation of mechanical and push-on joints in length of water pipe tested

D = Diameter of water pipe in inches

P = Test pressure in pounds per square inch

- D. Should the tested section fail to meet the pressure test as specified, the CONTRACTOR shall locate and repair the defects and then retest the water pipe as specified above. Any specific leakage point detected shall be corrected by the CONTRACTOR to the satisfaction of the OWNER regardless of the allowable leakage specified above.
- E. All tests shall be made with the auxiliary gate valves open and pressure against the hydrant. After the hydrostatic test has been successfully completed, each valve shall be tested by closing in turn and relieving the pressure beyond. This test of the valves will be acceptable if there is no immediate loss of pressure on the gauge when the pressure comes against the valve being checked. The CONTRACTOR shall verify that the pressure differential across the valve does not exceed the rated working pressure of the valve.
- F. Sections to be tested shall be limited to 1,500 feet, unless otherwise approved, in writing, by the OWNER.
- G. Defective materials or quality of work, discovered as a result of hydrostatic tests, shall be replaced by the CONTRACTOR. Whenever it is necessary to replace defective material or correct the work quality, the hydrostatic test shall be repeated until a satisfactory test is obtained.
- H. The OWNER shall be present for all hydrostatic and leakage tests. The CONTRACTOR shall notify the OWNER at least 24 hours prior to any test and shall notify the OWNER at least 2 hours in advance of the scheduled time if the test is to be cancelled or postponed.
- I. After completion of testing, all test and air vent pipe shall be removed and the corporation stop closed at the water pipe, in the presence of the OWNER.

3.6 DISINFECTION

- A. Disinfection by chlorination of all new water pipe shall be completed and a satisfactory bacteriological report obtained prior to placing the pipe in service. "Open-bore" flushing shall be completed before chlorination is begun. Water lines shall be disinfected in accordance with AWWA Standard C651.
- B. Chlorine shall be applied by one of the following methods: (1) liquid chlorine gas-water mixture; (2) direct chlorine gas feed; or (3) hypochlorite commercial products such as HTH, Perchlolen, Macho-chlor, or approved equal. The chlorinating agent shall be applied at the beginning of the section adjacent to the feeder connection, insuring treatment of the entire water pipe. Water shall be fed slowly into the new water pipe with chlorine applied in amounts to produce a dosage of 50 ppm. Application of the chlorine solution shall continue

SECTION 02601 - WATER PIPE

until the required residual of not less than 50 ppm free chlorine is evident at all extremities of the newly constructed line.

- C. The chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device. Chlorine gas shall be fed directly from a chlorine cylinder equipped with a suitable device for regulating the rate of flow and the effective diffusion of gas within the water pipe. Hypochlorite products shall be placed or injected into the water pipe. During the chlorination process, all intermediate valves and accessories shall be operated. Valves shall be manipulated so that the strong chlorine solution in the water pipe being treated will not flow back into the pipe supplying the water.
- D. The following table is to be used as a guide for chlorinating pipes by the calcium hypochlorite and water mixture method. The given dosage per 100 feet results in a chlorine solution of 40 to 50 ppm. This dosage takes into account that Contractors most frequently use granular HTH, which is 65% pure. If another chlorinating agent is used, the dosage must be adjusted.

E.

PIPE DIAMETER	DOSAGE (oz.) PER 100 FEET
4"	.60 oz.
6"	1.35 oz.
8"	2.75 oz.
10"	4.30 oz.
12"	6.19 oz.
16"	11.00 oz.
20"	17.00 oz.

- E. A residual of not less than 50 ppm free chlorine shall be produced in all parts of the water pipe. After 24 hours detention there shall be a minimum free chlorine residual of 25 ppm in all parts of the water pipe. This residual shall then be neutralized in the pipe by injecting an approved reducing agent such as sulfur dioxide, sodium bisulfate, sodium sulfite or sodium thiosulfate.
- F. After the water pipe system has been thoroughly flushed, samples will be taken at representative locations in the system by the OWNER, placed in sterile bottles, and submitted to an approved laboratory, for bacteriological examination. The presence of bacteria in any sample shall be verified with a second sample at the same location. If verified, the pipe disinfection procedure shall be repeated and additional samples taken for bacteriological examination. Pipe disinfection, sampling, and testing procedures shall be repeated, at the CONTRACTOR's expense, until satisfactory results are obtained.
- G. The water shall be flushed from the water pipe at its extremities, including all curb stops, until the replacement water chlorine residuals are equal to those of the permanent source of supply. The dechlorinated water and water used for flushing shall be disposed of in a manner approved by the OWNER, and in conformance with current requirements of the Alaska Department of Fish and Game, and the Alaska Department of Environmental Conservation.

END OF SECTION

SECTION 02602 – VALVES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing valves and valve boxes; and for raising or lowering existing valve boxes to conform to the final grade, as shown on the Plans and in conformance with the Standard Details.

PART 2 - PRODUCTS

2.1 GATE VALVES

- A. Gate valves for water pipes twelve inches and smaller shall be of the iron body, non-rising bronze stem, resilient seated wedge type, equaling or exceeding the requirements of AWWA C509 and the specific requirements outlined in these specifications. Gate valves shall be NSF 61 listed.
- B. Gate valves shall open counter-clockwise and be provided with two-inch square wrench nuts, except that when installed within vault structures a hand wheel shall be provided for each valve.
- C. End connections shall be mechanical joint, unless otherwise indicated on the plans.
- D. All internal ferrous metal surfaces shall be fully coated, holiday free, to a minimum thickness of 4-mils with a two part thermosetting epoxy coating. Said coating shall be non-toxic, impart no taste to water, protect all seating and adjacent surfaces from corrosion and prevent buildup of scale or tuberculation.
- E. Gate valves when attached to a restrained joint shall have tie rods and one retainer gland for each joint. The size and number of tie rods shall conform to the requirements of Section 02601.
- F. The CONTRACTOR shall provide four detailed repair manuals for the gate valves supplied; and a letter of certification from the supplier verifying that all requirements of AWWA C509 and these specifications have been met.
- G. The CONTRACTOR shall provide one standard packing kit for every group of 10 (and fraction thereof) of each size of gate valve.

2.2 BUTTERFLY VALVES

- A. Butterfly valves shall be used with water pipe sizes larger than twelve inches and shall be manufactured to equal or exceed the latest revision of AWWA C504 and the specific requirements outlined in these specifications.
- B. Butterfly valves shall open counter-clockwise and be provided with two-inch square wrench nuts, except that when installed within vault structures a hand wheel shall be provided for each valve.

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- C. End connections shall be mechanical joint, unless otherwise indicated on the plans.
- D. All internal ferrous metal surfaces shall be fully coated, holiday free with a minimum of two coats of asphalt varnish per Federal Specification TT-V-51C. Said coating shall be non-toxic, impart no taste to water, protect all seating and adjacent surfaces from corrosion and prevent buildup of scale or tuberculation.
- E. Butterfly valves when attached to a restrained joint shall have tie rods and a retainer gland for each joint. The size and number of tie rods shall conform to the requirements of Section 02601.
- F. The CONTRACTOR shall provide four detailed repair manuals for the butterfly valves supplied; and a letter of certification from the supplier verifying that all requirements of AWWA C504 and these Specifications have been met.

2.3 VALVE BOXES

- A. Valve boxes for valves four inches or larger shall be of cast iron and be not less than 5-1/4 inch diameter, with an extension piece adjustable for elevation and with a cover marked "water" or "W". The valve box shall be of sufficient length to be adjusted an equal amount above and below the finished grade as shown on the Standard Details. Boxes shall be dipped in coal tar pitch. The valve box shall be Tyler Pipe 6865 Series or approved equal whose parts are demonstrated to be interchangeable with the Tyler Pipe 6865 Series.

PART 3 - EXECUTION

3.1 VALVES

- A. Valves shall be inspected upon delivery in the field in both open and closed positions prior to installation. Careful inspection shall be made for injury to the outer protective coatings. At all places where the coating has been ruptured or scraped off, the damaged area shall be cleaned to expose the iron base, and then recoated with two or more field coats of approved protective coating.
- B. Valves shall be set on a firm base.
- C. Valves shall be installed, in an open position, in the vertical plane passing through the pipe axis, in conformance with the manufacturer's recommendations and the AWWA Standards. Valve interiors shall be cleaned of all foreign matter.
- D. After installation, all valves shall be subjected to field testing and disinfected as outlined in Section 02601. Should defects in design, materials, or workmanship appear during these tests, the CONTRACTOR shall remove and replace the valve, or correct such defects, with the least possible delay, to the satisfaction of the OWNER.

3.2 VALVE BOXES

- A. A valve box shall be installed over each valve, with the base section centered over the valve and resting on well-compacted backfill. The top section shall be set to allow equal movement of the telescoping section above and below finished grade, as shown on the Standard Details,

SECTION 02602 – VALVES

unless otherwise directed by the OWNER. The top of the base section shall be on line with the nut at the top of the valve stem and the entire assembly shall be perpendicular to the water pipe.

- B. Construct a concrete collar around each valve box within the roadway pavement limits. Sawcut through the total pavement depth following final paving and construct the concrete collar. No backfilling, except with concrete, will be permitted. Seal all sawcut grooves beyond the edge of concrete.

3.3 ADJUST EXISTING VALVE BOXES

- A. Adjust by raising or lowering to conform to the final grade, in accordance with the locations and details shown on the plans. The existing cast iron valve box and cover shall be salvaged and reused. Where the valve box is of the adjustable-type construction, it shall be adjusted with adaptable extension pieces. Where the valve box is constructed with steel pipe, additional steel pipe shall be welded to the valve box to raise the cover; lowering shall be accomplished by cutting the existing steel pipe.
- B. Where the existing valve box is tilted and/or far enough off center on the valve nut to make valve operation difficult, the CONTRACTOR shall plumb and center the valve box over the valve nut prior to strengthening or placement of base course material.

3.4 UTILITY MARKERS

- A. Utility markers for water valves shall be installed at main line valve boxes at locations indicated on the plans and as directed by the OWNER. The position of the marker shall be as shown on the detail drawing.

END OF SECTION

SECTION 02702 - CONSTRUCTION SURVEYING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary to perform all surveying and staking necessary for the completion of the project in conformance with the Drawings and Specifications and standard engineering and surveying practices, including all calculations required to accomplish the WORK.
- B. The WORK shall include the staking, referencing and all other actions as may be required to preserve or restore land monuments and property corners which are situated within the project area, and to establish monuments as shown on the Plans.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONSTRUCTION

- A. All surveying involving property lines or monuments shall be done by, or under the direction of, a Registered Land Surveyor licensed to practice in the State of Alaska.
- B. The OWNER will supply information relative to the approximate locations of monuments and corners, but final responsibility for locations, referencing, and restoration shall rest with the CONTRACTOR.
- C. In the event the CONTRACTOR does not replace the survey monuments and property corners disturbed by the CONTRACTOR's operations, the OWNER may, after first notifying the CONTRACTOR, replace the monuments in question. The cost of such replacements shall be deducted from payments to the CONTRACTOR.
- D. The CONTRACTOR shall provide the OWNER with a copy of all surveyor's notes, if requested by the ENGINEER, prior to each Pay Request payment for which payment for Item 2702.1, Construction Surveying, is increased from the previous Pay Request payment.
- E. The CONTRACTOR shall provide the OWNER with a copy of all surveyor's notes, prior to the request for final payment, and include the information on the record drawings.
- F. The CONTRACTOR shall obtain all information necessary for as-built plan production, from actual measurements and observations made by its own work force, including subcontractors, and submit this information to the ENGINEER.
- G. The CONTRACTOR shall use competent, qualified personnel and suitable equipment for the layout work required and shall furnish all stakes, templates, straightedges and other devices necessary for establishing, checking and maintaining the required points, lines and grades.
- H. The CONTRACTOR shall perform all staking necessary to delineate clearing and/or grubbing limits; all cross sections necessary for determination of excavation and embankment quantities, including intermediate and/or remeasure cross sections as may be required; all slope staking; all staking of culverts and drainage structures, including the

SECTION 02702 - CONSTRUCTION SURVEYING

necessary checking to establish the proper location and grade to best fit the conditions on site; the setting of such finishing stakes as may be required; the staking of right-of-way; the staking, referencing and other actions as may be required to preserve or restore land monuments and property corners; and all other staking necessary to complete the project.

- I. Field notes shall be kept in standard bound notebooks in a clear, orderly and neat manner, consistent with standard engineering and surveying practices. The CONTRACTOR's field books shall be available for inspection by the ENGINEER at any time.
- J. All field survey notes, including those which become source documentations from which quantities for payment are computed, shall be recorded by a notekeeper furnished by the CONTRACTOR. The notekeeper shall be thoroughly familiar with generally accepted standards of good survey notekeeping practice.
- K. The ENGINEER may randomly spot-check the CONTRACTOR's surveys, staking and computations at the ENGINEER's discretion. After the survey or staking has been completed, the CONTRACTOR shall provide the ENGINEER with a minimum of 72 hours notice prior to performing any WORK, and shall furnish the appropriate data as required, to allow for such random spot-checking, however, the Borough assumes no responsibility for the accuracy of the WORK.
- L. Within 10 days of Notice to Proceed, unless otherwise approved by the ENGINEER, the CONTRACTOR shall stake the location of the new water, sewer, and/or storm drain service connections to each home. The stake shall be a surveyor's lathe marked as to the type of service, and placed at the right-of-way line, at the location shown on the Plans.

END OF SECTION

SECTION 03301 - STRUCTURAL CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing portland cement concrete for structures in conformance with the Plans and Specifications.

PART 2 - PRODUCTS

2.1 PORTLAND CEMENT

- A. Portland cement shall conform to the requirements of AASHTO M 85.
- B. Unless otherwise permitted by the OWNER, the product of only one mill of any one brand and type of portland cement shall be used on the project.

2.2 FINE AGGREGATE

- A. Fine aggregate for portland cement concrete shall conform to the requirements of AASHTO M 6 with the following exceptions:

Delete section on deleterious substances and substitute the following:

The amount of deleterious substances shall not exceed the following limits:

Friable particles percent by weight 5 max.
Coal and Lignite, percent by weight using a liquid of 1.95 specific gravity (only material that is brownish-black shall be considered as coal or lignite) 0.5 max.
Material passing the No. 200 sieve, percent by weight 3.0 max.

Delete paragraph 4.2 of AASHTO M 6.

2.3 COARSE AGGREGATE

- A. Coarse aggregate for portland cement concrete shall conform to the requirements of AASHTO M 80, Class A, with the following exceptions:

Delete section on deleterious substances and substitute the following:

The amount of deleterious substances shall not exceed the following limits:

Coal and Lignite, percent by weight (only material that is brownish-black or black shall be considered coal or lignite)..... 1.0 max.
Material passing the No. 200 sieve 1.0 max.
Thin-elongated pieces, percent by weight. (Length greater than 5 times average thickness) 15 max.
Sticks and roots, percent by weight 0.10 max.
Friable Particles, percent by weight..... 0.25 max.
Maximum loss from AASHTO T 96 shall be 50 percent.

SECTION 03301 - STRUCTURAL CONCRETE

Maximum loss from AASHTO T 104 shall be 12 percent.

Add the following: AASHTO T-104 shall be performed using sodium sulfate solution.

2.4 JOINT FILLERS

A. Joint filler, of the type designated in the Contract, shall conform to the following:

1. Poured filler shall conform to AASHTO M 173 or AASHTO M 282 as specified.
2. Preformed fillers shall conform to AASHTO M 33 for bituminous type; AASHTO M 153 for sponge rubber (type I), cork (type II), and self-expanding cork (type III); AASHTO M 213 for nonextruding and resilient bituminous types and
3. AASHTO M 220 for preformed elastomeric types as specified. The filler shall be punched to admit the dowels where called for on the Plans. Joint filler shall be furnished in a single piece for the depth and width required for the joint unless otherwise authorized by the OWNER. When more than one piece is authorized for a joint, the abutting ends shall be fastened securely, and held accurately to shape, by stapling or other positive fastening satisfactory to the OWNER.
4. Foam filler shall be expanded polystyrene filler having a compressive strength of not less than 10 psi.
5. Hot-poured sealants for concrete and asphaltic pavements shall conform to ASTM D 3405.
6. Hot-poured elastomeric type sealant for concrete pavements shall conform to ASTM D 3406.
7. Cold-poured silicone type sealant for concrete pavements shall conform to Federal Specification TT-S-1543, Class A. The sealant shall be a one part, low-modulus silicone rubber with an ultimate elongation of 1,200 percent.

2.5 CURING MATERIAL

A. Curing material shall conform to the following requirements as specified:

1. Burlap Cloth made from Jute Kenaf AASHTO M 182
2. Sheet Material for Curing Concrete AASHTO M 171
3. Liquid Membrane-Forming Compounds AASHTO M 148 for Curing Concrete, Type I

B. The requirements specified in AASHTO M 148 covering "Liquid Membrane-Forming Compounds for Curing Concrete" are modified by adding the following:

Liquid membrane-forming compounds utilizing linseed oil shall not be used.

SECTION 03301 - STRUCTURAL CONCRETE

2.6 AIR ENTRAINING AGENTS

- A. Air-entraining admixtures shall conform to the requirements of AASHTO M 154.

2.7 MIXING WATER

- A. Unless otherwise permitted in writing by the OWNER, all water shall be obtained from the a potable water system.

2.8 REINFORCING STEEL

- A. Reinforcing shall conform to AASHTO M 31, and be Grade 60.

2.9 SHIPPING AND STORAGE OF CEMENT

- A. Cement may be shipped from pretested approved bins. The cement shall be well protected from rain and moisture, and any cement damaged by moisture or which fails to meet any of the specified requirements shall be rejected and removed from the work.
- B. Cement stored by the CONTRACTOR for a period longer than 60 days in other than sealed bins or silos shall be retested before being used. Cement of different brands, types, or from different mills shall be stored separately.

2.10 COMPOSITION OF CONCRETE

- A. All portland cement concrete shall be ready-mix, provided by an approved plant regularly engaged in the production of concrete, unless otherwise authorized in writing by the OWNER. Ready-mix concrete shall conform to the requirements of AASHTO M 157.
- B. The CONTRACTOR shall furnish the design mix to the OWNER for approval. The mix design shall be suitable for its intended use. Concrete shall be designed using an absolute volume analysis. The CONTRACTOR shall be responsible for having each mix laboratory tested. Prior to the start of production of any mix design, the CONTRACTOR shall submit test results and certifications for all materials, detailed mix design data and results of laboratory tests to the OWNER for approval. Approval by the OWNER will be based on apparent conformity to these specifications. It shall remain the CONTRACTOR's responsibility during production to produce concrete conforming to the mix design and the minimum acceptance criteria in the contract. When requested by the OWNER, the CONTRACTOR shall submit samples of all materials for verification testing. Production shall not commence until the mix design is approved by the OWNER.
- C. Unless otherwise specified the design mix shall meet the following:

Minimum cement content	6 1/2 sacks (611 lb.) per C.Y.
Maximum water/cement ratio	5.75 gal/sack (0.51 #/#)
28-day compressive strength (f'c)	3,000 psi minimum
Slump	3" ± 1"
Entrained Air	3 to 6%
Coarse Aggregate	AASHTO M 43, Gradation No. 67
Note: Cement factors are based on 94-pound sacks	

SECTION 03301 - STRUCTURAL CONCRETE

- D. The CONTRACTOR shall be responsible for producing and placing specification concrete with a cement content within a tolerance of 2%.
- E. The use of superplasticizers in the concrete mix to improve the workability of mixes with low water cement ratios will require prior written approval by the OWNER.
- F. The CONTRACTOR may, subject to prior approval in writing, use alternative sizes of coarse aggregate as shown in Table 1 of AASHTO M 43. If the use of an alternative size of coarse aggregate produces concrete which exceeds the permissible water-cement ratio above, thereby requiring additional cement above that specified, no compensation will be made to the CONTRACTOR for the additional cement.

2.11 SAMPLING AND TESTING

- A. Field tests of all materials will be made by the OWNER when deemed necessary, in accordance with the applicable Specifications. When the results of the field tests indicate the material does not conform to the requirements of the specifications, the re-tests required by the OWNER shall be at the expense of the CONTRACTOR.
- B. Materials which fail to meet contract requirements, as indicated by laboratory tests, shall not be used in the work. The CONTRACTOR shall remove all defective materials from the site.
- C. Types and sizes of concrete specimens shall be in accordance with ASTM C 31. Additional slump tests and/or test cylinders may be required at the discretion of the OWNER. Should the analysis of any test cylinder not meet the preceding requirements of Article 2.8, its representative concrete shall be removed and replaced at the CONTRACTOR's expense.
- D. Three copies of all test reports shall be furnished to the OWNER.

2.12 COLD WEATHER CONCRETE

- A. Concrete shall not be placed when the descending air temperature in the shade, away from artificial heat, falls below 40°F. nor resumed before the ascending air temperature reaches 35°F., without specific written authorization. When the air temperature falls below 40°F., or is, in the opinion of the OWNER, likely to do so within a 24 hour period after placing concrete, the CONTRACTOR shall have ready on the job materials and equipment required to heat mixing water and aggregate and to protect freshly placed concrete from freezing.
- B. Concrete placed at air temperatures below 40°F. shall have a temperature not less than 50°F. nor greater than 70°F. when placed in the forms. These temperatures shall be obtained by heating the mixing water and/or aggregate. Mixing water shall not be heated to more than 160°F.
- C. Binned aggregates containing ice or in a frozen condition will not be permitted nor will aggregates which have been heated directly by gas or oil flame or heated on sheet metal over an open fire. When aggregates are heated in bins, only steam-coil or water-coil heating will be permitted, except that other methods, when approved, may be used. If live steam is used to thaw frozen aggregate piles, drainage times comparable to those applicable for washed aggregates shall apply.

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- D. When the temperature of either the water or aggregate exceeds 100°F, they shall be mixed together so that the temperature of the mix does not exceed 80°F at the time the cement is added.
- E. Any additives must have prior approval of the OWNER before being used.
- F. The use of calcium chloride is prohibited.
- G. When placing concrete in cold weather, the following precautions shall be taken in addition to the above requirements:
- H. Heat shall be applied to forms and reinforcing steel before placing concrete as required to remove all frost, ice, and snow from all surfaces which will be in contact with fresh concrete.
- I. When fresh concrete is to be placed in contact with hardened concrete, the surface of the previous pour shall be warmed to at least 35°F., thoroughly wet, and free water removed before fresh concrete is placed.
- J. Freshly placed concrete shall be maintained at a temperature of not less than 70°F. for 3 days or not less than 50°F. for 5 days, when Type I or II cement is used, and not less than 70°F. for 2 days or not less than 50°F. for 3 days, when Type III cement is used. The above requirements are not intended to apply during the normal summer construction season when air temperatures of 40°F. or higher can reasonably be anticipated during the two-week period immediately following concrete placement, or until the concrete is no longer in danger from freezing.
- K. When temperatures below 20°F. are not expected during the curing period and, in the opinion of the OWNER, no other adverse conditions, such as high winds, are expected, concrete temperatures may be maintained in thick concrete sections by retention of heat of hydration by means of adequately insulated forms.
- L. When, in the opinion of the OWNER, greater protection is required to maintain the specified temperature, the fresh concrete shall be completely enclosed and an adequate heat source provided. Such enclosure and heat source shall be so designed that evaporation of moisture from the concrete during curing is prevented. Precautions shall be taken to protect the structure from overheating and fire.
- M. At the end of the required curing period protection may be removed, but in such a manner that the drop in temperature of any portion of the concrete will be gradual and not exceed 30°F. in the first 24 hours.
- N. For concrete placed within cofferdams and cured by flooding with water, the above conditions may be waived provided that the water in contact with the concrete is not permitted to freeze. De-watering shall not be carried out until the OWNER determines that the concrete has cured sufficiently to withstand freezing temperatures and hydrostatic pressure.

SECTION 03301 - STRUCTURAL CONCRETE

- O. The CONTRACTOR shall be wholly responsible for the protection of the concrete during cold weather operations. Any concrete injured by frost action or overheating shall be removed and replaced at the CONTRACTOR's expense.

2.13 FORMS

- A. Forms shall be so designed and constructed that they may be removed without injuring the concrete.
- B. Unless otherwise specified, forms for exposed surfaces shall be made of plywood, hard-pressed fiberboard, sized and dressed tongue-and-groove lumber, or metal in which all bolt and rivet holes are countersunk, so that a plane, smooth surface of the desired contour is obtained. Rough lumber may be used for surfaces that will not be exposed in the finished structure. All lumber shall be free from knotholes, loose knots, cracks, splits, warps, or other defects affecting the strength or appearance of the finished structure. All forms shall be mortar tight, free of bulge and warp, and shall be cleaned thoroughly before reuse.
- C. In designing forms and falsework, concrete shall be regarded as a liquid. In computing vertical loads a weight of 150 pounds per cubic foot shall be assumed. The lateral pressure for design of wall forms shall not be less than that given by the following formulas:

For walls with R not exceeding 7 feet per hour:

$$P = 150 + \frac{9000R}{T}, \text{ but not more than}$$

2000 p.s.f. or 150 h, whichever is less.

For walls with R greater than 7 feet per hour:

$$P = 150 + \frac{43,400}{T} + \frac{2800R}{T}, \text{ but not more}$$

than 2000 p.s.f. or 150 h, whichever is less.

Where:

P = lateral pressure for design of wall forms, p.s.f.
R = rate of placement, feet per hour
T = temperature of concrete in forms, °F
h = maximum height of fresh concrete in form, feet

- D. The above formulas apply to internally vibrated concrete placed at 10 feet per hour or less, without the use of retarding agents, and where depth of vibration is limited to 4 feet below the top of the concrete surface. The CONTRACTOR shall state the placement rate and minimum concrete temperature on the working drawings for concrete form work. Deflection of plywood, studs, and walers shall not exceed 1/360 of the span between supports.
- E. Forms shall be so designed that placement and finishing of the concrete will not impose loads on the structure resulting in adverse deflections or distortions.

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- F. The forms shall be so designed that portions covering concrete that is required to be finished may be removed without disturbing other portions that are to be removed later. As far as practicable, form marks shall conform to the general lines of the structure.
- G. When possible, forms shall be day-lighted at intervals not greater than 10 feet vertically, the openings being sufficient to permit free access to the forms for the purpose of inspecting, and working.
- H. Metal ties or anchorages within the forms shall be so constructed as to permit their removal to a depth of at least 1 inch from the face without injury to the concrete. All fittings for metal ties shall be of such design that, upon their removal, the cavities which are left will be of the smallest possible size.
- I. All exposed edges 90° or sharper shall be chamfered 3/4 inch unless otherwise noted. Chamfering of forms for re-entrant angles shall be required only when specifically indicated on the Plans.
- J. Forms shall be inspected immediately prior to the placing of concrete. Dimensions shall be checked carefully and any bulging or warping shall be remedied and all debris and standing water within the forms shall be removed. Special attention shall be paid to ties and bracing and where forms appear to be braced insufficiently or built unsatisfactorily, either before or during placing of the concrete, the OWNER shall order the work stopped until the defects have been corrected.
- K. Forms shall be constructed true to line and grade. Clean-out ports shall be provided at construction joints.
- L. The construction of concrete slabs with permanent steel forms shall conform to the requirements of this specification and as shown on the Plans. Removable forms may be substituted for permanent metal forms with no adjustment in prices.
- M. All forms shall be installed in accordance with approved fabrication and erection plans.
- N. Form sheets shall not be permitted to rest directly on the top of the stringer or floor beam flanges. Sheets shall be securely fastened to form supports and shall have a minimum bearing one inch in length at each end. Form supports shall be placed in direct contact with the flange or stringer or floor beam. All attachments shall be made by permissible welds, bolts, clips or other approved means.
- O. All porous forms shall be treated with non-staining form oil or saturated with water immediately before placing concrete.
- P. Falsework shall be built to carry the loads without appreciable settlement. Falsework that cannot be founded on solid footings must be supported by ample falsework piling. Falsework shall be designed to sustain all imposed loads.
- Q. Detail drawings of the falsework shall be submitted for review, but such review shall not relieve the CONTRACTOR of any responsibility under the contract for the successful completion of the structure.

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- R. Forms and falsework shall not be removed without the consent of the OWNER. The OWNER's consent shall not relieve the CONTRACTOR of responsibility for the safety of the work. Blocks and bracing shall be removed at the time the forms are removed and in no case shall any portion of the wood forms be left in the concrete.
- S. To facilitate finishing, forms used on ornamental work, railings, parapets, and exposed vertical surfaces shall be removed in not less than 12 nor more than 48 hours, depending upon weather conditions. The side forms for arch rings, columns, and piers shall be removed before the members of the structure which they support are placed, so that the quality of the concrete may be inspected. All such side forms shall be removed before the removal of shoring from beneath beams and girders.
- T. In warm weather, falsework and forms shall remain in place under slabs, beams, girders and arches for 14 days after the day of last pour when Type I or Type II cement is used, or for 7 days when Type III cement is used. Forms for slabs having clear spans or cantilever spans of less than 10 feet may be removed after 7 days when Type I or Type II cement is used, or after 4 days when Type III cement is used. In cold weather, the length of time that forms and falsework are to remain in place shall be as approved.
- U. Falsework supporting the deck of rigid frame structures shall not be removed until fills have been placed behind the vertical legs.
- V. No superstructure load shall be placed upon finished concrete until the OWNER so directs, but the minimum time allowed for the curing of structural concrete in the substructure before any load of the superstructure is placed thereon shall be 7 days when Type I or Type II cement is used and 2 days when Type III cement is used.

PART 3 - EXECUTION

3.1 GENERAL

- A. All concrete shall be placed before it has taken its initial set and, in any case, within 30 minutes after mixing. Concrete shall be placed in such manner as to avoid segregation of coarse or fine portions of the mixture, and shall be spread in horizontal layers when practicable. Special care shall be exercised in the bottom of slabs and girders to assure the working of the concrete around nests of reinforcing steel, so as to eliminate rock pockets or air bubbles. Enough rods, spades, tampers and vibrators shall be provided to compact each batch before the succeeding one is dumped and to prevent the formation of joints between batches.
- B. Extra vibrating shall be done along all faces to obtain smooth surfaces. Care shall be taken to prevent mortar from splattering on forms and reinforcing steel and from drying ahead of the final covering with concrete.
- C. Concrete shall not be placed in slabs or other sections requiring finishing on the top surface when precipitation is occurring or when in the opinion of the OWNER precipitation is likely before completion of the finishing, unless the CONTRACTOR shall have ready on the job all materials and equipment necessary to protect the concrete and allow finishing operations to be completed.

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- D. Troughs, pipes, or short chutes used as aids in placing concrete shall be arranged and used in such a manner that the ingredients of the concrete do not become separated. Where steep slopes are required, troughs and chutes shall be equipped with baffle boards or shall be in short lengths that reverse the direction of movement. All chutes, troughs, and pipe shall be kept clean and free of hardened concrete by flushing thoroughly with water after each run. Water used for flushing shall be discharged clear of the concrete in place. Troughs and chutes shall be of steel or plastic or shall be lined with steel or plastic and shall extend as nearly as possible to the point of deposit. The use of aluminum for pipes, chutes or tremies is prohibited. When discharge must be intermittent, a hopper or other device for regulating the discharge shall be provided.
- E. Dropping the concrete a distance of more than 5 feet or depositing a large quantity at any point and running or working it along the forms will not be permitted. The placing of concrete shall be so regulated that the pressures caused by wet concrete shall not exceed those used in the design of the forms.
- F. High frequency internal vibrators of either the pneumatic, electrical, or hydraulic type shall be used for compacting concrete in all structures. The number of vibrators used shall be ample to consolidate the fresh concrete within 15 minutes of placing in the forms. In all cases, the CONTRACTOR shall provide at least 2 concrete vibrators for each individual placement operation (1 may be a standby), which shall conform to the requirements of these specifications. Prior to the placement of any concrete, the CONTRACTOR shall demonstrate that the 2 vibrators are in good working order and repair and ready for use.
- G. The vibrators shall be an approved type, with a minimum frequency of 5,000 cycles per minute and shall be capable of visibly affecting a properly designed mixture with a 1 inch slump for a distance of at least 18 inches from the vibrator.
- H. Vibrators shall not be held against forms or reinforcing steel nor shall they be used for flowing the concrete or spreading it into place. Vibrators shall be so manipulated as to produce concrete that is free of voids, is of proper texture on exposed faces, and of maximum consolidation. Vibrators shall not be held so long in one place as to result in segregation of concrete or formation of laitance on the surface.
- I. Concrete shall be placed continuously throughout each section of the structure or between indicated joints. If, in an emergency, it is necessary to stop placing concrete before a section is completed, bulkheads shall be placed as the OWNER may direct and the resulting joint shall be treated as a construction joint.
- J. The presence of areas of excessive honeycomb may be considered sufficient cause for rejection of a structure. Upon written notice that a given structure has been rejected, the rejected work shall be removed and rebuilt, in part or wholly as specified, at the CONTRACTOR's expense.

3.2 PUMPING CONCRETE

- A. Concrete may be placed by pumping provided the CONTRACTOR demonstrates that the pumping equipment to be used will effectively handle the particular class of concrete with the slump and air content specified and that it is so arranged that no vibrations result that

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might damage freshly placed concrete. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced.

- B. When pumping is completed, the concrete remaining in the pipeline, if it is to be used, shall be ejected in such a manner that there will be no contamination of the concrete or separation of the ingredients. After this operation, the entire equipment shall be thoroughly cleaned. Slump tests shall be taken at the discharge end of the pipe.

3.3 CONSTRUCTION JOINTS

- A. Construction joints shall be located where shown on the Plans or as permitted by the OWNER. Construction joints shall be perpendicular to the principal lines of stress and in general shall be located at points of minimum shear.
- B. At horizontal construction joints, gage strips 1-1/2 inches thick shall be placed inside the forms along all exposed faces to give the joints straight lines. Before placing fresh concrete, the surfaces of construction joints shall be washed and scrubbed with a wire broom, drenched with water until saturated, and kept saturated until the new concrete is placed.
- C. Immediately prior to placing new concrete the forms shall be drawn tight against the concrete already in place. Concrete in substructures shall be placed in such manner that all horizontal construction joints will be truly horizontal and, if possible, in locations such that they will not be exposed to view in the finished structure. Where vertical construction joints are necessary, reinforcing bars shall extend across the joint in such a manner as to make the structure monolithic. Special care shall be taken to avoid construction joints through large surfaces which are to be treated architecturally.
- D. All construction joints shall be provided with concrete shear keys at least 1-1/2 inches deep and 1/3 of the concrete thickness in width, unless otherwise shown on the Plans.

3.4 ANCHOR BOLTS

- A. Anchor bolt assemblies conforming to the details shown shall be accurately secured in the forms in the positions shown on the Plans, before any concrete is placed in the forms. The positions shall be checked and any adjustments made as soon as the concrete has been placed.
- B. When pipe sleeves or pre-cast holes are provided, no water shall be allowed to freeze in the cavity. If frost causes cracks in the concrete, the entire placement shall be removed and replaced at the CONTRACTOR's expense. When anchor bolts are installed in pipe sleeves or pre-cast holes, the cavity shall be completely filled with grout at the time the grout pads are constructed or at the time the bearing assemblies or masonry plates are placed.

3.5 PIPES, CONDUITS, AND DUCTS

- A. Pipes, conduits, and ducts that are to be encased in concrete shall be installed in the forms by the CONTRACTOR before the concrete is placed. Unless otherwise indicated, they shall be

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standard, lightweight cast-iron water pipe or wrought iron. They shall be held rigidly so they will not be displaced during concrete placement.

3.6 STEM WALL FINISH

- A. An Stem Wall Finish is defined as the finish left on a surface after the removal of the forms, the filling of all holes left by form ties, and the repairing of all defects. The surface shall be true and even, free from stone pockets and depressions or projections. All surfaces that cannot be satisfactorily repaired shall be given a Rubbed Finish.
- B. The concrete in caps and tops of walls shall be struck off with a straightedge and floated to true grade. The use of mortar topping for concrete surfaces shall in no case be permitted.
- C. As soon as the forms are removed, metal devices that have been used for holding the forms in place, and which pass through the body of the concrete, shall be removed or cut back at least 1 inch beneath the surface of the concrete. Fins of mortar and all irregularities caused by form joints shall be removed.
- D. All small holes, depressions, and voids, that show upon the removal of forms, shall be filled with cement mortar mixed in the same proportions as that used in the body of the work. In patching larger holes and honeycombs, all coarse or broken material shall be chipped away until a dense uniform surface of concrete exposing solid coarse aggregate is obtained. Feathered edges shall be cut away to form faces perpendicular to the surface. All surfaces of the cavity shall be saturated thoroughly with water, after which a thin layer of neat cement mortar shall be applied. The cavity shall then be filled with stiff mortar composed of one part portland cement to two parts sand, which shall be thoroughly tamped into place. The mortar shall be pre-shrunk by mixing it approximately 20 minutes before using. The length of time may be varied in accordance with brand of cement used, temperature, humidity, and other local conditions. The surface of this mortar shall be floated with a wooden float before initial set takes place and shall be neat in appearance. The patch shall be kept wet for a period of five days.
- E. For patching large or deep areas, coarse aggregate shall be added to the patching material. All mortar for patching on surfaces which will be exposed to view in the completed structure shall be color matched to the concrete. Test patches for color matching shall be conducted on concrete that will be hidden from view in the completed work and shall be subject to approval.

3.7 SLAB FINISH

- A. After vibration and tamping during placement of concrete, leveling and screeding shall be done to produce an even uniform surface.
- B. After sufficient stiffening of the screeded concrete, surfaces shall be float finished with wood or metal floats or with a finishing machine using float blades. Excessive floating of surfaces while the concrete is plastic and dusting of dry cement and sand on the concrete surface to absorb excess moisture will not be permitted. Floating shall be the minimum necessary to produce a surface that is free from screen marks and is uniform in texture.

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- C. After the floated surface has hardened sufficiently to prevent excess fine material from being drawn to the surface, steel troweling shall be performed with firm pressure such as will flatten the sandy texture of the floated surface and produce a dense, uniform surface free from blemishes, ripples and trowel marks. The finish shall be smooth and free from all irregularities.

3.8 CURING CONCRETE

A. Water Curing:

1. All concrete surfaces shall be kept wet for at least seven days after placing if Type I or II cement has been used or for three days if Type III cement has been used. Concrete shall be covered with wet burlap, cotton mats, or other materials meeting the requirements of AASHTO M 171 immediately after final finishing of the surface. These materials shall remain in place for the full curing period or they may be removed when the concrete has hardened sufficiently to prevent marring and the surface immediately covered with sand, earth, straw, or similar materials.
2. In either case the materials shall be kept thoroughly wet for the entire curing period. All other surfaces, if not protected by forms, shall be kept thoroughly wet, either by sprinkling or by the use of wet burlap, cotton mats, or other suitable fabric, until the end of the curing period. If wood forms are allowed to remain in place during the curing period, they shall be kept moist at all times to prevent opening at joints.

- B. Membrane Curing. Liquid membrane curing compound meeting the requirements of AASHTO M 148, Type I, may be permitted, subject to approval by the OWNER, except compounds utilizing linseed oil shall not be used. All finishing of concrete surfaces shall be performed to the satisfaction of the OWNER prior to applying the impervious membrane curing compound. The concrete surfaces must be kept wet with water continuously until the membrane has been applied. The manufacturer's instructions shall be carefully followed in applying the membrane, and in all cases the membrane curing compound must always be thoroughly mixed immediately before application. In case the membrane becomes marred, worn, or in any way damaged, it must immediately be repaired by wetting the damaged area thoroughly and applying a new coat of the impervious membrane curing compound. Membrane curing will not be permitted for concrete slabs that are to be covered with waterproof membranes, polymer modified concrete or at construction joints.

3.9 CLEANING UP

- A. Upon completion of the structure and before final acceptance, the CONTRACTOR shall remove all formwork and surplus concrete.

END OF SECTION

SECTION 11730 – SUBMERSIBLE MIXER

PART 1 – GENERAL

1.1 SCOPE

- A. This section covers submersible tank mixing systems up to 0.5 HP in size intended for continuous use while submersed in potable water storage tanks. Each mixer shall have the ability to function continuously on a year-round basis, regardless of drain and fill cycles. Each mixer shall consist of a low-voltage, water-filled submersible motor, an impeller and a non-submersible control center that houses all control electronics. Mixer shall be NSF 61 listed.
- B. The submersible mixer specifications and design is based on the PAX Water Mixer as manufactured by PAX Water Technologies (510) 550-7100. Representative for the PAX Mixer is TMG Services, 3216 E. Portland Ave., Tacoma, WA 98404, (800)-562-2310 or (253) 779-4165 attn. Dean Brown (dean@tmgservices.net).

1.2 THE REQUIREMENT

- A. CONTRACTOR shall furnish and install submersible mixing system together with all drives, motors, controls, and accessories necessary for a complete and operable system.
- B. CONTRACTOR shall furnish electrical conduit with 110-120 VAC, GFCI-protected circuit breaker for the mixing system control center. CONTRACTOR shall also provide conduit from control center to tank penetration for submersible motor cable and penetration through tank for same cable.

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Comply with the applicable reference specifications as specified in the General Requirements

1.4 CONTRACTOR SUBMITTALS

- A. NSF Certification
 - 1. Copies of the NSF-61 certified listing for all material being placed inside the tank and headspace, including the motor power cable.
- B. Design Calculations
 - 1. Based on models validated and/or calibrated with experimental data from laboratory-scale and real scale representative systems for similarly-sized reservoirs, manufacturer shall show completely mixed conditions for equipment configuration.
 - 2. Analysis should include the following sections:
 - a. Velocity vectors and contour plot at different cross-sections

SECTION 11730 – SUBMERSIBLE MIXER

- b. The average flow induced throughout the tank
 - c. The corresponding average turnover for the tank (in hours)
 - d. The corresponding average power consumption of the mixer
- C. Installation, Operations, and Maintenance Manuals shall be obtained from the equipment manufacturer and submitted. The following sections shall be included:
1. General equipment specifications and data sheets
 2. Installation, start-up, operation, and maintenance instructions
 3. Factory-recommended maintenance schedule and list of recommended spare parts
 4. Wiring diagrams specifying what electrical wiring needs to be done onsite during and prior to the installation, and by which responsible party
 5. List of equipment or tooling necessary for diagnostics, trouble-shooting, repair or general maintenance

1.5 QUALITY ASSURANCE

- A. Each mixing system shall be factory tested prior to shipment according to standard engineering practices at the factory testing facilities. Certification of this completed testing shall accompany mixer installation documentation.

1.6 WARRANTY

- A. For the period of time beginning with equipment start-up and ending on the time periods listed below, the mixer shall be warranted to be substantially free from defects in material and workmanship and to conform to Seller's specifications applicable to the Product –
1. One (1) year on all supplied parts
- B. Warranty does not need to cover damage due to: (i) lightning, flood or other acts of nature, or failure of or inappropriate application of peripheral devices including lightning or surge protectors; (ii) negligence of any third party; (iii) vandalism or any other misuse or mistreatment of the product; or (iv) installation by non-licensed contractor.

PART 2 – PRODUCTS

2.1 PERFORMANCE

- A. Based on models validated and/or calibrated with experimental data from laboratory-scale and real scale representative systems for similarly-sized reservoirs (39' diameter, 20' tall, 150,000 gallons), manufacturer shall show mixing system shall have an output flow-rate that is at least 10,000 GPM
- B. In addition, mixing system shall completely mix reservoir according to the following minimum performance requirements. These requirements can be measured and

SECTION 11730 – SUBMERSIBLE MIXER

validated after installation by operators with readily-available tools such as temperature probes and total chlorine grab samplers.

1. Temperature Uniformity
All temperatures shall converge to within 0.2°C within 24 hours after mixer is installed and activated. During continuous operation of the mixer, all temperatures will converge to within 0.2°C at least once every 24 hours.
2. Disinfectant Residual Uniformity
Disinfectant residual within top five feet of tank and bottom five feet of tank will converge to within 0.20 ppm within 3 days after mixer is installed and activated. During continuous operation of the mixer, disinfectant residual will converge to within 0.20 ppm at least once every 72 hours.

2.2 GENERAL

- A. Mixing system consists of an impeller mounted on a submersible motor and supported approximately three feet in height from the tank floor in order for it to launch a jet of water from the bottom of the tank up toward the surface of the water. Floating devices shall not be acceptable. Mixer duty cycle shall be variable with the size and volume of the tank. Mixer control and operation shall be independent of tank drain and fill cycles to ensure constant mixing. Wet-side of Mixer shall weigh less than 75 pounds (~34 kg) and dry-side shall weigh less than 50 pounds (~22 kg). Both wet-side and dry-side shall be able to be hoisted, installed, and/or removed by on-site personnel without additional equipment needed, and so that there is no crush hazard or entanglement hazard present, and so that weight of mixer on tank floor does not cause damage to interior coating.
- B. Power source for mixer shall be 110v, 60 hz, single phase.

2.3 CONSTRUCTION

- A. Components – wet-side: shall be NSF/ANSI Standard 61 certified.

Equipment entering tank shall not adhere to, scratch, or otherwise cause damage to internal tank coating or put undue stress on the materials of the tank construction. Equipment shall fit through a standard 24” diameter manhole.

Each submersible mixer shall consist of the following components:

1. Impeller
 - AISI Type 316 Stainless Steel
 - Balanced to within 0.5 gram-inches
 - Passivated per ASTM A380 to minimize corrosion
 - Not more than 6 inches in overall height
 - Not more than 4.5 inches in diameter
 - Not more than 2.2 lbs in weight
 - Shall not create cavitation at any rotational speed up to 2500 RPM

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2. Motor
 - AISI Type 316 Stainless Steel body
 - Chlorine/Chloramine resistant rubber seals
 - Fully submersible
 - Low Voltage (10-45V)
 - High Voltage 110 VAC motor not permitted
 - Low power (0.5 HP maximum)
 - Water-filled motor
 - Water-lubricated motor
 - Variable RPM
 3. Mounting Tripod
 - AISI Type 316 Stainless Steel
 - Three-foot long detachable legs
 - NSF/ANSI Standard 61 certified EPDM rubber, non-skid, non-scratch feet
 - Built-in attachments secure motor cable away from impeller
 - Overall weight of wet-side unit not to exceed 75 lbs to avoid damaging tank floor
 - Overall height of unit not to exceed 4 ft
- B. Components –Each 110VAC control center shall consist of the following components:
1. Enclosure
 - Lockable
 - Over-hanging lip as moisture seal
 - Vandal-resistant, 14 gauge, AISI Stainless Steel 304 construction
 - Overall weight of control center not to exceed 50 lbs
 2. Power supply
 - 48V DC power supply
 - Operating temperature range -40°C to +70°C
 - Automatic Thermal shut-off protection built-in
 - Power Factor meets EN61000-3-2
 - RoHS-compliant design
 3. Motor Controller
 - Conformal-coated PC Board to control motor speed
 - Green and Red LED Indicator lights show motor status
 - Operating temperature range -40°C up to 85°C
 - Manual speed control located on board (potentiometer)
 - Thermal shut-off protection built-in
 - Current overload protection built-in
 4. SCADA Control Board
 - Conformal-coated
 - Digital Output signal indicating motor running
 - Digital Output signal indicating fault

SECTION 11730 – SUBMERSIBLE MIXER

Digital Input/output signal allowing remote motor on/off
RS-232 or dry contact connections
Green and Red LED status indicator lights connected on enclosure

- G. All motors and controls shall be connected to a dedicated branch circuit, 15-Amp, 5mA trip level, GFCI-protected 120-volt, 60-Hz, single-phase connection at the control center.

2.4 CONTROLS

- A. Each unit shall be equipped with all necessary controls, interwired, to provide the following minimum functions:
 - 1. On/Off switch to control power to mixer.
 - 2. Automatically-activated motor shut-off if water level drops below motor height in tank.
 - 3. Any other controls shown on electrical and instrumentation drawings.

2.5 GFCI-PROTECTED DISCONNECT SWITCH

- A. Each unit shall have a dedicated 15-Amp, 5mA trip level, GFCI circuit breaker for 120-volt, 60-Hz, single-phase grid power. Connection from circuit breaker to control center shall terminate in a disconnect switch located within 10 feet (3m) of mixer control center. Disconnect switch shall be housed in a lockable, waterproof (NEMA 3r minimum) housing.

2.6 ACCEPTABLE MANUFACTURERS:

- A. PAX Water Technologies (Richmond, California), or approved equal.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. The CONTRACTOR shall furnish services of a factory-trained installation contractor or crew having experience with installation procedures and operation and maintenance requirements for the submersible mixer installed under these specifications. Mixer must be able to be installed through 30” diameter manhole.
- B. A tank coupling for mixer cable shall be installed as shown on the plans and specifications. The coupling shall be welded to tank sidewall as shown and the interior and exterior of the tank and the coupling shall be painted in accordance with the tank painting specifications for this project.
- E. GFCI-Protected Disconnect switch shall be installed by the CONTRACTOR.
- F. The mixer and control center shall be installed in accordance with the manufacture’s written recommendations.

3.2 TRAINING

SECTION 11730 – SUBMERSIBLE MIXER

- A. PAX Water Technologies staff (or their representatives) will instruct designated Haines Water Utility personnel in the safe and proper operation of the Submersible Mixer. This training will reference the operations manual provided with equipment, and show how to check for proper functioning of the equipment.

END OF SECTION

SECTION 13200 BOLTED STEEL WATER TANK

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Furnish and erect a glass-fused to steel water storage tank, including foundation, tank structure and tank appurtenances as shown on the contract drawings and described herein. NOTE: Baked-on epoxy painted or galvanized bolt-together tanks will not be considered.
- B. All required labor, materials and equipment shall be included.
- C. The exterior tank color of the tank shall be dark green.
- D. The interior tank color shall be blue or white.
- E. Coatings for the tank must be a listed ANSI/NSF Standard 61 coating.

1.2 QUALIFICATIONS OF TANK SUPPLIER

- A. Selection of the bolted steel water tank has been predicated upon specific criteria, construction methods, and an optimum coating for resistance to internal and external tank corrosion. Deviations from the specified design, construction or coating details, will not be permitted.
- B. The bolted steel water tank shall be supplied from a manufacturer specializing in the design, fabrication and erection of factory applied glass-fused-to-steel, bolt together tanks. The manufacturer shall employ a staff of full time design engineers, own and operate its steel fabrication facilities and glass coat the tank all at one plant location.

1.3 QUALIFICATIONS OF TANK CONTRACTOR

- A. The tank Contractor shall be registered as an active company with the state's contracting licensing authority in Alaska and shall comply with all applicable OSHA, EEO and all applicable state statutes.
- B. The tank Contractor shall be experienced in the construction of the specified tank and shall be certified by the manufacturer as an authorized builder. The builder shall have built at least five tanks of similar type that are equal or greater in size than the specified tank. At least three (3) of the tanks must have been constructed in locations subject to the same seismic design requirements, and at least two (2) of which were constructed within the last four (4) years. The tanks shall have been erected by the proposed tank erector.
- C. Building crews shall comply with the tank manufacturers' requirements for building practices and equipment used on the job. The crew personnel shall be trained in a factory sponsored program and shall be certified by the tank manufacturer as having satisfactorily completed that program.

SECTION 13200 BOLTED STEEL WATER TANK

- D. The builder will be required at all times to observe and comply with the provisions of the local state statues, relating to the regulation of laborers, mechanics and other workers employed in any public works by the State, County, City or any political subdivision or by any one under Contract for public works. The builder shall comply with Department of Labor prevailing wage rates for the County where the project is being performed, as applicable for this project.

1.4 SUBMITTAL DRAWINGS AND SPECIFICATIONS

- A. Construction shall be governed by the drawings and specifications showing general dimensions and construction details after written approval by the Engineer of detailed erection drawings prepared by the tank bidder. There shall be no deviation from the drawings and specifications, except upon written order from the Engineer.
- B. The tank builder is required to furnish, for the approval of the Engineer 4 sets of complete submittals and construction drawings for all work associated with the tank. A set of structural calculations shall be provided for the tank structure and foundation. All such submissions shall be stamped by a Licensed Professional Engineer licensed in Alaska, as well as by a Licensed Professional Engineer or Structural Engineer employed on the tank manufacturer's engineering staff. Where the tank manufacturers P.E. is licensed in the state of the project location, only one stamp is required.
- C. When approved, two sets of such prints and submittal information will be returned to the tank builder marked "No Exceptions Noted" in accordance with Specification Section 01300 and these drawings will then govern the work detailed thereon. The approval by the Engineer of the tank supplier's drawings shall be an approval relating only to their general conformity with the bidding drawings and specifications and shall not guarantee detail dimensions and quantities, which remains the builder's responsibility.
- D. The tank manufacturers and installing contractor's standard published warranty shall be included with submittal information.
- E. The tank manufacturer shall provide a standard Operation and Maintenance Manual after receipt of approved drawings.

PART 2 - DESIGN CRITERIA

- 2.1 Tank Size. The factory coated, glass-fused-to-steel tank shall have a nominal diameter of 39 feet, with a nominal sidewall height (to roof eave) of 20 feet.
- 2.2 Tank Capacity. Tank capacity shall be 152,000 gallons (nominal, U.S. gallons) with a freeboard of 3'.
- 2.3 Floor Elevation. Finished floor elevation shall be set at Elev.230.0'.
- 2.4 Tank Design Standards

SECTION 13200 BOLTED STEEL WATER TANK

- A. The materials, design, fabrication and erection of the bolt together tank shall conform to the AWWA D 103, latest edition.
 - B. The tank coating system shall conform solely to Section 10.4 of ANSI/AWWA D103, latest edition
 - C. All materials furnished by the tank manufacturer, which are in contact with the stored water shall be certified and listed by the National Sanitation Foundation (NSF) to meet ANSI/NSF Standard No. 61.
- 2.5 Design Loads (Complete the blanks)
- 1. Specific Gravity 1.0
 - 2. Wind Velocity 110 mph 3 sec. gust Exposure C
 - 3. Allowable Soil Bearing Loading 3000 psf
 - 4. Frost Depth 48"
 - 5. Roof Snow Load 150 psf
 - 6. Earthquake Seismic Design IBC for Haines, Alaska, Use Factor 1.25 , Tank located in ZIP CODE 99827
 - 7. Design Freeboard 36 inches

PART 3 - MATERIALS

- A. Plates and Sheets
 - 1. Plates and sheets used in the construction of the tank shell, tank floor and tank roof, shall comply with the minimum standards of AWWA D103, latest edition.
 - 2. Design requirements for mild strength steel shall be ASTM A1011 Grade 30 with a maximum allowable tensile stress of 15,000 psi.
 - 3. Design requirements for high strength steel shall be ASTM A1011 Grade 50 with a maximum allowable tensile stress of 26,000 psi.
 - 4. The annealing effect created from the glass coated firing process shall be considered in determining ultimate steel strength. In no event shall a yield strength greater than 50,000 psi be utilized for calculations detailed in AWWA D103, Sections 3.4 and 3.5.
 - 5. When multiple vertical bolt line sheets and plates of ASTM A1011 Grade 50 are used, the effective net section area shall not be taken as greater than 85% of the gross area.
 - 6. Sheets and plates shall be manufactured such that holes are staggered in the vertical bolt lines and that no two adjoining holes are in-line horizontally, except at the center of the sheet or plate.
- B. Rolled Structural Shapes

SECTION 13200 BOLTED STEEL WATER TANK

1. Material shall conform to minimum standards of ASTM A36 or ASTM A992.
- C. Horizontal Wind Stiffeners
1. Design requirements for intermediate horizontal wind stiffeners shall be of the “web truss” type with an extended tail creating multiple layers of stiffener, permitting wind loads to be distributed around the tank.
 2. Web truss stiffeners shall be of steel with hot dipped galvanized coating.
 3. Rolled steel angle stiffeners are not permitted for use as intermediate horizontal wind stiffeners.
- D. Bolt Fasteners
1. Bolts used in tank lap joints shall be ½” - 13 UNC- 2A rolled thread, and shall meet the minimum requirements of AWWA D103, Section 2.2.
 2. Bolt Material
 - a. SAE J429 Grade 2 (1” bolt length)
Tensile Strength - 74,000 psi Min.
Proof Load - 55,000 psi Min.
Allowable shear stress with threads excluded from the shear plane - 18,163 psi Min.
 - b. SAE J429 Grade 5 (1 ¼” bolt length)
Tensile Strength - 120,000 psi Min.
Proof Load - 85,000 psi Min.
Allowable shear stress with threads excluded from the shear plane – 29,454 psi Min.
 - c. SAE J429 Grade 8 (>1 ¼” bolt length)
Tensile Strength - 150,000 psi Min.
Proof Load - 120,000 psi Min.
Allowable shear stress with threads excluded from the shear plane – 36,818 psi Min.
 3. Bolt Finish. Hot Dip Galvanized per AWWA D103-09 Sections 4.2, 12.3 and A 4.2.
 4. Bolt Head Encapsulation. High impact polypropylene copolymer encapsulation of entire bolt head up to the splines on the shank. Resin shall be stabilized with an ultraviolet light resistant material such that the color shall appear black. The bolt head encapsulation shall be certified to meet the ANSI/NSF Standard 61 for indirect additives.
 5. Exterior bolts shall be capped with high impact polypropylene copolymer caps.
 6. All bolts on the vertical tank wall shall be installed such that the head portion is located inside the tank, and the washer and nut are on the exterior.
 7. All lap joint bolts shall be properly selected such that threaded portions of the bolts will not be

SECTION 13200 BOLTED STEEL WATER TANK

exposed to the “shear plane” between tank sheets.

8. Bolt lengths shall be sized to achieve a neat and uniform appearance. Excessive threads extending beyond the nut after torquing will not be permitted.
9. All lap joint bolts shall include a minimum of 4 splines on the underside of the bolt head at the shank in order to resist rotation during torquing.

E. Sealants

1. The lap joint sealant shall be a one component, moisture cured, polyurethane compound. The sealant shall be suitable for contact with potable water and shall be certified to meet ANSI/NSF Additives Standard 61 for indirect additives. The sealant shall be Manus 75 System Sealer or approved equivalent.
2. The sealant shall be used to seal lap joints and bolt connections and edge fillets for sheet notches and starter sheets. The sealant shall cure to a rubber-like consistency, have excellent adhesion to the glass coating, low shrinkage, and be suitable for interior and exterior use.
3. Sealant curing rate at 73°F and 50% RH.
 - Tack-free time: 6 to 8 hours.
 - Final cure time: 10 to 12 days.
 - Neoprene gaskets and tape type sealer shall not be used.

PART 4 - GLASS COATING SPECIFICATION

A. Surface Preparation

1. Following the decoiling and shearing process, sheets shall be steel grit-blasted on both sides to the equivalent of SSPC SP-10 (Near-White Metal Blast Cleaning). Sand blasting and chemical pickling of steel sheets is not acceptable.
2. The surface anchor pattern shall be not less than 1.0 mil (0.001 inches).
3. These sheets shall be evenly oiled on both sides to protect them from corrosion during fabrication.

B. Sheet Edges

1. The same glass coating as applied to the sheet surfaces shall be applied to the exposed edges. Edge coating of the tank sheet edges may be omitted where a 4 corner overlap system is used where sheet edges come together.

C. Cleaning

1. After fabrication and prior to application of the coating system, all sheets shall be thoroughly

SECTION 13200 BOLTED STEEL WATER TANK

cleaned by a caustic wash and hot rinse process followed immediately by hot air drying.

2. Inspection of the sheets shall be made for traces of foreign matter, soil particles, grease or rust.

D. Coating

1. All side wall sheets shall receive one coat of a catalytic nickel oxide glass pre-coat to both sides and then air dried.
2. Another coat of milled cobalt blue glass shall be applied to both sides of the sheets and then dried.
3. A third coat of milled titanium dioxide reinforced white glass shall be applied to all interior sheet surfaces.
4. The same glass coating as applied to the exterior sheet surfaces shall be applied to the exposed edges.
5. The sheets shall then be fired at a minimum temperature of 1500° F in strict accordance with the manufacturer's ISO 9001 quality control procedures, including firing time, furnace humidity, temperature control, etc.
6. The coating process is a 2 coat process. The interior color shall be blue or white. The exterior color shall be dark green.
7. The dry film interior coating thickness shall be 7.9 mils to 14.2 mils minimum.
8. The dry film exterior coating thickness shall be 7.9 mils to 14.2 mils minimum.

PART 5 - ERECTION

A. Foundation

1. The tank foundation is a part of this contract and shall be installed by the tank bidder, or under their direction.
2. The tank foundation shall be designed by the manufacturer to safely sustain the structure and its live loads. Minimum tank foundation requirements are as shown on the plans.
3. Tank footing design shall be based on the soil bearing capacity of 3,000 psf.

B. Tank Floor:

1. The tank floor shall be concrete.

SECTION 13200 BOLTED STEEL WATER TANK

C. Sidewall Structure

1. Field erection of the glass-coated, bolted-Steel tank shall be in strict accordance with the procedures outlined in the manufacturers erection manual, and performed by an authorized dealer of the tank manufacturer, regularity engaged in erection of these tanks, using factory trained and certified erectors.
2. Specialized erection jacks and building equipment developed and manufactured by the tank manufacturer shall be used to erect the tanks.
3. Particular care shall be taken in handling and bolting of the tank panels and members to avoid abrasion of the coating system. Prior to a liquid test, all surface areas shall be visually inspected by the Engineer.
4. An electrical leak test shall be performed during erection using a wet sponge, nine (9) volt leak detection device. All electrical leak points found on the inside surface shall be repaired in accordance with manufacturers published touch up procedure.
5. The placement of sealant on each panel may be inspected prior to placement of adjacent panels. However, the Engineers inspection shall not relieve the bidder from his responsibility for liquid tightness.
6. No backfill shall be placed against the tank sidewall without prior written approval and design review of the tank manufacturer. Any backfill shall be placed according to the strict instructions of the tank manufacturer.

PART 6 - ROOF

- A. The roof shall be constructed of non-corrugated triangular aluminum panels which are sealed and firmly clamped in an interlocking manner to a fully triangulated aluminum space truss system of wide flange extrusions, thus forming a dome structure.
- B. The roof shall be a dome structure conforming to AWWA Standard D100. The dome shall conform to the dimensions of the tank using a fully triangulated space truss and non-corrugated closure panels. It shall be clear-span and designed to be self-supporting from the periphery structure with primary horizontal thrust contained by an integral tension ring. Provision shall be made in the design for thermal expansion of all dome parts over a temperature range of -40°F to +140°F. The dome dead weight shall not exceed 3.5 pounds per square foot of surface area.
- C. The dome surface paneling shall be designed as a watertight system under all design load and temperature conditions. All raw edges of the aluminum panels shall be covered, sealed, and firmly clamped with batten bars in an interlocking manner to prevent slipping or disengagement under design load and temperature changes.

SECTION 13200 BOLTED STEEL WATER TANK

- D. The roof framing system shall be designed as a three dimensional truss with moment-resisting joints. The design must consider the increased minor axis bending and compression induced in the framing members due to tension in the roof panels.
- E. The dome and tank shall be designed to act as an integral unit. The tank shall be designed to support an aluminum dome roof including all specified live loads.
- F. The structural analysis shall be performed using stiffness analysis models. The structural computer models shall include the effect of geometry irregularities such as dormer openings and perimeter support members.
- G. Connection forces shall be transferred through gusset plates connected to the top and bottom flanges of the beam-struts. The connections shall be designed as moment connections; a minimum of four Huck® lockbolts shall be used to connect the gusset plate to each strut flange.
- H. All dome fasteners shall be designed with a safety factor of 2.34 on ultimate strength and 1.65 on yield strength.
- I. The design of welded components shall be in accordance with the Aluminum Structural Welding Code ANSI/AWS D1.1/D1.2.
- J. The vertical loads transferred from the roof to the tank shall be in-line with the tank wall. The transfer of horizontal loads to the tank shall be minimized by means of low friction slide supports. Radial forces applied to the tank shall not exceed 10% of the vertical reactions.
- K. Dissimilar materials which are not compatible shall be isolated by an insulator to prevent galvanic corrosion. Passivated 300 series Stainless Steel is compatible to Aluminum.
- L. Materials:
 - 1. Triangulated dome frame struts: 6061-T6 aluminum.
 - 2. Structural frame gussets: 0.375" nominal thickness 6061-T6 aluminum.
 - 3. Triangular closure panels: .050' th. 3003-H16 aluminum sheet.
 - 4. Perimeter tension/compression ring: 6061-T6 aluminum.
 - 5. Fasteners: 7075-T73 anodized aluminum or series 300 stainless steel.
 - 6. Sealant: Silicone, conforming to Federal Specification TT-S-00230 as manufactured by Pecora, #864, or equal.
 - 7. Gaskets: Silicone, conforming to Federal Specification ZZ-R-765, class 2, grade 50 as manufactured by General Electric, #SE-44/88, or equal.

SECTION 13200 BOLTED STEEL WATER TANK

8. Anchor Bolts: austentic series 300 stainless steel.
9. Dormers, doors, vents and hatches: 6061-T6, 5086-H34 or 5052-H36 aluminum, 0.90" nominal thickness.

M. Roof Vent

1. A properly sized vent assembly in accordance with AWWA D103 shall be furnished and installed above the maximum water level of sufficient capacity so that at maximum design rate of water fill or withdrawal, the resulting interior pressure or vacuum will not exceed 0.5" water column.
2. The overflow pipe shall not be considered to be a tank vent.
3. The vent shall be constructed of aluminum such that the hood can be unbolted and used as a secondary roof access.
4. The vent shall be so designed in construction as to prevent the entrance of birds and/or animals by including an expanded aluminum screen (1/2 inch) opening. An insect screen of 23 to 25 mesh polyester monofilament shall be provided and designed to open should the screen become plugged by ice formation.

7.0 APPURTENANCES (per AWWA D103, Section 5)

A. Pipe Connections

1. Where pipe connections are shown to pass through tank panels, they shall be field located, saw cut, (acetylene torch cutting or welding is not permitted), and utilize an interior and exterior flange assembly and the tank shell reinforcing shall comply with AWWA D103 latest edition. Engineered Storage Products Sealer No. 98 shall be applied on any cut panel edges or bolt connections.
2. Overflow piping shall be 8 inches diameter schedule 80 PVC, seamless aluminum tubing, or FRP and shall be screened.

B. Outside Tank Ladder

1. An outside tank ladder shall be furnished and installed in the location as shown on the contract drawings. The ladder shall comply with all OSHA requirements.
2. Ladders shall be fabricated of aluminum and utilize grooved, skid-resistant rungs.
3. Safety cage and step-off platforms shall be fabricated of galvanized steel. Ladders shall be equipped with a hinged lockable entry device.
4. The tank ladder shall access a 30" x 30" roof hatch. Provide a platform with rails complying with all OSHA requirements to provide safe access to the roof hatch.

SECTION 13200 BOLTED STEEL WATER TANK

C.. Access Door

1. One circular manhole bottom access door shall be provided as shown on the contract drawings in accordance with AWWA D103. The manway cover shall be provided with a cover hinge assembly. The manway and cover shall be hot dipped galvanized steel.
2. The manhole opening shall be a minimum of 30 inches in diameter. The access door (shell manhole) and the tank shell reinforcing shall comply with AWWA D103 latest edition, Sec. 5.1.

D. Identification Plate

1. A manufacturer's nameplate shall list the tank serial number, tank diameter and height, and maximum design capacity. The nameplate shall be affixed to the tank exterior sidewall at a location approximately five (5) feet from grade elevation in a position of unobstructed view.

E. Cathodic Protection

1. The Manufacturer will provide a cathodic protection system consisting of sacrificial magnesium anodes which provide corrosion protection for the portions of the structure immersed in liquid. The anodes shall be equally spaced around the structure. In special cases where anodes may be spaced differently, a layout plan will be provided as part of the submittal package. Lead wires and buss bars are used to ensure continuity between anodes and structure shell sheets.
2. Electrical continuity between all tank sidewall panels shall be the responsibility of the tank manufacturer.
3. The design life shall be calculated at 10 years. The cathodic protection system shall be designed for protection of uncoated steel surfaces in the product zone, including rebar within an uncoated concrete tank floor.
4. The cathodic protection system shall be provided with a rectifier box so that personnel may verify the cathodic protection system is functioning correctly.

PART 8 - FIELD TESTING

A. Hydrostatic

1. Following completion of erection and cleaning of the tank, the structure shall be tested for liquid tightness by filling tank to its overflow elevation.
2. Any leaks disclosed by this test shall be corrected by the erector in accordance with the manufacturer's recommendations.
3. Water required for testing shall be furnished by the owner at the time of tank erection completion, and at no charge to the tank erector.

SECTION 13200 BOLTED STEEL WATER TANK

PART 9 - DISINFECTION

A. Standards

1. The tank structure shall be disinfected at the time of testing by chlorination in accordance with AWWA Standard C652-02 "Disinfection of Water Storage Facilities" as modified by the tank manufacturer.
2. Disinfection shall not take place until tank sealant is fully cured (see Sect. 0 above).
3. Acceptable forms of chlorine for disinfection shall be:
 - a. Liquid chlorine as specified in AWWA C652-02.
 - b. Sodium hypochlorite as specified in AWWA C652-02.
4. Acceptable methods of chlorination shall be:
 - a. Chlorination method 1 as outlined in AWWA C652-02 Section 4.3.
 - b. Chlorination method 2 as outlined in AWWA C652-02 Section 4.3.
 - c. Chlorination method 3 as outlined in AWWA C652-02 Section 4.3.
5. Acceptable application methods shall be:
 - a. Chemical feed pump.
 - b. Spraying, brushing, or painting of all water-contact surfaces.

PART 10 - TANK MANUFACTURER'S WARRANTY

- A. The tank manufacturer shall include a warranty for the tank materials and coating. As a minimum, this warranty shall provide assurance against defects in material or workmanship for the period of 1 year and corrosion of the glass coated surface for the period of 5 years.

END OF SECTION

HAINES BOROUGH

BARNETT DRIVE BOLTED STEEL WATER TANK



**Haines Borough,
Alaska**



Carson Dorn Inc.

712 WEST 12TH STREET
JUNEAU, ALASKA 99801
(907) 586-4447

GENERAL CONSTRUCTION NOTES

1. UNDERGROUND POWER, TELEPHONE, CABLE, WATER AND SEWER LINES SHOWN ON THE PLANS INDICATE THEIR EXISTENCE ONLY AND DO NOT SUBSTITUTE FOR FIELD LOCATES.
2. LOCATIONS OF EXISTING UNDERGROUND SEWER, WATER, TELEPHONE, CABLE TELEVISION AND POWER UTILITIES SHOWN ON THESE PLANS WERE DERIVED FROM THE BEST INFORMATION AVAILABLE. ACTUAL LOCATIONS MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL ARRANGE FOR UTILITY LOCATES PRIOR TO ANY EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING, PROTECTING, AND MAINTAINING THE UTILITIES THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. ANY DAMAGE AND SUBSEQUENT REPAIRS TO THE UTILITIES RESULTING FROM THE CONTRACTOR'S ACTIVITIES SHALL BE PAID FOR BY THE CONTRACTOR.
DIAL BEFORE YOU DIG WATER & WASTEWATER (907) 766-2200, POWER AND LIGHT (907) 766-6500, & APT CATV (907) 766-23137.
3. CONTRACTOR SHALL PROTECT AND MAINTAIN OVERHEAD LINES AND POWER POLES ADJACENT TO ITS OPERATIONS.
4. PROPERTY DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ITS PRE-CONSTRUCTION CONDITION OR BETTER. UNPAVED ROADS AND DRIVEWAYS SHALL BE RESTORED WITH 6" OF D-1 COMPACTED TO 95% OF MAXIMUM DENSITY.
5. ALL BANKS AND SLOPES SHALL BE RECONSTRUCTED TO MATCH ADJACENT BANKS AND SLOPES.
6. GRADES AND ALIGNMENTS SHOWN ON THESE DRAWINGS ARE SUBJECT TO MINOR REVISIONS AS APPROVED BY THE ENGINEER.
7. NO INTERRUPTIONS OF WATER, SEWER, ELECTRICAL, CABLE, OR TELEPHONE SERVICE IS PERMITTED BY THE CONTRACTOR UNLESS ARRANGEMENTS ARE APPROVED BY THE RESPECTIVE UTILITY AT LEAST 48 HOURS IN ADVANCE OF THE PLANNED INTERRUPTION.
8. CONNECTIONS TO EXISTING STREETS AND DRIVEWAYS ARE APPROXIMATE AND SHALL BE FIELD-VERIFIED PRIOR TO CONSTRUCTION.
9. PROPERTY LINE LOCATIONS FOR EXISTING LOTS USED IN THESE PLANS ARE DERIVED FROM RECORD PLATS AND DO NOT REPRESENT A BOUNDARY SURVEY.
10. CONTRACTOR SHALL REFERENCE ALL EXISTING PROPERTY CORNER MONUMENTS PRIOR TO CONSTRUCTION THAT WILL BE DISTURBED DURING HIS WORK, AND REMONUMENT AFTER REGRADING OPERATIONS ARE COMPLETE. ALL WORK SHALL BE DONE BY, OR UNDER THE DIRECTION OF, AN ALASKA REGISTERED LAND SURVEYOR. ALL EXISTING PROPERTY CORNERS ARE NOT NECESSARILY SHOWN ON THE PLANS.
11. THE DRAWINGS DO NOT SHOW ALL TREES AND BRUSH THAT WILL BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREES AND BRUSH AS NECESSARY FOR CONSTRUCTION.
12. ALL DISTURBED AREAS WITHIN EXISTING DRAINAGE SWALES SHALL BE RESEEDDED.
13. ALL CONTOURS SHOWN ON THE DRAWINGS ARE EXISTING CONTOURS. FINISH GRADES SHALL BE AS INDICATED ON THE DRAWINGS, AND AS DIRECTED BY THE ENGINEER.
14. LOCATIONS OF STORM DRAIN CATCH BASINS, SANITARY SEWER MANHOLES, PIPING AND PIPE LENGTHS ARE SUBJECT TO MINOR REVISIONS AS APPROVED BY THE ENGINEER.
15. THE CONTRACTOR SHALL NOTIFY THE HAINES WATER AND SEWER DEPARTMENT AT 766-2200 OF PROPOSED WATER OR SEWER SERVICE INTERRUPTION AT LEAST 48 HOURS PRIOR TO SHUT DOWN.
16. UTILITY COMPANIES MAY CONDUCT WORK WITHIN THE PROJECT LIMITS TO UPGRADE THEIR RESPECTIVE UTILITIES. THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH EACH UTILITY COMPANY AS NECESSARY TO PROVIDE ACCESS FOR THIS WORK.
17. THE CONTRACTOR SHALL RESTRICT HIS COMPACTION AND OTHER VIBRATION-INDUCING OPERATIONS AS NECESSARY TO ASSURE NO DAMAGE OCCURS TO ADJACENT BUILDINGS OR STRUCTURES.
18. CONTRACTOR SHALL INSTALL TEMPORARY FILTRATION DEVICES CONSISTING OF, BUT NOT LIMITED TO, HAY BALES, FILTER-FABRIC FENCES, SETTLING PONDS, ETC., TO PROHIBIT SILT-LADEN TRENCH DEWATERING EFFLUENT AND OTHER CONSTRUCTION RUNOFF FROM ENTERING ADJACENT STREAMS, WATERS AND WETLANDS.
19. CONTRACTOR SHALL ASSURE GARBAGE PICKUP AND DAILY MAIL SERVICE WILL BE UNINTERRUPTED TO ALL RESIDENTS AND BUSINESSES AFFECTED BY THIS PROJECT.
20. ALL WORK AND MATERIALS SHALL BE DONE IN ACCORDANCE WITH THE ATTACHED STANDARD DETAILS.
21. PROJECT TBM IS TOP OF BONNET BOLT IN THE MIDDLE OF THE WORD MULLER FOR THE FIRE HYDRANT ON THE SOUTH SIDE OF BARNETT DRIVE ACROSS FROM LOT 13. (SEE DWG C-1) TBM EL.=335.57'
22. ALL UNDERGROUND WATER PIPE IS TO BE DUCTILE IRON DEPTH OF BURY 6.0' UNLESS NOTED.
23. ALL WATER SYSTEM FITTINGS AND VALVES ARE TO BE RESTRAINED JOINT MECHANICAL JOINT. WATER PIPE 50' IN EACH DIRECTION OF A FITTING OR VALVE SHALL BE RESTRAINED JOINT.

LEGEND

-  BUILDING
-  CONCRETE
-  FENCE
-  SILT FENCE
-  BRUSHLINE
-  DITCH OR STREAM
-  CULVERT (SIZE & MATERIAL NOTED)
-  EDGE OF TRAVELED WAY
-  SIGN
-  WATER PIPE
-  WATER VALVE AND VALVE BOX
-  REDUCER
-  EXISTING FIRE HYDRANT
-  NEW FIRE HYDRANT
-  TBM or SURVEY PIN
-  MONUMENT
-  UNDERGROUND POWER
-  UTILITY PEDESTAL
-  POWER POLE
-  GUY
-  SOILS TEST HOLE
-  SEWER SERVICE
-  WATER SERVICE

ABBREVIATIONS

- | | |
|--|---|
| <ul style="list-style-type: none"> ∅ DIAMETER @ AT # NUMBER ABAND ABANDON AC ASPHALTIC CONCRETE ALT ALTERNATE APPROX APPROXIMATELY ATB ASPHALT TREATED BASE B/H BULKHEAD BLDR BOULDER BO BLOW-OFF HYDRANT ASSEMBLY BOTT BOTTOM BV BUTTERFLY VALVE CBJ CITY & BOROUGH OF JUNEAU C.I. CAST IRON CIP CAST IRON PIPE CLR CLEAR CMP CORRUGATED METAL PIPE CMU CONCRETE MASONRY UNIT CONC CONCRETE CONN CONNECT CONT CONTINUOUS CU FT CUBIC FEET Cu COPPER CT CONTROL TRANSFORMER D.I.P. DUCTILE IRON PIPE DET DETAIL DIA DIAMETER DWG DRAWING E ELECTRIC EA EACH ECC ECCENTRIC EL ELEVATION IN FEET ELEV ELEVATION EOR EDGE OF ROAD EW EACH WAY EXIST EXISTING EXTEN EXTENSION FCA FLANGED COUPLING ADAPTER F.D. FLOOR DRAIN FH FIRE HYDRANT & ASSEMBLY FIG. FIGURE FIN. FINISHED FL FLANGE, FLANGED FRP FIBER REINFORCED PLASTIC GA GAUGE GALV GALVANIZE, GALVANIZED GB GRADE BREAK GIP GALVANIZED IRON PIPE GV GATE VALVE HAP HYDRANT ACCESS PAD HDPE HIGH DENSITY POLYETHYLENE | <ul style="list-style-type: none"> HORIZ HORIZONTAL HWY HIGHWAY IBC INTERNATIONAL BUILDING CODE INV INVERT ELEVATION IN FEET L LEFT (OF BASIS OF STATIONING) LAT LATERAL LB POUND(S) LF LINEAR FEET LG LONG MAX MAXIMUM MFR'S MANUFACTURER'S MON. MONUMENT MH MANHOLE MIN MINIMUM MJ MECHANICAL JOINT N. NORTH No. NUMBER NPT NATIONAL PIPE THREAD NTS NOT TO SCALE O.C. ON CENTER OD OUTSIDE DIAMETER P PLATE PE PLAIN END PERF PERFORATED PP POWER POLE PROJ PROJECTION PSI POUNDS PER SQUARE INCH PVC POLYVINYLCHLORIDE QTY QUANTITY R (OF BASIS OF STATIONING) RD ROAD REQ'D REQUIRED RJ RESTRAINED JOINT SCH SCHEDULE SD STORM DRAIN SIM SIMILAR SQ SQUARE STA STATION STL STEEL TBM TEMPORARY BENCH MARK TOC TOP OF CONCRETE TYP TYPICAL UM/FH UTILITY MARKER, FIRE HYDRANT UM/V UTILITY MARKER, VALVE VB VALVE BOX VAP VALVE ACCESS PAD VERT VERTICAL w/ WITH WR WATER RESISTANT WW WATER VALVE SSM4 SANITARY SEWER MANHOLE |
|--|---|

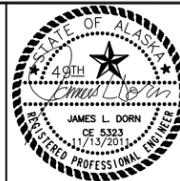
DRAWING INDEX

SHEET No.	DWG No.	DRAWING TITLE
GENERAL		
1	G-1	COVER
2	G-2	GENERAL CONSTRUCTION NOTES, LEGEND & ABBREVIATIONS
3	G-3	HAINES VICINTY MAP
4	G-4	PAX MIXER DETAIL AND NOTES
CIVIL		
5	C-1	EXISTING TANK SITE PLAN
6	C-2	NEW TANK SITE PLAN
7	T-1	TANK DETAILS
8	T-2	TANK DETAILS

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SCALE	GRAPHIC		
DESIGNED	JLD		
DRAWN	GDM		
CHECKED	JLD		
DATE	NOV 2012		
REV	DATE	BY	DESCRIPTION

**HAINES BOROUGH
BARNETT DRIVE
BOLTED STEEL
WATER TANK**

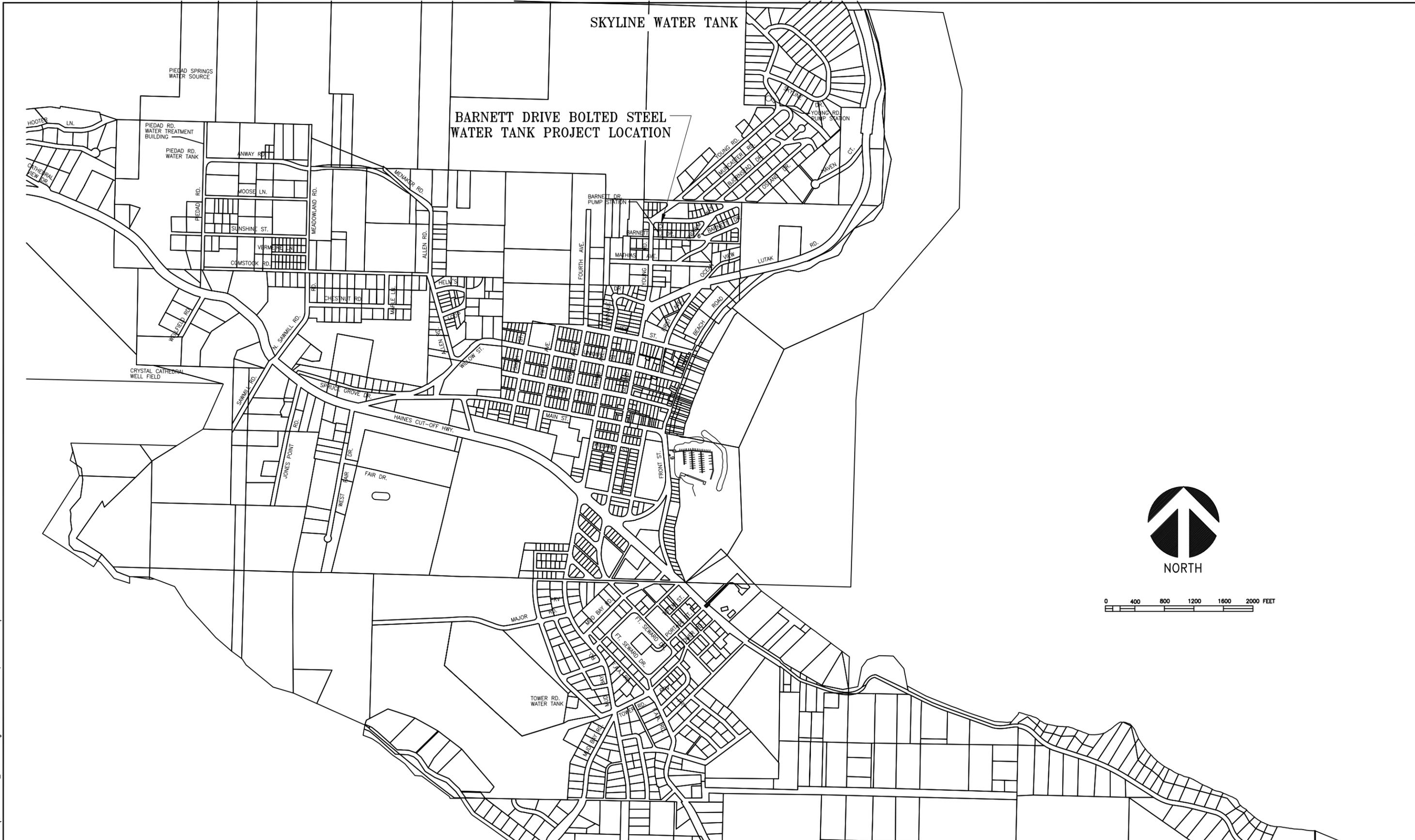


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**GENERAL CONSTRUCTION NOTES,
DRAWING INDEX, LEGEND &
ABBREVIATIONS**

DRAWING
G-2
SHEET No.
2 of 8

G:\2012\se_ak\Haines\Barnett Tank\Barnett Tank-3-SitePlan.dwg PLOT: November 12, 2012 at 3:45pm Administrator



REV	DATE	BY	DESCRIPTION

SCALE GRAPHIC
 DESIGNED JLD
 DRAWN GDM
 CHECKED JLD
 DATE NOV 2012

HAINES BOROUGH
 BARNETT DRIVE
 BOLTED STEEL
 WATER TANK

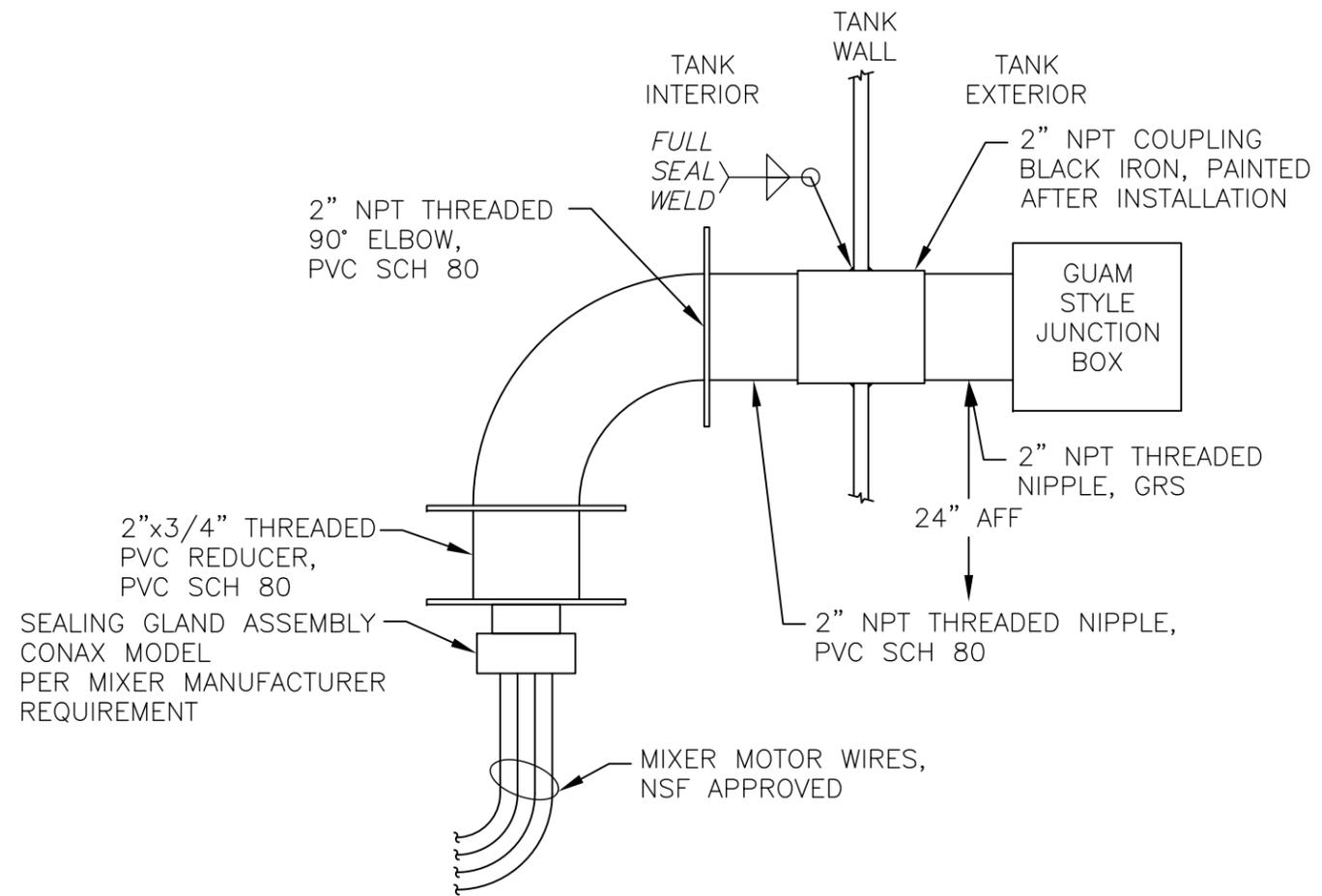


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HAINES VICINITY MAP

DRAWING
G-3
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 3 of 8

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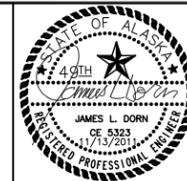
TANK CONNECTION FOR MIXER
N.T.S.

ELECTRICAL NOTES:

1. PROVIDE ALL WORK REQUIRED TO POWER AND CONTROL THE PAX MIXER IN THE BARNETT DRIVE BOLTED STEEL WATER TANK. PERFORM ALL WORK PER THE NATIONAL ELECTRICAL CODE AND PER APPLICABLE FEDERAL, STATE, AND LOCAL CODES.
2. ALL WIRING SHALL BE IN RIGID STEEL CONDUIT OUTSIDE OF EXISTING PUMP BUILDING. SCHEDULE 40 PVC CONDUIT MAY BE USED IN THE PUMP BUILDING. ALL CONDUCTORS SHALL BE COPPER WITH XHHW INSULATION. ALL CONDUIT BODIES AND JUNCTION BOXES SHALL BE MALLEABLE IRON.
3. MOUNT THE PAX MIXER CONTROL PANEL IN THE PUMP BUILDING. COORDINATE LOCATION WITH OWNER. PROVIDE WORKING ROOM IN FRONT OF PANEL. POWER THE PANEL FROM A NEW 20 AMP, SINGLE POLE CIRCUIT BREAKER IN THE EXISTING 120/240V, SINGLE PHASE, THREE WIRE PANEL IN THE PUMP BUILDING.
4. ROUTE THE PAX MIXER CABLE FROM THE PAX CONTROL PANEL IN THE PUMP BUILDING TO THE PAX MIXER IN THE RESERVOIR IN THE FOLLOWING MANNER:
 - A. ROUTE THE CABLE FROM THE CONTROL PANEL IN A 2" CONDUIT ALONG THE PUMP BUILDING WALL THEN UNDERGROUND TO THE RESERVOIR. ROUTE THE CONDUIT UP THE SIDE OF THE RESERVOIR TO A LB CONDULET THAT IS CONNECTED TO THE SIDE OF A 5" DIAMETER JUNCTION BOX (GUAM STYLE). INSTALL A SCREEN IN THE CONDUIT OPENING IN THE BOTTOM OF THE JUNCTION BOX.
 - B. THEN ROUTE THE CABLE THROUGH A NIPPLE OUT OF THE BACK OF THE JUNCTION BOX THAT IS CONNECTED TO A FEMALE COUPLING WELDED IN THE RESERVOIR WALL. INSIDE THE RESERVOIR, ROUTE THE CABLE THROUGH A PVC SCHEDULE 80 NIPPLE, ELBOW AND REDUCER TO A WATER TIGHT CABLE GLAND FITTING THAT IS ATTACHED TO THE REDUCER ON THE INSIDE OF THE RESERVOIR. (SEE TANK CONNECTION FOR MIXER DETAIL)
 - C. ROUTE THE CABLE FROM THE GLAND FITTING DOWN TO THE RESERVOIR FLOOR AND ACROSS THE FLOOR TO THE MIXER.
5. THE MIXER SHALL BE OPERATED MANUALLY FROM THE CONTROL PANEL BY ROTATING A HAND-OFF SWITCH TO "HAND". THE MIXER SHALL NOT RUN WHEN THE SWITCH IS IN THE OFF POSITION.
6. COORDINATE AS REQUIRED WITH THE PAX MANUFACTURER AS REQUIRED TO PROCURE THE CONTROL PANEL WITH THE APPROPRIATE FEATURES TO OPERATE THE SYSTEM AS DESCRIBED.

SCALE	GRAPHIC		
DESIGNED	JLD		
DRAWN	GDM		
CHECKED	JLD		
DATE	NOV 2012		
REV	DATE	BY	DESCRIPTION

HAINES BOROUGH
BARNETT DRIVE
BOLTED STEEL
WATER TANK

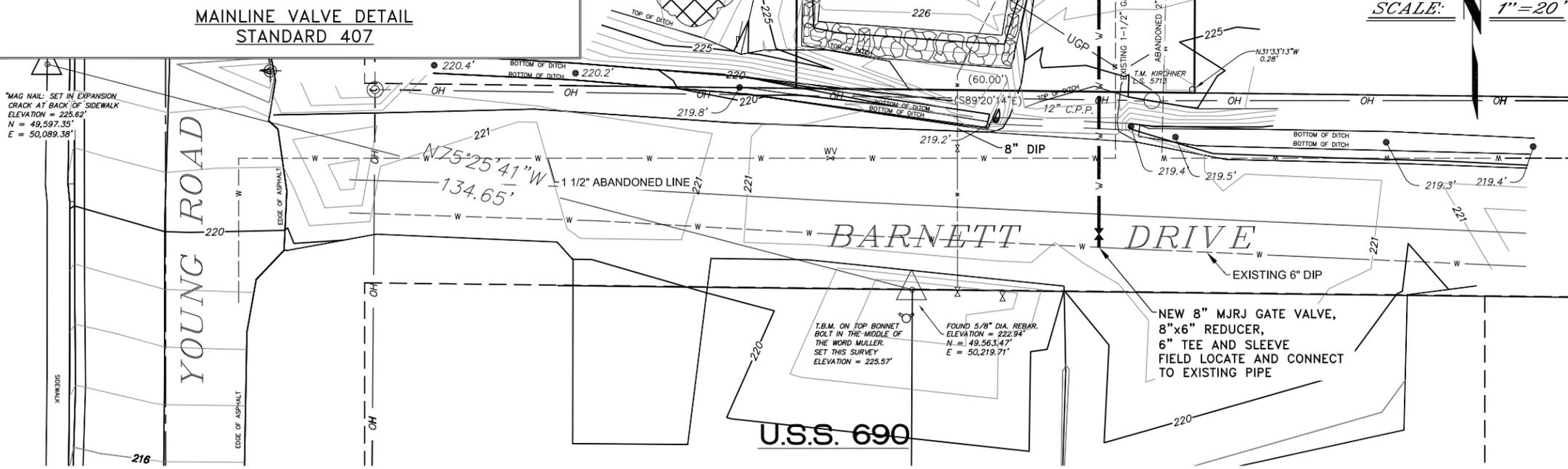
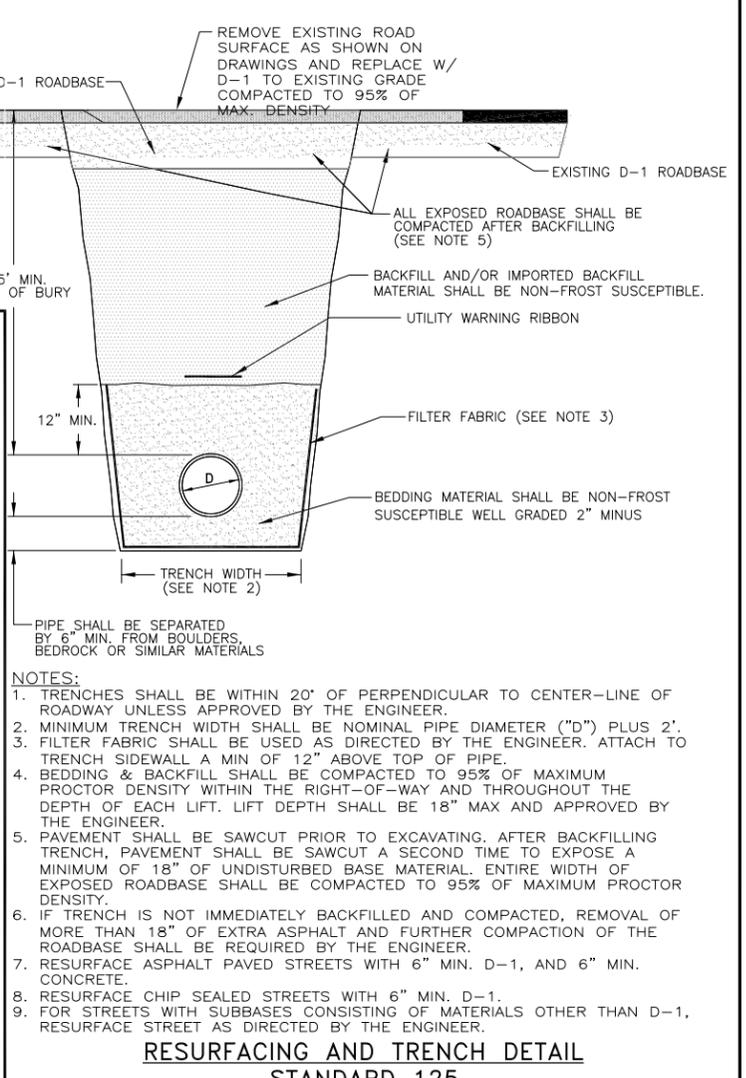
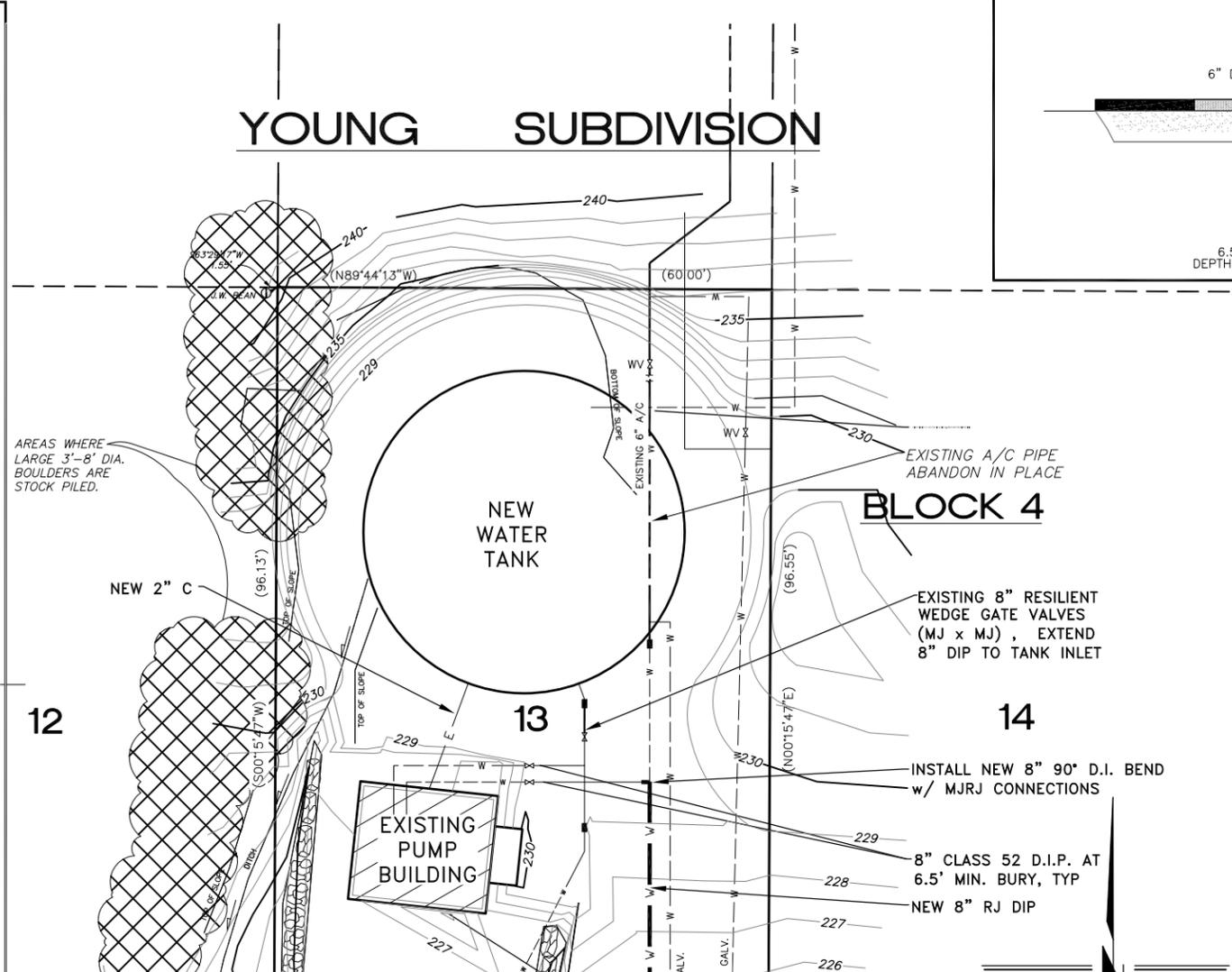
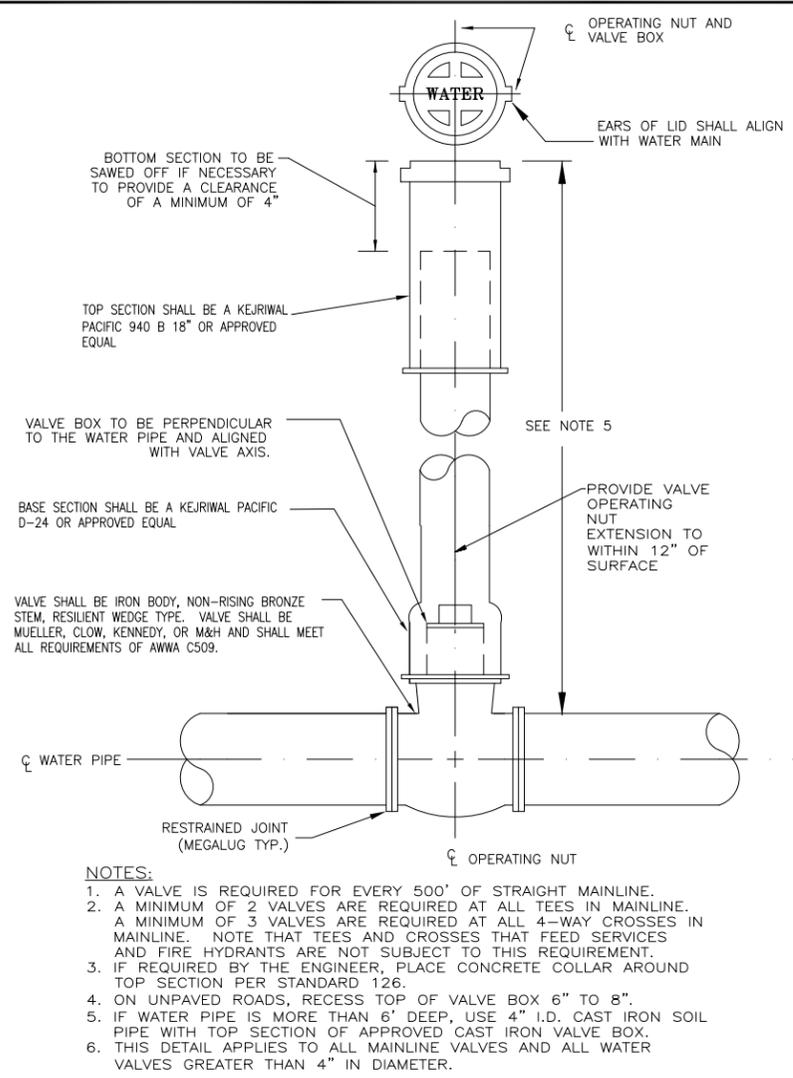


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PAX MIXER
DETAIL AND NOTES

DRAWING	G-4
SHEET No.	4 of 8

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NOTES:

- TRENCHES SHALL BE WITHIN 20' OF PERPENDICULAR TO CENTER-LINE OF ROADWAY UNLESS APPROVED BY THE ENGINEER.
- MINIMUM TRENCH WIDTH SHALL BE NOMINAL PIPE DIAMETER ("D") PLUS 2'.
- FILTER FABRIC SHALL BE USED AS DIRECTED BY THE ENGINEER. ATTACH TO TRENCH SIDEWALL A MIN OF 12" ABOVE TOP OF PIPE.
- BEDDING & BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM PROCTOR DENSITY WITHIN THE RIGHT-OF-WAY AND THROUGHOUT THE DEPTH OF EACH LIFT. LIFT DEPTH SHALL BE 18" MAX AND APPROVED BY THE ENGINEER.
- PAVEMENT SHALL BE SAWCUT PRIOR TO EXCAVATING. AFTER BACKFILLING TRENCH, PAVEMENT SHALL BE SAWCUT A SECOND TIME TO EXPOSE A MINIMUM OF 18" OF UNDISTURBED BASE MATERIAL. ENTIRE WIDTH OF EXPOSED ROADBASE SHALL BE COMPACTED TO 95% OF MAXIMUM PROCTOR DENSITY.
- IF TRENCH IS NOT IMMEDIATELY BACKFILLED AND COMPACTED, REMOVAL OF MORE THAN 18" OF EXTRA ASPHALT AND FURTHER COMPACTION OF THE ROADBASE SHALL BE REQUIRED BY THE ENGINEER.
- RESURFACE ASPHALT PAVED STREETS WITH 6" MIN. D-1, AND 6" MIN. CONCRETE.
- RESURFACE CHIP SEALED STREETS WITH 6" MIN. D-1.
- FOR STREETS WITH SUBBASES CONSISTING OF MATERIALS OTHER THAN D-1, RESURFACE STREET AS DIRECTED BY THE ENGINEER.

**RESURFACING AND TRENCH DETAIL
STANDARD 125**

STANDARD MAP SYMBOLS

FOUND SURVEY CONTROL

- ① FOUND 2" DIA ALUMINUM CAP ON 5/8" DIA. REBAR.
- FOUND 1" DIA. YELLOW PLASTIC CAP ON 5/8" DIA. REBAR.

SET SURVEY CONTROL

- ⊕ SET "SURVEY MARK" NAIL IN ASPHALT WITH STAINLESS STEEL WASHER MARKED "ALS" & "LS-5413"
- ⊕ SET 8" SPIKE

EXISTING WATER UTILITIES

- ⊕ FIRE HYDRANT
- ⊕ WATER VALVE

EXISTING OVERHEAD UTILITIES

- EXISTING UTILITY POLE

NOTES:

BASIS OF BEARING FOR THIS SURVEY IS A LINE OF SIGHT BETWEEN A FOUND LEAD PLUG & COPPER TACK SET AT THE 1/4 CORNER FOR SECTIONS 26 & 27, SHOWN AS THE "POINT OF BEGINNING" FOR YOUNG SUBDIVISION, PLAT 74-3, HAINES RECORDING DISTRICT AND FOUND "LEAD PLUG AND TACK IN ROCK OUTCROPPING" AS REPORTED ON SAID SUBDIVISION PLAT; RECORDED BEARING AND DISTANCE BETWEEN RECOVERED MONUMENTS IS S 20°20' W - 92.07'.

BASIS OF ELEVATION IS A RECOVERED T.B.M. "HE#2" SET BY E.M.P.S. IN 1982, LOCATED ON THE SOUTH SIDE OF BJORNSTAD DRIVE BETWEEN MUNCASTER AND HIGHLAND DRIVES, WITH AN ELEVATION OF 258.25'.

AT THE TIME THE SITE WAS SURVEYED THERE WAS 6"-12" OF SNOW COVER.

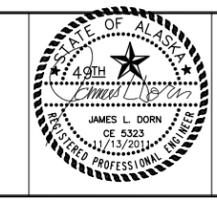
GRAPHIC SCALE

0 FEET 10 20 30 40 50
0 METERS 5 10 15

SCALE	GRAPHIC
DESIGNED	JLD
DRAWN	GDM
CHECKED	JLD
DATE	NOV 2012

REV	DATE	BY	DESCRIPTION

HAINES BOROUGH
BARNETT DRIVE
BOLTED STEEL
WATER TANK

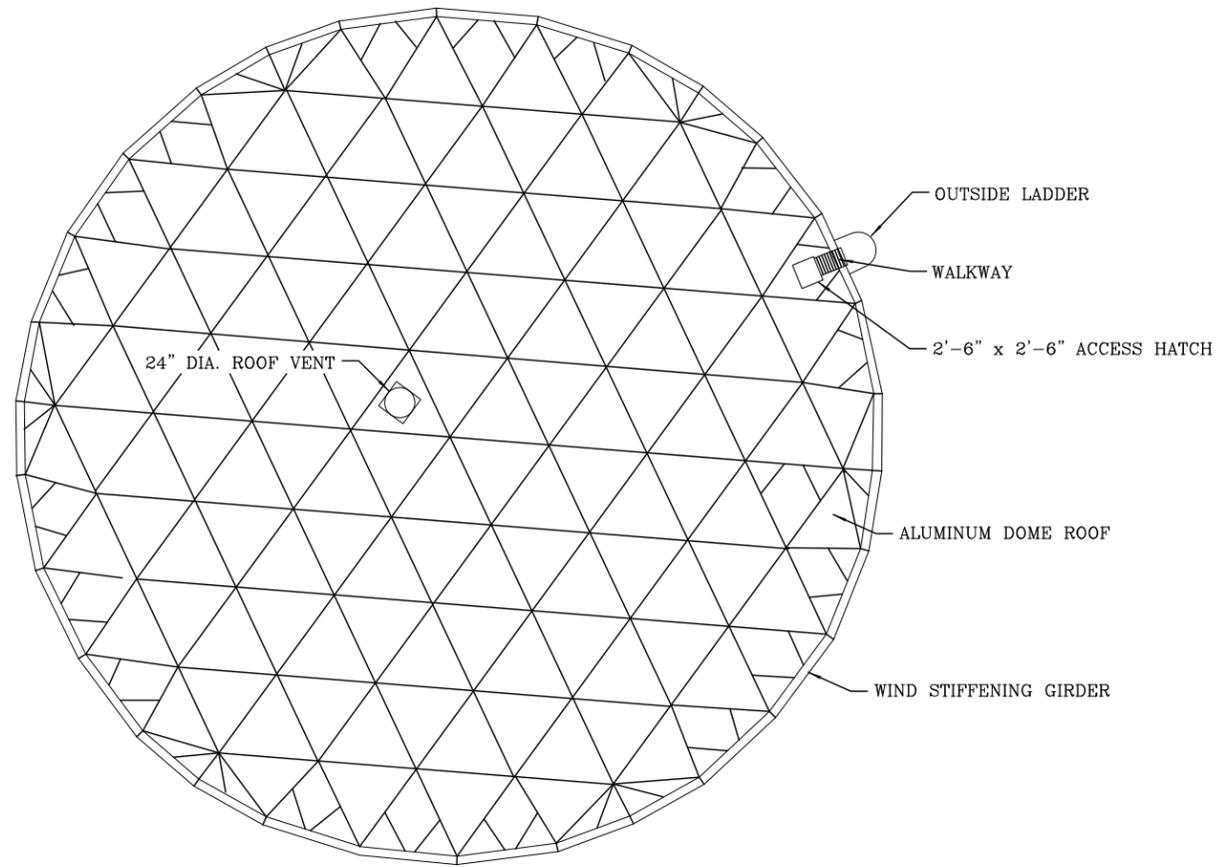


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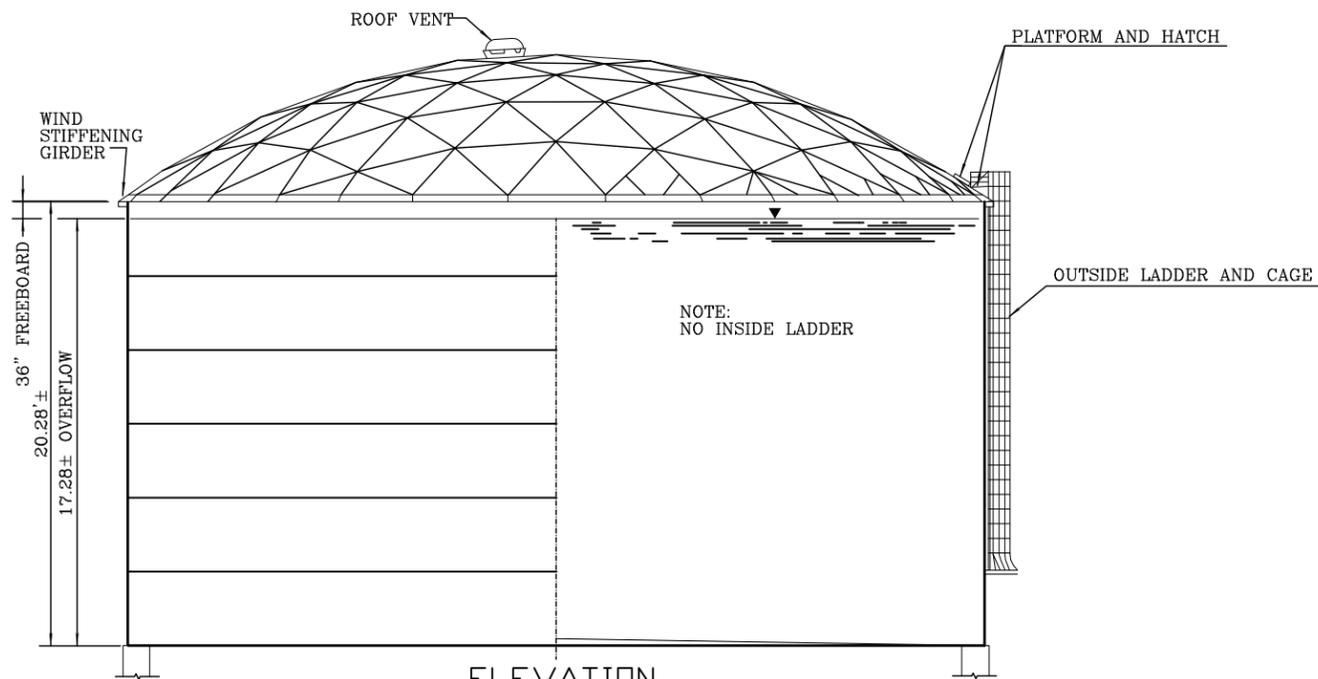
NEW SITE PLAN

DRAWING
C-2

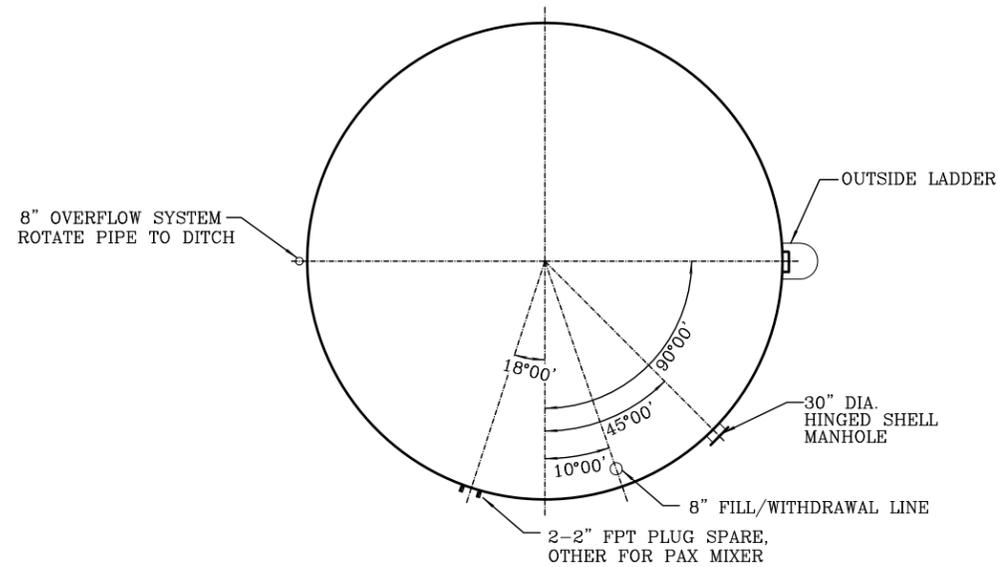
SHEET No.
6 of 8



ROOF PLAN
N.T.S.



ELEVATION
N.T.S.



RESERVOIR LAYOUT

NOTES:

- TANK DESIGN AND CONSTRUCTION TO BE BASED ON AWWA D-103-97.
- THE FOLLOWING CRITERIA SHALL BE USED FOR DESIGN OF TANK:

SEISMIC ZONE: IBC FOR HAINES

USE FACTOR: 1.25

3 SEC. WIND GUST: 110 MPH
EXPOSURE: C
SNOW LOAD: 150 PSF

DESIGN METAL TEMPERATURE: -30° F

ALLOWABLE SOIL BEARING: 3000 PSF
- CONTRACTOR SHALL PROVIDE NECESSARY TANK ACCESSORIES.
- INTERIOR COATINGS SHALL BE NSF LISTED FOR USE IN POTABLE WATER SYSTEMS

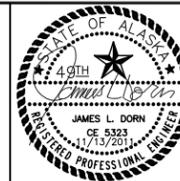
WATER SURFACE ¹	BASE ELEVATION ²	TANK DIAMETER	WATER DEPTH	VOLUME
245'	230'	39'	15'	125,300 GAL.

- BASED ON TOWER ROAD TANK OVERFLOW ELEVATION.
- TANK BOTTOM

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SCALE	GRAPHIC
DESIGNED	JLD
DRAWN	GDM
CHECKED	JLD
DATE	NOV 2012

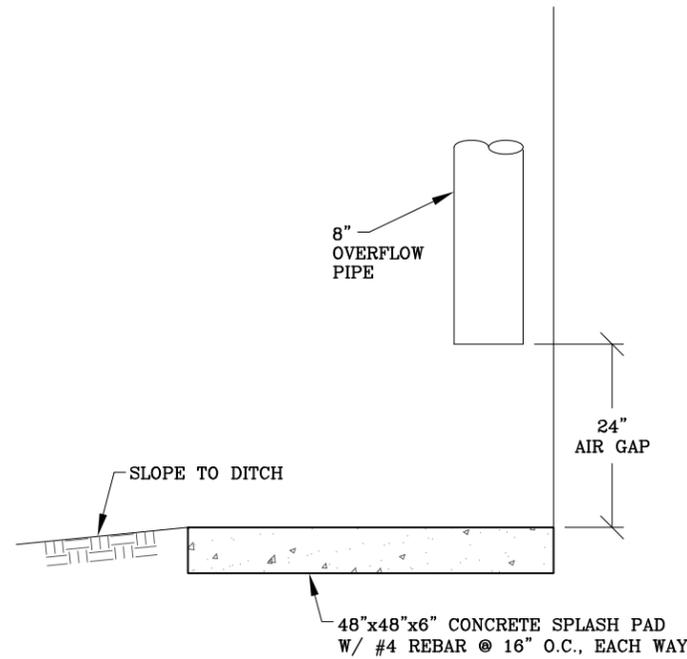
HAINES BOROUGH
BARNETT DRIVE
BOLTED STEEL
WATER TANK



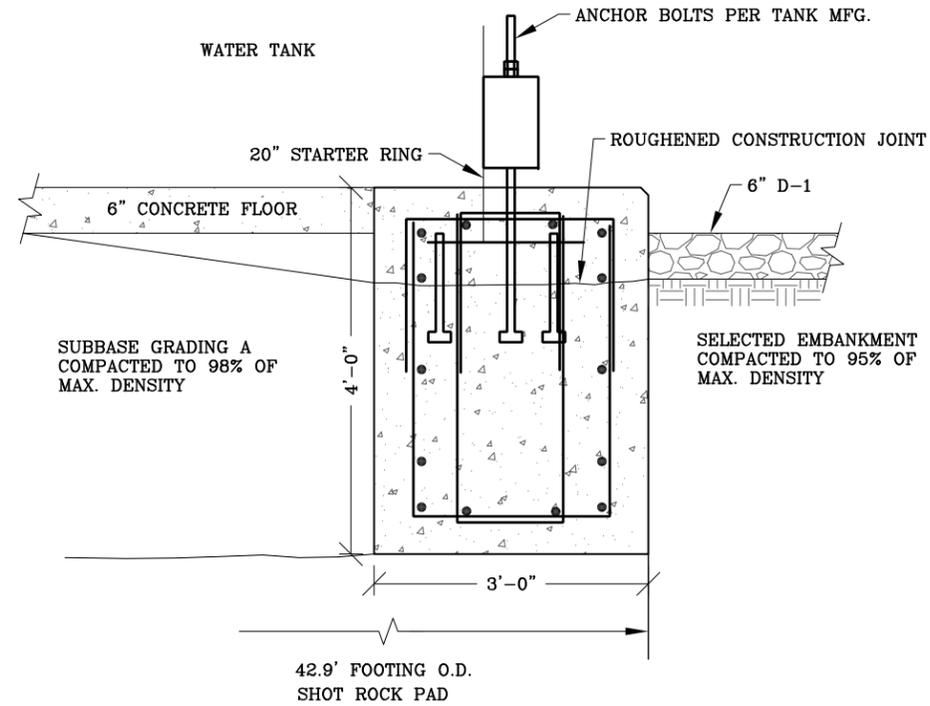
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TANK DETAILS

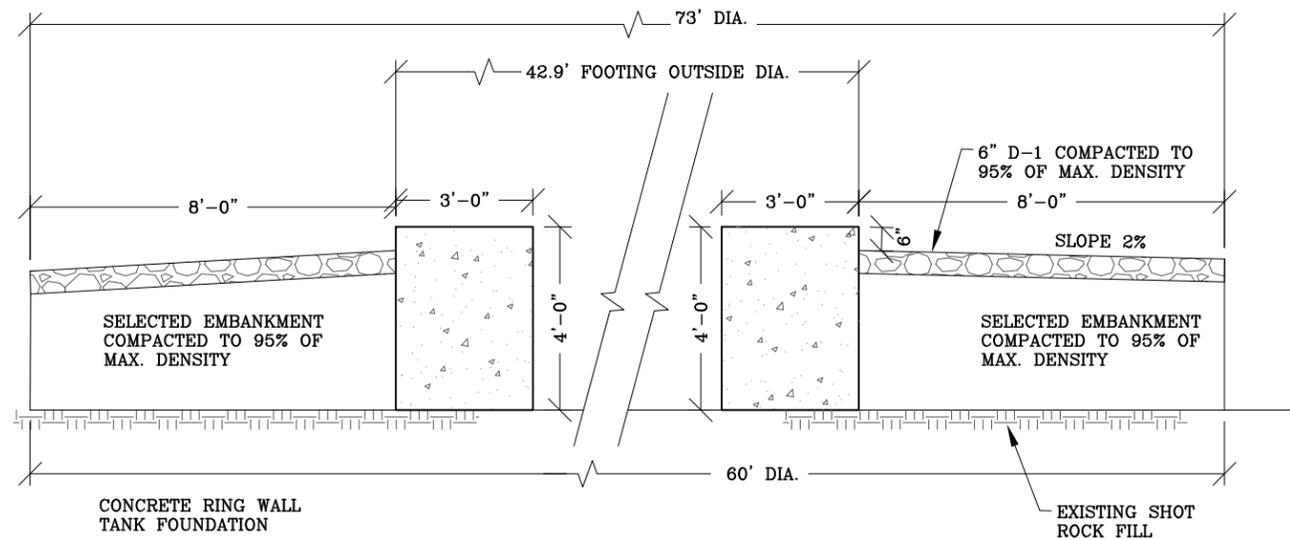
DRAWING
T-1
SHEET No.
7 of 8



TANK OVERFLOW
N.T.S.



CONCRETE RING WALL TANK FOUNDATION
N.T.S.



TANK SITE
N.T.S.

NOTES:

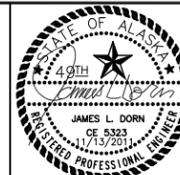
- TANK AND FOUNDATION DESIGN AND CONSTRUCTION TO BE BASED ON THE CURRENT VERSION OF AWWA D-103.
- THE FOLLOWING DESIGN CRITERIA SHALL BE USED FOR TANK AND FOUNDATION DESIGN:

SEISMIC ZONE: IBC FOR HAINES, ALASKA
USE FACTOR: 1.25
3 SEC WIND GUST: 110 MPH EXPOSURE C
SNOW LOAD 150 PSF
DESIGN METAL TEMPERATURE: -30 DEG F
ALLOWABLE SOILS BEARING: 2,500 PSF
- CONTRACTOR SHALL PROVIDE ALL NECESSARY TANK ACCESSORIES.
- INTERIOR COATINGS, SEALANTS ETC. SHALL BE NSF 61 LISTED FOR USE IN POTABLE WATER SYSTEMS.
- CONCRETE FOOTINGS SHALL BEAR ON NON-ORGANIC, UNDISTURBED GROUND. UNSUITABLE MATERIALS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AND A 2" MINUS SHOT ROCK SHALL BE USED TO ACHIEVE GRADE. COMPACT SHOT ROCK AND UNDERLYING MATERIAL TO 98% OF MAXIMUM DENSITY.
- PIPES THROUGH THE FLOOR SHALL BE PLACED PRIOR TO FOUNDATION CONSTRUCTION. USE WATER STOPS WHERE PIPE PASSES THROUGH FLOOR. FILL AROUND PIPES TO BE COMPACTED TO AT LEAST 98% OF MAXIMUM DENSITY.
- CONCRETE SHALL BE 4000 PSI AT 28 DAYS. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATIONS A615 GRADE 60.

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HAINES BOROUGH
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WATER TANK



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RESERVOIR FOUNDATION

DRAWING
T-2
SHEET No.
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