



REQUEST FOR BIDS
SUNSHINE STREET AND PIEDAD ROAD
2012 WATER SYSTEM UPGRADES

Issue Date: August 3, 2012

Contact:

Office of the Borough Clerk
Haines Borough
103 Third Ave. S
P.O. Box 1209, Haines, AK 99827
907-766-2231 x31
FAX - 907-766-2716
jcozzi@haines.ak.us

Bid Deadline: 12:00 noon, Thursday, August 16, 2012

Mandatory Pre-Bid Conference: 11:00 a.m., Monday, August 13, 2012

REQUEST FOR BIDS
SUNSHINE STREET AND PIEDAD ROAD
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NOTICE INVITING BIDS AND BIDDER INSTRUCTIONS

SUNSHINE STREET AND PIEDAD ROAD

2012 WATER SYSTEM UPGRADES

Issue Date: August 3, 2012

The Haines Borough is soliciting sealed bids from qualified and licensed contractors to perform the work for the **Sunshine Street and Piedad Road 2012 Water System Upgrades** project.

RECEIPT OF BIDS / BID DEADLINE: Bids will be accepted until **12:00 noon Local Time, Thursday, August 16, 2012** at the Office of the Borough Clerk in the Borough Administration Building in Haines, Alaska. Bids must be mailed or hand-delivered and will not be accepted by email or fax.

Submit Bids to:

<u>Physical Address:</u> Office of the Borough Clerk Borough Administration Building 103 Third Ave S. Haines, Alaska	<u>Mailing Address:</u> Haines Borough Attn: Borough Clerk PO Box 1209 Haines, AK 99827
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BID OPENING: The bid opening will be 12:30 p.m. on the same date in the Borough Administration Building conference room.

BID DOCUMENTS: A Bid packet including instructions, forms, specs, and drawings is available on the Haines Borough website: www.hainesalaska.gov/rfps for viewing and printing.

If prospective bidders request that borough staff print the documents, the cost will be 25 cents per standard 8½x11 page and 50 cents per 11x17 page. (Each side of a page counts as one.)

QUESTIONS:

For questions regarding viewing and printing:

Attn: Julie Cozzi, MMC, Borough Clerk
103 Third Ave / P.O. Box 1209, Haines, AK 99827
Phone: 907-766-2231 ext.31
Email: jcozzi@haines.ak.us

For technical questions:

Attn: Brian Lemcke
Public Facilities Office, 213 Haines Highway / P.O. Box 1209, Haines, AK 99827
Phone: 907-766-2257
Email: blemcke@haines.ak.us

PRE-BID CONFERENCE: A mandatory pre-bid conference will take place at **11:00 a.m. Local Time Monday, August 13, 2012**, at the Haines Borough Public Facilities Office located upstairs in the Public Safety Building, 213 Haines Highway.

DESCRIPTION OF WORK: The work consists of furnishing and installing approximately 560' of 8-inch AWWA C-900 PVC water pipe and associated fire hydrants and gate valves. It also includes removal of existing road surfacing, replacing it with a D-1 surface and imported backfill in areas with unsuitable subsurface soils.

SITE OF WORK: The site of the work is the West 300 feet of Sunshine Street and the North 400 feet of Piedad Road in Haines, Alaska.

COMPLETION OF WORK: All work within these Contract Documents shall be completed by October 30, 2012.

PROJECT SCHEDULE: The Haines Borough anticipates the following project schedule:

Request for Bids issued	August 3, 2012
Receive and open bids	August 16, 12:00 noon Local Time
Borough Assembly Authorization	August 28, 2012
Notice of Intent to Award	August 29, 2012
Notice to Proceed	September 5, 2012 (approximate)
Project Completion	October 30, 2012

REQUIRED BID SUBMITTALS: To be considered, all bidders must include the following at the time of the bid opening:

- One copy of the Bid Form signed in ink by an authorized representative of the business;
- Non-Collusion Affidavit;
- Copy of a current Alaska business license;
- Copy of a current Haines Borough business license;
- Copy of an Alaska contractor's certificate of registration;
- Acknowledgement of all addenda;
- A bid bond of at least five-percent of the amount of the bid or a certified check drawn to the Haines Borough in like amount. Checks and bid bonds will be returned to unsuccessful bidders; and
- Sealed in an envelope clearly labeled with the bidder's business name and "*Sunshine Street and Piedad Road 2012 Water System Upgrades.*"

BID MODIFICATIONS: Any bidder may modify a Bid by mail, telegram, email, or fax (**Fax: 907-766-2716**) up to the scheduled closing time for receipt of Bids, provided that such modification is received by the Haines Borough prior to the time set for opening of Bids. Bidders are strongly advised to telephone the Haines Borough (**Telephone: 907-766-2231**) to confirm the successful and timely transmission of all Bid modifications. A bid 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 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 Borough shall not be responsible for its failure to receive modifications, whether such failure is caused by transmission line problems, fax device problems, operator error or otherwise.

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 interlineations, 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.

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 item 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.

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. Bids may not be withdrawn for sixty days following the date of opening.

QUALIFICATIONS OF BIDDERS: To demonstrate qualifications to perform the work, each Bidder must be prepared to submit evidence within 5 days after Bid opening, and upon the Borough’s written request, such as financial data, previous experience, and present commitments. Nothing indicated herein will prejudice the Borough’s right to seek additional pertinent information as evidence of Bidder’s qualifications for the work prior to contract award.

EXAMINATION OF BID DOCUMENTS AND SITE: It is each Bidder’s responsibility, before submitting a Bid, to:

1. Examine thoroughly the Bid Documents and other related data identified in the Bidding Documents (including “technical data” referred to below);
2. Inspect the site to become familiar with and satisfy Bidder as to the general, local, and site conditions that may affect cost, progress, performance, or furnishing of the work;
3. Consider federal, state, and local laws and regulations that may affect cost, progress, performance, or furnishing of the work;
4. Study and carefully correlate Bidder’s knowledge and observations with the Bid Documents and such other related data; and
5. Promptly notify, in writing, the Borough Clerk or Director of Public Facilities of all conflicts, errors, ambiguities, or discrepancies which Bidder has discovered in or between the Bid Documents and such other related documents.

The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this section; that without exception the Bid is premised upon performing and furnishing the work required by the bidding Documents and applying the specific means, methods, techniques, sequences, or procedures of construction (if any) that may be shown or indicated or expressly required by the Bidding Documents; that Bidder has given the Haines Borough written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has found.

OWNER'S RIGHTS RESERVED: The Haines Borough 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 Borough.

RETURN OF BID BOND: Within 14 days after award of the contract, the Borough will return the Bid securities accompanying such Bids 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.

CONTRACT CONDITIONS

- **PRODUCT**: All Plans, original drawings, electronic files, specifications, reports, photographs, and other documents relative to a project which the respondent prepares or causes to be prepared in connection with services performed shall be delivered to and become the property of the Borough.
- **INSURANCE**: The professional services provider to whom a contract is awarded may be required to furnish to the borough evidence of insurance coverage(s) including general liability, professional liability, and workers compensation insurance, as appropriate.
- **INSURANCE NOT LIMITING CONTRACTOR'S LIABILITY**: The provisions of this contract requiring insurance shall not limit the liability of the Contractor or anyone acting on behalf of the Contractor.
- **INDEMNITY**: Contractor agrees to defend, indemnify and hold the Borough harmless from any and all claims, demands or liability for bodily injury or death of any person, or damage to property arising out of the Contractor's execution of the contractual duties of the Contractor, its agents, employees or assigns.
- **DAMAGE TO BUILDINGS OR EQUIPMENT**: Any problems, including building or equipment damage, caused by or discovered by the Contractor during the execution of the contractual duties of the Contractor should be reported immediately.
- **COMPLIANCE WITH LAWS**: The Contractor and all persons acting on behalf of the Contractor shall comply with all applicable laws and regulations of Federal, State or Local government agencies with respect to the activities of the Contractor or anyone acting on behalf of the Contractor.
- **LIENS AND ASSESSMENTS**: The Contractor agrees that it will pay all employment security contributions required to be paid as a result of any services performed for the Borough regardless of whether they are performed by the Contractor or someone engaged by the Contractor. The Contractor shall not allow any lien to be placed against the Borough by reason of non-payment of such contributions or any other reason, and shall indemnify the Borough against any such lien.
- **EXPENSES AND ATTORNEY'S FEES UPON DEFAULT**: Contractor agrees to pay all actual costs, expenses and actual attorney's fees incurred by the Borough upon an Event of Default.
- **DEFAULT**: The Contractor shall be declared in default of the contract if the Contractor fails to adequately perform the contract services. If, in the opinion of the Borough, the Contractor's services do not adequately fulfill the intent of the contract, the Borough Clerk shall notify the Contractor in writing of service deficiencies. If the Contractor fails to correct such deficiencies within ten days of receiving this written notice, or consistently fails to provide adequate services as documented in writing by the Borough, the contractor shall be in default of the contract and the Borough shall terminate the contract.
- **BILLING/PAYMENT**: Requests for payment for performed services shall be submitted to the Borough and will be processed for payment at the time of the next accounts payable check run.

**HAINES BOROUGH
SUNSHINE STREET AND PIEDAD ROAD
2012 WATER SYSTEM UPGRADES**

BID FORM

Bid of _____ (hereinafter called *Bidder*), doing business as (underline one) a corporation, partnership or individual, to the Haines Borough (hereinafter called *Borough*). The Bidder agrees to furnish to the Haines Borough all information and data that may be requested to give evidence that the undersigned is properly qualified to carry out the obligations of the Contract Documents.

The undersigned Bidder agrees, if this bid is accepted, to furnish all tools, equipment, supplies, manufactured articles, labor, materials, services and incidentals, and to perform all work necessary to complete the work required under the Request for Bids by October 30, 2012 and to accept as full payment the Contract Price stated on this Bid Form, and in the manner stipulated by the Request for Bids, subject to any negotiated changes in the work that might increase or decrease the contract amount. The Borough reserves the right to reject any and all bids and negotiate with the responsible bidder submitting the lowest bid amount.

Bidder accepts all of the terms and conditions of the Request for Bids and, if this bid is accepted, will furnish, within ten calendar days after the Notice of Intent to Award letter, the following documents required by borough code for this project:

1. *Contract document or Agreement;*
2. *[Proof of insurance: general liability, auto insurance, worker's compensation];*
3. *Any overdue unpaid debts owed the borough must be current prior to award;*
4. *Payment and Performance bonds, if applicable; and*
5. *Subcontractor report, if applicable.*

Bidder acknowledges receipt of the following addenda:

Addendum No. _____ Initials: _____ Addendum No. _____ Initials: _____

BIDDER INFORMATION:

Principal Contact: _____

Business Name: _____

Business Physical Address: _____

Business Mailing Address, if different: _____

Phone: _____ Fax: _____ Email: _____

Bidder's Authorized Signature

Printed Name

Date

BASE BID:

Item No.	Pay Item Description	Pay Unit	Approx. Quantity	Unit Price		Amount	
				Dollars	Cents	Dollars	Cents
2601.1	Water Pipe, AWWA C-900 8-inch PVC, Class 150	LF	560				
2602.1	Gate Valve and Valve Box, 8-inch	Each	4				
2603.1	Fire Hydrant Assembly	Each	1				

TOTAL BASE BID _____

COMPANY NAME _____

**HAINES BOROUGH
SUNSHINE STREET AND PIEDAD ROAD
2012 WATER SYSTEM UPGRADES**

NON-COLLUSION AFFIDAVIT

UNITED STATES OF AMERICA)

STATE OF ALASKA)

I, _____ of _____,
(Printed Name of Person Signing) (Printed Name of Business)

being duly sworn, so depose and state:

That I, or the firm, association or corporation of which I am a member, a BIDDER on the contract to be awarded, by the Assembly of the HAINES BOROUGH for the contract services designated as:

**SUNSHINE STREET AND PIEDAD ROAD
2012 WATER SYSTEM UPGRADES**

Located in Haines, Alaska, have not, either or indirectly, entered into any agreement, participate in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract.

Signature Date

Subscribed and sworn to this ___ day of _____, 2012.

Notary Public _____

My Commission Expires: _____

**HAINES BOROUGH
SUNSHINE STREET AND PIEDAD ROAD
2012 WATER SYSTEM UPGRADES**

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____ as Principal and

_____ as Surety,

are hereby held and firmly bound unto the HAINES BOROUGH, as OWNER, in the penal sum of _____ Dollars (\$ _____) for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _____ day of _____, 2012.

The condition of the above obligation is such that whereas the Principal has submitted to the HAINES BOROUGH, ALASKA a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for: **SUNSHINE STREET AND PIEDAD ROAD 2012 WATER SYSTEM UPGRADES**

NOW, THEREFORE

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall

execute and deliver a contract in the Form of Contract attachment hereto (properly completed in accordance with said BID) and shall furnish a BOND for faithful performance of said contract, and for the payment of all persons performing labor furnishing materials or equipment in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety of any and all claims hereunder shall in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by an extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, and day and year first set forth above. *Note: Surety companies executing BONDS must appear on the Treasury Department's most current list and be authorized to transact business in Alaska.*

Principal

(SEAL)

BY: _____

Surety

(SEAL)

BY: _____

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 **Sunshine Street and Piedad Road 2012 Water System Upgrade**.

The WORK is generally described as follows: The WORK consists of furnishing and installing approximately 560' of 8-inch AWWA C-900 PVC water pipe and associated fire hydrants, and gate valves. It also includes removal of existing road surfacing, replacing it with a D-1 surface and imported backfill in areas with unsuitable subsurface soils.

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 by November 1, 2012.

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 **\$100.00** 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: **Sunshine Street and Piedad Road 2012 Water System Upgrade**, the Unit 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 no more frequently than once per month. Applications for Payment will be processed by the Haines Borough.

ARTICLE 7. MISCELLANEOUS.

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 (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. _____

END OF SECTION

**SUNSHINE STREET AND PIEDAD ROAD
2012 WATER SYSTEM UPGRADE
ASBESTOS CEMENT (AC) PIPE WORK PLAN**

GENERAL

Portions of the existing water line serving Sunshine Street and Piedad Road may be asbestos cement (AC) pipe. The location of this pipe is not known. AC pipe may be present in underground locations near the pipe corridor for the new water main on Sunshine Street and Piedad Road.

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. Each drawing contains the following note:

**NOTE: NEW WATERLINE IS TO REPLACE EXISTING ASBESTOS
CEMENT WATERLINE LOCATED ADJACENT TO THE NEW
WATERLINE. ABANDON EXISTING WATERLINE IN PLACE.
PROVIDE TEMPORARY SERVICE TO ALL USERS DURING
CONSTRUCTION.**

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 01025 - MEASUREMENT AND PAYMENT

PART 1- GENERAL

1.1 SCOPE

- A. Payment for the various items 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 material from excavation.
 10. Resurfacing travel ways disturbed by the construction with 6" of D-1 compacted to 95% of maximum density.
 11. Sheeting, shoring and bracing of trenches and all other work necessary to comply with OSHA requirements.
 12. Abandoning any asbestos cement pipe encountered during construction in place in accordance with the written instructions contained in the enclosed Sunshine Street and Piedad Road 2012 Water System Upgrade Asbestos Cement (AC) Pipe Work Plan.

SECTION 01025 - MEASUREMENT AND PAYMENT

- 2.1 WATER PIPE, AWWA C-900 8-INCH PVC CLASS 150, (Pay Item No. 2601.1) PRICE BASED ON QUANTITY, LINEAR FOOT
- A. Measurement for payment of water pipe will be made along the slope of the pipe from the centers of fittings, and valves in linear feet. No deduction in length will be made for vavles and fittings. All fittings, except valves, required for satisfactory installation of water pipe will be considered incidental to the water pipe pay item
 - B. Measurement for Water Pipe, AWWA C-900 8-inch will include any smaller pipe necessary to connect to the existing pipe.
 - A. Trenching, backfill, and bedding will not be measured for payment, but will be considered incidental to other WORK.
 - B. Imported backfill necessary for water pipe will be measured and paid for separately.
 - E. All restrained joints will considered incidental to other WORK under this section and will not be measured for payment.
 - F. Payment for Water Pipe, AWWA C-900 8-inch PVC, Class 150 will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2601.1, which payment will constitute full compensation for all WORK described in Section 02601 – WATER PIPE , as shown on the plans and as directed by the ENGINEER.
- 2.2 GATE VALVE AND VALVE BOX, 8-INCH, (Pay Item No. 2602.1) PRICE BASED ON QUANTITY, EACH
- A. Measurement for payment of gate valves and valve boxes will be based upon the quantity of gate valves and valve boxes furnished and installed in accordance with the requirements of the Contract Documents.
 - B. Excavation, backfill, and bedding will not be measured for payment, but will be considered incidental to other WORK.
 - A. Payment for Gate Valve and Valve Box, 8-inch, will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2602.1, which payment will constitute full compensation for all WORK described in Section 02602 – VALVES, as shown on the plans and as directed by the ENGINEER.
- 2.3 FIRE HYDRANT ASSEMBLY, (Pay Item No. 2603.1) PRICE BASED ON QUANTITY, EACH
- A. Measurement for payment of gate valves and valve boxes will be based upon the quantity of fire hydrant assemblies furnished and installed in accordance with the requirements of the Contract Documents.

SECTION 01025 - MEASUREMENT AND PAYMENT

- B. A fire hydrant assembly includes the fire hydrant, the tee or required fitting at the mainline water pipe, barrel extension (if required), thrust block, six-inch gate valve, valve box, joint restraints, continuity wires, thaw wires, warning tapes and any other fittings, including pipe to connect the hydrant leg from the mainline water pipe to the fire hydrant. Fire hydrants are to be Mueller Centurion.
- C. Excavation, backfill, and bedding will not be measured for payment, but will be considered incidental to other WORK. Imported backfill necessary for fire hydrant assemblies will be measured and paid for separately.
- B. Removing and replacing concrete curb, gutter and sidewalk necessary for installation of fire hydrants will not be measured for payment, but will be considered incidental to other WORK.
- F. Payment for Fire Hydrant Assembly will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2603.1, which payment will constitute full compensation for all WORK described in Section 02603 – FIRE HYDRANTS, as shown on the plans and as directed by the ENGINEER.

END OF SECTION

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 for buildings and piping and placing backfill and imported backfill to the lines, grades and cross sections indicated in the Plans.

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 BACKFILL/IMPORTED BACKFILL

- A. Material for backfill shall consist of excavated 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.

Imported Backfill shall conform to the following gradation:

SIEVE DESIGNATION	PERCENT PASSING BY WEIGHT
3-Inch	100
2-Inch	85 - 100
No. 4	30 - 70
No. 200*	8 Max.

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

- B. The amount of No. 200 material shall have no more than 3% by weight less than the 0.02 mm size.

SECTION 02202 - EXCAVATION AND EMBANKMENT

2.3 SHOT ROCK BORROW

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

SIEVE DESIGNATION	PERCENT PASSING BY WEIGHT
6-inch	100
4-inch	50 – 85
3-inch	10 - 30
No.200*	0 – 3

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

PART 3 - EXECUTION

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 Plans. Excavations shall be conducted to insure 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 18 inches below the top of the finished surface within the limits of the roadbed. Undrained pockets shall not be left in the excavated surface of the rock.
- E. Where excavation to the limits indicated on the Plans encounters unsuitable underlying material, the OWNER may require the CONTRACTOR to remove the unsuitable material and backfill with approved material. The CONTRACTOR shall allow time to take the necessary cross section measurements before backfill is placed.
- F. Excavated soils that do not meet the requirements for backfill material and surplus suitable excavation meeting the requirements for backfill shall be disposed of by the CONTRACTOR at a location and in a manner approved by the OWNER. No material may be wasted without the prior approval of the OWNER.
- G. The CONTRACTOR is responsible for securing waste disposal sites if they are not indicated on the Plans. 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 OWNER, the CONTRACTOR shall furnish the permit numbers of all required permits for the disposal sites. The cost of securing such sites shall be borne by the CONTRACTOR.

SECTION 02202 - EXCAVATION AND EMBANKMENT

- H. 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.
- I. Temporary storage of useable or suitable excavation meeting the requirements for backfill is the responsibility of the CONTRACTOR, and no additional payment will be made.
- J. The CONTRACTOR shall conduct all operations to prevent contaminating useable excavation meeting the requirements for backfill with unsuitable material.
- K. When frozen material is excavated and meets all other requirements for backfill material, it shall be allowed to thaw and drain prior to placing in the fill. This material will be considered useable excavation and no additional payment will be made.
- L. The CONTRACTOR shall provide added care when excavating adjacent to existing fences and houses. Damage caused to existing walls, fences and houses by the CONTRACTOR shall be repaired at the CONTRACTOR's expense.
- M. After excavation to the limits of excavation prior to backfilling, the bottom of the excavation shall be compacted with a excavator or backhoe mounted vibrating compactor until a firm base for the backfill material is obtained.

3.2 PLACING BACKFILL

- A. Backfill shall be constructed to a reasonably smooth and uniform shape conforming to the lines, grades and cross sections indicated on the Plans using all excavated material meeting the requirements for backfill prior to importing backfill.
- B. The underlying ground shall be properly prepared prior to placing backfill 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. Fill areas over swampy ground may be constructed by end-dumping an initial lift of sufficient depth to support hauling and spreading equipment.
- D. The finish surface shall not vary more than 0.1-foot when tested using a 10-foot straightedge, nor more than 0.1-foot from established grade. The bottom of the subgrade shall not vary more than 0.10-foot from established grade. Additionally, the algebraic average of all deviations from established finished subgrade elevations taken at 100-foot intervals shall be less than 0.02-foot.

SECTION 02202 - EXCAVATION AND EMBANKMENT

END OF SECTION

SECTION 02203 - TRENCHING

PART 1 - GENERAL

1.1 GENERAL

- 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.
- B. Bedding for this project shall meet the requirements for Bedding, Class B.

PART 2 - PRODUCTS

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	0-10

- 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 10% passing the #200 screen.

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 OWNER to be suitable as backfill. Backfill material used within road prisms shall be granular material, non-frost susceptible, that is free of rocks larger than six inches, muck, 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 imported backfill.

2.4 IMPORTED BACKFILL

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

SECTION 02203 - TRENCHING

SIEVE DESIGNATION	PERCENT PASSING BY WEIGHT
3"	100
No. 4	20-70
No. 200	0-8

2.5 AGGREGATE BASE

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

2.6 SHOT ROCK BORROW

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

SIEVE DESIGNATION	PERCENT PASSING BY WEIGHT
6-inch	100
4-inch	50 - 85
3-inch	10 - 30
No.200*	0 - 3

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

2.7 FILTER CLOTH

- A. Filter cloth shall be either woven or non-woven and shall meet the following requirements:

Grab tensile strength: 90 lbs. minimum (ASTM D 1682)

Bursting strength: 100 psi minimum (ASTM D 751)

Equivalent opening size: 40 minimum, 100 maximum

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 Plans and to the limits depicted in the Standard Details. The CONTRACTOR shall also do any grading necessary to prevent surface water from entering the trench.

SECTION 02203 - TRENCHING

- C. Excavation of any and all material more than two feet below the invert of the pipe as shown on the Plans shall be done only when ordered in writing by the OWNER. The material so excavated will be handled in the manner described below.
- D. 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 to prevent material from sloughing or sliding back into the trench; except that when the trench is in a traveled roadway the OWNER may require removal and temporary storage of excavated material elsewhere.
- E. Material unsuitable for use as backfill shall be hauled to a CONTRACTOR furnished disposal site off the project, unless otherwise directed in writing by the OWNER. The CONTRACTOR is responsible for securing waste disposal sites if none are indicated on the Plans. 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 OWNER, the CONTRACTOR shall furnish the permit numbers of all required permits for the disposal sites. The cost of securing such sites shall be borne by the CONTRACTOR.
- F. 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.
- G. No more than 150 feet of trench shall be open in advance of laying of pipe, and not 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.
- H. If explosives are used, the CONTRACTOR shall obtain all necessary permits and comply with all pertinent regulations. All utility companies shall be informed a minimum of 48 hours prior to the use of explosives in the vicinity of their facilities.
- I. The CONTRACTOR shall protect and preserve all existing pavement 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 OWNER. 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.
- J. Where required to prevent caving of the trench, or by any safety law or regulation, 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. Filter cloth will be installed in areas with sloughing soils.
- K. 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

SECTION 02203 - TRENCHING

water under any circumstance, except when the Plans and/or specifications specifically permit installation of HDPE water pipe in a wet trench.

- L. 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.
- M. 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

- A. Bedding shall be placed in conformance with the lines and grades shown on the Plans 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 the 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 Plans and Specifications. Bedding material shall be placed by hand in layers. The thickness, loose measure, of 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. For pipe ten inches and smaller nominal diameter, the next layer shall be of the thickness required to complete placement of the bedding to a plane six inches above the pipe, after compaction as specified above.
- C. For pipe 12 inches and larger, the bedding material shall be placed and compacted in layers not more than 8 inches in thickness, loose measure, up to a plane 6 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 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.

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3.3 BACKFILL

- A. The trench shall be backfilled above the bedding material, as shown on the Plans, or 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 suitable material from roadway excavation, or imported backfill. The backfill and/or suitable material from roadway excavation shall be compacted to 95% of optimum density, as determined by AASHTO T 180-D. Lifts shall not exceed eight 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 the project.
- B. Where trenches cross roadways, streets or driveways, 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 day's work. 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 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 OWNER 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 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.

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 Plans or Standard Drawings. Care shall be taken to assure proper compaction near the sides of the trench, and to avoid segregation.

3.5 ADDITIONAL TRENCH EXCAVATION/SHOT ROCK BORROW

- A. In order to create a stable foundation for water and sewer pipe, the ENGINEER may order additional trench excavation greater than the six inches below the pipe invert required for installation of bedding material. The additional excavation ordered by the ENGINEER will be backfilled with Shot Rock Borrow meeting the requirements of this Section.

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. All items in direct contact with the potable water are to be NSF 61 listed.

PART 2 - PRODUCTS

2.1 PIPE

- A. Water pipe shall be AWWA C-900 Class 150 PVC pipe (DR-25) and shall be NSF 61 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 PVC water pipe shall be restrained using Uni-flange Series 1350 joint restraints or approved equal.

2.3 FITTINGS

- A. Fittings for all water pipe and restrained joint water pipe shall be mechanical joint fittings with EBBA IRON "Megalug System," or approved equal. Pipe joints shall be restrained 50' each direction from a fitting or valve.
- 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

- 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.

SECTION 02601 - 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.
- 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

SECTION 02601 - WATER PIPE

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.

SECTION 02601 - WATER PIPE

- 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 "make-up" water necessary to restore the specified test pressure. The quantity of water lost

SECTION 02601 - WATER PIPE

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.
- 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, Perchlorin, 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.

SECTION 02601 - WATER PIPE

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. All Gate Valves shall be NSF 61 listed.

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. Provide valve operator extensions to within 12 inches of the surface.
- C. End connections shall be mechanical joint restrained joint.
- 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.

SECTION 02602 – VALVES

- 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.

2.4 VALVE OPERATOR EXTENDERS

- A. Valve operating nuts shall be provided with valve operator extensions to within 12 inches of the ground surface.

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.

SECTION 02602 – VALVES

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, 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 02603 - FIRE HYDRANTS

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 fire hydrant assemblies, including the hydrant leg, auxiliary gate valve, valve box, electrical thaw wire and continuity straps, tie rods, and fire hydrants; for installing guard posts to protect fire hydrants; for installing the hydrant access pads; for furnishing and installing barrel extensions on existing fire hydrants and for removing, inspecting, salvaging, and delivering existing fire hydrant assemblies to the Borough. All fire hydrant materials that are in contact with potable water are to be NSF 61 listed.

PART 2 - PRODUCTS

2.1 FIRE HYDRANTS

- A. Fire hydrants shall conform to the requirements of AWWA C502 for Dry Barrel Fire Hydrants. Fire hydrants shall be Mueller Centurion.
- B. Fire hydrants shall be supplied with a 5-1/4 inch main valve opening, and a main valve seat ring threaded into a bronze bushing.
- C. Fire hydrants shall be furnished with a six-inch ASA Class 125 standard mechanical-joint inlet with two cast on lugs for tie backs.
- D. Fire hydrants shall be provided with a weathercap and an epoxy or bituminous coated shoe.
- E. Connections shall be mechanical joint with "mega-lug" fittings, unless otherwise indicated on the plans.
- F. Fire hydrants shall be three-way and furnished with two 2-1/2 inch hose nozzles and one 4-1/2 inch pumper nozzle. Fire hydrants shall be left hand opening (counter clockwise). Operating and nozzle nuts shall be National Standard pentagonal with weather cap. Hose nozzle threading shall be in conformance with NFPA No. 194 for National (American) Standard Fire Hose Coupling Screw Threads.
- G. Unless otherwise required by the plans, fire hydrants shall be furnished with a barrel length that will allow a five foot bury.
- H. The main hydrant valves shall be of the compression type where water pressure holds the main valve closed permitting easy maintenance or repair of the entire barrel assembly from above the ground without the need of a water shut-off. The main valve seat shall be an ether glycol urethane compound, or approved equal, that is abrasion and gravel resistant.
- I. Fire hydrants shall be furnished with a breakway traffic flange of the type which allows both barrel and stem to break clean upon impact from any angle. Traffic flange design must be such that repair and replacement can be accomplished above ground.

SECTION 02603 - FIRE HYDRANTS

- J. All working parts shall be bronze or non-corrosive metal in accordance with the requirements of AWWA C502.
- K. Painting and coating shall be in accordance with applicable AWWA Specifications. After installation, the fire hydrant section from the traffic flange to the top of the operating nut shall be painted "Caterpillar Yellow", with wording stenciled in black. Refer to Standard Details.
- L. Gate valves and valve boxes shall be furnished and installed in accordance with Section 02602.
- M. Electrical thaw wire and continuity straps shall be No. 2 copper wire with THW insulation, and shall be connected with bolts with double nuts, to the tee at the main.
- N. Tie rods shall be as specified in Section 02601 and as shown on the Standard Details.
- O. The CONTRACTOR shall provide a Performance Bond separate from and in addition to any bonds required under Section 00700, in an amount equal to 100% of the contract price for the Fire Hydrant Assemblies. Said bond shall warrant the performance of the Fire Hydrant Assemblies under normal use for a period of one year from the date of Final Acceptance of this entire project. The CONTRACTOR shall furnish all material, equipment, tools, and labor to complete any repairs necessary due to faulty installation or defective materials during the warranty period.
- P. Flag assemblies shall be Flexi-Flag Assembly by Nordic Fiberglass, Inc., or approved equal.
- Q. The CONTRACTOR shall provide the following spare parts for every group of ten (and fraction thereof) of Fire Hydrant Assemblies installed on the project:

Break Flange Repair Kit	1 each
Valve Seat Rubber	1 each
Cover Gasket	1 each
O'Rings	1 set

2.2 HYDRANT ACCESS PADS

- A. Hydrant access pads shall be constructed in conformance with the Standard Details and as shown or described on the Plans.
- B. Corrugated Metal Pipe (CMP) shall comply to the requirements of Section 02501.
- C. Rigid Board Insulation shall comply with requirements of Section 02607.
- D. Asphaltic concrete paving shall be furnished in accordance with Section 02801.

SECTION 02603 - FIRE HYDRANTS

2.3 BARREL EXTENSION

- A. Barrel extensions shall conform to the requirements of AWWA C502 for Dry Barrel Fire Hydrants and shall include barrel extension, steel stem coupling, stainless steel clevis and cotter pins, solid flange, gasket, bolts and nuts, stem extension and lubricant.

PART 3 - EXECUTION

3.1 FIRE HYDRANTS

- A. The CONTRACTOR shall install the fire hydrant assemblies in accordance with applicable AWWA Standards, the manufacturer's recommendations and the Standard Details. The interior components of the fire hydrant shall be cleaned of all foreign matter prior to installation. Fire hydrant legs shall be installed level and the barrel shall be installed plumb. Any adjustments to the traffic flange shall be accomplished with barrel extensions, in accordance with the fire hydrant manufacturer's recommendations. The extensions shall be made between existing barrel and hydrant. Fire hydrants shall be tied back to the water pipe using tie rods. The size and number of tie rods shall conform to Section 02601. Stuffing boxes shall be tightened and the fire hydrants shall be opened and closed in the presence of the ENGINEER to see that all parts are in working condition.
- B. The hydrant top cap shall be painted blue, except those hydrants serviced from the high pressure system, which shall be painted red. Remove the drain plugs, if any, prior to installation.
- C. Fire hydrants installed, but not available for use, shall be covered with burlap or heavy plastic and securely tied.
- D. Electrical continuity is required for fire hydrant assemblies. Electrical continuity tests shall be performed in accordance with Section 02601.
- E. After installation, all fire hydrant assemblies shall be flushed, field tested, and disinfected as outlined in Section 02601. Each hydrant shall then be winterized by removing the water in the hydrant and barrel.

3.2 GUARD POSTS

- A. Guard posts shall be installed where directed by the ENGINEER in accordance with the Standard Details. Guard posts shall not be installed in Alaska DOT/PF road right-of-way.

3.3 HYDRANT ACCESS PADS

- A. Hydrant access pads shall be installed where directed by the ENGINEER in accordance with the Standard Details and as shown or described on the Plans. Culvert size shall be noted on the Plans.

SECTION 02603 - FIRE HYDRANTS

3.4 GRADE ADJUST EXISTING FIRE HYDRANTS

- A. Grade adjustments to existing fire hydrants shall be accomplished with barrel extensions, in accordance with the fire hydrant manufacturer's recommendations. In addition, the existing fire hydrant shall be connected to the mainline water pipe with all necessary materials, including the tee at the mainline water pipe, thrust blocks, six-inch gate valve, valve box, joint restraints, continuity wires, thaw wires, warning tapes, and any other required fittings, including pipe, to connect the hydrant leg to the mainline water pipe. After installation, the adjusted fire hydrant shall be flushed, field tested, and disinfected as specified in Section 02601.

3.4 SALVAGE EXISTING FIRE HYDRANTS

- A. The CONTRACTOR shall contact the affected Fire District at least 24 hours prior to removing or interrupting service to existing fire hydrants.
- B. The components of the existing fire hydrant assemblies shall be carefully removed. Damage to the fire hydrant, valve, valve box, or barrel impairing re-use shall be determined by the ENGINEER. Damaged components shall be replaced by the CONTRACTOR using factory supplied parts from the same manufacturer.
- C. The ENGINEER will determine the usefulness of the removed fire hydrant assembly components. The CONTRACTOR shall deliver the useful components to the Borough. The remaining components shall be disposed of by the CONTRACTOR.
- D. If an existing fire hydrant assembly is removed at the tee, the tee shall be plugged in accordance with the Standard Details, and the existing water main shall be disinfected between isolating valves as specified in Section 02601.
- E. At the discretion of the ENGINEER, a hydrostatic pressure test conforming with Section 02601 shall be conducted between isolating valves along the existing water main.
- F. The CONTRACTOR shall restore all surface features to preconstruction condition or better, including, but not limited to sidewalks, curbs, gutters, mail boxes, culverts, and other facilities disturbed by the construction.

END OF SECTION

HAINES WATER SYSTEM



Haines Borough,
Alaska

SUNSHINE AND PIEDAD ROAD 2012 WATER SYSTEM UPGRADE



Carson Dorn Inc.

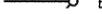
712 WEST 12TH STREET
JUNEAU, ALASKA 99801
(907) 586-4447

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. 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 AND WASTE MATERIAL (907) 766-2237 OR 766-2200
POWER AND LIGHT APT. (907) 766-2331
CATV (907) 766-2137
TELEPHONE, GTE ALASKA (907) 766-2311
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. SOME EXISTING WATER VALVES ARE KNOWN TO LEAK WHEN CLOSED. THE CONTRACTOR SHOULD ANTICIPATE WATER LEAKAGE FROM CLOSED VALVES AND IF SUCH LEAKAGE INTERFERES WITH THEIR OPERATION, THE CONTRACTOR SHALL CAP THE LEAKING LINE OR MAKE OTHER ARRANGEMENTS FOR STOPPING WATER FLOW.
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, 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. ALL WATER PIPE IS TO BE PVC DUCTILE IRON PIPE MIN. DEPTH OF BURY 6.5'.
22. 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 INSTALLED WITH FIELD LOK GASKETS.
23. THE CONTRACTOR SHALL PROVIDE TEMPORARY WATER SERVICE TO RESIDENTS AND BUSINESSES IN THE PROJECT AREA SO THAT NO SERVICE IS INTERRUPTED FOR MORE THAN 1 HOUR. TEMPORARY SERVICE LINES SHALL BE OF MATERIALS APPROVED BY THE NSF FOR USE IN POTABLE WATER SYSTEMS AND THEY SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C 651 PRIOR TO USE. TEMPORARY LINES MAY BE RUN FROM ADJACENT FIRE HYDRANTS OR OTHER WATER SERVICE LOCATIONS SECURED BY THE CONTRACTOR.
24. SEWER SERVICE LOCATIONS ARE NOT KNOWN. CONTRACTOR SHALL REPAIR ANY DAMAGE TO SEWER SERVICES OR TO THE SEWER MAIN.
25. NEW WATER SERVICE LOCATIONS AND NEW SEWER SERVICE LOCATIONS ARE BASED ON THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL CONFIRM FINAL LOCATIONS FOR NEW WATER SERVICES AND NEW SEWER SERVICES WITH THE PROPERTY OWNERS PRIOR TO INSTALLATION.
26. CONTRACTOR SHALL CONNECT NEW WATER SERVICES TO EXISTING WATER SERVICE LINES. MATERIALS USED FOR CONSTRUCTION OF THESE EXISTING LINES ON HOMEOWNER'S PROPERTY ARE UNKNOWN. CONTRACTOR SHALL FURNISH ALL COUPLINGS AND TRANSITION FITTINGS NECESSARY TO CONNECT TO THE EXISTING LINES.
27. PREVIOUS EXCAVATIONS IN THE AREA OF THIS PROJECT HAVE ENCOUNTERED SIGNIFICANT QUANTITIES OF FLOWING WATER. CONTRACTOR SHALL MAKE ALL PROVISIONS NECESSARY FOR DEWATERING AND STABILIZING EXCAVATIONS.

LEGEND

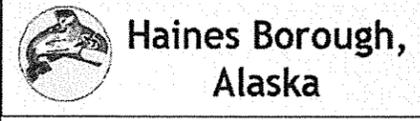
-  BUILDING
-  CONCRETE
-  FENCE
-  SILT FENCE
-  BRUSHLINE
-  DITCH OR STREAM
-  CULVERT (SIZE & MATERIAL NOTED)
-  EDGE OF TRAVELED WAY
-  SIGN
-  WATER PIPE
-  EXISTING WATER VALVE AND VALVE BOX
-  PROPOSED WATER VALVE AND VALVE BOX
-  REDUCER
-  EXISTING FIRE HYDRANT
-  NEW FIRE HYDRANT
-  TBM or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

ABBREVIATIONS

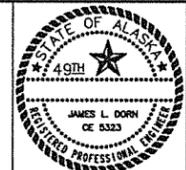
- | | |
|---|--|
| <ul style="list-style-type: none"> ∅ DIAMETER AT AT # NUMBER ABAND ABANDON AC ASPHALTIC CONCRETE ALT ALTERNATE APPROX APPROXIMATELY ATB ASPHALT TREATED BASE B/H BULKHEAD BLDR BOULDER BO BLOW-OFF HYDRANT ASSEMBLY BOTT BOTTOM BV BUTTERFLY VALVE CBJ CITY & BOROUGH OF JUNEAU C.I. CAST 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 R (OF BASIS OF STATIONING) RD ROAD REQ'D REQUIRED RJ RESTRAINED JOINT SCH SCHEDULE SIM SIMILAR SQ SQUARE STA STATION STL STEEL TBM TEMPORARY BENCH MARK TOC TOP OF CONCRETE TP TEST PIT 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 WV WATER VALVE SSM4 SANITARY SEWER MANHOLE |
|---|--|

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



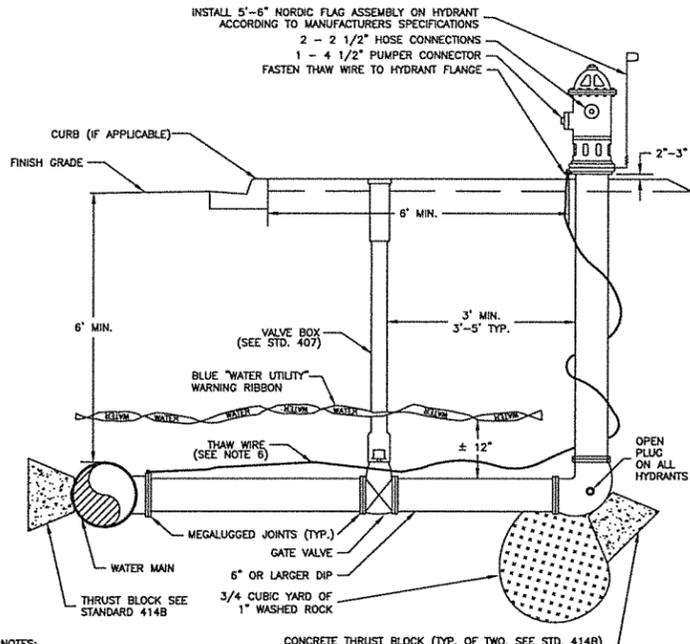
CITY AND BOROUGH OF HAINES
SUNSHINE STREET AND
PIEDAD ROAD
2012 WATER SYSTEM UPGRADE



CD Carson Dorn Inc.
712 WEST 12TH STREET
JUNEAU, ALASKA 99801
(907) 586-4447

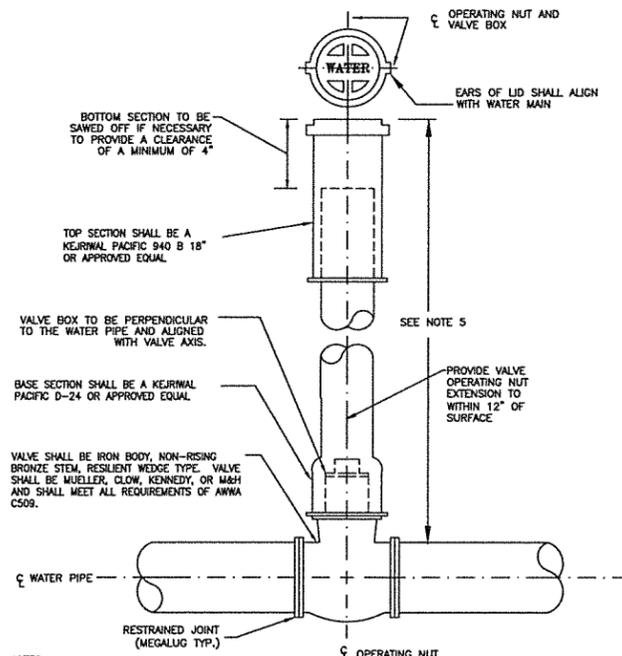
**GENERAL CONSTRUCTION NOTES,
DRAWING INDEX, LEGEND &
ABBREVIATIONS**

DRAWING G-2
SHEET No. 2 of 6



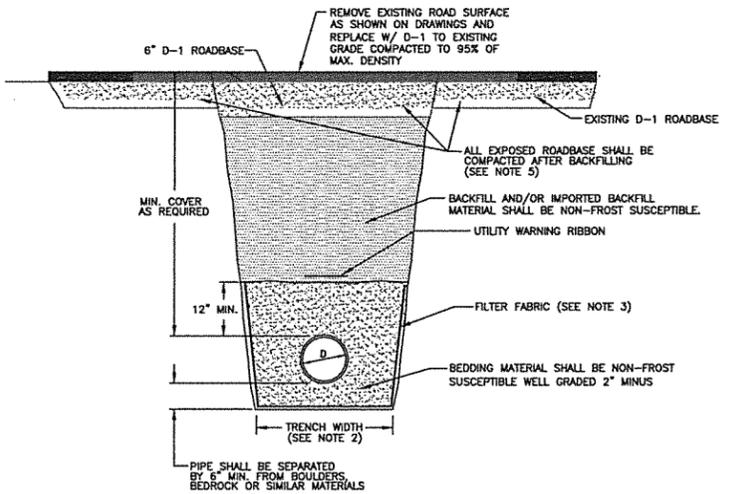
- NOTES:
- HYDRANT BARREL SHALL BE PLUMB.
 - GROUND COVER SHALL BE 6" MINIMUM.
 - WATER PIPE SHALL BE 6" MIN. D.I.P. AND ALL CONNECTIONS SHALL BE MEGALUGGED OR CONNECTED WITH LOCKING FIELD GASKETS.
 - BENDS BETWEEN THE HYDRANT AND THE MAIN SHALL NOT EXCEED 11 1/4" UNLESS APPROVED BY ENGINEER.
 - ALL HYDRANTS SHALL BE PAINTED OSHA YELLOW, AND SHALL HAVE OPEN PLUGS. THE NUMBER OF FEET TO VALVE SHALL BE PRINTED IN BLACK 1/2" BLOCK LETTERS JUST BELOW TOP BONNET.
 - THAW WIRE SHALL BE #2 COPPER WITH TYPE THW INSULATION. THAW WIRE SHALL BE BOLTED OR CAD WELDED TO THE TEE AT THE MAIN.
 - HYDRANT SHALL BE MUELLER CENTURION.
 - THIS STANDARD TO BE USED FOR ALL HYDRANTS AND BLOW-OFFS.

**FIRE HYDRANT
STANDARD 403**



- NOTES:
- A VALVE IS REQUIRED FOR EVERY 500' OF STRAIGHT MAINLINE.
 - A MINIMUM OF 2 VALVES ARE REQUIRED AT ALL TEES IN MAINLINE. A MINIMUM OF 3 VALVES ARE REQUIRED AT ALL 4-WAY CROSSES IN MAINLINE. NOTE THAT TEES AND CROSSES THAT FEED SERVICES AND FIRE HYDRANTS ARE NOT SUBJECT TO THIS REQUIREMENT.
 - IF REQUIRED BY THE ENGINEER, PLACE CONCRETE COLLAR AROUND TOP SECTION PER STANDARD 126.
 - ON UNPAVED ROADS, RECESS TOP OF VALVE BOX 6" TO 8".
 - IF WATER PIPE IS MORE THAN 6' DEEP, USE 4" I.D. CAST IRON SOIL PIPE WITH TOP SECTION OF APPROVED CAST IRON VALVE BOX.
 - THIS DETAIL APPLIES TO ALL MAINLINE VALVES AND ALL WATER VALVES GREATER THAN 4" IN DIAMETER.

**MAINLINE VALVE DETAIL
STANDARD 407**



- 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.

**PAVEMENT RESURFACING
AND TRENCH DETAIL
STANDARD 125**

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REV	DATE	BY	DESCRIPTION

SCALE	GRAPHIC
DESIGNED	JLD
DRAWN	GDM
CHECKED	JLD
DATE	JULY 2012

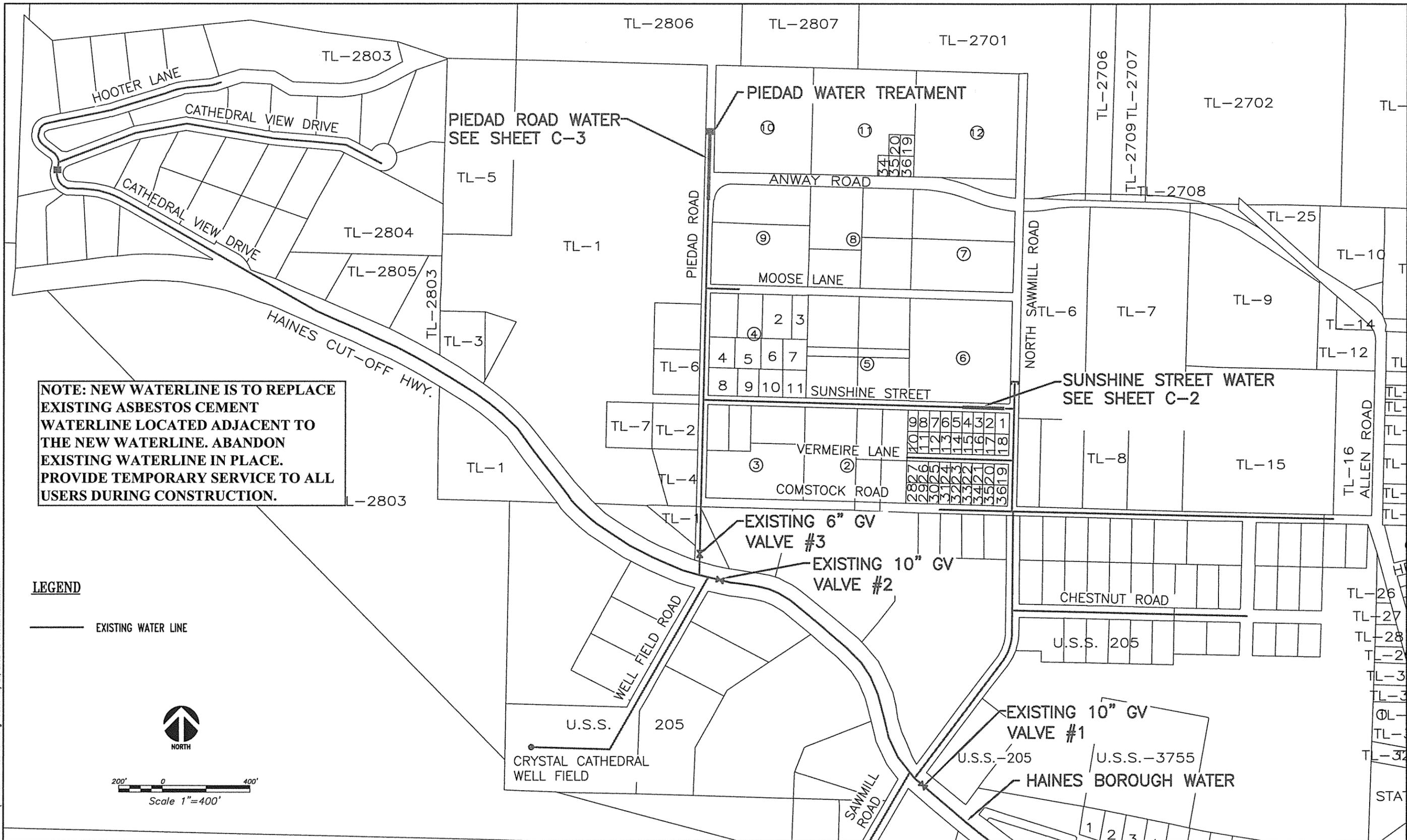
**Haines Borough,
Alaska**

CITY AND BOROUGH OF HAINES
SUNSHINE STREET AND
PIEDAD ROAD
2012 WATER SYSTEM UPGRADE



Carson Dorn Inc.
712 WEST 12TH STREET
JUNEAU, ALASKA 99801
(907) 586-4447

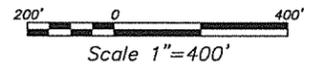
STANDARD DETAILS
DRAWING
G-3
SHEET No.
3 of 6



NOTE: NEW WATERLINE IS TO REPLACE EXISTING ASBESTOS CEMENT WATERLINE LOCATED ADJACENT TO THE NEW WATERLINE. ABANDON EXISTING WATERLINE IN PLACE. PROVIDE TEMPORARY SERVICE TO ALL USERS DURING CONSTRUCTION.

LEGEND

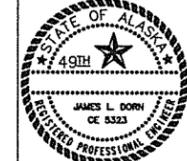
— EXISTING WATER LINE



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

CITY AND BOROUGH OF HAINES
SUNSHINE STREET AND PIEDAD ROAD
 2012 WATER SYSTEM UPGRADE



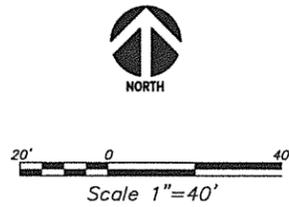
Carson Dorn Inc.
 712 WEST 12TH STREET
 JUNEAU, ALASKA 99801
 (907) 586-4447

VICINITY MAP

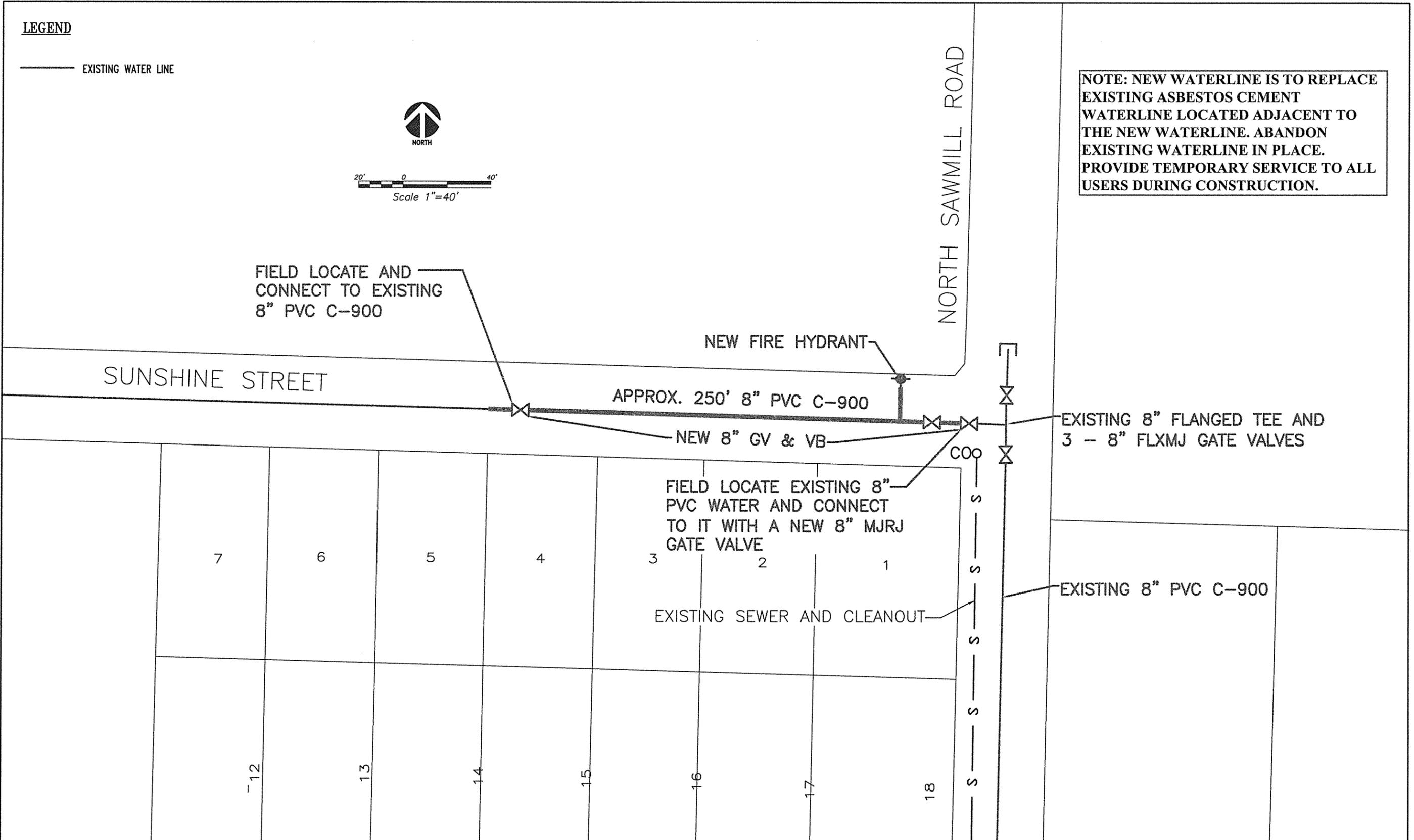
DRAWING
C-1
 SHEET No.
 4 of 6

LEGEND

— EXISTING WATER LINE



NOTE: NEW WATERLINE IS TO REPLACE EXISTING ASBESTOS CEMENT WATERLINE LOCATED ADJACENT TO THE NEW WATERLINE. ABANDON EXISTING WATERLINE IN PLACE. PROVIDE TEMPORARY SERVICE TO ALL USERS DURING CONSTRUCTION.



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REV	DATE	BY	DESCRIPTION

SCALE GRAPHIC
 DESIGNED JLD
 DRAWN GDM
 CHECKED JLD
 DATE JULY 2012

CITY AND BOROUGH OF HAINES
 SUNSHINE STREET AND
 PIEDAD ROAD
 2012 WATER SYSTEM UPGRADE

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SUNSHINE STREET WATER

DRAWING
C-2
 SHEET No.
 5 of 6

LEGEND

— EXISTING WATER LINE

TL-2806

TL-2807

NOTE: NEW WATERLINE IS TO REPLACE EXISTING ASBESTOS CEMENT WATERLINE LOCATED ADJACENT TO THE NEW WATERLINE. ABANDON EXISTING WATERLINE IN PLACE. PROVIDE TEMPORARY SERVICE TO ALL USERS DURING CONSTRUCTION.

PIEDAD WATER TREATMENT PLANT BUILDING

10

NEW 8"x4" MJRJ REDUCER

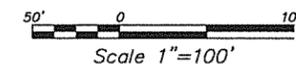
NEW 8" MJRJ GV

INSTALL APPROX. 310 LF 8" PVC C-900 WATER LINE AND CONNECT TO EXISTING 4" DIP WITHIN 5' OF PIEDAD WATER TREATMENT BUILDING

PIEDAD ROAD

ANWAY ROAD

NEW 8" MJRJ GV & VB. FIELD LOCATE AND CONNECT TO EXISTING 8" PVC C-900 WATER



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REV	DATE	BY	DESCRIPTION

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CITY AND BOROUGH OF HAINES
 SUNSHINE STREET AND
 PIEDAD ROAD
 2012 WATER SYSTEM UPGRADE

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PIEDAD STREET WATER

DRAWING
C-3
 SHEET No.
 6 of 6