

City and Borough of Juneau
Engineering Departments
155 South Seward Street
Juneau, Alaska 99801
Telephone: 586-0873 FAX: 463-2606

ERRATA SHEET No. 5

THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of the STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS AND SUBDIVISION IMPROVEMENTS

ERRATA DATE: April 2005

The following items of the Specifications are modified as herein indicated. All other items remain the same. Please make the following corrections to your copy of the above mentioned Specifications.

Item No.	Section No.	Article	Correction
1	02601	2.4	<i>Delete</i> in its entirety and <i>replace</i> with the following:
		2.4	LUBRICANT
		A.	The lubricant shall be suitable, and acceptable by the manufacturer and the CBJ Water Utility for lubricating the parts of the joint for assembly. The lubricant shall be non-toxic, "industrial food grade", shall not support the growth of bacteria, and shall have no deteriorating effects on the gasket material. It shall not impart taste or odor to the water in a pipe that has been flushed in accordance with AWWA C601, "Standard for Disinfecting Water Mains". The lubricant containers shall be labeled with the trade name or trademark and the pipe manufacturer's name where applicable."
2	02601	2.5	<i>Delete</i> in its entirety and <i>replace</i> with the following:
		2.5	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 and coated with bituminous coating.
3	02601	2.6	<i>Delete</i> in its entirety and <i>replace</i> with the following:
		2.6	UNDERGROUND MARKING TAPE
		A.	Underground marking tape shall be blue, six inch wide, four mil thick, polyethylene tape with black lettering with the following wording: "Caution: Waterline Buried Below." Marking tape shall be installed 12 inches above the top of all water pipe.

Item No. Section No. Article Correction

4 02601 2.7 *Delete* in its entirety and *replace* with the following:

2.7 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 Drawings, the number and size of the rods shall be as shown on 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

5 02601 2.8 *Delete* in its entirety and *replace* with the following:

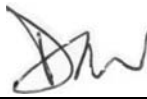
2.8 CONCRETE

A. Concrete for thrust blocks shall conform to Section 03302 –Concrete Structures.

6 02601 2.9 *Add* the following paragraph:

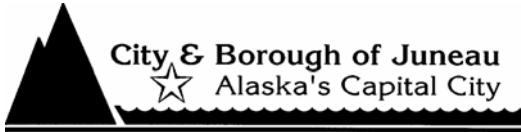
2.9 TEMPORARY WATER SYSTEM

A. All piping, including hoses used for water service, shall be NSF rated.

By:  _____
 Rosemary Matt, P.E.
 City Engineer

Date: April 7, 2005

Total number of pages contained in Errata Sheet: 2



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ERRATA SHEET No. 6

**THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of the
 STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS
 AND SUBDIVISION IMPROVEMENTS**

ERRATA DATE: August, 2005

The following items of the Specifications are modified as herein indicated. All other items remain the same. Please make the following corrections to your copy of the above mentioned Specifications.

Item No.	Section No.	Article	Paragraph	Correction
1	02204	2.1	B.	<i>Delete</i> the <u>BASE COURSE GRADATIONS</u> table in its entirety and <i>replace</i> with the following:

BASE COURSE GRADATIONS								
(Percent passing by weight)								
Sieve Design.	A	B	C	C-1	D	D-1	E	E-1
4	100							
2	85-100	100						
1-1/2				100				
1			100	70-100	100	100		
3/4				60-90	100	70-100	100	
3/8				45-75		50-80		100
No. 4	30-70	30-70	40-75	30-60	45-80	35-50		45-80
No. 8				22-52		20-35		32-80
No. 10			25-55		30-65			
No. 40				8-30		8-20		
No. 200	0-10	3-10	4-10	0-6	4-12	0-6	0-6	0-6

By: R.A. Matt
 Rosemary Matt, P.E.
 City Engineer

Date: August 17, 2005



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ERRATA SHEET No. 7

**THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of the
 STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS
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ERRATA DATE: September 8, 2005

The following items of the Specifications are modified as herein indicated. All other items remain the same. Please make the following corrections to your copy of the above mentioned Specifications.

Item No.	Section No.	Article	Paragraph	Correction
1	02602	2.1	A.	Second sentence. Delete "American Flow Ductile, Clow," and replace with "American AVK Company,"
2	02603	2.1	A.2.	Delete in its entirety and replace with "American AVK Series 27, or"
3	02604	2.4	C.	Delete "iron" and replace with "stainless steel. Delete "Rockwell 313" and replace with "Romac 202N,"
4	02605	2.1	A. - Table	Delete the Service Saddle Table in its entirety and replace with the following Table.

PIPE SIZE	SERVICE SIZE	SERVICE SADDLE
6" and 8"	1"	Single Strap, Stainless Steel, I.P. Thread Romac 101N or approved equal
6" and 8"	1½" and 2"	Double Strap, Stainless Steel, I.P. Thread Romac 202N or approved equal
10" thru 18"	¾" thru 2"	Double Strap, Stainless Steel, I.P. Thread Romac 202N or approved equal

By: Rosemary Matt
 Rosemary Matt, P.E.
 City Engineer

Date: September 9, 2005

Total number of pages contained in Errata Sheet: 1



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ERRATA SHEET No. 9

**THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of the
STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS
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ERRATA DATE: January 9, 2007

The following items of the Specifications are modified as herein indicated. All other items remain the same. Please make the following corrections to your copy of the above mentioned Specifications.


Item No. Section No. Article Paragraph Correction

1 02204 2.1 A. *Add* the following:

1. Base course shall be sampled according to "WAQTC FOP for AASHTO T2 – Sampling Aggregates" as described in the *Alaska Test Methods Manual*, published by the Alaska Department of Transportation and Public Facilities.
2. Coarse aggregate (that material retained on the No. 4 sieve) shall be crushed stone and shall consist of sound, tough, durable rock of uniform quality. Rock shall be free of schist that cleaves along preferred foliation planes. Rock shall be free of platy mineral grains. Metamorphosed rock shall be free of slaty cleavage. All material shall be free from clay balls, vegetable matter or other deleterious matters. Coarse aggregate shall not be coated with dirt or other finely divided mineral matter. All aggregates shall be free of roots and wood. In addition, coarse aggregate shall meet the following requirements:

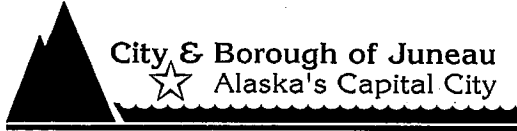
Nordic Abrasion Value	ATM 312	18.0 max
Percent of Wear	AASHTO T 96	25 max
Degradation Value	ATM 313	30 min
Percent Sodium Sulfate Loss	AASHTO T 104	10 max
Percent Fracture	AASHTO TP 61	70 min

3. Aggregate shall not exceed eight (8) percent thin - elongated pieces as determined by ATM 306.
4. Fine Aggregate: Fine aggregate (passing the No. 4 sieve) shall meet the quality requirements of AASHTO M 29.

By: 
Rorie Watt, P.E.
Deputy Engineering Director

Date: January 9, 2007

Total number of pages contained in Errata Sheet: 1



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ERRATA SHEET No. 10

**THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of the
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ERRATA DATE: February 27, 2007

The following items of the Specifications are modified as herein indicated. All other items remain the same. Please make the following corrections to your copy of the above mentioned Specifications.

Item No.	Section No.	Article	Paragraph	Correction
1	02090	3.11	B.	First Sentence. <i>Change</i> 90 decibels (dB) <i>to</i> 130 decibels (dB).
2	02090	3.11	C.	Second Sentence. <i>Change</i> 90 decibels (dB) <i>to</i> 130 decibels (dB).

By: _____

Rorie Watt
Engineering Deputy Director

Date: 2/27/07

Total number of pages contained in Errata Sheet: 1



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ERRATA SHEET No. 11


**THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of the
STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS
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ERRATA DATE: June 22, 2007

The following items of the Specifications are modified as herein indicated. All other items remain the same. Please make the following corrections to your copy of the above mentioned Specifications.

Item No.	Section No.	Article	Paragraph	Correction
1	02204	2.1	A.	DELETE the table in sub paragraph 2 of Errata Sheet No. 9 and REPLACE with the following table:

Property	Value	Test Method
L.A. Wear, %	25 max.	AASHTO T 96
Degradation Value	45 min.	ATM 313
Fracture, %	70 min.	WAQTC FOP for AASHTO TP 61
Sodium Sulfate Loss, %	9 max.	AASHTO T 104

By:  _____

Rorie Watt
Engineering Deputy Director

Date: 6/22/07

Total number of pages contained in Errata Sheet: 1



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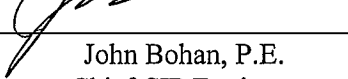
ERRATA SHEET No. 12

**THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of the
STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS
AND SUBDIVISION IMPROVEMENTS**

ERRATA DATE: October 17, 2007

The following items of the Specifications are modified as herein indicated. All other items remain the same. Please make the following corrections to your copy of the above mentioned Specifications.

Item No.	Section No.	Article	Paragraph	Correction
1	02601	3.5	B.	<i>Delete</i> in its entirety and <i>replace</i> with the following: B. Pressure Testing 1. The hydrostatic pressure for main line pipe shall be a minimum of 150 psi or 1 ½ times the operating pressure of the water pipe (measured at the highest elevation of the newly-installed water pipe), whichever is greater, unless otherwise directed by the ENGINEER. 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 on main line pipe 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, or pressure drop is less than five psi, that section of water pipe is acceptable. 2. The hydrostatic pressure for fire line testing shall be a minimum of 200 psi for two (2) hours as defined by National Fire Protection Association (NFPA) 24. Acceptance pressure testing shall be done with all service lines installed, corporation stops open, and pressure against the closed curb stops. Pumping will cease after the required test pressure has been reached. If the pressure remains constant for one hour without additional pumping, or pressure drop is less than five psi, that section of water pipe is acceptable.
2	02603	2.1	A.1.	<i>Delete</i> in subparagraph 1 its entirety and <i>replace</i> with the following: 1. Mueller Centurian 200 or 250, with Integral Storz Pumper Connection or approved equal.

By: 
John Bohan, P.E.
Chief CIP Engineer

Date: 10/17/07



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ERRATUM No. 13

**THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of
the**

**STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS
AND SUBDIVISION IMPROVEMENTS**

ERRATA DATE: October 3, 2013

The following items of the Specifications are modified as herein indicated. All other items remain the same. Please make the following corrections to your copy of the above mentioned Specifications.

Add the following Section:

SECTION 01570 – EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A. The CONTRACTOR shall provide for erosion control during construction in accordance with the requirements of the Alaska Department of Environmental Conservation (ADEC). All discharge of pollutants and sedimentation from on-site drainage shall be caught on-site.
- B. Erosion Control includes preparation and maintenance of a Storm Water Pollution Prevention Plan (SWPPP), control of erosion, sedimentation and discharge of pollutants, in accordance with the ADEC Construction General Permit (CGP).
- C. The WORK under this section includes providing all labor, materials, tools and equipment necessary to construct and maintain temporary erosion control works; including but not limited to, wattles, silt fences, silt containment booms, settling ponds, check dams, ditches, etc.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials shall be suitable for the intended use and perform effectively to control silt and surface erosion. All materials shall remain the property of the CONTRACTOR.

PART 3 - EXECUTION

3.1 GENERAL

- A. The CONTRACTOR is responsible to prepare, submit and maintain a SWPPP, as required by the CGP, that is in accordance with their construction methodologies and sequences.
- 1) For projects disturbing greater than 1 Acre, this requirement shall include submission of a Notice of Intent (NOI) to ADEC prior to beginning of WORK. Copies of the NOI and SWPPP shall also be submitted to the ENGINEER within 5 days of submittal to ADEC.
 - 2) For projects disturbing less than 1 acre, the SWPPP shall be submitted to the ENGINEER prior to the beginning of WORK; submittal to ADEC or an NOI are not required.
- B. WORK at the Project site will not be permitted until the above documents are submitted to the ENGINEER and acceptance of this plan has been obtained from the governing agency or agencies (if required by the CGP).
- C. The CONTRACTOR shall install temporary erosion control structures and devices as required by their SWPPP, prepared in accordance with the ADEC CGP. They shall be maintained in effective operating condition at all times. Prior to completion of work, the CONTRACTOR shall clean and remove all silt and debris from the settling pond and check dams.
- D. Temporary erosion control structures shall remain in place until the project is completed and replaced by permanent erosion control WORK, protected by final stabilization or until the ENGINEER approves their removal.
- E. The CONTRACTOR shall be responsible for meeting the requirements of all permits (including permits naming the OWNER, or other parties); therefore, shall be responsible for the quality of the run-off water from the Project site and for any fines and/or penalties resulting from the construction operation.
- F. The CONTRACTOR shall submit NOT (Notice of Termination) at completion of the WORK and removal of all SWPPP items.

END OF SECTION

SECTION 01700 – PROJECT CLOSE-OUT, PART 1 - GENERAL, Article 1.3, FINAL SUBMITTALS, Paragraph A. *Delete* Items 6, 7 and 8 and *replace with the following subparagraph:*

1. Compliance Certificate and Release, signed by the CONTRACTOR, shall be submitted to the Engineering Contract Administrator.

SECTION 01700 – PROJECT CLOSE-OUT, PART 1 – GENERAL, Article 1.3, FINAL SUBMITTALS. *Add the following paragraph:*

- C. Before final payment, the CONTRACTOR shall provide the Engineering Contract Administrator with clearance from the Alaska Department of Labor and Workforce Development for the CONTRACTOR and all Subcontractors that have worked on the Project. This clearance shall indicate that all Employment Security Taxes have been paid. A sample form for this purpose is at the end of Section 00800 – Supplementary General Conditions.

SECTION 01700 – PROJECT CLOSE-OUT, PART 1 – GENERAL. *Replace the COMPLIANCE CERTIFICATE AND RELEASE FORM with the form on the following page:*

COMPLIANCE CERTIFICATE AND RELEASE FORM

PROJECT: _____
CONTRACT NO: E_____

The CONTRACTOR must complete and submit this to the Engineering Contracts Administrator with respect to the entire contract.

Completed forms may be submitted upon completion of the Project. All requirements and submittals must be met before final payment will be made to the CONTRACTOR.

I certify that the following and any referenced attachments are true:

- All WORK has been performed, materials supplied, and requirements met in accordance with the applicable Drawings, Specifications, and Contract Documents.
- All Suppliers and Subcontractors have been paid in full with no claims for labor, materials or other services outstanding. If all Subcontractors and suppliers are not paid in full, please explain on a separate sheet.
- All employees have been paid not less than the current prevailing wage rates set by the State of Alaska (or U.S. Department of Labor, as applicable).
- All equal employment opportunity, certified payroll and other reports have been filed in accordance with the prime contract.
- The attached list of Subcontractors is complete (required from CONTRACTOR). The Contracts Administrator was advised and approved of all Subcontractors before WORK was performed and has approved any substitutions of Subcontractors.
- All DBE firms listed as a precondition of the prime contract award must have performed a commercially useful function in order for the WORK to count to a DBE goal. All DBE firms performed the WORK stated and have received at least the amount claimed for credit in the Contract Documents.
- All DBE Subcontractors must attach a signed statement of the payment amount received, the nature of WORK performed, whether any balance is outstanding, and indicate that no rebates are involved.
- If the amount paid is less than the amount originally claimed for DBE credit, the CONTRACTOR has attached approval from the Contracts Administrator for underutilization.

I understand it is unlawful to misrepresent information in order to receive a payment which would otherwise be withheld if these conditions were not met. I am an authorized agent of this firm and sign this freely and voluntarily. The foregoing statements are true and apply to the following project contractor.

Firm Name Capacity: CONTRACTOR

Signed Printed Name and Title Date

Return completed form to: Engineering Contracts Administrator, City and Borough of Juneau, 155 South Seward Street, Juneau, AK 99801. Call (907) 586-0873 if we can be of further assistance or if you have any questions.

END OF SECTION

Add the following Section:

SECTION 01704 – FINAL CLEAN-UP AND SITE RESTORATION

PART 1 - GENERAL

1.1 DESCRIPTION

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

PART 3 - EXECUTION

3.1 CONSTRUCTION

- A. The CONTRACTOR shall clean up all sites disturbed during construction of the Project. This includes removal of all construction equipment, disposal of all excess materials, disposal of all rubbish and debris, removal of all temporary structures, and grading of the sites so that no standing water is evident.
- B. If the CONTRACTOR has obtained material from the CBJ/State pit, the excavated area shall be cleaned up and any stipulations required by the Individual Mining Plan shall be completed. The gravel pit overhead charge shall be paid to CBJ within 60 days after receiving the invoice from CBJ.

END OF SECTION

SECTION 02202 – EXCAVATION AND EMBANKMENT, PART 2 – PRODUCTS, *delete*
*Article 2.7 SHOT ROCK BORROW and **replace with** the following:*

2.7 SHOT ROCK BORROW

- A. Shot Rock Borrow shall consist of 10-inch minus shot rock and shall contain no mulch, frozen material, roots, sod or other deleterious matter. The shot rock borrow shall be evenly graded, with at least 10% by weight retained on the 8-inch screen. Shot rock will be obtained from quarry rock, unless otherwise approved by the ENGINEER.

- B. Shot Rock Borrow shall have a plasticity index not greater than 6, as determined by AASHTO T90. It shall consist of not more than 6% by weight of particles that pass the No. 200 sieve as determined by ATM T-7. The percent of minus No. 200 material will be determined on minus 3-inch material.
- C. At least 50% by weight of the particles retained on the 3/8-inch sieve shall have at least two fractured faces as determined by ATM T-4.
- D. Elongation Specification:
The length of the crushed stone backfill shall not be more than twice the designated screen dimensions.
- E. Sodium Sulfate Loss:
Aggregate shall pass the percent sodium sulfate loss per AASHTO T 104 with 9% maximum.
- F. LA Abrasion:
Percent of wear per AASHTO T 96 shall be 45% maximum.
- G. Shot Rock Borrow for this project shall have a maximum Nordic Abrasion value of 22. Test procedure for Nordic Abrasion is Alaska Test Method 312. This is available at the CBJ Engineering Department and State of Alaska Department of Transportation and Public Facilities Southeast Region Materials Laboratory.

2.8 2-INCH MINUS SHOT ROCK

- A. 2-Inch Minus Shot Rock shall contain no mulch, frozen material, roots sod or other deleterious matter, and shall be obtained from a rock quarry, unless approved otherwise by the ENGINEER.
- B. The shot rock shall have a plasticity index not greater than 6, as determined by AASHTO T 90. It shall consist of not more than 3% by weight of particles that pass the No. 200 sieve, as determined by ATM T-7.
- C. At least 50% by weight of the particles retained on the 3/8-inch sieve shall have at least two fractured faces as determined by ATM T-4.
- D. At least 70% by weight of particles shall be retained on the 1-inch sieve and 100% shall pass the 2-inch sieve.
- E. Elongation Specifications:
The length of the crushed stone backfill shall not be more than twice the designated screen dimensions.
- F. Sodium Sulfate Loss:
Aggregate shall pass the percent sodium sulfate loss per AASHTO T 104 with 9% maximum.
- G. LA Abrasion:
Percent of wear per AASHTO T 96 shall be 45% maximum.

- H. 2-Inch Minus Shot Rock for this Project shall have a maximum Nordic Abrasion value of 22. Test procedure for Nordic Abrasion is Alaska Test Method 312. This is available at the CBJ Engineering Department and State of Alaska Department of Transportation and Public Facilities Southeast Region Materials Laboratory.

SECTION 02202 – EXCAVATION AND EMBANKMENT, PART 3 - EXECUTION, Article 3.4, EMBANKMENTS CONSTRUCTED FROM ROCK FRAGMENTS, *add the following paragraphs:*

- C. Shot Rock Borrow may be placed within the embankment in a single lift of 18-inches maximum.
- D. All rock embankment surfaces shall be rolled full width with as many passes of a vibratory roller as required to obtain a solid mass of interlocking rock fragments, prior to placement of subsequent layers of material.
- E. The surface of the shot rock borrow shall be sealed with fines from the shot rock materials, or shall have imported clean sand or other non-frost susceptible material used to seal the surface, as approved by the ENGINEER, before placement of the 2-inch minus shot rock base course. This work shall be considered incidental to other WORK under the contract.

SECTION 02202 – EXCAVATION AND EMBANKMENT, PART 3 - EXECUTION, *add the following Articles:*

3.6 SIDESLOPES AND DITCH GRADING

- A. Sideslopes and Ditch Grading shall include all excavation, backfill, embankment construction, compaction, grading, and other work necessary to construct drainage swales, ditches, berms, and roadway sideslopes outside the edge of roadway, or outside other areas to be covered by asphalt pavement or concrete, as shown on the Drawings, in these Specifications, or as directed by the ENGINEER.
 - 1. All areas beyond the roadway and 2-foot shoulders that are disturbed during construction shall be graded to a smooth, uniform grade and appearance, free of humps or low areas that cause standing water in excess of 1-inch in depth.
 - 2. Sideslopes and Ditch Grading, which will include all grading of areas beyond the back of the 2-foot roadway shoulder and shall extend to the limits shown on the Drawings, or to the limits necessary to restore the driveways and disturbed areas to preconstruction conditions or better as shown on the Drawings or as directed by the ENGINEER.

3.7 2-INCH MINUS SHOT ROCK w/BASE COURSE

- A. The full depth of 2-inch minus shot rock shall be graded to a uniform surface and compacted with a vibratory roller prior to placing base course, Grading D-1. No base course, Grading D-1 shall be placed until the 2-inch minus shot rock layer has been approved by the ENGINEER.

3.8 INDIVIDUAL MINING PLAN

- A. If the CONTRACTOR decides to use material from the CBJ/State Lemon Creek Borrow Pit or Stablers Point Rock Quarry, the CONTRACTOR shall provide an Individual Mining Plan that conforms to the requirements of Section 00700 - General Conditions, Article 4.6.
- B. The Individual Mining Plan shall be developed using the survey information provided by the OWNER, or the CONTRACTOR may provide an independent survey with 2-foot contours of the Pit and Quarry property. The survey shall provide sufficient survey information to calculate quantities, show drainage features and property boundaries. If the CONTRACTOR uses the OWNER furnished survey information, the Individual Mining Plan shall be done in AutoCAD format.

SECTION 02401 – SANITARY SEWER PIPE, PART 2 - PRODUCTS, *add the following Article:*

2.9 PIPE CONNECTORS

- A. “Mission Flex Seal” connectors will not be acceptable for use on this project.

SECTION 02402 – SANITARY SEWER MANHOLES AND CLEANOUTS, PART 2 - PRODUCTS, Article 2.3, MISCELLANEOUS, *delete Paragraph F and add the following:*

- F. Manhole exterior joint waterproofing shall be a Miradri system as manufactured by Carlisle CCW, including Carlisle – CCW 704 primer, CCW Miradri 861 Membrane, and CCW 704 mastic, or approved equal that includes a membrane and adhesive system for positive water exclusion. The membrane shall extend at least 18-inches each side of manhole joints, except this width may be reduced to 9-inches each side of manhole joints if the joint is less than 4-feet below finish grade and the joint is above the maximum water table.
- G. Delete the requirement for the flexible annular space filler, as shown on CBJ Standard Detail 209 – Manhole Connection Details, for the Flexible Seal Adapter.
- H. Manhole Grade Ring Adjustment Units:
 - 1. Manhole grade adjustment units shall be Recycled Adjustment Risers, “Infra-RISER,” as manufactured by GNR Technologies, or approved equal.

2. The adjustment riser shall consist of no less than 80% by weight recycled rubber from tires, and no less than 10% by volume shredder fiber. The riser shall meet or exceed the following when tested on units not less than 24 hours old, and not more than 60 days old, and maintained at 23±2°C (73±3°F) for at least 12 hours prior to and during testing.

<u>Physical Property</u>	<u>Test Method</u>	<u>Acceptable Results</u>
Density	ASTM C642-90	1.098±0.05g/cm ³
Durometer hardness - molded surface	GNR method based on ASTM D 2240	75A±5 points
Durometer Hardness - interior surface	GNR method based on ASTM D 2240	73A± 5 points
Tensile Strength	ASTM 412-87	1.6 MPa (232 pai) (not < 1 Mpa)
Compression Deformation - initial deformation	GNR method based on ASTM D 575	under 1 MPa (145 psi) 6±2%
Compression Deformation - final deformation	GNR method based or ASTM D 575	under 1 MPa (145 psi) 6±2%
Compression Set	GNR method based On ASTM 395	under 1 MPa (145 psi) 0.4% (=4% max.)
Brittleness at low temperature	ASTM D 746-79	-40° F (-40°C)
Freeze/Thaw when exposed to deicing chemicals	ASTM 672-91	no loss after 50 cycles
Coefficient of thermal Expansion	ASTM C 531-85	1.6 X 10 ⁴ mm/mm/°C (8 X 10 ⁵ in/in/°F)
Weathering 70 hr. @ 70°C - hardness retained - compressive strength retained - tensile strength retained - elongation retained	ASTM D 573-88	100% 100% 100% 100%

3. Each adjustment riser shall be clearly marked on the inside surface with the manufacturer's name and location of the manufacturer.
4. The manufacturing process shall be such that individual units will be consistent in quality and appearance. All rough edges shall be trimmed prior to shipping.
5. The thickness of the adjustment riser shall be within 3 mm of the manufacturer's stated dimensions. All other dimensions shall be within 5 mm.

6. Except for shim or wedge units, the deviation from the plane parallel to the theoretical surface shall not be greater than 1 in 500.

SECTION 02402 – SANITARY SEWER MANHOLES AND CLEANOUTS, PART 3 - EXECUTION, Article 3.1 CONSTRUCTION, *delete paragraphs M through R and replace with the following paragraphs M – O:*

- M. Manhole Grade Ring Adjustment Units are required for each new sanitary sewer manhole, reconstructed sanitary sewer manhole, and adjustment of existing manhole to grade.
1. Each manhole shall contain at least one recycled rubber riser, with thickness varying to match frame and cover to finish grade requirements, to form the final surface for installation of the frame.
 2. The total height of the rubber adjustment riser shall be a minimum of 1” and a maximum of 3”.
 3. Concrete and steel surfaces to receive sealing compound shall be clean, dry and free of grease or oils.
 4. Adjustment risers shall be bonded to adjacent surfaces by laying a continuous bead, 5/16” thick cold applied joint sealant compound conforming to ASTM-D 1850 (PL Premium POLYURETHANE Door, Window & Siding Sealant *or* PL Premium POLYURETHANE Concrete & Masonry Sealant, formerly Chemrex CX-22) or equivalent, on the top surface of the concrete course, or the bottom surface of the riser, on a diameter 1” smaller than the outside diameter of the rubber adjustment riser.
 5. The adjustment riser shall then be seated firmly in place, ensuring it is centered over the opening. Apply a second continuous strip of sealant to the top surface of adjustment riser, 0.5” from the outside diameter of the rubber adjustment riser or manhole frame.
 6. The adjustment riser must form the final surface for the seating of the frame and cover assembly. Concrete adjustment units must not form the final surface for seating the frame.
 7. If more than one adjustment riser is required, a continuous bead of sealant shall be applied between each unit in the same manner as in paragraph 4 above. A continuous bead of sealant shall also be placed on the top surface of the concrete course or on the bottom surface of the bottom riser and to the top surface of the top adjustment riser.
 8. The frame shall then be set firmly in place ensuring that it is properly centered over the structure opening and is firmly contacting the rubber riser through the sealant.
 9. Adjustment risers shall have an inside diameter that is within 2” of the inside diameter of the concrete structure, and equal to the outside diameter of the concrete structure ± 2 ”.
- N. Manhole frames and covers shall be set to final grade prior to final paving operations, with the compacted pavement to provide a depression to the top of manhole frame within the allowable limits of 3/8-inch minimum to 3/4-inch maximum, as determined by using an 8-foot long straight edge across the frame in all directions.

1. The frame can be set to final position prior to the laydown machine passing over the structure, or immediately following the laydown machine passing over the structure.
 2. The intended purpose of these requirements is that the asphalt pavement is compacted to grade around the frame and cover with no cut out of compacted pavement allowed.
 3. If the depression of the frame and cover below finish pavement is found to be out of allowable tolerances after the pavement has cooled to the point that sawcutting and removal of the pavement is necessary, the following corrective action will be required:
 - a. A square cut-out of the pavement shall be made to a minimum of 6-inches and maximum of 8-inches outside the edge of frame flange, with this cut-out oriented with the sides at 45° to traffic.
 - b. A concrete transition slab shall be constructed as shown in the detail on the Drawings. This slab shall be allowed to cure for a minimum of 48 hours before placing the hot asphalt mix over the transition slab.
 - c. This WORK shall be completed prior to the street fog sealing operation.
- O. Manhole riser rings shall be sealed to the top of manhole cone or flattop and to each other with one run of “RAM-NEK” or “RUB-R-NEK” around the inside edge and one run around the outside edge of the riser ring. The units shall be heated and compressed to at least 50% of original thickness of the “RAM-NEK” or “RUB-R-NEK.” No grout shall be used to seal the riser rings.

SECTION 02501 – STORM SEWER PIPE, PART 2 - PRODUCTS, *add the following Article:*

2.9 UNDERGROUND MARKING TAPE

- A. Underground Marking Tape shall be yellow, at least 4-inches wide, 4-mil thick, polyethylene tape with a metallic backing capable of being traced with locators. The tape shall have black letters with the following wording: “Caution: Storm Sewer Line Buried Below,” or similar. The marking tape shall be installed 12-inches above the top of all storm sewer mains and services.

SECTION 02502 – STORM SEWER MANHOLES, INLETS AND CATCH BASINS, PART 3 - EXECUTION, Article 3.1, CONSTRUCTION, *delete paragraph C and replace with the following paragraph C:*

- C. Metal frames shall be set over the cast-in-place concrete support structure with a maximum ¼-inch thick mortar bed.

SECTION 02602 – VALVES, PART 2 – MATERIALS, Article 2.3, VALVE BOXES, Paragraph A, *delete the last sentence and replace with the following:*

The valve box base section shall be an East Jordan Iron Works 8555 30-B or 36-B slide valve box bottom section, or approved equal. The valve box top section shall be an East Jordan Iron Works 8555 Slide 26T, 16T or 10T valve box top or approved equal.

SECTION 02603 – FIRE HYDRANTS, PART 2 – PRODUCTS, Article 2.1, FIRE HYDRANTS, paragraph F. *Delete the first sentence and replace with the following:*

Fire hydrants shall be three-way and furnished with two 2 ½ inch hose nozzles and one 5-inch pumper nozzle. The pumper nozzle shall be one-piece design, compatible with 5-inch Storz hose coupling. The nozzle shall be an integral part of the fire hydrant assembly, resistant to tamper or removal by persons not familiar with the art of fire hydrant construction. Add-on Storz compatible adapters shall not be acceptable.

SECTION 02605 – WATER SERVICES, PART 2 – PRODUCTS, Article 2.1, WATER SERVICES, *delete paragraph C and replace with the following paragraph C:*

- C. Water service pipe and materials shall be cold drawn, seamless annealed Type K Copper. Fittings for water pipe less than 2-inches in diameter shall be flared bronze fittings. Fittings for 2-inch pipe shall be bronze grip-lock compression fittings.

SECTION 02605 – WATER SERVICES, PART 3 – EXECUTION, Article 3.1, CONSTRUCTION, *Add the following paragraphs:*

- E. Thaw wires shall be placed over a 6-inch minimum layer of backfill so the thaw wire does not come in contact with copper tubing. When two or more services are placed in the same trench, thaw wires shall have a minimum 6-inch clearance between adjacent thaw wires.
- F. Thaw wires shall be run into the service box near the top of box through a drilled hole large enough for the thaw wire. No cutting or notching of the service box will be permitted.

Add the following Section:

SECTION 02607 – PIPE INSULATION

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 pipe insulation for water pipe and service pipe at locations shown on the Drawings and as directed by the ENGINEER.

PART 2 - PRODUCTS

2.1 RIGID INSULATION

- A. Rigid insulation shall be rigid board closed cell polystyrofoam material containing a flame retardant additive specifically designed for underground pipe or pavement installations, equivalent to Dow Chemical Company Styrofoam HI, and approved by the ENGINEER.

2.2 SPRAYED-ON INSULATION

- A. Sprayed-on urethane foam insulation applied directly to the pipe exterior with an elastomeric coating, may be approved by the ENGINEER, provided the material has demonstrated a satisfactory performance history in underground installation and has the following physical properties:

Density	2 pcf, Minimum
Compressive Strength (ASTM D 1621)	35 psi, Minimum at 5% Deflective or Yield
Water Absorption (ASTM C 177)	0.25% by Vol. Maximum
Thermal Conductivity (ASTM C 177)	<u>Max. 0.23 BTU</u> Hr. Ft. ² EF. In. Thickness

PART 3 - EXECUTION

3.1 CONSTRUCTION

- A. When water pipes or service pipes have less than 5-feet of cover to finished grade or vertical clearance at a culvert crossing, either above or below, they shall be insulated as shown on CBJ Engineering Standard Detail 412 – Rigid Insulation, or as directed by the ENGINEER.
- B. Rigid insulation shall be a minimum of 2-feet wide and 2-inches thick. The length of insulation required shall be as shown on the Drawings or as directed by the ENGINEER. Insulation shall be placed between 1 and 12-inches from the water pipe or service pipe with the width centered on the longitudinal axis of the water pipe or service pipe as shown on CBJ Engineering Standard Detail 412 – Rigid Insulation, or as directed by the ENGINEER.
- C. Sprayed-on urethane foam insulation shall be a minimum of 4-inches thick and be installed in strict conformance to the manufacturer's recommendations. Precautions to protect CONTRACTOR personnel, Project inspectors, and the public in general shall be taken by the CONTRACTOR in compliance with OSHA Standards and the manufacturer's recommendations.

END OF SECTION

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 3 - EXECUTION, Article 3.8, SPREADING AND PLACING, *delete paragraph H and replace with the following:*

- H. Manholes, cleanouts and water valve boxes shall be raised to grade prior to paving the final lift. The structures shall have no less than 3/8" and no greater than 3/4" depression from adjacent asphalt to top of the lid. Structures not meeting tolerances will be repaired as per CBJ Standard Detail 126 – CONCRETE COLLAR.

SECTION 02801 – ASPHALT CONCRETE PAVEMENT, PART 3 - EXECUTION, Article 3.10, JOINTS, *add the following paragraph:*

- J. All joints with existing asphalt pavement shall be resealed with asphalt cement after the new pavement has cooled to ambient temperature. All joints with concrete gutters found to have a gap shall be blown out using a weed burner torch, filled with asphalt cement and covered with a layer of dry sand. Excess sand shall be removed and asphalt cement placed on the concrete gutter more than one-inch from the edge of gutter shall be removed using solvent or other approved methods.

SECTION 02803 - FOG SEAL COAT, PART 2 - PRODUCTS, Article 2.1, MATERIALS, *revise paragraph C to read as follows:*

- C. The blotter material shall be suitable, dry, clean sand.

By: _____



John Bohan, P.E.
Chief CIP Engineer

Total number of pages contained in Errata Sheet: 14



City and Borough of Juneau
Engineering Department
155 South Seward Street
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ERRATUM No. 14

**THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of
the**

**STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS
AND SUBDIVISION IMPROVEMENTS**

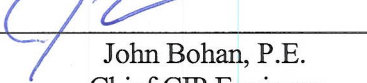
ERRATA DATE: October 10, 2013

The following item of the Specifications is modified as herein indicated. All other items remain the same. Please make the following correction to your copy of the above mentioned Specifications.

SECTION 02401 – SANITARY SEWER PIPE, PART 2 – PRODUCTS, *delete* the following Article that was added by Erratum No. 13.

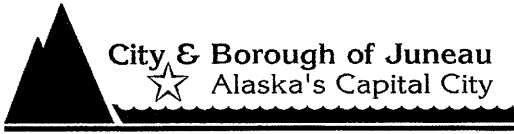
2.9 PIPE CONNECTORS

- A. “Mission Flex Seal” connectors will not be acceptable for use on this project.

By: 

John Bohan, P.E.
Chief CIP Engineer

Total number of pages contained in Erratum: 1



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Juneau, Alaska 99801
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ERRATUM SHEET No.15

**THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of the
STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS
AND SUBDIVISION IMPROVEMENTS**

ERRATUM DATE: May 18, 2017

The following items of the Specifications are modified as herein indicated. All other items remain the same. Please make the following corrections to your copy of the above mentioned Specifications.

Item No. Section No. Article Paragraph Correction

- | | | | | |
|----|-------|------|--|--|
| 1. | 02602 | 3.2. | | <i>Add</i> the following: |
| | | C. | | Tracer wires shall be run into the valve box within 6 inches of the top of the box through a drilled hole large enough for the thaw wire. No cutting or notching of the service box will be permitted. A minimum of 5 feet of extra tracer wire shall be neatly coiled inside the top of the valve box. |
| | | D. | | Valve box top sections used as termination boxes for tracer wire only shall have a pressure treated 2x4 board installed to within 3" of the surface of the box. The tracer wire(s) shall be lightly fastened (so as to not damage the wire insulation) to the top of the 2x4 with an insulated wire staple. A minimum of 5 feet of extra tracer wire shall be neatly coiled in the top of the valve box. |

Item No. Section No. Article Paragraph Correction

- | | | | | |
|----|-------|-----|----|---|
| 2. | 02605 | 2.1 | C. | <i>Delete</i> in its entirety and <i>replace</i> with the following: |
| | | C. | | Service pipe and fittings shall be the following: |
| | | | 1. | Copper service pipe shall be Cold drawn, seamless annealed Type K Copper with flared bronze fittings or Quick Joint compression type fittings or approved equal. |
| | | | 2. | Polyethylene Plastic (Poly) pipe services shall be SIDR 7, 250 PSI HD PE4710, with ASTM D-2239 NSF Certification. Fittings shall be Quick Joint compression type PEP fittings with stainless steel stiffener insert or equal. Allowable Poly services sizes are only 1", 1-1/2" and 2" IPS. Service pipe larger than 2" shall be butt fusion HDPE as specified in Section 02601 – Water Pipe. |

Item No. Section No. Article Paragraph Correction

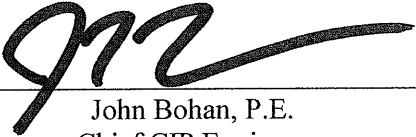
3. 02605 2.1 F. *Delete* in its entirety and *replace* with the following:
- F. Copper services shall utilize No. 2 stranded copper wire with THW Insulation or approved equal. Poly services shall have a No. 10 AWG high-strength copper clad steel with a 30-mil HDPE insulation jacket (color blue) tracer wire and have a 600-pound average tensile break load. Tracer wire is to be manufactured by Copperhead Industries or an approved equal. All splice connections are to be constructed using 3M DBR watertight connectors, or approved equal. DryConn Waterproof Direct Bury Lugs as manufactured by King Innovation, or approved equal, is to be used to splice into the main line tracer wire.

Item No. Section No. Article Paragraph Correction

4. 02605 2.1 H. *Add* the following:
- H. Service saddles for HDPE main line pipe shall be HDPE Fusion fittings and shall be heat fused to the mainline pipe.

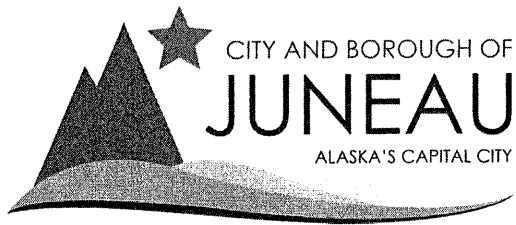
Item No. Section No. Article Paragraph Correction

5. 02605 3.1 *Add* the following:
- G. Tracer wires shall be firmly attached to Poly services with by duct tape or other approved method.
- H. Tracer wires shall be run into the service box near the top of the box through a drilled hole large enough for the thaw wire. No cutting or notching of the service box will be permitted.

By:  _____
 John Bohan, P.E.
 Chief CIP Engineer

Date: 5-18-17

Total number of pages contained in Errata Sheet: 2



City and Borough of Juneau
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ERRATUM No. 16

**THE CITY AND BOROUGH OF JUNEAU PUBLICATION DECEMBER 2003 of the
STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS
AND SUBDIVISION IMPROVEMENTS**

ERRATA DATE: November 21, 2017

The following items of the Specifications are modified as herein indicated. All other items remain the same. Please make the following corrections to your copy of the above mentioned Specifications.

SECTION 02601 – WATER PIPE, PART 2 – PRODUCTS, Article 2.1 – PIPE, *add the following paragraphs:*

- B. High Density Polyethylene Pipe (HDPE) and fittings are to be manufactured in accordance with AWWA C906 with the additional stipulation that the HDPE is to be manufactured from PE4710 polyethylene compounds that meet or exceed ASTM D3350 Cell Classification 445574. HDPE pipe and fitting material compound is to contain color and ultraviolet (UV) stabilizer meeting or exceeding the requirements of Code C per ASTM D3350. All fittings are to have pressure class ratings not less than the pressure class rating of the pipe to which they are joined.
1. All pipe 4" and greater shall be DR 11, 200 psi, pressure rating or greater.
 2. All pipe 4" and greater shall have standard iron pipe size (IPS) outside diameter.
 3. The individual who performs the joint fusion shall have written certification from an HDPE pipe manufacturer or supplier stating he/she has successfully completed a certification class on joint fusion techniques and procedures. In addition, this individual is to have fused a combined total of more than 5,000 feet of HDPE piping in diameters 4-inches and larger.
 4. All HDPE pipe shall be installed with a No. 10 AWG high-strength copper clad steel with a 30-mil HDPE insulation jacket (color blue) tracer wire and have a 600-pound average tensile break load. Tracer wire is to be manufactured by Copperhead Industries or an approved equal. Main line tracer wire shall not be spliced and shall be continuous between valve boxes. Service tracer splice connections into the main trace wire are to be constructed using DryConn Waterproof Direct Bury Lugs as manufactured by King Innovation or approved equal.

SECTION 02601 – WATER PIPE, PART 2 – PRODUCTS, Article 2.3, FITTINGS, *add the following paragraphs:*

- D. All MJ glands, mega lugs and followers shall be epoxy coated ductile iron.
- E. All MJ gaskets shall be NSF 61 Certified.

- F. ALL nuts and bolts used for MJ connections shall be Stainless Steel. The Stainless Steel nuts shall be finished with *TRIPAC 2000 BLUE* coating system or approved equal.
- G. ALL bolts used for MJ Connections shall be capped with ASTM B418, minimum 6 ounce, threaded zinc anode caps by Trumbull Manufacturing or approved equal. The contractor shall ensure the bolt lengths are adequate to provide full threading of the anode caps.
- H. All HDPE molded fittings and fabricated fittings shall be fully pressure rated to not less than the pipe SDR pressure rating specified. All fittings shall be molded or fabricated by the manufacturer. No Contractor fabricated fittings shall be used unless approved by the ENGINEER.
- I. All HDPE fittings shall be installed using butt-fused fittings, and must be approved by the ENGINEER. No size on size wet taps shall be permitted.
- J. Electrofusion couplers are discouraged and may only be allowed only with prior, written approval of the Engineer.
- K. All transitions from HDPE pipe to ductile iron or cast iron shall be made per the HDPE pipe manufacturer's recommendations and specifications and approval of the ENGINEER.
 - 1. Transition from HDPE to ductile iron fittings shall utilize Butt Fusion to Mechanical Joint adaptors with stainless steel stiffeners. The backer rings shall be epoxy coated ductile iron.
 - 2. Flanged connections are NOT allowed.
 - 3. Fittings and transitions shall be:
 - Pressure rated to at least the same pressure as the HDPE pipe material specified for the project;
 - Manufactured in compliance with ASTM D3261 and AWWA C906 Standards and shall be manufactured from NSF 61, PE4710 resin.
 - 4. The pipe supplier must certify compliance with the above requirements.

SECTION 02601 – WATER PIPE, PART 2 – PRODUCTS, Article 2.9, TEMPORARY WATER SYSTEM, *add the following paragraphs:*

- B. The use of garden hoses shall be restricted to a maximum length of 20-feet for each residence. All temporary water system piping, including garden hoses, and materials shall be NSF 61 certified.
- C. No WORK shall begin with the installation of a temporary water system until all affected residents have been notified a minimum of 24 hours in advance. At least one adult member of each household shall have the installation method explained to them, with an estimate of the duration of the use of the temporary water system and cell phone contact information of the Contractors site representative.

SECTION 02601 – WATER PIPE, PART 2 – PRODUCTS, add the following Article:

2.10 CORROSION PROTECTION

A. ANODES

1. Anodes shall be 18# bare weight zinc with prepackaged anode backfill.
2. Anodes Conductor shall be a minimum of size of No. 8, insulated with HMWPE and be a minimum of 10' long from the anode.
3. Acceptable anode models are:
 - a. Model No. ZUR-18 from Farwest Industries
 - b. Model S18 from MESA Products
 - c. Approved equal

B. THERMITE WELDING

1. Acceptable manufacturers are:
 - a. CADWELD by Erico Products, Inc.
 - b. THERMOWELD by Continental Industries, Inc.
 - c. Approved equal

SECTION 02601 – WATER PIPE, PART 3 – EXECUTION, Article 3.2 – INSTALLATION, *add the following paragraphs:*

- Q.** HDPE pipe shall be joined in continuous lengths on the jobsite above ground. Final connections of the continuous lengths may be made in the trench. The joining method shall be the butt fusion method and shall be performed in strict accordance with the manufacturer's recommendations.
1. Mechanical joint adapters shall be attached to the HDPE pipe and fittings using butt fusion. Align and center or mechanical joint adapter relative to the pipe. Mechanical joint adapters shall be square with the receiving valve or other flange before tightening of bolts. Bolts shall not be used to draw the pieces into alignment. Bolt threads shall be lubricated and flat washers shall be used under flange nuts. Bolts shall be tightened in accordance with the manufacturer's recommendations.
 2. Flange connections are not allowed for any buried waterline installations.
 3. Use of Electrofusion couplers is discouraged and may be allowed with prior, written approval of the Engineer.
 4. Install tracer wire per manufacturer's recommendations. Tracer wire for HDPE pipes shall be taped to the water pipe and located on the bottom quadrant of the pipe so as not to be damaged by excavation for water service installations or future excavation to locate the water main. Tracer wire shall be installed in continuous lengths with no splices. Terminate each end of tracer wire at a valve box, or furnish and install a valve box top section (min length 24") and cap for termination. Install pressure treated 2x4 in the valve box top with trace wire secured to top of board with a stainless steel insulated cable staple. Provide five (5) feet of additional tracer wire neatly coiled in the valve box top after the stainless cable staple. For valve boxes on a valve, the tracer wire shall run outside of the valve box and be inserted into the valve box within 9" to 12" of the top of the box through a 3/4" drilled hole. Terminate tracer wire at ground surface and provide a minimum of five (5) feet of additional wire neatly coiled within valve box. The trace wire shall be tested for continuity following all backfilling operations to top of shot rock borrow.

- R. The CONTRACTOR shall provide and submit to the ENGINEER for review and approval an HDPE fusion plan prior to beginning pipe fusion. The plan shall include:
1. CONTRACTOR's fusion machine including make, model and year.
 2. Certification and documented experience for individual(s) performing the pipe fusion.
 3. Temperatures and pressures to be used for each size and class of HDPE pipe.
 4. Fusion machine manufacturer's procedures for pipe fusion.
 5. Fusion data logger or other approved method of Joint Data Recording - The critical parameters of each fusion joint, as required by the manufacturer and these specifications, shall be recorded either manually or by an electronic data logging device. All fusion joint data shall be included in the Fusion Technician's joint report.

SECTION 02601 – WATER PIPE, PART 3 – EXECUTION, Article 3.5 – HYDROSTATIC TESTING, *add the following paragraph:*

- J. HDPE - Newly installed water main is to be hydrostatically tested in two phases to whichever is greater: 150 PSI or 1.5 times the operating pressure. Acceptance pressure testing shall be done with all service lines and fire hydrants installed, corporation stops open, fire hydrant gate valves open and pressure against the closed curb stops. Sections to be tested shall be limited to 1,500 feet.

Phase 1 – Initial Expansion (4 hours) Pressurize the test section to the test pressure and maintain for four (4) hours. The contractor is to pump in additional test water into the pipe to maintain test pressure as the pipe expands slightly. It is not necessary to monitor the amount of water added during this phase.

Phase 2 – Pressure Testing (minimum 1 hour) Immediately following the initial expansion phase the Contractor is to stop adding testing fluid and then reduce pressure by 10 psi. The reduced pressure then becomes the test pressure and is to be held within five percent (5%) for one hour and show no visible leaks to be deemed as having passed the test. The maximum test duration is eight (8) hours. If the test is not completed in the maximum duration period, then the Contractor is to depressurize the test section completely and allow it to relax for at least eight (8) hours before pressurizing the test section again.

Correct ALL visible leaks, whether indicated during pressure testing or not.

SECTION 02601 – WATER PIPE, PART 3 – EXECUTION, Article 3.7 – DISINFECTION, *add the following to paragraph B. :*

The chlorinating agent shall be certified for disinfection of potable drinking water systems according NSF/ANSI 60 and satisfy the requirements of applicable ANSI/AWWA standards. Chlorinating agents for pools and/or spas are not allowed.

SECTION 02601 – WATER PIPE, PART 3 – EXECUTION, Article 3.7 – DISINFECTION, *replace paragraph F. with the following:*

- F. Prior to putting a new waterline into service, the Contractor shall perform bacteriological testing on the water pipe system in accordance with the latest revision of AWWA C651. This requires two samples, taken at least 16 hours apart. The Contractor, with support from the Engineer, is to collect samples and submit them to a laboratory approved for bacteriological testing. Samples shall be tested for bacteriological quality in accordance with Standard Methods for the Examination of Water and Wastewater, and shall show the absence of coliform bacteria to be considered acceptable.

If the initial disinfection fails to produce satisfactory bacteriological results, the main may be refushed and shall be resampled. If check samples fail to produce acceptable results, the main shall be re-disinfected at the CONTRACTOR'S expense until satisfactory results are obtained. The waterline will NOT be put into service until satisfactory bacteriological results are obtained.

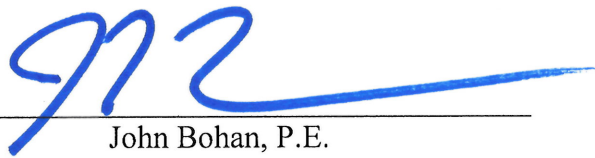
Initial bacteriological testing will be paid for by the OWNER. Any further testing and sampling required due to unsatisfactory bacteriological results will be paid for by the CONTRACTOR.

SECTION 02601 – WATER PIPE, PART 3 – EXECUTION, *add the following* Articles:

3.8 CONNECTIONS TO EXISTING PIPES

- A. Water pipes shall be capped at a point within 5-feet of the connection points to existing water pipes for testing purposes. No added valves will be considered for payment. Any added valves shall be at the CONTRACTOR's expense.
- B. The water pipe connections to the existing water pipes, will be visually checked for leakage by the ENGINEER, and shall be swabbed with disinfectant to the connection point.

By: _____



John Bohan, P.E.
Chief CIP Engineer

Total number of pages contained in Errata Sheet: 5