DALLAS WATER UTILITIES

ADDENDUM

TO

NORTH CENTRAL TEXAS

STANDARD SPECIFICATIONS

FOR

PUBLIC WORKS CONSTRUCTION

DECEMBER 1998

This addendum to the North Central Texas Standard Specifications for Public Works Construction - Second Edition, 1987, and its amendments, sets forth exceptions or requirements of the City of Dallas Water Utilities Department and thereby takes precedence over any conditions or requirements of the Standard Specifications with which it is in conflict.

The comments are itemized by the Standard Specifications section reference number followed by specific comments.

NOTE: The North Central Texas Council of Governments has issued a 3rd Edition - 1999 to their specifications after the issuance of this addendum.

TABLE OF CONTENTS

PART I: GENERAL PROVISIONS

TABLE OF CONTENTS

PART I: GENERAL PROVISIONS

TABLE OF CONTENTS

PART II: MATERIALS

TABLE OF CONTENTS

PART III: CONSTRUCTION METHODS

TABLE OF CONTENTS

PART III: CONSTRUCTION METHODS

1.0. Add the following as the definition of "Legal City of Dallas Holidays:"

" The legal City Holidays are:

New Year's Day	(January 1)
Martin Luther King Jr.'s Birthday	(Third Monday in January)
President's Day	(Third Monday in February)
Memorial Day	(Last Monday in May)
Independence Day	(July 4)
Labor Day	(First Monday in September)
Thanksgiving Day Day after Thanksgiving	(Fourth Thursday in November)
Christmas Day	(December 25)

If one of these days falls upon a Saturday, the holiday will be observed on Friday. If one of these days falls upon a Sunday, the holiday will be observed on Monday."

Substitute the following for the definition of "Engineer"

"Engineer": The OWNER's Project Manager or duly authorized representative overseeing administration of the Contract and the CONTRACTOR's performance thereunder. Unless otherwise specifically provided in the Contract Documents, the OWNER's Project Manager is an employee of Dallas Water Utilities, and is not the Consulting Engineer."

Add the following definition:

"Consulting Engineer: The person, firm or entity hired as an independent consultant by the OWNER to design the Project and represent the OWNER in the administration of the Contract in whatever capacity the OWNER designates; the OWNER may, at its sole option, designate the Consulting Engineer to be the Engineer for purposes of administration of the Contract. The Consulting Engineer shall be understood to be the Consulting Engineer of the OWNER, and nothing contained in the Contract Documents shall be construed to make the Consulting Engineer an employee of the OWNER, nor shall they be construed to create any contractual or agency relationship between the Consulting Engineer and the CONTRACTOR. The term includes the officers, employees, associates, agents and subconsultants of Consulting Engineer, if any."

Add the following sentence to the definition of "Special Provisions or Conditions":

"For purposes of this definition, the term includes any and all addendums that expressly supplement and take precedence over the general or standard specifications, regardless of whether they are peculiar to a specific project or apply to all projects."

1.4. Delete the fourth sentence in the first paragraph and add the following additional paragraphs:

"Where the Owner intends to award a contract on an all-or-nothing basis, the lowest responsible bidder is determined by referring to the grand total of all bid line items for the Work (consisting of whatever bid items, schedules of items or alternates the Owner advertises it may award.) The grand total is calculated by adding together the respective extended totals of the applicable bid line items. If the bidder is not required to calculate extended totals or the grand total of all bid line items, the Owner reserves the right to calculate the grand total based on the applicable extended totals or unit prices quoted and submitted. If a bidder makes a mathematical error in the calculation of an extended total on a line item, the amount of the bid will still be considered on the basis of the grand total of all applicable bid line items for the Work. If a mathematical error made in an extended total has been calculated and incorporated into the grand total, the error **cannot** be corrected, except as provided below.

If a mathematical error made in calculating the extended total of a line item causes the grand total of the lowest responsible bid to be higher than it would be if it were mathematically correct, but the bidder remains the lowest responsible bidder with or without the error, the Owner may, in its best interest, award a contract based on the mathematically correct lower number, treating the error as a waivable irregularity, as long as the overall result of bidding is not changed thereby.

In the event of a conflict or discrepancy between words and numbers in a bid line item, the amount of the bid item will be determined with reference to what extended total was calculated and incorporated into the grand total of all line items bid. A conflict or discrepancy may not be calculated in a way that changes the grand total of all line items bid or the overall result of bidding. The Owner reserves the right, upon contract award, to reconfigure the unit price of the line item in which there is an error, conflict or discrepancy to make it conform with the grand total of all line items bid, for the convenience of the Owner, as long as the grand total or the overall result of bidding is not changed.

If there is an error in the grand total resulting solely from a mathematical error in adding together otherwise correct extended totals, the bidder is bound by the grand total stated in the bid and the bid may not be changed to correct the error.

These provisions do not affect the common law right of a bidder to withdraw a bid due to a material mistake in the bid, nor do they affect the right of the Owner to reject any and all bids for any reason."

1.7. In the last sentence change "60 days" to "150 days."

1.10. Add the following:

"(e) failure to use the OWNER's form of bid bond in submitting his proposal. A proposal may not be considered if this form is not used. A standard form of bid bond is provided in the proposal.

(f) proposal submitted with a bid bond issued by a surplus lines company or by a surety not licensed to transact insurance business in the State of Texas."

1.11. Delete subsections (c), (d) and (e) and substitute the following:

“(c) the bidder having a history of filing frequent, excessive and meritless claims, or fraudulent claims, against the OWNER, or against other contractors on a project of the OWNER;

(d) the bidder or his surety having defaulted on a previous contract, or the bidder performing poorly on a previous contract;

(e) lack of competency, skill, judgment, financial capability, integrity, reputation, reliability or responsibility to perform the work as revealed by the bid proposal, bid questionnaires, financial statement, performance history or other relevant information obtained by the OWNER;”

1.13. In the first sentence change "90 days" to "150 days."

1.14. Delete this paragraph and substitute the following:

“The OWNER shall return the proposal guarantees accompanying all proposals (except for the three apparent low proposals) upon request. The three apparent low proposal guarantees shall be retained by the OWNER until the required contract and surety bonds have been executed, after which they shall be returned upon request."

1.18. In the first sentence delete "the Contract is awarded" and substitute with "receipt of the Contract."

1.20.4. Delete this paragraph and substitute the following:

“(a) This Item 1.20.4 addresses only matters arising from certain existing, man-made surface and subsurface structures, facilities and appurtenances, not naturally occurring conditions. **AS PROVIDED IN ITEM 1.21., THE OWNER SHALL HAVE NO LIABILITY WHATSOEVER FOR ANY CLAIM ARISING FROM A DIFFERING, NATURALLY OCCURRING SURFACE OR**

SUBSURFACE CONDITION, OR FROM ANY MAN-MADE CONDITION THAT IS NOT A SURFACE OR SUBSURFACE STRUCTURE, FACILITY OR APPURTENANCE. The Owner's responsibility for any claim arising from existing, man-made surface and subsurface structures, facilities and appurtenances is governed solely by this Item 1.20.4., and any situation involving a differing subsurface condition not included herein shall be governed solely by Item 1.21.

(b) The plans show the general locations of all known, existing man-made surface and subsurface structures, facilities and appurtenances. The locations of many gas mains, water and wastewater mains, storm sewers, drains, culverts, conduits and other man-made utility structures, facilities and appurtenances, however, are unknown. **THE OWNER DOES NOT WARRANT THE PLANS TO SHOW THE EXACT LOCATIONS OF ANY AND ALL KNOWN, EXISTING MAN-MADE SURFACE AND SUBSURFACE STRUCTURES, FACILITIES AND APPURTENANCES, AND DOES NOT WARRANT THAT IT KNOWS OF THE EXISTENCE OF ALL POSSIBLE EXISTING MAN-MADE SURFACE AND SUBSURFACE STRUCTURES, FACILITIES AND APPURTENANCES.** The Owner assumes no responsibility, except as provided in subsection (c) below, for any failure to show any or all of these structures on the plans or to show them in their exact locations.

(c) The Contractor and Owner mutually, expressly agree that the failure of the Owner to show any existing, man-made surface or subsurface structure, facility or appurtenance on the plans, or the failure to show them on the plans in their exact locations, shall **NOT** be considered as a basis of a claim for extra work, damages or other compensation of any kind, nor shall it be considered as a basis for increasing the quantities of work or unit prices on any bid item, unless:

(1) The Contractor could not have discovered the existing, man-made surface or subsurface structure, facility or appurtenance by a reasonable review of the plans and specifications and a reasonable, careful inspection of the work site prior to bid opening or award of the contract; and

(2) the existing, man-made surface or subsurface structure, facility or appurtenance is in a location that necessitates a substantial change in the alignment, depth or hydraulic gradient of the work to be constructed under the Contract because the Contractor cannot, by the use of reasonable skill or care, place the work in accordance with the original alignment, depth or hydraulic gradient; or

(3) The existing surface or subsurface structure, facility or appurtenance requires the construction of a special

structure, facility, appurtenance or other special work, provisions for which are not already made in the plans and specifications, to protect either the existing, man-made surface or subsurface structure, facility or appurtenance or the work to be constructed under the Contract from damage.

If the elements of (1) and either (2) or (3) occur, the provisions of the specifications regarding claims for extra work apply. Otherwise, the condition is considered part of the contract work and Owner shall not be liable for extra compensation. Provided, however, that the Owner will not be liable for payment of extra work claims under this subsection that are not timely filed in accordance with other provisions of the specifications, nor shall the Owner be liable to pay for any additional work or additional costs arising solely from a decision of the Contractor to change the original means or methods of construction chosen because an existing, man-made surface or subsurface structure, facility or appurtenance is encountered."

Add the following:

"1.20.5. **SOIL BORINGS**

Soil Borings are to be used for information only and are not warranted to be accurate in any way. The OWNER accepts no responsibility for any deviation from or variance in soil types and/or depths shown on the borings."

1.21. Delete the last sentence of the second paragraph and substitute the following:

"Except as provided in Item 1.20.4., all risks of differing subsurface conditions shall be borne solely by the Contractor."

1.21.1. Add the following:

"(e) If the amount of the Contract, including OWNER-accepted alternates and allowances, if any, is greater than $100,000, Performance and Payment Bonds in 100% of the Contract amount are mandatory and shall be provided by the bidder receiving the award. If the Contract amount is greater than $25,000, but less than or equal to $100,000, only a Payment Bond in 100% of the Contract amount is mandatory; provided, however, that the bidder receiving the award may elect to furnish a Performance Bond in the same amount if the bidder so chooses. If the Contract amount is less than or equal to $25,000, the bidder receiving the award may elect not to provide Performance and Payment Bonds; provided that in such event, no money will be paid to the CONTRACTOR until final completion and acceptance of all work by OWNER. If the bidder receiving the award elects to provide Performance and Payment Bonds in 100% of the Contract amount, progress

payments in accordance with the applicable Contract provisions shall be disbursed.

Following are the City of Dallas requirements for furnishing bonds:

1. Must use City bond forms.
2. Must be a corporate surety (Texas Lloyd's Plan carriers are not acceptable).
3. Surety company must be an admitted carrier in the State of Texas (surplus lines carriers are not acceptable).
4. Surety company must be on the Federal Treasury list (may be waived with the concurrence of Risk Management and the City Attorney's Office, subject to individual evaluation).
5. Surety company must have underwriting limitation sufficient to cover 100% of project cost.

Additional information provided by the State Board of Insurance regarding solvency, investigations, complaints, etc., will also be considered in determining the acceptability of a surety company."

1.22.2. Delete the paragraphs and substitute the following:

“CONTRACTOR agrees to defend, indemnify and hold OWNER, its officers, agents and employees, and the Consulting Engineer harmless against any and all claims, lawsuits, judgments, costs and expenses, for personal injury (including death), property damage or other harm for which recovery of damages is sought, suffered by any person or persons, that may arise out of or be occasioned by CONTRACTOR's breach of any of the terms or provisions of the Contract, or by any negligent, grossly negligent, or strictly liable act or omission of CONTRACTOR, its officers, agents, employees, or subcontractors, in the performance of the Contract; except that the indemnity provided for in this paragraph shall not apply to any liability resulting from the sole negligence or fault of OWNER, its officers, agents, employees, or separate contractors employed by Owner, or Consulting Engineer, and in the event of joint and concurring responsibility of the CONTRACTOR, OWNER, and Consulting Engineer, responsibility and indemnity, if any, shall be apportioned in accordance with the law of the State of Texas, without, however, waiving any governmental immunity available to the OWNER under Texas law and without waiving any defenses of the parties under Texas law. The provisions of this paragraph are solely for the benefit of the parties hereto and are not intended to create or grant any rights, contractual or otherwise, to any other person or entity."

1.22.5. Add the following at the end of the paragraph:

"The Contract amount is deemed to be based upon a construction progress schedule requiring the full Contract time for completion. No claim for additional compensation shall be allowed as a result of the CONTRACTOR

basing his bid on an early completion schedule, or as a result of delays and costs attributable to completion later than the planned early completion date."

Add the following:

"1.22.7. **INDEPENDENT CONTRACTOR**

While engaged in carrying out and complying with the terms and conditions of this Contract the CONTRACTOR is, and shall be, an independent contractor and shall not, with respect to its acts or omissions, be deemed an officer, employee or agent of the OWNER.

The Contractor shall not at any time or in any manner represent that it or any of its agents or employees are in any manner agents or employees of the OWNER.

CONTRACTOR is, and shall remain, an independent contractor, with full, complete and exclusive power and authority to direct, supervise, and control his own employees and subcontractors and to determine the method of the performance of the work covered under this Contract. The fact that the OWNER or the Engineer shall have the right to inspect or observe CONTRACTOR'S work during performance and to exercise the other rights and prerogatives expressly reserved to the OWNER or the Engineer under this Contract is not intended to, and shall not at any time, change or affect the status of the Contractor as an independent contractor with respect to the OWNER, the CONTRACTOR'S own employees or any other person, firm or corporation."

"1.23.1. **SAFETY RECORD**

All CONTRACTORS bidding on City of Dallas projects must submit a notarized affidavit with their bid attesting to their safety record.

The CONTRACTOR must provide safety records from the Dallas OSHA office in which the firm is located. The CONTRACTOR'S safety record may not reflect penalties for six (6) or more Serious violations, none of which may be Repeat violations, nor may it reflect three (3) or more willful violations, none of which may be Repeat violations, within three (3) years preceding award. This information will be considered in determining the responsibility of the bidder for purposes of award".

1.24.2. Delete the third, fourth, fifth and last paragraphs and substitute the following:

"Where the work is carried on, in or adjacent to any street, alley, sidewalk, public right-of-way or public place, the CONTRACTOR shall at his own cost and expense provide such flagmen and watchmen and furnish, erect and maintain such warning devices, barricades, lights, signs, and other precautionary measures for the protection of persons or property as are required by law. The CONTRACTOR's responsibility providing and maintaining flagmen, watchmen, warning devices, barricades, signs, and lights and other precautionary measures shall not cease until the Project is

finally accepted by the OWNER.

If the Engineer discovers that the CONTRACTOR has failed to comply with the applicable federal and state law by failing to furnish the necessary flagmen, warning devices, barricades, lights, signs, or other precautionary measures for the protection of persons or property the Engineer may order such additional precautionary measures as required by law to be taken to protect persons and property, and to be reimbursed by the CONTRACTOR for any expense incurred by the OWNER in ordering such additional precautionary measures.

In additional, the CONTRACTOR will be held responsible for all damage to the work and other public or private property due to the failure of warning devices, barricades, lights, signs or other precautionary measures in protecting said property, and whenever evidence is found of such damage, the Engineer may order the damaged portion immediately removed and replaced by and at the cost and expense of the CONTRACTOR.

Minimum standards for safeguarding pedestrian and vehicular traffic are contained in the 1988 "TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" as currently amended, Texas Department of Transportation. Signage, barricades and other traffic control devices for detouring and maintenance of traffic on this Contract shall be as provided in the above mentioned manual and as directed by the Engineer. Costs associated with the acquisition, installation, maintenance and removal of required traffic control devices shall be considered incidental to this project.

1.24.3. Add at the end of the paragraph:

"The CONTRACTOR is advised that Federal Regulations 29 C.F.R. 1926.650 - 1926.652 have been, in their most recent version as amended, in effect since January 2, 1990.

The CONTRACTOR shall install a trench safety system in accordance with Occupational Safety and Health Administration Standards 1926.652 "Requirements for Protective Systems." This shall be paid under BID ITEM NO. 692B - TRENCH EXCAVATION SAFETY AND SUPPORT.

The OSHA regulations contain two requirements that may affect the pipe design: 1) For Type C soils and Type B soils, except cohesive soils, and the ditch sloping option is selected, the sloping must begin at the bottom of the trench and, 2) Excavation of material to a level no greater than 2 feet below the bottom of the members of a support system shall be permitted. The embedment to support a pipe is calculated on a vertical wall to a point 1 foot above the top of the pipe at a maximum trench width, as shown in Item 6.2.12(a)(1), except that for all pipe through 12" diameter, it shall be 32". If the maximum allowable trench width at a point 1 foot above the top of the pipe is exceeded, the pipe design must be evaluated by the OWNER. Any additional costs associated with a design change, such as a change in embedment or change in pipe class, etc., shall be at no cost to the City. In all cases, the basis of payment items governed by the trench width Bd will be as shown in the applicable tables (File 414W-29 and File 414S-24).

The regulation requires that a competent person make a daily inspection of the excavation prior to start of work and as needed throughout the shift (1926.650 (k)).

The regulation also states "In order to be a 'competent person' for the

purposes of this standard one must have had specific training in, and be knowledgeable about, soil analysis, the use of protective systems, and the requirements of this standard."

The Contractor must have on file with the City of Dallas Water Utilities Department a current Safety Program. No work may be started unless this program is submitted and approved. The program is valid on all contracts for a two year period.

The safety program must be type written, signed by an officer of the company and include:

1. Safety checklist.
2. Methods of construction in the vicinity of existing underground utilities.
3. Type of safety equipment required.
4. Supervisor's degree of responsibility and authority.
5. Employee training required.
6. Safety sessions.
7. Notification and investigation of accidents.
8. Safety Officer with qualifications.
9. Individual equipment, i.e. safety shoes, glasses, hardhats.

No claims for delay or extension of time will be accepted due to Contractor's failure to meet these provisions.

THE SAFETY PROGRAM SHOULD BE DELIVERED TO:

Project Manager
Capital Improvement Program
2121 Main St., Suite 300
Dallas, Texas 75201

The CONTRACTOR must submit a notarized affidavit to the OWNER prior to the award of the Contract. The affidavit must be completed on the CONTRACTOR'S letterhead, must be signed by an Officer of the CONTRACTOR and should be in the following form:

AFFIDAVIT

I certify (Name) is a competent person as defined in the Federal Register, Part Ii, 29 CFR 1926, Occupational Safety and Health Standards - Excavations; Final Rule, and he/she will perform the duties and responsibilities of this position on DWU Contract (Number and Name).

INDEMNIFICATION FOR TRENCH SAFETY

CONTRACTOR AGREES TO DEFEND, INDEMNIFY AND HOLD OWNER, ITS OFFICERS, AGENTS AND EMPLOYEES, AND THE CONSULTING ENGINEER COMPLETELY HARMLESS FROM ANY CLAIMS, LAWSUITS, JUDGMENTS, COSTS AND EXPENSES (INCLUDING ATTORNEY'S FEES, IF ANY) FOR ANY PERSONAL INJURY (INCLUDING DEATH), PROPERTY DAMAGE OR OTHER HARM FOR WHICH RECOVERY OF DAMAGES IS SOUGHT (INCLUDING ANY INJURY, DEATH OR DAMAGE SUFFERED BY THE CONTRACTOR'S OWN

EMPLOYEES) ARISING OUT OF OR OCCASIONED BY THE USE OF ANY TRENCH EXCAVATION PLANS, REGARDLESS OF THEIR ORIGIN, OR BY ANY NEGLIGENT, GROSSLY NEGLIGENT, STRICTLY LIABLE OR INTENTIONAL ACT OF THE CONTRACTOR, A SUBCONTRACTOR OR ANY INDIVIDUAL EMPLOYEE OR LABORER (WHETHER OR NOT AN EMPLOYEE OF THE CONTRACTOR OR A SUBCONTRACTOR) IN THE PERFORMANCE OR SUPERVISION OF ACTUAL TRENCH EXCAVATION UNDER THE CONTRACT. THIS INDEMNITY APPLIES REGARDLESS OF WHETHER OWNER'S OR CONSULTING ENGINEER'S NEGLIGENCE OR FAULT IN THE ADMINISTRATION OF THIS CONTRACT OR IN THE PREPARATION, REVIEW OR APPROVAL OF THE CONTRACTOR'S TRENCH EXCAVATION PLAN CONTRIBUTED TO THE INJURY, DEATH OR DAMAGE. OWNER ACCEPTS NO LIABILITY WHATSOEVER AS A RESULT OF THE PREPARATION, REVIEW OR APPROVAL OF ANY TRENCH EXCAVATION PLAN UNDER THIS CONTRACT; OWNER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE ADEQUACY OR CORRECTNESS OF ANY EXCAVATION PLAN. THE PROVISIONS OF THIS PARAGRAPH ARE SOLELY FOR THE BENEFIT OF THE PARTIES TO THE CONTRACT AND ARE NOT INTENDED TO CREATE OR GRANT ANY RIGHTS, CONTRACTUAL OR OTHERWISE, TO ANY OTHER PERSON OR ENTITY. THIS PARAGRAPH SHALL NOT BE CONSTRUED TO WAIVE ANY GOVERNMENTAL IMMUNITY OF THE OWNER. THIS PARAGRAPH CONTROLS IN THE EVENT OF A CONFLICT WITH ANY OTHER INDEMNITY OR OWNER-WARRANTY PROVISION IN THE SPECIFICATIONS."

1.25. Add at the beginning:

"The CONTRACTOR shall furnish payrolls and personnel records which pertain to current construction contracts with the OWNER for the purpose of ascertaining compliance with the published minimum wage rates. Monthly and final estimates for payment will not be processed unless the CONTRACTOR complies with this requirement in a timely manner."

Add at the end:

"The OWNER shall conduct random sampling of wage rates on each Contract. The OWNER will interview the CONTRACTOR'S employees in the field to verify the employee is working in and being paid for the classification shown on the payroll. In instances of noncompliance, the OWNER will initiate action as outlined in the Contract Documents."

1.26. Delete 1.26.1. thru 1.26.5. and substitute the following:

"1.26.1. **CONTRACTOR'S INSURANCE**

Without limiting any of the other obligations or liabilities of the CONTRACTOR, the CONTRACTOR and each subcontractor, at their own expense, shall, during the term of the Contract, purchase and maintain at least the insurance coverage stipulated below with companies duly authorized or approved to do business in the State of Texas and otherwise satisfactory to OWNER. Certificates of insurance evidencing at least the required coverage and meeting the either applicable requirements of Items 1.26.1 through 1.26.4 shall be delivered to OWNER before any work is started. In addition, CONTRACTOR shall promptly furnish upon the request of and without expense to OWNER, a certified copy of each policy required including all endorsements. Notice of expiration, cancellation, nonrenewal or

material change of or in any of the required coverages, described in Item 1.26.3, must be accompanied by a replacement certificate of insurance. Coverage shall be in the following types and amounts:

(a) workers' compensation in accordance with Texas law, with the policy endorsed to provide a waiver of subrogation as to the OWNER; employer's liability insurance of not less than $100,000 for each accident, $100,000 disease - each employee, $500,000 disease - policy limit.

(b) commercial general liability insurance, including independent Contractor's liability, products and completed operations, personal injury liability and contractual liability, covering, but not limited to, the liability assumed under the indemnification provisions of this Contract, fully insuring CONTRACTOR'S (or subcontractor's) liability for injury to or death of OWNER'S employees and third parties, and for damage to property of third parties, with a combined bodily injury (including death) and property damage minimum limit of $500,000 per occurrence, $1,000,000 annual aggregate. If coverage is written on a claims-made basis, coverage shall be continuous (by renewal or extended reporting period) for no less than 60 months following completion of the Contract and acceptance of work by the OWNER.

Coverage, including any renewals, shall have the same retroactive date as the original policy applicable to the Contract work. OWNER shall be named an additional insured on the policy by using endorsement CG 20 26 or broader.

The policy shall include coverage extended to apply to completed operations, asbestos hazards (if this project involves work with asbestos) and XCU hazards.

The completed operations coverage must be maintained for a minimum of one year after final completion and acceptance of the work, with evidence of same filed with OWNER. The policy shall include endorsement CG 2503 amendment of limits (designated project or premises) in order to extend the policy's limits specifically to the project in question.

(c) business automobile liability insurance, covering owned, hired and non-owned vehicles, with a combined bodily injury (including death) and property damage minimum limit of $500,000 per occurrence. Such insurance shall include coverage for loading and unloading hazards. No aggregate shall be permitted for this type of coverage.

(d) The Certificate of Insurance as required in Item 1.26.4 shall be furnished to the City with the required bonds.

1.26.2. **"UMBRELLA" LIABILITY INSURANCE**

CONTRACTOR shall obtain, pay for and maintain umbrella liability insurance during the Contract term, insuring CONTRACTOR for an amount of not less than $1,000,000 per occurrence combined bodily injury (including death) and property damage limit that follows form and applies in excess of the primary liability coverages required herein above. OWNER shall be named an additional insured. No aggregate shall be permitted for this type of coverage.

The policy shall provide "drop down" coverage where underlying primary insurance coverage limits are insufficient or exhausted.

1.26.3. **POLICY ENDORSEMENTS AND SPECIAL CONDITIONS**

(a) Each insurance policy to be furnished by CONTRACTOR shall include the following required provisions within the certificate of insurance, and within the body of the insurance contract or by endorsement to the policy:

(1) OWNER shall be named an additional insured as to all applicable liability policies by using endorsement CG 20 26 or broader;

(2) Each insurance policy shall require that thirty (30) days prior to the expiration, cancellation, non-renewal, or any material change in coverage, a notice thereof shall be given to OWNER by certified mail, by sending the notice to the Engineer and to the Human Resources Department, Risk Management Division, 1500 Marilla, 1/ c/ North, Dallas, Texas 75201. CONTRACTOR shall also notify OWNER, within 24 hours after receipt, of any notice of expiration, cancellation, nonrenewal or material change in coverage it receives from its insurer.

(3) The term "OWNER" or “City of Dallas” shall include all authorities, boards, bureaus, commissions, divisions, departments and offices of the OWNER and the individual members, employees and agents thereof in their official capacities, while acting on behalf of the OWNER (the City of Dallas).

(4) The policy phrase "Other Insurance" shall not apply to the OWNER where OWNER is an additional insured on the policy. The insurance coverage furnished by Contractor as required is considered to be primary insurance for purposes of the Project and the additional insured’s names in the required policies.

(1) All provisions of the Contract Documents concerning liability, duty and standard of care, together with the indemnification provision, shall be underwritten by contractual liability coverage sufficient to include such obligations with the applicable liability policies.

(b) Concerning the insurance to be furnished by CONTRACTOR, it is a condition precedent to acceptability that:

(1) All policies must comply with the applicable requirements and special provisions of Item 1.26.

(2) Any policy evidenced by a certificate of insurance or submitted for review shall not be subject to limitations, conditions or restrictions deemed inconsistent with the intent of the insurance requirements set forth herein, and the OWNER'S decision regarding whether any policy contains such provisions, contrary to this requirement, shall be final;

(3) All policies required are to be written through companies duly authorized or approved to transact that class of insurance in the State of Texas.

(c) CONTRACTOR also agrees to the following special provisions:

(1) CONTRACTOR hereby waives subrogation rights for loss or damage to the extent same are covered by insurance. Insurers shall have no right of recovery or subrogation against the OWNER, it being the intention that the insurance policies shall protect all parties to the Contract and be primary coverage for all losses covered by the policies. This waiver of subrogation shall be included, by endorsement or otherwise, as a provision of all policies required under Items 1.26.1 and 1.26.2.

(2) Insurance companies issuing the insurance policies and CONTRACTOR shall have no recourse against the OWNER for payment of any premiums or assessments for any deductibles, as all such premiums and deductibles are the sole responsibility and risk of the CONTRACTOR;

(3) Approval, disapproval or failure to act by the OWNER regarding any insurance supplied by CONTRACTOR (or any subcontractors) shall not relieve the CONTRACTOR of full responsibility or liability for damage and accidents as set forth in the Contract documents. The bankruptcy, insolvency or denial of liability of or by the CONTRACTOR=s insurance company shall likewise not exonerate or relieve CONTRACTOR from liability.

(4) OWNER reserves the right to review the insurance requirements of Item 1.26 during the effective period of this Contract and to adjust insurance coverages and their limits when deemed necessary and prudent by OWNER=s Risk Management Division, based upon changes in statutory law, court decisions or the claims history of the field as well as that of CONTRACTOR. CONTRACTOR agrees to make any reasonable request for deletion, revision or modification of particular policy terms, conditions, limitations or exclusions (except where policy provisions are established by law or regulation binding upon either party to this Contract or upon underwriter of any such policy provisions). Upon request by OWNER, CONTRACTOR shall exercise reasonable efforts to accomplish such changes in policy coverages and shall pay the cost thereof.

(1) No special payments shall be made for any insurance policies that CONTRACTOR and subcontractors are required to carry; all are included in the Contract price and the Contract unit prices.

(d) Any insurance policies required under Item 1.26 may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered by doing so, nor may any of the requirements or special provisions of Item 1.26 be limited or circumvented by doing so.

1.26.4. **CERTIFICATES OF INSURANCE**

The CONTRACTOR shall submit the proof of required insurance on an industry standard form Certificate of Insurance. The purpose is to maintain consistency between insurance certificates submitted and the OWNER's contractual requirements.

According to Item 1.13, no work shall commence before the required insurance has been obtained by the CONTRACTOR and certificate filed with OWNER. Any questions regarding the required coverages shall be directed to the Risk Management Division, Human Resources Department at 670-4920. The CONTRACTOR shall maintain the required insurance for the term of the Contract. If any policy will expire during the term of the Contract, the CONTRACTOR must furnish a new certificate of insurance or a certificate of renewal of the existing policy prior to the expiration date. The certificate shall be delivered to 2121 Main Street, Suite 300, for City contracts, 320 E. Jefferson, Room 218, for Private Development contracts and 320 E. Jefferson, Room 118, for Water and/or Wastewater Service contracts.

In the event the CONTRACTOR fails to do the above, the work on the CONTRACT shall be suspended. If the proper insurance is not furnished within ten days after the Contract is suspended, the Contract will be terminated and the CONTRACTOR shall be declared in default. The CONTRACTOR shall obtain and monitor the certificates of insurance of its subcontractors in order to assure that all subcontractors are in compliance with requirements of Item 1.26. The CONTRACTOR shall have the responsibility to enforce the requirements of Item 1.26 among its subcontractors."

1.26.5. **WORKER'S COMPENSATION INSURANCE COVERAGE**

The State requires the CONTRACTOR to comply with the following new Rule, 28 TAC '110.110, effective September 1, 1994 which Rule is reproduced substantially from the Rule as shown below:

(a) Definitions:

Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project - includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the OWNER.

Persons providing services on the project ("subcontractor" in ' 406.096) - includes all persons or entities performing all or part of the services the CONTRACTOR has undertaken to perform on the project, regardless of whether that person contracted directly with the CONTRACTOR and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or

employees of any entity which furnishes persons to provide services on the project.

"Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

(b) The CONTRACTOR shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

(c) The CONTRACTOR must provide a certificate of coverage to the OWNER prior to being awarded the contract.

(d) If the coverage period shown on the CONTRACTOR'S current certificate of coverage ends during the duration of the project, the CONTRACTOR must, prior to the end of the coverage period, file a new certificate of coverage with the OWNER showing that coverage has been extended.

(e) The CONTRACTOR shall obtain from each person providing services on a project, and provide to the OWNER:

(1) a certificate of coverage, prior to that person beginning work on the project, so the OWNER will have on file certificates of coverage showing coverage for all persons providing services on the project; and

(2) no later than seven days after receipt by the CONTRACTOR, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

(f) The CONTRACTOR shall retain all required certificates of coverage for the duration of the project and for one year thereafter.

(g) The CONTRACTOR shall notify the OWNER in writing by certified mail or personal delivery, within 10 days after the CONTRACTOR knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

(h) The CONTRACTOR shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

(i) The CONTRACTOR shall contractually require each person with whom it contracts to provide services on a project, to:

(1) provide coverage, based on proper reporting of classification codes

and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;

(2) provide to the CONTRACTOR, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;

(3) provide the CONTRACTOR, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(4) obtain from each other person with whom it contracts, and provide to the CONTRACTOR:

(A) a certificate of coverage, prior to the other person beginning work on the project; and

(B) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

(6) notify the OWNER in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

(7) contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.

(j) By signing this Contract or providing or causing to be provided a certificate of coverage, the CONTRACTOR is representing to the OWNER that all employees of the CONTRACTOR who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

(k) The CONTRACTOR'S failure to comply with any of these provisions is a breach of contract by the CONTRACTOR which entitles the OWNER to declare the contract void if the CONTRACTOR does not remedy the

breach within ten days after receipt of notice of breach from the OWNER."

1.27.2. Add the following as the third paragraph:

“Material and equipment furnished that are not specified elsewhere shall conform to the current “DALLAS WATER UTILITIES APPROVED MATERIALS BY TRADE NAME LISTING” or approved equal.”

Add the following as the last paragraph:

"1.27.8. Payment for costs incurred in storage of materials or equipment away from the project site will not be made by the OWNER unless: (1) the OWNER has approved off-site storage in writing; and (2) the materials or equipment are stored in a bonded warehouse located in Dallas County and identified with the project for which they are stored as evidenced by warehouse receipts and appropriate documents of title. Storage in facilities of the manufacturer or CONTRACTOR will not be permitted or paid for, unless such storage is expressly approved in writing by the OWNER."

1.29. Add the following at the end of the last paragraph:

"Where the contract drawings, specifications or bulletins do not require the use of specific means or methods of construction, the CONTRACTOR shall submit his proposed plan of procedure to the OWNER sufficiently in advance to permit a reasonable time for review and comments. Failure to submit the proposed plan within a reasonable time shall not create a claim for damages for resulting delay in the work nor shall it be a cause for extension of working time for completion of the work."

1.29.2. In the last paragraph, after the first sentence add: "The CONTRACTOR must furnish to the OWNER a release signed by the property owner."

Add the following at the end of the last paragraph:

"In accordance with Chapter 30-2(h) of the Revised Code of Civil and Criminal Ordinances of the City of Dallas, Texas, the erection, including excavation, demolition, alteration or repair of any building in or adjacent to a residential area other than between the hours of 7:00 a.m. and 6:00 p.m. on weekdays is prohibited, excepted in the case of urgent necessity in the interest of public safety, for which a permit shall be obtained from the Director of Public Works and Transportation of the City of Dallas."

Add the following:

"1.29.3. The OWNER has the authority to suspend all work immediately if, in the OWNER's opinion, there is imminent danger to workmen or the general public.

If there is not imminent danger to workmen or the general public, but trench conditions are not in compliance with Federal Regulations 29 C.F.R. 1926.650-1926.652, the OWNER shall warn the CONTRACTOR who shall then immediately order all workmen in and adjacent to the trench away from the area. The CONTRACTOR must then bring the trench into compliance with the regulations. If the CONTRACTOR does not make the required corrections, all work on the Contract shall cease and the OWNER will issue a letter of Temporary Suspension of Work. The only work authorized after issuance of this letter is work approved by the regulations. Other work shall not be permitted until the OWNER issues a letter of Release of Temporary Suspension of Work.

The CONTRACTOR shall not be entitled to additional compensation, an extension of time or payment of damages as a result of a temporary suspension of work under this provision."

Add the following:

"1.32.3. **UNDERGROUND UTILITIES**

During construction, the following companies should be contacted in order to determine the location of their respective underground utilities:

POWER LINES AND STREET LIGHTING	
Texas Utilities Electric Company	791-2882
GAS LINES	
Lone Star Gas Company	741-1671
Location of gas mains flagged 48 hours prior to construction	1-800-344-8377
Emergency	**579-0232**
CONDUITS AND CABLES	
TCI Cable Vision of Dallas	320-7396
Southwestern Bell Telephone Company	1-800-395-0440
Emergency	**611**
Western Union Telegraph Company (MCI)	1-800-MCI-WORK
American Telephone & Telegraph Co.	1-800-252-1133
General Telephone Co. (North of I.H. 635 and Irving)	1-800-344-8377

TRAFFIC SIGNAL LINES	
Signal Division	670-3750
STREET RAILWAY LINES	
McKinney Avenue Transit Authority (MATA)	855-0006 or 855-5244 (days)
Dallas Area Rapid Transit (DART)	749-2873 749-2560
STORM SEWERS	
Public Works Drainage Division	948-4149
PAVING CUTS	
Public Works Cut Control Division	948-4445
DALLAS WATER/WASTEWATER	
Repairs and Locations	670-5700
Valve Closures	670-8963

SANITATION SERVICES

The CONTRACTOR shall contact the Streets and Sanitation Department one week prior to beginning construction in a street or alley to insure arrangements are made for alternate garbage pickup.

In all cases contact Sanitation Dispatch, 670-4398.

Also contact one of the following in the applicable location:

#1 Southeast District	670-8828
#2 Southwest District	670-1913
#3 Northwest District	670-6387
#4 Northeast District	670-3495
#5 Central/East District	670-3702"

Add the following:

"1.32.4. **SPOIL REMOVAL**

The Contractor will be required to remove spoil from the job site in a timely manner. If, in the opinion of the Engineer, the spoil is not being removed as required, the Contractor will be directed to remove the spoil. The Contractor must comply with this directive within 24 hours. There will be no additional compensation to the Contractor for removing this spoil at a time other than as planned."

Add the following:

"1.33.1. **CITY REGULATIONS ON STREET CLOSING**

The City Manager has designated the Public Works and Transportation Department as a coordinating agency for clearance of all street closing information. In order to avoid unwarranted inconveniences, and to prevent the isolation of any area due to the closing of streets, the following regulations will apply:

(a) No street work will be permitted (except in case of emergency) nor any equipment or material permitted to be stored or parked on any street in the Central Business District between the hours of 7:00- 9:00 a.m. and 4:00 - 6:00 p.m. The CBD for this purpose is bounded by McKinney Avenue, Oakland Avenue, R. L. Thornton Freeway and the Trinity River.

(b) All streets on the Prime Network will be subject to work restrictions during certain hours. These hours will be determined by Public Works and Transportation Department.

(c) If a street is required to be closed or partially closed on Saturday or Sunday, any legal City Holiday, or on weekdays between the hours of 5:00 p.m. and 8:00 a.m., the Public Works and Transportation dispatcher should be notified by a call to 670-4397.

(d) Traffic control and street name signs shall not be torn down, covered or otherwise removed from the clear view of the driver or pedestrian without prior approval of the City Traffic Engineer."

(e) Street closure or partial closure will be coordinated with the City-Wide Traffic System Safety Coordinators, Public Works and Transportation Department, Phone 670-3260."

Add the following:

"1.33.2. **CONSTRUCTION ACROSS RAILROAD RIGHT-OF-WAY**

Prior to crossing or working on Railroad Right-of-Way, the CONTRACTOR will be required to contact the Railroad Company, or Companies, and to execute Agreements as may be required by each Railroad Company involved.

No work shall be permitted where railroads are involved until the Engineer is furnished sufficient correspondence from the railroad company involved to ascertain that either the agreement has been executed and a certified copy of the insurance policy furnished, or that no such action is required."

1.34.1.(e). Add the following at the end of the subsection:

“or because of designated ozone alerts as determined by the National Weather Bureau.”

1.34.2. Add the following:

“(d) There shall be no additional compensation for suspension of work during a designated ozone alert period.”

Add the following:

"1.34.3. **EMERGENCY CONTRACT TERMINATION CLAUSE**

Whenever, because of a national emergency, so declared by the President of the United States, or other lawful authority, it shall be impossible for the CONTRACTOR to obtain all labor, materials, and equipment necessary for the prosecution of the work with reasonable continuity, the CONTRACTOR shall notify the OWNER. If the OWNER cannot, after a reasonable time, help obtain priorities for the materials and equipment with a reasonable effort, then the Contract shall be terminated, and the CONTRACTOR shall be entitled to reimbursement for the necessary and reasonable actual cost incurred in the prosecution of the work, without profit."

1.35. Insert the following between the third and fourth paragraphs:

"Neither such usage, as performed under this section, nor the written statement of work still to be done shall be held in any way an acceptance of said work or structure or any part thereof, nor as a waiver of any of the provisions of these specifications or other Contract documents pending final completion and acceptance of the work; all necessary repairs and removals of any section of the work so put into use, due to the defective materials or workmanship or to the operations of the CONTRACTOR, shall be performed by the CONTRACTOR at his own expense."

1.36. In the third line of the first paragraph, change the words "seven days" to "fourteen days".

In the tenth line of the first paragraph add the following after the phrase “freight embargoes”:

“ozone alerts as determined by the National Weather Bureau,”

Delete the first sentence of the third paragraph and substitute the following:

"No adjustment to the Contract working time shall be made if, concurrently with the equitable cause for delay, hindrance, disruption, force majeure, impact or interference, there existed a cause for delay due to the fault or negligence of the CONTRACTOR, his agents, employees or subcontractors. Notwithstanding any other provisions of the Contract documents, including the

General and Special Provisions, no adjustment shall be made to the Contract price and the CONTRACTOR shall not be entitled to claim or receive any additional compensation as a result of or arising out of any delay, hindrance, disruption, force majeure, impact or interference, foreseen or unforeseen, resulting in adjustment to the Contract working time, including but not limited to those caused in whole or in part by the acts, omissions, failures, negligence or fault of the OWNER, the Consulting Engineer or the OWNER's representative."

1.37.1. Change the second sentence of the fifth paragraph as follows:

"The foregoing notwithstanding, the total original contract amount shall not be increased more than twenty-five percent; the CONTRACTOR, by submission of a bid and execution of the Contract, is deemed to consent to the OWNER'S right to reduce the total original contract amount by more than twenty-five percent."

1.37.3. Add the following sentence at the end of the paragraph:

"Work considered necessary to the proper completion of the Contract for which unit or other prices are specifically provided in the Contract shall be paid for only in accordance with those prices, regardless of whether or not such work is considered extra work, unless the last three paragraphs of Item 1.37.1 apply."

Add the following:

"1.37.4. **FINALITY OF CHANGE ORDERS**

In addition to the OWNER, the CONTRACTOR shall sign the Dallas Water Utilities Change Order Form to verify the terms and conditions established by Change Order; however, failure or refusal of the CONTRACTOR to sign a Change Order shall not relieve the CONTRACTOR of his obligation to execute the proposed change in accordance with this Item and the other terms and provisions of this Contract. Each Change Order shall be specific and final as to prices with no reservations or other provisions allowing for future additional money or time as a result of the particular changes identified and fully compensated in the Change Order."

Add the following:

"1.37.5. **GENERAL CLAIM PROCEDURES**

Except where otherwise provided in the Contract Documents, claims by the CONTRACTOR, whether for damages, additional compensation, additional time or other reasons must be made by written notice to the OWNER within fourteen (14) days after occurrence of the event or events giving rise to the particular claim. Every claim, whether for damages, additional compensation, additional time or other reasons shall be signed and sworn to by an authorized corporate officer (if not a corporation, then an official of the company authorized to bind the CONTRACTOR by his signature) of the CONTRACTOR, verifying the truth and accuracy of the claim. Such verification shall be a condition precedent to the acceptability of any claim asserted by the CONTRACTOR. The responsibility to substantiate a claim rests with the CONTRACTOR. The

CONTRACTOR shall be deemed to have waived any claim not made strictly in accordance with the procedure and time limits set out in this paragraph."

1.38. Delete all paragraphs and substitute the following:

(a) Extra work done by the CONTRACTOR, as authorized and approved by the Engineer, shall be compensated for in the manner described in this Item. The compensation provided for extra work done constitutes full and final payment for the cost of the extra work, which cost is limited to: (1) all reasonable costs of labor, materials, supplies, tools, equipment or machinery rental, power, fuel, lubricants, water and other similar operation expenses (but only for the time that such of the above things are employed or used on such extra work) incurred in the performance of the extra work, and a ratable proportion of premium expenses for all bonds and insurance required under the Contract, to the extent that the extra work would cause an increase in such bond or insurance premiums; and (2) a markup amount of not-to-exceed 15 percent of the above mentioned costs to cover and compensate the CONTRACTOR for profit, overhead, profit-and-overhead markups charged to CONTRACTOR by other subcontractors and suppliers, general supervision, field office expense and all other elements of cost and expense not embraced within the cost of the extra work as described in this paragraph (a). No cost of off-site storage shall be included in the above description of cost unless off-site storage has been approved and directed by the OWNER in writing. No other claims or reservations of right as to additional costs, prices, markups, costs not permitted to be included under this paragraph, disallowed costs or other future additional money or time shall be accepted; each change order shall be specific and final as described in Item 1.37.4.

(b) The method of determination and payment of cost, or credit to the OWNER, for any extra work shall be one of the following:

(1) unit prices agreed on in writing by the Engineer and approved by the OWNER before the extra work is commenced, or unit prices already included in the Contract documents, subject to all other conditions of the Contract;

(2) mutual acceptance of a not-to-exceed lump sum properly itemized and supported by sufficient substantiating data to permit evaluation before the extra work is commenced, subject to all other conditions of the Contract;

(3) a not-to-exceed cost to be determined in a manner agreed upon by the parties plus a mutually acceptable fixed or percentage fee, agreed upon before the extra work is commenced and subject to all other conditions of the Contract; or

(4) the force account method provided in paragraph (c).

(c) If the CONTRACTOR and the OWNER cannot agree to one of the methods of calculating cost provided in paragraph (b)(1), (b)(2) or (b)(3) above, or if the parties agree to a method but cannot agree to a final dollar figure, or if the CONTRACTOR for whatever reason fails or refuses to sign the Dallas Water Utilities Change Order in question, the CONTRACTOR, provided he receives a written order signed by the OWNER, shall promptly proceed with the work involved. Nothing in this paragraph shall be construed to relieve the CONTRACTOR of any obligations he has under the disputed work provisions of Items 1.39 or 1.40, and where applicable

the CONTRACTOR is still obligated to abide by those Items as well as this paragraph (c). The cost of the work involved shall then be calculated on a force account basis, on the basis of the actual, reasonable field cost of the work attributable to the changes, plus a reasonable allowance for overhead, profit, markups of other subcontractors and suppliers, general supervision, field office expense and other elements of cost not embraced within the actual field cost as specified herein, such allowance in any case never to exceed 15%. In such case, the CONTRACTOR shall keep a detailed itemized account of the work involved and the actual field cost incurred, in a format acceptable to the Engineer and with such appropriate supporting data as the Engineer and the OWNER may prescribe. Sworn copies of the itemized accounting shall be directed to the Engineer each day during the performance of force account work. Failure of the CONTRACTOR to submit the sworn-to itemized accounting daily as required herein shall constitute a waiver by the CONTRACTOR of any right to dispute the OWNER'S determination of the amount due the CONTRACTOR for force account work.

Actual, reasonable field cost of the work to be charged under this paragraph (c) for force account work is limited to the following:

(1) the reasonable wages of all workmen, foremen, timekeepers, mechanics and laborers, plus costs of social security, old age and unemployment insurance, fringe benefits required by agreement or custom (excluding employee or executive bonuses), and worker's compensation insurance, for the time such labor is actually employed or used on force account work;

(2) reasonable costs of materials, tools, supplies and equipment (but not to include off-site storage unless so approved and directed in writing by the OWNER), whether incorporated or consumed into the force account work;

(3) reasonable rental costs of machinery and equipment, exclusive of hand tools, only for the time actually employed or used on force account work, whether rented from the CONTRACTOR or others; and

(4) a ratable proportion of premium expenses for all bonds and insurance to the extent force account work would cause an increase in such bond or insurance premiums.

Pending final determination of the cost to the OWNER, payment of undisputed amounts on force account shall be included on the monthly estimate as work is completed unless otherwise expressly provided in the written order signed by the OWNER to perform the work, nothing in this paragraph (c) shall be construed as directing the CONTRACTOR'S means and methods of performing the work in question."

(d) For purposes of this Item or any other provision of the Contract documents that allows a claim for extra work, the term “extra work” means work that is not reasonably within the scope of the Contract Documents and not otherwise incidental or necessary to performance of the Contract. The term does not include any change by the CONTRACTOR in the means and methods of performing the work from that anticipated or bid (even if such change in means or methods is requested or directed by the OWNER), whether or not the change is due to foreseeable or unforeseeable events or conditions, if the intended result or scope of the work is not expanded or increased. The OWNER shall not be liable for

any claim due to a change in the means or methods of construction by the CONTRACTOR, resulting in additional costs, if the OWNER has not changed the plans or specifications and if the intended result and scope of the work required by and reasonably inferred from the Contract Documents remains the same. The OWNER shall also not be liable for any claim for work required in the performance of the Contract, without which the Contract could not be completed, notwithstanding that the CONTRACTOR did not contemplate or foresee the degree or amount of work that would be necessary or required to complete the contract and notwithstanding that it cost the CONTRACTOR more to complete the Contract work than bid.

1.39. Delete the first paragraph and substitute the following:

"If the CONTRACTOR is of the opinion that: (a) certain work necessary or required to accomplish the result intended by this Contract or certain work ordered to be done as contract work by the OWNER is actually extra work and not contract work, or (b) any determination or order of the OWNER violates the terms and provisions of this Contract, then the CONTRACTOR shall promptly, either before proceeding with such work or complying with such order or determination, notify the OWNER in writing of his contentions with respect thereto and request a final determination by the OWNER."

At the end of the third paragraph, add the following sentences:

"If the OWNER is properly notified of a protest by the CONTRACTOR, then the cost of such disputed work shall be accounted for in accordance with the force account method described in Item 1.38(c). Payment, if any is due, shall be made when the OWNER makes a final determination regarding the merit of the CONTRACTOR'S protest. The final determination of the cost of disputed work under this method, or of any issue regarding the merits of a protest, is not waived by the OWNER'S issuance of any Change Order providing for the funding of the disputed work."

1.40. Delete the first paragraph and substitute the following:

"While the CONTRACTOR or his subcontractor is performing extra work in accordance with Item 1.38 (c), or is performing disputed work or complying with a determination or order under protest in accordance with Item 1.39 (the cost of which shall also be determined by the method set out in Item 1.38 (c)), the CONTRACTOR shall daily furnish the Engineer or other representative of the OWNER at the project site with three copies of verified statements showing: (a) the name and employed on extra work or engaged in complying with such determination or order, the character of extra work each is doing and the wages paid to him, including the rate and amount of payroll taxes, contribution for insurance and federal social security; and (b) the nature, cost and quantity of any materials, supplies, tools, plant or construction equipment furnished or used in connection with the performance of the extra work or in complying with such determination or order, and from whom purchased or rented. The above required submittals are in addition to and not in lieu of submittals required under Items 1.38 and 1.39."

Add the following:

"1.42.4. **INSPECTION OVERTIME**

The CONTRACTOR will be required to reimburse the OWNER for the cost of all inspection overtime which may be necessary for the successful and expeditious prosecution of the work included in this Contract.

Inspection overtime will not be charged if the OWNER required the CONTRACTOR to work during the overtime periods required because of restrictions for water main tie-ins, traffic requirements, or other periods that inspection overtime shall not be charged as determined by the OWNER, and the OWNER's decision shall be final.

Except in an emergency situation, the CONTRACTOR shall be required to furnish in writing to the OWNER, not less than 36 hours in advance, a request to work overtime on Saturday, Sunday, or Holiday. A written request is not required for overtime work on a weekday.

Reimbursements for overtime work of Dallas Water Utilities Inspectors shall be made directly to Dallas Water Utilities. Checks should be made payable to Dallas Water Utilities and mailed or hand carried to:

Accounting and Finance Dept.
Construction/Cost Accounting
5/A/N City Hall
1500 Marilla
Dallas, Texas 75201

Inspection overtime will be charged to the CONTRACTOR at the rate of $30 per hour per inspector with the number of inspectors to be determined by the OWNER under the following overtime conditions:

1. Weekdays between the hours of midnight to 7:30 a.m. and 4:30 p.m. to midnight.

2. Saturdays, Sundays and Holidays between midnight to midnight with a minimum of $60 per day.

Inspection fees will be accumulated during the monthly estimate period. A statement of charges for the estimate period will be provided to the CONTRACTOR. The statement of charges must be paid prior to the OWNER processing the following estimate. PAYMENT IS DUE WITHIN TEN (10) DAYS AFTER THE DATE OF THE INVOICE. If payment is not made as due, the OWNER reserves the right to deduct or withhold amounts due from the monthly progress payment or final payment, pursuant to Item 1.52 of the Standard Specifications.

It is the intent of the OWNER to inspect all work on this project. Any work which is done without proper inspection may be removed and replaced at the direction of the Engineer or not paid for, whichever the OWNER deems appropriate. The CONTRACTOR must pay for all testing needed to determine acceptability for any work done without proper inspection, as directed by the

Engineer."

1.44. In the fourth line of the first paragraph, change the word "annulled" to "terminated."

1.46. Add at the end of the second paragraph:

"The CONTRACTOR must submit, with the request for approval of a subcontractor, the location, within the Dallas - Ft. Worth Metroplex area, of at least three contracts where the subcontractor has performed construction similar to the construction outlined in the Contract. If required by the OWNER, the subcontractor's representative will accompany the OWNER'S representative on examination of the referenced work. The CONTRACTOR must also submit to the OWNER a revised City of Dallas Schedule of Work and Subcontractor/Supplier Payment form anytime there is a change in the subcontractor/supplier participation on the Contract.

If an M/WBE subcontractor is listed on the Schedule of M/WBE Participation, the CONTRACTOR must verify monthly that the listed M/WBE was used, estimate the value of that work, and estimate the percent of the total contract amount this work represents.

When the work is complete, the CONTRACTOR must furnish proof to the OWNER that the M/WBE was used, the amount paid to the M/WBE, and the percent of the total contract amount this work represents. If the percent paid is less than that shown on the Schedule of M/WBE Participation, the CONTRACTOR must also furnish a statement explaining the variance. The Final Estimate will not be processed until this information is received.

Submittals should be furnished to :

Project Manager
Capital Improvement Programs
2121 Main St., Suite 300
Dallas, Texas 75201

Add the following:

"1.46.1. **SUBCONTRACTUAL RELATIONS**

The CONTRACTOR is solely responsible for making payments properly to his subcontractors and suppliers on the Project. During construction of the Project, the CONTRACTOR shall submit each month a Contractor's Report of Subcontractor/Supplier Payment (the "Report"). Every firm that was shown on the latest City of Dallas Schedule of Work and Subcontractor/Supplier Payment for this Contract must be shown on the Report, even if a firm has not performed any work or service on the Contract during the estimate or invoice period in question.

The Report shall show all payments made to date by the CONTRACTOR (plus existing retainage) to each subcontractor and supplier involved in the Project.

The Report shall be made on a form approved and supplied by the OWNER. As an alternative to the Report, the CONTRACTOR may furnish Affidavits of Payment Received, which affidavits shall be executed by each subcontractor and supplier owed money and paid during the previous progress payment period for work or materials furnished on the Project. If, for any reason, the CONTRACTOR is withholding payment to a subcontractor or supplier due to a dispute or other problem with performance, the CONTRACTOR shall note on the Report form the amount withheld and that payment is in dispute. The OWNER may require the CONTRACTOR to document and verify the dispute or other problem in question. Receipt by the OWNER of the Report or Affidavits of Payment Received shall be a condition precedent to payment on any invoice or estimate. The OWNER reserves the right in its sole discretion, pursuant to Item 1.52 of the Standard Specifications, to withhold payment to the CONTRACTOR should it appear from the Report or other information furnished to the OWNER that: (1) the Report has not been properly completed; (2) the CONTRACTOR has knowingly provided false information regarding payment or nonpayment of any subcontractor or supplier; or (3) the CONTRACTOR has otherwise failed to make payment properly to any subcontractor or supplier. The CONTRACTOR shall not have any claim for delay or additional compensation as a result of the OWNER's enforcement of this Item 1.46.1. This Item 1.46.1 shall not be construed to create a contractual relationship, express or implied, between any subcontractor and the OWNER.

The CONTRACTOR shall evaluate each subcontractor and supplier. The evaluation(s) will be furnished to the OWNER prior to payment of the final estimate."

Add the following:

"1.46.2. When submitting a bid proposal, the CONTRACTOR thereby assigns to City any and all claims for overcharges associated with this contract or any subcontracts directly or indirectly related to the work, which overcharges may arise under the Anti-Trust Laws of the United States, 15 U.S.C.A., Section 1, et seq (1973).

CONTRACTOR shall include in all his subcontracts a clause that requires his subcontractors to assign to City and all claims for overcharges on purchases and supplies, which may arise under the Anti-Trust Laws of the United States, 15 U.S.C.A., Section 1 et seq (1973).

CONTRACTOR shall require his subcontractors to execute a notarized assignment on or before the date of the City's approval of the respective subcontractors for the work, which assignment shall become a part of the prime contract and made a part hereof for all purposes."

1.51.1. Delete the first two sentences and substitute the following:

"The OWNER agrees that between the 10th day and the 15th day of each month, the Engineer will make an appropriate estimate of the value of work done during the preceding month under the Contract. Whenever said estimate of work done since the last previous estimate exceeds $100.00 in amount, a percentage of such estimated sum will be paid to the Contractor about 30 days

after the Engineer's estimate is completed.

In the event of a discrepancy between quantities of work as shown by the CONTRACTOR and as determined by the OWNER, the OWNER's determination or measurement shall be final. OWNER shall not be liable for interest on any late or delayed payment caused by any claim or dispute, any discrepancy in quantities as described above, any failure to provide supporting documentation or other information required with the estimate or as a precondition to payment under the Contract, or due to any payment the OWNER has a right to withhold under the Contract."

1.51.3. Add at the end of the paragraph:

"The Certificate of Acceptance will not be issued until all water and wastewater appurtenances have been adjusted to their final position."

1.51.4. Delete the last two sentences of the first paragraph and substitute the following:

"The amount of the final estimate, less any sums that have been previously paid, deducted or retained under the provisions of this Contract, shall be paid to the CONTRACTOR within thirty (30) days after final acceptance, provided that the CONTRACTOR has first furnished the OWNER: (a) a consent of surety to final payment; (b) the final Contractor's Report of Subcontractor/Supplier Payment, evidencing that all indebtness connected with the work and all sums of money due for any labor, materials, apparatus, fixtures or machinery furnished for or used in the performance of the work have been paid or otherwise satisfied, or that the person or persons to whom the same may be respectively due have consented to final payment; and (c) such other affidavits, lien waivers and other documentation as the OWNER may reasonably require to protect its interests. In addition, the CONTRACTOR shall be required to execute the OWNER'S standard Affidavit of Final Payment and Release as a precondition to receipt of final payment."

Add after the last paragraph:

"The CONTRACTOR will be evaluated by the OWNER. An example of the evaluation form is available at 2121 Main Street, Suite 300, Dallas, Texas 75201."

1.52. Delete subsection (g) and substitute the following:

"(g) failure of the CONTRACTOR to make payments to any subcontractors or suppliers for material or labor used in the performance of the work;"

1.53. Add after the last paragraph:

"If the CONTRACTOR has a change of address, the notice must be submitted on company letterhead, signed by an officer of the company, and forwarded to:

Director of Purchasing
Room 3/F/S, City Hall
1500 Marilla
Dallas, Texas 75201

With a copy to:

Project Manager
Capital Improvements Program
2121 Main St., Suite 300
Dallas, Texas 75201

Add the following:

"1.56.1. The CONTRACTOR must submit a copy of each weekly payroll pertaining to his Contract to the OWNER as follows:

Project Manager
Capital Improvements Program
2121 Main St., Suite 300
Dallas, Texas 75201

These shall be coded as follows:

Code	**Description**
A1	**Black Male**
A2	**Black Female**
B1	**Hispanic Male**
B2	**Hispanic Female**
C1	**Other Male**
C2	**Other Female**
D1	**White Male**
D2	**White Female"**

1.57.2.(c) Delete the entire subsection and substitute the following:

“at the OWNER's written request, deliver and assign to the OWNER, or any person or entity acting on the OWNER'S behalf, any or all subcontracts, purchase orders and options made by CONTRACTOR in the performance of the work, and deliver to the OWNER true and correct originals and copies of such contract documents, or terminate all subcontracts, purchase orders or options to the extent that they relate to the performance of work terminated by the notice of termination;"

1.58. In the second paragraph, second line, delete the words "rental or lease".

In the second paragraph, delete subsection (b) and substitute the following:

“(b) all materials, supplies and other tangible personal property, other than machinery or equipment and its accessories and repair and replacement parts, necessary and essential for the performance of the Contract with the OWNER which is to be completely consumed at the job site."

In the third paragraph, delete the first sentence and substitute the following:

"Tangible personal property necessary and essential for the performance of the Contract includes only such materials, tools and supplies specifically needed and directly used to incorporate tangible personal property into the real estate being improved under the Contract".

At the end of the third paragraph, add the following:

"Tangible personal property is ‘completely consumed’ if after being used once for its intended purpose it is used up or destroyed. Any exemption certificate issued by the CONTRACTOR is subject to the then existing rules and interpretations governing the exemption issued by the Comptroller of Public Accounts of the State of Texas. The OWNER will not make interpretations of the extent or applicability of the exemption in a particular case; if the CONTRACTOR, or any subcontractor or supplier of the CONTRACTOR, has any questions about the extent or applicability of the exemption in specific circumstances, guidance should be sought from the State Comptroller's Office."

In the fourth paragraph, last line, delete the words "leased or rented".

2.1.1.(c)(4) Add the following after the first paragraph:

"No more than 40% difference shall be retained between any two consecutive sieves."

2.3.3. Add at the end of the first paragraph:

"Brick shall be grade MS and shall be cored."

2.10.1.(b) Add the following at the end of the paragraph:

"All supplied extra material to make systems operational must be shown on as-built drawings. Copies of the drawings shall be submitted to the OWNER."

2.12.4. (c)(1) Delete the second paragraph.

2.12.5. Add the following:

"(k) All pipe must have received verifiable Certification of Compliance with the NSF 61 Standard."

2.12.7. Delete the last paragraph in (c) and substitute the following:

"Bolts and nuts for mechanical joints shall comply with all provisions of AWWA C111, Section 11-8.5. Bolts and nuts for flanged ends shall be either ASTM A316 stainless steel bolts and nuts or ASTM A325 Type 3 bolts with ASTM A563 Grade C3 nuts."

Delete the third paragraph in (e) and substitute the following:

"Bolts and nuts for mechanical joints shall comply with all provisions of AWWA C111, Section 11-8.5. Bolts and nuts for flanged ends shall be either ASTM A316 stainless steel bolts and nuts or ASTM A325 Type 3 bolts with ASTM A563 Grade C3 nuts."

Add the following:

"(i) All pipe and fittings must have received verifiable Certification of Compliance with the NSF 61 Standard".

2.12.8. Delete the second paragraph in (b) and substitute the following:

"Design Requirements. The ductile iron shall conform in all respects to the specifications set forth in ASTM Standard A 377, Standard Index of Specifications for Ductile Iron Pressure Pipe. The specific grade of ductile iron used shall be Grade 60-42-10, with a Minimum Tensile Strength of 60,000 psi, a Minimum Yield Strength of 42,000 psi, and a Minimum Elongation in 2" of

10%.

Ductile iron wall thickness for all pipe 3" through 12" in diameter shall be a minimum of Class 52 unless specified otherwise in the special provisions or in the plans. For larger diameters and deep cover, a special design shall be provided."

Delete the second paragraph in (c) and substitute the following:

“Bolts and nuts for mechanical joints shall comply with all provisions of AWWA C111, Section 11-8.5. Bolts and nuts for flanged ends shall be either ASTM A316 stainless steel bolts and nuts or ASTM A325 Type 3 bolts with ASTM A563 Grade C3 nuts.”

Delete the fifth paragraph in (e) and substitute the following:

“Bolts and nuts for mechanical joints shall comply with all provisions of AWWA C111, Section 11-8.5. Bolts and nuts for flanged ends shall be either ASTM A316 stainless steel bolts and nuts or ASTM A325 Type 3 bolts with ASTM A563 Grade C3 nuts.”

Add the following:

“(i) All pipe and fittings must have received verifiable Certification of Compliance with the NSF 61 Standard”.

2.12.9. Add the following:

“(g) All pipe must have received verifiable Certification of Compliance with the NSF 61 Standard”.

2.12.13.(d) Add the following:

"(4) ASTM Designation F-679, "PVC Large Diameter Plastic Gravity Sewer Pipe and Fittings", sizes 18-inch through 36-inch."

2.12.19.(d) In the first sentence, change "One half" to "one third."

2.12.20. Delete the last paragraph in (d) and substitute the following:

“Bolts and nuts for mechanical joints shall comply with all provisions of AWWA C111, Section 11-8.5. Bolts and nuts for flanged ends shall be either ASTM A316 stainless steel bolts and nuts or ASTM A325 Type 3 bolts with ASTM A563 Grade C3 nuts.”

Add the following:

“(g) All pipe must have received verifiable Certification of Compliance with the NSF 61 Standard”.

2.12.26. Add the following:

"(h) All pipe must have received verifiable Certification of Compliance with the NSF 61 Standard".

2.13.1. Delete all paragraphs and substitute the following:

"(a) GENERAL

(1) Scope:

This specification covers Double-Disc, Metal-Seated Gate Valves in sizes 3" through 48" which shall conform to the features and material specifications of the latest revision of the AWWA C500 Standard, ***as amended by this specification***. Gate valves larger than 48" shall be a special consideration. Tests and design data may be designated in the request for bids.

(A) These valves shall be bidirectional, non-rising stem valves with a minimum design working water pressure of no less than 200 psig for valves 3" through 12" in diameter. Valves 16" and larger in diameter shall have a minimum design working water pressure of no less than 150 psig.

(B) All valves through 16" in diameter shall be designed for vertical installation with no gearing and no bypass valve.

(C) All valves over 16" in diameter shall be designed specifically for horizontal installation. Each manufacturer shall provide design and test data as requested by the City of Dallas to allow evaluation of the appropriateness of horizontal installation of their double-disc, metal-seated gate valve prior to that valve receiving approval and being accepted by the City of Dallas. All evaluation will be conducted by the Dallas Water Utilities Department Distribution Division's Material Engineer located at 4120 Scottsdale Drive, Dallas, Texas 75227.

(D) Tapping valves which allow ½" undersized cutters shall be provided, if tapping valves are specified. All tapping valves through 12" in diameter shall be designed with an alignment lip in accordance with MSS SP-60. Tapping valves 16" and larger in diameter shall have an alignment lip whose dimensions are agreed to by the purchaser and the manufacturer.

(E) The valve operating nut shall be painted black and shall open in a counter-clockwise direction.

(F) The waterway shall be full-port.

(G) The gate valve shall be furnished with the type of end configuration specified. The valve shall be available with Class 125 ANSI drilled flanges, mechanical joint and push-on ends per AWWA C111, or any combinations thereof.

(H) All double-disc, metal-seated gate valves shall be furnished complete as specified including accessories and shipping and handling costs.

(2) Contractor-Furnished Valves:

All Contractor-furnished double-disc, metal-seated gate valves must be approved by the Dallas Water Utilities Department (DWUD). For a list of double-disc, metal-seated gate valves by trade name or for a non-binding review of materials not shown on the list by trade name, contact:

Materials Engineer
Distribution Division
4120 Scottsdale Drive
Dallas, TX 75227
Telephone: (214) 670-8459

(3) Detailed Drawings:

Complete approved drawings, details, and specifications shall be filed with the Dallas Water Utilities Department Distribution Division prior to acceptance and approval of any valve. The drawings shall show a complete materials list, which includes the description and applicable ASTM reference for each part.

(4) Experience:

The manufacturer shall have a minimum of five (5) years experience in the production and sales of double-disc, metal-seated gate valves. A qualified list of customers, including the name of the organization, address, the name of a representative, and telephone number shall be available upon request.

(5) National Standards:

All ANSI, ASTM, and AWWA Standards referred to herein shall be as last revised. In the case of conflict, this Specification shall govern.

(b) MATERIALS

(1) Body and Bonnet: The valve body and bonnet shall be made of

either gray iron per ASTM A126, Class B, or ductile iron per ASTM A536. The body and bonnet shall each be full-dimensioned, with a minimum thickness as shown in Table 2 of the AWWA C500 Standard. No thin-wall or "compact" design valves shall be acceptable. Castings shall be clean and sound with no structural defects. The following information, at a minimum, shall be cast in raised letters into the body or bonnet: Manufacturers' name or symbol, year cast, size, and rated working pressure.

(2) Bolting Materials:

(A) All bonnet , stuffing box, and bypass valve nuts and bolts shall be factory-installed Type 316 stainless steel. Bolt heads shall be hexagonal, with dimensions conforming to ANSI B18.2.1. Nuts shall be hexagonal, with dimensions conforming to ANSI B18.2.2.

(B) Bolts and nuts for mechanical joints shall comply with all provisions of AWWA C111, Section 11-8.5. Bolts and nuts for flanged ends shall be either ASTM A316 stainless steel bolts and nuts or ASTM A325 Type 3 bolts with ASTM A563 Grade C3 nuts.

(3) Gaskets:

(A) All valves with mechanical joint ends shall be provided with full-dimensioned SBR mechanical joint gaskets in complete compliance with the cross-sectional drawing and dimensioning data contained in Figure 11.2 and Table 11.2 of the AWWA Standard C111, latest edition. No "special design" gaskets shall be acceptable.

(B) All flanged faces shall be provided with 1/8" thick rubber ring gaskets, either of the flat design or of the "Flange-Tyte" ribbed design patented by U.S. Pipe. All ring gaskets up through 48" shall be dimensioned in accordance with Table A.1 of Appendix A of the AWWA Standard C110, latest edition.

(4) Glands:

All valves with mechanical joint ends shall be provided with MJ glands which shall be in full compliance with all of the requirements of the AWWA C111 Standard, except that all glands shall be standard full-dimensioned glands in accordance with Figure 11.1 and Table 11.1, regardless of whether gray iron or ductile iron is used. Gland designs "incorporating reduced wall section thicknesses" shall not be acceptable.

(5) Gates and Rings:

Gates 3" and smaller shall be solid bronze. 4" gates shall be either cast iron with bronze gate rings or solid bronze. All gates above 4" shall be cast iron with bronze gate rings.

(6) Wedging Device

(A) Valves 4" and smaller shall have solid bronze wedges.

(B) Valves above 4" may have solid bronze or cast iron bronze mounted wedges. The bronze mounting shall be built as an integral unit mounted over or supported on a cast iron base and shall be of sufficient dimension to be structurally sound and adequate for the forces which will be imposed upon it. Thin plates or shapes doweled or screwed into cast iron surfaces in such a manner that the screws or dowels will carry the load will not be accepted.

(C) Wedging surfaces on valves up to 16" shall be bronze to cast iron.

(D) Wedging surfaces on valves 16" and larger shall be bronze to bronze. Other moving surfaces integral to the wedging action shall be bronze to iron.

(7) Stem:

(A) The stem shall be made of either:

(i) Bronze in accordance with Section 3.11.6 of the AWWA C500 Standard.

(ii) Stainless steel, as long as the provisions of Section IV.B., of this Specification, *Test To Failure*, shall be met.

(B) The minimum diameter and number of turns to open shall be as specified in the AWWA C500 Standard.

(C) Stem collars of bronze stems shall be integral with the stem, formed of the main stem material itself either through machining of the stem or through an “upset” heat/compression process.

(D) Stem collars of stainless steel stems shall be as designed by the manufacturer. Details of these stem collars, complete with dimensioned drawings, shall be made available to the City of Dallas upon request.

(E) The stem shall be sealed in accordance with the AWWA C500 Standard.

(F) The stem nut shall be inset in the gate, either integrally cast or swaged in place or retained by a T-Nut configuration. Stem nuts shall be manufactured of a bronze alloy compatible with the stem.

(G) The stem shall be of such length that the threads of the stem nut are entirely engaged when the valve is in the fully-closed position.

(H) The threaded length of the stem nut shall be not less than 1.25 times the outside diameter of the stem.

(8) Wrench Nuts:

(A) Wrench nuts shall be made of either gray iron per ASTM A126, Class B, or ductile iron per ASTM A536.

(B) The nut shall be 2" square at the base, 1 15/16" square at the top, and 1 3/4" high.

(C) An arrow indicating the direction of opening and the word “OPEN” shall be cast in the nut (or on the body adjacent to the nut).

(D) The nut shall be mechanically secured to the valve by means of a hexagonal stainless steel or bronze bolt for easy removal. A pressed pin/roll pin that requires knocking out is not acceptable.

(9) Rollers, Tracks and Scrapers for Horizontal Valves:

Rollers, tracks and scrapers shall be in accordance with the AWWA C500 Standard.

(c) COATINGS:

(1) Surface Preparation: All surfaces shall be prepared in accordance with the printed recommendations of the manufacturer of the coating which is to be applied.

(2) Coating System: Each valve shall be coated in accordance with Section 2.2.8 of the AWWA C500 Standard. A bituminous coating complying with Federal Specification TT-C-494b shall be used for the exterior and interior coatings.

(d) DESIGN REQUIREMENTS:

All valves shall be designed so that the following conditions are met:

(1) Input Torque:

Valves 3" and 4" in diameter shall be capable of withstanding an input torque of at least 250 ft-lbs with no permanent damage or deformation; valves 6" through 12" in diameter shall be capable of withstanding an input torque of at least 350 ft-lbs with no permanent damage or deformation; and valves 16" and larger" in diameter shall be capable of withstanding an input torque of at least 400 ft-lbs with no permanent damage or deformation.

(2) Test To Failure:

All parts, including the body and bonnet, shall be so proportioned that, if excessive torque is applied to the stem in the closing direction with the valve gate seated and subjected to the working water pressure, initial failure shall not occur in the valve body, valve bonnet, stuffing bonnet or seal plate. The intent of this requirement is to insure that the valve will maintain it's external integrity if it's forced to failure in the closed position.

(3) Body/Bonnet Design:

All valves shall be designed such that the valve bonnet and the valve body have drilled, cored, or cast holes completely through the flanged mating faces which will allow the bonnet to be secured to the body with pass-through bolts and nuts. No valve which has drilled and tapped recesses in the valve body to receive the bonnet bolts is acceptable.

(4) Stem Replacement:

All double-disc, metal-seated gate valves shall be designed so that the stem can be replaced with the valve installed in the line, without removing the valve bonnet.

(5) Valve Design:

All valves 3" through 16" in diameter shall be designed for vertical installation. All valves larger than 16" in diameter shall be designed for horizontal installation, complete with a bypass valve, rollers, tracks and scrapers.

(e) PROOF OF DESIGN TESTS:

The manufacturer shall provide the DWUD Distribution Division with approved certified test results or a statement regarding compliance with the following tests in accordance with AWWA C500, Section 5.1.

(1) Hydrostatic Test:

Each valve shall be subjected to hydrostatic testing in accordance to Section 5.1.2 of the AWWA C500 Standard.

(2) Torque Test:

The manufacturer shall over-torque and valve off one prototype of each size in both the open and closed position to demonstrate no distortion of the valve stem or damage to the resilient seat. The applied torque shall be 250 ft-lbs for valves 4" and smaller, 350 ft-lbs for 6" through 12" valves, and 400 ft-lbs for 16" and larger valves.

(f) METALLURGICAL TESTING

(1) Independent Testing:

Subsequent to meeting all of the other requirements of this specification but prior to acceptance of the valve, the valve manufacturer may be required to furnish metallurgical analyses conducted by a qualified independent testing laboratory for verification of material compliance with all applicable ASTM designations.

(2) Data Required:

The specific analyses required shall be determined by the City of Dallas on a case-by-case basis.

(g) NATIONAL SANITATION FOUNDATION (NSF) STANDARD 61

(1) Compliance:

All valves must have received verifiable Certification of Compliance with the NSF 61 Standard.

(h) PACKAGING:

All valves provided shall be protected during transit and storage to prevent damage to any flanges or to the coatings of the valve.

(i) VERIFICATION OF COMPLIANCE WITH SPECIFICATIONS:

(1) Documentation:

Prior to any manufacturer's double-disc, metal-seated gate valve being approved for use by the City of Dallas, the valve manufacturer shall deliver to the Dallas Water Utilities Department Distribution Division Material Engineer at 4120 Scottsdale Drive, Dallas, Texas 75227 a formal statement which either:

(A) Verifies and affirms the compliance of that manufacturer's double-disc, metal-seated gate valve with all the provisions of this Specification; OR

(B) Specifically identifies each section of this Specification which is **not** met by that manufacturer's double-disc, metal-seated gate valve, and gives sufficient detailed information regarding the nature of each non-compliance to allow the City of Dallas to determine if the non-compliance is minor and can be waived, or if it is major and shall be considered a cause for rejection.

(j) TAPPING SLEEVES SHALL CONFORM TO THE MANUFACTURERS STANDARDIZATION SOCIETY STANDARD SP-111 AND THE FOLLOWING:

(1) Body:

(A) Iron tapping sleeves shall be full bodied and full dimensioned. The material for the iron tapping sleeve bodies shall be gray iron or ductile iron in accordance with AWWA Standard C110.

(B) Carbon steel tapping sleeves shall be ASTM A36, A283 or A285 carbon steel, with a minimum thickness of 3/8". Lugs shall be the triangular type design.

(C) Stainless steel tapping sleeves shall be 18-8 type 304 stainless steel. The thickness of the front, outlet panels shall be 12 gauge minimum and the thickness of the back panels shall be 14 gauge minimum. Lugs shall be the triangular type design.

(D) The sleeves shall be in two sections to be bolted together and dimensioned to secure proper fit on the type and class of pipe on which it is used. Sleeves shall be provided with a 3/4" N.P.T. test opening so that pressure tests can be made prior to tapping. The opening shall be provided with a 3/4" bronze plug.

(2) Flanges:

The branch outlet of the sleeve shall be flanged to conform to AWWA Standard C207 Class D, ANSI Class 150 and shall be in accordance with MSS-SP-60 Standards.

(3) Gasket:

(A) All gaskets shall conform to ASTM Standard 2000.

(B) The gaskets for the carbon steel tapping sleeves shall be affixed around the recess of the tap opening in such a manner as to preclude rolling or binding during installation.

(C) The gaskets for stainless steel tapping sleeves shall be the full circumferential, 360° type.

(4) Bolts and Nuts:

(A) Iron tapping sleeves shall have a minimum number and size of bolts as follows or an approved alternate:

Flange Size	**Number of Bolts**	**Size**

4"	**8**	**¾"**
6"	**8**	**⅞"**
8"	**8**	**⅞"**
10"	**12**	**1"**
12"	**12**	**1"**
16"	**16**	**1 ⅛"**
20"	**20**	**1 ¼"**
24"	**20**	**1 ⅜"**

The bolts and nuts for iron tapping sleeves shall conform to AWWA Standard C111.

(B) Carbon steel tapping sleeves shall have a minimum number and size of bolts as follows or an approved alternate:

Flange Size	Number of Bolts	Size
4"	**6**	**¾"**
6"	**6**	**¾"**
8"	**8**	**¾"**
10"	**10**	**¾"**
12"	**10**	**¾"**

The bolts and nuts for carbon steel tapping sleeves shall conform to AWWA Standard C111. Type 304 or 316 stainless steel bolts and nuts may also be provided. If stainless steel bolts and nuts are provided, the nuts shall be coated to prevent galling.

(C) Stainless steel tapping sleeves shall have a minimum number and size of bolts as follows or an approved alternate:

Flange Size	Number of Bolts	Size
4"	**6**	**⅝"**
6"	**8**	**⅝"**
8"	**10**	**⅝"**
10"	**16**	**⅝"**
12"	**16**	**⅝"**

The bolts and nuts for stainless steel tapping sleeves shall have UNC rolled threads and be made of type 304 or 316 stainless steel. The nuts shall be coated to prevent galling.

(5) Finish:

(A) All iron sleeves shall be coated and lined per AWWA Standard C110.

(B) All carbon steel sleeves shall be fusion bonded epoxy coated per AWWA Standard C213 to a minimum thickness of 12 mils thickness on both the exterior and the interior surfaces. The finished epoxy coat shall be free of laminations and blisters, shall not peel and shall remain pliable and resistant to impact.

(C) All stainless steel sleeves shall have all welds fully passivated to restore the corrosion resistance of the stainless steel.

(6) Pressure Rating: The working pressure rating shall be a minimum of 150 psi.

(7) Restrictions: Carbon steel sleeves shall be restricted to use on pipe sizes 12" and larger. Carbon steel sleeves shall not be used for taps greater than 75 percent of the pipe diameter. The use of these sleeves for “size-on-size” taps is prohibited.

(8) NSF Standard 61: All sleeves must have received verifiable Certification of Compliance with the NSF 61 Standard.

2.13.2. Delete the entire subsection of (e) and substitute the following:

"The valves shall be designed to operate under an operating pressure of 150 psi (1034 kpa)."

Add the following:

“(g) All air valves must have received verifiable Certification of Compliance with the NSF 61 Standard.”

2.13.4. Delete all paragraphs and substitute the following:

“(a) GENERAL

(1) Scope:

This specification covers Butterfly Valves in sizes 10" through 120" which shall conform to the features and material specifications of the latest revision of the AWWA C504 Standard, ***as amended by this specification***.

(A) These valves shall be suitable for fresh water having a pH greater than 6 and a temperature less than 125^0F.

(B) All valves shall be designed for a maximum steady-state fluid working pressure of 150 psig and a maximum steady-state differential pressure of 150 psig.

(C) All valves shall be Class “B” valves designed for a maximum velocity of no less than 16 feet per second.

(D) All valves shall be of the short-body full flanged face design, with Class 125 ANSI drilled flanges.

(E) The valve operating nut shall be painted black and shall open in a counter-clockwise direction.

(1) All butterfly valves shall be furnished complete as specified including accessories and shipping and handling costs.

(2) Quality Assurance:

(A) Each manufacturer who provides butterfly valves under this specification shall have an approved Quality Assurance Program for controlled manufacturing in effect at the manufacturer=s facility throughout the manufacturing cycle. This Quality Assurance Program shall conform to a nationally-recognized standard for quality assurance programs and shall apply to all phases of manufacturing from procurement of materials through shipping of the completed product.

(B) All materials used for bodies, discs, seats (resilient and metal), and shafts shall be certified by the material supplier. Certification shall consist of the results of chemical and mechanical property tests which conform to a detailed Quality Assurance Manual. The Manual shall be available for review and the manufacturing facility available for a quality audit at the convenience of the OWNER. A Quality Assurance Manual shall be included in the required submittals.

(3) Contractor-Furnished Valves:

All Contractor-furnished butterfly valves must be approved by the Dallas Water Utilities Department (DWUD). For review of valves and materials contact:

Materials Engineer
Distribution Division
4120 Scottsdale Drive
Dallas, TX 75227
Telephone: (214) 670-8459

(4) Detailed Drawings:

Complete approved drawings, details, and specifications shall be filed with the Dallas Water Utilities Department Distribution Division prior to acceptance and approval of any valve. The drawings shall contain dimensional data on all components of the valve and shall show a complete materials list which includes the description and

applicable ASTM reference for each part.

(5) Experience:

The manufacturer shall have a minimum of five (5) years experience in the production and sales of AWWA C504 butterfly valves. A qualified list of customers, including the name of the organization, address, the name of a representative, and telephone number shall be available upon request.

(6) National Standards:

All ANSI, ASTM, and AWWA Standards referred to herein shall be as last revised. In the case of conflict, this Specification shall govern.

(b) MATERIALS

(1) Body:

The valve body shall be made of either gray iron per ASTM A48 Class 40 or ASTM A126 Class B, or ductile iron per ASTM A536, Grade 65-45-12 or Grade 70-50-05.

(2) Disc:

Valve discs for valves 10" through 66" in diameter shall be manufactured of ASTM A536 Grade 65-45-12 ductile iron. Valve discs for valves 72" through 120" in diameter shall either be manufactured of ASTM A536 Grade 65-45-12 ductile iron or may be of ASTM A516 Grade 60 fabricated steel.

(3) Valve Seat:

The resilient valve seats shall be of Buna-N synthetic rubber. The mating seat surface, integral with the valve body or contained on the disc edge, shall be 18-8, Type 304 stainless steel. Sprayed or plated mating seat surfaces are not acceptable.

(4) Valve Shaft:

Valve shafts shall be manufactured of 18-8, type 304 stainless steel.

(5) Shaft Bushings:

Shaft bushing material shall be as recommended by the manufacturer provided that bushing material is disclosed to the OWNER and approved by the OWNER prior to the manufacturer of any valves for provision under this specification. (See Section V.F. of this Specification.)

(6) Bolting Materials:

(A) All valves from 10" through 48" in diameter shall be provided with ASTM A325 Type 3 Weathering Steel heavy hex main

flange bolts dimensioned in accordance with ANSI Standard B.18.2.1. All nuts for the ASTM A325 Type 3 flange bolts shall be ASTM A563, Grade C3 Weathering Steel heavy hex nuts dimensioned in accordance with ANSI Standard B.18.2.2. As an alternative, the main flange bolts and nuts may be of Type 316 stainless steel, dimensioned in accordance with ANSI Standards B.18.2.1. and B.18.2.2.

(B) All valves from 54" through 120" in size ordered with flanged end configurations shall be provided with Type 316 stainless steel heavy hex flange bolts. Bolt heads shall be hexagonal, with dimensions conforming to ANSI B18.2.1. All nuts shall be Type 316 stainless steel heavy hex, with dimensions conforming to ANSI B18.2.2.

(C) All stainless steel bolts manufactured by drop-forging or welding shall be fully passivated by the Type VI passivation treatment as defined by Federal Specification QQ-P-35C (also known as the Nitric 2 treatment as defined by ASTM A967-96) or by the Type VII passivation treatment as defined by Federal Specification QQ-P-35C (also known as the Nitric 3 treatment as defined by ASTM A967-96). A Water Immersion Test as defined in Federal Specification QQ-P-35C and in ASTM A967-96 shall be performed on a sample of the passivated bolts, and a Certificate of Analysis provided.

(7) Gaskets:

All valves with flanged ends shall be provided with **⅛"** thick rubber ring gaskets of the **"**Flange-Tyte**"** ribbed design patented by U.S. Pipe, or an approved equal. All ring gaskets shall be dimensioned in accordance with Table A.1 of Appendix A of the AWWA Standard C110, latest edition.

(8) Wrench (Operating) Nut:

(A) The wrench nut shall be made of either gray iron per ASTM A126, Class B, or ductile iron per ASTM A536.

(B) The nut shall be 2" square at the base, 1 15/16" square at the top, and 1 3/4" high.

(C) An arrow indicating the direction of opening and the word “OPEN” shall be cast in the nut (or on the body adjacent to the nut).

(D) The nut shall be mechanically secured to the valve by means of an hexagonal stainless steel or bronze bolt for easy removal. A pressed pin/roll pin that requires knocking out is not acceptable.

(c) INTERIOR COATING:

(1) Surface Preparation:

All interior ferrous surfaces of the valve exposed to water and subject to corrosion shall be prepared in accordance with the printed recommendations of the manufacturer of the coating which is to be applied.

(2) Coating System Compliance:

The interior coating system shall be in compliance with the AWWA C550 Standard, shall immediately follow the surface preparation, and shall be a coating system which has received Certification of Compliance with the NSF 61 Standard for this particular application.

(3) Coating Thickness:

The coating shall be applied in accordance with the coating manufacturer's printed instructions. The finished dry thickness of this coating in mils shall be within the range recommended by the manufacturer. The coating shall be applied to all stationary interior ferrous surfaces including all interior openings in the valve body. The coating shall not be applied to the gasket surfaces of the end flanges.

(4) Coating Integrity:

After the coating is completely cured, the coated surface shall be tested for porosity holidays and pinholes in accordance with Section 5.1 of the AWWA C550 Standard. All holidays or irregularities shall be repaired in accordance with the coating manufacturer's printed instructions and the coating again tested. This process shall be repeated until the coating passes the holiday test.

(5) Coating Documentation:

Upon request, the valve manufacturer shall furnish to the City of Dallas specific data on:

(A) The coating system used, including the name of the manufacturer of the coating system and the specific coating system designation.

(B) A copy of the coating manufacturer's printed surface preparation and application instructions.

(C) Verification of Certification of Compliance with the NSF 61 Standard for this application of this coating.

(D) Verification that all valves supplied have in fact passed the Coating Integrity Test required by Section III D of this specification.

(E) A copy of the coating manufacturer's printed instructions for the valve manufacturer's repair of holidays and pinholes which are detected in the coating.

(F) A copy of the coating manufacturer's printed instructions for field repair of damage to the coating.

(d) EXTERIOR COATING:

(1) Surface Preparation:

All exterior surfaces shall be prepared in accordance with the printed recommendations of the manufacturer of the coating which is to be applied.

(2) Coating System:

The exterior ferrous surfaces of each valve shall be coated in accordance with the AWWA C 504 Standard, as detailed below:

(A) Two different exterior coating systems will be required, depending upon where the valve is to be installed:

(i) Unless otherwise specified, the exterior of the butterfly valve shall, at a minimum, be shop coated with a suitable metal primer to a dry film thickness of not less than three (3) mils. Flange faces shall be protected from atmospheric corrosion. If the manufacturer wishes, the exterior of the butterfly valve may be coated with the valve manufacturer's standard exterior paint/epoxy coating system in lieu of just a primer coat.

(ii) For butterfly valves which are ordered direct by the City of Dallas and destined for direct-burial applications, a two-coat asphaltic emulsion exterior coating in accordance with Section 4.2.2.1 of the AWWA C 504 Standard shall be called for in the valve order. The asphaltic emulsion shall conform to Federal Specification TT-C-494b.

(B) There is no requirement for Certification of Compliance with the NSF 61 Standard for any exterior coatings.

(e) DESIGN REQUIREMENTS:

All valves shall be designed so that the following conditions are met:

(1) Flanges:

The dimensions and drilling of end flanges shall conform to ASME/ANSI B16.1, Class 125, with full-sized bolt holes through the flanges.

(2) Body:

Regardless of whether gray iron or ductile iron is used for the body, the body shall be full-dimensioned, with a minimum body shell thickness as shown in Table 2 of the AWWA C504 Standard. No thin-wall or “compact” design valves shall be acceptable. Castings shall be clean and sound with no structural defects. The following information, at a minimum, shall be cast in raised letters into the body: Manufacturers’ name or symbol, year assembled, size, rated working pressure, and direction of flow.

(3) Disc:

Butterfly valve discs for valves 30" in diameter and larger shall be of the “off-set” design in order to provide a full 360 degree seating surface, uninterrupted by the shaft holes. Discs for valves of all sizes shall be designed so that there are no external ribs transverse to the flow direction.

(4) Valve Seat:

(A) For all sizes of valves:

(i) The resilient Buna-N seat shall be incorporated in the valve disc edge or in the valve body.

(ii) Resilient seats shall be mechanically retained by means of stainless steel clamps, stainless steel rings, and 18-8 stainless steel bolts.

(iii) Resilient seats shall be capable of mechanical adjustment in each direction without the use of special tools.

(iv) Resilient seats must also be capable of replacement in the field without chipping, grinding, or burning out the old seat . No seat retention designs which utilize bonded seats or epoxy injection for a wedging action against the resilient seat or which require any “setting” or “curing” time shall be acceptable.

(B) For valves 30" and larger, replacement of the mechanically-retained resilient seat shall be possible without removing the valve from the system.

(5) Valve Shaft:

Valve shafts for valves 30" and larger shall be of the two-piece type extending into the valve disc hubs for a distance of at least one and one-half shaft diameters. Valves smaller than 30" in diameter may have solid one-piece shafts. In all cases and for all sizes of valves, the minimum valve shaft diameter shall be as specified in the AWWA C504 Standard, latest edition; or as specified below:

Valve Size	Minimum Shaft Diameter
78"	9.25"
84"	10.00"
90"	10.75"
96"	11.50"
102"	12.00"
108"	12.75"
114"	13.50"
120"	14.25"

(6) Shaft Bushings:

Valve shaft bushings shall be designed by the manufacturer to insure that they provide effective, long-lasting bearing surfaces for the support of the valve shaft without binding, dragging, or damaging the shaft under continuous full pressure differential loading conditions. Shaft bushings shall be contained in the integral hubs of the valve body and shall be of a one-piece "self-lubricated sleeve" design constructed of bronze-backed P.T.F.E. material, or an approved equal. No alternate valve shaft bushing design will be accepted by the City of Dallas until detailed drawings, materials data, and performance test results on the alternate bushing have been provided to, analyzed by, and accepted by the City of Dallas.

(7) Shaft Thrust Bearing:

Butterfly valves 30" in diameter and larger shall be furnished with a factory-set two-way thrust bearing on the valve shaft which shall be capable of being adjusted in the field without re-drilling, without re-pinning, and without the use of special tools.

(8) Shaft Seals

(A) On valves of all sizes, where the valve shaft projects through the body of the valve for the actuator connection, a shaft seal shall be provided. This seal may be of either design stated below:

(i) The seal may be of the type utilizing a stuffing box and pull down packing gland so that the packing can be adjusted or completely replaced without disturbing any part of the valve or actuator assembly except the packing gland follower. Packing shall be of the non-asbestos self-adjusting split-V or square type.

(ii) The seal may be of the self-adjusting Chevron design.

(B) Where the valve shaft engages the thrust bearing, the valve shall be equipped with a thrust stub shaft cover or stub shaft end cover utilizing either an O-Ring seal or an asbestos-free gasket to prevent leakage. The use of packing and/or thread seal washers to prevent leakage are not acceptable.

(9) Shaft Torque Capability:

Valves up through 72" in diameter shall be capable of withstanding the shaft torques tabulated under Class 150B in Table 4 of the AWWA C504 Standard, at a minimum, without deformation or damage. The shafts of valves larger than 72" in diameter shall meet the material and dimensional specifications called out in this specification.

(f) VALVE ACTUATOR:

(1) Design:

Valve actuators shall conform to the AWWA C504 Standard and shall be designed to hold the valve in any intermediate position between full open and full closed without creeping or fluttering. Valve actuators shall be of the worm gear design.

(2) Test Results:

Valve actuator manufacturers shall provide results of tests performed on actuators, in accordance with Sections 3.8.3 and 3.8.5.5 of the AWWA C504 Standard. Valve manufacturers shall submit maximum torque requirements at operating and design conditions.

(3) Position Indicator:

Valve actuators shall be equipped with a closed and open indicator. The indicator shall be raised, clearly showing the legends “Open” and “Closed” at the end of a 90 degree arc with a pointer to show the disc position (Closed at 0 degrees and Open at 90 degrees) and the arc graduated in increments of ten degrees.

(4) Direction of Operation:

Clockwise direction shall close the valve and counter-clockwise direction shall open the valve. The valve actuator shall be located on the side of the valve, suitable for vault service or above ground service.

(5) Manual Actuators:

Manual valve actuators shall be Limitorque, or an approved equal. All manual actuators shall be equipped with a wrench (operating) nut as specified in Section II. H. of this specification.

(A) Unless otherwise specified, all manual actuators must be capable of being submerged in groundwater and operated without causing damage.

(6) Electric Actuators:

Electric valve actuators, where required, shall be Limitorque or an approved equal and shall have a NEMA 4 enclosure, position indicator, 360 second timing for opening and for closing, torque switches in series, manual override hand wheel, four 4-train geared limit switches (16 total), reversing starter, and three (3) button two (2) light push button control station.

(A) All electric actuators shall be designed for multiple-voltage operation with 208/220/480 Volt, 3 Phase, 60 Hertz power.

(B) All electric actuators shall be sized for operation with 208 Volt power.

(1) Electric Actuators shall **not** be sealed for submerged operation.

(D) Each order for valves with electric actuators which utilize a modulating position controller (time-pulsed operation) shall be accompanied by everything that is necessary to change the factory default settings beyond the ranges allowed by DIP switch settings, including but not limited to one set of all necessary serial cables, serial interface adapters, Modsim manuals, and Modsim software.

(E) Each order for valves with electric actuators which utilize a modulating position controller (time-pulsed operation) shall be accompanied by everything that is necessary for trouble-shooting or correcting any problems which may occur in the computerized actuator, including but not limited to one set of all diagnostic tools available from the actuator manufacturer designed for this application, such as the Limitorque *UEC3 Universal Diagnostic Tool (UDT).*

(g) PRODUCTION TESTS:

The manufacturer shall provide the DWUD Distribution Division with approved certified test results or a statement regarding compliance with the following tests in accordance with AWWA C504, Section 5.2.

(1) Performance Test:

Each valve with the actuator mounted directly on the valve shall be shop operated by the valve manufacturer three times from the fully closed to the fully opened position and the reverse under a no-flow condition, to demonstrate that the complete assembly is workable.

(2) Leakage Test:

Each valve shall be shop tested by the valve manufacturer for leaks with the valve in the closed position. The test shall be conducted

with the disc in a horizontal plane. With the disc in the closed position, air pressure at 150 psig shall be supplied to the lower face of the disc for the full test duration of no less than five (5) minutes. The upper surface of the valve disc shall be visible and shall be covered with a pool of water at 0 psig pressure. There shall be no indication of leakage past the valve disc (visible in the form of bubbles in the water pool on top of the disc) during the test period. All valves shall be leak-tight in both directions.

(3) Hydrostatic Test:

The manufacturer shall subject all valve bodies to an internal hydrostatic pressure equivalent to two times the rated pressure of the valve. During the hydrostatic test, there shall be no leakage through the metal, the end joints, or the shaft seal, nor shall any part of the valve be permanently deformed. The time duration of this hydrostatic test shall be sufficient to allow visual examination for leakage and shall be at least 3 minutes for valves 10 inch through 20 inch, and 10 minutes for valves 24 inch and larger.

(h) METALLURGICAL TESTING

(1) Independent Testing:

Subsequent to meeting all of the other requirements of this specification but prior to acceptance of the valve, the valve manufacturer may be required to furnish metallurgical analyses conducted by a qualified independent testing laboratory for verification of material compliance with all applicable ASTM designations.

(2) Data Required:

The specific analyses required shall be determined by the City of Dallas on a case-by-case basis.

(i) NATIONAL SANITATION FOUNDATION (NSF) STANDARD 61

Compliance:

All valves must have received verifiable Certification of Compliance with the NSF 61 Standard.

(1) ACCESSORIES

(1) Bolts and Nuts

A full compliment of main flange heavy hex bolts and nuts as specified in Section II.F.(1) and (2) of this Specification shall be provided with each flange valve.

(2) Gaskets

All valves with flanged ends shall be provided with a full compliment of ribbed ring gaskets as specified in Section II.G. of this Specification.

(k) PACKAGING

(1) Nuts and Bolts

The main flange bolts and nuts shall be packaged separately and shipped with the valve when it is delivered.

(2) Gaskets

All flange gaskets shall be shipped inside the valve, sealed to protect the rubber gasket material from contamination and damage.

(1) Valves

(1) All valves provided shall be protected during transit and storage to prevent damage to the valves. The manufacturer shall ship each valve with full-face flange protectors of 3/4" exterior grade plywood or pressboard securely fastened over the flange faces to protect them during shipment. Valves larger than 36" shall be bolted or otherwise fastened to skids to preclude damage in subsequent handling. Small valves may be fully packaged at the manufacturer=s option to prevent damage.

(B) Valves shall only be lifted by utilizing clevis devices through the valve flange, or by forklift for those valves which are on pallets. In no case shall any valves be lifted by the actuator or by the valve shaft.

(l) VERIFICATION OF COMPLIANCE WITH SPECIFICATIONS

Documentation:

Prior to any manufacturer=s butterfly valve being approved for use by the City of Dallas, the valve manufacturer shall deliver to the Dallas Water Utilities Department Distribution Division Material Engineer at 4120 Scottsdale Drive, Dallas, Texas 75227 a formal statement which either:

(1) Verifies and affirms the compliance of that manufacturer=s butterfly valve with all the provisions of this Specification; OR

(2) Specifically identifies each section of this Specification which is **not** met by that manufacturer=s butterfly valve, and gives sufficient detailed information regarding the nature of each non-compliance to allow the City of Dallas to determine if the non-compliance is minor

and can be waived, or if it is major and shall be considered a cause for rejection.

Add the following:

A2.13.5. **RESILIENT SEATED GATE VALVES**

(a) GENERAL

(1) Scope:

This specification covers Resilient Wedge Gate Valves in sizes 3" through 20" which shall conform to the features and material specifications of the latest revision of the AWWA C509 Standard, ***as amended by this specification***.

(A) These valves shall be bidirectional, non-rising stem valves with a minimum design working water pressure of no less than 200 psig for valves 3" through 12" in diameter. Valves 16" and 20" in diameter shall have a minimum design working water pressure of no less than 150 psig.

(B) All valves through 16" in diameter shall be designed for vertical installation with no gearing and no bypass valve.

(C) All valves 20" in diameter shall be designed specifically for horizontal installation. Each manufacturer shall provide design and test data as requested by the City of Dallas to allow evaluation of the appropriateness of horizontal installation of their 20" resilient wedge gate valve prior to that valve receiving approval and being accepted by the City of Dallas. All evaluation will be conducted by the Dallas Water Utilities Department Distribution Division's Material Engineer located at 4120 Scottsdale Drive, Dallas, Texas 75227.

(D) Tapping valves which allow ½" undersized cutters shall be provided, if tapping valves are specified. All tapping valves through 12" in diameter shall be designed with an alignment lip in accordance with MSS SP-60. Tapping valves 16" and 20" in diameter shall have an alignment lip whose dimensions are agreed to by the purchaser and the manufacturer.

(E) The valve operating nut shall be painted black and shall open in a counter-clockwise direction.

(F) The waterway shall be full-port. No recesses, insets, etc. shall be allowed in the bottom of the waterway which would allow build-up or collection of residue and debris.

(G) The gate valve shall be furnished with the type of end configuration specified. The valve shall be available with Class 125 ANSI drilled flanges, mechanical joint and push-on

ends per AWWA C111, or any combinations thereof.

(2) Contractor-Furnished Valves:

All Contractor-furnished resilient wedge gate valves must be approved by the Dallas Water Utilities Department (DWUD). For a list of resilient wedge gate valves by trade name or for a non-binding review of materials not shown on the list by trade name, contact:

Materials Engineer
Distribution Division
4120 Scottsdale Drive
Dallas, TX 75227
Telephone: (214) 670-8459

(3) Detailed Drawings:

Complete approved drawings, details, and specifications shall be filed with the Dallas Water Utilities Department Distribution Division prior to acceptance and approval of any valve. The drawings shall show a complete materials list, which includes the description and applicable ASTM reference for each part.

(4) Experience:

The manufacturer shall have a minimum of five (5) years experience in the production and sales of resilient wedge gate valves. A qualified list of customers, including the name of the organization, address, the name of a representative, and telephone number shall be available upon request.

(5) National Standards:

All ANSI, ASTM, and AWWA Standards referred to herein shall be as last revised. In the case of conflict, this Specification shall govern.

(b) MATERIALS

(1) Body and Bonnet:

The valve body and bonnet shall be made of either gray iron per ASTM A126, Class B, or ductile iron per ASTM A536. The body and bonnet shall each be full-dimensioned, with a minimum thickness as shown in Table 2 of the AWWA C509 Standard. No thin-wall or “compact” design valves shall be acceptable. Castings shall be clean and sound with no structural defects. The following information, at a minimum, shall be cast in raised letters into the

body or bonnet: Manufacturers' name or symbol, year cast, size, and rated working pressure.

(2) Bolting Materials:

(A) All bonnet and seal plate nuts and bolts shall be factory-installed Type 316 stainless steel. Bolt heads shall be hexagonal, with dimensions conforming to ANSI B18.2.1. Nuts shall be hexagonal, with dimensions conforming to ANSI B18.2.2.

(B) Bolts and nuts for mechanical joints shall comply with all provisions of AWWA C111, Section 11-8.5. Bolts and nuts for flanged ends shall be either ASTM A316 stainless steel bolts and nuts or ASTM A325 Type 3 bolts with ASTM A563 Grade C3 nuts.

(3) Gaskets:

(A) All valves with mechanical joint ends shall be installed with full-dimensioned SBR mechanical joint gaskets in complete compliance with the cross-sectional drawing and dimensioning data contained in Figure 11.2 and Table 11.2 of the AWWA Standard C111, latest edition. No "special design" gaskets shall be acceptable.

(B) All valves with flanged ends shall be installed with 1/8" thick rubber ring gaskets approved by the Dallas Water Utilities Department. All ring gaskets shall be dimensioned in accordance with Table A.1 of Appendix A of the AWWA Standard C110, latest edition.

(4) Glands:

All valves with mechanical joint ends shall be installed with MJ glands which shall be in full compliance with all of the requirements of the American Water Works Association (AWWA) C111 Standard, latest edition, except that all glands shall be standard full-dimensioned glands in accordance with Figure 11.1 and Table 11.1 of the AWWA C111 Standard, regardless of whether gray iron or ductile iron is used. Gland designs "incorporating reduced wall section thicknesses" shall not be acceptable.

(5) Wedge:

The wedge shall be made from either ductile iron per ASTM A536 or gray iron per ASTM A126, Class B, with guide bars or channels for controlled movement, and may have an integrally cast bronze stem nut. The wedge shall be ruggedly constructed for resistance to deflection. For valves 3" in diameter, the wedge may be made of high strength bronze.

(6) Encapsulation:

The wedge and wedge guide bars or channels shall be fully encapsulated by a resilient rubber material bonded to the metal. The wedge stem hole, if not also encapsulated, shall be epoxy coated.

(A) The method used to prove the rubber-to-metal bond shall be in accordance with the requirement of ASTM D429, Method B. The peel strength shall not be less than 75 pounds per inch.

(B) The wedge guide encapsulation may consist of a harder grade of ebonite rubber or contain thermoplastic guide inserts.

(7) Stem:

(A) The stem shall be made of either:

(i) A bronze alloy which has mechanical properties which meet or exceed those of CDA 99500 bronze. Specifically, the bronze alloy used for the main stem shall have a Minimum Yield Strength of no less than 40,000 psi and a Minimum Elongation in 2" of at least 12 percent.

(ii) Stainless steel, as long as the provisions of Section (e) (2), of this Specification, *Test To Failure*, shall be met.

(B) The minimum diameter and number of turns to open shall be as specified in the AWWA C509 Standard.

(C) Stem collars of bronze stems shall be integral with the stem, formed of the main stem material itself either through machining of the stem or through an “upset” heat/compression process.

(D) Stem collars of stainless steel stems shall be as designed by the manufacturer. Details of these stem collars, complete with dimensioned drawings, shall be made available to the City of Dallas upon request.

(E) The stem shall be sealed with O-rings above and below the stem collar. A minimum of two (2) such seals shall be required.

(F) The stem nut shall be inset in the gate, either integrally cast or swaged in place or retained by a T-Nut configuration. Stem nuts shall be manufactured of a bronze alloy compatible with the stem.

(G) The stem shall be of such length that the threads of the stem nut are entirely engaged when the valve is in the fully-closed position.

(H) The threaded length of the stem nut shall be not less than 1.25 times the outside diameter of the stem.

(8) Wrench Nuts:

(A) Wrench nuts shall be made of either gray iron per ASTM A126, Class B, or ductile iron per ASTM A536.

(B) The nut shall be 2" square at the base, 1 15/16" square at the top, and 1 3/4" high.

(C) An arrow indicating the direction of opening and the word “OPEN” shall be cast in the nut (or on the body adjacent to the nut).

(D) The nut shall be mechanically secured to the valve by means of a hexagonal stainless steel or bronze bolt for easy removal. A pressed pin/roll pin that requires knocking out is not acceptable.

(c) INTERIOR COATING:

(1) Surface Preparation:

All interior ferrous surfaces of the valve exposed to water and subject to corrosion shall be prepared in accordance with the printed recommendations of the manufacturer of the coating which is to be applied.

(2) Coating System Compliance:

The interior coating system shall be in compliance with the AWWA C550 Standard, shall immediately follow the surface preparation, and shall be a coating system which has received Certification of Compliance with the NSF 61 Standard for this particular application.

(3) Coating Thickness:

The coating shall be applied in accordance with the coating manufacturer’s printed instructions. The finished dry thickness of this coating in mils shall be within the range recommended by the manufacturer. The coating shall be applied to all stationary interior ferrous surfaces including all interior openings in the valve body.

(4) Coating Documentation:

Upon request, the valve manufacturer shall furnish to the City of Dallas specific data on:

(A) The coating system used, including the name of the manufacturer of the coating system and the specific coating system designation.

(B) A copy of the coating manufacturer's printed surface preparation and application instructions.

(C) Verification that all valves supplied have in fact been coated in accordance with the coating manufacturer's instructions.

(D) Verification of Certification of Compliance with the NSF 61 Standard for this application of this coating.

(E) A copy of the coating manufacturer's printed instructions for field repair of damage to the coating.

(d) EXTERIOR COATING:

(1) Surface Preparation:

All exterior surfaces shall be prepared in accordance with the printed recommendations of the manufacturer of the coating which is to be applied.

(2) Coating System:

The exterior ferrous surfaces of each valve shall be coated as detailed below:

(A) In accordance with Section 2.2.7 of the AWWA C509 Standard, a bituminous coating complying with Federal Specification TT-C-494b shall be used for the exterior coating. An AWWA C550 epoxy coating ***shall not*** be acceptable for the exterior coating system.

(B) There is no requirement for Certification of Compliance with the NSF 61 Standard for exterior coatings.

(e) DESIGN REQUIREMENTS:

All valves shall be designed so that the following conditions are met:

(1) Input Torque:

Valves 3" and 4" in diameter shall be capable of withstanding an input torque of at least 200 ft-lbs with no permanent damage or deformation; valves 6" through 12" in diameter shall be capable of withstanding an input torque of at least 300 ft-lbs with no permanent

damage or deformation; and valves 16" and 20" in diameter shall be capable of withstanding an input torque of at least 350 ft-lbs with no permanent damage or deformation.

(2) Test To Failure:

All parts, including the body and bonnet, shall be so proportioned that, if excessive torque is applied to the stem in the closing direction with the valve gate seated and subjected to the working water pressure, initial failure shall not occur in the valve body, in the valve bonnet, or in the seal plate. The intent of this requirement is to insure that the valve will maintain it's external integrity if it's forced to failure in the closed position.

(3) Body/Bonnet Design:

All valves shall be designed such that the valve bonnet and the valve body have drilled, cored, or cast holes completely through the flanged mating faces which will allow the bonnet to be secured to the body with pass-through bolts and nuts. No valve which has drilled and tapped recesses in the valve body to receive the bonnet bolts is acceptable.

(4) Seal Plate Design:

All valves with seal plates on top of the valve bonnet shall be designed such that they meet the following requirements:

(A) The seal plate and the valve bonnet shall be designed so that the seal plate shall be secured to the bonnet with pass-through bolts and nuts. No valve which has drilled and tapped recesses in the valve bonnet to receive the seal plate bolts is acceptable.

(B) The seal plate and seal plate bolts shall be designed so that there is between 0.50 inches and 1.00 inches of clearance between the bottom of the operating nut and the top end of the seal plate bolts.

(5) Stem Replacement:

All resilient wedge gate valves shall be designed so that the stem can be replaced with the valve installed in the line, without removing the valve bonnet.

(6) Valve Design:

All valves 3" through 16" in diameter shall be designed for vertical installation. All 20" diameter valves shall be designed for horizontal installation.

(f) PROOF OF DESIGN TESTS:

The manufacturer shall provide the DWUD Distribution Division with approved certified test results or a statement regarding compliance with the following tests in accordance with AWWA C509, Section 6.1.

(1) Hydrostatic Test:

The manufacturer shall pressure test one prototype valve of each size and class to twice the rated working pressure (in each direction) with the gate in the closed position and zero psi on the opposite side. The valve shall show no sign of leakage during or upon completion of the test. No part of the valve or gate shall be permanently deformed by the test.

(2) Torque Test:

The manufacturer shall over-torque and valve off one prototype of each size in both the open and closed position to demonstrate no distortion of the valve stem or damage to the resilient seat. The applied torque shall be 250 ft-lbs for valves 4" and smaller, 350 ft-lbs for 6" through 12" valves, and 350 ft-lbs for 16" and 20" valves.

(3) Leakage Test:

The manufacturer shall select two prototype valves of each size to be opened and closed for 500 cycles with a rated working pressure differential pressure across the gate. The valve shall be drip-tight under rated pressure differential (in each direction) upon completion of the test.

(4) Pressure Test:

One prototype valve of each size shall be tested by the manufacturer to 2.5 times the rated working pressure with the gate in the open position. There shall be no rupture or cracking of the valve body, bonnet, or seal plate. Leakage at pressure-containing joints shall be acceptable.

(g) METALLURGICAL TESTING

(1) Independent Testing:

Subsequent to meeting all of the other requirements of this specification but prior to acceptance of the valve, the valve manufacturer may be required to furnish metallurgical analyses conducted by a qualified independent testing laboratory for verification of material compliance with all applicable ASTM designations.

(2) Data Required:

The specific analyses required shall be determined by the City of Dallas on a case-by-case basis.

(h) NATIONAL SANITATION FOUNDATION (NSF) STANDARD 61

Compliance: All valves must have received verifiable Certification of Compliance with the NSF 61 Standard.

(i) PACKING

All valves provided shall be protected during transit and storage to prevent damage to the resilient wedge and to the exterior and interior coatings of the valve.

(j) VERIFICATION OF COMPLIANCE WITH SPECIFICATIONS

Documentation:

Prior to any manufacturer's resilient wedge gate valve being approved for use by the City of Dallas, the valve manufacturer shall deliver to the Dallas Water Utilities Department Distribution Division Material Engineer at 4120 Scottsdale Drive, Dallas, Texas 75227 a formal statement which either:

(1) Verifies and affirms the compliance of that manufacturer's resilient wedge gate valve with all the provisions of this Specification; OR

(2) Specifically identifies each section of this Specification which is **not** met by that manufacturer's resilient wedge gate valve, and gives sufficient detailed information regarding the nature of each non-compliance to allow the City of Dallas to determine if the non-compliance is minor and can be waived, or if it is major and shall be considered a cause for rejection."

2.14. Delete 2.14.1. thru 2.14.19. and substitute the following:

"2.14.1. **General**

All fire hydrants furnished shall conform strictly to AWWA Designation C-502 for dry-barrel, breakable type fire hydrants with the supplementary details and changes or additions described in Item 2.14.

2.14.2. **Supplementary Specifications**

(a) Type of Shut Off

Type of shut off may be either compression type with the flow or compression type against the flow. Scissor type main valves are not acceptable.

(b) Inlet Connection

Unless otherwise approved, the inlet connection shall be 6-inch (15.24 cm) standard mechanical joint hub complete with all joint accessories. Glands shall be full-dimensioned as defined in Table 11.1 of the AWWA C111. Bolts and nuts shall comply with all provisions of AWWA C111 Section 11-8.5. The inlet valve opening shall be 5 ¼ inches (13.34 cm).

(c) Outlet Connection

All hydrants shall be equipped with:

Two hose nozzles 2 ½ inches (6.35 cm) nominal I.D. National Standard Fire-Hose Coupling Screw Threads.

One pumper nozzle 4 inches (10.16 cm) nominal I.D. City of Dallas Standard Threads as shown per File No. 684A-9.

(d) Bury Length

Unless otherwise approved, hydrants shall be furnished for a 5-foot bury length.

(e) Nozzle Cap Gasket

Gaskets shall be furnished on all nozzle caps and shall be of a long life, black rubber conforming to ASTM D-2000.

(f) Paint above Ground Line

Two coats of primer are required. The second coat shall be a red tint, low sheen, alkyd vehicle type, non-enamel metal primer. The primer shall be compatible with a final coat of Jones Blair #931 aluminum paint. The painted surface shall extend to the ground line.

(g) Operating and Cap Nuts

The operating nozzle and cap nuts shall be tapered pentagon nuts with faces not less than 1 inch (2.54 cm) high. They shall be 1 1/4 inch (3.18 cm) point to flat at the base and 1 1/8 inch (2.86 cm) point to flat at the top.

(h) Standpipe

Breakable parts of standpipe shall be located at the base of the head assembly. These parts shall be of the breakable flange type, or integral flange with sawed bolts or breakable nuts. Breakable flanges screwed to the standpipe will not be accepted. Flanges shall be designed so that an end wrench can be used on the nuts and bolts. Two piece standpipes are

not permitted.

(i) Stem

Provision shall be made in the design of the stem to disconnect the stem from the hydrant parts above the standpipe break point in the event of a traffic accident.

Provision shall be made for an automatic travel stop, to prevent the hydrant from being over-opened. The travel stop shall be in the form of a stop-nut or a positive stop against the base of the hydrant shoe.

(j) Breakable or Sleeve Type Coupling

If breakable or sleeve type couplings are used, they shall have sufficient torsional strength such that the torsional failure of the stem will occur at some point other than at the coupling. Design of the coupling shall be such that when the coupling is broken no parts will come loose and fall into the hydrant barrel and the break will not occur through the pins or bolts holding the coupling to the stem.

(k) Blocking Requirements

The foot of the hydrant shall be designed with flat surfaces for placement of temporary thrust blocking and weight support. The area provided for temporary thrust blocking shall be opposite the center line of the inlet waterway.

2.14.3. **Provisions for Extension**

All hydrants shall be capable of being extended to accommodate future grade changes without excavation. Hydrants shall have breakable type stem couplings installed at the ground line flange. Extension of this type hydrant shall be made by adding at the ground line flange a new coupling and stem section equal to the length of the extension. Stem extensions made by adding new section of stem to the threaded section of the stem at the top of the hydrant will not be accepted. Only one extension may be used. This extension may be no more than 18 inches long.

2.14.4. **Main Valve Seats**

Main valve seats shall be of such design that incorrect positioning is impossible and that the threads will be adequately guided into position. Arrangements shall also be made to hold the main valve gasket in place during assembly. The main valve is to be made of bronze and threaded into a bronze bushing in the hydrant base.

2.14.5. **Gasket - Ground Line**

Gaskets furnished for ground line flanges shall be full face with a recess to hold the gasket in place. O-rings are acceptable in lieu of full face gaskets.

2.14.6. **Nozzle Cap Chains**

Nozzle cap chains or cables are not allowed.

2.14.7. **Flanges**

Any flanges other than break flanges shall conform to AWWA C110 and have a minimum thickness of 1.00±0.12 inch (2.54cm). Bolt hole edge distance shall be sufficient to provide full support for the bolt head and nut.

2.14.8. **Operating Stems**

Operating stems whose threads are located in the barrel or waterway shall be of Manganese Bronze, Everdur, or other approved high quality non-corrodible metal, and all working parts in the waterway shall be bronze to bronze.

Operating stems whose threads are not located in the barrel or waterway may be made of high grade bronze or steel, and stem nuts shall be bronze. Steel stems shall have a bronze, stainless steel, or other non-corrodible metal sleeve where passing through O-rings. Operating threads must be sealed against contact with the water at all times regardless of open or closed position of the main valve.

2.14.9. **Upper Stem Thread Lubrication**

Upper stem thread lubrication may be accomplished with oil or grease. When oil is used, it shall be in conjunction with a functional oil reservoir and an oil filter port. Means for field check of oil lubrication level shall be provided.

When grease is used, means for field lubrication without disassembly shall be provided.

2.14.10. **O-Rings**

O-rings shall be furnished in lieu of stem packing. They shall be the double O-ring type.

2.14.11. **Protection of Stem Threads**

Hydrants closing against the flow or with the flow must have any stem threads protected against contact with the water. This protection can be in the form of cap nuts or lower valve washers. Cap nuts shall be locked in place to prevent loosening by normal operation of the fire hydrant.

If cap nuts are provided, they can be made of either bronze or ductile iron. If ductile iron cap nuts are used, a gasket must be provided to prevent seepage of water from contacting stem threads.

2.14.12. **Hydrant Heads**

The hydrant shall be constructed so that the nozzles may be faced in any desired direction.

2.14.13. **Nozzle Outlets**

Nozzle outlets shall not be of the lead-in type. Nozzles shall be screw-in or breach lock type and safeguarded against blowing out. A pin or other approved method shall be used to prevent the outlet nozzle from turning or backing out.

2.14.14. **Hydrant Approval**

CONTRACTOR furnished fire hydrants must be approved by the OWNER. For a list of fire hydrants by trade name or for a non-binding review of materials not shown on the list, contact:

Materials Engineer
Distribution Division
4120 Scottsdale Drive
Dallas, TX 75227
Phone: (214) 670-8459

2.14.15. **Affidavit of Compliance**

An affidavit of compliance shall be furnished to the OWNER stating that the hydrant complies in every way with the certified assembly drawings on file with the Dallas Water Utilities and with all other requirements of this specification.

2.14.16. **Tests and Rejection**

Hydrostatic test required in AWWA C-502 shall be complied with. Fire hydrants may be rejected for failure to meet any of the requirements of this specification."

2.16.3. Add the following at the end of the second paragraph:

"The valve must have a positive stop to prevent damage to brass ball over opening."

In the sixth paragraph, add " and 1-inch " after ¾" in the first sentence and change "streamline" to "solder".

In the seventh paragraph change "streamline" to "solder".

Add the following:

"2.17.8. NATIONAL SANITATION FOUNDATION (NSF) 61: All service clamps must have received verifiable Certification of Compliance with the NSF 61 Standard."

2.18.1. Add at the end of the paragraph:

"Any pipe, fittings, solder or flux which is used in the installation or repair of any public water system must be lead-free. For purposes of this section, "lead-free" means solders and flux containing not more than 0.2 percent lead and pipes and pipe fittings containing not more than 8.0 percent lead."

Add the following:

"2.18.4. NATIONAL SANITATION FOUNDATION (NSF) 61: All copper tubing must have received verifiable Certification of Compliance with the NSF 61 Standard."

2.19.2. Add at the end of the paragraph:

"All joints shall have rubber gaskets in accordance with Items 2.12.4(c)."

3.1.2. Add at the end of the paragraph:

"CONTRACTOR is required to avoid over-excavation of earth or overbreak of rock. He shall replace any excavation or overbreak with concrete fill or other material as directed by the OWNER to restore the strength of the foundation to its previous bearing and lateral support. There will be no additional compensation for this work."

3.9.4. Add at the end of the paragraph:

"If sod is paid as a separate item and the limits of measurements are not specified, it shall be measured as the limiting trench width as defined in Item 6.2.12.(a)(1)."

3.10.8. Add at the end of the paragraph:

"If seeding is paid as a separate item and the limits of measurements are not specified, it shall be measured as the limiting trench width as defined in Item 6.2.12.(a)(1)."

Add the following:

"3.12.6. **STORMWATER POLLUTION PREVENTION**

PERMIT: As defined in the federal regulations, a National Pollutant Discharge Elimination System (NPDES) permit is required for construction activities that result in the disturbance of more than five acres of total land. The CONTRACTOR is responsible to obtain the permit. Permitting information and requirements may be obtained from EPA Region VI, 1445 Ross Ave. Suite 1200, Dallas, Texas 75202-2733, (214) 665-7170. The NCTCOG "Storm Water Quality Best Management Practices: handbook (BMP Manual) [Part II, Sec. 8] is adopted by the City of Dallas as the official reference for erosion and sedimentation control design and implementation. The methods of control shall result in a minimum sediment retention of 70%.

NOTICE OF INTENT(NOI): If a permit is required, the CONTRACTOR shall sign a NOI to the EPA prepared by the engineer. It serves as a notification to the EPA of construction activity as well as commitment that the CONTRACTOR

understands the requirements of the permit for storm water discharges from construction activities and that measures will be taken to implement and maintain storm water pollution prevention at the site. The NOI is to be submitted 48 hours prior to the contractor moving on site.

NOTICE OF TERMINATION(NOT) If a permit is required, the CONTRACTOR will sign a NOT to the EPA prepared by the engineer. It serves as notice that the site is no longer subject to the requirements of the permit.

The NOI and NOT are to be mailed to:

Storm Water Notice of Intent (4203)
401 M. Street, S.W.
Washington, D.C. 20460

STORM WATER POLLUTION PREVENTION PLAN (SWPPP): A document consisting of an erosion control and toxic waste management plan and a narrative defining site parameters and techniques to be employed to reduce the release of sediment and pollution from the construction site.

AREA OVER 5 ACRES (PERMIT REQUIRED): The SWPPP will be included in the contract documents. The contractor shall submit a schedule for implementation of the SWPPP. Deviations from the plan must be submitted to the City Project Manager for approval. The SWPPP is not warranted to meet all the conditions of the permit since the actual construction activities may vary from those anticipated during the preparation of the SWPPP. Modifications may be required to fully conform to the requirements of the Permit. A copy of the most current SWPPP must be kept at the construction site by the contractor. Any alterations to the SWPPP proposed by the Contractor must be prepared and submitted by the contractor to the engineer for review and approval.

AREA UNDER 5 ACRES (PERMIT NOT REQUIRED): A SWPPP is not required; however, the contractor must use control measures necessary to prevent and control soil erosion, sedimentation and water pollution will be included in the contract document. The control measures shall be installed and maintained throughout the construction to assure effective and continuous water pollution control.

The controls may include silt fences, straw bale dikes, rock berms, diversion dikes, interceptor swales, sediment traps and basins, pipe slope drains, inlet protection, stabilized construction entrances, seeding, sodding, mulching, soil retention blankets, or other structural or non-structural storm water pollution controls. The method of controls shall result in minimum sediment retention of 70% as defined by the NCTCOG “BMP Manual”. Deviations from the proposed control measures must be submitted to the Engineer for approval.

Prior to beginning construction, the contractor must submit to the City Project Manager for approval the proposed pollution control devices to be used and schedule of implementation.

This submittal shall include on site and off site areas such as equipment and material storage areas, staging sites, and other areas subject to water pollution which support the construction effort."

5.8.6.(c) Delete the sixth and seventh paragraphs and substitute the following:

"Pavement not meeting the minimum specified strength shall subject the CONTRACTOR to a deduction in compensation, or removal and replacement at the CONTRACTOR'S sole expense, as shown in the following table:

Percent Deficient	Percent of Contract Price Allowed
Greater Than 0% - Not More Than 5%	95 percent
Greater Than 5% - Not More Than 10%	90 percent
Greater Than 10% - Not More Than 15%	80 percent
Greater Than 15% -	**Removed and replaced at the entire cost and expense of CONTRACTOR as directed by OWNER.**

The adjustment in price or deduction if any, shall be made from the applicable monthly estimate and invoice or from final payment. The adjustment or deduction is to defray the cost of extra maintenance because of the deficiency in strength.

The OWNER shall have the option to pay adjusted prices or have the pavement removed and replaced. Removal and replacement of the deficient work will be entirely at the CONTRACTOR'S expense and at no cost to the OWNER."

Add the following:

"5.9. **SLURRY SEAL**

Scope

The work covered by this item includes the design, testing, construction and quality control required for the proper application of a slurry seal surface.

Description

The slurry seal shall consist of a mixture of an approved emulsified asphalt, mineral aggregate, mineral filler, water and specified additives, proportioned, mixed and uniformly spread over a properly prepared surface. The completed slurry seal shall leave a homogenous mat, adhere firmly to the prepared surface and have a skid resistant surface texture.

5.9.1. **LABORATORY EVALUATION**

(a) General

Before work commences, the CONTRACTOR shall submit a signed original of a mix design covering the properties and proportioning of the specific

materials to be used on the project. This design must have been performed by a qualified laboratory. Previous lab reports covering the exact materials to be used may be accepted provided they were made during the calendar year. This initial mix design will be done at the CONTRACTOR'S expense. Upon receipt of the original mix design, an independent qualified laboratory selected by the OWNER will perform tests using the same materials as used in the initial mix design for verification of the results. This testing will be done at the OWNER'S expense. No work will begin until all materials and/or mix design proportions have met the specifications as required in this item. Once the materials are approved, no substitution will be permitted unless first tested and approved by the methods stated above.

(b) The following specifications and test methods form a part of this specification.

AASHTO - American Association of State Highway and Transportation Officials

ASTM - American Society for Testing and Materials

ISSA - International Slurry Seal Association

TEST METHODS FOR AGGREGATE AND MINERAL FILLER

AASHTO T2	ASTM D	75	Sampling Aggregates
AASHTO T27	ASTM C	135	Sieve Analysis of Aggregates
AASHTO T11	ASTM C	117	Materials Finer than No. 200 in Mineral Aggregate
AASHTO T176	ASTM D	2419	Sand Equivalent Valve of Soils and Fine Aggregate
AASHTO T84	ASTM C	128	Specific Gravity and Absorption of Fine Aggregate
AASHTO T19	ASTM C	29	Unit Weight of Aggregate
AASHTO T104	ASTM C	88	Soundness of Aggregates by use of Sodium Sulfate or Magnesium Sulfate
AASHTO T96	ASTM C	131	Resistance to Degradation of small size Aggregate by use of the Los Angeles machine
	ASTM D	1073	Specification for Fine Aggregate for Bituminous

			Paving Mixtures
	ASTM D	242	Mineral Filler for Bituminous Paving Mixtures
AASHTO T37	ASTM D	546	Sieve Analysis of Mineral Filler

TEST METHODS FOR EMULSIFIED ASPHALT

AASHTO T40	ASTM D	140	Sampling Bituminous Materials
AASHTO T140	ASTM D	977	Specification for Emulsified Asphalt
AASHTO T208	ASTM D	2397	Specification for Cationic Emulsified Asphalt
AASHTO T59	ASTM D	244	Testing Emulsified Asphalt
AASHTO T59	ASTM D	88	Testing Method for Saybolt Furol Viscosity
AASHTO T44	ASTM D	113	Test Method for Ductility of Bituminous Materials
AASHTO T44	ASTM D	2042	Test Method of Solubility of Asphalt Materials in Trichlorethylene
AASHTO T49	ASTM D	5	Test Method for Penetration of Bituminous Materials
	ASTM D	2398	Test Method for Softening Point of Bitumen in Ethylene Glycol (Ring and Ball)

TEST METHODS FOR SLURRY SEAL

	ASTM D	3910	Design, Testing and Construction of Slurry Seal
	ASTM D	2172	Quantitative Extraction of Bitumen for Bituminous Paving Mixture
	ISSA T	101	Guide for Sampling Slurry Mix for Extraction Test
	ISSA T	106	Measurement of Slurry Seal Consistency

ISSA T	111	Outline Guide Design Procedure for Slurry Seal
ISSA T	113	Trial Mix Procedure for Slurry Seal
ISSA T	114	Wet Stripping Test for Cured Slurry Seal Mixes
ISSA T	115	Determination of Slurry Seal Compatibility

5.9.2. **MATERIALS**

(a) AGGREGATE

The mineral aggregate shall consist of natural or manufactured crushed stone such as granite, slag, limestone or other high quality aggregates or a combination thereof that conforms to the quality requirement of ASTM Specification D1073 and shall be free of dirt, organic matter, clay balls, adherent films of clay, dust or other objectionable material. The aggregate shall contain no free water. Smooth textured sands of less than 1.25% absorption shall not exceed 50% of the total aggregate blend. For heavy duty surface requirements, 100% crushed material is required.

(b) MINERAL FILLER

Shall be a recognized brand of non-air entrained Type I or II Portland cement that meets the requirements of ASTM D242 if required by the mix design. 0.5% to 2% by dry weight of aggregate will be the range of mineral filler shall be considered as part of the dry aggregate.

(c) WATER

All water shall be potable and compatible with the slurry mix. Compatibility must be insured by the CONTRACTOR. The percent of water in the mix design will be as required to produce proper mix consistency.

(d) EMULSIFIED ASPHALT

The asphalt emulsion shall be homogeneous and show no separation after mixing. As directed by the Engineer, one of the following two grades of emulsion will be selected.

(1) Grade SS-lh - Conforming to the requirements specified in ASTM D 977 for Emulsified Asphalt

(2) Grade CQS-lh - Conforming to the requirements specified in ASTM D 2397 for Cationic Emulsions.

Any emulsion used will be with a latex modifier which shall be milled into the emulsion or blended into the asphalt cement prior to the emulsification

process. It shall pass all applicable storage and settlement tests. The cement mixing test shall be waived.

(e) LATEX MODIFIER

A 4% latex content based on bitumen weight, certified by the emulsion supplier, shall be milled into the asphalt emulsion.

(f) ADDITIVES

Any additive used to accelerate or retard the break-set of the slurry seal shall be approved by the mix design laboratory as part of the mix design. The amount and type of additive (if needed) will be shown on the mix design.

5.9.3. TEST AND DESIGN

(a) MIX DESIGN

All materials which first meet all quality test specifications shall be shown in the mix design by type of material and recommended proportions of said material.

MATERIAL Dry weight, Proportion %

Aggregate
Mineral Filler (Portland Cement)
Emulsion
Water
Additive (if required)

(b) TEST ON AGGREGATE

Test	Method	Specification
(1) Gradation Analysis	ASTM C 136 AASHTO T 27	See Gradation Chart
(2) Sand Equivalent	ASTM D 2419 AASHTO T 176	45 Min.
(3) Soundness	ASTM C 8815 AASHTO T 104	% Max. loss by Sodium Sulfate (5 cycles)
	ASTM C 8820 AASHTO T 104	% Max. loss by Magnesium Sulfate (5 cycles)

(4) Hardness	ASTM C 131 AASHTO T 104	35% Max.
(5) Unit Weight of Aggregate	ASTM C 29 AASHTO T 9	Informational lb. cu. ft for bulking effect)

(c) BULKING EFFECT

Moisture Content	Moist Wt. per One Lb. Can	Moist Wt. per Volume	Wt. of Dry Aggregate per Volume of Moist Aggregate
Percent	Lbs/Can	Lbs/cu ft.	Lbs/cu ft.
0			
1.0			
2.0			

Moisture Content	Moist Wt. per One Lb. Can	Moist Wt. per Volume	Wt. of Dry Aggregate per Volume of Moist Aggregate
Percent	Lbs/Can	Lbs/cu ft.	Lbs/cu ft.
3.0			
4.0			
5.0			
6.0			

AGGREGATE GRADATION CHART

	TYPE II Percent Passing	TYPE III Percent Passing
Sieve Size	1/4" General Surface	3/8" Coarse Surface
3/8	100	100
No. 4	90-100	70-90
No. 8	65-90	45-70
No. 16	45-70	28-50
No. 30	30-50	19-34
No. 50	18-30	12-25
No. 100	10-21	7-18
No. 200	5-15	5-15
Residual Asphalt Content, % Weight of Dry Aggregate	9% to 13.5%	8% to 12%

Application Rate 1 lb. yd. 2 Based on Weight of Dry Aggregate	10 lbs. to 15 lbs. 15 lbs. to 21 lbs.

The aggregate shall meet the following gradations and shall not vary from the low limit on one sieve to the high limit on the adjacent sieves or vice versa. The gradation type to be used will be as designated by the Engineer.

BULKING EFFECT FORMULA

(1) Determine Weight of Aggregate Delivered from slurry machine:

(A) Set aggregate metering gate at known position above belt.

(B) Drive belt to establish uniform flow. (use water to help flow).

(C) Stop flow, set counter to 0, flush all aggregate out of mixer, and weigh machine. (using truck scale) Note: Do not use any water remaining in the machine from this point on.

(D) Start aggregate belt using an auxiliary water source to speed aggregate through the mixer.

(E) Stop belt after a pre-determined number of revolutions of its drive roller.

(F) Flush mixer free of aggregate with water from an auxiliary source and re-weigh the machine.

(G) Divide the pounds of aggregate per revolution.

(2) Determine Volume of Aggregate Delivered from Slurry machine.

(A) Weigh aggregate to determine moisture content as provided on mix design under "Bulking Effect."

(B) Obtain weight of aggregate with moisture content as provided in mix design. (Moist Weight per Volume Column).

(C) Volume of aggregate delivered per revolution = weight delivered per revolution divided by weight per cubic foot at moisture content. (Chart gate setting and cu. ft. delivered) See Chart I on Page 81.

(3) Determine Weight of Emulsion Delivered from Slurry machine.

(A) Load known amount (gals) of emulsion, set revolution counter to zero,

run a predetermined number of revolutions and weigh. (most emulsions used in slurry weigh 8.35 to 8.40 lbs. per. gal.)

(B) Weight of emulsion divided by number of revolutions = weight of emulsion per revolution.

(4) Determine Weight of Fines (cement) Delivered from Slurry Machine.

(A) Load cement, set counter to zero.

(B) Run a predetermined number of revolutions and weigh.

(C) Weigh and divide by number of revolutions = weight per revolution.

(5) Application of Calibration Date (constant speed emulsion pump)

(A) Lbs. of emulsion delivered per revolution divided by mix design recommended % emulsion = lb. of total dry aggregate required per revolution.

(B) Subtract mix design recommended cement content % from total percent of aggregate and cement.

(C) To obtain weight of dry aggregate which must be delivered per revolution through the aggregate metering gate, multiply % of aggregate minus cement content X lbs. of total dry aggregate which must be delivered per revolution.

(D) Divide lbs. obtained in step "C" by the weight supplied in mix design of dry aggregate in one cu. ft. of moist material to obtain cu. ft. of moist aggregate.

(E) Refer to metering gate Calibration Chart (see Chart I on Page 81) for the correct gate setting for cu. ft. per revolution of aggregate delivered.

(F) To obtain gate setting for percent of moisture, use the following formula:

Gate setting in inches divided by volume per revolution X cu. ft. of moist aggregate = gate setting in inches. (See Chart II on Page 82).

(d) TEST ON EMULSION

TEST	METHOD	SPECIFICATION
1. Particle Charge	ASTM D 244	Informational (Pos. or Neg.)

2.	Residue from Distillation, Weight %	ASTM AASHTO	D 244 T 59	57% Min.
3.	Saybolt Furol Viscosity @ 77 degrees F. SSF, Seconds	ASTM AASHTO	D 88 T 59	15-50
4.	Sieve Test, % Retained on 20 Mesh Sieve	ASTM AASHTO	D 224 T 59	0.1% Max.
5.	24 hr. Storage Stability, %	ASTM AASHTO	D 244 T 59	1% Max.
6.	5 day Settlement Test, %	ASTM AASHTO	D 244 T 59	5% Max.

TEST ON RESIDUE FROM DISTILLATION

	TEST	METHOD		SPECIFICATION
1.	Penetration @ 77 Degrees F., 100 grams, 5 seconds	ASTM ASHTO	D 243 T 49	40-90
2.	Solubility in Trichlor - ethylene, %	ASTM AASHTO	D 2042 T 44	97.5% Min.
3.	Ductility, 77 degrees F., cm	ASTM ASHTO	D 113 T 44	40 Min.
4.	Softening Point, Degrees, F. (Ring and Ball)	ASTM	D 2398	140 degrees F. Min.

(e) TEST ON SLURRY SEAL JOB MIXTURE

	TEST	METHOD		SPECIFICATION
1.	Consistency Text. cm Flow	ASTM	D 3910	2-3
2.	Set Time, hours	ASTM	D 3910	12-hrs. Max.
3.	Cure Time, hours	ASTM	D 3910	24 hrs. Max.
4.	Wet Stripping Test, % coating	ISSA	TB 114	80% Min.
5.	Wet Track Abrasion Test, grams per square foot	ASTM	D 3910	75 Max.

INSERT THIS PAGE

BULKING EFFECT FORMULA
CHART I
METERING GATE CALIBRATION CHART

INSERT THIS PAGE

BULKING EFFECT FORMULA
CHART II
GATE SETTING CHART

5.9.4. **EQUIPMENT**

(a) GENERAL

All methods and equipment employed in performing the work shall be subject to the approval of the Engineer before work is started and whenever found unsatisfactory they shall be changed and improved as required. All equipment must be maintained in a satisfactory condition.

(b) MIXING EQUIPMENT

The slurry seal mixing equipment shall be a continuous flow mixing unit as to give a uniform and complete circulation of the batch in the mixer, so as not to segregate the aggregates, but will provide a thorough and uniform free flowing mix with the asphalt and water. The units shall be equipped with approved devices so that the machine can be accurately calibrated and quantities of materials used can be determined. The mixing machine shall be equipped with a water pressure system and nozzle type spray bar adequate for completely fogging the surface with 0.05 to 0.15 gallons per square yard immediately ahead of the spreader box.

(c) SPREADING EQUIPMENT

The spreader box shall be equipped to prevent loss to slurry seal from all sides and with a flexible rear strike-off capable of being adjusted. It shall have suitable means for side tracking to compensate for deviations in pavement geometry. The box shall be kept free of built-up asphalt and aggregate. The strike-off drag shall be kept completely flexible at all times.

(d) AUXILIARY EQUIPMENT

Suitable crack and surface cleaning equipment, barricading equipment, hand tools and any support equipment will be provided by the Contractor as necessary to perform the work.

5.9.5. **MACHINE CALIBRATION AND VERIFICATION**

(a) CALIBRATION

Each slurry mixing unit to be used shall be calibrated in the presence of the Engineer prior to construction. Previous calibration documentation covering the exact materials to be used may be accepted provided they were made during the calendar year. No machine will be allowed to work on the project until the calibration has been completed and/or accepted.

(b) VERIFICATION

Test strips will be laid (location to be determined by the Engineer) before construction begins. The Engineer will observe the test strip for verification or rejection according to the specifications. Upon failure of any of the tests, additional test strips will be laid at no cost to the OWNER. The square yards of the first test strip will be measured and paid for at the contract unit price per square yard.
(Keeping proper consistency is a major concern. A wet mix will cause an

asphalt rich surface. Consistency can be checked in the field by making a line through the slurry immediately behind the spreader box. If the line stays, the slurry is at a proper consistency level. If the line fills up, the mix is too wet).

5.9.6. **LIMITATIONS**

(a) WEATHER

All slurry seal will be applied between March 1 and October 1. If all work is complete on a project, other than the application of the slurry seal, between October 1 and March 1, the Engineer shall have the option of deleting the slurry seal from the Contract at no additional cost to the OWNER, or suspending time charges until the slurry can be applied between March 1 and October 1.

The slurry shall be applied only if the air and ground temperature is at least 60 degrees F. and rising.

No slurry shall be applied:

1. In the period following precipitation with water remaining on the surface to be coated.

2. In foggy conditions.

3. If there is a threat of rain before the slurry can fully cure.

4. If there is danger that the finished product will freeze before 24 hours.

5. If weather conditions prolong opening to traffic beyond the times specified by the Engineer.

The slurry seal will be placed on the location and within the time limit as specified by the Engineer.

(b) PURPOSE OF SLURRY SEAL APPLICATION

Type of Slurry by Aggregate Grade and Uses:

TYPE II. This blend is desirable for filling surface voids, correcting moderate surface defects, and providing a sealing and wearing surface. An example would be on pavements with medium textured surfaces which would require this size aggregate to fill in the cracks and provide a minimum wearing surface.

Rate of application: 10 to 15 pounds per square yard

TYPE III. This blend is used to give maximum skid resistance and an improved wearing surface. An example would be on pavements which have highly textured surfaces and require this size

aggregate to fill in the voids and provides an improved wearing surface.

Rate of application: 15 or more pounds per square yard.

(c) CONDITION AND TYPE SURFACE TO BE TREATED

Any base failures, severe surface defects, or similar conditions which are present should be properly repaired to insure correct application and performance of the slurry. Slurry normally adheres to asphalt surfaces more readily than concrete, especially worn or polished areas. Heavy traffic areas, especially those on concrete surfaces, required greater care in selection of type coarseness of slurry, allowing the slurry to fully cure before opening to traffic, and the placing of either a tack coat or a second coat of slurry for greater adhesion and wear purposes.

(d) NOTIFICATION

It shall be the CONTRACTOR'S duty to notify all homeowners and business affected by the construction 24 hours in advance of the surfacing. Should the work not occur on the specified day, new notification will be distributed as required. Suitable no parking signs will be properly posted on streets where parked vehicles would interfere with the surfacing 24 hours prior to starting work.

(e) TRAFFIC CONTROL

It shall be the CONTRACTOR'S responsibility to provide adequate traffic control measures, such as barricades, cones, advance warning signs, flagmen, etc., to protect the uncured slurry surface from all types of traffic and provide traffic safety in the construction area. These measures shall be in accordance with the Section 6 "Texas Manual on Uniform Traffic control Devices for Streets and Highways." Opening the traffic does not constitute acceptance of the work. Any damage to the uncured slurry will be the responsibility of the CONTRACTOR and will be repaired as directed by the Engineer. Approved temporary lane markings will be provided by the CONTRACTOR for placement as directed by the Engineer.

5.9.7. STORAGE AND STOCKPILING

(a) STOCKING OF AGGREGATE

Precautions shall be taken to insure the aggregate does not become contaminated with over-sized rock, clay, silt or excessive amounts of moisture. The stockpile shall be kept in areas that have good drainage. Segregation of the aggregate will not be permitted. The grading of aggregates proposed for use and as supplied to the mixing plant shall be uniform.

(b) STORAGE SITE

The CONTRACTOR will be required to provide a suitable storage facility for all equipment and materials needed to perform the work. The site

should be located as close as possible to the area or work being done to reduce turn around time and insure an acceptable rate of work. Any site selected shall be subject to final approval by the Engineer. If difficulty arises in finding an acceptable site, the Engineer shall assist in procuring a suitable site.

5.9.8. **SURFACE PREPARATION**

(a) GENERAL

Immediately prior to applying the slurry seal, the surface of the pavement shall be thoroughly cleaned of all loose material, vegetation, soil and other objectionable material. Any breakdowns, base failures, or other surface defects beyond the scope of the CONTRACTOR'S preparation duties should be properly repaired before application of the slurry seal begins. Manholes, valve boxes, raised pavement markers and other designated objects will be covered by the CONTRACTOR to insure their integrity. After completion of slurry placement, the CONTRACTOR shall remove said covers so the objects protected will remain full functional. Any objects damaged by the CONTRACTOR shall be repaired or replaced at no cost to the City.

(b) TACK COAT

If required, the CONTRACTOR shall apply a tack coat or a second coverage of slurry seal on brick, concrete, or other highly absorbent or polished surfaces. If a tack coat is required, a 1 part emulsion, 3 part water tack coat of the same asphalt emulsion type and grade as specified for the slurry is required.

Rate of application: 0.05 to 0.10 gallons to square yard. All debris and unused material shall be removed.

5.9.9. **APPLICATION**

(a) GENERAL

If conditions require, the surface shall be pre-wetted by fogging ahead of the slurry box. Water used in fogging the surface shall be applied so that the entire surface is damp with no flowing water in front of the box.

Rate of spray: 0.05 to 0.15 gal/sq. yd (or as directed by the Engineer) No streaks, lumps, balls or unmixed aggregate shall be permitted.

(b) RATE OF APPLICATION

The slurry shall be sufficiently stable during the spreading period so that the emulsion does not break, there is no segregation of the fines from the coarser aggregate and the liquid portion of the mix does not float to

the surface.

Rate will vary according to what type slurry aggregate is used. (See Limitation: Slurry Type)

(c) JOINTS

No excessive buildup or unsightly appearance shall be permitted on longitudinal or transverse joints. An excessive overlap will not be permitted on longitudinal joints. The CONTRACTOR shall provide suitable width spreading equipment to produce a minimum number of longitudinal joints throughout the project. Longitudinal joints shall be placed on lane lines when possible. If half passes are used, they shall not be the last pass of any paved area.

(d) HAND WORK

In areas where the spreader box cannot be used, the slurry shall be applied by hand squeegees to provided complete and uniform coverage. Any joints or cracks not filled by the slurry shall be corrected by use of hand squeegees. Handwork shall be completed during the machine applying process.

(e) LINES

Straight lines along curb and gutters and shoulder will be required. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide a good appearance. Slurry shall be placed at the lip of the gutter or one foot from the face of curb at the Engineer's direction.

(f) ROLLING

If required, specified areas shall be rolled by a self propelled 10 ton pneumatic roller with a tire pressure of 50 PSI and equipped with a water spray system. The surface shall be subjected to a minimum of 5 full overages by the roller. Rolling should not commence until the slurry has cured enough so that it will not pick up on the tires. (Rolling is normally not required). In areas of high traffic volume and subject to slow turning, e.g. major intersections, rolling may be feasible.

(g) CURING

All traffic shall be kept off the slurry until it has cured to a firm condition that will prevent damage to the slurry. Any uncured slurry damaged will be repaired in a manner satisfactory to the Engineer at the CONTRACTOR'S expense.

(h) CLEAN-UP

All objects not to have been covered (manhole covers, valve covers, raised traffic markers, etc.) will be restored to their original integrity. The CONTRACTOR shall remove all unused material and debris from the site prior to final acceptance."

6.1.1. Add at the end of the paragraph:

"This shall include, but is not limited to, the current Dallas Water Utilities Standard Drawings."

6.1.4. Add the following at the end of the paragraph:

"A construction schedule shall be prepared by the CONTRACTOR and submitted to the OWNER prior to construction or within ten days of the notice to proceed, whichever occurs first. The CONTRACTOR shall call 670-7046, five working days in advance of construction to request staking. The CONTRACTOR shall call the appropriate Inspection Division, at 670-8001, two working days in advance of construction to request an inspector."

6.1.5. Add at the end of the paragraph:

. "Cut sheets prepared by anyone other than the OWNER must be approved by the OWNER's inspection division before any work will be allowed using that data."

6.1.6 Delete and substitute the following:

"The CONTRACTOR shall furnish, erect, and maintain, for the duration of the project, one sign built in accordance with the sketch on the following page. The sign will be erected at locations to be designated by the Engineer, and no separate compensation will be paid for the installation, maintenance, and progressive relocation of the sign. Additional signs, if required will be specified in the Special Provisions. The telephone number for the Water Utilities Department Representative will be established at the pre-construction meeting and will then be added to the project signs."

INSERT

“PROJECT SIGN DETAIL”

PAGE HERE!

6.1.11. Add the following at the end of the paragraph:

"Surplus excavation and other materials removed as a part of construction may be deposited at the McCommas Bluff disposal site upon payment of the required fees.

If the CONTRACTOR chooses to dispose of these materials at sites other than the CONTRACTOR'S sites or the McCommas Bluff disposal site he shall furnish the Engineer with a list of those sites as well as a copy of a signed permission agreement with the property owner(s). Conditions and restrictions, if any, shall be clearly stated. Compliance with these conditions and restrictions will be required, and a release from the property owner(s) must be obtained upon completion of the project.

Surplus excavation and other materials must not be deposited in areas designated as Flood Plain or along natural drainage ways. Materials deposited will be removed at the CONTRACTOR'S expense and the area restored to its natural condition.

Failure to comply promptly with the requirements of this provision will result in denial of the OWNER's final approval and acceptance."

6.1.12. Delete and replace with the following:

"All water for construction of water or sanitary sewer mains shall be furnished by the OWNER free from the nearest convenient City of Dallas main. If water from the OWNER is unavailable, CONTRACTOR shall be responsible for purchasing water from a local supplier or another city."

6.1.13. Delete and substitute the following:

“A Street Cut Permit is required to be in the CONTRACTOR'S possession on the job site prior to making a cut in City Right of Way. The permit will be obtained and furnished by the Engineer."

6.2.3. Delete "the CONTRACTOR shall have 24 hours in which to comply with the instructions of the OWNER," in the second paragraph, part of the second to last sentence and substitute:

"the OWNER shall have the right to remedy without notice as called for in 1.29.2. The cost of all work done by the OWNER will be borne by the CONTRACTOR.

6.2.5.(a) Add the following paragraph:

"Water service must be maintained. If a temporary main is required to

accomplish continuous service, it shall be installed and removed by the CONTRACTOR at CONTRACTOR'S expense, unless a separate bid item for this work is established in the Contract. This shall include furnishing all labor, tools, materials, equipment, and incidentals necessary to complete the work, including all excavation and disposal of surplus material, transfer of services, removal of temporary main after work is complete and transfer of services back to the existing system, and protection and repair of the temporary system.

6.2.6. Add the following at the end of the paragraph:

"Removal and replacement of vegetation shall be incidental to the work. If the OWNER orders the placement of additional vegetation, not as the result of the CONTRACTOR'S negligence, there shall be a separate pay item for the additional vegetation."

6.2.8. (a)(5) Add the following at the end of the paragraph:

"Payment for altered grade, if made, will be in cubic yards. Measurement and payment will be as specified in 6.2.12 except the depth will be measured from the plan grade to the revised grade."

6.2.8. (a) Add the following:

"(6) When pipe is to be installed in a proposed fill of any type, fill material-shall be placed and compacted to the proposed grade elevation and then re-excavated for pipe installation.

(7) All trenches excavated in rock for wastewater mains to be embedded with class G embedment shall remain open for a minimum of 24 hours or the CONTRACTOR may, at no cost to the OWNER, line the sides of the excavation for the thickness of the concrete embedment with 1 inch thick asphalt impregnated felt boards.

(8) In all open cut excavations beneath an existing curb, the CONTRACTOR shall remove the existing curb, backfill and compact the trench, and install a new curb".

6.2.8. (c)(1) Delete the last sentence of the first paragraph and substitute the following:

"Obtaining a blasting permit from the Dallas Fire Department does not constitute permission to use explosives. Permission to use explosives is not granted or denied prior to award. The CONTRACTOR shall not assume in its bid that permission to use explosives will be granted. Blasting will be considered for approval by the Engineer on a case by case basis. Denial by the OWNER of permission to use explosives shall not constitute a basis for a claim for additional costs.

Where use of explosives is permitted, the CONTRACTOR EXPRESSLY AGREES TO BE SOLELY RESPONSIBLE for the determination as to whether explosives shall actually be used, and for any result from the use, handling or storage of explosives, and shall DEFEND, INDEMNIFY AND HOLD

COMPLETELY HARMLESS THE OWNER, its officers, agents and employees, and the Consulting Engineer against any and all claims, lawsuits, judgments, costs and expenses, for personal injury (including death), property damage or other harm for which recovery of damages is sought, suffered by any person or persons, as the result of the use, handling or storage of explosives by the CONTRACTOR or any Subcontractor, REGARDLESS OF WHETHER SAID USE, HANDLING OR STORAGE WAS NEGLIGENT OR NOT, AND REGARDLESS OF WHETHER THE DAMAGE OR INJURY WAS CONTRIBUTED TO IN ANY WAY BY THE NEGLIGENCE OR FAULT OF THE OWNER, ITS OFFICERS, AGENTS OR EMPLOYEES, OR THE CONSULTING ENGINEER. In the event of conflict with any other indemnity paragraph in this Contract, this paragraph controls. This indemnity paragraph is intended solely for the benefit of the parties and is not intended to create or grant any rights, contractual or otherwise, to any other person or entity. The CONTRACTOR shall furnish the OWNER and Consulting Engineer with evidence of insurance sufficient to cover possible damage or injury, which insurance shall either include the OWNER and Consulting Engineer as additional insureds or be of such character as to fully protect the OWNER and Consulting Engineer."

6.2.8. (c)(4) Add at the end of the first sentence:

"as outlined in item 1.24.3 of this addendum.

Delete the third sentence.

Add to the last sentence of the first paragraph:

"if directed by OWNER."

Delete the following from the last sentence of the second paragraph: "unless ordered by the OWNER to be left in place."

6.2.9. (b)(1) Add the following after the second paragraph:

"In lieu of mechanically tamped material, the CONTRACTOR may, at no expense to the OWNER, furnish and place sand. At the time of placement, the sand should have a moisture content between 5 and 8%.

The density requirements are to be met for this sand backfill regardless of the method to be used for compaction."

6.2.9. (b)(5) Add at the end of the subsection:

"Vibratory rollers will not be permitted unless approved by the OWNER."

6.2.9.(b)(6) Delete the entire subsection and replace with the following:

"If the results of tests made by the OWNER'S designated testing laboratory indicate the backfill does not meet the specified density and/or moisture requirements throughout its depth, the OWNER shall require its removal and replacement to meet the requirements. Re-testing will be performed by the OWNER'S designated testing laboratory at the OWNER'S expense. All removal and replacement of backfill material will be at no cost to the OWNER."

6.2.9.(c)(1) Add after the first paragraph following the chart:

"Rock cuttings may only be used as Class D+ embedment for water conduits."

6.2.10. Add the following:

"(I) Four F Flowable Backfill. Four F Flowable Backfill shall consist of an appropriate amount of cement (with other additives as necessary) mixed with mortar sand to flow and fill all voids in the excavation. This fill shall develop a compressive strength of 1120 pounds per square foot (7.8 psi) one hour after placement, Pup and a 28 day compressive strength with the range of 25 to 100 psi. The material must be such that it can be capped in one and one-half to two hours."

6.2.11. Delete from the sixth line:

"equipment required for taking density samples and."

6.4.2. Add the following at the end of the first sentence:

"If none is specified on the plan, the CONTRACTOR shall submit an encasement design to the OWNER for approval."

6.4.3.(a) Add after the second paragraph:

"In cases where grout is to be used to fill the void between the carrier pipe and encasement, or the carrier pipe and rock/earth (if an encasement is not required), the CONTRACTOR may submit a request to use injected pea gravel in lieu of grout. Requests will be reviewed by the OWNER on a case-by-case basis. If the request is not granted, the refusal will not constitute the basis for a claim. If the request is granted, a submittal detailing the means and methods of performing the work will be required for approval by the OWNER. The OWNER will have the option to require the use of grout and reject the entire concept of using injected pea gravel if the submittal is not approved. If the submittal is approved, it will not constitute a basis for an increase or a decrease to the cost of the Contract. If the submittal is approved, the City accepts no responsibility

for the final construction results by using pea gravel in lieu of grout."

6.4.3.(b) Add at the end of the fifth paragraph:

"Grout shall have a minimum compressive strength of 100 psi at 28 days."

6.4.3.(c) Delete the last three sentences of the first paragraph.

6.5.1.(b) Add the following at the end of the second paragraph:

"if the OWNER has approved the removal of the extra pavement. Payment shall include removal and disposal of existing obstructions, including, but not limited to existing pavement."

6.5.1.(b)
(1)&(2) Delete both subsections.

6.5.1. Add to (e):

"The limiting trench width shall be shown as Bd in the Embedment Tables located in the Dallas Water Utilities Drawings, Details & Standard Appurtenances for Water & Sanitary Sewer Construction Methods."

Add the following:

"(f) Removal and disposal of any obstructions or objectionable materials (to include paving, sidewalks, curb, curb & gutter, etc.) shall be incidental work and not eligible for pay as outlined in Item 6.2.2., unless a separate pay item is established in the Contract."

6.5.2.(c) Add:

(2) Payment for reinforced concrete pavement replacement shall be in cubic yards."

6.5.2.(d) Add the following at the end of the paragraph:

"Concrete base under asphaltic concrete pavement need not be sawed."

6.6.4. Add to the last paragraph:

"Copies of this information shall be furnished to the OWNER."

6.7.1.(c) Add between the second and third paragraphs:

"Pipe must be swabbed clean prior to placing in the ditch."

6.7.2. (I)(1)(A) Add the following:

"Wall thickness will be as follows:

Manhole Diameter	Wall Thickness
48"	6"
60"	8"
72"	8"

6.7.2. (c)(6) Add the following as the second paragraph:

“Television inspecting shall be performed by the CONTRACTOR in compliance with these specifications:

(A) All television equipment used shall have at least 250 lines of horizontal resolution.

(B) The picture shall be in color.

(C) Camera lens path shall follow the center of the pipeline.

(D) All information gathered must be legible, easily read, and of high quality.

(E) A run sheet, compatible with the tape, must be made noting deficiencies.

(F) By Voice on the tape the operator must:

(i) Note the date and time the recording was made.

(ii) Note the CONTRACTOR'S name, project name, and contract number.

(iii) Note the name of the company performing the television inspection and the name of the operator.

(iv) Note the location, designation, and size of the main and the direction in which the test was made.

(v) Identify every 50 foot station.

(vi) Identify the station of each manhole.

(vii) Identify the location and station of deficiencies.

(viii) Identify the location and direction of entry of laterals.

(G) If the test is being run from manhole to manhole, the camera shall move downstream. If the test is being run from manhole to cleanout, the camera shall move upstream.

(H) Tapes shall be on VHS format unless otherwise noted in the Special Provisions, and must be compatible with the OWNER's equipment.

(I) All wastewater mains must be laced with enough water to fill all low points. The television inspection must be done immediately following the lacing of the main with no water flow.

(J) Criteria for acceptance:

(i) No pulled or slipped joints.

(ii) Io water infiltration.

(iii) No cracked or damaged pipe.

(iv) No structural damage to the pipe.

(v) The OWNER will decide if repairs are required and that decision will be final.

(vi) Wastewater lines are clean.

(K) If repairs are required, another television inspection must be made after the repairs are complete at no cost to the OWNER.

(L) The OWNER's inspector must be present during the television inspection, unless otherwise authorized by the OWNER. Generally, he will be present for at least a portion of the television inspection.

(M) All tapes and run sheets shall be given to the OWNER's inspector for storage and inspection by the OWNER. All tapes and run sheets will become the property of the OWNER.

(N) The CONTRACTOR may employ a firm qualified in this type of work to make the television inspection. The tape(s) and run sheets should be furnished directly to the inspector and not to the CONTRACTOR. The firm must attach a decal to the tape(s) that states the following and signed by an officer of the firm:

I certify this tape represents all or a part of the television inspection performed on Contract No. _____ and has not been altered or changed in any manner.

_____

Signed Title

The CONTRACTOR is not prohibited from making the television inspection. If the CONTRACTOR does make the inspection, the inspector MUST be present during the entire inspection. The tape(s) and run sheets must be furnished to the inspector immediately after completion of the inspection.

(O) Allowable standing water depths at the end of construction for 6" through 24" mains are as follows:

GRADE	**DEPTH OF STANDING WATER**
Less than 0.7%	**½"**
0.7% and greater	**0**

The depths of standing water allowable for mains that are greater than 24" in diameter will be evaluated by the OWNER and the OWNER will determine if corrective action is required."

6.7.2.(d) Delete first paragraph and replace with:

"It is the intent of the OWNER that no allowance (zero infiltration) for seepage of ground water at the time the test is performed. The actual connection to the existing system will not be permitted without prior approval of the OWNER. It is the intent of the OWNER to complete the construction of new wastewater mains and test the system prior to any connection to the existing system. Exceptions may be made by the OWNER in the event an existing main is to be connected to the new main upstream of the outfall of the new main. A stopper may be used until a tie-in is approved by the OWNER."

6.7.2.(h) Add the following:

"(9) Wastewater Connections. Connection of wastewater mains to existing manholes and to other wastewater mains where constructing a manhole is not feasible or not required must be done using tapping machines and tapping saddles. Such connections shall be watertight. The use of pipe hammers or jackhammers is prohibited."

6.7.2.(i) Delete the third sentence from (1) and replace with:

"The built up section to adjust wastewater manholes to grade must be accomplished using precast concrete grade rings and non-shrink grout only."

Add the following at the end of (1) (B):

"Tongue and groove with pre-molded joint sealing compound will not be permitted."

Delete (1)(D) and substitute the following:

"Brick manholes will not be permitted."

Add the following to (2):

"(D) Manhole inserts.

Manhole inserts, if required, will be specified in the Contract Documents."

6.7.3. Delete first sentence in (f) and substitute the following:

"All gray iron, ductile iron, and plastic pipe lines will be tested with a hydraulic test pressure of not less than 175 psi maintained over a period of not less than 2 hours. The rates of leakage for all pipe shall not exceed the amount derived for the following formula:

$$L = \frac{SD\sqrt{P}}{5550}$$

where

S = length of pipe, feet
D = nominal diameter of pipe, inches
P = pressure, psi
L = leakage, gpd

The hydrostatic test will be performed by the OWNER at no expense to the CONTRACTOR. In the event the test fails, the CONTRACTOR will make the required repairs and have the main tested, at the CONTRACTOR'S expense, by a qualified person or entity other than the OWNER to insure that all leaks have been repaired. The OWNER will then perform the final acceptance test."

In the fourth sentence of the paragraph, change the rate of leakage from "11.65" to "12.59"

Delete the last sentence of this paragraph and delete the table "Allowable Leakage for 4 hours at Test Pressure of 150 PSI"

6.7.3.(h) Add the following:

"(7) Procedures for Transferring Service.

(A) In advance of paving as identified by Bid Items 507A - 507D.

(i) A Public Relations letter will be furnished to each customer by the City prior to construction explaining the work to be done.

(ii) A new meter box will be located at the proposed ultimate grade

and location. If a sidewalk is proposed, the meterbox will be set so that it will ultimately be in the center of the proposed sidewalk. If the top of the new meter box's ultimate elevation is higher than the existing ground, the new meter box will be set flush with the top of the existing ground. This meter box will be raised by others during the paving operations. If the top of the new meter box ultimate elevation is lower than the existing ground, the new meter box will be set at the ultimate elevation. The meter box lid, however, will not be installed in this meter box. Additional meter boxes will be stacked on top of the new meter box until the top box is higher than the existing ground elevation. The top meter box will have a meter box lid and the meter will be placed in the bottom meter box.

(iii) A new water service will be run from the new main to the new meter box. A new service line will be run from the new meter box to the property line and immediately adjacent to the existing house line. The service line will be turned up at this point and extended at least one foot above the existing ground. A C. F. curb stop will be installed on the end of the service line. This new service line will be connected to the existing house line when the water service is transferred. All new water service lines will be installed to clear all existing and proposed utilities and paving.

(iv) The new water service will be temporarily connected to the service line for flushing operations.

(v) All new services will be flushed according to item 6.7.3. The main will then be hydrostatically tested and chlorinated. After a good sample is received, the Inspection Division will release the main to the Distribution Division to place in service. The Distribution Division will inform the Inspection Division when the new services are ready to be transferred. The CONTRACTOR is then instructed by the Inspector that he may begin transferring the service.

(vi) The Inspector must be present at all times during the transfer of the services.

(vii) Each customer is informed about the transfer by the Inspector. The customer will be given a tag explaining the work to be done and the City emergency phone number.

(viii) Services will be transferred, in order, on one side of the block at a time.

(ix) It is very important that the CONTRACTOR does not allow any contaminated water or material to enter the system.

(x) The water serving the house through the existing water service will be stopped by closing a corp or curb stop on the existing water service. The existing house line and new service line will then be cut at the property line and connected. Galvanized house lines will not be threaded for connection, but will be cut and connected with a coupling.

(xi) The existing meter will be removed and installed in the new meter box. In every case, all meter gaskets and bolts will be replaced. The new water service and service line will be placed so that when the meter is installed, the lines will not be in tension.

(xii) If a meter stops or appears to be damaged, the Meters Division (651-1441) shall be informed by the Inspector. They will bring a new meter to the job site for the CONTRACTOR to install. The CONTRACTOR will be permitted to install a jumper section to provide service if there is a delay in obtaining the new meter. When the new meter is received, the jumper will be removed and the new meter installed by the CONTRACTOR. There shall be no additional cost to the OWNER for this work.

(xiii) Customer is at home during transfer: The CONTRACTOR will inform the customer that the service is being transferred. Before turning on the water at the meter, an outside faucet or cold water bathtub faucet shall be opened so air and sediment can be released from the plumbing. The water is to be turned on slowly and all connections inspected for leaks. The CONTRACTOR shall repair all leaks. The CONTRACTOR is to check with each customer to insure proper water service after the transfer.

(xiv) Customer is not at home during transfer: If an outside faucet is available, it will be opened so air and sediment can be released from the plumbing. If an outside faucet is not available, the transfer will still be made. After the water is turned on and it runs for more than 10 gallons for a 3/4" or 1" service and more than 30 gallons for 1 ½" or 2" service, the water will be cut off and a tag of explanation left on the customer's door. The tag will give a City telephone number to call to have service restored after the customer returns home.

(xv) The CONTRACTOR is responsible for all damages. If the house line or plumbing is damaged or clogged, the CONTRACTOR will make the necessary repairs, if possible. If the CONTRACTOR cannot make the repairs, he will hire a plumber to do the work. The customer may, at his option, hire his own plumber to do the work and the CONTRACTOR will be responsible to reimburse the customer for this expense. The CONTRACTOR will not be allowed to leave the work site until released by the Inspector. The Inspector will not permit the CONTRACTOR to leave the work site if a customer is without water service. If a problem surfaces after the CONTRACTOR has left the job site, the customer will be instructed to call the City emergency service at 670-5700.

(xvi) When service is restored through the new main and services, the old meter box and the line from the old meter box to the property line will be removed and become the property of the CONTRACTOR.

(B) Not in advance of paving.

(i) A Public Relations letter will be furnished each customer by the

City prior to construction explaining the work to be done.

(ii) All new services will be flushed according to Item 6.7.3. The main will then be hydrostatically tested and chlorinated. After a good sample is received, the Inspection Division will release the main to the Distribution Division to place in service. The Distribution Division will inform the Inspection Division when the new services are ready to be transferred. The CONTRACTOR is then instructed by the Inspector that he may begin transferring the services.

(iii) The Inspector must be present at all times during the transfer of the services.

(iv) Each customer is informed about the transfer by the Inspector. The customer will be given a tag explaining the work to be done and the City emergency phone number.

(v) Services will be transferred in order on one side of the block at a time.

(vi) It is very important that the CONTRACTOR does not allow any contaminated water or material to enter the system. The meter box will be removed and the area excavated a minimum of 12 inches below where the meter will be set. All water from any source will be removed from the excavated area prior to disconnecting any portion of the existing system. The excavation must be kept dry if at all possible. In cases where it is not possible to keep the excavation dry, the water will never be allowed to reach a level any higher than six (6) inches below the meter. A piece of copper tubing is attached to the new service for flushing purposes. The service is to be flushed away from the excavation until good, clear water is evident.

IN ALL CASES, THE SERVICE WILL BE FLUSHED A MINIMUM OF ONE (1) MINUTE. Before any reconnections are made, all fittings and openings will be clear and sanitary. A plug will be installed on the house line after it is removed to prevent contaminated material or water from entering the system.

(vii) The CONTRACTOR is to remove the existing meter box. The meter will be removed only if it needs to be relocated to a new grade. The service is to be installed according to the Appurtenance Sheet. In every case, all meter gaskets and bolts will be replaced. The meter and house service is to be adjusted to the proper grade as shown. Extreme care must be used when working on the house line to insure that it is not damaged. The house line and new service will be properly lined so that when the meter is reinstalled, the lines will not be in tension. Galvanized house lines will not be threaded for connection, but will be cut and connected with a coupling.

(viii) Customer is at home during transfer: (Before turning on the water at the meter, an outside facet or cold water bathtub faucet is to be opened so air and sediment can be released from the plumbing. The water is to be turned on slowly and all connections inspected for leaks. The CONTRACTOR will stop all leaks. Check with each customer or turn on an outside faucet to insure proper water service after the transfer.

(ix) Customer is not home during transfer: (If an outside faucet is available, it will be opened so air and sediment can be released from the plumbing. If an outside faucet is not available, the transfer will still be made. After the water is turned on and it continues to run more than 10 gallons for a 3/4" and 1" service or more than 30 gallons for 1 ½" and 2" service, the water will be cut off and a tag of explanation left on the customer's door. The tag will give a City telephone number to call to have service restored after the customer returns home.)

(x) The CONTRACTOR is responsible for all damages. If the house line or plumbing is damaged or clogged, the CONTRACTOR will make the necessary repairs, if possible. If the CONTRACTOR cannot make the repairs, he will hire a plumber to do the work. The customer may, at his option, hire his own plumber to do the work and the CONTRACTOR will be responsible to reimburse the customer for this expense. The CONTRACTOR will not be allowed to leave the work site until released by the Inspector. The Inspector will not permit the CONTRACTOR to leave the work site if a customer is without water service. If a problem surfaces after the CONTRACTOR has left the job site, the customer will be instructed to call the City emergency service at 670-5700.

(xi) If a meter stops, the meter Division (651-1441) shall be informed by the Inspector. They will bring a new meter to the job site for the CONTRACTOR to install. The CONTRACTOR will be permitted to install a jumper section to provide service if there is a delay in obtaining the new meter. When the new meter is received, the jumper will be removed and the new meter installed by the CONTRACTOR. There shall be no additional cost to the OWNER for this work.

(xii) When service is restored, the meter box is to be set at the proper grade. All existing concrete or metallic boxes deemed unsuitable by the Inspector are to be replaced with new approved corrugated meter boxes approved for use by the City. The excavated material will be used to backfill under and around the meter box. The material will be properly compacted to prevent settlement. Sand will only be used to grade the meter box. Sod will be replaced around the box or if the meter box was set in a concrete walk or drive, concrete will be used."

6.7.3.(i)(1) Add the following at the end of the subsection:

"CONTRACTOR shall contact Distribution Division at 670-5700 a minimum of 48 hours in advance of a required valve shutdown."

6.7.3.(i)(2) Add the following after the fourth paragraph:

"Taps and blow-offs for testing and purification purposes on all contracts will be installed by the CONTRACTOR, at locations specified by the OWNER, without compensation. Compression type curb stops are not permitted for blow-offs. This may include placing a blowoff on an existing main at the tie-in, or addition of a blowoff or blowoffs at an isolated existing valve, for facilitation of testing and/or chlorination.

Upon completion of the testing and purification the Contractor shall return to the job site and remove the blow-off down to the corporation stop. He shall leave the corporation stop and backfill, replacing all pavement. Removal of blow-off shall include all labor, materials, tools, equipment, and incidentals necessary to complete the work, including excavation, disposal of surplus materials, and backfill without compensation."

6.7.3.(j)(1)(A)(2) Add the following at the end of the subsection:

" Single strap clamps will not be permitted on any type pipe."

6.7.3.(j)(1)(B) Add the following at the end of the subsection:

"Only soft copper (Type K) tubing will be allowed and a curb stop will be required in lieu of a brass gate valve."

6.7.3.(j)(2) Add the following at the end of the paragraph:

“The respective Tap and Pipe Diameters given in this subsection are valid only for grey or ductile iron pipe with a wall thickness equal to Class 52 pipe, or thicker. If pipe with a wall thickness less than that of Class 52 pipe is encountered, direct taps will only be permitted in the 3/4" and 1" sizes. Larger diameter taps shall require the use of a tapping saddle."

6.7.3.(j)(3) Add the following at the end of the paragraph:

"Flanged outlets will be required for taps greater than 2".

6.7.3.(j)(5) Delete and substitute the following:

"Tapping of PVC Pipe. All taps shall be made utilizing bronze service clamps."

6.7.3.(k)(1) Add the following at the end of the paragraph:

"All valve stacks will be of cast iron pipe (grey or ductile iron) and of one continuous piece to the finished grade. On advance of paving contracts, the valve stack may be extended to the final paving grade with one cast iron pipe extension. The two valve stack pipes must be aligned so that the valve can be operated properly. The extension must be connected to the existing valve stack with a bell and rubber gasket.”

6.7.3.(m)(2) Add the following paragraphs:

"Fire Hydrants shall be braced and blocked on a concrete slab or a stone slab not less than 4" thick unless in a sound rock trench."

“Hydrants shall be for a 5 foot bury length unless otherwise approved by the owner. The hydrants shall be set perpendicular with the pumper nozzle facing the nearest curb, and to a depth such that the center of the nozzle is between 18 inches and 24 inches from the finished ground elevation.”

6.7.3.(m)(3) Add at the end of the first paragraph:

"Blocking shall be included in payment for fire hydrants."

6.7.3.(n)(1) In the first sentence delete "Cast Iron".

Add the following:

"All water pipe fittings shall be restrained type, anchored, or have retainer glands. Fire hydrant tees shall be bell-bell-flange fittings. The use of Ductile Iron Compact fittings is prohibited if soil resistivity measurements are less than 1000 ohms/cubic cm."

6.7.3.(n)(2) In the second paragraph delete "Cast Iron".

6.7.3.(o)(1) Add the following paragraph:

"Bullheads and services 1" and smaller in diameter and up to fifty (50) feet in length shall be installed with one continuous piece of copper tubing with no splices, coupling, etc."

6.7.3.(s)(2)(B)(2)(ii) Add at the end of the subsection:

"The CONTRACTOR shall, in the securing of the main, remove the blow-off down to the corporation stop."

"6.7.3. (s)(2)(C)(1)(iv) Delete this subsection and substitute the following:

DISPOSAL OF HEAVILY CHLORINATED WATER MAIN FLUSHING WATER

The CONTRACTOR will install blowoffs at locations and sizes as shown on the Storm Water Pollution Prevention Plan (SWP3) or as directed by the OWNER.

Preliminary flushing. Before being chlorinated, the main (s) shall be filled to eliminate air pockets and shall be flushed to remove particulates. The flushing velocity in the main shall not be less than 2.5 ft/s unless the OWNER determines that conditions do not permit the required flow to be discharged to waste. Flushing is no substitute for preventive measures during construction.

Certain contaminates, such as caked deposits, resist flushing at any feasible velocity. In mains of 24 inch diameter and larger, an acceptable alternative to flushing is to broom-sweep the main, carefully removing all sweepings prior to chlorinating the main.

Required Flow and Openings to Flush Pipelines at 40 psi Pressure

Pipe Dia. in	Flow Required 2.5 ft/sec gpm	Size of Tap 1	1 ½	2	Number of 2-1/2" Hydrant Outlets Number of

		Taps on Pipe			
4	**100**	**1**	**-**	**-**	**1**
6	**200**	**-**	**1**	**-**	**1**
8	**400**	**-**	**2**	**1**	**1**
10	**600**	**-**	**3**	**2**	**1**
12	**900**	**-**	**-**	**2**	**2**

Chlorination. The OWNER shall chlorinate the main(s) in accordance with AWWA Standard C651a-90, Disinfecting Water Mains, as modified by the Dallas Water Utilities at no cost to the Contractor. The mains shall be chlorinated by one of two procedures; the Slug Method (usually used on large mains) or the Continuous-Feed Method.

Continuous-Feed Method. Chlorine shall be added near the source of an existing potable water main and will continue until the entire main is filled with heavily chlorinated water. The chlorinated water shall remain in the main(s) for a minimum of 24 hours.

Slug Method. A high concentration of chlorine is added to one point in the system (called a slug) and slowly moved through the system so that all parts of the system are exposed to the highly chlorinated water for a period of not less than 3 hours.

Flushing. After the applicable retention period, heavily chlorinated water should not remain in prolonged contact with the pipe. In order to prevent damage to the pipe lining or corrosion damage to the pipe itself, the heavily chlorinated water shall be flushed from the main until the chlorine measurements show that the concentration in the water leaving the main is no higher than 4 mg/L. If the continuous-feed method is used, the main will be flushed a minimum of 24 hours.

Disposal of Flushing Water. The CONTRACTOR shall be responsible to dispose of the water used to flush the heavily chlorinated water from the main. The CONTRACTOR may use one of four methods to dispose of the heavily chlorinated water. The method must be approved by the OWNER.

NOTE: The CONTRACTOR is not permitted to operate valves in the system. If valve operations are required during the flushing operation, this must be done by a representative of the OWNER.

1. A reducing agent shall be applied to the water to be wasted to neutralize the chlorine residual to a maximum of 4 mg/L. The water may then be discharged into the storm sewer or a waterway.

2. The water may be discharged into an existing wastewater system provided the OWNER'S Wastewater Collection Division has determined the existing system is capable of handling the additional flow at the planned point of input. A device must be used at the discharge point into the wastewater system that assures it is not possible to get backflow into

the water system. As a minimum, there will be an 8-inch air gap from the end of the discharge hose to the wastewater system. The CONTRACTOR is responsible to furnish and install any hoses to connect to the blow-off which are run to the wastewater system and proper barricades, warning devices, and/or flagmen to protect the public.

3. The water may be loaded into a tanker and transported to an existing wastewater system for discharge provided the OWNER'S Wastewater Collection Division has determined the existing system is capable of handling the additional flow at the planned point of input; or a reducing agent shall be applied to the water to be wasted to neutralize the chlorine residual to a maximum of 4 mg/L either in the tanker or a point offsite and the water discharged into the storm sewer or a waterway. Discharge into the wastewater system from a tanker will be gravity flow only and not pumped.

4. The water may be discharged into a catch basin provided the basin has a capacity to hold the entire discharge and will not overflow during a rain event. The water may then be discharged into a waterway or storm sewer from the catch basin once the chlorine residual is at or below 4 mg/L either by evaporation and/or dilution.

Sampling. The CONTRACTOR shall remove the flushing hose(s) from the blowoff after flushing is complete. The OWNER will obtain a sample(s) from the blowoff(s) for bacteriological analysis. If the sample is acceptable, the system shall be placed in service by the OWNER. If the sample is not acceptable, the OWNER will direct the system be rechlorinated, flushed, or drained and cleaned on the inside, or a combination of any of these procedures. If the main is rechlorinated, the CONTRACTOR is responsible to dispose of the heavily chlorinated water as outlined above.

Indemnification. Notwithstanding any other provision in the Contract documents, CONTRACTOR by execution of this Contract acknowledges its responsibility for compliance with this section. CONTRACTOR covenants warrants and represents that it will receive, handle, process and dispose of chlorinated or otherwise contaminated water in total compliance with all regulations promulgated by the United States Environmental Protection Agency and the State of Texas. CONTRACTOR AGREES TO DEFEND, INDEMNIFY AND HOLD CITY, ITS OFFICERS, AGENTS AND EMPLOYEES FULLY HARMLESS AGAINST ANY AND ALL ACTIONS, ADMINISTRATIVE OR JUDICIAL, FOR CIVIL PENALTIES, FINES, AND ANY AND ALL SUITS FOR PERSONAL INJURY (INCLUDING DEATH), PROPERTY DAMAGE OR OTHER HARM FOR WHICH RECOVERY OF DAMAGES IS SOUGHT, SUFFERED BY ANY PERSON OR PERSONS, THAT MAY ARISE FROM OR BE OCCASIONED BY CONTRACTOR'S INTENTIONAL, WILLFUL OR NEGLIGENT VIOLATION OF A FEDERAL, STATE OR LOCAL ENVIRONMENTAL REGULATION, RULE OR ORDINANCE IN THE RECEIPT, HANDLING, PROCESSING OR DISPOSAL OF CHLORINATED OR OTHERWISE CONTAMINATED WATER REGARDLESS OF WHETHER CITY HAS BEEN NEGLIGENT OR AT FAULT IN THE TREATMENT OR HANDLING OF SUCH WATER PRIOR TO TRANSMISSION TO THE DISPOSAL FACILITY OR NEGLIGENT OR AT FAULT IN ITS ADMINISTRATION OF THIS CONTRACT. CONTRACTOR

SHALL FULLY REIMBURSE CITY FOR ALL FINES, PENALTIES, DAMAGE SETTLEMENTS OR JUDGMENTS INCURRED OR PAID BY CITY AS A RESULT OF THE CONTRACTOR'S INTENTIONAL, WILLFUL OR NEGLIGENT VIOLATIONS DESCRIBED ABOVE. The provisions of this indemnity are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

6.7.3.(t)(2) Add to the first paragraph:

"Bell and spigot or tongue and groove pipe is permitted only if a trapped gasket is utilized. Pre-molded joint sealing is not allowed in lieu of a gasket."

7.1.3.(b) Add at the end of the paragraph:

"Class C concrete will be used in inaccessible locations when a mechanical device cannot compact to required densities and as directed by the OWNER, i.e., under pipes, road, washouts, paving, etc."

Add the following:

"(1) Compaction testing will be performed by the OWNER or his approved testing laboratory. If the compacted material does not meet the specified compaction, the CONTRACTOR will be required to rework the material and pay the cost of retesting."

7.4.6.(b)(5) Delete this subsection.

7.6.10.(a) Add the following at the end of the first paragraph:

"No water or dry cement is to be added to the surface of concrete for finishing."

7.6.11. Add the following as the second paragraph:

"Curing compound may not be used on construction joints or other surfaces which require further surface treatment."

8.3.2.(b) In first sentence delete, "when required".

Add the following sentence:

"Reinforcement is required in all driveways and walks."

8.9.3.(a) Insert the following between the first and second paragraph:

"Four methods of cleaning are provided herein. The first method shall be used unless otherwise specified.

Power Wire Brushing: Clean all accessible areas by heavily brushing

with power wire brushes. Avoid getting any oil or grease on the steel from the brushing operation, and avoid "polishing" of tightly adhering mill scale. Supplement with hand cleaning in accessible areas, welds and spatter, and for removing oil and grease. Brush off all loose dust.

Hand Cleaning: The removal of rust, scale, and dirt shall be done by the use of metal brushes, scrapers, chisels, hammers or other effective means. Oil and grease shall be removed by the use of cleaning naphtha, applied with clean rags in such manner that the oil substance is actually removed and not simply diluted or spread out over a greater area. Bristle or wood fiber brushes shall be used for removing loose dust.

Sandblasting: All deposits of oil and grease shall be removed by solvent cleaning as above specified prior to sandblasting. The sandblasting shall remove all loose mill scale and other substances down to the bare metal. Special attention shall be given to cleaning of corners and re-entrant angles. Before painting, sand adhering to steel corners and elsewhere shall be removed. Sandblast-cleaned surfaces shall be covered completely with the initial coat of paint within 8-hours after cleaning, or shall be recleaned by sandblasting immediately prior to painting.

Flame Cleaning: Oil, grease, and similar matter shall be removed by solvent cleaning as above specified prior to flame cleaning. The oxyacetylene flame (with an oxygen to acetylene ration of at least one) shall be traversed over the surfaces of the steel in such a manner and at such speed that the surfaces are dehydrated and dirt, rust, loose scale, scale in the form of blisters of scabs, and similar foreign matter are freed by the rapid, intense heating by flame. The flames shall not be traversed so slowly that loose scale or other foreign matter is fused to the surface of the steel."

8.10.3. Delete the entire fifth paragraph.

8.13.3.(a) Delete the last sentence in the paragraph and substitute the following:

"The CONTRACTOR shall locate the position of work according to the plans."

8.15.4. Delete the first sentence and substitute with the following:

"Riprap shall be measured for payment either in square yards (M^2) of the specified minimum thickness or in cubic yards (M^3) where changes are ordered or approved by the OWNER or by ton of material in place. Measurement of rip rap will be based on specified trench width plus 2 feet. In the event of excessive excavation, the CONTRACTOR will be required to rip rap the entire excavation plus 1 foot on both sides with no additional compensation."

APPENDIX

This addendum to the North Central Texas Standard Specifications for Public Works Construction - Second Edition, 1987, as amended - sets forth exceptions or requirements of the City of Dallas Water Utilities Department and thereby takes precedence over any conditions or requirements of the Standard Specifications with which it is in conflict.

The City of Dallas Water Utilities Department will utilize the North Central Texas Standard Drawings for Public Works Construction with the exception of Division 3000 - GENERAL UNDERGROUND CONDUIT, Division 4000 - WATER DISTRIBUTION, and Division 5000 - WASTEWATER COLLECTION. The Water Department will continue to utilize the Dallas Water Utilities Drawings, Details, and Standard Appurtenances for Water and Wastewater Pipe Construction Methods.

All Materials used shall be in accordance with the latest edition of the Dallas Water Utilities Approved Materials by Trade Name Listing.