City of Dallas

2021 Addendum

to the

Public Works Construction Standard – North Central Texas
Fifth Edition

As Published by the
North Central Texas Council of Governments
November 2017

October 1, 2021

The 2021 Addendum to the North Central Texas Council of Governments, Fifth Edition, ©November, 2017, sets forth exceptions or requirements of the City of Dallas Water Utilities Department, the City of Dallas Park and Recreation Department, the City of Dallas Department of Public Works and other departments listed on next page, and thereby takes precedence over any conditions or requirements of the Standard Specifications with which it may be in conflict.

CITY OF DALLAS

Notes:

The City of Dallas 2021 Addendum is an addendum to the *Public Works Construction Standards - North Central Texas* as published by the North Central Texas Council of Governments (NCTCOG), November 2017. This Addendum sets forth exceptions or requirements specific to the City of Dallas Water Utilities, the City of Dallas Park and Recreation, Department of Public Works, and the Dallas Aviation Department. These specifications will take precedence over any conditions or requirements of the NCTCOG *Public Works Construction Standards- North Central Texas* that may be in conflict.

This Addendum is organized by an Item Number that is closely related to the Item Number shown in the *Public Works Construction Standards - North Central Texas;* however from time to time, the Item Numbers have been modified to account for more or fewer parameters required by the City of Dallas. In all cases, an entire section will be replaced rather than simply replacing a sentence, a word, or specific requirement.

From time to time, it may become necessary to update, change, or modify these specifications. When this happens, the latest version of these specifications will prevail. The latest version's date will be displayed prominently on the front page and within the headers of each page.

Special Note: On projects awarded by the City of Dallas Department of Public Works, The Dallas Water Utilities, the City of Dallas Park and Recreation Department Projects, and the Dallas Aviation Department, there are some differing policies and procedures. Differing policies and procedures are clearly marked in these specifications.

The City of Dallas Department of Public Works will utilize the latest edition of the *Department of Public Works, Standard Construction Details, File 251D-1* and the *North Central Texas Standard Drawings for Public Works Construction.* The 251D-1 Standards will take precedence over the *Public Works Construction Standards – North Central Texas*, standard details.

If there are any questions, errors, disputes, suggestions for improvement, or other modifications that would help make this Addendum a better or more usable document, please contact one of the following at:

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Stormwater Operations Program Manager Construction Management Room 312 Dallas, TX 75203	Dallas Department of Aviation Program Management 8008 Herb Kelleher Way, LB 16 Dallas, TX 75235	Department of Transportation Program Management 1500 Marilla St. Dallas, TX 75201

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City of Dallas Addendum to the North Central Texas Council of Governments

Public Works Construction Standards Standard Specifications

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ITEM 101.COD. DEFINITIONS AND ABBREVIATIONS

(Page 101-1. Add Item 101.0.COD. CITY OF DALLAS' LEGAL HOLIDAYS:) (New Section Added and updated with 3 new City Holidays)

101.0.COD. City of Dallas' Legal Holidays:

City of Dallas' Legal Holidays	
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
Juneteenth	**June 19**
Independence Day	July 4
Labor Day	First Monday in September
Indigenous People's Day	**Second Monday in October**
Veteran's Day	**November 11**
Thanksgiving Day	Fourth Thursday in November
Day After Thanksgiving	Friday after Thanksgiving Day
Christmas Day	December 25

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

Work requiring inspection will not be permitted on a City of Dallas legal holiday, Saturday, Sunday, or any day on which the City Offices are closed for normal business, except by special written permission of the OWNER. Any work done without proper inspection is subject to removal and replacement at the direction of the OWNER.

(Page 101-1. Replace Item 101.1. DEFINITIONS, with the following:) [There are many new Definitions]

101.1.COD. Definitions:

Abbreviations: Wherever the abbreviation defined herein occur on the plans, in the specifications, contract, bonds, advertisement, bid or in any other document or instrument herein contemplated or to which the specifications apply or may apply, the intent and meaning shall be as shown in **Item 101.2. Abbreviations and Acronyms**.

Addendum, Bulletin, or Letter of Clarification: Any additional contract provisions, or change, revisions or clarification of the contract documents issued in writing by the OWNER, to prospective BIDDERs prior to the receipt of bids.

Advertisement: All the legal publications pertaining to the work contemplated or under contract.

Approved, Directed, Required, and Words of Like Import: Whenever they apply to the work or its performance, the words "directed," "required," "permitted," "ordered," "designated," "established," "prescribed" and words of like import used in the contract, specifications or upon the drawings shall imply the direction, requirement, permission, order, designation or prescription of the OWNER; and "approved," "acceptable," "satisfactory" and words of like import shall mean approved by, acceptable to or satisfactory to the OWNER.

ATMOS Energy: A local supplier of natural gas. The successor to the Lone Star Gas Company (L.S.G. Co.).

AT&T: A telephone service provider and owner of easements within the jurisdictional area of the City of Dallas. In many cases, AT&T is the successor to South Western Bell Telephone.

Backfill: embedment and final backfill.

Base: a layer of specified material of plan thickness placed immediately below the pavement course surfacing.

Bedding: material upon which a pipe rests.

Bid: The written statement or statements duly filed with the OWNER specified in the advertisement for bids of these specifications by the person, persona, partnership, company, firm, association, or corporation proposing to do the work contemplated, including the approved form on which the formal bids for the work are to be prepared.

BIDDER: Any person, persons, partnership, company, firm, association, or corporation acting directly or through a duly authorized representative submitting a bid for the work contemplated.

Bid/Proposal Bond (Bid/Proposal Guaranty): The security designated in the advertisement and bid, to be furnished by each BIDDER on all bids in excess of $50,000, as a guaranty of good faith to enter into a contract with the OWNER and execute the required bonds for the work contemplated after the work is awarded to the BIDDER and payment of damages upon the BIDDER'S failure to enter into the contract.

Bonded Warehouse: A bonded warehouse, for the purposes of this document, is a storage area where materials purchased by the CONTRACTOR and paid for by the City of Dallas may be stored while awaiting installation. The Bonded Warehouse must:

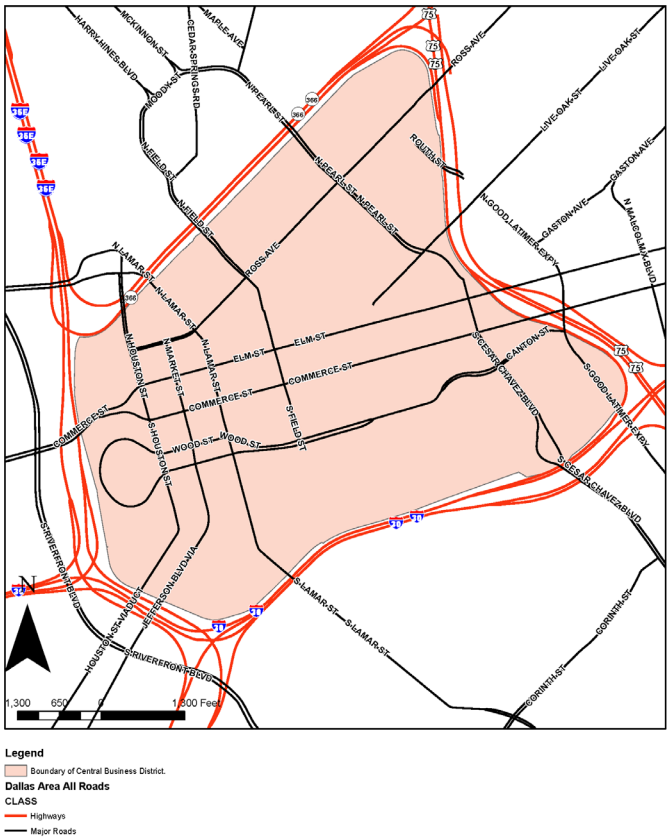
(1) be located within the City of Dallas or Dallas County;
(2) have adequate insurance to replace the materials stored in the event of theft or destruction (regardless of the reason); and,
(3) be available to the OWNER for inspection and verification of the materials present.

Bulletin: see Addendum.

Business Day: A Business Day for non-construction activities is defined as the time period in which the Dallas City Hall is open for public business between the days of Monday through Friday (inclusive). In general discussions, a Business Day should be referred to as a "Business Day" (which is different from a "Calendar Day").

Calendar Days: Any successive days of the week or month, no days being excepted. It shall be taken to mean the same as a normal calendar day.

Central Business District: The central business district is defined as that area bounded by Woodall Rodgers



101.1 COD: Central Business District.

Freeway on the north, Julius Schepps Freeway on the east, R. L. Thornton Freeway on the south, and Stemmons Freeway on the west. (Ord. Nos. 17964; 27210) (As Amended). See **Figure 101.1.COD. Central Business District**, below.

Change Order: A properly authorized, written order to the CONTRACTOR, signed by the OWNER, directing an addition, deletion or revision in the work within the general scope of the contract documents, or authorizing an adjustment in the contract price or the contract time.

City: The City of Dallas, Texas, a municipal corporation, acting by and through (a) the Park and Recreation Board, and / or (b) its City Manager, each of whom is required by Charter to perform specific duties. Responsibility for final enforcement of contracts involving the City of Dallas is by Charter and Dallas City Code vested in the City Manager.

City Attorney: The City Attorney of the City of Dallas, Texas, or the City Attorney's duly authorized assistants or agents.

City Auditor: The City Auditor of the City of Dallas, Texas, or the City Auditor's duly authorized assistants or agents

City Council: The City Council of the City of Dallas, Texas.

City Manager: The City Manager of the City of Dallas, Texas.

City Park And Recreation Board: The Park and Recreation Board of the City of Dallas, Texas.

City Secretary: The City Secretary of the City of Dallas, Texas, or the City Secretary's duly authorized assistants or agents.

Commencement of Construction: Once the CONTRACTOR receives the "Notice to Proceed", the CONTRACTOR may commence construction, which may include but not be limited to, the initial disturbance of soils associated with clearing, grading, or excavation activities, as well as other construction-related activities (e.g., stockpiling of fill material, demolition)

Common Plan of Development: A construction activity that is completed in separate stages, separate phases, or in combination with other construction activities. Where discrete construction projects occur within a larger common plan of development or sale but are located ¼ mile or more apart, and the area between the projects is not being disturbed, each individual project can be treated as a separate plan of development or sale, provided that any interconnecting road, pipeline or utility project that is part of the same "common plan" is not included in the area to be disturbed.

Construction Site Notice (CSN): For sites with less than five acres of disturbance and that are not part of a common plan of development, or located within the Escarpment, or geologically similar area; a Construction Site Notice (CSN) describing the activity shall be submitted. For rules and operating guidelines, see: https://www.tceq.texas.gov/permitting/stormwater/construction/TXR15_rules.html (as of October 1, 2019)

Completion: When the project is complete, the final punch list is completed, and the project is accepted by the OWNER, the job is complete.

Completion Time: The time set forth in the contract for the performance and completion of the Work. The time may be expressed as calendar days, working days or a specific date.

Conflict of Interest: A conflict of interest is when any person employed by BIDDER or BIDDER's company has any known business relationships, other than previous contracts awarded through a competitive bidding process, or has an existing relationship with any employee of the OWNER. A potential or actual conflict of interest exists when commitments and obligations to the City or widely recognized professional norms are likely to be compromised in Contractor's performance of its duties under this Contract by the existence of Contractor's other professional relationships, contracts, obligations, or commitments.

Construction Equipment:

All machinery of 25 horsepower or more which is powered by an internal combustion engine, but which is not used solely for competition or as a motor vehicle subject to the requirements of Texas Transportation Code 502.002. This includes, but is not limited to, excavators, graders, generators, and similar equipment.

Contract or Contract Documents: Contract documents are all of the written, printed, typed and drawn instruments that comprise and govern the performance of the contract as defined herein. The contract and contract documents include the advertisement, instructions to BIDDERs, proposal, addendum, specifications, including the general, special and technical conditions, provisions, plans or working drawings — and any Change Orders, or supplemental agreements pertaining to the work or materials thereof; and bonds and any additional documents incorporated by reference in the above.

Contract Price: The total monies payable to the CONTRACTOR under the terms and conditions of the contract documents. When used in such context, it may also mean the unit price of an item of work under the contract terms.

Contract Time: See "Completion Time"

Contract Work: Everything expressly or impliedly required to be furnished and done by the CONTRACTOR by any one or more parts of the contract documents, except "extra work" as hereinafter defined; it being understood that, in case of any inconsistency between any part or parts of this Contract, the OWNER shall determine which shall prevail in accordance with **Item 105.1. Contract Documents** hereof.

Consulting Engineer: The person, firm, or entity hired as an independent consultant by the OWNER to provide engineering services design the Project and/or 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.

Contractor: On projects to be awarded and administered by the City of Dallas Department of Public Works or the Dallas Water Utilities: CONTRACTOR OR CONTRACTOR FORCES: The staff, labor, and resources directly employed by the CONTRACTOR. In all cases, the CONTRACTOR is responsible to use do no less than 25% of the work performed by the CONTRACTOR'S own forces to complete a project. CONTRACTOR'S forces shall be determined by Certified Payroll Reports that show that the personnel performing the claimed work are employees of the organization that was awarded the contract. The CONTRACTOR will be required to show that they pay employee taxes and benefits for all employees.

Contractor: On projects to be awarded and administered by the Dallas Parks and Recreation Department, CONTRACTOR: The person, persons, partnership, firm, corporation, association, or organization, or any combination thereof entering into the contract for the execution of the work, acting directly or through a its duly authorized representative.

Days: See "Completion Time"

Deleterious: Substances, elements, or components are those that are damaging, harmful, undesirable, or adulterating to the integrity or purity of the specified base material.

Directed, Required, Approved, And Words of Like Import: Whenever they apply to the work or its performance, the words "directed", "required", "permitted", "ordered", "designated ", "established", "prescribed", and words of like import used in the contract, specifications, or upon the drawings, shall imply the direction, requirement, permission, order, designation or prescription of the OWNER; and "approved", "acceptable", "satisfactory", and words of like import shall mean approved by, acceptable to, or satisfactory to, the OWNER.

Director of The Park And Recreation Department: The Director of the Park and Recreation Department, or the Director's duly authorized representative(s) assistants or agents.

Drawings or Contract Drawings: Only those drawings specifically entitled as such and as specified in the contract, or in any bulletin, or any detailed drawing furnished by the OWNER, pertaining or supplemental thereto.

Embedment: Bedding and initial backfill.

Engineer: The Engineer or its duly authorized representative means the Engineer of the OWNER.

Equal: Materials, articles or methods which are of equal or higher quality than those specified or shown on the drawings and as further defined in **Item 106.1. Substitution of Materials**, as determined by the OWNER.

Extra Work: Work other than that which is expressly or impliedly required by the Contract documents at the time of the execution of the Contract.

Final Backfill: material required to fill the trench from the top of the initial backfill to ground elevation or subgrade of a street.

Fineness Modulus: An empirical factor obtained by adding the total percentages of a sample of an aggregate retained on each of a specified series of sieves and dividing the sum by 100.

H.S. or Horseshoe: Horseshoe shaped conduit, generally constructed of brick and mortar, and found in older sections of the City of Dallas.

Hazardous Substance: For purposes of this Item, the term "Hazardous Substance" is defined to include the following:

(1) any asbestos or any material which contains any hydrated mineral silicate, including chrysolite, amosite, crocidolite, tremolite, anthophyllite, or actinolite, whether friable or non-friable;

(2) any polychlorinated biphenyls (PCBs), or PCB-containing materials, or fluids;

(3) radon; any other hazardous, radioactive, toxic, or noxious substance, material, pollutant, or solid, liquid or gaseous waste;

(4) any pollutant or contaminant (including but not limited to petroleum, petroleum hydrocarbons, petroleum products, crude oil or any fractions thereof, any oil or gas exploration or production waste, any natural gas, synthetic gas or any mixture thereof, lead, or other toxic metals) which in its condition, concentration or area of release could have a significant effect on human health, the environment, or natural resources;

(5) any substance that, whether by its nature or its use, is subject to regulation or requires environmental investigation, monitoring, or remediation under any federal, state, or local environmental laws, rules, or regulations;

(6) any underground storage tanks, as defined in 42 U.S.C. Section 6991(1)(A)(I) (including those defined by Section 9001(1) of the 1984 Hazardous and Solid Waste Amendments to the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq.; the Texas Water Code Annotated Section 26.344; and Title 30 of the Texas Administrative Code Sections 334.3 and 334.4), whether empty, filled or partially filled with any substance;

(7) and any other hazardous material, hazardous waste, hazardous substance, solid waste, and toxic substance as those or similar terms are defined under any federal, state, or local environmental laws, rules, or regulations.

Initial backfill: Material that covers the wastewater collection system, water lines, or other underground utilities, as shown in the plans and specifications.

Inspector: Any representative of the OWNER designated to inspect the work.

Letter of Clarification: see Addendum.

Low-Use Equipment: Any piece of equipment which is used for less than ten hours per week on a single public works contract.

Maintenance Bond: A bond executed by a corporate surety in accordance with Section 3503.002, Vernon's Texas Insurance Code, in the amount of the contract guaranteeing the prompt, full and faithful performance of the general guaranty and warranty contained in the Contract Documents.

Major Item: A major item is any line item of the work to be performed which amounts to 5 percent or more of the total contract amount.

Material Man or Supplier: Any SUBCONTRACTOR contracting with the CONTRACTOR, or any of its SUBCONTRACTORS, to fabricate or deliver or who actually fabricates or delivers, materials, supplies or equipment to be consumed or incorporated into the work.

Mayor: The Mayor of the City of Dallas, Texas.

Midpoint of Project: For the purposes of this addendum, the Mid-point of a project is that point at which one-half of the CONTRACT amount, less retainage and extra work, has been paid to the CONTRACTOR for services rendered.

Ozone Alert or Aerial Pollution Alert: An Ozone Alert is when, according to the National Weather Bureau or other governmentally authorized agencies declare the City of Dallas, Dallas County or locations where work is being performed for the City of Dallas, to be unhealthy because of unacceptable levels of ozone or aerial pollution. On days that are declared to be Ozone or Aerial Pollution Alert Days, work may be suspended immediately and not resume until the Ozone or Aerial Pollution Alert is canceled by an authorized agency. There shall be no additional compensation for suspension of work during a designated ozone or aerial pollution alert period.

Notice: Written notice effective the date of the postmark thereon, or if hand delivered, effective the date of hand delivery, or if electronically delivered, effective as described in **Item 105.8. Service of Notices**.

owner: The owner (lower case) is an owner of property that is not a public agency identified in contract documents. The owner may be a utility such as an electric supplier, a gas supplier, a private property owner, or other such entity.

OWNER: The public governmental agency identified throughout the contract documents, or the entity as specifically identified in the contract. The term OWNER means the OWNER or its authorized representative(s).

OWNER'S Representative: The Engineer or other duly authorized assistant, agent, inspector or superintendent acting within the scope of the particular duties instructed to him or her by the OWNER.

Payment Bond: A bond executed by a corporate surety in accordance with Section 3503.002, Texas Insurance Code and Chapter 2253, Texas Government Code, in the amount of the contract, solely for the protection and use of payment bond beneficiaries who have a direct contractual relationship with the general CONTRACTOR or a SUBCONTRACTOR to supply public work labor or material.

Performance Bond: A bond executed by a corporate surety in accordance with Section 3503.002, Texas Insurance Code and Chapter 2253, Texas Government Code, in the amount of the contract, solely for the protection of the OWNER, conditioned on the faithful performance of the work in accordance with the plans, specifications, and contract documents.

Plan or Plans: The plans are the drawings or reproductions therefrom made by or approved by the OWNER showing in detail the location, dimension and position of the various elements of the project, including such profiles, typical cross-sections, layout diagrams, working drawings, preliminary drawings and such supplemental drawings as the OWNER may issue to clarify other drawings or for the purpose of showing changes in the work hereinafter authorized by the OWNER. The plans are usually bound separately from the other parts of the Contract Documents, but they are part of the Contract Documents just as though they were bound therein.

Proposal: The written and signed offer of the BIDDER, when submitted on approved proposal forms, to perform the contemplated work and furnish the necessary material and labor in accordance with the provisions of the plans and specifications, special and general provisions, and all contract documents.

Saturated Surface Dry (SSD): Saturated Surface Dry (SSD) describes the condition of the aggregate in which the pores in each particle of the aggregate particle are filled with water and no excess water is on the particle surface. This allows the absorption and the specific gravity of the aggregate to be measured.

Site: The area upon or in which the CONTRACTOR'S operations are carried on, and such other areas adjacent thereto as may be designated as such by the OWNER.

Special Provisions or Conditions: The special clauses of the contract, setting forth conditions or requirements peculiar to the specific project involved, supplementing the standard or general specifications and taking precedence over any conditions or requirements of the standard or general specifications with which they are in conflict.

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.

Specifications or Contract Specifications: The directions, provisions, and requirements contained herein, together with the special provisions supplemental hereto pertaining to the method and manner of performing the work or to the qualities or quantities of the materials to be furnished under the contract Specifications include all of the general, special and technical conditions or provisions, and all addendum or supplements thereto.

Spill Prevention, Control and Counter Measures Plan (SPCC): This is a document required by the Resource Conservation and Recovery Act (RCRA) for sites that have more than 1,300 gallons of hazardous fluids on site, and is a part of the permitting process

Storm Water Pollution Prevention Plan (SWPPP): A document consisting of the following: evaluation of how and where pollutants may be mobilized by stormwater onsite, site plan for managing stormwater runoff, identification of appropriate erosion and sediment controls, maintenance and inspection schedule, record keeping process, and identification of stormwater discharge points from site.

Subbase: A layer of specified material of plan thickness between a base and a subgrade.

SUBCONTRACTORS: Any persons, firm or corporation, other than employees of the CONTRACTOR, who or which contracts with the CONTRACTOR to furnish, or who actually furnishes, labor and/or materials and equipment at or about the site.

Subgrade: that portion of the roadbed upon which the subbase, base or the pavement is to be placed. It includes the OWNER'S required distance beyond the back of the curb for streets, which are to be paved with concrete.

Substantial Completion: Unless defined elsewhere in the contract, the date as determined by OWNER when the construction of all Work is sufficiently completed in accordance with the Contract Documents, so that the Work can be continuously and beneficially utilized by the OWNER for the purpose for which it was intended; or if there be no such determination, the date of final completion. All final acceptance testing must be completed prior to the date of substantial completion.

Superintendent: A person who has permission to act as an agent of the CONTRACTOR and has authority to issue both verbal and written agreements.

Sureties: The corporate bodies which are bound by such bonds as are required with and for the CONTRACTOR. The sureties engaged to be responsible for the entire and satisfactory fulfillment of the Contract, and for any and all requirements as set out in the specifications, Contract or plans. In order for a surety to be acceptable, the surety shall conform to the requirements of Section 3503.002, Texas Insurance Code.

Unit Price: Where in the bid form a "Unit Price" is set forth, the "Unit Price" shall include the furnishing by the CONTRACTOR of all labor, tools, materials, machinery, appliances, water, heat, utilities, transportation, plant and equipment appurtenant to and necessary for the construction in every detail and the completion in a workmanlike manner of all the work to be done under these specifications. The "Unit Price" shall also include all permanent protection of overhead, surface and underground structures, cleaning up, finish, overhead expense, bond, insurance, patent fees, royalties, risk due to the elements, delay, profit, injuries, damages, claims and all other items not specifically mentioned that may be required to construct fully each item of the work, complete in place.

Texas Low Emission Diesel (TxLED): Diesel fuel which is compliant with the TxLED program requirements as set forth by the TCEQ.

Work: All work including the furnishing of all labor, materials, tools, equipment, required submittals and incidentals to be performed by the CONTRACTOR under the terms of the contract.

Working Time: See "Completion Time"

Working Day: A working day is defined as a calendar day not including Saturdays, Sundays, or legal holidays authorized in the list prepared by the OWNER for contract purposes, in which weather or other conditions not under the control of the CONTRACTOR shall permit the performance of the principal units of work underway for a continuous period of not less than 7 hours between 7:00 a.m. and 7:00 p.m. on weekdays. A principle unit of work shall be that unit which controls completion time of the contract.

Nothing in this definition shall be construed as prohibiting the CONTRACTOR from working on Saturdays, if the CONTRACTOR so desires and permission of the OWNER has been granted. Work on Sundays shall not be permitted except in cases of extreme emergency and then only with the written permission of the OWNER. If Saturday or Sunday work is permitted, working time shall be charged on the same basis as weekdays. Where the working time is expressed as calendar days or a specific date, the concept of working days shall no longer be relevant to the contract.

If the CONTRACTOR is desirous of working on City of Dallas Holidays, the CONTRACTOR shall obtain written permission from the OWNER at least two calendar weeks prior to the holiday and the CONTRACTOR shall be responsible to pay overtime for inspections.

(Page 101-4. Replace **Item 101.2. ABBREVIATIONS AND ACRONYMS**, with the following:) [There are many new abbreviations and acronyms.]

101.2.COD. Abbreviations and Acronyms

References to specifications, standards, and guidelines throughout this text shall refer to the most current adopted versions. Wherever the abbreviations defined herein occur on the plans, in the specifications, contract, bonds, advertisement, proposal, or in any other document or instrument herein contemplated or to which the specifications apply or may apply, the intent and meaning shall be as follows:

%	Percent
‘	Foot or Feet
“	Inch or Inches
#	Pound or pounds, or number if it precedes a numeral
AAN	American Association of Nurserymen
AATCC	American Association of Textile Chemists and Colorists
AASHTO	American Association of State Highway and Transportation Officials
ABA	American Bankers Association
ACI	American Concrete Institute
am, a.m.	Before noon
ADA	Americans with Disabilities Act
ANSI	American National Standards Institute
AREMA	American Railway Engineering and Maintenance of Right-Of-Way Association - Not
Asph.	Asphalt
Assn.	Association
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
APWA	American Public Works Association
Ave.	Avenue
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
Blvd.	Boulevard
Bc	Outside diameter of Pipe
Bd	Trench width
BMP	Best Management Practice
BNSF	Burlington Northern Santa Fe (A Railway Company)
C	Centigrade
cc	Cubic Centimeter
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CI	Cast Iron
CL or C.L.	Center Line
cm	Centimeter
CO or C.O.	Cleanout
C.O.C.	Cleveland Open Cup
Conc.	Concrete
Cond.	Conduit
Corr.	Corrugated
cSt	Centistokes (Viscosity)
Cu.	Cubic
Culv.	Culvert
CY, C.Y.	Cubic Yard
D	Inside Diameter
DAN	Dallas Association of Nurserymen
DDI	Downtown Dallas, Inc.
DGNO	Dallas Garland & Northeastern Railroad
DI or D.I.	Ductile Iron

Dia.	Diameter
Dr.	Driveway or Drive
D.P.L.CO. OR DPL:	Dallas Power and Light. No longer in business; however, DPL is listed as the owner of many easements located within the City of Dallas jurisdictional area.
Elev.	Elevation
F	Fahrenheit
F.L.	Elevation of Flow Line of pipe, invert, or channel.
FM	Factory Mutual
Fps	Feet per second
Ft.	Foot or Feet
Gal.	Gallon
g, gm	Gram
G.T.E. Or General Telephone and Electric Company:	No longer in business. Operations have passed to Verizon or Frontier Communications. G.T.E. may be listed as the owner of many easements located within the City of Dallas jurisdictional area.
HDPE	High Density Polyethylene
H.G.L.	Hydraulic Grade Line
HP	Horsepower
Hr.	Hour
ID	Inside Diameter
I.E., Inv. El. Or Inv.	Invert Elevation
in.	Inch or Inches
ISSA	International Slurry Surfacing Association
iSWM	Integrated Stormwater Management
Kg or kg	Kilogram
kPa	Kilopascals
L	Liter
Lb.	Pound or Pounds
LDPE	Low Density Polyethylene
LF.	Linear foot or feet
Lin.	Linear
LL	Liquid Limit
LLDPE	Linear Low Density Polyethylene
LMDPE	Linear Medium Density Polyethylene
LOI	Loss on Ignition
L.S.G. or L.S.G.Co:	Lone Star Gas Company. No longer in business; however, LSG may be listed as the owner of many easements located within the City of Dallas jurisdictional area. The LSG Company has been succeeded by the ATMOS Energy Company (see ATMOS Energy above).
M	Meter
MATA	McKinney Avenue Transit Authority
Max.	Maximum
MH	Manhole
Min.	Minimum or Minute
M.J.	Mechanical Joint
mm	Millimeter
Mod.	Modified
Mono.	Monolithic
Mph, mph	Miles per hour
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry
MS4	Municipal Separate Storm Sewer System
Mpa	Megapascal
MUTCD	(Texas) Manual on Uniform Traffic Control Devices
NACE	National Association of Corrosion Engineers
Nat'l	National

NEMA	National Electrical Manufacturers Association
No.	Number
N.P.T.	National Pipe Thread
NRMCA	National Ready-mixed Concrete
NSF	National Sanitation Foundation
NTMWD	North Texas Municipal Water District
o.d., OD	Outside Diameter
ONCOR:	The Competitive Retailer Relations Organization that serves as a corporate level liaison between Oncor and all Competitive Retailers (CRs)/Retail Electric Providers (REPs).
OSHA	Occupational Safety and Health Administration
oz.	Ounce
Pa	Pascal
PI, P.I.	Plasticity Index
P.L.	Property Line
pm, p.m.	After noon
psi	Pounds per Square Inch
PVC	Polyvinyl Chloride
PVCO	Molecularly Oriented PVC
R	Radius
RAP	Recycled/Reclaimed Asphalt Pavement
RCP	Reinforced Concrete Pipe
RCRA	Resource Conservation and Recovery Act
Reinf.	Reinforced or reinforcing
Rem.	Remove
Rep.	Replace
R/W, ROW, R of W	Right-of-Way
Sani., San.	Sanitary
Sec.	Second
S.F.	Square Foot or Saybolt Furol (Viscosity)
SLA	Service Level Agreement
Sq.	Square
SSPC	The Society for Protective Coatings [formerly Steel Structures Painting Council]
St.	Street or Storm
Std.	Standard
Str.	Strength
SWB or SWBT:	Southwestern Bell Telephone: No longer in business; however, SWB is listed as the owner of many easements located within the City of Dallas jurisdictional area. The SWB Company has been succeeded by the AT&T or Verizon Company, depending on location (see AT&T or Verizon in this section.
SWPPP	Storm Water Pollution Prevention Plan
SY, S.Y.	Square Yard
TAC	Texas Administrative Code
TAS	Texas Accessibility Standards
TAN	Texas Association of Nurserymen
TBPE	Texas Board of Professional Engineers
TCEQ	Texas Commission on Environmental Quality [formerly Texas Natural Resource Conservation Commission (TNRCC)]
TCP	Traffic Control Plan
TDLR	Texas Department of Licensing and Regulations
TFMA	Texas Floodplain Management Association
Tex ### X	Refer to TxDOT Manual of Testing Procedures
TMUTCD	Texas Manual on Uniform Traffic Control Devices
TRE	Trinity Rail Express
TxDOT	Texas Department of Transportation

TxDOT Item #	Refer to TxDOT Standard Specifications for Construction of Highways, Streets and Bridges
UL	Underwriter's Laboratory
um, µm	Micrometers
UPRR	Union Pacific Railroad (A Railroad Company)
US, U.S.	United States
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
Vert.	Vertical
Verizon, Verizon Telephone, or Verizon Communications:	A telephone service, internet, and cable service provider. Owner of easements within the jurisdictional area of the City of Dallas. In many cases, Verizon is the successor to GTE. (See GTE in this section.)
Vol.	Volume
Wt.	Weight
W.U.T.Co.	Western Union Telegraph Co.
Yd.	Yard

(Intentionally Blank)

ITEM 102.COD. PROPOSAL PROCEDURES

(Page 102-1. Replace **Item 102.4. PREPARATION OF PROPOSAL**, with the following:) [There are new paragraphs after the third paragraph]

102.4.COD. Preparation of Proposal

The BIDDER shall submit its proposal on the forms furnished or approved by the OWNER. All blank spaces in the form shall be correctly filled in and the BIDDER shall state the prices, both in words and numerals, for which it proposes to do the work contemplated or furnish the material required. Such prices shall be written in ink distinctly and legibly or submitted electronically if allowed by OWNER. In cases of discrepancy, the OWNER shall select the one most favorable to the OWNER, provided that it does not create a material mistake in the bid or otherwise change the result of bidding.

If an individual submits the proposal, that individual or duly authorized agent must sign the proposal. If an association or partnership submits the proposal, the name and address must be given and the proposal signed by a duly authorized member of the association or partnership. If a corporation submits the proposal, the corporate name and business address must be given and the proposal signed by a duly authorized corporate officer or agent. Powers of attorney authorizing agents to sign the proposal must be properly certified and must be in writing and submitted with the proposal. The proposal shall be executed in ink.

When allowed by the bid documents, bids by internet, electronic mail or facsimile are acceptable as long as all legal and bid requirements are met. The CONTRACTOR accepts all risks associated with bidding in this manner. It is understood and agreed that the proposal may not be withdrawn once the bid-opening process has begun.

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 based on 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:

(1) 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 the bidding is not changed thereby.

(2) 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 in to 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 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.

(3) 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. The Grand Total may be corrected only if it is in the best interest of the OWNER and the BIDDER remains the lowest responsible BIDDER with or without 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.

The OWNER reserves the right to request any or all of the following information during or after the bidding process to determine the qualifications of the BIDDERs for the work; financial statement, bonding limits, equipment and personnel inventories, qualifications and past experience of supervisory personnel, etc. Failure to submit this information within a period of five (5) days from a written request by the OWNER may result in disqualification of the BIDDER. CONTRACTOR may be required to show evidence that they have successfully completed an equivalent project within the past three years to qualify for this work.

(Page 102-1. Replace **Item 102.4.1. SAFETY AND EXPERIENCE RECORDS**, with the following:) [The entire section have been replaced]

102.4.1.COD. Safety and Experience Records

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

The CONTRACTOR and all SUBCONTRACTORS having $10,000 or more work on the project must provide safety records from the local Occupational Safety and Health Administration (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 of the contract. This information will be considered in determining the responsibility of the BIDDER for purpose of award the contract.

BIDDERs shall submit a completed Experience Record questionnaire with his/her Proposal book. The record must reflect the firm's experience in work of the same nature and similar magnitude as that of the project for which bids are being received. Such experience must have been on projects completed within the last three (3) years. Resumes of key personnel to be assigned to the project must be provided with current project assignments listed.

(Page 102-2. Replace **Item 102.7.COD. WITHDRAWING PROPOSALS**:) [Entire Section Replaced.]

102.7.COD. Withdrawing Proposals:

Proposals filed with the OWNER can be withdrawn or modified and redeposited prior to the time set for opening proposals. Request for non-consideration of proposals must be made in writing addressed to the OWNER prior to the time set for opening proposals. After other proposals are opened and publicly read, the proposal for which non-consideration is properly requested will be returned unopened. The proposal may not be withdrawn after the bid opening has commenced. The BIDDER, in submitting the same, warrants and represents that its bid has been carefully reviewed and checked and that it is in all things true and accurate, free of mistakes and that such bid shall not and cannot be withdrawn after opening because of any mistake committed by the BIDDER; provided, however, that any BIDDER may withdraw its bid one-hundred fifty (150) days after the actual date of opening thereof, should no award have been made to the BIDDER.

(Page 102-3. **Item 102.11. REJECTION OF PROPOSALS**:) [There is a new last sentence in this Item and revision to listed reasons.]

102.11.COD. Rejection of Proposals

The OWNER reserves the right to reject any or all proposals; and all proposals submitted are subject to this reservation. Proposals may be rejected for any of the following reasons, but not necessarily limited thereto:

(1) proposal received after the time limit for receiving proposals as stated in the advertisement or any subsequently issued addendum;
(2) proposal unaccompanied by the required bid security;
(3) proposal constituting a nonresponsive bid;
(4) proposal containing unsolicited conditions or qualifications;
(5) failure to use the OWNER'S form of bid bond in submitting proposal, if included in the bid documents; or
(6) a proposal submitted with a bid bond issued by a surplus line company or by a surety not licensed to transact insurance business in the State of Texas.
(7) in the judgment of the OWNER, the proposal is incomplete.

The OWNER has the right to reject any and all bids/proposals and to accept or reject any and/or all proposals and to accept or reject any schedules. All rejections are final.

(Page 102-3. Item 102.12. DISQUALIFICATION OF BIDDERS, with the following:) [Items 10 and 11 have been rewritten and there is a new last paragraph.]

102.12.COD. Disqualification of Bidders

BIDDERs may be disqualified, and their proposal not considered for any of the following reasons, but not necessarily limited thereto:

(1) reasonable belief that collusion exists among the BIDDERs;

(2) reasonable belief that any BIDDER is interested in more than one proposal for the work contemplated;

(3) the BIDDER having a history of filing frequent, excessive, meritless, or fraudulent claims against the OWNER, or against other CONTRACTORS on a project of the OWNER, or against other OWNERs or CONTRACTORS;

(4) the BIDDER or its surety having defaulted on a previous contract, or the BIDDER performing poorly on a previous or current contract;

(5) lack of competency, skill, judgment, financial capability, resources, 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.

(6) uncompleted work which in the judgment of the OWNER shall prevent or hinder the prompt completion of additional work if awarded;

(7) failure of BIDDER to use OWNER'S form of bid bond in submitting its bid, or submission of a cashier's check drawn on a state or national bank not located in the OWNER'S jurisdictional area;

(8) unbalanced value of any bid items;

(9) the BIDDER is currently a party to any litigation against the OWNER.

(10) BIDDER's unexcused failure to properly and/or timely complete a project with the OWNER.

The OWNER's decision that a BIDDER is disqualified shall be final.

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ITEM 103.COD. AWARD AND EXECUTION OF CONTRACT

(Page 103-1: Replace Item 103.2. AWARD OF CONTRACT, with the following: [Entire section was replaced. In addition, in the last sentence, the word "awarded" has been removed.)]

103.2.COD. Award of Contract:

The OWNER will attempt to award the CONTRACT within one-hundred fifty (150) days after the opening of proposals. The award, if made, shall be to the lowest responsible bidder; but in no case shall the award be made until after investigations are made as to the responsibility of the bidder to whom it is proposed to award the CONTRACT. If awarded the CONTRACT, the bidder shall execute the CONTRACT and furnish the required bonds and evidence of insurance within 10 days after receipt of the CONTRACT.

(Page 103-2. Add Item 103.3.1.5.COD. FURNISHING BONDS:) [New Section Added.]

103.3.1.5.COD. Furnishing Bonds:

The 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.

(6) If the Surety Company does not directly have the underwriting capability required by this provision, the Surety Company shall provide additional bonding capacity in other ways to be approved by the City Attorney's Office and the Office of Risk Management."

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.

(Page 103-2. Replace Item 103.4.1. CONTRACTOR'S INSURANCE, with the following:) [Entire Section has been replaced.]

103.4.1.COD. Contractor's Insurance:

Without limiting any of the other obligations or liabilities of the CONTRACTOR under the CONTRACT Documents, the CONTRACTOR shall purchase and maintain, during the term of the CONTRACT, and at the CONTRACTOR'S own expense, the minimum liability insurance coverage described below with companies duly authorized or approved to do business in the State of Texas and otherwise satisfactory to OWNER. CONTRACTOR shall also require each SUBCONTRACTOR performing work under the CONTRACT, at the SUBCONTRACTOR'S own expense, to maintain during the term of the CONTRACT, levels of insurance that are necessary and appropriate required for the Work performed, which levels of insurance comply with all applicable laws and are consistent with industry standards. The SUBCONTRACTOR'S liability insurance shall name the CONTRACTOR and the OWNER as additional insureds using the broadest form of endorsement available, with such status extended to include the extension of any completed operations coverage provided or required. Certificates of insurance complying with the required coverage and meeting the applicable requirements of **Items 103.4.1.COD. CONTRACTOR'S Insurance** through **Item 103.4.5.3.COD. CONTRACTOR Agrees to Special Conditions**, shall be delivered to the OWNER (as per **Item 103.4.6.1.COD. Certificate Shall be Delivered**) before any work is started. CONTRACTOR shall promptly furnish, upon the request of and without expense to the 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 this Item must be accompanied by a replacement certificate of insurance. Coverage shall be in the following types and amounts:

(Page 103-3. Replace Item 103.4.1.2. COMMERCIAL GENERAL LIABILITY INSURANCE, with the following:) [Entire Section has been replaced.]

103.4.1.2.COD. Commercial General Liability Insurance: Commercial General Liability Insurance, Including Personal Injury Liability, Independent CONTRACTOR'S Liability, Products and Completed Operations, 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. The OWNER and the Engineer shall be named as additional insureds using the broadest form of endorsement available, with such status extended to include extension of the completed operations coverage as described below.

The Commercial General Liability 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 (1) year after final completion and acceptance of the work, with evidence of same filed with OWNER. The policy shall include an endorsement CG 2503 amendment of limits (designated project or premises) in order to extend the policy's limits specifically to the project in question.

(Page 103-3. Replace Table 103.4.1.2.(a) GENERAL LIABILITY INSURANCE MINIMUM COVERAGE:) [Limits of Liability have been changed for all except the last two entries.]

Table 103.4.1.2.(a).COD. General Liability Insurance Minimum Coverage

General Aggregate	*$2,000,000*
Products – Components / Operations Aggregate	*$2,000,000*
Personal and Advertising Injury	*$1,000,000*
Each Occurrence	*$1,000,000*
Fire Damage (any one fire)	*$50,000*
Medical Expense (any one person)	*$5,000*

Notes:

1. *All liability coverages must name the City of Dallas as an additional insured.*
2. *All coverages including Worker's Compensation must provide the City of Dallas a waiver of subrogation.*
3. The City of Dallas Risk Management Department reserves the right to increase the listed Umbrella should the project scope warrant additional coverage.
4. All policies shall provide the City with 30-days' notice of cancellation.

(Page 103-3. Replace Item 103.4.2. AUTOMOBILES, with the following:) [The entire section have been replaced.]

103.4.1.3.COD. Business Automobile Liability Insurance:

Business Automobile Liability Insurance, covering owned, hired, and non-owned vehicles, with a combined bodily injury (including death) and property damage minimum limit of $1,000,000 per occurrence. Such insurance shall include coverage for loading and unloading hazards.

(Page 103-3. Replace Item 103.4.3. "UMBRELLA" LIABILITY INSURANCE, with the following:) [In the first sentence, after "bodily injury", the phrase, "including Death" was added; In the second sentence, after the $1,000,000 number, the words "or greater" were added; the phrase "and Engineer" was removed and the remainder of the sentence was modified.]

103.4.3.COD. Umbrella Liability Insurance: The 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, or greater, per occurrence combined limit Bodily Injury (including death) and Property Damage that follows form and applies in excess of the primary liability coverages required herein above. The OWNER shall be named as an additional insured using the broadest form of endorsement available, with such status extended to include the extension of the completed operations coverage as described in this Item. The policy shall provide "drop down"

coverage where underlying primary insurance coverage limits are insufficient or exhausted. Based on the nature and complexity of the work, should the OWNER feel that $1,000,000 per occurrence Umbrella Liability Insurance is somehow inappropriate, this amount may be adjusted by obtaining the approval from the City of Dallas' Office of Risk Management prior to bid documents being released.

(Page 103-3. Replace Item 103.4.4. RAILROAD PROTECTIVE INSURANCE, with the following:) [In the second sentence, the City of Dallas, Texas was added to the parties to be insured; and the third sentence was modified.]

103.4.4.COD. Railroad Protective Insurance:

When required in the Special Provisions, CONTRACTOR shall obtain, maintain and present evidence of railroad protective insurance (RPI). The policy shall be in the name of the railroad company having jurisdiction over the right-of-way involved and the City of Dallas, Texas. The minimum limit of coverage shall meet the specifications provided by the railroad company or the minimum requirements of the contract specification, whichever is greater. The OWNER shall specify the amount of RPI necessary.

(Page 103-4. Replace Item 103.4.5. POLICY ENDORSEMENTS AND SPECIAL CONDITIONS, with the following through Item 103.4.5.3.COD Contractor Agreements:) [The entire Section has been replaced – there are numerous changes additional sections and modifications.]

103.4.5.COD. Policy Endorsements and Special Conditions:

103.4.5.1.COD. Insurance Requirements: 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) That the OWNER shall be named as additional insureds on all liability coverages, using the broadest form of endorsement available, with such status extended to include the extension of the completed operations coverage as described in this Item. Where the OWNER employs a Construction Manager on Project, the CONTRACTOR, and SUBCONTRACTOR shall include the Construction Manager on all liability insurance policies to the same extent as the OWNER, Engineer, and Consulting Engineer.

(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 OWNER at the following address:

Office of Risk Management
1500 Marilla, 6A-South
Dallas, Texas 75201

If the policy is canceled for nonpayment of premium, a maximum of 10 days written notice to OWNER is required

Additionally, notice shall be sent to the appropriate address listed below:

For **Capital Improvement Contracts** on projects to be awarded and administered by the Dallas Water Utilities Department, the Certificate of Insurance shall be delivered to:

City of Dallas Project Management
Suite 300
2121 Main Street
Dallas, Texas 75201

For **Private Development Contracts** on projects to be awarded and administered by the Private Development Department, the certificate shall be delivered to:

Sustainable Development and Construction Services
Room 200
320 E. Jefferson Boulevard
Dallas, Texas 75203

For **Water or Wastewater Service Contracts** on projects to be awarded and administered by the Water or Wastewater Department, the certificate shall be delivered to:

Water / Wastewater Service CONTRACTS
Room 118
320 E. Jefferson
Dallas, Texas 75203

For **Department of Public Works Construction Contracts** on projects to be awarded and administered by the Public Works Department, the certificate shall be delivered to:

Department of Public Works Construction CONTRACTS
Construction Management – Room 321
320 E. Jefferson
Dallas, Texas 75203

For **Park and Recreation Department Construction Contracts** on projects to be awarded and administered by the Park and Recreation Department, the certificate shall be delivered to:

Park and Recreation Department
Program Manager
Planning and Design
Room 6FS
1500 Marilla
Dallas, Texas 75201

For **Stormwater Operations Construction Contracts** on projects to be awarded and administered by Stormwater Operations, the certificate shall be delivered to:

Stormwater Operations Construction Management
Room 312
320. E. Jefferson
Dallas, Texas 75203

For **Department of Aviation Contracts** on projects to be awarded and administered by the Department of Aviation, the certificate shall be delivered to:

Capital Development
Contract Management
7555 Lemmon Avenue
Dallas, Texas 75209

CONTRACTOR shall notify OWNER, at the above addresses, 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 is required to be primary insurance for the Project and the additional insureds names in the required policies.

(5) All provisions of the CONTRACT Documents concerning liability, duty, and standard of care, together with the indemnification provision, shall, to the maximum extent allowable in the insurance market, be underwritten by contractual liability coverage sufficient to include such obligations with the applicable liability policies.

(6) 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 comply with requirements of **Item 103.4.COD Insurance**. The CONTRACTOR shall have the responsibility to enforce the requirements of **Item 103.4.COD. Insurance** among its SUBCONTRACTORS.

103.4.5.2.COD. Insurance Furnished By CONTRACTOR: Concerning the insurance to be furnished by CONTRACTOR, it is a condition precedent to acceptability that:

(1) Any policy submitted shall not be subject to limitations, conditions or restrictions deemed inconsistent with the intent of the insurance requirements to be fulfilled by the CONTRACTOR. The OWNER’S decision thereon shall be final;

(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 required policies are to be written through companies duly authorized and approved to transact that class of insurance in the State of Texas and are otherwise acceptable to the OWNER.

(4) All liability policies required herein shall be written with an “occurrence” basis coverage trigger.

103.4.5.3.COD. Contractor Agreements: CONTRACTOR agrees to the following special provisions:

(1) The 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 for all applicable policies required under this Item.

(2) Insurance companies issuing the insurance policies and the 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 the CONTRACTOR (or any SUBCONTRACTORS) shall not relieve the CONTRACTOR of full responsibility or liability for damage or 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) The OWNER reserves the right to review the insurance requirements of this Item during the effective period of this CONTRACT and to modify insurance coverages and their limits when deemed necessary and prudent by OWNER’s Office of Risk Management, based upon economic conditions, the recommendation of professional insurance advisors, changes in statutory law, court decisions or other relevant factors. The 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, the CONTRACTOR shall exercise reasonable efforts to accomplish such changes in policy coverages and shall pay the cost thereof.

(5) No special payments shall be made for any insurance policies that the CONTRACTOR and SUBCONTRACTORS are required to carry; all are included in the CONTRACT Sum.

(6) Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the Work. These certificates and the insurance policies required shall contain a provision that coverages afforded under the policies will not be cancelled, nonrenewed, allowed to expire, or materially changed until at least thirty (30) days prior written notice has been given to the OWNER. 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. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment. Information concerning reduction of coverage shall be furnished by the CONTRACTOR to the OWNER with reasonable promptness in accordance with the CONTRACTOR'S information and belief.

If any insurance company for the CONTRACTOR, which company provides insurance required under the CONTRACT Documents, becomes insolvent or becomes the subject of any rehabilitation, conservatorship, or liquidation or similar proceeding, the CONTRACTOR shall procure, immediately upon first notice of such occurrence and without cost to the OWNER, replacement insurance coverage before continuing the performance of the Work at the Project. Any failure to provide such replacement insurance coverage shall constitute a material breach of the CONTRACT.

(Page 103-4. Add **Item 103.4.6.COD. CERTIFICATE OF INSURANCE SHALL BE DELIVERED:**) [New Section Added.]

103.4.6.COD: Certificate of Insurance Shall Be Delivered:

For **Capital Improvement Contracts** on projects to be awarded and administered by the Dallas Water Utilities Department, the Certificate of Insurance shall be delivered to:

City of Dallas Project Management
Suite 300
2121 Main Street
Dallas, Texas 75201

For **Private Development Contracts** on projects to be awarded and administered by Private Development Department, the certificate shall be delivered to:
Sustainable Development and Construction Services
Room 200
320 E. Jefferson Boulevard
Dallas, Texas 75203

For **Water or Wastewater Service Contracts** on projects to be awarded and administered by Water or Wastewater Service Department, the certificate shall be delivered to:

Water / Wastewater Service CONTRACTS
Room 118
320 E. Jefferson
Dallas, Texas 75203

For **Department of Public Works Construction Contracts** on projects to be awarded and administered by the Department of Public Works, the certificate shall be delivered to:

Department of Public Works Construction CONTRACTS
Construction Management – Room 321
320 E. Jefferson
Dallas, Texas 75203

For **Park and Recreation Department Construction Contracts** on projects to be awarded and administered by the Park and Recreation Department, the certificate shall be delivered to:

Park and Recreation Department
Program Manager
Planning and Design
Room 6FS
1500 Marilla
Dallas, Texas 75201

For **Stormwater Operations Construction Contracts** on projects to be awarded and administered by Stormwater Operations, the certificate shall be delivered to:

Stormwater Operations Construction Management
Room 312
320. E. Jefferson
Dallas, Texas 75203

CONTRACTOR shall notify OWNER, at the above addresses, within 24 hours after receipt, of any notice of expiration, cancellation, nonrenewal, or material change in coverage it receives from its insurer.

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 comply with requirements of **Item 103.4.COD Insurance**. The CONTRACTOR shall have the responsibility to enforce the requirements of **Item 103.4.COD. Insurance** among its SUBCONTRACTORS.

(Page 103-4. Add the following Item 103.4.7.COD. WORKER'S COMPENSATION COVERAGE through Item 103.4.7.1.12.COD. Work Not Thoroughly and Satisfactory Stipulated:) [New Section Added]

103.4.7.COD: Worker's Compensation Insurance Coverage: The State requires the CONTRACTOR to comply with the following Rule, 28 TAC §110.110, effective September 1, 1994 which Rule is reproduced substantially from the Rule as shown below:

103.4.7.1.COD. Definitions:

103.4.7.1.1.COD. Certificate of Coverage ("Certificate"):

A certificate of insurance, a certificate of authority to self-insure issued by the Texas Workers Compensation Commission (TWCC), 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.

(1) **Project Duration**: 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.

(2) **SUBCONTRACTOR:** Persons providing services on the project ("SUBCONTRACTOR" in § 406.096 of the Texas Labor Code) - 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.

(3) **Services**: "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.

103.4.7.1.2.COD. Coverage Based on Proper Reporting: 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.

103.4.7.1.3.COD. Certificate Before Award of Contract: The CONTRACTOR must provide a certificate of insurance to the OWNER prior to being awarded the contract.

103.4.7.1.4.COD. New Certificate if Coverage Lapses: 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 insurance with the OWNER showing that coverage has been renewed for another policy term.

103.4.7.1.5.COD. Contractor Shall Obtain from Subcontractors: The CONTRACTOR shall obtain from each person providing services on a project, and provide to the OWNER at the OWNER's request:

(1) **Workers Compensation Insurance for All Workers:** A certificate of insurance, 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) **Renewal Certificate:** No later than seven days after receipt by the CONTRACTOR, a new certificate of insurance showing that coverage has been renewed for another policy term, if the coverage period shown on the current

103.4.7.1.6.COD. Contractor to Retain All Certificates: The CONTRACTOR shall retain all required certificates of insurance for the duration of the project and for one year thereafter and shall have the responsibility of enforcing insurance requirements among its SUBCONTRACTORS. The CITY shall be entitled, upon request and without expense, to receive copies of these certificates.

103.4.7.1.7.COD. Contractor Shall Notify Owner If Certificate Changes: 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.

103.4.7.1.8.COD. On-Site Notice: 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.

103.4.7.1.9.COD. Contractor Shall Require Subcontractors: The CONTRACTOR shall contractually require each SUBCONTRACTOR with whom it contracts to provide services on a project, to:

(1) **Provide Coverage:** 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) **Insurance Before Beginning Work**: Provide to the CONTRACTOR, prior to that person beginning work on the project, a certificate of insurance showing coverage is being provided for all employees of the person providing services on the project, for the duration of the project;

(3) **SUBCONTRACTOR to Provide Coverage**: Provide the CONTRACTOR, prior to the end of the coverage period, a new certificate of insurance showing coverage has been renewed for another policy term, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

(4) **CONTRACTOR to Obtain from Each SUBCONTRACTOR:** Obtain from each other person with whom it contracts, and provide to the CONTRACTOR:

(a) **A Certificate of Insurance:** A certificate of insurance, prior to the other person beginning work on the project; and

(b) **A New Certificate if Old One Lapses:** A new certificate of insurance showing coverage has been renewed for another policy term, 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) **Contractually Require SUBCONTRACTORS Perform:** To contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (5), with the certificates of insurance to be provided to the person or department for whom they are providing services.

103.4.7.1.10.COD. Signing Contract: By signing this CONTRACT or providing or causing to be provided a Certificate of Insurance, the CONTRACTOR is representing to the OWNER that all employees of the CONTRACTOR and SUBCONTRACTORS 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.

103.4.7.1.11.COD. Failure to Comply: 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.

103.4.7.1.12.COD. Work Not Thoroughly and Satisfactory Stipulated: Should any work or conditions which are not thoroughly and satisfactorily stipulated or covered by the general or standard specifications be anticipated on any proposed work, "Special Provisions" for such work may be prepared by the OWNER prior to the time of receiving bids, and shall be considered as a part of the specifications and contract.

(Page 103-5. Add **Item 106.6.1. COD. COMMENCING WORK**:) [New Section Added.]

103.6.1.COD. Commencing Work: No work shall commence prior to the issuance of such work order or before the required insurance has been obtained by the CONTRACTOR, with certificates filed with the OWNER evidencing the required coverage to be in force.

(Page 103-5. Add **Item 103.7.1.COD. BID REJECTION**:) [New Section Added]

103.7.1.COD. Bid Rejection: Award will be subject to approval of prices by the responsible City of Dallas Department. The OWNER reserves the right to reject any or all bids and to accept or reject any or all schedules.

(Intentionally Blank)

ITEM 104.COD. SCOPE OF WORK

(Page 104-2. Replace Item 104.2.3. EXTRA WORK:) [Added "by OWNER" to the end of the last sentence.]

104.2.3.COD. Extra Work: When any work is necessary to the proper completion of the project and for which no prices are provided for in the proposal and Contract, the CONTRACTOR shall do such work, but only when and as ordered in writing by the OWNER. Extra Work is further explained in **Item 109.3. Payment for Extra Work** and **Item 104.3. Disputed Work and Claims for Additional Compensation**. Payment for Extra Work shall be made as hereinafter provided in Item 109.3. Payment for Extra Work. No work shall be undertaken which requires extra payment without having an executed Change Order approved by the CONTRACTOR and the OWNER, except when so ordered in writing by OWNER.

(Page 104-2. Add Item 104.2.6.COD. SPECIAL PROVISIONS:) [New Section Added]

104.2.6.COD. Special Provisions: Should any work or conditions which are not thoroughly and satisfactorily stipulated or covered by the general or standard specifications be anticipated on any proposed work, "Special Provisions" for such work may be prepared by the OWNER prior to the time of receiving bids, and shall be considered as a part of the specifications and contract.

(Intentionally Blank)

ITEM 105.COD. CONTROL OF WORK

(Page 105-2. Replace Item 105.2.1. WORKMANSHIP with the following:) [There is a new second paragraph.]

105.2.1COD. Workmanship. Unless otherwise expressly provided in the Contract drawings or specifications, the work shall be performed in accordance with the best modern practice with materials and workmanship of the highest quality and suitable for their purpose. The OWNER shall judge and determine the CONTRACTOR'S compliance with these requirements.

If the OWNER notifies the CONTRACTOR in writing of defective work, the CONTRACTOR shall correct the deficiencies within a time specified by the OWNER and at no additional cost to the OWNER. If the defective work is not corrected within the specified time or the CONTRACTOR is not making satisfactory progress, in the opinion of the OWNER, to correct the deficiencies, the OWNER may withhold future payments for All Work until the defective work has been corrected to the satisfaction of the OWNER.

(Page 105-2. Replace Item 105.2.2. SPECIAL WARRANTY, with the following:) [There is a new second paragraph.]

105.2.2.COD. Special Warranty. If within one year after final acceptance of the work by the OWNER, as evidenced by the final certificate of acceptance or within such longer or shorter period of time as may be prescribed by law or by the terms of any other applicable special warranty on designated equipment or portions of work as required by the Contract documents, any of the work is found to be defective or not in accordance with the Contract documents, the CONTRACTOR shall correct it promptly after receipt of a written notice from the OWNER to do so. This obligation shall survive termination of the Contract. The OWNER shall give such notice promptly after discovery of the condition.

The CONTRACTOR shall remove from the site all portions of the work which are defective or nonconforming and which have not been corrected unless removal is waived in writing by the OWNER.

(Page 105-3. Replace Item 105.4. CONSTRUCTION STAKES, with the following through Item 105.4.5.COD: Qualified Registered Surveyor:) [The entire section has been replaced]

105.4.COD. Construction Stakes:

The CONTRACTOR shall be responsible for all required Construction Staking associated with the project. When applicable, Costs for Construction Staking are paid under the appropriate bid item number included in the CONTRACT DOCUMENTS. In all other cases, Construction Staking is contingent to the rest of the project.

Copies of survey notes demonstrating third order level of accuracy shall be furnished to the OWNER within two weeks after the survey completion for final stakeout of the major project components. The furnished survey notes shall include the final vertical and horizontal stakeout notes for all drainage, street paving, structural, water, or sanitary sewer improvements. Alignments shall be tied to horizontal control with sufficient calls provided to delineate centerline. The location or monumentation of any real property boundaries or easements required for construction be performed by or under the direct supervision of a Registered Professional Land Surveyor in Texas as required by Chapter 1071 - The Professional Land Surveying Practices Act of the Texas Occupations Code.

The CONTRACTOR is responsible for maintaining all survey control points and monuments in the construction area at all times and any costs for re-staking or re-establishing controls required shall be borne by the CONTRACTOR.

The OWNER will perform or confirm the initial and final measurement for payment and reserves the right to field verify any stakes placed, measurements for payment made and any work performed by the CONTRACTOR.

When applicable, Costs for Construction Staking are paid under the appropriate bid item number included in the CONTRACT DOCUMENTS. In all other cases, Construction Staking is contingent to the rest of the project.

105.4.1.COD. Construction Stakes – Department of Public Works: For projects awarded and administered by the City of Dallas Department of Public Works, the following is required:

1. Inspection of the work associated with Department of Public Works projects will be conducted by the Department of Public Works (PW&T). and shall be requested through the appropriate PW&T Construction Superintendent a minimum of ten (10) days prior to the scheduled start of construction for each location.
2. The CONTRACTOR is required to provide typed cut sheets, an example of which is on the following pages. Typed cut sheets must be submitted no later than 3:00 PM the day prior to the scheduled start of construction to:

   Construction Superintendent
   320 East Jefferson Boulevard, Room 321
   Dallas, Texas 75203

105.4.2.COD. Construction Stakes – Dallas Water Utilities: For projects awarded and administered by Dallas Water Utilities, the following is required:

1. Inspection of the work associated with the water and wastewater facilities will be done by Dallas Water Utilities (DWU) and shall be requested through the appropriate DWU Construction Superintendent a minimum of ten (10) days prior to the scheduled start of construction for each location.
2. The CONTRACTOR is required to provide typed cut sheets, an example of which is on the following pages. Typed cut sheets must be submitted no later than 3:00 PM the day prior to the scheduled start of construction to:

   Area Coordinator/ Superintendent,
   DWU Inspections
   2121 Main St #300
   Dallas, Texas 75203
   Phone: (214) 671-9077

105.4.3.COD. Construction Stakes – Park and Recreation Department: For projects awarded and administered by the Dallas Park and Recreation Department, the following is required:

1. Inspection of the work associated with Park and Recreation Department projects will be conducted by the Park and Recreation Department and shall be requested through the appropriate Park and Recreation Program Manager a minimum of ten (10) days prior to the scheduled start of construction for each location.
2. The CONTRACTOR is required to provide typed cut sheets, an example of which is on the following pages. Typed cut sheets must be submitted no later than 3:00 PM the day prior to the scheduled start of construction to:

   Program Manager
   Park and Recreation Department
   Planning and Design
   Room 6FS
   1500 Marilla
   Dallas, TX 75201

105.4.4.COD. Construction Stakes – Dallas Aviation Department: For Projects Awarded and Administered by the Dallas Aviation Department, the following is required:

1. Inspection of work associated with the Dallas Aviation Department projects will be conducted by the Dallas Aviation Department and shall be requested through the appropriate Dallas Aviation Department Manager a minimum of ten (10) days prior to the scheduled start of construction for each location.
2. The CONTRACTOR is required to provide typed cut sheets, an example of which is on the following pages. Typed cut sheets must be submitted no later than 3:00 PM the day prior to the scheduled start of construction to:

   Capital Development
   Contract Management
   7555 Lemmon Avenue
   Dallas, Texas 75209

105.4.5.COD. Qualified Registered Surveyor: All layout and grading stakes required during the construction will be set by the CONTRACTOR who shall employ a qualified registered surveyor. The name of the person so employed shall be submitted to the OWNER (with proof of registration) for approval.

(Page 105-4. Add Item 105.5.1.1.COD. PRIORITY OF CONTRACT DOCUMENTS:) [New Section Added]

105.5.1.1.COD. Priority of Contract Documents: In the case of conflict between the contract documents, priority of interpretation shall be in the following order: signed agreement (or contract), performance and payment bonds, bid, advertisement for bids (or invitation to bidders), special provisions (or conditions), general conditions, project drawings, construction specifications, "Standard Specifications for Public Works Construction North Central Texas", standard drawings and referenced specifications. The plans, these specifications, the bid, special provisions and all supplementary documents are intended to describe a complete work and are essential parts of the contract. All requirements occurring in any of them are binding. In cases of discrepancies, the following priority of documents is established, the contract, the General Conditions and Requirements in the specifications, the plans and figured dimensions shall govern over scaled dimensions.

The CONTRACTOR shall not take advantage of any apparent errors, omissions, or discrepancies in the drawings or specifications, and the OWNER shall be permitted to make such corrections or interpretations as may be deemed necessary for the fulfillment of the intent of the contract documents. In the event the CONTRACTOR discovers an apparent error or discrepancy, the CONTRACTOR shall immediately call this to the attention of the OWNER, who, in turn, shall promptly make a determination and issue the necessary instructions in writing. Any adjustment by the CONTRACTOR without this determination and instructions shall be at the CONTRACTOR'S own risk and expense. The work is to be made complete as intended by the contract documents.

(Page 105-4. Replace Item 105.6. SUPERVISION BY CONTRACTOR, with the following:) [The second sentence has been modified; a new third sentence has been added.]

105.6.COD. Supervision by Contractor: The status of the CONTRACTOR is that of an independent CONTRACTOR under Texas law and the work under this contract shall be under the direct charge and superintendence of the CONTRACTOR. Except where the CONTRACTOR is an individual and gives their personal superintendence to the work, the CONTRACTOR shall provide a competent Superintendent or Foreman on the work at all times during progress, who is fully authorized as the agent on the work. All directions given to the Superintendent shall be binding as given to the CONTRACTOR. Such Superintendent shall be capable of reading and understanding the plans and specifications and shall receive and fulfill instructions from the OWNER or authorized representatives. The CONTRACTOR shall also provide an adequate staff for the coordination and expediting of this work.

The Superintendent and staff shall be acceptable to the OWNER. The Superintendent or Foreman shall not be changed during this contract except with the written consent of the OWNER or unless the Superintendent or Foreman proves unsatisfactory to the CONTRACTOR and ceases to be in the CONTRACTOR'S employ.

If the Superintendent should be or become unsatisfactory to the OWNER, the Superintendent shall be removed by the CONTRACTOR upon written direction of the OWNER; and in such event, the CONTRACTOR shall not be entitled to file a claim for any additional working time or money from the OWNER.

The CONTRACTOR shall provide the OWNER a list of a minimum of three working contacts who are available 24 hours per day, seven days per week.

(Page 105-5. Add Item 105.8.1.COD. CHANGE OF ADDRESS:) [New Section Added]

105.8.1.COD. Change of Address: 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 (for Projects Awarded and Administered by the Department of Public Works):

Department of Public Works
Construction Management
320 E. Jefferson., Room 321
Dallas, Texas 75203

With a copy to (for Projects Awarded and Administered by the Dallas Water Utilities Department):

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

And with a copy to (For Projects Awarded and Administered by the Park and Recreation Department):

Park and Recreation Department
Program Manager
Planning and Design
Room 6FS
1500 Marilla
Dallas, TX 75201

And with a copy to (For Projects Awarded and Administered by Stormwater Operations Construction Contracts):

Stormwater Operations
Construction Management:
Room 312
320. E. Jefferson
Dallas, Texas 75203

And a copy to (For Projects Awarded and Administered by the Dallas Aviation Department):

Capital Development
Contract Management
7555 Lemmon Avenue
Dallas, Texas 75209

(Page 105-5. Add Item 105.8.2.COD. LOCAL TELEPHONE ACCESS:) [New Section Added]

105.8.2.COD. Local Telephone Access: The CONTRACTOR shall provide a telephone number, which will be answered by a representative during normal business hours and answered either live or electronically, outside normal business hours with said calls returned within one hour. The phone shall be accessible by direct dial without long distance charges for all citizens in the construction area and the City of Dallas personnel.

(Page 105-5. Replace **Item 105.9. INSPECTION OF WORK** with the following through **Item 105.9.0.3.COD. Inspection of Work – Dallas Park and Recreation Department:**) [New Sections Added.]

105.9.COD: Inspection of Work

105.9.0.1.COD: Inspection of Work – Department of Public Works: This item concerns projects awarded and administrated by the City of Dallas Department of Public Works. The scheduled start of construction for each location shall be coordinated with the Department of Public Works Construction Supervisor a minimum of ten (10) days prior to the requested start date. Actual start date is dependent upon approval and issuance of a "Public Relations" letter from the PWT Project Manager. Inspection of work associated with Department of Public Works projects will be done by the Construction Management Section of the Department of Public Works. Inspections shall be requested through the appropriate PBW Construction Supervisor a minimum of 24 hours prior to the need for inspection.

The CONTRACTOR shall assure that the Department of Public Works Construction Supervisor is aware of any work being performed on the project prior to the work taking place, and the CONTRACTOR should obtain written verification from the OWNER if an inspection is not needed before proceeding with any particular item of work. The CONTRACTOR must pay for all removal and replacement or testing requested to determine acceptability for any work done without proper inspection, as directed by the OWNER.

The CONTRACTOR shall furnish the OWNER with every reasonable facility for ascertaining whether or not the work performed was in accordance with the requirements and intent of the plans and specifications. Any work done or materials used without suitable inspection by the OWNER may be ordered removed and replaced at the CONTRACTOR'S expense.

105.9.0.2.COD. Inspection of Work – Dallas Water Utilities Department: This item concerns projects awarded and administrated by the Dallas Water Utilities Department The scheduled start of construction for each location shall be coordinated with the Dallas Water Utilities Construction Superintendent a minimum of ten (10) days prior to the requested start date. Actual start date is dependent upon approval and issuance of a "Public Relations" letter from the DWU Project Manager. . Inspection of work associated with Dallas Water Utilities projects will be done by Dallas Water Utilities. Inspections shall be requested through the appropriate Dallas Water Utilities Construction Superintendent a minimum of 24 hours prior to the need for inspection.

The CONTRACTOR shall furnish the OWNER with every reasonable facility for ascertaining whether or not the work performed was in accordance with the requirements and intent of the plans and specifications. Any work done or materials used without suitable inspection by the OWNER may be ordered removed and replaced at the CONTRACTOR'S expense.

Some work may not require the presence of an Inspector, and the CONTRACTOR should obtain written verification from the OWNER that an Inspector is not needed before proceeding with that particular item of work. The CONTRACTOR must pay for all removal and replacement or testing requested to determine acceptability for any work done without proper inspection, as directed by the OWNER.

105.9.0.3.COD. Inspection of Work – Dallas Park and Recreation Department: This item concerns projects awarded and administrated by the City of Dallas Park and Recreation Department. The scheduled start of construction for each location shall be coordinated with the Park and Recreation Construction Superintendent a minimum of ten (10) days prior to the requested start date.

The CONTRACTOR shall assure that the Park and Recreation Construction Superintendent is aware of any work being performed on the project prior to the work taking place, and the CONTRACTOR should obtain written verification from the OWNER if an inspection is not needed before proceeding with any particular item of work. The CONTRACTOR must pay for all removal and replacement or testing requested to determine acceptability for any work done without proper inspection, as directed by the OWNER.

The CONTRACTOR shall furnish the OWNER with every reasonable facility for ascertaining whether or not the work performed was in accordance with the requirements and intent of the plans and specifications. Any work done or materials used without suitable inspection by the OWNER may be ordered removed and replaced at the CONTRACTOR'S expense.

(Page 105-5. Replace **Item 105.9.3. INSPECTION OVERTIME**, with the following:) [Entire Section Replaced]

105.9.3.COD. 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 overtime periods because of restrictions for water main tie-ins, traffic requirements, or other periods that inspection would normally be charged as determined by the OWNER. 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, Holiday, or any day on which the City Offices are closed for normal business. A written request is not required for overtime work on a weekday. Overtime will be scheduled at the discretion of the OWNER. The CONTRACTOR is not guaranteed that overtime will be accommodated.

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

Reimbursements for overtime work of **Department of Public Works Inspectors** shall be made directly to the **City of Dallas PBW Construction Superintendent**. Checks should be made payable to the City of Dallas and mailed, or hand carried to:

Department of Public Works.
Construction Management
320 E. Jefferson
Room 321
Dallas, Texas 75203

Reimbursements for overtime work of **Park and Recreation Department Inspectors** shall be made directly to the **City of Dallas Park and Recreation Department**. Checks should be made payable to the City of Dallas and mailed, or hand carried to:

City of Dallas Park and Recreation Department
Construction Management
1500 Marilla, Suite 6FS
Dallas, Texas 75201

Reimbursements for overtime work of **Stormwater Operations** Inspectors shall be made directly to the **Stormwater Operations Construction Superintendent**. Checks should be made payable to the City of Dallas and mailed, or hand carried to:

Stormwater Operations
Construction Management:
Room 312
320. E. Jefferson
Dallas, Texas 75203

Reimbursements for overtime work of **Dallas Aviation Department Inspectors** shall be made directly to the **Dallas Aviation Department**. Checks should be made payable to the City of Dallas and mailed, or hand carried to:

Capital Development
Contract Management
7555 Lemmon Avenue
Dallas, Texas 75209

Unless otherwise specified in the CONTRACT, inspection overtime will be charged to the CONTRACTOR, 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 between 4:30 p.m. to Midnight, at a rate of $50.00 per hour per Inspector.

(2) Saturdays, Sundays and Holidays between midnight to midnight with a minimum of four (4) hours, at rate of $50.00 per hour per Inspector and a minimum of $200 per day per Inspector.

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 next submitted 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 109.4. Payment Withheld,** of the Standard Specifications.

(Page 105-6. Add Item 105.10.1.COD. TERMINATION OF CONTRACT:) [New Section Added]

105.10.1.COD. Termination of Contract: The contract will be considered fulfilled, save as provided in any maintenance stipulations, bond, or by law, when all the work has been completed, the final inspection is completed, the final acceptance made by the OWNER, and the final payment made by the OWNER.

(Page 105-6. Add Item 105.10.2.COD. GUARANTEE AFTER COMPLETION:) [New Section Added]

105.10.2.COD. Guarantee After Completion: Unless otherwise specified in the technical section of these specifications, the CONTRACTOR shall, after test and acceptance, and for a period of one year from date of final written acceptance by the OWNER or within such longer or shorter period of time as may be prescribed by law or by the terms of any other applicable special warranty on designated equipment or portions of work as required by the contract documents, rebuild, repair, or replace any and all items which have proven defective due to unsatisfactory material and / or workmanship. Upon written notice from the OWNER, the CONTRACTOR shall immediately make any repairs that may be ordered, or such repairs will be made by the City of Dallas at the expense of the CONTRACTOR or the CONTRACTOR'S Surety. In case of an emergency where delay would cause serious loss or damage, the City of Dallas may undertake to have the defects repaired without previous notice. The expense of all repairs, including all emergency repairs, shall be borne by the CONTRACTOR or the CONTRACTOR'S Surety, at no cost to the City of Dallas. This obligation shall survive termination of the contract.

(Page 105-6. Add Item 105.10.3.COD. OFFSET PROGRESS PAYMENTS:) [New Section Added]

105.10.3.COD. Offset Progress Payments: OWNER may, at its option, offset any progress payment or final payment under the Contract Documents against any debt (including taxes) lawfully due to OWNER from Contractor, regardless of whether the amount due arises pursuant to the terms of the Contract Documents or otherwise and regardless of whether or not the debt due to OWNER has been reduced to judgment by a court.

(Page 105-6. Add Item 105.10.4.COD. FINAL ACCEPTANCE AND PAYMENT:) [New Section Added]

105.10.4.COD. Final Acceptance and Payment: Whenever the work provided for by the contract shall have been completely performed on the part of the CONTRACTOR, the CONTRACTOR shall notify the OWNER that the work is ready for final inspection. The OWNER will then make such final inspection and if the work is satisfactory and in accordance with the specifications and contract documents, the OWNER shall issue a certificate of acceptance to the CONTRACTOR and submit a request to accept the work performed by the CONTRACTOR and payment of a final estimate under the terms of which the OWNER will release 100% of the retainage, plus the unpaid portions of the final estimate as the OWNER deems advisable.

Whenever the improvements provided for by the contract shall have been completely performed on the part of the Contractor, as evidenced in the certificate of acceptance, and all required submissions provided to the Owner, a final estimate showing the value of the work shall be prepared by the OWNER as soon as the necessary measurements

and computations can be made. All prior estimates upon which payments have been made are subject to necessary corrections or revisions in the final payment. The amount of this final estimate, less any sums that have been previously paid, deducted or retained under the provisions of the contract, shall be paid the CONTRACTOR within 30 days after the final acceptance by the OWNER, provided the CONTRACTOR has furnished to the OWNER a consent of Surety and satisfactory evidence that all indebtedness connected with the work and all sums of money due for any labor, materials, apparatus, fixtures, or machinery furnished for and used in the performance of the work have been paid or otherwise satisfied, or that the person or persons to whom the same may respectively be due have consented to such final payment This requirement it not intended and shall not be construed to recognize subcontractors for the purpose of privity of contract, and no third party benefit rights shall be obtained through these provisions for final payment The acceptance by the CONTRACTOR of the final payment as aforesaid shall operate as and shall be a release to the OWNER from all claims or liabilities under the contract, including all subcontractor claims, for anything done or furnished or relating to the work under the contract or for any act or neglect of said OWNER relating to or connected with the contract.

All warranties and guarantees shall commence from the date of the certificate of acceptance. No interest shall be due the CONTRACTOR on any partial or final payment, or on the retainage (reference Item 109.5.1.COD. Monthly Estimate, Partial Payments, Retainage, Final Inspection, Acceptance and Final Payment

(Page 105-6. Add Item 105.10.5.COD. RIGHT TO AUDIT CONTRACTOR'S RECORDS:) {New Section Added])

105.10.5.COD. Right To Audit Contractor's Records: By execution of the Contract, CONTRACTOR grants the OWNER the right to audit, at City's election, all of CONTRACTOR'S records and billings relating to the performance of the Work under the Contract. CONTRACTOR agrees to retain such records for a minimum of three (3) years following completion of the Work under this Contract. OWNER agrees that it will exercise the right to audit only at reasonable hours.

ITEM 106.COD. CONTROL OF MATERIAL

(Page 106-1. Replace **Item 106.2. MATERIALS AND EQUIPMENT**, with the following:) [A new paragraph has been added to the end of this section.]

106.2.COD. Materials and Equipment:

The CONTRACTOR shall be free to obtain the approved materials, equipment, and articles from sources of the CONTRACTOR's own selection. However, if the OWNER finds that the work shall be delayed or adversely affected in any way because a selected source of supply cannot furnish a uniform product in sufficient quantity and at the time required and a suitable source does exist, or the product is not suitable for the work, the OWNER shall have the right to require the original source of supply changed by the CONTRACTOR. The CONTRACTOR shall have no claim for extra cost or damage because of this requirement.

The CONTRACTOR warrants to the OWNER that all materials and equipment furnished under this CONTRACT shall be new unless otherwise specified in the CONTRACT documents and that same shall be of good quality and workmanship, free from faults and defects and in conformance with the CONTRACT documents. All materials and equipment not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective and shall be promptly repaired or replaced by the CONTRACTOR at the CONTRACTOR'S sole cost upon demand of the OWNER. If required by the OWNER, the CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

Material and equipment furnished that are not specified elsewhere shall conform to the current "Dallas Water Utilities Approved Materials By Trade Name Listing For Water Distribution Or Wastewater Collections (as Appropriate)", the "Department Of Public Works Construction Specifications", or approved equal.

(Page 106-1. Replace **Item 106.4. OFF-SITE STORAGE**, with the following:) [Sub-item (3) has been modified and, a new paragraph has been added to the end of this Section.]

106.4.COD. Off-Site Storage:

Materials shall be stored so as to insure the preservation of their quality and fitness for the work. When directed by the OWNER, they shall be placed on wooden platforms or other hard, clean surfaces and not on the ground, and shall be placed under cover when directed. Stored materials shall be placed and located so as to facilitate prompt inspection.

Payment for costs incurred in the off-site storage of materials not yet incorporated into the project may be made by the OWNER if all the following conditions are met:

(1) the OWNER has approved the off-site storage location, prior to delivery and in writing;

(2) the materials will not be incorporated into the project within the next 60 days;

(3) the material is stored in a bonded warehouse, as defined in **Item 101.1.COD. Definitions**, identified with the project name and stored separate from normal inventory;

(4) an official PAID receipt from the material SUPPLIER is provided; and

(5) CONTRACTOR may invoice only for the amount actually paid for the material.

Storage in facilities of the manufacturer or CONTRACTOR will not be permitted or paid for, unless such storage location is expressly approved in writing by the OWNER.

The City of Dallas recognizes a difference between "Materials on Hand" as defined in NCTCOG **Item 109.2 Payment for Materials**, and **Item 106.4.COD. Materials Stored Off-Site**. Any "Materials on Hand" that are approved for use in a specific project will not be paid for separately. Rather, any "Materials on Hand" that are approved for a specific project's use will be paid for with the regularly monthly estimate as they are incorporated into the specific project. "Materials Stored Off-Site" will be paid for separately if all five of the above conditions have been met by the CONTRACTOR.

(Page 106-2. Replace Item 106.4.1. EARLY DELIVERY TO PROJECT SITE, with the following:) [The second sentence has been modified; a new sentence has been added to the end of paragraph two; and two new paragraphs have been added.]

106.4.1.COD. Early Delivery to Project Site: All materials or equipment delivered to the project site earlier than thirty (30) days prior to an approved schedule for delivery to the project site shall be classified as an "early delivery". All early delivery materials or equipment must have written permission of the OWNER to be stored on the project site. Should any unauthorized early delivery occur, CONTRACTOR shall, at the CONTRACTOR'S expense cause such early delivery to be removed from the project site and stored off-site until required at the project site. All costs of labor, transportation and storage will be included as part of the expense. If the CONTRACTOR fails or refuses to remove unauthorized early delivery materials, the OWNER may cause such materials to be removed at the CONTRACTOR'S sole expense, and amounts may be withheld from the CONTRACTOR'S Application for Payment to reimburse the OWNER for any costs incurred in removing unauthorized early delivery materials. The OWNER will not be responsible for the protection of or risk of loss on any early delivery materials or equipment, nor will the OWNER be liable for any payment thereon. Any materials or equipment classified as early delivery will not be approved for payment as stored materials until incorporated into the Work.

Storage of materials will not be allowed if the OWNER deems that these materials are hazardous, detrimental to the site's appearance, or may cause maintenance difficulties. Storage of materials will not be allowed on the work site prior to issuance of a work authorization, except in special situations allowed by the OWNER in writing.

On-site storage of materials will not be allowed if the OWNER deems that these materials will be detrimental or to citizens or to the appearance or maintenance of the site. Storage of materials will not be allowed on the work site prior to issuance of a work authorization.

ITEM 107.COD. LEGAL RELATIONS AND CONTRACTOR RESPONSIBILITIES

(Page 107-3. Replace **Item 107.14.1. NONDISCRIMINATION TOWARD EMPLOYEES** with the following:) [The first and second sentences in first paragraph have been modified, and the first sentence has been added to second paragraph. New paragraphs have been added.]

107.14.1.COD. Nondiscrimination Toward Employees.

The CONTRACTOR shall not discriminate against any employee or applicant for employment because of race, age, color, ancestry, national origin, place of birth, religion, sex, sexual orientation, gender identity and expression, military or veteran status, genetic characteristics, or disability unrelated to job performance. The CONTRACTOR shall take affirmative action to ensure that applicants are employed and that employees are treated during their employment without regard to their race, age, color, ancestry, national origin, place of birth, religion, sex, sexual orientation, gender identity and expression, military or veteran status, genetic characteristics, or disability unrelated to job performance. This action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection of training, including apprenticeship.

The CONTRACTOR shall also comply with all applicable requirements of the Americans with Disabilities Act, 42 U.S.C.A. §§12101-12213, as amended. The CONTRACTOR agrees to post in conspicuous places a notice, available to employees and applicants, setting forth the provisions of this non-discrimination clause.

The CONTRACTOR shall, in all solicitations or advertisements for employees placed by or on behalf of the CONTRACTOR, state that all qualified applicants will receive consideration for employment without regard to race, age, color, ancestry, national origin, place of birth, religion, sex, sexual orientation, gender identity and expression, military or veteran status, genetic characteristics, or disability unrelated to job performance.

The CONTRACTOR shall furnish all information and reports required by the City Manager or his designee and shall permit the City Manager or his designee to investigate its payrolls and personnel records which pertain to current contracts with the CITY for purposes of ascertaining compliance with this equal employment opportunity clause.

The CONTRACTOR shall file compliance reports with CITY as may be required by the City Manager or his designee. Compliance reports must be filed within the time, must contain information as to the employment practices, policies, programs, and statistics of the CONTRACTOR, and must be in the form that the City Manager or his designee prescribes.

If the CONTRACTOR fails to comply with the equal employment opportunity provisions of this CONTRACT, it is agreed that CITY at its option may do either or both of the following:

(1) Cancel, terminate or suspend this CONTRACT in whole or in part;

(2) Declare the CONTRACTOR ineligible for further City contracts until it is determined to be in compliance.

(Page 107-3. Add Item 107.14.6.COD. EQUAL EMPLOYMENT OPPORTUNITY REPORTING:) [New Section Added]

107.14.6.COD. Equal Employment Opportunity Reporting: *During the course of the work, the CONTRACTOR shall submit to the OWNER, on a monthly basis, a breakdown by minority group of all employees at the site of the work. The CONTRACTOR must submit to the OWNER on a monthly basis, a copy of each weekly payroll pertaining to his CONTRACT as follows:*

Dallas Water Utilities Contracts:

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

Department of Public Works Contracts:

Department of Public Works
Construction Management
320 E. Jefferson, Room 321
Dallas, Texas 75203

Park and Recreation Department

Park and Recreation Department
Program Manager
Planning and Design
Room 6FS
1500 Marilla
Dallas, Texas 75201

Stormwater Operations

Stormwater Operations
Construction Management:
Room 312
320. E. Jefferson
Dallas, Texas 75203

Dallas Aviation Department:

Capital Development
Contract Management
7555 Lemmon Avenue
Dallas, Texas 75209

The above 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*

(Page 107-3. Add Item 107.14.7.COD. WORK FORCE STATEMENT:) [New Section Added]

107.14.7.COD. Work Force Statement: All Bidders are required to submit a completed Work Force Statement (included in the Proposal book) with their bid. The Work Force Statement details the breakdown of employee statistics by race and sex.

(Page 107-4. Replace Item 107.15. STATE AND LOCAL SALES AND USE TAXES, with the following:) [The name of the cited Tax code was revised to what the Texas Tax Code name currently is.]

107.15.COD. State and Local Sales And Use Taxes:

The OWNER qualifies for exemption from the state and local sales and use taxes, pursuant to the provisions of the **Texas Tax Code, Section 151.309; Governmental Entities**. Therefore, the CONTRACTOR shall not pay such taxes which would otherwise be payable in connection with the performance of this Contract.

The CONTRACTOR shall issue an exemption certificate in lieu of the tax on the purchase of:

(1) all materials, supplies, equipment and other tangible personal property incorporated into the real property being improved; and

(2) 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.

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. Overhead supplies and supplies used indirectly or only incidental to the performance of the Contract with the OWNER are not included in the exemption. 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 existing rules and interpretation 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.

Under "reasons said purchaser is claiming this exemption" in the exemption certificate, the CONTRACTOR must name the OWNER and the project for which the equipment, material and supplies are being purchased, leased or rented.

(Page 107-4. Add Item 107.15.1.COD. SALES TAX EXEMPTION FORM:) [New Section Added]

107.15.1.COD. Sales Tax Exemption Form:

The CONTRACTOR is directed to make use of copies of the Tax Exemption Certificate that is provided on the State of Texas Comptroller's Website here: https://comptroller.texas.gov/taxes/publications/96-122.php (as of October 1, 2019).

(Page 107-5. Add Item 107.17.2.COD. PERMITS, FEES, AND LICENSES:) [New Section Added]

107.17.2.COD. Permits, Fees, and Licenses: The CONTRACTOR will apply and arrange for the issuance of all other required permits and will be required to pay a fee for any permits required for the Project. The CONTRACTOR will pay all pro-rata charges, including tap fees assessed by the governing utility as defined in Bid Allowances, if known at the time of bidding; or if unknown at the time of bidding, OWNER will assume responsibility of payment.

(Page 107-5. Add Item 107.19.1.COD. CITY REGULATIONS ON STREET CLOSINGS:) [New Section Added]

107.19.1.COD. City Regulations On Street Closing: The City Manager has designated the Department of Public Works 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:

(1) **Street Work:** 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 (CBD) between the hours of 7:00 a.m. - 9:00 a.m. or 3:30 p.m. - 6:00 p.m. See **Figure 101.1.COD. Central Business District** in the Definitions Section.

(2) **Streets Subject to Work Restrictions**: All streets on the Prime Network will be subject to work restrictions during certain hours. These hours will be determined by Department of Public Works.

(3) **Street Closure Notification:** 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 Department of Public Works dispatcher should be notified by a call to the City of Dallas Action Center by dialing 311, within the City Limits of the city of Dallas or (214) 670-3111 from any other location.

(4) **Maintain Traffic Control and Street Name Signs**: 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.

(5) **Street Closures To Be Coordinated with Traffic System Safety Coordinators**: Street closure or partial closure will be coordinated with the Citywide Traffic System Safety Coordinators, Public Works, and Transportation Department, by dialing 311 within the City Limits of the city of Dallas or (214) 670-3111 from any other location during normal business hours (7:00 am to 5:00 pm).

(6) **Project Activities:** The CONTRACTOR shall coordinate all project activities with the OWNER.

(7) **Minimum Inconveniences to Public:** The work shall be so conducted as to create a minimum amount of inconveniences to the public. At any time when in the judgment of the OWNER the CONTRACTOR has obstructed or closed or is carrying on operations in a greater portion of the park, street or public way than is necessary for the proper execution of the work, the OWNER may require the CONTRACTOR to finish the sections on which work is in progress before operations are started on any additional section.

(Page 107-5. Replace Item 107.20.2. PROTECTION OF PERSONS AND PROPERTY, with the following:) [In the third paragraph, Item (1), the first sentence has been modified and a new sentence added; a new fourth and fifth paragraph have been added; the eight paragraph has been modified to include the City of Dallas' Traffic Barricade Manual; in the ninth paragraph, the second sentence has been modified; and, a new tenth paragraph has been added.]

107.20.2.COD. Protection of Persons and Property: The CONTRACTOR shall have the responsibility to provide and maintain all warning devices and take all precautionary measures required by law or otherwise to protect persons and property while said persons or property are approaching, leaving or within the work site or any area adjacent to said work site. Unless otherwise stated in the Contract, compensation shall not be paid to the CONTRACTOR for the installation or maintenance of any warning devices, barricades, lights, signs or any other precautionary measures required by law or otherwise for the protection of persons or property according to **Item 801.1. Barriers and Warning and/or Detour Signs**.

The CONTRACTOR shall assume all duties owed by the OWNER to the general public in connection with the general public's immediate approach to and travel through the work site and the area adjacent to said work site.

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 its own cost and expense provide such flagmen and watchmen in addition to its responsibility to 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. During periods when schools are in session, the CONTRACTOR will be required during the construction of the Work to:

(1) Maintain a suitable all-weather footpath across the Work at all designated school crosswalks and other access areas as required by the OWNER. Provide channeling fences to separate the work area from the

footpath, if required by the OWNER. Provide signage as required to direct pedestrians around the work area.

(2) Move and reinstall pedestrian crossing warning signs as construction and routing of traffic lanes require.

The CONTRACTOR is instructed to control his operations carefully when near public or private schools, particularly during the morning and afternoon drop-off and pick-up hours, to assure continuous safety of schoolchildren and adults.

The CONTRACTOR shall install water and wastewater mains and all other construction in such a way as to minimize disruption to school operations. The CONTRACTOR shall coordinate construction activities through the OWNER. The CONTRACTOR shall notify in writing all School Principles and the appropriate Administrative Offices of the School District of primary and secondary schools located within 1000 feet of the project or project segment at least ten (10) working days prior to beginning construction. All work including paving operations and clean up shall be completed immediately after the water line is tested and approved. The CONTRACTOR shall work with sufficient personnel and equipment to minimize the disruption in the area.

The CONTRACTOR'S responsibility for providing and maintaining flagmen, watchmen, warning devices, barricades, signs, lights, and other precautionary measures shall not cease until directed in writing by the OWNER or until final payment, whichever occurs first. If the OWNER 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 OWNER may order such additional precautionary measures as required by law to be taken to protect persons and property. The CONTRACTOR shall reimburse the OWNER for any expense incurred by the OWNER in taking any additional precautionary measures as a result of the CONTRACTOR'S failure to do so.

In addition, 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, signs, lights, or other precautionary measures in protecting said property, and whenever evidence is found of such damage, the OWNER 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 latest edition of the Texas Manual of Uniform Traffic Control Devices (MUTCD), as amended, Texas Department of Transportation and the latest version of the City of Dallas' Traffic Barricade Manual. In cases of conflict, the City of Dallas' Traffic Barricade Manual will govern.

Signage, barricades, and other traffic control devices for detouring and maintenance of traffic on this CONTRACT shall be as provided in above said manual and as directed by the OWNER. Unless otherwise specified in the CONTRACT, costs associated with the acquisition and removal of required traffic control devices shall be considered incidental to the Work.

Until acceptance of the completed project by the OWNER, the work shall be under the charge and care of the CONTRACTOR. During this time, the CONTRACTOR shall take every necessary precaution to prevent injury or damage to the work or any part thereof by action of the elements or from any other cause whatsoever, whether arising from the execution or non-execution of the work. The CONTRACTOR shall rebuild, repair, restore, and make good at the CONTRACTOR'S own cost and expense, all injuries or damages to any portion of the work occasioned by any of the hereinabove causes. The above shall include any damage resulting from vandalism on the project site until final acceptance by the City. The CONTRACTOR shall furnish security guards at the CONTRACTOR'S expense in sufficient numbers to protect the work.

(Page 107-6. Replace **Item 107.20.3. TRENCH SAFETY**, with the following through **Item 107.20.3.1.1.COD. Indemnification**:) [A new third paragraph has been added.]

107.20.3.COD. Trench Safety.

107.20.3.1.COD. Regulations. The CONTRACTOR shall be responsible for complying with state laws and federal regulations relating to trench safety, including those which may be enacted during the performance under this Contract. 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 fully comply with the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulations pertaining to excavations, trenching, and shoring and shall provide and familiarize its employees involved in excavation and trenching with the provisions in OSHA pamphlet number 2226, excavation and trenching operations.

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, or a person authorized to sign on behalf of the Contractor, and should be in the form below:

107.20.3.2.COD. Indemnification. CONTRACTOR shall fill out and agree to the following Affidavit:

AFFIDAVIT OF INDEMNIFICATION FOR TRENCH SAFETY

I certify _____(Name of CONTRACTOR)_____ is a competent person as defined in the Federal Register, Part II, 29 CFR 1926, Occupational Safety and Health Standards - Excavations; Final Rule, and it will perform the duties and responsibilities of this position on City of Dallas 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.*

_____

_____

Print Name and Title

SUBSCRIBED and SWORN TO before me this ____ day of _____, 20___.

_____

Notary Public, State of Texas

[SEAL]

My commission expires: _____

(Page 107-7. Replace Item 107.20.3.3. TRENCH SAFETY PLAN, with the following through Item 107.20.3.3.4.COD. NEIGHBORHOOD MEETING [The entire Section has been replaced and additional new sections added.]

107.20.3.3.COD. Trench Safety Plan: The CONTRACTOR shall prepare a trench safety plan in accordance with the Occupational Safety and Health Administration Standards **1926.652 "Requirements for Protective Systems."** In cases where trench excavation is 20 feet in depth or greater, or where conditions require, the CONTRACTOR shall be responsible for providing to the OWNER an acceptable trench safety plan signed and sealed by a Professional Engineer qualified to do such work and licensed/registered in the State of Texas. The CONTRACTOR shall be responsible for selecting an appropriate method of providing trench safety after due consideration of the job conditions, location of utilities, pavement conditions and other relevant factors. Slope-back methods, which may result in unnecessary displacement of utilities and/or destruction of pavement, shall not be used without permission from the OWNER. Plans for devices used to provide trench safety such as trench shields and shoring systems will be likewise certified by a Professional Engineer licensed/registered in the State of Texas or by a Professional Engineer licensed/registered in the state of manufacture of the shield or shoring system. Shoring System components to be utilized on the project must have current (within one year) certification of structural adequacy. Measurement and payment shall be as specified in the CONTRACT.

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 the appropriate bid item.

107.20.3.3.1.COD. Osha and Pipe Design: OSHA regulations contain two requirements that may affect the pipe design. The City of Dallas requires the following:

(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 the latest **DWU Standard Drawings for Water and Wastewater Construction, Sheet 112**. 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 and latest City of Dallas Standard Drawings.

107.20.3.3.2.COD. Daily Inspections: The OSHA 1926.651 (k) regulation requires that a competent person make a daily inspection of the excavation prior to start of work and as needed throughout the shift (1926.651 (k)).

The regulation also states, "In order to be a 'competent person' for the purposes of this standard, a competent person is "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them."

107.20.3.3.3.COD. Current Safety Program: The CONTRACTOR must have a Safety Program on file with the appropriate department within the City prior to the commencement of work.

Depending on the contracting agency, the CONTRACTOR must have on file with the City of Dallas Water Utilities Department, the City of Dallas Park and Recreation Department, or the City of Dallas Department of Public Works, a Safety Program. No work may be started unless a Safety Program has been submitted and approved. The Safety 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 Shall Be Delivered To:

For **Dallas Water Utilities** Contracts:

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

For **Department of Public Works** Contracts:

Department of Public Works
Construction Management
320 E. Jefferson, Room 321
Dallas, Texas 75203

For **Park and Recreation Department** Contracts:

Park and Recreation Department
Program Manager
Planning and Design, Room 6FS
1500 Marilla
Dallas, Texas 75201

For **Stormwater Operations** Contracts:

Stormwater Operations
Construction Management
320. E. Jefferson; Room 312
Dallas, Texas 75203

For **Dallas Aviation Department** Contracts:

Capital Development
Contract Management
7555 Lemmon Avenue
Dallas, Texas 75209

107.20.3.3.4.COD. Neighborhood Meeting: If requested by the OWNER, the CONTRACTOR will be required to attend any scheduled neighborhood meeting(s). The CONTRACTOR may be asked to speak on the method of construction and answer questions from attendees.

(Page 107-8. Add Item 107.20.3.7.COD. SUSPENSION OF WORK:) {New Section Added]

107.20.3.7.COD. Suspension of Work: The OWNER has the authority to suspend all work immediately if, in the OWNER's opinion, there is imminent danger to workers or the general public. If there is no 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.

(Page 107-8. Replace Item 107.21. PROJECT SIGNS, with the following:) [Entire Section Replaced]

107.21.COD. Project Signs:

If not specified in Contract or required otherwise, Project Signs shall be furnished by the OWNER. The CONTRACTOR shall pick-up, erect, and maintain the signs in acceptable condition for the duration of the project. Signs shall be placed at locations selected by the OWNER and moved as required during the construction. Project Signs shall be removed and returned by the CONTRACTOR, as directed by the OWNER, upon completion of the project. No separate payment shall be made for the Project Signs and this work will be considered subsidiary to other pay items.

(Page 107-8. Replace Item 107.22. WORKING AREA, with the following:) [In paragraph three, were a private property owner is referenced, the word "OWNER" was changed to lower case.]

107.22.COD. Working Area

The CONTRACTOR shall confine its equipment, storage of materials and construction operations to the area shown on the Contract drawings or stated in the specifications, prescribed by ordinance, laws, or permits or as may be directed by the OWNER, and shall not unreasonably encumber the site or public right-of-way with its construction equipment, plant or materials.

Such area shall not be deemed for the exclusive use of the CONTRACTOR. Other CONTRACTORS of the OWNER may enter upon and use such portions of the area and for such items as determined by the OWNER are necessary for all purposes required by its contracts. The CONTRACTOR shall give to such other CONTRACTORS all reasonable facilities and assistance to the end that the work on this and other contracts shall not be unduly or unreasonably delayed. Any additional areas desired by the CONTRACTOR for its use shall be provided at its own effort, cost and expense.

All rights-of-way and easements shown on the plans for construction will be provided by the OWNER. If private property is leased or occupied by the CONTRACTOR for use in conjunction with the Work, the CONTRACTOR shall provide to the OWNER, in writing prior to final acceptance of the Work, a release of the CONTRACTOR and OWNER from any and all claims the private property *owner* has or may have as a result of the CONTRACTOR'S use of the private property during the course of the Work. The release shall be signed by the private property *owner* or the private property *owner's* agent.

(Page 107-10. Add Item 107.24.5.COD. CITY OF DALLAS CONTACTS:) [New Section Added. NOTE: Information presented in this section is subject to change without notice.]

107.24.5.COD. City of Dallas Contacts: During construction, the following companies should be contacted in order to determine the location of their respective underground utilities:

Action Center (City of Dallas services: water, wastewater and stormwater – All NON-EMERGENCY) 311

Action Center (From outside of Dallas City Limits) ..... (214) 670-3111

ALL EMERGENCIES 911

DIG TESS (Texas Excavation Safety System)
Locate Underground Utilities **CALL AT LEAST 2 DAYS IN ADVANCE**
(24 Hours, 7 days) ..... 811 (Dig TESS)

The above list is not exhaustive. Refer to contract documents and other sources for additional contact numbers. The CONTRACTOR is responsible for notifying all companies who may have an interest or maintain facilities throughout a project.

(Page 107-10. Replace **Item 107.25. PROJECT CLEANUP**, with the following:) [A new second and a new fourth paragraph have been added; in the third paragraph, references to "Property OWNER" have been changes to lower case.]

107.25.COD. Project Clean-Up

The CONTRACTOR shall keep the project site in a neat and orderly condition as an integral part of the contracted work and as such shall be considered subsidiary to the appropriate bid items. Clean up work shall be done as needed or as directed by the OWNER as the work progresses. Clean-up shall be done on a daily basis. Clean up work shall include, but not be limited to:

(1) Removing the trash, paper, rubbish and debris resulting from operations
(2) Sweeping streets clean of dirt or debris
(3) Alleviating any dust nuisance in the work area
(4) Storing excess material in appropriate and organized manner
(5) Keeping trash of any kind of residents' property

Failure of the CONTRACTOR to maintain the site in a neat and orderly condition will be cause for withholding of payments until said condition is corrected. Storage areas, either fenced or open, shall be kept free of weeds, tall grass, and other debris. In instances of large-scale irrigation and planting installation, the entire site shall be kept neat and orderly with no tall grass or weed growth allowed. It shall be the CONTRACTOR'S responsibility to see that the turf areas are kept mowed during entire progress of the work. If the CONTRACTOR fails to alleviate poorly maintained conditions upon written notice by the OWNER, the OWNER will order City Park forces to make necessary steps to correct the poor conditions with cost of such corrections to be deducted from the Contract.

The CONTRACTOR, prior to utilizing any private property, shall provide a written agreement between the CONTRACTOR and the *property owner* to the Project Manager or Construction Superintendent. The agreement shall state what uses are allowed for the property, the length of time the CONTRACTOR is allowed to use it and the final condition the property shall be returned to once all work is completed. CONTRACTOR shall provide a written release from the *property owner* once the area has been restored.

The work shall be so conducted as to create a minimum amount of inconveniences to the public. At any time when in the judgment of the OWNER the CONTRACTOR has obstructed or closed or is carrying on operations in a greater portion of a park, street or public way than is necessary for the proper execution of the work, the OWNER may require the CONTRACTOR to finish the sections on which work is in progress before operations are started on any additional section.

The CONTRACTOR will be required to remove spoil from the job site in a timely manner. If, in the opinion of the OWNER, 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.

CONTRACTOR shall comply with all requirements and regulations for any spoil removed from the project. The CONTRACTOR shall perform such cleanup work as deemed necessary by the OWNER. Failure of the CONTRACTOR to maintain the site in a neat and orderly condition will be cause for withholding an additional ten percent (10%) of the total payments until said condition is corrected. Storage areas, either fenced or open, shall be kept free of weeds, tall grass, and other debris. In instances of large-scale irrigation and planting installation, the entire site shall be kept neat and orderly with no tall grass or weed growth allowed. It shall be the CONTRACTOR'S responsibility to see that the turf areas are kept mowed during entire progress of the work. If the CONTRACTOR fails to alleviate poorly maintained conditions upon written notice by the OWNER, the OWNER will take necessary steps to correct the poor conditions with cost of such corrections to be deducted from the Contract.

Upon completion of the work and before final acceptance and final payment shall be made, the CONTRACTOR shall completely clean and remove from the site of the work all equipment, construction materials, surplus and discarded materials, temporary structures and debris of every kind. CONTRACTOR shall leave the site of the work in a neat and orderly condition equal to that which originally existed, or as called for in the Contract documents.

Surplus and waste materials removed from the site of the work shall be disposed of at locations satisfactory to the OWNER, and at the CONTRACTOR'S sole cost.

(Page 107-11. Replace Item 107.27. RESTORATION OF PROPERTY, with the following though Item 107.27.5.COD. SITE RESTORATION :) [A new last paragraph has been added; and when there was a reference to "Property OWNER", the words were changed to lower case. New Sections Added.]

107.27.COD. Restoration of Property:

When and where any damage or injury is done to public or private property on the part of the CONTRACTOR, the public or private property shall be restored at the CONTRACTOR'S own cost and expense to a condition equal (or improved) to that existing before such damage was done by repairing, rebuilding or otherwise restoring as may be directed, or it shall make good such damage or injury in a manner acceptable to *both* the *property owner and* ~~or~~ the OWNER.

The CONTRACTOR must furnish to the OWNER a release signed by the *property owner*. Replacement of previously constructed items, such as curb, gutter, sidewalks, driveways, paving, etc., shall conform to the specifications for new construction, unless directed otherwise by the OWNER.

In case of failure on the part of the CONTRACTOR to restore such property or make good such damage or injury, the OWNER may, upon 48-hours' written notice, under ordinary circumstances, and without notice when a nuisance or hazardous condition results, proceed to repair, rebuild or otherwise restore such property as may be determined necessary, and the cost thereof shall be deducted from any monies due or to become due the CONTRACTOR under the CONTRACT; or where sufficient CONTRACT funds are unavailable for this purpose, the CONTRACTOR or its surety shall reimburse the OWNER for all such costs.

In accordance with ***Chapter 30-2(8) of the Dallas City Code*** *"… the erection, excavation, demolition, alteration, or repair of any building on or adjacent to a residential use, as defined in the Dallas Development Code, other than between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and between the hours of 8:00 a.m. and 7:00 p.m. on Saturdays and legal holidays, except that the director of transportation may issue a written permit to exceed these hours in the case of urgent necessity in the interest of public safety or for other reasons determined by the director of transportation to be necessary for the public health, safety, or welfare.", for which a permit shall be obtained from the OWNER.*

107.27.1.COD. Pavement Marking Restoration: All disturbed pavement markings, including striping, traffic buttons, crosswalks, etc., shall be restored to same or improved condition as per **Item 804.2 Painting and Pavement Marking**, of these specs, City of Dallas Specifications for Public Works Construction, Standard Construction Details and all addenda thereto.

107.27.2.COD. Fence Relocation and Replacement: Bid Items for Fencing are Contingent Items setup to handle the relocation and/or replacement of various kinds of private property fences that are found to be in conflict with the construction work. The CONTRACTOR shall inspect each construction location with the OWNER's representative and together agree as to what fences, if any, are in conflict with the construction and need to be relocated and/or replaced. The CONTRACTOR shall then contact the affected property owner(s) and make the necessary arrangements for any temporary fencing and security. Any agreements between the property owner(s) and CONTRACTOR are the sole responsibility of the CONTRACTOR. This does not include fences damaged during construction operations that were originally found not to be in conflict with construction. Repairs or replacement of fencing items damaged by the CONTRACTOR, shall be performed at no additional cost to the OWNER, unless a bid item has been provided in the CONTRACT.

107.27.3.COD. Replacements of Sidewalks, Curbs, and/or Gutters: At the OWNER's direction, the CONTRACTOR may be required to remove and install concrete sidewalks, curbs, and/or gutters outside the established pavement limits as specified under the associated bid items. The CONTRACTOR will be paid for additional quantities installed at the unit prices established for the appropriate bid items. This does not include any items damaged by the CONTRACTOR, which shall be replaced at no additional cost to the OWNER.

107.27.4.COD. Damaged Paving: Paving restoration and all associated costs outside of the required excavation areas shall be the sole responsibility of the CONTRACTOR and no separate payment shall be made.

107.27.5.COD. Site Restoration: The CONTRACTOR shall restore the construction site to an acceptable condition, or better, immediately upon installation of any contractually required improvements. The CONTRACTOR shall restore the construction site to the original condition, or better, immediately upon acceptance of the work by the City of Dallas. No payment will be made for restoration of pavement, vegetation or other improvements that are outside of the established construction limits.

(Page 107-12. Replace **Item 107.28. ENVIRONMENTAL COMPLIANCE**, with the following:) [A new first paragraph has been added, and in paragraph four, the last sentence has been modified.]

107.28.COD. Environmental Compliance:

The OWNER has developed an Environmental Management System ("EMS"), based upon International Standards Organization (ISO) Standard 14001. As part of the EMS, the OWNER has adopted an environmental policy. The CONTRACTOR acknowledges receipt of the environmental policy as a part of the bid documents and shall adhere to the policy and provide information requested by the OWNER prior to any work being done on the site.

The CONTRACTOR and its SUBCONTRACTORS are deemed to have made themselves familiar with and at all times shall comply with any and all applicable federal, state or local laws, rules, regulations, ordinances, and rules of common law now in effect (including any amendments now in effect), relating to the environment, Hazardous Substances or exposure to Hazardous Substances, including but not limited to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C.A. §§ 9601, et seq.; the Hazardous Materials Transportation Act, 49 U.S.C.A. §§ 1801, et seq.; the Resource Conservation and Recovery Act of 1976, 42 U.S.C.A. §§ 6901, et seq.; the Federal Water Pollution Control Act, 33 U.S.C.A §§ 1201, et seq.; the Clean Water Act, 33 U.S.C. § 1251, et seq., the Toxic Substances Control Act, 15 U.S.C.A. §§ 2601, et seq.; the Clean Air Act, 42 U.S.C.A. §§ 7401, et seq.; the Safe Drinking Water Act, 42 U.S.C.A. §§ 3808, et seq., and the latest judicial or administrative interpretation of these laws, rules, regulations, ordinances, or rules of common law, including but not limited to any judicial or administrative order, consent decree, or judgment affecting the Project.

In the event the CONTRACTOR encounters on the site materials reasonably believed to be a Hazardous Substance that have not been rendered harmless, and removal of such materials is not a part of the scope of work required under the contract documents, the CONTRACTOR shall immediately stop work in the affected area and report in writing the facts of such encounter to the OWNER. Work in the affected area shall not thereafter be resumed except by written order of the OWNER unless and until the material is determined not to be a Hazardous Substance or the Hazardous Substance is remediated. The OWNER may choose to remediate the Hazardous Substance with a separate contractor or through a Change Order with the CONTRACTOR. If the OWNER determines that the Hazardous Substance exists in the affected area due to the fault or negligence of the CONTRACTOR or any of its SUBCONTRACTORS, the CONTRACTOR shall be responsible for remediating the condition at the sole expense of the CONTRACTOR in accordance with the CONTRACTOR'S Spill Prevention and Response Plan.

An extension of working time for any delay in the progress schedule caused as a result of the discovery and remediation of a hazardous substance may be granted by the owner only if all remaining work on the project must be suspended and the delay cannot be made up elsewhere in the progress schedule. Any claim or request for an extension of working time by the contractor in connection with the discovery and remediation of a hazardous substance is subject to the provisions of NCTCOG and the CONTRACT.

The CONTRACTOR shall be responsible for identification, abatement, cleanup, control, removal, remediation, and disposal of any Hazardous Substance brought into or upon the site by the CONTRACTOR or any SUBCONTRACTOR or SUPPLIER. The CONTRACTOR shall obtain any and all permits necessary for the legal and proper handling, transportation, and disposal of the Hazardous Substance and shall, prior to undertaking any abatement, cleanup, control, removal, remediation, and disposal, notify the OWNER and the Consulting Engineer so that they may observe the activities; provided, however, that it shall be the CONTRACTOR'S sole responsibility to comply with all applicable laws, rules, regulations, or ordinances governing the activities.

The CONTRACTOR shall deposit surplus or waste excavation or other materials removed as part of the work at a legal disposal site in accordance with all applicable state, federal, and local laws, rules, regulations, and ordinances. The CONTRACTOR shall submit to the OWNER for review and approval all planned disposal sites or proposed uses for the surplus or waste excavation or other materials prior to removal of any excavation or other material from the Project site. A copy of all transport manifests for surplus or waste excavation or other materials shall be obtained and retained in the CONTRACTOR'S records for reference purposes, to be provided upon request to the OWNER or any governmental regulatory agency with jurisdiction over the matter.

(Page 107-13. Replace Item 107.28.2. TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM, with the following:) [The last sentence has been modified.]

107.28.2.COD. Texas Pollutant Discharge Elimination System. The CONTRACTOR is responsible for obtaining coverage under the Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit from TCEQ for construction of the Project under regulations contained in 40 CFR Part 122, as amended, pursuant to the Clean Water Act, 33 U.S.C.A. §§1251 et seq. and Chapter 26 of the Texas Administrative Code. These regulations require the filing of a Notice of Intent (NOI) to obtain and abide by the general stormwater permit for construction activities promulgated by EPA as administered by the TCEQ, including but not limited to demolition, clearing, grading, embankment, and excavation that disturb the applicable amount of total land area. In addition, the CONTRACTOR shall comply with all regulations of the OWNER relating to stormwater and stormwater runoff management at the Project site pursuant to Chapter 19, Article IX, Dallas City Code, as amended.

(Page 107-13. Add Item 107.28.2.1.COD. CLEAN AIR MANAGEMENT PLAN:) {New Section Added]

107.28.2.1.COD. Clean Air Management Plan: The CONTRACTOR shall comply with the Clean Air Management Plan submitted to and approved by the OWNER during the contractor selection process. The OWNER reserves the right, at the CONTRACTOR'S sole expense, to require the removal or retrofitting of any equipment used in the course of construction that does not comply with the Plan submitted to and approved by the OWNER.

(Page 107-13. Replace Item 107.28.3. STORMWATER PERMIT, with the following:) [In first paragraph , added references to end of first sentence.]

107.28.3.COD. Stormwater Permit. The CONTRACTOR shall provide a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the TPDES Construction General Permit, and Storm Water Pollution Prevention Plan, and ***Item 202.3.COD. Preconstruction Submittals, and Item 202.3.1.COD. Storm Water Pollution Prevention Plan***, of these Specifications.

The CONTRACTOR is responsible for obtaining a Storm Water Discharge Permit that may be required for construction of this project under regulations contained in 40 CFR Part 122, as amended, under the authority of the Clean Water Act, 33 U.S.C. 1251 et seq. These regulations require the filing of a notice of intent to obtain and abide by the general storm water permit for construction activities, including cleaning, grading, and excavation, that disturb the applicable amount of total land area. For permitting information and requirements, contact USEPA Region VI, Fountain Place 12th Floor, Suite 1200, 1445 Ross Ave., Suite 1200, Dallas, Texas 75202-2733, (214) 665-2200 and Texas Commission on Environmental Quality.

If a permit is required, the CONTRACTOR shall provide measures to control soil erosion sediment and water pollution created by construction operations for the duration of the Contract as directed by the OWNER. These measures shall be in addition to those required of the CONTRACTOR under **Item 202. Temporary Erosion, Sedimentation, and Water Pollution Prevention and Control** of these specifications.

(Page 107-13. Add Item 107.28.3.1.COD. SPECIAL REQUIREMENTS FOR WORK WITHIN THE FLOODWAY AND LEVEE GATES OF THE TRINITY RIVER:) [New Section Added.]

107.28.3.1.COD. Special Requirements for Work Within the Floodway and Levee Gates of the Trinity River:

All construction located within the defined Floodway and Levee of the Trinity River will require submittal of a signed acknowledgement of the City's Environmental Policy, and obtaining and adhering to the requirements of the Floodway Access Permit, as administered by the City of Dallas Trinity Watershed District Requirements for obtaining the Floodway Access Permit include, but are not limited to:

(a) Copy of Project Authorization by the United States Army Corps of Engineers or OWNER.

(b) General Description of Work.

(c) Complete List of Vehicles, equipped with Spill Kits that will be onsite.

(d) Emergency Contact Information for CONTRACTOR and any applicable SUBCONTRACTORS.

(e) Emergency Contact information as to who's governing CONTRACTOR(s), (i.e., State, DART, TXDOT).

(f) Copies of Material Safety Data Sheets (MSDS) of all hazardous and non-hazardous chemicals on site(s) and available when requested.

(g) If the CONTRACTOR is not anticipated to be present onsite, then separate permitting may be required for the SUBCONTRACTORS.

(h) Copy of the latest Spill Prevention and Counter Measure Plan (SPCC). See definition in **Item 101.1.COD. Definitions**.

(i) Copy of the current Storm Water Pollution Prevention Plan (SWPPP). See definition in **Item 101.1.COD. Definitions**.

The Floodway and Levee Access Permit has additional requirements for work within the Floodway of the Trinity River. Permit Submittals are to be made in person, between the hours of 8 am to 11 am and 1 pm to 4 pm at the:
Offices of the City of Dallas
Flood Control District
2255 Irving Boulevard
Dallas, Texas 7520

(Page 107-14. Add Item 107.29.COD. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, CHAPTER 217 COMPLIANCE:) [New Section Added.]

107.29.COD. Texas Commission on Environmental Quality, Chapter 217 Compliance:

CONTRACTOR to comply with Texas Commission on Environmental Quality (TCEQ) Chapter 217, 217.54 criteria for laying pipe, and the latest DWU Standard Drawings for Water and Wastewater Construction. See Technical Specifications.

ITEM 108.COD. PROSECUTION AND PROGRESS

(Page 108-1. Replace Item 108.1. PROGRESS SCHEDULE, with the following:) [A new last sentence has been added.]

108.1.COD. Construction Schedule

The CONTRACTOR must submit to the OWNER a detailed Construction Schedule outlining the major items of work on the project. This schedule must be approved as to form by the OWNER prior to CONTRACTOR starting work on the project. The schedule must be updated on a monthly basis unless otherwise specified by the Contract. The OWNER has the authority to stop work on the project if the CONTRACTOR fails to provide an updated schedule as requested. The OWNER shall not be responsible for any delay as a result of the CONTRACTOR'S failure to submit the schedule in a timely manner.

(Page 108-1. Replace Item 108.2. PROSECUTION OF THE WORK, with the following:) [Paragraph two has been rewritten to reflect the work hours allowed by the City of Dallas' Noise Ordinance.]

108.2.COD. Prosecution of the Work

The CONTRACTOR shall begin the work to be performed under this Contract not later than 10 days from the date specified in the work order and shall conduct the work in such a manner and with sufficient equipment, material and labor as is necessary to insure its completion within the working time. It is the intent of this specification to provide a continuous construction operation without delay except as occasioned by unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, and it shall be the CONTRACTOR'S responsibility to execute the work in the most expeditious manner.

Work shall be allowed only between the hours of 7:00 am and 7:00 pm on weekdays and between 8:00 am and 7:00 pm on Saturdays; no work is allowed on Sundays unless there is an emergency that has been approved in writing by the OWNER.

CONTRACTOR may work on Saturdays if it so desires and permission of the OWNER has been granted. Work on Sundays shall be permitted only with the written permission of the OWNER. If Saturday or Sunday work is permitted, working time shall be charged on the same basis as weekdays. Where the working time is expressed as calendar days or a specific date, the concept of working days shall no longer be relevant to the Contract.

Work requiring inspection will not be permitted on a legal City holiday except by special written permission of the OWNER. Any work done without proper inspection is subject to removal and replacement at the direction of the OWNER.

The rate of progress shall be such that the whole work shall be performed, including completion of all punch list items, and the premises cleaned up in accordance with the Contract within the working time established in the Contract, unless an extension of time is made in the manner as specified in **Item 108.8.COD. Delays; Extension of Time; Liquidated Damages.**

(Page 108-1. Add Item 108.2.0.1.COD. EQUIPMENT:) [New Section Added]

108.2.0.1.COD. Equipment: The CONTRACTOR shall furnish such equipment and construction forces as is considered necessary for the prosecution of the work in an acceptable manner and at a satisfactory rate of progress. All equipment, tools, and machinery used for handling materials and executing any part of the work shall be subject to the approval of the OWNER and shall be maintained in a satisfactory working condition. Equipment on any portion of the work shall be such that no injury to the work or adjacent property will result from its use.

(Page 108-2. Add Item 108.5.1.COD. APPROVAL OF SUBCONTRACTOR:) {New Section Added.]

108.5.1.COD. Approval of SUBCONTRACTOR: 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.

If, during the course of work, the M/WBE participation levels change, the CONTRACTOR shall provide written evidence of the participation changes to the OWNER at the address shown below. If the M/WBE participation levels change, the levels must remain above the minimum levels stated in the contract.

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 shall be furnished to:

Business and Workforce Inclusion
Dallas City Hall
Room 6DN North
1500 Marilla Street
Dallas, Texas 75201
(214) 670-5010

(Page 108-2. Add Item 108.5.2.COD. SUBCONTRACTUAL RELATIONS:) [New Section Added]

108.5.2.COD. Subcontractor Relations: The CONTRACTOR is solely responsible for making payments properly to the CONTRACTOR's SUBCONTRACTORS and SUPPLIERS on the Project. During construction of the Project, the CONTRACTOR shall submit each month a CONTRACTOR'S Report of SUBCONTRACTOR/SUPPLIER Payments (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. Owner will provide a listing of the minimum information to be supplied, if requested. 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 109.4. Payment Withheld**, of the latest City of Dallas Addendum to 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 108.5.1.COD. Approval of SUBCONTRACTOR**. This **Item 108.5.1.COD. Approval of SUBCONTRACTOR**, shall not be construed to create a contractual relationship, expressed 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.

(Page 108-2. Add Item 108.5.3.COD. CONTRACTOR ASSIGNS AND CLAIMS:) [New Section Added.]

108.5.3.COD. Contractor Assigns Claims: When submitting a bid proposal, the CONTRACTOR thereby assigns to the 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).

The CONTRACTOR shall include in all his subcontracts a clause that requires his SUBCONTRACTORS to assign to the City 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).

The 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.

(Page 108-2. Add Item 108.05.4.COD. SUBCONTRACTOR MONTHLY PAYMENTS:) [New Section Added.]

108.5.4.COD: Subcontractor Monthly Payments: The CONTRACTOR is to submit to the OWNER a Statement of Payment to SUBCONTRACTORS prior to the payment of any estimate. The CONTRACTOR shall submit this information in the format or form provided in the CONTRACT Documents, or as directed by the OWNER.

(Page 108-2. Add Item 108.5.5.COD. SUBCONTRACTOR CLAIMS; DUTY OF CONTRACTOR:) [New Section Added.]

108.5.5.COD: Subcontractor Claims; Duty of Contractor: The CONTRACTOR agrees to thoroughly review and analyze any claim for additional time, additional compensation, or other damages filed by a SUBCONTRACTOR, in good faith, as to its merits and amount. CONTRACTOR also agrees that it will not present or pass the claim through to the OWNER as if it were the CONTRACTOR'S claim, if the claim is subject to any valid legal or equitable defenses available to either OWNER or CONTRACTOR under the CONTRACT documents, the terms of the Subcontract, or applicable statutory or case law, which defenses include, but are not limited to, any and all notice and claim defenses arising under the Subcontract or the CONTRACT documents. If the SUBCONTRACTOR'S claim is subject to any valid legal or equitable defense under the CONTRACT documents, the Subcontract, or applicable statutory or case law, CONTRACTOR shall, as a condition precedent to the filing of any claim against the OWNER by virtue or any derivative liability of the OWNER under the CONTRACT documents or applicable law, defend against the invalid SUBCONTRACTOR claim in a court of competent jurisdiction, at CONTRACTOR'S sole cost and expense. Failure of CONTRACTOR to defend against invalid SUBCONTRACTOR claims as required in this paragraph shall constitute a complete and unequivocal waiver of any right of CONTRACTOR to seek reimbursement from OWNER. Further, if the CONTRACTOR fails to provide the defense required above, CONTRACTOR shall be obligated to indemnify and reimburse OWNER for all expenses and costs, including but not limited to attorney's fees and expert witness costs, incurred by OWNER in defending any lawsuit based upon a SUBCONTRACTOR claim, in which lawsuit a valid legal or equitable defense was available under the CONTRACT documents, the Subcontract or applicable statutory or case law.

(Page 108-2. Replace Item 108.6. CONTRACTOR WORK BY ITS OWN FORCES:) [Three additional paragraphs have been added to the end of this Item]

108.6.COD. Contractor Work by Its Own Forces.

Except as otherwise provided, CONTRACTOR shall perform no less than 25% of the Work~~,~~ with its own workforce. If the CONTRACTOR proposes to perform less than 50% of the work by its own forces, then the OWNER may require additional documentation with the bid submittal regarding qualifications of SUBCONTRACTORS actually performing work.

The on-site production of materials produced by other than the CONTRACTOR'S forces shall be considered as being subcontracted. If, during the progress of work hereunder, the CONTRACTOR requests a reduction in such participation percentage and the OWNER determines that it would be to the OWNER'S advantage, the percentage of work required to be performed by the CONTRACTOR may be reduced; provided, written approval of such reduction is obtained by the CONTRACTOR from the OWNER.

CONTRACTOR'S forces shall be determined by Certified Payroll Reports that show that the personnel performing the claimed work are employees of the entity that was awarded the contract. The CONTRACTOR will be required to show that they pay employee taxes and benefits for the employees.

The organization of the Specifications into divisions, sections, and articles, and the arrangement and titles of project drawings shall not compel the CONTRACTOR into dividing the work among SUBCONTRACTORS or in establishing the extent of work to be performed by any trade.

(Page 108-2. Replace Item 108.6.1. ASSIGNMENTS:) [A new last paragraph has been added.]

108.6.1.COD. Assignments. The CONTRACTOR shall not assign, transfer, convey or otherwise dispose of this Contract, or its right to execute it, or its right, title or interest in it or any part thereof without the previous written consent of the surety company and the written approval of the OWNER.

The CONTRACTOR shall not assign, either legally or equitably, by power of attorney or otherwise, any of the monies due or to become due under this Contract or its claim thereto without the prior written consent of the surety company and the written approval of the OWNER. Nothing in this paragraph is intended to conflict with Texas Business and Commerce Code.

The approval of the OWNER of a particular assignment, transfer or conveyance shall not dispense with such approval to any further or other assignments.

The approval by the OWNER of any assignment, transfer or conveyance shall not operate to release the CONTRACTOR or surety hereunder from any of the Contract and bond obligations, and the CONTRACTOR shall be and remain fully responsible and liable for the defaults, negligent acts and omissions of its assignees, its agents and employees, as if they were its own.

Should the prosecution of the work be discontinued by the CONTRACTOR, the CONTRACTOR shall notify the OWNER at least twenty-four hours in advance of resuming operations.

(Page 108-2. Add Item 108.6.2.COD. ATTEMPT TO DISPOSE OF THE CONTRACT:) [New Section Added]

108.6.2.COD. Attempt to Dispose of The Contract: If the CONTRACTOR does, without the consent of the OWNER, assign, transfer, convey, or otherwise dispose of the contract or of the CONTRACTOR'S right, title or interest therein, or any part thereof to any person or persons, partnership, company, firm or corporation, or by bankruptcy, voluntary or involuntary, or by assignment under the insolvency laws of any state, attempt to dispose of the contract or make default in or abandon said contract, then the contract may, at the option of the OWNER, be revoked and annulled, unless the sureties shall successfully complete said contract, and any monies due or to become due under this contract shall be retained by the OWNER as liquidated damages for the reason that it would be Impracticable and difficult to fix the actual damage.

(Page 108-3. Replace Item 108.7. OWNER'S RIGHT TO TEMPORARILY SUSPEND WORK, with the following:) [A new (7) item has been added.)

108.7.COD. Owner's Right to Temporarily Suspend Work

108.7.1.COD. Reasons for Suspension.

The OWNER shall have the right by written order to temporarily suspend the work, in whole or in part, whenever, in the judgment of the OWNER, such temporary suspension is required:

(1) in the interest of the OWNER generally,

(2) due to government or judicial controls or orders which make performance of this Contract temporarily impossible or illegal,

(3) to coordinate the work of separate CONTRACTORS at the job site,

(4) to expedite the completion of a separate contract even though the completion of this particular Contract may be thereby delayed,

(5) because of weather conditions unsuitable for performance of the work, including of designated ozone alerts as determined by the National Weather Bureau or other authorized agency; or

(6) because the CONTRACTOR is proceeding contrary to Contract provisions or has failed to correct conditions considered unsafe for workers.

(7) because of certain events and activities occurring in proximity to the construction where it would be in the best interest of the public and the OWNER for such work to be suspended.

(Page 108-4. Replace Item 108.8. DELAYS; EXTENSION OF TIME; LIQUIDATED DAMAGES, with the following: [In the first paragraph, first sentence, the word "shall" has been replaced with "may"; in the second paragraph, first sentence, the word "shall" has been replaced with "may".]

108.8.COD. Delays; Extension of Time; Liquidated Damages

The CONTRACTOR may be entitled to an extension of working time under this Contract only when claim for such extension is submitted to the OWNER in writing by the CONTRACTOR within fourteen (14) days from and after the time when any alleged cause of delay shall occur, and then only when such time is approved by the OWNER. The CONTRACTOR shall notify the OWNER immediately upon encountering any condition that the CONTRACTOR believes may cause a claim for a time extension. In adjusting the contract time for the completion of the project, unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to inability to obtain supplies and materials when orders for such supplies and materials were timely made and materials are not available from other sources, acts of God or the public enemy, acts of the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather conditions, ozone alerts as determined by the National Weather Bureau or other authorized agency, or delays of SUBCONTRACTORS due to such causes beyond their control shall be taken into consideration.

If the satisfactory execution and completion of the Contract should require work and materials in greater amounts or quantities than those set forth in the Contract, requiring more time for completion than the anticipated time, then the Contract time may be increased, but not more than in the same proportion as the cost of the additional work bears to the cost of the original work contracted for. No allowances shall be made for delays or suspension of the performance of the work due to the fault of the CONTRACTOR.

No adjustment of the Contract time shall be made if, concurrently with the 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 or CONTRACTOR'S 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 of the Contract time to complete the project, including but not limited to those caused in whole or in part by the acts, omissions, failures, negligence or fault of the OWNER, its officers, officials, agents, Engineer, Consulting Engineer or employees. This provision is intended to cover all delays except as

prohibited by law. If a recoverable delay is caused by the sole fault of the OWNER, compensation will be limited to an amount to be determined pursuant to **Item 109.3.3. Force Account Work** notwithstanding any other provision of the Contract documents, all claims for extension of working time must be submitted in accordance with **Item 108.8. Delays; Extension of Time; Liquidated Damages**, and no act of the OWNER shall be deemed a waiver or entitlement of such extension.

(Page 108-5. Replace Item 108.8.1. LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE ON TIME, with the following:) [Word "equitably" removed in first paragraph.]

108.8.1.COD. Liquidated Damages for Failure to Complete on Time.

The time of completion is the essence of this Contract. For each day that any work shall remain uncompleted after the time specified in the proposal and the Contract, or the increased time granted by the OWNER, or as increased by additional work or materials ordered after the Contract is signed, the sum per day given in the Schedule 108.8.1. (a) Liquidated Damages, unless otherwise specified, shall be deducted from the monies due the CONTRACTOR.

Schedule 108.8.1. (a).COD Liquidated Damages

Amount of Contract ($)	Amount of Liquidated Damages ($)
Less than 25,000.00	200.00 Per Day
25,000.00 to 99,999.99	350.00 Per Day
100,000.00 to 999,999.99	500.00 Per Day
More than 1,000,000.00	1000.00 Per Day

The sum of money thus deducted for such delay, failure or noncompletion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per day that the CONTRACTOR shall be in default after the time stipulated in the Contract for completing the work. The said amounts are fixed and agreed upon by and between OWNER and CONTRACTOR because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER in such event would sustain; and said amounts are agreed to be the amount of damages which the OWNER would sustain and which shall be retained from the monies due, or that may become due, the CONTRACTOR under this Contract; and if said monies be insufficient to cover the amount owing, then the CONTRACTOR or its surety shall pay any additional amounts due.

In the event that the actual damages incurred by the OWNER exceed the amount of liquidated damages, OWNER shall be entitled to recover its actual damages.

(Page 108-5. Replace Item 108.9. CONTRACTOR DEFAULT: OWNER'S RIGHT TO SUSPEND WORK AND ANNUL CONTRACT, with the following:) [In paragraph one, item (6), the words "or Engineer" were removed.]

108.9.COD. Contractor Default: Owner's Right to Suspend Work And Annul Contract

The work or any portion of the work under this Contract shall be suspended immediately on written order of the OWNER declaring the CONTRACTOR to be in default. A copy of such notice shall be served on the CONTRACTOR'S surety. The Contract may be terminated by the OWNER for any good cause or causes, among others of which special reference is made to the following:

(1) failure of the CONTRACTOR to start the work within 10 days from date specified in the written work order issued by the OWNER to begin the work;

(2) substantial evidence that the progress of the work being made by the CONTRACTOR is insufficient to complete the work within the specified working time;

(3) failure of the CONTRACTOR to provide sufficient and proper equipment, materials or construction forces for properly executing the work;

(4) substantial evidence that the CONTRACTOR has abandoned the work or discontinued the performance of the work or any part thereof and failure to resume performance within a reasonable time after notice to do so;

(5) substantial evidence that the CONTRACTOR has become insolvent or bankrupt, or otherwise financially unable to carry on the work;

(6) deliberate failure on the part of the CONTRACTOR to observe any requirements of the Contract Documents or to comply with any orders given by the OWNER as provided for in the Contract Documents;

(7) failure of the CONTRACTOR to promptly make good any defects in materials or workmanship, or any defects of any nature, the correction of which has been directed in writing by the OWNER;

(8) substantial evidence of collusion for the purpose of illegally procuring a contract or perpetrating fraud on the OWNER in the construction of work under Contract;

(9) repeated and flagrant violations of safe working procedures;

(10) the filing by the CONTRACTOR of litigation against the OWNER prior to final completion of the work.

When the work is suspended for any of the causes itemized above, or for any other cause or causes, the CONTRACTOR shall discontinue the work or such part thereof as the OWNER shall designate, whereupon the surety may either at its option assume the Contract or that portion thereof which the OWNER has ordered the CONTRACTOR to discontinue and perform the same or, with the written consent of the OWNER, sublet the same, provided, however, that the surety shall exercise its option within two weeks after the written notice to discontinue the work has been served upon the CONTRACTOR and upon the surety or its authorized agents. The surety in such event shall assume the CONTRACTOR'S place in all respects and shall be paid by the OWNER for all work performed by it in accordance with the terms of the Contract, but in no event shall such payments exceed the Contract amount, regardless of the cost to the surety to complete the work.

All monies remaining due the CONTRACTOR at the time of its default shall thereupon become due and payable to the surety as the work progresses, subject to all terms of the Contract. In case the surety does not, within the hereinabove specified time, exercise its obligation to assume the Contract or that portion thereof which the OWNER has ordered the CONTRACTOR to discontinue, then the OWNER shall have the power to complete by contract or otherwise, as it may determine, the work herein described or such part thereof as it may deem necessary; and the CONTRACTOR hereto agrees that the OWNER shall have the right to take possession of or use any or all of the materials, plant, tools, equipment, supplies and property of every kind provided by the CONTRACTOR for the purpose of its work and to procure other tools, equipment and materials for the completion of the same and to charge to the account of the CONTRACTOR the expense of said contract for labor, materials, tools, equipment and expenses incident thereto. The expense so charged shall be deducted by the OWNER out of such monies as may be due or may at any time thereafter become due the CONTRACTOR under and by virtue of the Contract or any part thereof.

The OWNER shall not be required to obtain the lowest bid for the work of completing the contract, but the expenses to be deducted shall be the actual cost of such work. In case such expense is less than the sum which would have been payable under the Contract if the same had been completed by the CONTRACTOR, then in such case the OWNER may pay the CONTRACTOR the difference in the cost, provided that the CONTRACTOR shall not be entitled to any claim for damages or for loss of anticipated profits.

In case such expense shall exceed the amount which would have been payable under the Contract if the same had been completed by the CONTRACTOR, the CONTRACTOR and its surety shall pay the amount of the excess to the OWNER on notice from the OWNER for excess due including any costs incurred by the OWNER, such as inspection, legal fees and liquidated damages. When any particular part of the work is being carried on by the OWNER by contract or otherwise under the provisions of this section, the CONTRACTOR shall continue the remainder of the work in conformity with the terms of the Contract and in such manner as not to hinder or interfere with the performance of workers employed as above provided by the OWNER or surety.

(Page 108-6. Replace Item 108.11.2. CONTRACTOR Action, with the following:) [In subitem (3), an open parenthesis ["("] was removed at the beginning of the item, if front of "terminate".]

108.11.2.COD. Contractor Action. After receipt of a notice of termination, and except as otherwise directed by the OWNER, the CONTRACTOR shall:

(1) stop work under the Contract on the date and to the extent specified in the notice of termination;

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

(3) terminate all subcontracts, purchase orders or options to the extent that they relate to the performance of work terminated by the notice of termination or 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;

(4) transfer title to the OWNER and deliver in the manner, at the times, and to the extent, if any, directed by the OWNER:

a. the fabricated or un-fabricated parts, work in process, completed work, supplies and other material produced as a part of, or acquired in connection with the performance of, the work terminated by the notice of termination; and

b. the completed or partially completed plans, drawings, information and other property which, if the Contract had been completed, would have been required to be furnished to the OWNER.

(5) complete performance of such part of the work as shall not have been terminated by the notice of termination; and

(6) take such action as may be necessary, or as the OWNER may direct, for the protection and preservation of the property related to its Contract which is in the possession of the CONTRACTOR and in which the OWNER has or may acquire an interest.

At a time not later than 30 days after the termination date specified in the notice of termination, the CONTRACTOR may submit to the OWNER a list, certified as to the quantity and quality, of any or all items of termination inventory not previously disposed of, exclusive of items the disposition of which has been directed or authorized by the OWNER. Not later than 15 calendar days thereafter, the OWNER shall accept title to such items and remove them or enter into a storage agreement covering the same, provided that the list submitted shall be subject to verification by the OWNER upon removal of the items, or, if the items are stored, within 45 calendar days from the date of submission of the list, and provided that any necessary adjustments to correct the list as submitted shall be made prior to final settlement.

ITEM 109.COD. MEASUREMENT AND PAYMENT

(Page 109-3. Replace Item 109.5.1. MONTHLY ESTIMATE, with the following:) [First paragraph has been revised and additional paragraphs added at end of section.]

109.5.1.COD. Monthly Estimate – General. Except as otherwise provided in the Contract, or in these specifications, on or about a mutually agreeable date each month, the CONTRACTOR shall make an approximate estimate of the value of the work done during the month under the specifications. The CONTRACTOR shall prepare the estimate on a form approved by the OWNER. The CONTRACTOR shall forward the estimate required above to the OWNER by not later than five days after the mutually agreed date each month. The monthly estimate may include acceptable nonperishable materials stored in a Bonded Warehouse, as defined in this addendum, payment for such stored materials shall be as described in ***Item 106.4.COD. Off-Site Storage***. The monthly estimate shall also provide such supporting documentation as the OWNER or the other applicable provisions of the specifications may require.

The monthly estimate may include acceptable nonperishable materials as referenced in **Item 109.2. Payment for Materials**; such payment shall be allowed on the same percentage basis of the net invoice value as provided hereinafter. The percent retained by OWNER shall normally be up to 10 percent at completion, unless otherwise stated. At the midpoint, or at any subsequent time, if OWNER determines that the progress on the Contract is satisfactory in all respects, it may at its discretion cease to retain additional funds until the completion of the project, or until progress ceases to be satisfactory, as described in **Item 109.5.2.COD RETAINAGE**. The OWNER shall make the sole determination in this matter.

The OWNER shall verify that the CONTRACTOR'S estimate matches the total value of work done and acceptable non-perishable materials delivered to the work site or storage facility, based upon the bid proposal prices and quantities measured or verified by OWNER. In the event of a discrepancy between quantities of work as shown in the CONTRACTOR'S estimate and measured quantities as shown in the OWNER'S verification, the OWNER'S determination or measurement shall be final, and the CONTRACTOR'S estimate shall be adjusted to reflect the quantities of work as shown by the OWNER'S verification. Payment shall be made by OWNER within thirty (30) days after receipt of the estimate from CONTRACTOR minus the retainage amount specified in the CONTRACT. 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.

The CONTRACTOR's Monthly Estimate shall not be deemed "received" until such time as the City has verified and approved the estimate of the work done during the month under these specifications.

The CONTRACTOR shall provide Quantity Verification documentation in a format acceptable to the OWNER, with each monthly estimate to substantiate the quantities submitted. The Contractor shall utilize the Quantity Verification process daily to document the quantity of each bid item installed, constructed, or performed during that day. The Owner will verify the monthly estimate by reconciling the quantities in the Quantity Verification document.

The CONTRACTOR shall submit to the OWNER a Schedule of Values for each Lump Sum item of work for review and approval twenty (20) Calendar Days before the work is scheduled to be performed. The CONTRACTOR shall itemize in the Schedule of Values the actual costs to the CONTRACTOR to perform the various parts of the Lump Sum item work, which shall include a reasonable overhead and profit. Partial payment for Lump Sum items shall be made based on the value and percentage of the work in the bid item completed, as approved by the OWNER and as reflected in the Schedule of Values.

The CONTRACTOR shall furnish to the OWNER such detailed information as OWNER may request to assist in the preparation of monthly estimates. It is understood that the monthly estimates shall be approximate only, and all monthly estimates and partial payments shall be subject to correction in the estimate rendered following the discovery of an error in any previous estimate, and such estimate shall not in any respect be taken as an admission of the OWNER of the amount of work done or of its quality or sufficiency nor as an acceptance of the work or the release of the CONTRACTOR of any of its responsibility under the CONTRACT.

(Page 109-4. Add Item 109.5.1.5.COD. WRITTEN SUBMITTALS:) [New Section Added]

109.5.1.5.COD. Written Submittals: The CONTRACTOR is required to furnish, but is not limited to, the following written submittals

(1) Monthly Estimate:

(a) CONTRACTOR affidavit of SUBCONTRACTOR / SUPPLIER payment;
(b) Quantity Verification Documentation;
(c) Off-Site Stored Materials (Detailed breakdown and cross reference);
(d) CONTRACTOR'S notarized or certified payroll;
(e) Neighborhood job opportunities form;
(f) Inspector's overtime fees and re-testing cost's reimbursements have been paid;
(g) Updated project schedule;
(h) M/WBE Proposed Changes;

(2) Final Estimate:

(a) CONTRACTOR affidavit of SUBCONTRACTOR / SUPPLIER payment;
(b) Final Quantity Verification Documentation;
(b) Post construction contractor evaluation (with final evaluation);
(c) Release of claims (if applicable with final application);
(d) Inspector's overtime fees and re-testing costs reimbursements have been paid;
(e) Warranty(s) original(s);
(f) M/WBE SUBCONTRACTOR / SUPPLIER evaluation(s);
(g) Consent of surety to final payment;
(h) Neighborhood job opportunity form;
(i) Weekly certified payrolls (through completion of work)
(j) Sworn statements of accounts (Affidavit of bills paid)
(k) Where applicable, a "Letter of Satisfaction" from any private property owner whose property was disturbed, indicating that the CONTRACTOR has restored the property to an acceptable condition and paid all applicable fees after the CONTRACTOR used the property for construction related activities.

(Page 109-4. Replace Item 109.5.2 RETAINAGE, with the following:) [Pursuant to Texas Government Code § 2252.032 effective September 1, 2021, retainage and contract limits were updated.]

109.5.2.COD. RETAINAGE. As security for the faithful completion of the work by the CONTRACTOR, the OWNER shall retain 10-percent of the total dollar amount of work done on all contracts less than $400,000 and five-percent of the total dollar amount of work done on all contracts of $400,000 or more.

On all contracts in excess of $400,000, the following shall apply:

(1) when work progress is 80-percent complete, retainage may, at the OWNER'S option, be reduced to two-percent of the dollar value of all work satisfactorily completed to date (not to include material on hand), provided that the CONTRACTOR is making satisfactory progress and there is no cause of greater retainage as determined by the OWNER;

(2) when work progress is substantially complete, as defined in **Item 101.1.COD.Definitions** unless defined elsewhere in the contract, the retainage may be further reduced to one-percent or only that amount necessary to assure completion as determined by the OWNER;

(3) if the OWNER determines that the CONTRACTOR is not making satisfactory progress or if there is other specific cause, the OWNER may, at its discretion, reinstate up to the five percent retainage.

(Page 109-4. Add Item 109.5.4.1.COD. CONTRACTOR TO BE EVALUATED:) [New Section Added]

109.5.4.1.COD. CONTRACTOR to be Evaluated. The CONTRACTOR will be evaluated by the OWNER. An example of the evaluation form is available by request.

(Page 109-4. Add **Item 109.5.4.2.1.COD. MAINTENANCE PROVISIONS FULFILLMENT** through **Item 109.5.4.2.3.COD. Final Acceptance and Final Payment – Park and Recreation Department:**) [New Sections Added]

109.5.4.2.COD. Maintenance Provisions Fulfillment:

109.5.4.2.1.COD. Maintenance Provisions Fulfillment – Park and Recreation Department: For projects awarded and administered by the Park and Recreation Department, prior to the expiration of the specified maintenance period provided for in the contract, the OWNER will make a detailed inspection of the project and will advise the CONTRACTOR and the Surety of the items that require correction. The OWNER will make a subsequent inspection. If the corrections have been properly performed, the OWNER will issue a letter of release on the maintenance stipulations to the CONTRACTOR and the CONTRACTOR'S Surety. If for any reason the CONTRACTOR has not made the required corrections before the expiration of the maintenance period, the maintenance stipulations as provided for in the contract shall remain in effect until the corrections have been properly performed and a letter of release issued.

109.5.4.2.2.COD. Semi-Final Inspection and Payment – Park and Recreation Department: For projects awarded and administrated by the Park and Recreation Department, whenever the work provided for by the contract shall have been substantially completed by the Contractor, the CONTRACTOR shall notify the OWNER that the work is ready for Semi-Final Inspection.

The Semi-Final inspection will be performed by the OWNER, the result of which may be a list of items that must be competed or repaired within 15 days. If the work remaining from the Semi-Final Inspection is not completed within 15-days, the CONTRACTOR may ask for a 15-day extension. If the work is not completed after the 15 day extension, the CONTRACTOR will be required to request a new Semi-Final Inspection.

Once the CONTRACTOR has completed the work listed in the Semi-Final Inspection, the CONTRACTOR may submit a Semi-Final Estimate. If the work is satisfactory and in accordance with the plans and specifications of the contract, the OWNER may make a payment of a Semi-Final Estimate. The accepted Semi-Final Estimate will consist of payments for all work performed to date and may include a percentage of the retainage. On the portions of the work that are deemed acceptable and complete by the OWNER, the CONTRACTOR may withdraw from the site and the OWNER will accept operations for the completed work, provided that the payment of any Semi-Final Payments will not impair any other obligation of the CONTRACTOR and that the maintenance period under the contract and bond given in connection with such public work shall commence with the final estimate when the final estimate is approved and paid.

The OWNER reserves the sole right to determine if the work will be accepted in a Semi-Final state. All prior estimates upon which payments have been made may be subject to corrections or revisions in the Semi-Final payment. The amount of the accepted Semi-Final estimate, less any sums that have been previously paid, deducted or retained under the provisions of the contract, will be paid to the CONTRACTOR, provided the CONTRACTOR has furnished to the City satisfactory evidence, which at a minimum requires a completed Consent of Surety for all persons or entities associated with the work. The Consent of Surety must include that all sums of money due for any labor, materials, apparatus, fixtures, or machinery furnished for and used in the prosecution of the work, or that all persons to whom consideration may respectively be due, have consented to such semi-final payment. This requirement is not intended and shall not be construed to recognize subcontractors for the purpose of privity of contract, and no third-party benefit rights shall be obtained by construction of these provisions for semi-final payment. The City reserves the right to require written Consent of Surety as a condition to semi-final payment whenever considered necessary by the OWNER.

109.5.4.2.3.COD. Final Acceptance and Final Payment – Park and Recreation Department: Whenever the improvements provided for by the CONTRACT shall have been completely performed on the part of the CONTRACTOR, the CONTRACTOR shall notify the OWNER that the improvement is ready for final inspection.

The OWNER shall make a final inspection of all work included in the CONTRACT as soon as practicable and make a final payment including the release of any applicable retainage according to the terms of the CONTRACT.

(Intentionally Blank)

ITEM 110.COD. AIR QUALITY REQUIREMENT FOR EQUIPMENT

(Page 110-1 Add Item 110.1.COD. ENVRIONMENTAL POLICY through Item 110.12.COD. STORMWATER CONTROL / PERMITS :) [New Sections Added]

110.1.COD. Environmental Policy:

110.1.1.COD. General:

110.1.1.1.COD. Purpose: The City of Dallas (City) is committed to environmental stewardship and sustainability. The City achieves this commitment by systematically reducing its environmental impacts through pollution prevention, regulatory compliance, and continuous improvement. In order to manage this commitment, the City has developed an Environmental Management System (EMS) per the ISO 14001, 2004 standard. CONTRACTORS and SUBCONTRACTORS are expected to reduce potential environmental impacts generated from construction and construction related activities.

110.1.1.2.COD. Instructions: CONTRACTORS shall review, sign, and submit the OWNER'S Environmental Record Affidavit (Form 24) to the OWNER before beginning work.

It is the CONTRACTOR'S responsibility to communicate the environmental commitment outlined in this document to its affected employees and/or SUBCONTRACTOR'S associated with this work. (See example of blank OWNER'S Environmental Record Affidavit Form 24 on the following page)

110.2.COD. Regulatory Requirements:

The CONTRACTOR shall comply with any and all applicable federal, state, and local statues, laws, rules, regulations, ordinances, codes, and any amendments relating to the environment, hazardous substances or exposure to hazardous substances, including without limitation the Comprehensive Environmental Response, Compensation and Liability Act of 1980, the Hazardous Material Transportation Act, Resource Conservation and Recovery Act, the Toxic Substances Control Act, the Clean Air Act, and the Safe Drinking Water Act.

110.3.COD. The City is Committed to an Environmental Policy:

The Dallas City Council adopted this Environmental Policy in 2005 to guide the City's environmental efforts:

The City of Dallas is committed to a clean, safe, and healthy environment. As such, we will exercise environmental stewardship in our dealings with employees, other governments, citizens, City CONTRACTORS, business, and others in the community for our world today as well as for future generations. Caring for the environment is one of our core values, and this is demonstrated by ensuring our activities are in harmony with the natural world around us

110.4.COD: Environmental Commitment Is Embodied by The Following Actions:

(1) Implementation of programs and procedures with the intent to meet or exceed all applicable environmental laws and regulations.

(2) Continual improvement of our environmental performance through proactive environmental management and self-assessments and/or third-party assessments.

(3) Prevention of pollution at its source through implementation of Best Management Practices (BMPs) and resource conservation measures to reuse, reclaim, and recycle materials we generate.

(4) Utilization of Environmental Management Systems (EMS), as appropriate for our operations, to provide a framework for systematically reviewing and reducing our environmental footprint.

(5) Employees will abide by all environmental regulations and demonstrate environmental compliance in their daily work practices.

(6) Educate City employees on Dallas's environmental policies and motivate and encourage employees to practice environmental stewardship by raising awareness and sensitivity to environmental issues through City policies, regulations, training, and interactive dialogue.

(7) Outreach to the citizens and businesses of our community by communication of this Policy and education on the importance of environmental stewardship for clean air and water and sustainable development for the City of Dallas.

110.1.1.2.(a).COD. Blank Environmental Record Affidavit

ENVIRONMENTAL RECORD AFFIDAVIT

For purposes of this Affidavit:

(A) the term "Bidder/Proposer" includes any and all authorized officers, employees, agents, or other representatives of Bidder/Proposer working in that capacity on behalf of Bidder/Proposer within the past three (3) years prior to the date of this Affidavit;

(B) the term "Environmental Laws" includes any and all State, Federal, or local statutes, laws, rules, codes, regulations, or ordinances developed to regulate activities that impact human health and the environment including, but not limited to, those intended to control land, air, and water pollution, conserve natural resources, prevent damaging practices, and regulate chemical hazards.

By signing below, I, _____, the authorized representative of_____ _____ (hereinafter called the "Bidder/Proposer"), affirm, on behalf of Bidder/Proposer, the following:

(1) That Bidder/Proposer has received and read the Contractor Environmental Packet. Bidder/Proposer also understands that the Contractor Environmental Packet is not intended to be all inclusive, but rather a guideline for environmental responsibility.

[Strike and Initial the item indicated below that does **NOT** apply in this Affidavit.]

_____ Initials (2) That Bidder/Proposer has not been served with any notices of violation or notices of enforcement or had any civil or criminal fines or penalties imposed by any regulatory authority for a violation of any Environmental Laws within the past three (3) years prior to the date of this Affidavit.

_____ Initials (3) That Bidder/Proposer has been served with notices of violation or notices of enforcement or had any civil or criminal fines or penalties imposed by any regulatory authority for a violation of any Environmental Laws within the past three (3) years prior to the date of this Affidavit as follows:

[If Item (3) applies, use a separate sheet to list the notices of violation or enforcement, and any adjudications of actual violations, along with copies of any compliance documents issued by the regulatory authority in connection with the notices or actual violations, and attach the separate sheet to this affidavit.]

_____ Company Name

_____ Signature

_____ Date

_____ Print Name

_____ Title

[Seal]

_____ Notary Public, State of Texas

My Commission Expires: _____

Form 24
Environmental Record Affidavit [032311, rev 091311]

110.5.COD. Green Purchasing:

CONTRACTORS must recognize the importance of exercising positive environmental stewardship while purchasing products for use on City of Dallas contracts. Purchasing environmentally friendly products can reduce costs, minimize environmental legal requirements, decrease human health concerns, and minimize environmental impacts and risks. There are numerous products on the market today, which reduce environmental impacts without additional cost. The Dallas City Council passed resolution (04-1722) on May 26, 2004, affirming that the City will:

(1) purchase environmentally preferred products, whenever feasible; and,

(2) require contractors and consultants to use recycled and other environmentally preferred products whenever feasible.

For suggestions on product substitution, contact the OWNER.

110.6.COD. Air Quality and Ozone:

The City of Dallas is located in a non-attainment area for ozone. Emissions from vehicles and construction equipment exacerbate air quality issues in our region. CONTRACTORS may receive information regarding Air Pollution Watch and Warnings by signing up for email notifications at http://www.tceq.state.tx.us/. Bid specifications may also require the CONTRACTOR to submit a Clean Air Plan to the City of Dallas for the CONTRACTOR'S activities. To every extent possible, CONTRACTORS shall comply with the following:

(1) Refuel vehicles after 3:00 p.m. or as late in the afternoon as possible. (The only exception to this policy is an emergency response vehicle which may be refueled as necessary to maintain readiness.) DO NOT top off your fuel tank.

(2) Schedule meetings requiring vehicle trips after 10:00 a.m. or as late in the afternoon as possible.

(3) Restrict the use of paints, solvents, cleaners, or other chemicals containing volatile organic compounds (VOCs) until after 10:00 a.m.

(4) Encourage employees to use public transportation or carpool, when possible, to and from work.

(5) Limit idling of all vehicles to less than five minutes. (Note: The City of Dallas passed an "anti-idling" ordinance prohibiting motor vehicles weighing more than 14,000 pounds from idling over five minutes from April 1 - October 31 of any calendar year. City code pertaining to this ordinance can be referenced in Chapter 5A - 15 and Chapter 30 -1 of the Dallas City Code, as amended.)

110.7.COD. Safety Data Sheets (SDS):

The MSDS is used to relay important information concerning a chemical to its user or other interested parties, such as spill responders or fire fighters. MSDS's must be available for review by employees during their work shift and must be kept at the work site at all times while the chemical is in use or stored at that facility. MSDS's are readily available from the chemical manufacturers or SUPPLIERS and generally can be obtained through the manufacturer's web site. MSDS's for chemicals used on the City's property need to be provided to the OWNER before work can begin or before the chemical is brought onsite.

110.8.COD. Spills and Releases:

CONTRACTORS must take measures to prevent pollution of the land, air, and waterways including the stormwater system. If a spill or release occurs, you have a legal responsibility to immediately report such an incident to the appropriate regulatory agency and to the OWNER.

Examples of commonly used substances that may cause an adverse effect:

Table 110.8.(a)COD. Commonly Used Substances That May Cause Adverse Effects

Gasoline	Paints
Antifreeze / glycol	Solvents
Lubricating Oil	Chemicals
Hydraulic Fluid	Sewage
Other Petroleum Products	Ammonia
Synthetic Oils	Hot Asphalt
CFCs	Propane

110.9.COD: Environmental Notices of Enforcement (NOE) And Notices of Violation (NOV):

The OWNER must be notified of any NOEs or NOVs received in the last three years. Refer to Form 24, Section A-19, of the CONTRACT for instructions on submitting environmental law violation documents. If an NOV or NOE is issued while doing City work, the contractor will inform the OWNER within 24 hours.

110.10.COD. Endangered Species:

The Endangered Species Act is a regulation program established for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The U.S. Fish and Wildlife Service of the Department of the Interior maintains the list of endangered and threatened species. If an endangered species or nesting birds are discovered during construction, immediately stop work and notify the OWNER.

110.11.COD: Wetland Regulatory Authority:

Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and mining projects.

Section 404 requires a permit before any dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation (e.g. certain farming and forestry activities). City of Dallas CONTRACTORS are required to comply with Section 404 of the Clean Water Act and any associated permit requirements. If, during construction, a wetland is encountered, avoid the wetland and immediately notify the OWNER.

110.12.COD. Storm Water Control / Permits:

Federal, state, and local stormwater regulations require elimination and/or reduction of pollutants that enter our storm drains, rivers, creeks, and other waterways by way of stormwater runoff. Pollutants include, but are not limited to, sediment, trash, chemicals, oils, and/or greases. A stormwater permit may be required and a Storm Water Pollution Prevention Plan (SWPPP) developed and implemented during construction for this project. (Refer to Section B, Technical Provisions, for the specific requirements pertaining to this project.) Whether or not a stormwater permit is required, discharges of pollutants into any water body may be prohibited by federal, state, and local regulations.

DIVISION 200 SITE PROTECTION & PREPARATION

City of Dallas Addendum
to the
North Central Texas Council of Governments

Public Works Construction Standards
Standard Specifications
Version 5

(Intentionally Blank)

ITEM 201. SITE PROTECTION

(Page 201-1. Replace **Item 201.1. REMOVAL, PROTECTION, AND REPLACEMENT OF TREES, SHRUBBERY, PLANTS, SOD, AND OTHER VEGETATION**, with the following through **Item 201.1.6.COD. Additional Requirements** :) [The section was replaced.]

201.1.COD. Protection of Trees, Shrubs, Plants, Sod, And Other Vegetation:

Where trees, plants, shrubbery, etc., are adjacent to the line of the work and are not to be removed or are designated on the approved landscape plan or tree protection plan and permitted to be removed and replanted, the CONTRACTOR shall protect such trees, plants, shrubbery, etc., in accordance with Section 51A-10.136, Dallas Development Code. If, in the opinion of the OWNER, such trees, plants, shrubbery, etc., would be damaged by machinery, etc., hand excavation may be required. Shrubbery, plants, etc. to be relocated or reused shall be removed with a ball of dirt about their roots and shall be carefully stored and given proper attention.

Shrubbery, plants, etc. shall be removed with a ball of dirt about their roots and shall be carefully stored and given proper attention. Sod shall be removed in squares cut out with a sharp spade or other mutually agreeable tool, and of such sizes that they may be handled conveniently without breaking. They shall be carefully stored and given proper attention. During hot, dry weather, the stored sod shall be protected by covering with canvas or burlap.

Tree roots shall be protected by installing temporary construction fencing outside the tree's drip line. Other tree protection may be required by the building official. No operating, parking, or storing of equipment and/or materials is allowed within the tree protection zone. The CONTRACTOR shall be responsible for all damage to trees, plants, shrubbery, etc., and any such damage shall be remedied to the satisfaction of the OWNER at the expense of the CONTRACTOR. All damaged limbs over 1-inch in diameter shall be sawed clean adjacent to the damaged area or at the trunk and dressed with mutually agreeable tree wound treatment material, unless dressing is waived by the OWNER.

The cost of removal shall be paid for as a separate contract pay item if a separate pay item is provided; otherwise, the costs thereof shall be included in such pay items as are provided in the proposal and contract. The cost of protection shall not be paid for as a separate contract pay item; the costs thereof shall be included in such pay items as are provided for in the proposal and contract.

Where sod, shrubbery, plants, etc., are designated for removal and replacement on the approved landscape plan or tree protection plan and permitted to be removed, such areas shall have sod, shrubbery, plants, etc., of a species approved by the building official and in good condition, placed in locations approved by the building official in the landscape permit plan or tree protection plan. Trees that are to be removed and subsequently replaced shall be designated on the approved landscape plan or tree protection plan. When backfilling is completed, the sod, shrubbery, plants, etc. shall be carefully placed in locations approved by the building official and shown on the landscape plan, the area thoroughly wet down, and maintained throughout the duration of the contract.

The cost of such replacement shall be paid for as a separate contract pay item if a separate pay item is provided; otherwise, the costs thereof shall be included in such pay items as are provided in the proposal and contract.

201.1.1.COD. City of Dallas' Landscape and Tree Conservation Ordinance:

The City of Dallas City Council passed an amendment to the Dallas City Code Article X, "Landscape and Tree Preservation Regulations" of Chapter 51A, of the "Dallas Development Code", which makes numerous changes and modifications to the previous ordinance. The following is not an exhaustive list of the "Landscape and Tree Conservation Regulations". Rather, interested parties are directed to Chapter 51A-10.100 through 51A-10.140, of the Dallas City Code for additional information and regulations.

The process of urban growth and development with its alteration of the natural topography, vegetation, and creation of impervious cover, can have a negative effect on the ecological balance of an area by causing increases in air temperatures and accelerating the processes of runoff, erosion, and sedimentation. The

economic base of the city can and should be protected through the conservation and enhancement of the unique natural beauty, environment, and vegetative space in this area.

In the revised “Tree and Landscape Preservation Regulations” the City of Dallas has instigated several regulations concerning the removal and replacement of trees, shrubs, and other vegetation. Additionally, several new vocabulary terms have been added. Definitions of the new terms may be found in Item 101.1.COD Definitions, of this addendum.

201.1.2.COD. Tree and Vegetation Removal

To remove a tree or clear land within a Tree Removal Property, the responsible party must:

1. Before a tree may be removed or seriously damaged and before land may be cleared, the responsible party must take out an appropriate demolition permit (tree removal application, or clearing authorization), which is available from the building official.
2. On taking out a demolition permit (tree removal application, or clearing authorization), the Tree Removal Property, shall be considered vacant and will remain so until the permit has been closed. (Section 51A-10.131(b) and Section 51A-10.131(b)(1), Dallas Development Code).
3. The Tree Removal Application must be posted in a conspicuous place at the entrance to the tree removal property (51A-10.131.2.(a)(2), Dallas Development Code).
4. A portion of the Tree Removal Application will include an assessment of the Tree Canopy Cover or a Forest Stand Delineation based on factors listed in Section 51A-10.130. Urban Forest Conservation of the Dallas Development Code.
5. It shall be a separate offence, punishable by up to a $2,000.00 fine, for each tree removed or seriously damaged without authorization by the building official or approved tree removal application. (Section 51A-10.131.2(d), Dallas Development Code.)
6. The building official shall deny a tree removal application if the removal or serious injury is not in the public interest. There are several factors that may affect the building official’s decision. (Section 51A-10.131.2(e), Dallas Development Code).

201.1.3.COD. Transplanted Trees

Established and healthy protected trees on a tree removal Property may be transplanted within the city. The transplanting process must conform to operational and safety standards stated in ANSI A300 (Part 6), as amended, and with International Society of Arboriculture (ISA) Best Management Practices for Tree Planting, as amended. (Section 51A-10.133.1, Dallas Development Code.)

To be eligible for transplant and transplant credit, the following requirements must be met:

1. A protected tree that meets the requirements of this section is not considered removed, or seriously injured, if the transplanted tree is planted and maintained in a healthy growing condition.
2. Building official approval is required before beginning the transplantation for credit as a landscape tree, for tree replacement, or for acceptance in tree canopy coverage measurements.
3. There are several informational requirements necessary to obtain the building official’s approval enumerated in Section 51A-10.133.1(a)(3), Dallas Development Code).

201.1.4.COD. Replacement of Removed or Seriously Injured Trees (Section 51A-10.134, Dallas Development Code.)

If a tree removal application is approved, a building permit is issued, and an unauthorized tree removal occurs, or when a tree is removed from a public right-of-way in conjunction with a private development, one or more healthy replacement trees must be planted in accordance with the requirements of Section 51A-10.134, Dallas Development Code. Complete, specific requirements for this Item are listed in Section 51A-10.134, Dallas Development Code. In general, if a tree is removed, the tree must be replaced with the following:

1. **The minimum total caliper of replacement trees** must equal or exceed the total classified diameter inches of the protected trees removed or seriously injured as listed below.

2. **Tree classification for mitigation:**

    a. Historic trees: 3:1
    b. Significant: 1.5:1
    c. Class 1: 1:1
    d. Class 2: 0.7:1
    e. Class 3: 0.4:1

3. **Species**.

    a. A replacement tree must be an approved tree determined by the director.
    b. For tree removal property two acres in size or more, no one species of tree may constitute more than 35 percent of the replacement trees planted on the tree removal property.

4. **Location.** The replacement trees must be planted on the lot from which the protected tree was removed or seriously injured, except as otherwise allowed by Section 51A-10.135. Replacement trees may not be planted within a visibility triangle, a water course, in an area within 15 feet horizontally to the closest point of an overhead electric line, or an existing or proposed street or alley unless the tree is authorized by a license and permit and is required to be in that location by other ordinance.

5. **Minimum size**. A replacement tree must have a caliper of at least two inches.

6. **Timing**.

    a. Except as provided in this section, all replacement trees must be planted within 30 days of removal.
    b. If the property owner provides the building official with an affidavit stating that all replacement trees will be planted within six months, the building official may allow the replacement trees to be planted during that six-month period.

        1. If the property owner submits an application for a building permit for construction on the tree removal property within the six-month period, the tree replacement requirements may be transferred to the building permit for final completion of all tree replacement prior to a final certificate of occupancy or certificate of completion for the property.

        2. If the property owner does not submit an application for a building permit for construction within the six-month period, all tree replacement must be completed within 30 days after the expiration of the six-month period.

    c. For residential subdivision developments and multi-phase commercial developments, tree replacement may be completed in accordance with a comprehensive tree replacement plan for the development. The building official may allow the property owner additional time to complete the development project to plant the replacement trees, with the following restrictions:

        1. A proposed landscape plan identifying all conceptual landscaping for the properties within the subdivision must be provided by a landscape architect and designed according to the soil and area requirements of this article. The proposed plan will specify the minimum tree size and general species distribution for the properties in accordance with this article. The tree replacement for the development identified on the proposed plan must be completed prior to the final certificate of occupancy or certificate of completion for the project.

        2. All required tree replacement that is not scheduled by an approved design for the property under the comprehensive tree replacement plan must be completed within six months of issuance of the tree removal application or building permit for removing trees.

7. **Forest stand delineation exceptions for old-field and undeveloped lots**. When an FSD, under Section 51A-10.132(b)(4)(B) is used to assess tree canopy coverage:

    a. except as provided in this paragraph, no mitigation is required for a tree stand when:

        1. at least 60 percent of the trees in the stand are Class 3, eastern red cedar, or unprotected species; and

        2. the average tree diameters in the stand are less than 12 inches DBH.

b. significant trees in a stand located on an old-field or undeveloped lots must be mitigated.

8. **Additional requirements for forest stand delineation for properties five acres or greater with institutional uses or recreational uses.** When an FSD under Section 51A-10.132(b)(5)(D) is used to assess tree canopy coverage:

   a. the tree removal property must maintain or increase the tree canopy coverage for the property recorded in the most recent FSD; and

   b. significant trees that are included in the FSD tree canopy coverage must be replaced according to the diameter standards for significant trees in this article.

   c. A replacement tree that dies within five years of the date it was planted must be replaced by another replacement tree that complies with this section.

9. Given certain conditions that are enumerated in **Section 51A-10.135.** of the Dallas Development Code, there may be alternate methods of compliance with tree replacement requirements.

201.1.5.COD. Landscape Design Options

In the revised "Tree and Landscape Conservation Regulations" the City of Dallas has instigated a points-based review system. Points are obtained by meeting design option requirements to achieve the total number of points required for the property. Examples of the design options and their application are provided in the Landscape and Tree Manual found on the City of Dallas website: www.dallascityhall.com. (Note: from the Home screen, do a search for "Landscape and Tree Conservation".)

Additional and more detailed information may be found in **Section 51A-10-126. Landscape Design Options**, Dallas Development Code.

201.1.5.1.COD. Points Required For Building Sites

The minimum number of landscape design option points required for a building site are:

Lot Size	**Points Required**
0 sf to 999 sf	0
1,000 sf to 1,999 sf	1
2,000 sf to 9,999 sf (one point for every 1,000 sf)	2-9
10,000 sf to 19,999 sf	10
20,000 sf to 39,999 sf	15
40,000 sf to 2.99 acres	20
3 acres to 9.99 acres	30
10 acres to 19.99 acres	35
20 acres to 49.99 acres	40
50 acres and greater	50

201.1.5.2.COD. Design Options

Points are obtained by meeting design option requirements to achieve the total number of points required for the property. Examples of the design options and their applications are provided in the Landscape and Tree

Manual on the City of Dallas website (www.dallascityhall.com), in the section titled "**Article X Landscape Checklist**".

201.1.6.COD. Additional Requirements

The City of Dallas has passed an amendment to the Dallas City Code Article X, "Landscape and Tree Conservation Regulations" of Chapter 51A, of the "Dallas Development Code", which has made significant changes to the Landscape design requirements for any development within the City of Dallas. Anyone modifying the landscape in any development within Dallas is required to follow the "Landscape and Tree Conservation Regulations". Anyone found guilty of violating any of the regulations within the ordinance shall be subject to as much as a $2,000/per day fine (Section 51A-10.139, Dallas Development Code). Any developer or other interested party may find the entire ordinance on the City of Dallas Website: www.dallascityhall.com. (Note: (Note: from the Home screen, do a search for "Landscape and Tree Manual".)

(Page 201-2: Add Item 201.2.2.2.COD. CONTRACTOR TO REPORT UTILITY LINE DAMAGE.) [New Section Added]

201.2.2.2.COD. CONTRACTOR to Report Utility Line Damage: CONTRACTOR shall protect and cause no damage to existing structures or other utilities as specified in Item 107.24. Existing Structures Facilities, and Appurtenances or Item 201.2. Determining Location and Protection of Existing Structures and Utilities, and all addenda thereto. If any utility, structure, line, service, or appurtenance to a utility is damaged, the CONTRACTOR shall notify the OWNER of that utility, structure, line, service, or appurtenance to a utility, immediately. [NOTE: If there are specific local, state, or federal laws or regulations regarding damage notifications, the CONTRACTOR shall comply with those applicable laws or regulations in addition to following the requirements of this specification.] The CONTRACTOR shall notify the OWNER within one-hour from the time the damage incident occurs. In the case of service disruption to an individual or in the case of an emergency, the CONTRACTOR shall notify the individual whose service is disrupted and adjacent property OWNERs of the incident within one-hour. Failure to comply with this notification requirement will result in a one-day shut-down charged for each occurrence. The CONTRACTOR will not be prohibited from performing site cleanup or general maintenance on any mandatory shutdown day. The CONTRACTOR shall be responsible for all costs and delays incurred because of damage to any utility, structure, line, service, or appurtenance to a utility. No separate pay item.

(Page 201-2. Replace Item 201.2.3. RELOCATING OR REPLACING STRUCTURES, UTILITIES OR APPURTENANCES, with the following:) [The second paragraph was added; the word "public" was removed from the last sentence in paragraph three because not all utilities are public utilities.]

201.2.3.COD. Relocating or Replacing Structures, Utilities or Appurtenances. Utility locations shall be obtained prior to the commencement of work according to **Item 107.24. Existing Structures, Facilities and Appurtenances**. Unless noted on plans that utilities are to be moved by others, any cost of temporarily or permanently relocating utilities shall be borne by the CONTRACTOR. The cost of these replacements shall be included in the CONTRACTOR'S bid price for the various items of work, and no separate payment shall be made. The OWNER shall approve all shut downs and may assist in the shut down operations.

In case damage to an existing structure or utility occurs, whether such damage results directly or indirectly from the CONTRACTOR'S operations, the CONTRACTOR shall be responsible to restore the structure or utility to OWNER's Satisfaction and position without extra compensation.

If it is necessary to adjust another utility, a representative of that utility shall be notified to decide method and work to be done. The CONTRACTOR shall make satisfactory arrangements with the OWNER or other utilities for the required adjustments at the CONTRACTOR'S own expense, other than for items that may be provided in the contract for such work. No extra compensation shall be paid due to delays caused by removal of utility structures.

(Page 201-2. Replace **Item 201.2.3.1. INTERRUPTED UTILITY SERVICES**, with the following:) [The second sentence of the first paragraph was modified, a second paragraph was added; and the first sentence of the third paragraph was modified.]

201.2.3.1.COD. Interrupted Utility Services. In case damage to an existing utility occurs, the CONTRACTOR shall notify the OWNER and utility OWNER immediately. The CONTRACTOR shall be responsible for the cost to restore the structure or utility to its current standard, the Utility Owner's Satisfaction and the OWNER's Satisfaction without extra compensation. Restoration of utility services shall be made as soon as practicable as directed and approved by the utility OWNER.

Wastewater collection service reconnections, including necessary adjustments to a replacement, shall not require the services of a master plumber, if being replaced by an approved utility CONTRACTOR; however, in all cases, repair shall be inspected by the OWNER. It shall be the responsibility of the CONTRACTOR to maintain such services throughout the construction process. Any spill of wastewater must be returned to the sanitary sewer and remediation of the spill is the responsibility of the CONTRACTOR. Spill and remediation will be reported by the OWNER to the TCEQ and USEPA. The CONTRACTOR shall be responsible for notifying customers of temporary interruption of service.

In the case of wastewater or sanitary sewer lines, the CONTRACTOR shall notify the OWNER of any spill of wastewater or sewage. Remediation of the spill is the responsibility of the CONTRACTOR and shall be at no additional cost to the OWNER. Spill and remediation will be reported by the OWNER to the TCEQ, USEPA, or other appropriate regulatory agencies. The CONTRACTOR shall be responsible for notifying customers of temporary interruption of service.

(Page 201-2. Add **Item 201.2.3.4.COD. WATER SERVICE MUST BE MAINTAINED**.) [New Section Added]

201.2.3.4.COD. Water Service Must Be Maintained: 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, testing 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.

(Page 201-3. Add **Item 201.3.1.COD. TRAFFIC RESTRICTIONS**.) [New Section Added]

201.3.1.COD. Traffic Restrictions: The following traffic restrictions shall be enforced during construction:

(1) Two-way traffic shall be maintained on all streets at all times, unless approved by the OWNER, as discussed in the **City of Dallas Traffic Barricade Manual**. Qualified Signalers shall be used to maintain two-way traffic.

(2) The CONTRACTOR will be responsible for barricading all projects. All barricades, warning signs, and traffic control devices shall conform, at a minimum, to the standards in the **City of Dallas Traffic Barricade Manual** and **TxDOT Texas Manual on Uniform Traffic Control Devices (Texas MUTCD)**, latest edition. When there is a conflict between the cited specifications, the City of Dallas' Traffic Barricade Manual shall take precedence.

(3) When closing side streets, five working days notification is required for Fire and Police Departments. See contract for individual contact names and phone numbers.

ITEM 202. TEMPORARY EROSION, SEDIMENTATION, AND WATER POLLUTION PREVENTION AND CONTROL

(Page 202-1. Replace Item 202.1. DESCRIPTION, with the following:) [A new second paragraph and a new last paragraph have been added to this item]

202.1.COD. Description

This Item shall govern the use of temporary control measures necessary to prevent and control soil erosion, sedimentation, and water pollution that may degrade the MS4, adjacent properties, and/or receiving waters including rivers, streams, lakes, reservoirs, groundwater, and wetlands. The temporary control measures contained herein shall be installed and maintained throughout the construction contract and coordinated with any permanent or temporary pollution control features specified elsewhere on the plans and in the specifications to assure effective and continuous water pollution control throughout the construction and post construction periods. These control measures shall not be used as a substitute for the permanent pollution control measures unless otherwise directed by the OWNER in writing. The controls may include any of the devices listed in this item. Additional information regarding these and other controls can be found in NCTCOG's integrated Storm Water Management iSWM Program Manuals. In the event of conflict between these specifications and applicable Federal, State and Local laws, rules and regulations, the more restrictive requirement shall apply.

The OWNER reserves the right to have required temporary erosion sedimentation and water pollution prevention and control work performed by others should the CONTRACTOR fail to perform required temporary erosion, sedimentation, and water pollution prevention and control work in a timely fashion or should the CONTRACTOR fail to prevent and control soil erosion, sedimentation, and water pollution which may degrade receiving water. All costs including engineering and right-of-way costs for the work required shall be borne by the CONTRACTOR. The CONTRACTOR shall reimburse the OWNER for all such costs within 30-days after receipt of the reimbursement request from the OWNER. Failure to submit payment for such reimbursement costs in the time prescribed above may result in the OWNER withholding the reimbursement due from the monthly progress payments to the CONTRACTOR until reimbursement to the OWNER is made.

Measurement and payment for all measures called for within **Item 202.1.COD. Description** shall be per **Item 202.19 Measurement and Payment**.

(Page 202-1: Replace Item 202.3. PRECONSTRUCTION SUBMITTALS, with the following:) [A new first paragraph and a new last paragraph have been added to this item.)

202.3.COD. Preconstruction Submittals:

CONTRACTOR shall coordinate with OWNER to develop and implement a Stormwater Pollution Prevention Plan (SWPPP) consistent with TCEQ General Permit Number TXR 150000 Relating to Discharges from Construction Activities.

Prior to the start of construction, the CONTRACTOR shall submit to the OWNER a copy of the Storm Water Pollution Prevention Plan (SWPPP) and any documentation required by the Construction General Permit. Work on the project shall not begin until the submittals have been accepted by the OWNER. The CONTRACTOR shall provide the OWNER, for information purposes, proposed methods of storm water pollution control for CONTRACTOR operations in areas which are outside the limits of the erosion control plan or the SWPPP (such as construction and haul roads, field offices, equipment and supply storage areas, portable process plants, and source material storage), as well as a plan for disposal of waste materials.

The SWPPP must be approved by the OWNER prior to the Notice of Intent (NOI) being sent to the TCEQ or the Construction Site Notice (CSN) being provided to Stormwater Management; erosion and sediment controls must be in place before construction activity begins.

(Page 202-1. Add Item 202.3.1.COD. STORMWATER POLLUTION PREVENTION PERMIT.) [New Section Added]

202.3.1.COD. Stormwater Pollution Prevention Permit: As defined in the federal regulations, and under the authority granted to the TCEQ by the EPA, a Texas Pollutant Discharge Elimination System (TPDES) permit is required for construction activities that result in the disturbance of one or more acres of total land. Both the CONTRACTOR and the OWNER are responsible to obtain the permit coverage under the TCEQ General Permit Number TXR150000 Relating to Discharges from Construction Activities. Permitting information and requirements may be obtained from:

TCEQ Office of Water, P.O. Box 13087 Austin, TX 78711-3087
Use for regular and certified mail or http://www.tceq.state.tx.us/nav/permits/sw_permits.html.
MAIN LINE: (512)239-4671.

By City of Dallas, City Council resolution number 093042, dated December 9, 2009, the North Central Texas Council of Governments Integrated Storm Water Management System (iSWM), including various incentives to promote the use of iSWM Practices, was adopted for voluntary use within the City of Dallas.

(Page 202-1. Add Item 202.3.2.COD. NOTICE OF INTENT(NOI).) [New Section Added]

201.3.2.COD. Notice of Intent (NOI): If a permit is required, the CONTRACTOR shall sign an NOI at least seven (7) days before assuming operational control, as the Primary Operator and submit the original to the TCEQ, with a copy provided to the City of Dallas Stormwater Management Department. Any SUBCONTRACTORS performing earthwork activities are also required to obtain permit coverage as Secondary Operators.

Signatures must be provided in accordance with 30 Texas Administrative Code Section 305.44. The NOI serves as a notification to the TCEQ of construction activity as well as commitment that the CONTRACTOR understands the requirements of the permit for stormwater discharges from construction activities and that measures will be taken to implement and maintain stormwater pollution prevention at the site. If an additional primary operator is added after the initial NOI is submitted, the new primary operator must submit an NOI at least seven (7) days before assuming operational control.

The NOI is to be submitted at least 48 hours prior to the CONTRACTOR moving on site. The CONTRACTOR must provide a copy of the NOI to the OWNER, and to:

Stormwater Operations
320 E. Jefferson, Room 108
Dallas, Texas, 75203
Phone: (214) 948-4072
Fax: (214) 948-4076
Email: Stormwater@DallasCityhall.com

The NOI and CSN must be located in the SWPPP for all operators; and posted at or near the construction site entrance, visible to the general public.

(Page 202-1. Add Item 202.3.3.COD. NOTICE OF TERMINATION.) [New Section Added]

202.3.3.COD: Notice of Termination (NOT): If a permit is required, upon completion of the site construction and subsequent site stabilization under the terms of the Permit, the CONTRACTOR will sign and provide a NOT to the TCEQ and Stormwater Management within 30 days of achieving final stabilization, verified by Stormwater Management. The NOT serves as notice that the site is no longer subject to the requirements of the permit.

The Notice of Intent (NOI) and the Notice of Termination (NOT) are to be mailed to:

TCEQ Office of Water, P.O. Box 13087 Austin, TX 78711-3087 ~ Use for regular and certified mail or
Email at: http://www.tceq.state.tx.us/nav/permits/sw_permits.html. MAIN LINE: (512)239-4671

For small sites, the Operator will remove the CSN from its posted position at the site or from the SWPPP, endorse and date it at the lower right portion of document to indicate the completion of the construction activity and to verify termination conditions have been met. The CSN should be provided to Stormwater Management only and not to the TCEQ.

(Page 202-1. Add **Item 202.3.4.COD. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**.) [New Section Added]

202.3.4.COD: Stormwater Pollution Prevention Plan (SWPPP): The SWPPP is a document which consists of a plan to manage site water, sediment, and erosion, spill response, waste management plan, and the site parameters and techniques to be employed to reduce the release of sediment and pollution from the construction site. The SWPPP also documents regular inspections and maintenance of these measures and any changes made to maintain site compliance. Both the OWNER and the CONTRACTOR must develop a SWPPP; however, if a shared SWPPP is agreed upon, a certification letter indicating each party understands their responsibilities pertaining to the SWPPP must be included in the SWPPP. All Operators involved in a shared SWPPP must maintain a complete copy of the SWPPP for three years following the completion of the project.

(Page 202-1. Add **Item 202.3.5.COD. SMALL SITES, DISTURBED AREA EQUAL TO OR GREATER THAN 1 ACRES BUT LESS THAN 5 ACRES (PERMIT REQUIRED)**.) [New Section Added]

202.3.5.COD: Small Sites, Disturbed Area Equal to or Greater Than 1 Acres But Less Than 5 Acres (Permit Required): The SWPPP will be included in the contract documents. The CONTRACTOR shall submit a schedule for implementation of the SWPPP (i.e. grading, utilities, and stabilization plans) Deviations from the plan must be submitted to the OWNER 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 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 OWNER for review and approval. Project Managers should consider the criteria for common plans of development when working with projects between 1-5 acres, and for those projects located within the Dallas Escarpment, or geologically similar areas.

(Page 202-1. Add **Item 202.3.6.COD. LARGE SITES, TOTAL DISTURBED AREA GREATER THAN 5 ACRES (PERMIT AND SWPPP REQUIRED)**.) [New Section Added]

202.3.6.COD: Large Sites, Total Disturbed Area Greater Than 5 Acres (Permit and SWPPP Required): The CONTRACTOR must use control measures necessary to prevent and control soil erosion, sedimentation, and water pollution. These control measures 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, but are not limited to: 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 stormwater pollution controls. Deviations from the proposed control measures must be submitted to the OWNER for approval.

Prior to beginning construction, the CONTRACTOR must submit to the OWNER 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 that support the construction effort.

(Page 202-1. Add **Item 202.3.7.COD. LARGE SITES, TOTAL DISTURBED AREA GREATER THAN 10 ACRES (PERMIT, SWPPP, SEDIMENT BASIN, AND MONITORING REQUIRED)**.) [New Section Added]

202.3.7.COD: Large Sites, Total Disturbed Area Greater Than 10 Acres (Permit, SWPPP, Sediment Basin, and Monitoring Required): the CONTRACTOR must use the control measures necessary to prevent and control soil erosion, sedimentation and water pollution as indicated in the SWPPP, and as 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, but are not limited to: 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 stormwater pollution controls. Deviations from the proposed control measures must be submitted to the OWNER for approval.

Projects with a disturbed area greater than 10 acres require implementation of a sediment basin or equivalent measures as indicated in the General Construction, and Dallas City Code Section 19-118. In addition, water quality monitoring of effluent leaving this site may be required for Total Suspended Solids (TSS) and for Turbidity after significant rain fall events, as defined in the General Construction Permit and Dallas City Code Section 19-118. All water quality monitoring locations shall be clearly shown on the SWPPP. Water quality measurements shall be recorded in the SWPPP. Regular water quality monitoring is the responsibility of the CONTRACTOR.

Prior to beginning construction, the CONTRACTOR must submit to the OWNER for approval the proposed pollution control devices to be used and schedule of implementation. This submittal shall include onsite and off-site areas such as equipment and material storage areas, staging sites, and other areas subject to water pollution that support the construction effort.

(Page 202-1. Add **Item 202.3.8.COD. PAYMENT FOR TEMPORARY EROSION, SEDIMENTATION, AND WATER POLLUTION PREVENTION**.) [New Section Added]

202.3.8.COD. Payment For Temporary Erosion, Sedimentation, And Water Pollution Prevention: When provided for in the bid proposal and CONTRACT, payment for temporary erosion, sedimentation, water pollution prevention and work performed under this specification shall be made as specified for the Contract pay items provided which price shall be considered full compensation for: (1) all clearing and grubbing, removals, excavation and backfill required for installation; (2) installation, maintenance, removals and restoration; and (3) all materials, labor, tools, equipment, overhead, profit and incidentals necessary to complete the work in accordance with plans, SWPPP, special provisions and this specification.

All temporary erosion, sedimentation, and water pollution prevention and control work required by the OWNER due in whole or in part to CONTRACTOR negligence, carelessness, lack of maintenance, or failure to install permanent controls called for in the plans, specifications, or SWPPP in a timely fashion, shall not be paid for under this Contract. All costs to do such required temporary erosion, sedimentation, and water pollution prevention and control work shall be borne by the CONTRACTOR. All such remedial work shall be performed in compliance with the requirements of this specification as directed by the OWNER.

If CONTRACTOR fails to implement controls as required by the OWNER, the OWNER shall take steps to implement controls and costs shall be borne as described in **Item 202.1. Description**.

(Page 202-1. Add **Item 202.3.9. COD. MEASUREMENT AND PAYMENT (TEMPORARY EROSION, SEDIMENTATION AND WATER POLLUTION PREVENTION AND CONTROL: LARGE SITES OVER 10 ACRES)**.) [New Section Added]

202.3.9. COD. Measurement And Payment (Temporary Erosion, Sedimentation And Water Pollution Prevention And Control: Large Sites Over 10 Acres): Temporary erosion Control, Sedimentation and Water Pollution Prevention and Control shall be measured for payment per lump sum completed, in place, and in accordance with the plans and specifications, including all development of the SWPPP, installation and

maintenance of the controls throughout the duration of construction, water quality monitoring and other appurtenant tasks. The contract unit price shall be the total compensation for furnishing, placing and maintaining control measures, for disposal of all surplus material, and for all material, labor, equipment, tools, and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

(Page 202-1. Add **Item 202.3.10. COD. MEASUREMENT AND PAYMENT (TEMPORARY EROSION, SEDIMENTATION AND WATER POLLUTION PREVENTION AND CONTROL: LARGE SITES OVER *5* ACRES)**.) [New Section Added]

202.3.10. COD. Measurement and Payment (Temporary Erosion, Sedimentation And Water Pollution Prevention And Control: Large Sites Over 5 Acres): Temporary Erosion Control, Sedimentation and Water Pollution Prevention and Control shall be measured for payment per lump sum completed in place accordance with the plans and specifications, including all development of the SWPPP, installation and maintenance of the controls throughout the duration of construction, and other appurtenant tasks. The contract unit price shall be the total compensation for furnishing, placing and maintaining control measures, for disposal of all surplus material, and for all material, labor, equipment, tools, and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

(Page 202-1. Add **Item 202.3.11. COD. MEASUREMENT AND PAYMENT (TEMPORARY EROSION, SEDIMENTATION AND WATER POLLUTION PREVENTION AND CONTROL: SMALL SITES < *5* ACRES)**.) [New Section Added]

202.3.11. COD. Measurement And Payment (Temporary Erosion, Sedimentation And Water Pollution Prevention And Control: Small Sites < 5 Acres): Temporary Erosion Control, Sedimentation and Water Pollution Prevention and Control shall be measured for payment per lump sum completed, in place, and in accordance with the plans and specifications, including installation and maintenance of the controls throughout the duration of construction, and other appurtenant tasks. The contract unit price shall be the total compensation for furnishing, placing and maintaining control measures, for disposal of all surplus material, and for all material, labor, equipment, tools, and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

(Page 202-3. Replace **Item 202.*5*.3. CONSTRUCTION**, with the following:) [Replaced the NCTCOG Drawing number referenced with a note "as shown on the approved plans and specifications".]

202.5.3.COD. Construction. Silt Fence shall consist of synthetic fabric supported by wire mesh and steel posts set a minimum of 1-foot depth and spaced not more than 6-feet on center. A 6-inch wide trench is to be cut 6-inches deep at the toe of the fence to allow the fabric and wire mesh to be laid below the surface and backfilled with compacted earth or gravel. This entrenchment prevents any bypass of runoff under the fence. Fabric shall overlap at abutting ends a minimum of 3-feet and shall be joined such that no leakage or bypass occurs. Sufficient room for the operation of sediment removal equipment shall be provided between the silt fence and other obstructions in order to properly maintain the fence. The last 10 feet (or more) at the ends of a line of silt fence shall be turned upslope to prevent bypass of stormwater. Additional upslope runs of silt fence may be needed every 200 to 400 linear feet, depending on the traverse slope along the line of silt fence. A stone overflow structure constructed as shown on the approved plans and specifications, shall be installed at all low points or spaced approximately every 300 feet if there is no apparent low point.

(Page 202-4. Add **Item 202.*5*.4.COD. MEASUREMENT**.) [New Section Added]

202.5.4.COD. Measurement. If included in the Contract as a unit price item, measurement for payment for Silt Fence will be made by the linear foot, complete, in place and ready for use inclusive of all components necessary for a complete and working installation.

(Page 202-4. Replace **Item 202.6.1. DESCRIPTION**, with the following:) [In the fourth sentence, "BMP" was added after "sediment control".]

202.6.1.COD. Description. A temporary interceptor swale may have a V-shape, parabolic, or be trapezoidal with a flat bottom. Interceptor swales are used to shorten the length of exposed slope by intercepting runoff and can also serve as perimeter swales preventing off-site runoff from entering the disturbed area or prevent sediment-laden runoff from leaving the construction site or disturbed area. The outlet (discharge point) of the swale shall be designed to have non-erosive velocities or designed with velocity dissipation devices. Diverted runoff from a disturbed area or other construction activity shall be conveyed to a sediment control BMP. The swales shall remain in place until the disturbed area is permanently stabilized.

(Page 202-4. Add **Item 202.6.3.COD. CONSTRUCTION AND MAINTENANCE**.) [New Section Added]

202.6.3.COD. Construction and Maintenance. Interceptor swale shall be installed across exposed slopes during construction and should intercept no more than 5-acres of runoff. Swales shall have side slopes of 3:1 or flatter with a maximum flow depth of 1.5-feet based on a 2-year return period design storm peak flow. Swale must have positive drainage for its entire length to an outlet. When the slope exceeds 2-percent, or velocities exceed 6-feet-per-second (regardless of slope), stabilization is required. Check dams are also recommended to reduce velocities in the swales possibly reducing the amount of stabilization necessary. CONTRACTOR shall inspect swales on a weekly basis during wet weather and repairs should be made promptly to maintain a consistent cross section.

(Page 202-4. Add **Item 202.6.4.COD. MEASUREMENT**.) [New Section Added]

202.6.4.COD. Measurement. If included in the Contract as a unit price item, measurement for payment for Interceptor Swale will be made by the linear-foot, complete, in place and ready for use inclusive of all components necessary for a complete and working installation.

(Page 202-4. Replace **Item 202.7.1. DESCRIPTION**, with the following:) [In the last sentence of the second paragraph, "BMP" was added after "sediment control".]

202.7.1.COD. Description. A temporary diversion dike is a barrier created by the placement of an earthen embankment to reroute the flow of runoff to an erosion control device or away from an open, easily erodible area. A diversion dike intercepts runoff from small upland areas and diverts it away from exposed slopes to a stabilized outlet or sediment trapping device. Dikes are generally used for the duration of construction to intercept and reroute runoff from disturbed areas to prevent excessive erosion until permanent drainage features are installed and/or slopes are stabilized.

The outlet (discharge point) of the diversion dike shall be designed to have non-erosive velocities or designed with velocity dissipation devices. Diverted runoff from a disturbed area or other construction activity shall be conveyed to a sediment control BMP.

Page 202-4. Add **Item 202.7.4.COD. MEASUREMENT.)** [New Section Added]

202.7.4.COD. Measurement. If included in the Contract as a unit price item, measurement for payment for Diversion Dike will be made by the linear foot, complete, in place and ready for use inclusive of all components necessary for a complete and working installation

(Page 202-5. **Replace Item 202.9.1. DESCRIPTION**.) [New second and third paragraphs]

202.9.1.COD. Description. The work shall consist of constructing temporary check dams as shown on the plans during the construction period to control erosion and sedimentation.

This includes all labor and materials associated with installation and maintenance of the check dam as shown in the construction drawings or similar document.

The purpose of a check dam is to reduce the velocity of small concentrated flows, provide a limited barrier for sediment and help disperse concentrated flows, reducing potential erosion. Check dams are typically used early in construction in swales for long linear projects such as roadways. They can also be used in short swales with a steep slope to reduce unacceptable velocities. Check dams shall not be used in live stream channels.

(Page 202-5. Replace Item 202.9.2.2. GEOTEXTILE FABRIC, with the following:) [Number (4) given to line beginning "Apparent Opening Size", and (5) Ultraviolet Resistance, added]

202.9.2.2.COD. Geotextile Fabric. Use geotextile filter fabric under check dams exceeding 18 inches in height. If required, the check dam shall be placed on geotextile fabric meeting the following minimum criteria:

(1) Tensile Strength, **ASTM D4632: Test Method for Grab Breaking Load and Elongation of Geotextiles**, 250-lbs

(2) Puncture Rating, **ASTM D4833: Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products**, 135-lbs.

(3) Mullen Burst Rating, **ASTM D3786: Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method**, 420-psi.

(4) Apparent Opening Size, **ASTM D4751: Test Method for Determining Apparent Opening Size of a Geotextile**, U.S. Sieve No. 20 (max).

(5) Ultraviolet Resistance, **ASTM D4355: Standard Test Method for Deterioration of Geotextiles by Exposure to light, Moisture, and Heat in a Xenon Arc Type Apparatus**, Minimum 70 percent.

(Page 202-6. Add Item 202.9.4.COD. MEASUREMENT.) [New Section Added]

202.9.4.COD. Measurement. If included in the Contract as a unit price item, measurement for payment for Check Dam (Rock) will be made by the linear foot, complete, in place and ready for use inclusive of all components necessary for a complete and working installation.

(Page 202-6. Replace Item 202.10.1. DESCRIPTION.) [New second paragraph added.]

202.10.1.COD. Description. The work shall consist of constructing temporary check dams as shown on the plans during the construction period to control erosion and sedimentation.

This includes all labor and materials associated with installation and maintenance of the check dam (Filter Tube) as shown in the construction drawings or similar documents. The purpose of a check dam (Filter Tube) is to reduce the velocity of small concentrated flows, provide a limited barrier for sediment and help disperse concentrated flows, reducing potential erosion. Check dams (Filter Tube) are typically used early in construction in swales for long linear projects such as roadways. They can also be used in short swales with a steep slope to reduce unacceptable velocities. Check dams shall not be used in live stream channels.

(Page 202-6. Add Item 202.10.4.1.COD. CHECK DAM (SAND BAG).) [New Section Added]

202.10.4.1.COD. Check Dam (Sand Bag)

202.10.4.1.1.COD. Description. The work shall consist of constructing temporary check dams as shown on the plans during the construction period to control erosion and sedimentation.

This includes all labor and materials associated with installation and maintenance of the check dam as shown in the construction drawings or similar document. The purpose of a check dam is to reduce the velocity of small concentrated flows, provide a limited barrier for sediment and help disperse concentrated flows, reducing potential erosion. Check dams are typically used early in construction in swales for long linear projects such as

roadways. They can also be used in short swales with a steep slope to reduce unacceptable velocities. Check dams shall not be used in live stream channels.

202.10.4.1.2.COD. Materials

202.10.4.1.2.1.COD. Bag and Sand. Bag material shall be polypropylene, polyethylene, polyamide or cotton burlap woven fabric, minimum unit weight 4-ounces-per-square-yard, Mullen burst strength exceeding 300-psi as deter-mined by **ASTM D3786: Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method**, and ultraviolet stability exceeding 70-percent. Bag length shall be 24-inches to 30-inches, width shall be 16-inches to 18-inches and thickness shall be 6-inches to 8-inches and having an approximate weight of 40-pounds. Sand bags shall be filled with coarse grade sand, pea gravel, or clean filter stone free from deleterious material.

202.10.4.1.2.2.COD. Pipe. Pipe shall be schedule 40 or stronger polyvinyl chloride (PVC) having a nominal internal diameter of 4-inches

202.10.4.1.3.COD. Construction and Maintenance. Bag and Sand Check dams should be placed at a distance and height to allow small pools to form between each one. Typically, dam height should be between 18" and 36". Dams should be spaced such that the top of the downstream dam should be at the same elevation as the toe of the upstream dam. Bag and Sand check dams should be triangular in cross section with side slopes of 1:1 or flatter. The check dam shall be sized as shown in the plans but shall have a minimum width of 48-inches measured at the bottom of the dam and 16-inches measured at the top of the dam. The PVC pipes may be installed through the sand bag check dam near the top to allow for controlled flow through the dam.

The Bag and Sand check dam shall be inspected regularly in accordance with the SWPPP. The check dams shall be re-shaped or replaced as needed during inspection. When the silt reaches 1/3 the height of the berm or 1-foot, whichever is less, the accumulated silt shall be removed and disposed of at an approved site in a manner that will not contribute to additional siltation. The Bag and Sand check dam shall be left in place until all upstream areas are stabilized and accumulated silt removed; removal shall be done by hand.

202.10.4.1.4.COD. Measurement. If included in the Contract as a unit price item, measurement for payment for check dam (sand bag) will be made by the linear foot, complete, in place and ready for use inclusive of all components necessary for a complete and working installation.

(Page 202-6. Replace Item 202.11.1. DESCRIPTION, with the following:) [Section Replaced in its entirety]

202.11.1.COD. Description. The work shall consist of constructing a temporary stabilized construction exit. The exit shall consist of a pad of crushed stone placed on geotextile filter cloth and remain in place for the duration of the construction period to facilitate the removal of sediment and other debris from construction equipment prior to exiting the construction site. This includes all labor and materials associated with installation, maintenance, and ultimate removal of the stabilized construction exit as shown in the construction drawings or similar document.

(Page 202-6. Replace Item 202.11.2.2. GEOTEXTILE FABRIC, with the following:) [A new (5) Ultraviolet Resistance, has been added.]

202.11.2.2.COD. Geotextile Fabric. Use geotextile filter fabric under check dams exceeding 18 inches in height. If required, the check dam shall be placed on geotextile fabric meeting the following minimum criteria:

(1) Tensile Strength, **ASTM D4632: Test Method for Grab Breaking Load and Elongation of Geotextiles**, 250-lbs

(2) Puncture Rating, **ASTM D4833: Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products**, 135-lbs.

(3) Mullen Burst Rating, **ASTM D3786: Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method**, 420-psi.

(4) Apparent Opening Size, **ASTM D4751: Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 20 (max)**.

(5) Ultraviolet Resistance, **ASTM D4355: standard Test Method for Deterioration of Geotextiles by Exposure to light, Moisture, and Heat in a Xenon Arc Type Apparatus**, Minimum 70 percent.

(Page 202-6. Add Item 202.11.4.COD. MEASUREMENT.) [New Section Added]

202.11.4.COD. Measurement. If included in the Contract as a unit price item, measurement for payment for stabilized construction entrance will be made by the square-foot, complete, in place and ready for use inclusive of all components necessary for a complete and working installation.

There shall be no additional payment for periodic cleaning and maintenance.

(Page 202-7. Replace Item 202.12.2.3. GEOTEXTILE FABRIC, with the following:) [A new (5) Ultraviolet Resistance, has been added.]

202.9.2.2.COD. Geotextile Fabric. Use geotextile filter fabric under check dams exceeding 18 inches in height. If required, the check dam shall be placed on geotextile fabric meeting the following minimum criteria:

(1) Tensile Strength, **ASTM D4632: Test Method for Grab Breaking Load and Elongation of Geotextiles**, 250-lbs

(2) Puncture Rating, **ASTM D4833: Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products**, 135-lbs.

(3) Mullen Burst Rating, **ASTM D3786: Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method**, 420-psi.

(4) Apparent Opening Size, **ASTM D4751: Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 20 (max)**.

(5) Ultraviolet Resistance, **ASTM D4355: standard Test Method for Deterioration of Geotextiles by Exposure to light, Moisture, and Heat in a Xenon Arc Type Apparatus**, Minimum 70 percent.

(Page 202-8. Add Item 202.12.3.4.COD. MEASUREMENT.) [New Section Added]

202.12.3.4.COD. Measurement. If included in the Contract as a unit price item, measurement for payment for stone outlet sediment trap shall be complete in place according to the Standard Drawings and these Specifications. Embankment, geotextile fabric and stone will normally be paid for by lump sum if included as a pay item.

There shall be no additional payment for periodic cleaning and maintenance.

(Page 202-8. Replace **Item 202.13.3.3. MAINTENANCE**, with the following:) [In the first sentence, the word "should" was replaced with "shall".]

202.13.3.3.COD. Maintenance. Pipe slope drains shall be inspected regularly (at least as often as required by the SWPPP Construction General Permit) to locate and repair any damage to joints or clogging of the pipe. In cases where the diversion dike has deteriorated around the entrance of the pipe, it may be necessary to reinforce the dike with sandbags or to install a concrete collar to prevent failure. Signs of erosion around the pipe drain should be addressed by stabilizing the area with erosion control blanket, turf reinforcement mats, riprap, concrete, or other acceptable methods. All repairs shall be completed in a timely manner or as directed by the OWNER.

(Page 202-8. Add **Item 202.13.4.COD. MEASUREMENT**.) [New Section Added]

202.13.4.COD. Measurement. If included in the Contract as unit price items, measurement for payment for diversion dike shall be made by the linear foot, complete, in place and ready for use inclusive of all components necessary for a complete and working installation; measurement for payment for drain pipe shall be made by the linear foot, complete, in place and ready for use inclusive of inlet section, fittings and all components necessary for a complete and working installation; measurement for payment for outlet apron shall be made by the cubic yard of riprap used, complete, in place and ready for use inclusive of all excavation and all components necessary for a complete and working installation.

(Page 202-10. Replace **Item 202.14.1. DESCRIPTION**, with the following:) [The last sentence in paragraph two was added.]

202.14.1.COD. Description. Inlet protection devices vary depending on the type of inlet and whether the inlet is located at grade (i.e. on a slope) or in a sag (i.e. at a low point). The devices are normally located at the inlet, providing either detention or filtration to reduce sediment and floatable materials in storm water. Clogging can greatly reduce or completely stop the flow into the inlet.

Ensure that inlet protection is properly designed, installed and maintained to avoid flooding of the roadway or adjacent properties and structures. Inlet protection devices shall provide overflow capability to allow stormwater overflow during extreme storm events or when the filter media on the protection device has clogged. Inlet protection shall not be installed on inlets located on publicly traveled streets unless approved by the OWNER in writing. Once the OWNER has approved the Inlet Protection System, no changes may be made unless approved by the OWNER in writing.

The five types of inlets commonly used in public works construction are listed below with their recommended inlet protection devices. Grate inlets are installed in either paved or unpaved locations and they are therefore listed twice in the list below. These measures include all labor and materials associated with installation, maintenance and ultimate removal of the inlet protection as shown in the details or the approved construction drawings.

(Page 202-10. Add **Item 202.14.2.8.COD. POSTS.**) [New Section Added]

202.14.2.2.COD. Posts. Fence posts shall be galvanized steel and may be T-section or L-section, 1.3 pounds per linear foot minimum, and 4 feet in length minimum. Wood Posts may be used depending on anticipated length of service and provided they are 4 feet in length minimum and have a nominal cross section of 2 inches by 4 inches for pine or 2 inches by 2 inches for hardwoods.

(Page 202-10. Add **Item 202.14.2.9.COD. FILTER GRAVEL**.) [New Section Added]

202.14.2.3.COD. Filter Gravel. Filter gravel shall be ¾ inch (Block and Gravel Protection) or 1½ to 2 inch (Excavated Impoundment Protection) washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.

(Page 202-10. Replace **Item 202.14.3. CONSTRUCTION MAINTENANCE**, with the following:) [The next to last sentence in the first paragraph was modified with "unless directed by the OWNER".]

202.14.3.COD. Construction and Maintenance. Inlet protection filter media shall be placed to intercept the flow of sediment laden water into the inlet with no gaps and shall be adequately anchored to prevent movement. When properly installed the inlet filter media will pond water during a rain event and for up to two days after the end of the rain event. If the filter media becomes clogged and will not drain, remove the standing water through another sediment control BMP before it is allowed into the storm drain or off site. Do not remove the filter media to allow the water to drain, unless directed by the OWNER. Replace the filter media with new material prior to the next rain event.

Check inlet protection devices for proper construction immediately after installation, at the end of each work day, immediately prior to rain events and as required by the SWPPP. Remove trapped sediment, floatable debris and yard waste as needed to keep the filter media clear.

(Page 202-11. Add **Item 202.14.3.6.COD. FILTER BARRIER PROTECTION**:) [New Section Added]

202.14.3.6.COD. Filter Barrier Protection. Silt Fence shall consist of geotextile supported by galvanized steel posts set a minimum of 1-foot depth and spaced not more than 6-feet on center. A 6-inch wide trench is to be cut 6-inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel. This entrenchment prevents any bypass of runoff under the fence.

(Page 202-11. Add **Item 202.14.3.7.COD. BLOCK AND GRAVEL PROTECTION.**) [New Section Added]

202.14.3.7.COD. Block and Gravel Protection. Concrete blocks are to be placed on their sides in a single row around the perimeter of the inlet, with ends abutting. Openings in the blocks should face outward, not upward. Wire mesh shall then be placed over the outside face of the blocks covering the holes. Filter stone shall then be piled against the wire mesh to the top of the blocks with the base of the stone being a minimum of 18-inches from the blocks. Alternatively, where loose stone is a concern (streets, etc.), the filter stone may be placed in appropriately sized geotextile fabric bags. Periodically, when the stone filter becomes clogged, the stone shall be removed and cleaned in a proper manner or replaced with new stone and piled back against the wire mesh.

(Page 202-11. Add **Item 202.14.3.8.COD. EXCAVATED IMPOUNDMENT PROTECTION.**) [New Section Added]

202.14.3.8.COD. Excavated Impoundment Protection. An excavated impoundment shall be sized to provide a storage volume of between 1800- and 3600-cubic-feet-per-acre of disturbed area. The trap shall have a minimum depth of 1-foot and a maximum depth of 2-feet as measured from the top of the inlet and shall have side-slopes of 2:1 or flatter. Weep holes shall be installed in the inlet walls to allow for the complete de-watering of the trap. When the storage capacity of the impoundment has been reduced by one-half, the silt shall be removed and disposed in a proper manner.

(Page 202-11. Add **Item 202.14.3.9.COD. MEASUREMENT.**) [New Section Added]

202.14.3.9.COD. Measurement. If included in the Contract as a unit price item, measurement for payment for all forms of inlet protection will be made by the individual unit as necessary for one storm drain inlet, complete, in place and ready for use inclusive of all components necessary for a complete and working installation.

(Page 202-11. Add **Item 202.14.4.2.1.1.COD. MEASUREMENT**.) [New Section Added]

202.14.4.2.1.1.COD. Measurement. If included in the Contract as a unit price item, measurement for payment for all forms of inlet protection will be made by the individual unit as necessary for one storm drain inlet, complete, in place and ready for use inclusive of all components necessary for a complete and working installation.

(Page 202-11. Replace Item 202.15. EROSION CONTROL BLANKETS, with the following:) [The entire Section has been renamed and replaced.]

202.15.COD. Soil Retention Blankets

202.15.1.COD. Description. A Soil Retention Blanket (SRB) is a temporary soil control product intended to prevent soil erosion over distributed areas. The use of a Soil Retention Blanket (SRB) will limit the effects of erosion due to rainfall impact and runoff across barren soil. Soil Retention Blankets (sometimes referred to as Erosion Control Blankets) are manufactured by a wide range of vendors addressing a wide variety of conditions such as slope and functional longevity. Blankets are typically constructed of natural materials such as coir (coconut husk) fibers, excelsior (wood) or straw between two layers of synthetic netting.

202.15.2.COD. Materials.

202.15.2.1.COD. Blankets. Soil Retention Blankets (SRB) shall be of a type and class appropriate to site-specific requirements as determined by the OWNER. The City of Dallas recognizes the experience of TxDOT in matters of Soil Retention Blankets. As such, the parameters mentioned in the latest version of **TxDOT Item 169, "Soil Retention Blankets**" are made a part of this Addendum, including a recognition of the TxDOT Approved Products List. Specifications for **TxDOT Item 169** may be found in TxDOT's latest version of "**Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges**", latest edition, **Item 169, Soil Retention Blankets, and its Special Provisions.**

Prior to placement and installation of the Soil Retention Blanket (SRB), the CONTRACTOR is required to obtain written approval of the Soil Retention Blanket product from the OWNER.

202.15.2.2.COD. Construction. The CONTRACTOR shall provide a copy of the manufacturer's installation instructions to the OWNER at least two-days before beginning placement and installation of the product. Place the Soil Retention Blanket within 24 hours after the seeding or sodding operation, or as directed by the OWNER. Install and anchor the SRB in strict accordance with the recommendations contained within the manufacturer's published literature. Installation includes the repair of ruts, reseeding or resodding, and the removal of rocks, clods, and other foreign materials which may prevent contact of the blanket with the soil.

202.15.2.3.COD. Measurement and Payment. This item shall be measured by the square yard of surface covered.

The work performed, and materials furnished in accordance with this Item and measured as provided herein and will be paid for at the unit price bid for "Soil Retention Blankets" of the class and type specified. This price is full compensation for equipment, materials, labor, tools, and incidentals.

(Page 202-11. Replace Item 202.15.3.1. EROSION CONTROL BLANKET, with the following:) [The words "Erosion Control Blankets" have been changed to "Soil Retention Blankets"; there are several changes to the wording.]

202.15.3.1.COD. Soil Retention Blankets. Prior to the installation of any Soil Retention Blanket, all rocks, dirt clods, stumps, roots, trash and any other obstructions that would prevent the mat from lying in direct contact with the soil shall be removed. Anchor trenching, in accordance with manufacturer's instructions, shall be located along the entire perimeter of the installation area, except for small areas with less than 2% slope as shown on the Erosion Control Plan. At minimum, these trenches shall be 6-inches deep and 6-inches wide and the blanket shall be laid into the trench then backfilled with compacted soil or gravel. At a minimum, the end of each roll of Soil Retention Blanket (SRB) shall overlap the next roll by 3 feet and the sides of rolls shall overlap 4 inches. Blankets shall be fastened to the ground according to the manufacturer's instructions. Staples shall be placed parallel to the flow, at all critical channel points, and at all overlaps. If requested by the OWNER, the CONTRACTOR shall submit staple pattern to the OWNER for approval. Installations shall be in accordance with manufacturer's recommended guidelines with the exception of the minimum criteria stated herein.

(Page 202-11. Add Item 202.15.3.3.COD. MEASUREMENT.) [New Section Added]

202.15.3.3.COD. Measurement. If included in the Contract as a unit price item, measurement of Soil Retention Blankets (SRB) will be made by the square yard of material installed, in place and ready for use as an erosion

control surface treatment; otherwise, the placement and installation of Soil Control Blankets shall be subsidiary to the other appropriate items.

(Page 202-12. Replace **Item 202.18.2.2. FILTER MEDIA**, with the following:) [Replaced Subparagraph (1) with a restated definition of the TxDOT Specification.]

202.18.2.2.COD. Filter Media. Filter media may consist of any of the following or an approved combination of the following materials:

(1) Erosion Control Compost (ECC). Installed materials shall meet the requirements published by TxDOT in its manual titled "Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges", latest edition**, Item 161. Compost**; specifically, the requirements Erosion Control Compost (ECC) as defined therein, unless materials are otherwise approved by the OWNER.

(2) Coir (Coconut Husk) or Straw. Commercially produced product interwoven into the tube mesh. Loose material inserted into the tube will not be allowed.

(3) Filter Stone. Stone shall consist of 1½ -inch Coarse Crushed Stone conforming to **Item 504.2.2.1**. **Crushed Stone Embedment**.

(Page 202-12. Replace **Item 202.19. MEASUREMENT AND PAYMENT**, with the following:) [Everything after the first paragraph was added.]

202.19.COD. Measurement and Payment

If included in the Contract as a unit price item, measurement for payment will be made complete, in place and ready for use inclusive of all components necessary for a complete and working installation. This includes all labor and materials associated with installation, maintenance, and ultimate removal as shown in the construction drawings or similar document and establishing permanent ground cover at removal.

Measurement for payment for temporary erosion, sedimentation and water pollution prevention and control work shown on the plans, SWPPP and/or directed by the OWNER, when payment is specified in the plans and special provisions with separate pay items, shall be as provided in this specification using the separate contract pay items provided and the quantities of work actually performed for initial installation and for replacement during the course of the construction, provided that replacement is not due in whole or part to negligence of the CONTRACTOR. No separate compensation shall be provided for maintenance of erosion, sedimentation, and water pollution prevention and control measures during the construction of the project but such cost shall be considered incidental to pay items provided.

Unless otherwise provided in the Contract or bid proposal as separate pay items, no separate payment shall be made for temporary erosion, sedimentation, and water pollution prevention and control work required in the plans, SWPPP, special provisions or this specification, but such work shall be considered as incidental work and the cost thereof shall be included in the Contract pay items provided in the proposal and Contract.

When provided for in the bid proposal and Contract, payment for temporary erosion, sedimentation, water pollution prevention and work performed under this specification shall be made at the unit price bid per linear foot, square yard, lb., per each, per lump sum, or units bid as specified for the Contract pay items provided which price shall be considered full compensation for: (1) all clearing and grubbing, removals, excavation and backfill required for installation, (2) installation, maintenance, removals and restoration, and (3) all materials, labor, tools, equipment, overhead, profit and incidentals necessary to complete the work in accordance with plans, SWPPP, special provisions and this specification.

All temporary erosion, sedimentation, and water pollution prevention and control work required by the OWNER due in whole or in part to CONTRACTOR negligence, carelessness, lack of maintenance, or failure to install permanent controls called for in the plans, specifications, or SWPPP in a timely fashion, shall not be paid for under this Contract. All costs to do such required temporary erosion, sedimentation, and water pollution prevention and control work shall be borne by the CONTRACTOR. All such remedial work shall be performed in compliance with the requirements of this specification as directed by the OWNER.

If CONTRACTOR fails to implement controls as required by OWNER, OWNER will take steps to implement controls and costs shall be borne as described in **Item 201.1.COD Description**.

ITEM 203. SITE PREPARATION

(Page 203-1. Replace Item 203.1.2. CONSTRUCTION METHODS, with the following:) [The last sentence of the last paragraph has been modified to mention Dallas' Landscape and Tree Conservation Regulations; in the second paragraph, the terms for tree removal have been changed to "no measurable remaining evidence" rather than "as close to natural ground as practicable"; in the fifth paragraph, the remaining holes shall be filled and compacted to 95% of Standard Proctor; and, in the last paragraph, "and reduced to permitted sizes" was added. References to "this project" and the like have been removed.]

203.1.2.COD. Construction Methods.

The entire right-of-way, permanent and temporary easements, and such additional areas, including public or corporate areas and public or corporate lands, as made available for construction, shall be cleared of all structures and obstructions, as defined above, except that trees or shrubs shall be protected unless specifically designated for removal in the approved demolition permit, tree removal application, or clearing authorization and all of the other requirements of the Dallas City Code Article X, "Landscape and Tree Conservation Regulations" of Chapter 51A, of the "Dallas Development Code" are met.

Unless designated for removal without replacement, trees and shrubs shall be treated according to **Item 201.1. Removal, Protection, and Replacement of Trees, Shrubbery, Plants, Sod, and Other Vegetation**. Unless otherwise indicated on the approved landscape plans, trees and stumps to be removed shall be cut off or otherwise removed with no measurable remaining evidence on areas which are to be covered by at least 3-ft. of embankment. On areas required for borrow sites and material sources, stumps, roots, etc., shall be removed with no measurable remaining evidence to prevent such objectionable matter becoming mixed with the material to be used in construction.

At all times during site preparation, the area shall be maintained in a manner to prevent standing water.

Unless otherwise indicated on plans, all foundations and underground obstructions shall be removed to the following depths:

(1) In areas to receive embankment, 2-ft. below natural ground or to bottom of structure.

(2) In areas to be excavated, 2-ft. below the lower elevations of the excavation, or to the bottom of structure.

(3) In all other areas, 1-ft. below natural ground or to bottom of structure.

All basement walls and floors, septic tanks and storage tanks within the limits of the right-of-way shall be removed and the resulting holes backfilled as directed by the OWNER. Holes remaining after removal of all obstructions, objectionable material, trees, stumps, etc., shall be backfilled and compacted to 95% of Standard Proctor. The CONTRACTOR shall complete the operation of preparing right-of-way so that the prepared right-of-way shall be free of holes, ditches and other abrupt changes in elevations and irregularities to contour.

The remaining ends of all abandoned-in-place storm sewers, culverts, sanitary sewers, conduits and water or gas pipes shall be plugged with enough concrete to form a tight closure. All materials and debris removed shall become the property of the CONTRACTOR unless otherwise provided for on the plans or in the specifications and shall be removed from the right-of-way. Unless otherwise provided, all merchantable timber removed as previously specified shall become the property of the CONTRACTOR. Gravel, brick, stone or broken concrete, when permitted by special conditions, and reduced to permitted sizes, may be used in the roadway embankment.

(Page 203-1. Add Item 203.1.2.1.COD: OVER-EXCAVATION.) [New Section Added]

203.1.2.1.COD: Over-Excavation: CONTRACTOR is required to avoid over-excavation of earth or overbreak of rock. The CONTRACTOR 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.

(Page 203-2. Add **Item 203.1.4.COD WATER FOR CONSTRUCTION**:) [New Section Added.]

203.1.4.COD. Water for Construction: All water for construction of any item, including, but not limited to, grading, earthwork, landscaping, etc., must be supplied by the CONTRACTOR. No person shall open, turn on, turn off, interfere with, attach any pipe or hose to, or connect anything with any fire hydrant, stop valves, stop cock, or tap any water main belonging to the City, unless duly authorized to do so by the Dallas Water Utilities.

(Page 203-2. Add **Item 203.2.3.1.COD. CONSTRUCTION METHODS.**) [New Section Added]

203.2.3.1.COD. Construction Methods. All excavation shall be in accordance with the lines, grades and typical sections as shown on the plans or as established by the OWNER. Unless otherwise shown on the plans or established by the OWNER, the street excavation shall be made to the subgrade of the roadway and finished grade of parkways. Where excavation to grades established in the field by the OWNER would terminate in unstable soil, the CONTRACTOR shall remove the unstable soil and backfill to the required grade.

Unless otherwise approved in writing by the OWNER, where excavation to grade established in the field by the OWNER terminates in loose or solid rock, the CONTRACTOR shall excavate 6-inches below the required sub-grade elevations for the entire roadbed width and shall backfill with suitable selected materials approved by OWNER. Payment for such work will be made in accordance with the contract documents.

The CONTRACTOR shall conduct operations in such a manner that adequate measurements may be taken before any backfill, as required above, is placed. Dragging, pushing or scraping of material along or across the sur-face of the complete concrete improvements or pavements shall not be permitted.

(Page 203-2. Replace **Item 203.2.4. WATER FOR CONSTRUCTION**, with the following:) [Section replaced]

203.2.4.COD: Water for Construction: All water for construction of any item, including, but not limited to, grading, earthwork, landscaping, etc., must be supplied by the CONTRACTOR. No person shall open, turn on, turn off, interfere with, attach any pipe or hose to, or connect anything with any fire hydrant, stop valves, stop cock, or tap any water main belonging to the City, unless duly authorized to do so by the Dallas Water Utilities.

(Page 203-2. Add **Item 203.2.4.1.COD: PROVISIONS FOR DRAINAGE**.) [New Section Added]

203.2.4.1.COD. Provisions for Drainage. If it is necessary in the execution of the work to interrupt the natural surface drainage or the flow of artificial drains, the CONTRACTOR shall provide temporary drainage facilities that shall prevent damage to public or private interest and shall restore the original drains as soon as the work shall permit.

The CONTRACTOR shall be held liable for all damages which may result from neglecting to provide for either natural or artificial drainage which the CONTRACTOR's work may have interrupted.

(Page 203-2. Replace **Item 203.2.5. DEWATERING**, with the following:) [The fifth sentence was added]

203.2.5.COD. Dewatering. During construction, channels, trenches, pits, and other low point excavations shall be kept drained, insofar as practicable. Dewatering work shall include the installation and operation of all pumping, bailing, well-pointing, sumps, and draining necessary to keep the excavation free from groundwater, seepage water, water from storm drains, wastewater collection systems, ditches, creeks, ponds, and other sources. Construction will not be permitted in standing water. All discharges from dewatering activities shall be in conformance with all federal, state, and local requirements in a manner approved by the OWNER. The discharge at all discharge points shall be filtered, discharged in a location approved by the OWNER, and be consistent with the SWPPP requirements. Outlet velocity of discharges from dewatering activities shall be controlled to prevent erosion. Unless provided for as a separate pay item, all dewatering work shall be considered incidental to unclassified excavation.

(Page 203-2. Add **Item 203.2.6.1.COD. EXCESS EXCAVATION**.) [New Section Added]

203.2.6.1.COD. Excess Excavation. The CONTRACTOR shall dispose of excavated material that are more than needed for construction. In general, suitable excess street excavation shall be used in construction of parkways, widening of embankments, flattening of slopes, etc., but, if it becomes necessary to waste any material, it shall be disposed of in such a manner as to present a neat appearance and to not obstruct proper drainage or cause injury to any street improvements or abutting property. If necessary to haul off excess or unsuitable material, the CONTRACTOR shall dispose of it in accordance with local, state, and federal guidelines.

(Page 203-2. Add **Item 203.2.6.2.COD. PARKWAYS.**) [New Section Added]

203.2.6.2.COD. Parkways. Parkways shall be finished as shown on plans. Whenever the adjacent property is lower than the design curb grade and drains away from the street, the parkway grade may be set level with the top of the curb, if approved by the OWNER. The OWNER may approve variations from these standards in special cases.

Sprinklers that are damaged because of Work shall be repaired by the CONTRACTOR to pre-Work condition.

(Page 203-3. Replace **Item 203.4.5. MEASUREMENT AND PAYMENT**.) [In first paragraph, the second sentence was modified.]

203.4.5.COD. Measurement and Payment. Borrow shall be measured in a compacted condition in its final position and the volume computed in cubic-yards by the method of average end areas, or as specified otherwise. Spoil sites shall be considered part of the overall project site.

All work performed as required herein and in the **Item 203.5. Embankment**, and measured as provided in this Item shall be paid for at the unit price bid. Payment shall not be allowed for excavation for any material which is used for purposes other than those designated. The unit price shall be full compensation for furnishing all labor, for materials, tools, equipment, compaction, hauling and incidentals necessary to compete the work, as well as for all fees associated with disposal.

(Page 203-4. Replace **Item 203.5.3. DENSITY**, with the following;) [The second sentence was modified to change the compaction to the City standard of minus two (-2) to plus four (+4) percent.]

203.5.3.COD. Density. For each layer of earth embankment and select material, the relative compaction of the embankment shall be as shown on the plans. Earth embedment and select material shall be compacted to between 95 percent and 100 percent of Standard Proctor Density as determined by ASTM D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort, at minus two (-2) to plus four (+4) percent of, optimum moisture content, using mechanical compaction methods, unless otherwise specified in the plans or specifications. After each section of earth embankment or select material is completed, such tests as are necessary shall be made as specified by the OWNER, unless otherwise specified in the special provisions or in the plans.

(Page 203-5. Replace **Item 203.6.1. DESCRIPTION**, with the following:) [A new paragraph has been added at the end.]

203.6.1.COD. Description. Sprinkling for dust control shall consist of the authorized application of water or other material approved by the OWNER on those portions of the projects as shown on the plans or as directed and as herein specified. It shall be the responsibility of the CONTRACTOR to take preventive measures to eliminate, reduce, or alleviate any dust nuisance in the work area. The OWNER will approve the method used. Should the CONTRACTOR fail to control dust as outlined above, the OWNER may suspend the work until corrective measures are taken.

The CONTRACTOR shall maintain all excavations, embankment, stockpiles, haul roads, and access roads within or outside the project boundaries free from dust, which would cause a hazard or nuisance to adjacent property owners. The CONTRACTOR shall use sprinkling or other methods acceptable to the OWNER to control dust.

(Page 203-5. Add Item 203.7.COD. UNCLASSIFIED CHANNEL EXCAVATION.) [New Section Added]

203.7.COD. Unclassified Channel Excavation

203.7.1.COD. Description. Channel excavation shall consist of required excavation for channels within the limits of the OWNER's right-of-way or designated easements; the removal and proper utilization or disposal of all excavated materials; compacting and refilling, after settlement of all excavated areas; and constructing, shaping and finishing of all earthwork involved in conformity with the required lines, grades and typical cross sections in accordance with specification requirements herein outlined.

203.7.2.COD. Classification. All authorized channel excavation shall be "unclassified" and involves removal of all materials necessary to permit carrying on the completion of the work.

203.7.3.COD. General. In general, all excavation shall be made in open cut from the surface of the ground and shall be no greater in width or depth than is necessary to permit the proper construction of the work in accordance with the plans and these specifications. Work shall be executed in a neat workmanlike manner. A trench safety plan shall be submitted in accordance with **Item 107.20. Protection of Work and of Persons and Property**. All excavation shall be to the line and grade as provided by the OWNER. The CONTRACTOR shall abide by all applicable federal, state and/or local laws governing excavation work.

The CONTRACTOR shall provide for the uninterrupted flow of storm and wastewater lines and surface waters during progress of the construction.

Completed work shall conform to the established alignment, grades and cross sections.

203.7.4.COD. Dewatering. During construction, the channel shall be kept drained, insofar as practicable, and the Work shall include the installation and operation of all pumping, bailing and draining necessary to keep the excavation free from seepage water, water from storm drains, wastewater collection systems, ditches, creeks and other sources. The CONTRACTOR shall remove all water from any source that may accumulate in the excavation. The embedment or pipe shall not be installed in water. No water shall be allowed to flow through or over unset concrete or through the completed line. All water removed from excavations shall be disposed of in a manner approved by the OWNER, and to avoid the discharge of solids into the storm drain or watercourse, so as not to create unsanitary conditions, injure persons or property, damage the work in progress, and/or interfere unduly with the use of streets, private driveways or entrances. Pumping, bailing and draining, underdrains, ditches, etc. shall be considered as incidental work and shall not be paid for as separate items, but their cost shall be included in such contract prices as are provided for in the contract.

203.7.5.COD. Excavated Material. Excavated materials shall be handled in such a manner as to cause a minimum of inconvenience to public travel and to permit safe and convenient access to private and public property adjacent to or along the line of the work.

All suitable materials removed from the excavation shall be used, insofar as practicable, in the formation of embankments as required by **Item 203.5. Embankment**, or shall be otherwise utilized. Desirable topsoil, sod, etc. shall be carefully removed and piled separately adjacent to the work when required. Suitable excavated materials may be piled adjacent to the work to be used for backfilling.

Unsuitable channel excavation and suitable channel excavation more than that needed for construction shall be known as "waste" and, unless specified otherwise, shall become the property of the CONTRACTOR to be disposed of outside the limits of the right-of-way in accordance with local, state, and federal guidelines. The excavated material in rock that is not suitable material for bedding or backfill shall similarly be disposed of by the CONTRACTOR. Suitable bedding or backfill material shall be provided at no additional cost to the OWNER. In accordance with **Item 107. Legal Relations and CONTRACTOR Responsibilities**, the CONTRACTOR shall indemnify and hold harmless the OWNER and all related officers, agents, and employees from all suits, actions or claims of any character resulting from arrangements for and disposal of soil.

203.7.6.COD. Open Cut Construction Methods.

203.7.6.1.COD. Trench Bottom Elevation. All trenches for installation of water, storm water collection system and/or wastewater collection system lines shall be excavated to a point below the barrel of the pipe for the type of embedment specified and as described in **Item 504.5. Embedment**.

203.7.6.2.COD. Trench Overcut. Should the CONTRACTOR excavate below the plan trench bottom for water or wastewater collection system lines, the CONTRACTOR shall backfill to trench bottom grade shown on the plans with approved aggregate, consolidated and compacted to meet the OWNER'S approval.

If the CONTRACTOR elects to overcut the trench and use gravel and drain pipe as an underdrain in lieu of or in conjunction with pumping, draining or well pointing, the additional work shall be considered as incidental work and additional compensation shall not be allowed.

Where the character of the foundation material is such that a proper foundation cannot be prepared at the elevation shown on the plans, then, when directed by the OWNER, the CONTRACTOR shall deepen the excavation to where a proper foundation entirely satisfactory to the OWNER can be prepared. Such materials removed shall be replaced with foundation materials as specified in **Item 504.3. Excavation and Foundation**, or with other material satisfactory to the OWNER and thoroughly compacted in place to finish grade elevation in a manner satisfactory to the OWNER.

203.7.6.3.COD. Excess Trench Width. When the plan trench width is not maintained to a point of 1-ft. above the top of the pipe, the CONTRACTOR shall provide embedment as directed by the OWNER, which shall pro-vide adequate support at no additional cost to the OWNER.

203.7.6.4.COD. Progress. The OWNER shall have the right to limit the number of trenches that shall be opened in advance of or following the pipe laying operation. Unless otherwise directed by the OWNER, the completion of backfill shall immediately follow the pipe laying. In the event the CONTRACTOR fails to comply with the requirement, the OWNER may stop the pipe laying until the requirements are met.

203.7.6.5.COD. Excavation for Altered Grade: If excavation for the conduit or appurtenance due to the altered grade is altered more than 1-ft. and has not been classified as a separate contract pay item, the increased or decreased amount of excavation due to the altered grade may constitute a basis for revised consideration by either party to the contract. Payment for altered grade, if made, will be in cubic yards. Measurement and payment will be as specified in **Item 504.7. Measurement and Payment of Backfill** and addenda made herein, except the depth will be measured from the plan grade to the revised grade.

203.7.6.6.COD. Installation On Top Of Fill: 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.

203.7.6.7.COD. Class G Embedment: 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.

203.7.6.8.COD Existing Curbs: 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.

203.7.7.COD. Alternate Methods of Excavation. Prior to commencing any excavation, the CONTRACTOR shall pro-vide ample labor, equipment, shoring material and such other safety equipment as required to ensure that the work shall be carried on without interruption or damage to existing installations and to provide the least interruption of auto and pedestrian traffic commensurate with the project requirements.

203.7.7.1.COD. BLASTING - DALLAS WATER UTILITIES OR THE DEPARTMENT OF PUBLIC WORKS: This item applies only to projects awarded and administered by the Dallas Water Utilities or the Department of Public Works. In cases where the plans and specifications do not require the use of explosives, if (after written approval by the OWNER) the CONTRACTOR elects to use explosives in the performance of the work, utmost care shall be exercised so as not to endanger life or property. The CONTRACTOR shall use only such methods as are currently utilized by persons, firms or corporations engaged in a similar construction business. The

CONTRACTOR shall be solely responsible for the determination as to whether explosives shall be used and for any result from the use of explosives. 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 OWNER 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.

The following minimum criteria regarding the use of explosives and blasting shall be satisfied:

(1) **Certification:** Certification by the proper authorities for personnel involved with the actual use of explosives is required and must be obtained prior to the use of explosives.

(2) **Insurance:** The CONTRACTOR shall furnish the OWNER with evidence of insurance sufficient to cover any such possibility, which insurance shall either include the OWNER as an assured or be of such character as to protect the OWNER.

(3) **Restrictions:** No blasting shall be permitted within highway right-of-way or railroad right-of-way without written permission from TxDOT, the railroad involved, and the OWNER.

(4) **Limitations:** When blasting is authorized, the blast shall be covered with heavy timbers chained together, a rope mat, or some other equally effective method of blast effect protection, approved by the OWNER. All explosives shall be stored in a safe and secure manner and such storage places shall be clearly marked, **—DANGEROUS — EXPLOSIVES**. Blasting caps and explosives shall be stored separately. In addition to the **—DANGEROUS — EXPLOSIVES** sign of an approved size which must be displayed, at least two signs marked, **—EXPLOSIVES, TURN ALL RADIOS OFF**," of an appropriate size, shall be placed in a conspicuous location readily visible to vehicular traffic and not less than 350-ft. from electric explosive caps storage area. During each blast, the exposed end of the pipe shall be covered with planking.

(5) **Notification:** The CONTRACTOR shall notify each utility company having structures in proximity to the site of the work of the intention to use explosives. Such notice shall be given sufficiently in advance to enable the companies to take such steps as they may deem necessary to protect their property from injury. Such notice shall not relieve the CONTRACTOR of responsibility for any damage resulting from blasting operations.

(6) **Laws and Ordinances:** The method of blasting, storing, and handling explosives must be carried on in full conformance with the requirements of all federal and state laws and municipal ordinances.

203.7.7.2.COD. USE OF EXPLOSIVES – DALLAS PARK AND RECREATION DEPARTMENT: On projects advertised and administrated by the Dallas Park and Recreation Department, the use of explosives is entirely prohibited.

203.7.8.COD. Selection of Materials. Where shown on the plans, selected materials shall be utilized in the formation of embankment, embedment or backfill, or to improve the roadbed, in which case the work shall be performed in such manner and sequence that suitable material may be selected, removed separately and deposited in the roadway within limits and all elevations required. When required, acceptable borrow material, tested by standard laboratory methods, shall meet the requirements indicated on the plans.

203.7.9.COD. Measurement and Payment. Borrow shall be measured in a compacted condition in its final position and the volume computed in cubic-yards by the method of average end areas, or as specified otherwise.

All work performed as required herein and in the **Item 203.5. Embankment**, and measured as provided in this Item shall be paid for at the unit price bid. Payment shall not be allowed for excavation for any material which is used for purposes other than those designated. The unit price shall be full compensation for furnishing all labor, for materials, tools, equipment, compaction, hauling and incidentals necessary to compete the work, as well as for all royalties.

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ITEM 204. LANDSCAPING

On June 27, 2018, the City Council of the City of Dallas, Texas, passed Ordinance No. 30929: An Ordinance amending Article X, "Landscape and Tree Preservation Regulations" of Chapter 51A, "Dallas Development Code: Ordinance No. 19455, as amended," of the Dallas City Code; providing a penalty not to exceed $2,000 [per day]; providing a saving clause; providing a severability clause; and providing an effective date.

*In all cases where there is a conflict between what is mentioned in the North Central Texas Council of Government's "**Public Works Construction Standards, Fifth Edition**", and Article X, "**Landscape and Tree Conservation Regulations**", Section 51A-10.100 through Section 51A-10.140, the "Landscape and Tree Conservation Regulations shall prevail.*

In the revised "Tree and Landscape Conservation Regulations" the City of Dallas has instigated a points-based review system. Points are obtained by meeting design option requirements to achieve the total number of points required for the property. Examples of the design options and their application are provided in the Landscape and Tree Manual found on the City of Dallas website: www.dallascityhall.com. (Note: from the Home screen, do a search for "Landscape and Tree Conservation".)

(Page 204-3. Add Item 204.3.5.COD. MINERALS.) [New Section Added]

204.3.5.COD. Minerals

204.3.5.1.COD. Elemental Sulfur. Sulfur shall be a commercially produced, granular product of pure sulfur.

204.3.5.2.COD. Gypsum. Gypsum (calcium sulphate) shall be ground to the size specified on the plans.

204.3.5.3.COD. Lime. Lime shall be of finely ground or pulverized raw, commercial grade dolomitic limestone, all of which shall pass through a #10 (210 mm) sieve, and at least half of which shall pass through a #100 (150 mm) sieve. Solomitic lime shall contain roughly equal portions of magnesium and calcium carbonates, which together total 90-percent or more of the value of neutralizing power or the calcium oxide equivalent. A producer's specification or a sample label of the lime proposed to be used shall be submitted for the building official's approval.

(Page 204-4. Replace Item 204.5.4. MEASUREMENT AND PAYMENT, with the following:) [A new last paragraph was added.]

204.5.4.COD. Measurement and Payment. Plugging and solid sodding shall be measured for payment in square yards of sodded area completed in accordance with the plans and specifications. Plugging or solid sodding, as the case may be, shall be paid for at the contract unit price per square yard, complete in place, as provided in the proposal and contract. The contract unit price shall be the total compensation for furnishing and placing all sod, for all rolling and tamping, for all water, for disposal of all surplus material, and for all material, labor, equipment, tools and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

This Item shall include all watering necessary to assure the sod germinates and maintains coverage throughout the maintenance period. 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 the latest edition of the DWU Standard Drawings for Water and Wastewater Construction, sheet 112, or the approved excavation limits based on the OWNER'S direction.

(Page 204-7. Add Item 204.6.6.COD. REJECTION, with the following:) [New Section Added]

204.6.6.COD. Rejection

Landscape materials may be rejected for failure to meet any of the requirements of this specification or is inconsistent with the approved Landscape Plans or the contract specifications.

(Page 204-7. Replace Item 204.7.2.1.4. COMPOST AND WOOD MULCH MIXTURE, with the following:) [References to TxDOT Item 1058 have been removed and replaced with the new TxDOT Reference Item 161. Compost; and a new second paragraph has been added.]

204.7.2.1.4.COD. Compost and Wood Mulch Mixture. Compost and wood mulch mixtures should be a blend of 50% untreated wood mulch with 50% compost measured by volume. Wood mulch should be less than or equal to 5 in. in length with 95% passing a 2-in. screen and less than 30% passing a 1-in. screen.

The compost shall meet the physical requirements published in the TxDOT Manual titled: "Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges", latest edition, **Item 161. Compost**.

DIVISION 300 ROADWAY CONSTRUCTION

City of Dallas Addendum
to the
North Central Texas Council of Governments

Public Works Construction Standards
Standard Specifications

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ITEM 301. SUBGRADE, SUBBASE, AND BASE PREPARATION

(Page 301-1. Replace Item 301.1.1.2. EQUIPMENT, with the following:) [All but the first paragraph was added.]

301.1.1.2.COD. Equipment: All equipment necessary for the construction of this item shall be on the project and shall be approved by the OWNER as to condition before the CONTRACTOR shall be permitted to begin construction operations on which the equipment is to be used. Any equipment that achieves the desired results in the time frame allowed is acceptable.

In lieu of the subgrade equipment specified, the CONTRACTOR may, upon written permission from the OWNER, operate other subgrade equipment that will produce equivalent results in the same period of time as the specified equipment. If the substituted subgrade equipment fails to produce the desired results within the same period of time as would be expected of the specified equipment, as determined by the OWNER, its use shall be discontinued.

(a) **Subgrade Planer:** An approved subgrade trimmer and maintainer with automatic grade and slope control shall be provided or, in the alternative, an approved subgrade planer shall be provided, mounted on visible rollers riding on the forms, having adjustable cutting blades that shall trim the subgrade to exact sections shown on the plans. Planer frames shall be heavy enough to remain on the forms at all times; and shall be of such strength and rigidity that, under a test made by changing the support from the wheels to the center for the type pavements as set out under —Subgrade Planer they shall not develop a deflection of more than one-eighth of an inch. Tractive power equipment used on the subgrade to pull the planer shall not be such as to produce ruts or indentations in the subgrade.

(b) **Subgrade Template:** The template for checking the contour of the subgrade shall be provided and operated by the CONTRACTOR. The template shall rest upon the side forms and shall be of such strength and rigidity that, under a test made by changing the support to the center, it shall not develop a deflection of more than one-eighth inch. It shall be provided with accurately adjustable rods projecting downward to the subgrade at one-foot intervals; and these rods shall be adjusted to the required cross-section when the template is resting on the side forms.

(c) **Compaction Equipment:** Compaction equipment shall conform to the requirements of **Item 301.1.1.3.1. Proof Rolling,** with the exception that the roller for final subgrade shall be of the three-wheel or tandem, self-propelled type, weighing not less than five tons.

(Page 301-1. Replace Item 301.1.1.3. CONSTRUCTION METHODS, with the following:) [The minimum Density in the second paragraph was modified from "95-percent of the maximum density" to "98-percent of the maximum Standard Proctor density"; the word "percent" was added in the last sentence of the second paragraph and the notation "minus two (-2) to plus four (+4)" was made clear; and an incomplete sentence in the fifth paragraph was deleted.]

301.1.1.3.COD. Construction Methods: After the excavation of embankment has been substantially completed, the subgrade shall be shaped so that after rolling as specified in **Item 301.1.2. Rolling of Embankment, Subgrade or Flexible Base** and subsequent finishing operations, it shall conform to the correct alignment, cross section and elevation. Subgrade shall be proof rolled prior to subgrade stabilization and after final compaction after subgrade stabilization as specified in **Item 301.1.1.3.1. Proof Rolling**. Rolling and sprinkling, as needed, shall be performed when and to the extent directed and the roadbed shall be completed to or above the plane of the typical section shown on the plans and the lines and grades established by the OWNER.

After completion of the compaction and immediately before the application of subbase, base or pavement, the subgrade preparation equipment shall be operated using approved methods in a manner to finish the subgrade to the required section. The subgrade shall then be tested with the approved template, operated and maintained by the CONTRACTOR. All irregularities which develop in excess of ½-in. in a length of 16-ft. measured longitudinally shall be corrected by loosening, adding or removing material; reshaping; and recompacting by sprinkling and rolling. The completed subgrade shall have a uniform density of not less than 98-percent of the maximum Standard Proctor density determined by **ASTM D698 Standard Test Methods for**

Laboratory Compaction Characteristics of Soil Using Standard Effort. Moisture content shall be within minus two (-2) to plus four (+4) percent of optimum.

The subgrade shall be maintained in a smooth, compacted condition, in conformity with the required section and established grade, until the subbase, base or pavement is placed, and shall be kept wetted down sufficiently in advance of placing any subbase, base or pavement to insure its being in a firm and moist condition for at least 2-in. below surface of the prepared subgrade. Only such subgrade as is necessary for the satisfactory execution of the work shall be completed ahead of the placement of base or pavement. Hauling or operating of unnecessary equipment on the completed subgrade shall be kept to a minimum. If equipment is operated on recent work, the OWNER may inspect and require subgrade replacement for such defects as fractures, rutting, or any other failure. Complete drainage of the subgrade shall be provided at all times. The construction area shall be shaped to provide drainage of surface water. Surface water shall not be allowed to pond in or near the subgrade. Surface water shall be pumped immediately from the subgrade area after each rain and a firm subgrade maintained until the overlying pavement is placed.

Finishing of the subgrade by hand or other methods shall be permitted on pavement widening projects, on sections where the pavement width is not uniform, at intersections and elsewhere where the operation of certain equipment would not be practical. Subgrade finished by hand or other methods shall conform to the requirements above specified.

(Page 301-2. Add Item 301.1.1.3.2.COD. SUBGRADE PREPARATION:) [New Section Added; Standard Proctor Densities were changed from 95% to 98%.]

301.1.1.3.2.COD: Subgrade Preparation: All areas beneath proposed pavement shall be proof rolled to detect areas of weakness prior to placement of fill material. In cut areas, the soil shall be proof rolled after excavation is completed to final subgrade elevation. Proof rolling shall be performed in accordance with Item 301.1.1.3.1. Proof Rolling.

Any soft or compressible areas detected during the proof rolling shall be undercut to firm soil. The proof rolling operation shall be observed by the OWNER to verify that firm non-yielding (non-pumping) subgrade soils are present at the base of the roadway excavation. Prior to fill placement, the subgrade soils at the base of the excavation shall be scarified and recompacted within a moisture content range of minus two (-2) to plus four (+4) percentage points of optimum moisture to a minimum of 98% Standard Proctor density (**ASTM D 698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort**). Density tests shall also be performed on any utility trench backfill beneath the proposed roadway to verify that adequate compaction levels have been achieved.

(Page 301-2. Add Item 301.1.1.3.3.COD. UTILITY DITCH CUTS:) [New Section Added; Standard Proctor Densities were changed from 95% to 98%.]

301.1.1.3.3.COD: Utility Ditch Cuts: If, in the opinion of the OWNER, a utility ditch cut is unstable, the CONTRACTOR shall remove the unstable material and replace it with material suitable to the OWNER, and the replacement material shall meet the compaction requirements of **Item 504: Open Cut - Backfill** of these Specifications.

The CONTRACTOR shall notify the appropriate utility company 24 hours in advance of backfilling or removing the unstable material, so the utility company can have a representative present during the removal. The CONTRACTOR shall use a probe rod to determine the depth of the utility to insure against damaging the utility. Any expense for damages or repairs to the utility due to the backfilling or removal of the unstable material shall be borne by the CONTRACTOR.

If soft or loose, non-compact fill or utility trench backfill soil extends to depths of over three (3) feet below final subgrade (bottom of proposed pavement), excavation will terminate at a depth of three (3) feet below final subgrade. The upper eight (8) inches of soil at the base of the excavation shall then be reworked and compacted within a moisture content range of minus two (-2) to plus four (+4) of Standard Proctor percentage points of optimum moisture to a minimum of 98% Standard Proctor density. If the soils at the base of the cut are too wet and soft to allow expeditious compaction per specification requirements, the excavation should be

deepened 12 inches (to a depth of four (4) feet below final subgrade) and compacted as well as possible at that depth at its existing moisture content prior to placement of fill in eight (8) inch compacted lifts. The removal and replacement of the unstable material must be by permission of, and at the direction of, the OWNER, and the removal limits shall be up to a maximum of three (3) feet below the top of the street paving subgrade by the length and by the width of the utility ditch cut or unstable area as determined by the OWNER. Any additional removal or backfill must be approved by the OWNER.

Where existing underground utilities are present, the excavation must be terminated a sufficient distance above the utility line to prevent damage to the pipe. The OWNER and the Utility Company representative shall determine the necessary soil cover that must remain above the pipe so that damage will not occur to the existing utilities.

After compaction and approval of the excavation subgrade, backfill shall be performed to the required subgrade elevation (bottom of proposed pavement) using on-site soils or approved borrow placed in maximum eight (8) inch lifts and compacted to a minimum of 98% Standard Proctor density. The moisture content of granular soils (having a PI of 20 or less) at the time of compaction shall be from minus two (-2) to plus four (+4) plus to minus three (±3) percentage points of the optimum moisture content. The moisture content of clay soils (having a Plastic Index (PI) in excess of 20) shall be from minus two (-2) to plus four (+4) percentage points above optimum. The CONTRACTOR has the option for backfill of unstable utility cuts and subgrade to use flowable fill approved by the OWNER having a compressive strength of at least 500 25 psi but not more than 100 1200 psi at 28 days. The subgrade soils shall then be stabilized per specification requirements as stated in City of Dallas' Pavement Cut and Repair Standards Manual.

The construction area shall be shaped to provide drainage of surface water. Surface water shall not be allowed to pond in or near the subgrade. Surface water shall be pumped immediately from the subgrade area after each rain and a firm subgrade maintained until the overlying pavement is placed.

Finishing of the subgrade by hand shall be permitted on pavement widening projects, on sections where the pavement width is not uniform, at intersections and elsewhere where the operation of the subgrade planer would not be practical. Subgrade finished by hand shall conform to the requirements above specified.

(Page 301-2. Add Item 301.1.1.3.4.COD. RECOMPACTED PAVEMENT SUBGRADE:) [New Section Added; Standard Proctor Densities were changed from 95% to 98%.]

301.1.1.3.4.COD: Recompacted Pavement Subgrade: If subgrade stabilization is not performed, the upper eight (8) inches of subgrade soil shall be compacted at minus two (-2) to plus four (+4) percentage points of optimum moisture to a minimum of 98% Standard Proctor density (**ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort**). Only on-site soil (comparable to the underlying subgrade soil) shall be used for fine grading proposed street and alley pavement subgrade. The subgrade shall be lightly scarified to a depth of from two to 3 inches before fine grading is performed to ensure the resulting subgrade is a homogeneous, monolithic layer throughout. After fine grading, the subgrade shall again be watered if needed and recompacted to reachieve the moisture and density levels discussed above and provide a tight non-yielding subgrade. Sand shall not be allowed for use in fine grading the subgrade beneath street and alley pavement areas since these more porous soils can allow water inflow and ponding beneath the pavement section, resulting in heave and loss of subgrade soil strength. The subgrade moisture content and density must be maintained until paving is completed. The subgrade shall be watered just prior to paving to assure concrete placement over a moist subgrade.

(Page 301-2. Replace Item 301.1.1.4. MEASUREMENT AND PAYMENT, with the following:) [The entire Section has been replaced.]

301.1.1.4.COD: Measurement and Payment; Preparation of Subgrade:

Preparation of subgrade shall not be measured for payment as a separate contract pay item unless specifically provided for in the contract provisions. Measurement of removal or backfill will be by the OWNER and the CONTRACTOR at the time of removal or backfill, and this measurement shall be final and agreed to by both parties at the time of removal or backfill. Preparation of the subgrade or fine grading shall not be paid for as a

separate contract pay item unless specifically provided for in the contract; and cost thereof shall be included in such contract items as are provided, which pay items shall be the total compensation for the furnishing of all labor, tools, materials, equipment and incidentals necessary to complete the work, including disposal of surplus material, all in accordance with the plans and these specifications. Removal of soft or compressible areas below eight (8) inches of the proposed bottom of pavement structure and replacement and recompaction as provided for in these specifications shall be paid for separately as ―Removal and Replacement of Unstable Utility Trench and Subgrade‖ when provided for separately in the contract and proposal and shall be measured and paid for by the cubic yard as determined from the agreed upon measurement of actual average vertical depth up to a four (4) feet maximum depth below paving subgrade by the length and width of the removed utility ditch cut or unstable area.

The contract unit price per cubic yard bid for ―Removal and Replacement of Unstable Utility Trench and Subgrade‖ shall be the total compensation for removal, hauling and delivering; for furnishing and placing all materials; for all dumping, placing, sprinkling, and tamping; and for all labor, tools, fuels, equipment and incidentals necessary to complete the work all in accordance with the plans and specifications.

The unit price bid for ―Removal and Replacement of Unstable Utility Trench and Subgrade‖, shall not be subject to renegotiation under the underrun or overrun limitations as set forth in **Item 104.2.1. Increased or Decreased Quantities of Work, of the Standard Specifications**.

(Page 301-4. Replace Item 301.2.1.2.COD. QUICKLIME, with the following:) [The CAUTION sentence was modified.]

301.2.1.2.COD. Quicklime.

CAUTION: HANDLING AND USE OF QUICKLIME CAN BE DANGEROUS. QUICKLIME SHOULD BE PRESCRIBED BY A REGISTERED PROFESSIONAL ENGINEER FAMILIAR WITH ITS USE AND THE QUICKLIME SHALL BE ACCEPTED IN WRITING BY THE OWNER PRIOR TO DELIVERY ON-SITE.

(Page 301-4. Replace Item 301.2.3.1. GENERAL, with the following:) [A new first paragraph has been added.]

301.2.3.1.COD. General: The required application rate of lime for treatment shall be as shown on the plans as the net quantity required. If required by the OWNER, the application rate of lime shall be determined by the OWNER based on Atterberg Limit determinations performed on actual on-site subgrade soils treated with lime additives. The rate of lime required shall be determined by the OWNER using an adjusted rate (normally up to 20 percent boost) above the laboratory determined rate required to reduce the PI of the lime treated on-site subgrade soils to 15. The adjusted rate used for clay subgrade soils shall not be less than 4% commercial hydrated lime per dry weight of subgrade soil (for 6-inch depth treatment - 22 lbs per square yard; for 8-inch depth treatment - 29 lbs per square yard) for subgrade soils having a liquid limit less than 50. The adjusted rate used for clay subgrade soils having a liquid limit of 50 or greater shall not be less than 6% commercial hydrated lime per dry weight of subgrade soil (for 6-inch depth treatment - 32 lbs per square yard; for 8 inch depth treatment - 43 lbs per square yard.

It is a primary requirement of this specification to secure a completed course of treated material containing a uniform lime mixture, free from loose or segregated areas, or uniform density and moisture content, well bound for its full depth, and with a smooth surface and suitable for placing subsequent courses. It shall be the responsibility of the CONTRACTOR to regulate the sequence of work, to use the proper amount of lime, maintain the work, and rework the courses as necessary to meet the above requirements.

The subgrade in all areas specified to receive street pavement shall be proof rolled in accordance with **Item 301.1.1.3.4.COD: Proof Rolling,** and **Item 301.1.1.3.1.COD: Subgrade Preparation**. Any soft or compressible areas detected during the proof rolling process shall be undercut to firm soil and backfilled as required by the OWNER with acceptable soil to make the final grade. Undercutting, backfilling, and compaction shall be performed as provided in **Item 301.1.1.3.1.COD: Subgrade Preparation**. All subgrade to receive lime treatment shall receive an initial scarification to the bottom of the specified subgrade treatment before the lime or lime slurry is added to the subgrade.

Prior to beginning any lime treatment, the roadbed shall be constructed and shaped to conform to the typical sections, lines, and grades as shown on the plans or as established by the OWNER.

In cases where groundwater is present, application of lime for stabilization shall be evaluated by the OWNER.

(Page 301-6. Replace Item 301.2.3.6. COMPACTION, with the following:) [The third sentence was modified to include 98-percent compaction and the name of ASTM D698; the fourth sentence was modified to clear up the meaning of "minus two (-2) to plus four (+4)." In the last paragraph, a reference to where "Hairline cracking" is defined was, added. In the last sentence, the words "sufficiently lightly" were removed.]

301.2.3.6.COD: Compaction: Compaction of the mixture shall begin immediately after final mixing and in no case later than three (3) days after final mixing. The material shall be aerated or sprinkled as necessary to provide optimum moisture. Compaction shall begin at the bottom and shall continue until the entire depth of the mixture is uniformly compacted as shown on the plans or specified by the OWNER. The compacted mixture shall have a uniform density of not less than 98-percent of the maximum density as determined by **ASTM D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.** Moisture content shall be within minus two (-2) to plus four (+4) percent of optimum. After each section is completed, such tests as are necessary shall be made by the OWNER. If any portion fails to meet the density specified, it shall be reworked as necessary to obtain the specified density. After the mixture has been compacted, the surface shall be shaped to the required line, grades, and cross sections and then thoroughly rolled to prevent hairline cracking. (Hairline cracking is defined in **Item 303.8.4. Random Drying Shrinkage Cracks and Stress Cracks)**

(Page 301-6. Replace Item 301.2.3.7. MAINTENANCE, with the following:) [In the first paragraph, sentences two, three, and four have been added; in the eighth sentence, the number of days after compaction a layer may be opened has been changed from 2-days to 3-days; a new second paragraph has been added.]

301.2.3.7.COD. Maintenance: The CONTRACTOR shall be required to maintain the completed soil lime base within the limits of its contract in good condition, satisfactory to the OWNER as to grade, crown, and cross section until the surface course is constructed. Only lime treated soil shall be used for fine grading proposed street pavement subgrade where lime treatment has been specified. The subgrade of low areas shall be scarified to the full depth of subgrade and reworked before fine grading is performed to ensure the resulting subgrade is a homogeneous, monolithic layer throughout. Use of sand or sandy soil for fine grading beneath proposed street pavement areas is strictly prohibited. The surface of the compacted layer shall be kept moist until covered by other base or paving material or application of a curing seal of emulsified asphalt conforming to requirements of **Item 302.3.5. Emulsions for Priming, Curing and Erosion Control (PCE)**. If a curing seal is used, it should be applied as soon as possible after completion of final rolling, at a rate of between 0.10- and 0.20-gallons-per-square-yard, the exact rate to be determined by the OWNER. No equipment or traffic shall be permitted on lime treated material for 72-hours after curing seal is applied, unless otherwise permitted by the OWNER. In cases where subgrade treatment or subbase sets up sufficiently to prevent objectionable damage from traffic, such layers may be opened to traffic 3-days after compaction. The CONTRACTOR shall immediately repair all irregularities or other defects that may occur at the CONTRACTOR'S expense. Repairs are to be made as directed by the OWNER and in a manner to ensure restoration of a uniform surface and durability of the portion repaired.

Should the CONTRACTOR allow freshly limed soil to be exposed to the elements for a total of 10-days or longer, without sealing or pavement, the CONTRACTOR, at no additional cost to the OWNER, shall pulverize, remix, recompact, and reshape to the grades and cross-sections specified in the plans. Upon completion of the compaction, the surface be thoroughly rolled to prevent hair-line cracking by the CONTRACTOR, at no additional cost to the OWNER.

(Page 301-8. Replace **Item 301.3.3.2.3. COMPACTION AND FINISHING OF STABILIZED MATERIALS-IN-PLACE:**) [In all mentions, 95% Standard Proctor Density was replaced with 98% Standard Proctor Density; the density in the last sentence of the first paragraph was modified to "... minus two (-2) to plus four (+4) percent of optimum"; and in the fourth paragraph, reference was made to **ASTM 2922**, which was withdrawn in 2007 – it was replaced by **ASTM D6938**, and the second sentence was modified.]

301.3.3.2.3.COD. Compaction and Finishing of Stabilized Materials-In-Place. Compaction shall begin after mixing and after gradation and moisture requirements have been met. The material shall be compacted to at least 98-percent of the maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort**. At the start of compaction, the percentage of moisture in the mixture and in unpulverized soil lumps, based on oven-dry weights, minus two (-2) to plus four (+4) percent of optimum moisture content and shall be less than the quantity which shall cause the soil-cement mixture to become unstable during compaction and finishing. When the uncompacted soil-cement mixture is wetted by rain so that the average moisture content exceeds the tolerance given at the time of final compaction, the entire section shall be reconstructed in accordance with this specification at the sole expense of the CONTRACTOR, including costs to retest. The specified optimum moisture content and density shall be determined in the field on the representative samples of soil-cement mixture obtained from the area being processed. Final moisture content shall be within minus two (-2) to plus four (+4) percent of optimum moisture content.

Prior to the beginning of compaction, the mixture shall be in a loose condition for its full depth. Compaction shall begin at the bottom and shall continue until the entire depth of the mixture is uniformly compacted. The loose mixture shall then be uniformly compacted to the specified density within 2-hours. After the soil and cement mixture is compacted, water shall be uniformly applied as needed and thoroughly mixed in. The surface shall then be reshaped to the required lines, grades and cross section.

The resulting surface shall be thoroughly rolled with a pneumatic tire roller and "clipped," "skinned," and "tight-bladed" by a power grader to a depth of approximately ¼-in., moving all loosened soil and cement from the section. The surface shall then be thoroughly compacted with the pneumatic roller, adding small increments of moisture as needed during rolling. When directed by the OWNER, surface finishing methods may be varied from this procedure, provided a dense, uniform surface, free of surface material, is maintained at its specified optimum during all finishing operations. Surface compaction and finishing shall proceed in such a manner as to produce, in not more than 2-hours, a smooth, closely knit surface, free of cracks, ridges or loose material, conforming to the drawn grade and line shown on the plans.

OWNER shall conduct in-place density tests as outlined in **ASTM D6938 Standard Methods for in-Place Density and Water Content of Soil and Soil Aggregate by Nuclear Methods (Shallow Depth).** In-place density tests shall be performed at the minimum rate of one-per-300-linear-ft. of street paving, staggered between all lanes. The suitability of the modification shall be confirmed by Atterberg Limit testing at the rate of one-test-per-2,500-cubic yards of processed material.

In addition to the requirements specified for density, the full depth of the material shown on the plans shall be compacted to the extent necessary to remain firm and stable under construction equipment. After each section is completed, tests as necessary will be made by the OWNER. If the material fails to meet the density requirements, it shall be reworked to the full depth as necessary to meet these requirements. Throughout this entire operation the shape of the course shall be maintained by blading, and the surface upon completion shall be smooth and in conformity with the typical section shown on the plans and to the established lines and grades. Should the material, due to any reason or cause, lose the stability, density and finish before the next course is placed or the work is accepted, it shall be recompacted and refinished at the sole expense of the CONTRACTOR.

(Page 301-9. Replace Item 301.3.3.3.1. SUBGRADE PREPARATION, with the following:) [A new first paragraph was added; in the second paragraph, a new second sentence was added]

301.3.3.3.1.COD. Subgrade Preparation.

Cement Treated Base (CTB) shall consist of aggregate, cement and water uniformly mixed in a central plant, transported to the project, spread, compacted, shaped, finished, and cured in accordance with these specifications. It shall conform to the lines, grades, thicknesses, and typical cross-section shown on the plans.

Before other construction operations are begun, the area to be paved shall be graded and shaped as required to receive the cement treated base in conformance with the grades, lines, thicknesses and typical cross-section shown on the plans. Site mixed Cement Treated Base (CTB) is prohibited unless approved by the OWNER. Unacceptable subgrade soil or material shall be removed and replaced with acceptable soil. The subgrade shall be firm and able to support without displacement of the construction equipment and compaction. Soft or yielding subgrade shall be corrected and made stable before construction proceeds. Cement Treated Base shall follow the specifications found in the latest edition of the City of Dallas Paving Design Manual, Section 5, Table V-1.

(Page 301-9. Replace Item 301.3.3.3.2. MIXING AND PROCESSING FOR PLANT MIXED CEMENT TREATED BASE, with the following;) [The word "Engineer" in the first sentence was changed to "OWNER"; There are new paragraph added to the end of this Section.]

301.3.3.3.2.COD. Mixing and Processing for Plant-Mixed Cement Treated Base. The aggregate, cement and water shall be mixed in a pug mill as approved by the OWNER. The plant shall be equipped with feeding and metering devices that add the aggregate, cement and water into the mixer in the specified quantities to produce a mixture that meets or exceeds the mix design criteria. Aggregate and cement shall be mixed sufficiently to prevent cement balls from forming when the mix water is added. Mixing time shall be sufficient to assure an intimate, uniform mixture of aggregate, cement and water. The percentage of moisture in the aggregate, at the time of cement application shall be the amount that assures a uniform and intimate mixture of aggregate and cement during mixing operations. It shall not exceed the specified moisture content required for adequate compaction.

Free access to the plant shall be provided to the OWNER for construction quality control. The mixture shall be hauled to the paving area in trucks having beds cleaned of deleterious material.

The CONTRACTOR shall submit a mix design for the proposed Cement Treated Base (CTB) to the OWNER for approval in advance of the proposed work. Unconfined compression strength test results shall be submitted with the mix design by the supplier of the CTB material.

The CTB Materials shall be as follows:

(1) **Cement:** Cement shall comply with **Item 303.2.2. Portland Cement**, of the NCTCOG Specifications, latest edition. Additionally, the CONTRACTOR may gain a preference in the Bidding Process if the CONTRACTOR complies with **Item 303.3.6.COD: Cement Used on Public Projects – Sustainable Air Quality.**

(2) Aggregate: The aggregate may be any granular material or combinations of aggregates that will, when mixed with adequate amounts of cement and water, produce laboratory mix design Unconfined Compression Test strengths as specified in the paragraph below in accordance with ASTM D 1632. The preceding tests will utilize the Moisture-Density Relation as determined by **ASTM D558 Standard Test Methods for Moisture-Density Relations of Soil-Cement Mixtures** and AASHTO **T134 Standard Method of Test for Moisture-Density Relations of Soil-Cement Mixtures**. The maximum size of aggregate shall pass a 2-inch sieve.

(Page 301-9. Replace Item 301.3.3.3. PLACEMENT OF PLANT MIXED CEMENT TREATED BASE:) [In the fourth sentence, the word "Engineer" was changed to "OWNER".]

301.3.3.3.3.COD. Placement of Plant-Mixed Cement Treated Base. The mixture shall be placed on a moistened subgrade in a uniform layer by any approved method of spreading that will deposit the required

quantity per lineal foot, without segregation, to produce a uniformly compacted base conforming to the grade and cross-section. Not more than 30-minutes shall elapse between placement of cement treated base in adjacent lanes at any location except at longitudinal and transverse construction joints. Compaction shall start as soon as possible after spreading. Elapsed time between the addition of water to the cement treated base mixture and the start of compaction shall not exceed 60-minutes under normal conditions. The OWNER may alter this time if environmental conditions, such as temperature, humidity or wind conditions would justify such a change. Laboratory tests may be required to verify changes in compaction time limits.

(Page 301-10. Replace Item 301.3.3.3.4. COMPACTION OF PLANT-MIXED CEMENT TREATED BASE, with the following:) [In paragraph 2, sentence 4, the "95% maximum density" was replaced with "a minimum 98% Standard Proctor Density".]

301.3.3.3.4.COD. Compaction and Finishing of Plant-Mixed Cement Treated Base. At the start of compaction, the percentage of moisture in the mixture shall not be more than one-percentage-point below or two-percentage-points-above the specified optimum moisture content and shall be less than that quantity which will cause the cement treated base mixture to become unstable during compaction and finishing. The specified optimum moisture content and density shall be determined in the field by a Moisture-Density Test **AASHTO T134 Standard Method of Test for Moisture-Density Relations of Soil-Cement Mixtures** or **ASTM D558 Test Methods for Moisture-Density Relations of Soil-Cement Mixtures**, on representative samples of cement treated base mixture obtained from the area prior to compaction. Prior to compaction, the mixture shall be in a loose condition for its full depth. The loose mixture shall then be compacted uniformly to the specified density. During compaction operations, initial shaping may be required to obtain uniform compaction and required grade and cross-section.

When initial compaction is completed, the surface of the cement treated base shall be shaped to the required lines, grades and cross-section. The moisture content of the surface material shall be maintained at not less than its specified optimum moisture content during finishing operations. If any reshaping of the surface is necessary, it shall be lightly scarified to remove any compaction planes, scales or smooth surfaces left by equipment. Final compaction shall then be continued until uniform and adequate density is obtained. Cement treated base shall be uniformly compacted to a minimum of 98-percent of Standard Proctor density. Compaction and finishing shall be done in such a manner as to produce, in not longer than two-hours, a smooth, dense surface free of compaction planes, cracks, ridges, or loose material.

(Page 301-11. Replace Item 301.3.3.6. OPENING TO TRAFFIC:) [Entire Section was replaced]

301.3.3.6.COD. Opening to Traffic: Completed portions of Cement Treated Base may be opened to local traffic and to construction equipment as soon as the curing material or surface is not impaired as specified in the section on curing of this specification. The completed portions may be opened to all traffic after the seven-day curing period, provided the Cement Treated Base has hardened sufficiently to prevent marring or distorting of the surface by equipment or traffic.

(Page 301-11. Add Item 301.3.3.7.COD. NO SEPARATE COMPENSATION:) [New Section Added]

301.3.3.7.COD. No Separate Compensation: No separate compensation shall be provided for maintenance of the CTB work in good condition, but such work shall be considered incidental to the contract pay items provided and to pay item provided for Cement Treated Base.

(Page 301-11. Add Item 301.3.5.COD. CONSTRUCTION QUALITY CONTROL PROGRAM:) [New Section Added.]

301.3.5.COD: Construction Quality Control Program:

The CONTRACTOR shall be fully (CTB) work. The CONTRACTOR shall be responsible for establishing at their sole expense, a CONTRACTOR quality control program to ensure the quality of work meets customary and normal quality for CTB work in the industry and meets all the requirements of this specification.

To ensure that the construction of the Cement Treated Base is in accordance with the provisions of these specifications, the following OWNER's quality assurance testing program will be provided by the OWNER and performed by a testing laboratory approved or retained by the OWNER. The cost for additional testing to prove out deficient work shall be born solely by the CONTRACTOR.

Tests Normally Performed by the OWNER's Quality Assurance Program:

(1) Establish the field moisture density curve in accordance with **AASHTO T134 Standard Method of Test for Moisture-Density Relations of Soil-Cement Mixtures** or **ASTM D558 Test Methods for Moisture-Density Relations of Soil-Cement Mixtures**. The results of this test performed on representative samples of CTB obtained from the area being processed at a time of about midway through the initial compaction phase will establish the optimum moisture content to be incorporated at the central mixing plant and the maximum density will serve as a basis for establishing the density for acceptance.

(2) The Field-Density of the compacted CTB mixture shall be determined by any of the following: **ASTM D6938 Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth), ASTM D 1556 Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method**, or **ASTM D 2167 Standard test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.**

(3) Four unconfined compression test cylinders will be molded from CTB material taken from the haul trucks at the job site for every 150 cubic yards of CTB placed, but in no case, shall less than two sets of cylinders be taken from any one day's placement. The sets of cylinders shall be molded in standard Proctor molds, cured in accordance with **ASTM D1632 Standard Practice for Making and Curing Soil-Cement Compression and Flexure Test Specimens in the Laboratory**, and tested in accordance with **ASTM D 1633 Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders** procedures.

(4) Visual inspection of loose and compacted thickness of the CTB layer will be included in the report as well as observations on surface scaling, construction joints and curing.

Strength Requirements: The unconfined compressive strengths required for the CTB material shall be 650 psi at 28 days. Nonstructural CTB for utility backfill shall require compressive strengths of 200 psi at 28 days.

Thickness Requirements: The thickness required for the CTB material shall be no less than 4 inches unless otherwise specified in the plans or proposal.

Acceptance of Work: Acceptance of the work performed shall be based on strict compliance by the CONTRACTOR with the provisions of this specification. Pavement testing for thickness and unconfined compression strength shall be made in accordance with Standard Specification Item 303.8.3.1.COD Standard Classes of Concrete Test Cylinders, and credits due the City for CTB work that is deficient in thickness or strength shall be deducted from payments due the CONTRACTOR in accordance with the provisions of **Item 303.8.3.1.COD Standard Classes of Concrete Test Cylinders**.

(Page 301-11. Add Item 301.3.5.1.COD: MEASUREMENT OF WORK AND BASIS OF PAYMENT:) [New Section Added]

301.3.5.1.COD: Measurement of Work and Basis of Payment:

Measurement of Work: CTB work shall be measured in square yards of completed and accepted Cement Treated Base course in accordance with the dimensions and requirements of the plans and specifications.

Basis of Payment: CTB work shall be paid for at the contract unit price per square yard of completed and accepted Cement Treated Base course less any credits due to the City as provided for in **Item 303.8.3.1.COD Standard Classes of Concrete Test Cylinders**, of the Standard Specifications, which payment shall be considered full payment for furnishing all materials, equipment, tools, labor, and incidentals necessary to complete the work and to carry out the maintenance provisions in accordance with these specifications.

No allowances shall be made for any materials used or work performed outside the lines established by the OWNER unless approved in writing prior to the work

(Page 301-11. Add Item 301.3.6.COD. CEMENT STABILIZATION OF SUBGRADE SOILS:) [New Section Added]

301.3.6.COD. Cement Stabilization of Subgrade Soils:

Cement stabilization of subgrade soils shall be performed in accordance with the applicable provisions of **Item 303.2.2. Portland Cement**, of subgrade soils of the Standard Specifications for Public Works Construction, as amended except as provided below.

Type I Portland Cement shall be used for stabilization of subgrade soils covered under this provision. All surface vegetation and debris shall be scarified and removed and any existing bituminous pavement shall be pulverized so that 100 percent shall pass a two-inch sieve before placement of cement or cement slurry.

Cement or cement slurry shall not be mixed or placed when the air temperature is below 40 degrees Fahrenheit and falling, but may be mixed or placed when the air temperature is above 40 degrees Fahrenheit and rising, the temperature being taken in the shade and away from artificial heat; and with the further provisions that dry cement shall be mixed or placed only when site and weather conditions, in the opinion of the OWNER, are suitable.

The subgrade to all areas specified to receive street pavement shall be proof rolled in accordance with special provisions **Item 301.1.1.3.1. Proof Rolling**, and **Item 301.1.1. Subgrade Preparation**. Any soft or compressible areas detected during the proof rolling process shall be undercut to firm soil and backfilled as required by the OWNER with acceptable soil to make the final grade. Undercutting, backfilling, and compaction shall be performed as provided in **Item 301.1.1. Subgrade Preparation.**

All subgrade soils with a soil plasticity index of 20 or greater shall be lime treated and cured before commencement of the cement stabilization work. Lime treatment shall be performed in accordance with **Item 301.2. Lime Treatment** of the standard specifications, as amended. After the lime treated subgrade has cured the required time, the subgrade shall be cement stabilized in accordance with these revised specifications with the exception that the rate of cement specified in the table in this specification may be reduced by 2%.

All subgrade to receive cement stabilization shall receive an initial scarification to the bottom of the specified subgrade stabilization and shall be pulverized to required gradation of at least 60% passing the No. 4 sieve and 100% passing the 1 ¾-inch sieve before the cement or cement slurry is added to the subgrade. The soil moisture content shall be no higher than the Standard Proctor optimum moisture content before beginning the pulverization process. If the soil moisture content exceeds optimum moisture, the scarified subgrade shall be removed and spread or windrowed to expose the subgrade soil and the secondary grade to air to accelerate drying. When moisture content has been reduced to optimum or below, the subgrade material shall be re-spread to the desired subgrade cross section and cement stabilization shall begin.

Cement or cement slurry shall be added to the acceptably pulverized subgrade for only that area where the mixing, compaction, fine grading, and recompaction can be completed in daylight within 6 hours of application of the cement or cement slurry to the soil and in one continuous operation. If this entire operation is not completed within six (6) hours of application, the OWNER will evaluate the subgrade to determine if additional testing is required to verify that the effective subgrade modulus assumed for design has been achieved.

Except in the CBD area or unless otherwise noted in the plans and specifications, the CONTRACTOR has the option, for soils with a P.I. less than 20 or for soils saturated above optimum moisture, to lime treat or dehydrate the subgrade with Class —”C” fly ash or portland cement in advance of cement stabilization. Lime treatment shall be performed in accordance with **Item 301.2. Lime Treatment** as amended by the City. After the lime treated subgrade has cured the required time, or in the case of addition of Class —”C” fly ash or portland cement, the subgrade has dehydrated sufficiently, the subgrade shall be scarified to the bottom of the specified cement subgrade stabilization and the subgrade shall be stabilized with cement as herein required except that if Lime treatment has been performed, the rate of cement may be reduced by 2%. Unless otherwise provided for in the contract, the cost for the Lime treatment or treatment with fly ash or portland cement prior to cement stabilization shall be borne by the CONTRACTOR.

If the cement stabilized subgrade is found not to does not comply with these specifications or should the treated subgrade lose the required stability, compaction, or finish before the next course is placed or the project is accepted, the cement stabilized subgrade shall be removed and replaced, unless otherwise directed by the OWNER. The CONTRACTOR shall bear the cost of any additional work or testing required by the OWNER to

provide the subgrade in compliance with these specifications. If required, removal and replacement will be at the CONTRACTOR'S expense.

The cement stabilization shall be performed to the depth specified on the plan at the specified percent of cement to dry weight of soil. Unless specified in the CONTRACT, the suggested application rate for Type I Portland Cement for treatment to a depth of six (6) inches is outlined below:

Table 301.3.5.(a).COD: Cement Stabilization Of Subgrade Soils

Soil Plasticity Index (P.I.)	Application (percent)	Depth of Treatment (inches)	Cement Required (pounds/sq yard)
15 or less	6	8	52
25 or less but greater than 15	8	8	63
45 or less but greater than 25	10	8	72
Greater than 45	To be determined by OWNER	8	To be determined by OWNER

Approval of final mixing operations shall be based on gradation tests with at least 60 percent on a dry weight basis of the modified soil passing the No. 4 sieve at a moisture content near optimum and 100 percent passing the 1-inch sieve.

The cement stabilized soil shall be compacted to a minimum of 98 percent of the maximum dry density defined by the Standard Proctor Test (**ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort**), at a moisture content within minus two (-2) to plus four (+4) percent of optimum moisture content.

Sand shall be specifically prohibited beneath pavement areas during final grading (after stabilization), since these more porous soils can allow water inflow, resulting in heave and strength loss of subgrade soils. Only cement stabilized soil shall be used for fine grading. After fine grading each area in preparation for paving, the subgrade surface shall be lightly moistened, as needed, and recompacted to obtain a tight non-yielding subgrade. Fine grading and recompaction shall be completed within 6 hours of the application of the cement or cement slurry.

The finished subgrade shall be continuously moist cured beginning immediately after completion of the cement stabilization of the subgrade until the next course is placed. Instead of continuous moist curing, the CONTRACTOR has the option of immediately wetting the finished cement stabilized subgrade by the use of pressure water distributors so that the cement stabilized subgrade surface is thoroughly and uniformly moistened, but without free water standing on the surface. Immediately after wetting the cement stabilized subgrade surface, the CONTRACTOR shall apply two-tenths (0.2) gallon per square yard asphalt SS-1 emulsion as a curing cover as provided for in **Item 302.3.5. Emulsions for Priming, Curing, and Erosion Control (PCE)**, of the Standard Specifications.

The CONTRACTOR shall maintain this curing cover, so that all of the cement-stabilized subgrade shall be covered effectively with asphalt SS-1 emulsion until the pavement is placed on the subgrade.

After final grading, the depth of the stabilized subgrade shall be measured and verified by the OWNER to verify that the specified depth of stabilization has been achieved below the final pavement subgrade elevation.

Cement stabilization of subgrade soils shall be paid for as provided in **Item 301.3.4. Measurement and Payment**. No separate compensation shall be provided for preliminary treatment using lime stabilization, fly

ash, or portland cement required to prepare the soil to meet gradations prior to the beginning of cement stabilization of subgrade soils.

(Page 301-9. Add **Item 301.3.5.1.COD. EQUIPMENT DESCRIPTION:**) [New Section Added]

301.3.5.1.COD: Equipment Description: Cement Treated Base (CTB) may be constructed with any combination of machines or equipment that will produce the results meeting these specifications.

(Page 301-11. Add **Item 301.3.7.COD: CEMENT TREATED BASE:**) [New Section Added.]

301.3.7.COD. Cement Treated Base

301.3.6.1.COD: Equipment Description: Cement Treated Base (CTB) may be constructed with any combination of machines or equipment that will produce the results meeting these specifications.

(Page 301-14. Replace **Item 301.4.3.5. COMPACTION**, with the following:) [In the second sentence of the first paragraph, the notation "minus two-2 to-2-percent of optimum" was changed to "minus two (-2) to plus four (+4) percent of optimum"; In the first sentence in the second paragraph, the 95% compaction was changed to 98%; In the second sentence of the second paragraph, the notation "minus two-2 to-4-percent of optimum" was changed to "minus two (-2) to plus four (+4) of optimum moisture content".]

301.4.3.5.COD. Compaction. Compaction of the mixture shall begin immediately after final mixing and in no case later than 2-days after final mixing. The material shall be aerated or sprinkled as necessary to provide optimum moisture content. At the start of compaction, the moisture in the mixture and in unpulverized soil lumps, based on oven-dry weights, shall be within minus two (-2) to plus four (+4) percent of optimum moisture content. The specified optimum moisture content and density shall be determined in the field on the representative samples of soil-asphalt base stabilization agent mixture obtained from the area being processed. Prior to the beginning of compaction, the mixture shall be in a loose condition for its full depth. The loose mixture shall be uniformly compacted to the specified density within 4-hours. Compaction shall begin at the bottom and shall continue until the entire depth of the mixture is uniformly compacted as shown on the plans or specified by the OWNER.

The compacted mixture shall have a uniform density of not less than 98-percent of the maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3).** Final moisture content shall be within minus two (-2) to plus four (+4) percent of optimum moisture content. If the soil-asphalt base stabilization agent mixture is wetted by rain so that the average moisture content exceeds the tolerance given at the time of final compaction, the entire section shall be reconstructed in accordance with this specification at the sole expense of the CONTRACTOR. After the soil and asphalt base stabilization agent mixture, except the top layer, is compacted, water shall be uniformly applied as needed and thoroughly mixed in with a spike tooth harrow or equal. The surface shall then be reshaped to the required lines, grades and cross sections and then lightly scarified to loosen any imprint left by the compacting or shaping equipment. After each section is completed, such tests as are necessary shall be made by the OWNER. If any portion fails to meet the density specified, it shall be reworked as necessary to obtain the specified density at the sole expense of the CONTRACTOR.

(Page 301-16. Replace **Items 301.5.1.1. GENERAL through 301.5.1.3. REJECTION**, with the following:) [Sections were Replaced]

301.5.1.1.COD. General: Should the CONTRACTOR elect to produce the Flexible Subbase or Base from local pits and the use of such material is acceptable to the OWNER, the material shall be secured from sources approved by the OWNER. The CONTRACTOR shall obtain written permission from the OWNER prior to bringing the material on-site. If the CONTRACTOR blends material from two locations or pits, the CONTRACTOR shall obtain written permission from the OWNER prior to bringing the material on-site. If the CONTRACTOR does not obtain written permission from the OWNER to bring Flexible Subbase or Base to the

Site prior to brining the material on-site, the CONTRACTOR shall be responsible for the removal of rejected material at no cost to the OWNER.

The Flexible Subbase or Base material shall meet the requirements set forth in the Texas Department of Transportation's Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, Latest Edition, **Item 247: Flexible Base specification**, including specific requirements for material descriptions, gradation, material tolerances, testing, physical requirements, and all other such specifications.

301.5.1.2.COD. Tests and Physical Requirements: See the Texas Department of Transportation's Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, Latest Edition, **Item 247: Flexible Base specification**.

301.5.1.3.COD. Rejection: Flexile Subbase or Base that fails to meet the requirements of these specifications may be rejected by the OWNER. Such rejection shall incur no cost to the OWNER. Sources from which Flexible Subbase and Base materials are delivered with properties not meeting these specifications may be rejected as further supply sources to the project by the OWNER.

(Intentionally Blank)

ITEM 302. ASPHALT PAVEMENT

(Page 302-15. Replace Item 302.4. SECTION HELD FOR FUTURE USE, with the following:) [New Section Added.]

302.4.COD. Fibrous Reinforcement for Asphalt

302.4.1. General.

At the OWNER'S option, fibrous reinforcement may be used unless otherwise shown on the plans or in the contract documents. Fibrous reinforcement shall not be used as a replacement for any reinforcement required for structural purposes.

302.4.2. Material and Tests.

Fibers for reinforcement of asphalt shall be cellulose tested by the methods and meeting the criteria in **Table 302.4.2.(a) Cellulose Fiber Requirements**.

Table 302.4.2.(a) Cellulose Fiber Requirements

Property	Test Methods	Requirements
Sieve Analysis	Alpine Sieve Analysis[1]	
Method A		
Fiber Length		0.25" (maximum)
Passing No. 100 sieve		70% (±10%)
Method B	Mesh Screen Analysis[2]	
Fiber Length		0.25" (maximum)
Passing No. 20 sieve		85% (±10%)
Passing No. 40 Sieve		65% (±10%)
Passing No. 140 sieve		30% (±10%)
Ash Content	See Note 3.	18% (±5%) non-volatiles
pH	See Note 4.	7.5% (±1.0%)
Oil Absorptions	See Note 5.	5.0 (±1.0%) (times fiber weight
Moisture Content	See Note 6.	<5% (by weight)

1. Method A - Alpine Sieve Analysis. This test is performed using an Alpine Air Jet Sieve (Type 200 LS). A representative 5-gram sample of fiber is sieved for 14-minutes at a controlled vacuum of 11-psi. The portion remaining on the screen is weighed.

2. Method B - Mesh Screen Analysis. This test is performed using standard No. 20, 40, 60, 80, 100, 140 sieves, nylon brushes and a shaker. A representative 10-gram sample of fiber is sieved, using a shaker and 2 nylon brushes on each screen. The amount retained on each sieve is weighed and the percentage passing calculated. Repeatability of this method is suspect and needs to be verified.

3. Ash Content. A representative 2- to 3-gram sample of fiber is placed in a tared crucible and heated between 1100°F and 1200°F for not less than 2-hours. The crucible and ash are cooled in a desiccator and reweighed.

4. pH Test. 5-grams of fiber is added to 100-ml of distilled water, stirred and let sit for 30-minutes. The pH is determined with a probe calibrated with pH 7.0 buffer.

5. Oil Absorption Test. 5-grams of fiber is accurately weighed and suspended in an excess of mineral spirits for not less than 5-minutes to ensure total saturation. It is then placed in a screen mesh strainer (approximately 0.5-square-millimeter hole size) and shaken on a wrist action shaker for 10-minutes (approximately 1¼-inch motion at 240-shakes-per-minute). The shaken mass is then transferred without touching, to a tared container and weighed. Results are reported as the amount (number of times its own weight) the fibers are able to absorb.

6. Moisture Content. 10-grams of fiber is weighed and placed in a 250°F forced air oven for 2-hours. The sample is then reweighed immediately upon removal from the oven.

302.4.3. Rejection. Fibrous reinforcement for asphalt may be rejected for failure to meet any of the requirements of this specification.

(Page 302-17. Replace **Item 302.7.4. CONSTRUCTION METHODS**, with the following:) [A new third paragraph has been added.]

302.7.4.COD. Construction Methods.

Asphalt materials shall be handled in accordance with **Item 302.5. Storage, Heating and Application Temperature of Bituminous Materials**.

Prime coat shall not be applied when the air temperature is below 50°F and falling, but it may be applied when the air temperature is above 40°F and rising, the air temperature being taken in the shade and away from artificial heat. Asphaltic material shall not be placed when general weather conditions, in the opinion of the OWNER, are not suitable.

The asphaltic mixture, when placed with a spreading and finishing machine, or the tack coat shall not be placed when the air temperature is below 50°F and is falling, but it may be placed when the air temperature is above 40°F and is rising. The asphaltic mixture, when placed with a motor grader, shall not be placed when the air temperature is below 60°F and is falling, but may be placed when the air temperature is above 50°F and is rising. The air temperature shall be taken in the shade away from artificial heat. Mat thickness of 2 inches and less shall not be placed when the temperature of the surface on which the mat is to be placed is below 50°F.

When, in the opinion of the OWNER, the base is thoroughly dry and is satisfactory to receive the prime coat, the surface shall be cleaned by sweeping or other methods approved by the OWNER. The asphaltic material shall be applied to the cleaned base at the approximate rate of 0.15- to 0.25-gallons-per-square yard of surface area. The application shall be made with an approved type of self-propelled pressure distributor so constructed and operated as to distribute the material evenly and smoothly in the quantity specified or directed. The CONTRACTOR shall provide all necessary facilities for determining the temperature of the asphaltic material in all of the heating equipment and in the distribution, for determining the rate at which it is applied, and for securing uniformity at the junction of two distributor loads.

The OWNER shall select the temperature of application within the limits recommended in **Item 302.5. Storage, Heating and Application Temperature of Bituminous Materials** based on the temperature-viscosity relationship that shall permit application of the asphalt. The CONTRACTOR shall apply the asphalt at a temperature within 15°F of the temperature selected.

No traffic, hauling or placing of subsequent courses shall be permitted over the freshly applied prime coat until authorized by the OWNER.

The CONTRACTOR shall be responsible for the maintenance of the surface until the work is accepted by the OWNER.

(Page 302-19. Replace Item 302.8.3. CONSTRUCTION METHODS, with the following:) [Paragraph 6 has been modified.]

302.8.3.COD. Construction Methods.

Asphalt materials shall be handled in accordance with **Item 302.5. Storage, Heating and Application Temperature of Bituminous Materials.**

Mixing plants may be either the weight-batching type plant, the continuous mixing type plant, or the drum mixing type plant as described in **Item 302.9.5. Mixing Plants** except that requirements for Type "B" and "D" mixtures of fine graded surface course are deleted.

Equipment for storage, weighing and heating of materials shall be as described in **Item 302.9.4. Equipment**.

The OWNER shall designate the asphalt content to be used in the mixture after design tests have been made with the aggregates to be used in the project. When tests as determined by the OWNER are made, samples of the mixture shall not vary from the asphalt content designated by the OWNER by more than 0.5-percent dry weight (based on total mixture). The asphaltic material will form typically 4- to 9-percent of the mixture by weight.

The mixture shall consist of a uniform mixture of mineral aggregates and asphaltic material.

The asphaltic mixtures may be sampled from the plant, truck, or paving machine, when tested in accordance with the current methods outlined in TxDOT Test Method **Tex-208-F Test for Stabilometer Value of Bituminous Mixtures (Part I or Part III as applicable)**, shall have laboratory density and stability as indicated in **Table 302.8.3.(a) Stability of Asphalt Base Course**. If the mixture produced does not have the specified qualities, the mixture shall be changed until it conforms to the specified qualities.

(Page 302-20. Replace Item 302.9.2.2.3. TRACK COAT, with the following:) [In the title, the name "TRACK" has been replaced with "Tack".]

302.9.2.2.3. Tack Coat. The liquid asphalt material used for tack coat should be MS-2 or SS-1 in **Item 302.3.4. Emulsified Asphalt**, restorative seal in **Item 302.3.6. Specialty Emulsions** or one of the other various grades of materials (selected by the OWNER) listed under **Item 302.3.4. Emulsified Asphalt**.

(Page 302-20. Add Item 302.9.2.2.4.COD. CELLULOSE FIBER:) [New Section Added]

302.9.2.3. Cellulose Fiber. Cellulose fiber may be used in the mixture to prevent excessive draindown. The cellulose fiber shall be of the type shown on the plans and shall meet the requirements of **Item 302.4. Fibrous Reinforcement for Asphalt**.

(Page 302-20. Replace Item 302.9.3. PAVING MIXTURE, with the following:) [The last sentence in the paragraph has been replaced by two sentences, a new paragraph added, and a new table has been added.]

302.9.3.COD: Paving Mixture: The paving mixture shall consist of a uniform mixture of coarse aggregate, fine aggregate, mineral filler, when required, and asphaltic material, accurately proportioned by weight. The grading of each constituent shall be such as to produce, when properly proportioned, a mixture conforming to the following limitations for grading the type specified. The exact proportions of each constituent producing the total aggregate within these limits shall be as directed by the OWNER, and when tested by standard laboratory methods, the mixture shall meet the requirements listed in **Tables 302.9.3.(a) through (f).** The OWNER shall specify or approve a mixture within the specified limits for all types of mixtures, which shall be suitable for the work in which the asphaltic pavement shall be used. The Paving Mixture table (below) lists the tolerance of the Paving Mixtures retained by weight or volume. The asphaltic material shall form from 4.0 to 7.0 percent of the mixture by weight or from eight to 16 percent of the mixture by volume.

The aggregate portion of the paving mixture products shall not vary from the design gradation by more than the tolerances that follow. The material passing the No. 200 sieve is further restricted to conform to the limitations

for the master grading for the type specified. The asphaltic material portion of the paving mixture shall not vary from the design amount by more than the allowed tolerance and is restricted to conform to the master limits.

Table 302.9.3.1.(a) COD: Paving Mixture

	Tolerance Percent by Weight or Volume as Applicable
Retained on 1 ¼" to No. 10 Sieve	Plus or Minus 5%
Retained on No. 40 to No. 200 Sieve	Plus or Minus 3%
Asphalt, Weight	Plus or Minus 0.5%
Asphalt, Volume	Plus or Minus 1.2%

(Page 302-18. Replace Table 302.9.3.(a) DENSE GRADED HOT MIX MASTER GRADING, with the following: (Sieve No. 200 have been changed.))

Table 302.9.3.(a).COD. Dense Graded Hot Mix[1] Master Grading

Sieve Size	**Type of Mixture**						
	A Coarse Base	**B Fine Base**	**C Coarse Surface**	**D Fine Surface**	**F Fine Mixture**	**CMHB-C Coarse Surface**	**CMHB-F Fine Surface**
	Percent Passing by Weight						
1 ½"	100						
1 ¼"	95 – 100						
1"		100					
7/8"	**70 - 90**	95 - 100	100			98 – 100	
5/8"		75 – 95	95 - 100			95 - 100	
½"	50 - 70			100			98 – 100
3/8"		60 - 80	70 - 85	85 - 100	100	50 - 70	85 – 100
¼"					95 – 100		
No. 4	30 - 50	40 - 60	43 -63	50 - 70		30 - 45	40 – 60
No. 10	20 - 34	27 - 40	30 - 40	32 - 42	32 - 42	15 - 25	15 – 25
No. 40	5 - 20	10 – 25	10 - 25	11 – 26	9 - 24	6 - 20	6 – 20
No. 80	2 - 12	3 - 13	3 - 13	4 - 14	3 - 13	6 - 18	6 – 18
No. 200	**1 - 6[2]**	**1 – 6[2]**	**1 – 6[2]**	**1 – 6[2]**	**1 – 6[2]**	5 - 8	5 – 8
VMA % minimum	11	12	13	14	15	14	15

1. These mixtures shall be designed using a Texas Gyratory Compactor (TGC) and in accordance with test Method Tex-204-F Design of Bituminous Mixtures. Design must be researched and based on intended use.

2. For Sieve No. 200, these values will be 2 – 8 when test method Tex-200-F, Part II (Washed sieve analysis) is used.

Tolerances: The gradation of the aggregate and the asphalt cement content of the produced mixture shall not vary from the job-mix formula by more than the tolerances allowed herein. When within applied tolerances, the gradation of the produced mixture may fall outside the master grading limits for any of the sieve sizes from the largest sieve size on which aggregate may be retained down through the no. 80 sieve. Only the quantity of aggregate retained on the no. 200 sieve is further restricted to conform to the master grading limitations on table ii.

(Page 302-22. Replace Item 302.9.3.1.COD. EXTRACTION TEST:) [The entire section has been replaced.]

302.9.3.1.COD: Extraction Test: Extraction tests for bitumen content shall be made for each 500 tons produced or fraction thereof. Extraction tests shall conform to **TxDOT Test Method Tex-210-F.** Samples of the asphaltic mixture may be taken from the plant, trucks or paving machine.

(Page 302-28. Replace Item 302.9.6.6. PLACING, with the following:) [A new last paragraph has been added.]

302.9.6.6.COD. Placing. The hot-mix asphalt mixture shall be placed on the approved base course with the specified spreading and finishing machine in such manner that, when properly compacted, the finished course shall comply with the maximum thickness requirements, be smooth and of uniform density, and meet the requirements of the typical cross sections and the surface test. During the placing and spreading of the hot-mix asphalt material, care shall be taken to prevent the spilling of the material onto adjacent pavement, gutters or structures.

In small areas, which are inaccessible to the spreading and finishing machine, hand spreading may be authorized by the OWNER, provided an acceptable surface can be obtained.

(Page 302-28. Replace Item 302.9.6.7. COMPACTION, with the following:) [Replace Section.]

302.9.6.7.COD. Compaction:

(1) Compaction Meets Requirements of Plans: The pavement shall be compacted thoroughly and uniformly with the necessary rollers to obtain the density, stability, and cross section of the finished paving mixture meeting the requirements of the plans and specifications and the approval of the OWNER.

(2) Three Wheel, Tandem, or Vibratory Rollers: When rolling with the three wheel, tandem, or vibratory rollers, rolling shall start longitudinally at the sides and proceed toward the center of the pavement, overlapping on successive trips by at least half the width of the rear wheel unless otherwise directed by the OWNER. The use of vibratory roller on overlay thicknesses less than 1-½ inches will not be permitted. Alternate trips of the roller shall be slightly different in length. On super-elevated curves, rolling shall begin at the low side and progress toward the high side unless otherwise directed by the OWNER. When rolling with vibratory steel-wheel rollers, the manufacturer's recommendation shall be followed unless directed otherwise by the OWNER. Rolling shall be continued until no further density can be obtained and all roller marks are eliminated. The motion of the roller shall be slow enough at all times to avoid displacement of the mixture. If any displacement occurs, it shall be corrected at once by the use of rakes and with fresh mixture where required. The roller shall not be allowed to stand on pavement that has not been fully compacted. To prevent adhesion of the surface mixture to the roller, the wheels shall be kept thoroughly moistened with water, but an excess of water will not be permitted. All rollers must be in good mechanical condition. Necessary precautions shall be taken to prevent the dripping of gasoline, oil, grease or other foreign matter on the pavement, either when the rollers are in operation or when standing.

(3) In-Place Compaction Control: In-Place compaction control is required for all mixtures.

(A) Asphaltic concrete should be placed and compacted to contain no more than 9 percent nor less than 5 percent air voids unless otherwise indicated. The percent air voids will be calculated using the maximum theoretical specific gravity of the mixture determined according to TxDOT Test Method **Tex-227-F Test Procedure for Theoretical Maximum Specific Gravity of Bituminous Mixtures,** Roadway specimen, which shall be either cores or sawed-sections of asphalt pavement, will be tested according to TxDOT Test Method **Tex-207-F Test Procedure for Determining Density of Compacted Bituminous Mixtures**. The same specimen shall be used for determining both the maximum theoretical density and field density. Specimens used for field density determinations shall be carefully crumbled, using heat if necessary, and the maximum theoretical density determined as hereinbefore specified. If heating is necessary, the specimen shall be heated to the lowest temperature required for proper preparation of the sample. The use of nuclear field determinations shall not be

accepted as the basis for acceptance with respect to density, however, an approved nuclear gauge may be used to establish a rolling pattern.

(B) The CONTRACTOR shall be responsible that the compaction of the asphaltic concrete in place will attain between five and 9 percent air voids. The CONTRACTOR'S responsibility for the required compaction includes the selection of rolling equipment and the selection of rolling patterns to achieve the required compaction within the guidelines provided herein. The above selections of equipment and procedures must provide the required qualities of profile, smooth riding surface, and consistent workmanship in appearance.

(C) If the percent air voids in the compacted pavement is outside the prescribed limits, acceptance and payment will be based upon the schedule outlined in **Item 303.2.3. Chemical Admixtures**, and **Item 702.3. Mix Design and Mixing Concrete for Structures** of these specifications and addenda thereto.

(D) Regardless of the method of compaction, all rolling shall be completed before the mixture temperature drops below 175 degrees F.

(4) Hand Tamping: The edges of the pavement along curbs, headers and similar structures, and all places not accessible to the roller, or in such position that will not allow thorough compaction with the rollers, shall be thoroughly compacted with lightly-oiled hand tamps.

(5) Trench Type Roller: Rolling with the trench type roller will be required on widening areas in trenches and other limited areas where satisfactory compaction cannot be —obtained with rollers specified or approached.

With approval by the OWNER, the vibratory steel wheel roller may be substituted for the 3-wheel roller and tandem roller. Each course, after final compaction, shall have a relative density of not less than 98-percent. The relative density will be determined using TxDOT Test Method **Tex-207-F Test Procedure for Determining Density of Compacted Bituminous Mixtures** and TxDOT Test Method **Tex-227-F Test Procedure for Theoretical Maximum Specific Gravity of Bituminous Mixtures**.

ITEM 303. PORTLAND CEMENT CONCRETE PAVEMENT

(Page 303-2. Replace Table 303.2.1.1.3.(a) AGGREGATE TESTS, with the following:) [ASTM C117 and ASTM D3042 have been added. Additionally, a new paragraph has been added at the end of this Item.]

303.2.1.1.3.COD Tests. Test of aggregates shall be made in accordance with the applicable current ASTM standards, listed in Table 303.2.1.1.3.(a).COD. Aggregate Tests.

Table 303.2.1.1.3.(a).COD: Aggregate Tests

ASTM Designation	Standard Specification or Standard Test Method (Title)
C29	**Standard Test Method for** Bulk Density ("Unit Weight") and Voids in Aggregate
C33	Standard Specification for Concrete Aggregates
C40	16 Tests for Organic Impurities in Fine Aggregates for Concrete
C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
C123	Standard Test method for Lightweight Particles in Aggregate
C125	Standard Terminology Relating to Concrete and Concrete Aggregates
C127	Standard Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
C128	Standard Test Method for Relative Density (Specific Gravity) and Absorption of Fine Aggregate
C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
C330	Standard Specification for Lightweight Aggregates for Structural Concrete
C535	Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
C641	Standard Test Method for Iron Staining Materials in Lightweight Concrete Aggregates
D8	Standard Terminology Relating to Materials for Roads and Pavements
D75	Standard Practice for Sampling Aggregates
D422	Standard Test Method for Particle-Size Analysis of Soils
D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
D2217	Standard Practice for Wet Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants
D3042	Standard Test Method for Insoluble Residue in Carbonate Aggregates

Fine aggregate shall be tested for insoluble residue in accordance with **ASTM D3042 Standard Test Method for Insoluble Residue in Carbonate Aggregates**. The total percent of insoluble residue expressed as a percentage of the total original aggregate sample weight shall not be less than 28.

(Page 303-3. Add Item 303.2.1.2.5.COD. ADDITIONAL REQUIREMENTS:) [New Section Added]

303.2.1.2.5.COD: Additional Requirements: The difference between the percent passing any two consecutive sieve sizes shall not exceed 45%. The fine aggregates shall have a fineness modulus between 2.30 and 3.10.

The fineness modulus of fine aggregates shall be determined by adding the sum of the accumulated percentages by weight retained on the following sieves and dividing by 100: nos. 4, 8, 16, 30, 50, and 100 as referenced in **ASTM C33, Section 6.2**.

(Page 303-5. Replace Item 303.2.2.1. DELIVERY, with the following:) [Where only the word "Cement" was used, the term was expanded to "Portland Cement";

303.2.2.1.COD. Delivery.

Portland Cement delivered in bulk may be used, provided the manner and method of handling is approved by the OWNER. When delivered in bulk, the brand name of the manufacturer contained in the shipping information accompanying the shipment shall be furnished to the OWNER prior to the use of the cement. Bulk cement shall be weighed on approved scales.

Portland Cement from different manufacturers, although tested and approved, shall not be mixed, except as approved by the OWNER.

The CONTRACTOR, when required, shall furnish to the OWNER, with each shipment of cement, a statement as the specific surface of the cement expressed in square-centimeters-per-gram.

(Page 303-5. Add Item 303.2.2.1.1.COD. DELIVERY TICKETS:) [New Section Added]

303.2.2.1.1.COD. Delivery Tickets: For transit mix operations, the manufacturer of the concrete shall, before unloading, furnish to the purchaser with each batch of concrete at the site a delivery ticket on which is printed, stamped, or written, the following information to determine that the concrete was proportioned in accordance with the approved mix design:

(1) Name of concrete Supplier;

(2) Serial number of ticket;

(3) Date;

(4) Truck number;

(5) Name of purchaser;

(6) Specific designation of job (name and location);

(7) Specific class, design identification and designation of the concrete in conformance with that employed in job specifications;

(8) Amount of concrete in cubic yards;

(9) Time loaded or of first mixing of cement and aggregates;

(10) Water;

303.2.2.1.2.C OD. Daily Information to be Supplied: For on-site concrete plant operations, the CONTRACTOR shall supply to the OWNER a batch ticket with the following information and for each continuous paving operation, provide receipts and invoices to substantiate the amounts of cement and fly ash used in the placement.

(1) At the beginning of each day's placement, a list of the actual batch weights to be used shall be given to the OWNER.

(2) When any changes are made, a new list of weights shall be given to the OWNER.

(Page 303-10. Add Item 303.2.13.1.1.1.COD. COLD POUR SILICON JOINT SEALANT (ALTERNATE SELF-LEVELING, ULTRA LOW MODULUS SILICON JOINT SEALANT) :) [New Section Added]

303.2.13.1.1.1.COD. Cold Pour Silicon Joint Sealant (Alternate Self-Leveling, Ultra-Low Modulus Silicon Joint Sealant)

(1) **Description**: The Joint Sealant shall be approved by the OWNER. An example of an approved sealant is Dow Corning 890 SL silicone joint sealant

(2) **Properties:** The silicone joint sealant shall exhibit the following properties:

Table 303.2.13.1.(a).COD: Membrane-Forming Compounds

As Supplied	Property	Test Method
Color	Dark Gray	
Flow, Sag, or Slump	Self-leveling	
Extrusion Rate, grams per minute	275 - 500	Mil-S-8802
Percent Solids	96%	
Specific Gravity	1.26 – 1.34	
Skin-over-time, at 25°C (77°F), minutes (maximum)		
Cure Time, at 25°C (77°F), Days	14	Mil-S-8802 (Mod.)
Full Adhesion, days	14 – 21	
As Cured – after 21 days at 25°C (77°F), and 50 percent Relative Humidity		
Elongation, percent minimum	1400	
Joint Modulus, at 50 percent elongation, psi (Kpa) max	7 (48)	ASTM D412
Joint Modulus, at 100 percent elongation, psi (Kpa) max	8 (55)	ASTM D412
Joint Modulus, at 150 percent elongation, psi (Kpa) max	9 (62)	ASTM D412
Adhesion to Concrete, Minimum percent Elongation	+600	ASTM D412 (Sec 14 Mod.)
Joint Movement Capacity, +100 / - 50 percent, 10 Cycles	No Failure	ASTM C719 (Latest Revision)

Sealant shall exhibit no cracking, hardening, or loss of adhesion after 5000 hours of artificial weathering.

When tested in accordance with Water Retention by Concrete Curing Materials, **ASTM C156 Standard Test Method for Water Loss [from a Mortar Specimen] Through Liquid Membrane-Forming Curing Compounds for Concrete**, the liquid membrane-forming compound shall restrict the loss of water present in the test specimen at the time of application of the curing compound to not more than 0.3 grams per square centimeter of surface.

(Page 303-12. Replace Table 303.2.14.1.2.(a) COLD APPLIED SEALANT REQUIREMENTS:) [The "Particle Change Test" and the "Distillation or Evaporation Test" from Version 4 have been deleted in Version 5 and they have remained deleted; Note 3. has been added.]

Table 303.2.14.1.2.(a).COD. Cold-Applied Sealant Requirements

Property	Test Method	Required Result	
		Minimum	Maximum
Viscosity[1], Brookfield, 77°F	**ASTM D2196 Standard Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational Viscometer**; Method A	6,000 centipoise	25,000 centipoise
Storage Stability Test, One-Day	**AASHTO T59**	--	1-Percent
Sieve Test	**AASHTO T59**	--	0.10-Percent
Evaporations[2] and Tests on Residue			
Residue	See Note 2.	65-Percent	--
Penetration test on Residue, 77°F, 100g, 5-seconds	**AASHTO T49**	35 (0.1-mm)	75 (0.1-mm)
Softening Point test on Residue, R. & B.	**AASHTO T53**	140°F	--
Ductility test on Residue, 39.2°F, 5 cm /Min	**AASHTO T51**	100-cm	--

1. OWNER may require Viscosity Profile in lieu of single-spindle viscosity test, in which case the apparent viscosity shall be 10,000.
2. Residue may be obtained by the following evaporation procedure: Mass 200g of sealant into a 1000-ml beaker or a 1-quart can and place in a heating mantle designed for a 1000-ml beaker. During the evaporation the sealant should be

stirred frequently to prevent foam-over or local overheating. The temperature shall be maintained between 260°F and 300°F for 3- to 5-minutes after the material is water free. Pour required specimen.
(3) **Tests:** In addition, the emulsion sealant shall comply with the following test requirements:

Preparation: Preparation for Adhesion, Cohesion, Self-Healing and Freeze Tests: The material shall be poured into standard concrete mortar blocks with a closed polyethylene backer rod set at a depth of 3/8" below surface of blocks. The blocks shall have a spacing of 1/4" apart. The sealant shall be poured level with the surface of the concrete blocks. Tests to be performed on samples after fourteen-day cure time (or until liquid component has evaporated). Tests run at 77ºF. ± 2ºF. Five cycles with the same sample.

Extension and Bonding Test: There shall be no cracking of the material or failure in bond between the material and the mortar test blocks during or at the end of five cycles. The sealant must display the following properties:

(Page 303-12. Replace Item303.2.15. ELASTOMERIC MATERIALS, with the following:) [The referenced TxDOT Item is not 435, it is Item 434 Bridge Bearings. The modification has been made.]

303.2.15.COD. Elastomeric Materials. This material shall conform to the requirements of the **TxDOT Item 434 Bridge Bearings**. This item shall govern for the materials, testing and fabrication of elastomeric materials, except as otherwise covered in other specifications or on the plans.

(Page 303-12. Replace Item 303.3.3. CONCRETE MIX DESIGN with the following:) [In the first paragraph, last sentence, the words "on the approved forms" have been changed to "in a mutually agreed format". Item (8) in the second paragraph, was modified to include ASTM C31; two new paragraphs have been added to the end of this Item).]

303.3.3.COD. Concrete Mix Design and Control.

At least 10-days prior to the start of concrete paving operations, the CONTRACTOR shall submit to the OWNER a design of the concrete mix it proposes to use together with samples, if requested, of all materials to be incorporated into the mix and a full description of the source of supply of each material component. The proposed batch designs must be submitted to the OWNER in a mutually agreed format.

The design of the concrete mix shall produce a quality concrete complying with these specifications and meet the requirements of **ACI 318** (most recent edition) - **PART 3 Construction Requirements, CHAPTER 5, Concrete Quality**, except as amended by these provisions. The concrete mix design shall include the following information:

(1) Design Requirements and Design Summary
(2) Material source
(3) Dry weight of cement/cu. yd. and type
(4) Dry weight of fly ash/cu. yd. and type, if used
(5) Saturated surface dry weight of fine and coarse aggregates/cu. yd.
(6) Design water/cu. yd.
(7) Quantities, type, and name of admixtures with manufacturer's data sheets
(8) Current strength tests or strength tests in accordance with **ASTM C31 Standard Practice for Making and Curing Concrete Test Specimens in the Field**
(9) Current Sieve Analysis and -200 Decantation of fine and coarse aggregates and date of tests
(10) Fineness modulus of fine aggregate
(11) Specific Gravity and Absorption Values of fine and coarse aggregates
(12) L.A. Abrasion of coarse aggregates

If requested by OWNER, all material samples submitted to the OWNER shall be sufficiently large to permit laboratory batching for the construction of test specimens to check the adequacy of the design. When the OWNER has approved the design mix, there shall be no change or deviation from the proportions thereof or sources of supply except as hereinafter provided. No concrete may be placed on the job site until the mix design has been approved by the OWNER in writing to the CONTRACTOR.

(Page 303-13. Add Item 303.3.3.1.COD. STANDARD MIX DESIGN FOR PLANT / READY MIX CONCRETE:) [New Section Added.]

303.3.3.1.COD. Standard Mix Design for Plant / Ready Mix Concrete: Table 303.3.3.1.(a) Standard Classes of Pavement Concrete shows the minimum requirements for all strengths of pavement concrete:

Table 303.3.3.1.(a).COD: Standard Classes of Pavement Concrete

Class of Concrete	Minimum Cement Content Per Cubic Yard (Pounds)	Minimum Compressive Strength 28-day, PSI	Maximum Water / Cement Ratio	Range Slump (Inches)
Machine Finish	564	4,000	0.49	1" to 4"
Hand Finish	611	4,500	0.45	3" to 5"
Sidewalk and 4-inch thick median pavement	470	3,000	0.58	3" to 5"
Miscellaneous Concrete	As directed by OWNER on the plans			

NOTES:

(1) Fly ash may be used to replace a portion of the minimum cement in accordance with **Item 303.2.4. Mineral Admixtures**
(2) Grade No. 1 Coarse aggregate shall not be used for pavement concrete.
(3) The maximum water/cement ratio, in pounds per pound, will be computed based on total cementitious material.
(4) Entrained Air is required in accordance with **ACI 301, Chapter 4, Table 4.2.2.7.b1 Total Air for Concrete Exposed to Cycles of Freezing and Thawing.** Entrained air shall conform to **Item 303.2.3. Chemical Admixtures**
(5) When the cement content (not including fly ash or slag) does not exceed 520 lb./cu. yd., Class C fly ash may be used instead of Class F fly ash.

303.3.3.1.2.COD. Project Design Specifications:

1. Fly ash may be used in all classes of concrete for paving to replace a portion of the minimum Portland Cement.
2. The maximum amount of Class F or C fly ash allowed is up to 35% by weight of cement (i.e.) 35% of cement reduction at a 1:1 fly ash:cement ratio, in accordance with **TXDOT Items 360 and 421**.
3. Air Entrainment shall meet the requirements of **TxDOT Item 421, section 4.2.4.**, which is a minimum of 3%. See **Item 303.3.4.3. Performance Classes (note 4)** for additional information.
4. Strength data shall be submitted with the design to indicate that the minimum compressive strength is in accordance with ACI – 301, Section 4. This can be data from trial batches or field experience. Required average compressive strength when data is not available shall be in accordance with **ACI 301, Section 4, Table 4.2.3.1.**

303.3.3.1.2.COD. Material Sources Identified: Material sources (suppliers, pit location, etc...) shall be identified.

303.3.3.1.3.COD: Cement Requirements: Mix design shall contain the minimum content of cement, in pounds, required.

1. The design shall comply with **ASTM C150 Standard Specification for Portland Cement**. Cement shall be either Type I / II of a standard brand of Portland Concrete which shall conform to the requirements of the current standard for Portland Cement, **ASTM C150 Standard Specification for Portland Cement** or Type IP conforming to the requirement of the current **ASTM C595 Standard Specification for Blended Hydraulic Cement**.
2. If Type IP is used, it shall comply with the requirement of the **ASTM C595: Standard Specification for Blended Hydraulic Cement**. No fly ash is permitted when Type IP cement is used.

303.3.3.1.4.COD: Fly Ash Substitution:–The maximum amount of Class F or C fly ash allowed is up to 35% by weight of cement (i.e.) 35% of cement reduction at a 1:1 fly ash:cement ratio, in accordance with TxDOT Items 360 and 421.

1. Fly ash or Natural Pozzolans shall comply with ASTM C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
2. The loss on ignition shall not exceed 3%.

303.3.3.1.5.COD: Aggregate Weights: Design shall show Saturated Surface Dry (SSD) weight of aggregates.

303.3.3.1.6.COD: Aggregate Gradation: Aggregate gradation shall comply with specifications outlined in TxDOT

303.3.3.1.7.COD: The Slump:

1. The slump shown on the design shall be within the allowable range shown in **Table 303.3.3.1.(a).COD: Standard Classes of Pavement Concrete,** unless allowed in another specification.
2. The water cement ratio is calculated by dividing the lbs. of water prescribed per cubic yard by the total amount of cementitious material prescribed. The total amount of cementitious material is the sum of the weights of Portland Cement and fly ash in lbs. per cubic yard prescribed. The water cement ratio shall not be more than shown in **Table 303.3.3.1.(a).COD: Standard Classes of Pavement Concrete.**
3. Design shall show lbs. of water per cubic yard.

303.3.3.1.8.COD: Current Strength Tests: Design shall show current strength tests in accordance with **ACI 301, Section 4.2.3.1** (Tests shall have been performed less than 24 months [2-years] from the submittal date.

303.3.3.1.9.COD: Aggregate Gradation: Aggregate gradation shall comply with specifications outlined in **TxDOT Item 421, Sections 2.61, through 2.63.** Gradation Tests submitted for the coarse and fine aggregates shall be performed within 30 days or less.

303.3.3.1.10.COD: Fineness Modulus: Design shall show fineness modulus of fine aggregate. The fine aggregates shall have a fineness modulus between 2.30 and 3.10.

303.3.3.1.11.COD: Specific Gravity and Absorption: Design shall show specific gravity and absorption values for fine and coarse aggregates.

303.3.3.1.12.COD: L.A. Abrasion Test: Design shall show L.A. (Los Angeles) Abrasion of coarse aggregate (maximum: 45 percent loss). The L.A. Abrasion Tests are defined in the following locations: **ASTM C131: Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine**, and **ASTM C535: Resistance to Degradation of Large Size Coarse Aggregates by Abrasion and Impact in the Los Angeles Machine**.

(Page 303-16. Add Item 303.3.6.COD. CEMENT USED ON PUBLIC PROJECTS – SUSTAINABLE AIR QUALITY:) [Add New Section]

303.3.6.COD: Cement Used on Public Projects – Sustainable Air Quality:

(A) Pursuant to Section 271.907 of the Texas Local Government Code, as amended, the OWNER will give a bid preference to the Bid of a CONTRACTOR who certifies in the Bid that, in the purchase of concrete or other products using Portland cement in construction of the Project, the CONTRACTOR will utilize Portland Cement from manufacturers who:

(1) are incompliance with all applicable state and federal environmental standards relating to the emission of NOx, including all applicable TCEQ and EPA rules and regulations; and

(2) operate kilns with emissions that exceed the standards for NOx emissions set out in 30 Tex. Admin. Code § 117.3110(a)(1)-(4) (as provided presently and as may be amended in the future) by the following percentage amounts:

(a) for each long wet kiln, 10 percent lower than the standard for long wet kilns located in Ellis County, Texas as set out in 30 Tex. Admin Code § 117.3110(B);

(b) for each long dry kiln, 20 percent lower than the standard for long dry kilns located in Ellis County, Texas, as set out in 30 Tex. Admin. Code § 117.3110(a)(2);

(c) for each preheater kiln, 20 percent lower than the standard for preheater kilns located in Ellis County, Texas, as set out in 30 Tex. Admin. Code § 117.3110(a)(3); and

(d) for each preheater-precalciner or precalciner kiln, 35 percent lower than the standard for preheater-precalciner and precalciner kilns located in Ellis County, Texas, as set out in 30 Tex. Admin. Code § 117.3110(a)(4). [Reference: City Council Resolution No. 11-0657, passed by the Dallas City Council on March 9, 2011.]

(B) The preference shall apply only to the extent that the CONTRACTOR'S Bid, as certified, is not greater than 105 percent of the lowest responsible Bid of a CONTRACTOR who does not or cannot certify that it will utilize Portland cement from a cement kiln meeting the above-mentioned emission standards. The OWNER reserves the right to pursue any remedies it has under the CONTRACT Documents in the event the CONTRACTOR falsely certifies to the requirements stated above, including but not limited to termination of the CONTRACT, adverse evaluation at final completion of the CONTRACT, or debarment from participation in future construction contracts the OWNER may advertise or award. The OWNER also reserves the right to reject any load or item of Portland cement, concrete, or other product containing Portland cement delivered in the event it is discovered that the Portland cement used in the load or item was not manufactured as certified.

(C) When a bidding preference has been granted as provided herein and any load or item of Portland cement, concrete, or other product which contains Portland cement is delivered to the Project site for use, the CONTRACTOR shall obtain and present to the OWNER a sworn-to certification, using a certification form approved by the OWNER, from the Portland cement or concrete manufacturer that the load or item delivered contains no Portland cement other than Portland cement meeting the requirements as specified in Paragraph (A). The CONTRACTOR shall also obtain a manifest for each Portland cement or concrete load showing the quantity of Portland cement or concrete delivered and the location of the manufacture of the Portland cement, along with the name of a designated representative of the Portland cement manufacturer for purposes of contact by the OWNER if necessary. On a monthly basis or other frequency desired by the OWNER, the CONTRACTOR shall furnish for inspection by the OWNER of a copy of the delivery manifests obtained. The CONTRACTOR shall certify in writing that the manifests are true and correct to the best of the CONTRACTOR'S knowledge. Notwithstanding the manufacturer's certification, the CONTRACTOR will be held responsible in the event the OWNER discovers that the cement used was not manufactured in accordance with the requirements of Paragraph (A).

(D) The OWNER reserves the right to pursue any remedies it has under the CONTRACT Documents in the event the CONTRACTOR fails to comply with this materials specification, including but not limited to termination of the CONTRACT, adverse evaluation at final completion of the CONTRACT, or debarment from participation in future construction contracts the OWNER may advertise or award. The OWNER also reserves the right to reject any load or item of Portland cement, concrete, or other product containing Portland cement delivered in the event it is discovered that the Portland cement used in the load or item was not manufactured as certified.

(E) Copies of the required forms are found on the following pages.

CEMENT PREFERENCE CERTIFICATION

I, _____, the _____ [state title of

officer of company] of _____ [legal name of bidder company], do

hereby certify that my bid for concrete products utilizes Portland cement produced by vendors who:

(1) are in compliance with all applicable state and federal environmental standards relating to the emission of NOx, including all applicable TCEQ and EPA rules and regulations; and

(2) operate kilns with emissions that exceed the standards for NOx emissions set out in 30 Tex. Admin. Code § 117.3110(a)(1)-(4) (as provided presently and as may be amended in the future) by the following percentage amounts:

(a) for each **long wet kiln**, 10 percent lower than the standard for long wet kilns located in Ellis County, Texas as set out in 30 Tex. Admin. Code § 117.310(a)(1)(B) **[As of 3-9-11, wet kiln NOx emissions can NOT exceed 3.6 lbs per ton of clinker produced.]**;

(b) for each **long dry kiln**, 20 percent lower than the standard for long dry kilns located in Ellis County, Texas, as set out in 30 Texas. Admin. Code § 117.3110(a)(2) **[As of 3-9-11, dry kiln NOx emissions can NOT exceed 4.1 lbs per ton of clinker produced.]**;

(c) for each **preheater kiln**, 20 percent lower than the standard for preheater kilns located in Ellis County, Texas, as set out in 30 Tex. Admin. Code § 117.3110(a)(3) **[As of 3-9-11, preheater kiln NOx emissions can NOT exceed 3.0 lbs per ton of clinker produced.]**; and

(d) for each **preheater-precalciner or precalciner kiln**, 35 percent lower than the standard for preheater-precalciner and precalciner kilns located in Ellis County, Texas, as set out in 30 Tex. Admin. Code § 117.3110(a)(4) **[As of 3-9-11, preheater-precalciner or precalciner kiln NOx emissions can NOT exceed 1.8 lbs per ton of clinker produced.]**

BIDDER:

_____

_____

Print Name and Title

SUBSCRIBED and SWORN TO before me this ____ day of _____, 20___.

_____

[Seal] Notary Public, State of Texas

My commission expires: _____

Form 25: Cement Preference Certification

CONCRETE / CEMENT DELIVERY CERTIFICATION

I, _____, the _____ [state title of officer of company] of

_____ [legal name of Portland cement or concrete manufacturer], do

hereby certify that the concrete/cement products delivered between _____ and

_____ to the City of Dallas project known as _____

_____utilizes Portland cement produced by vendors who:

(1) are in compliance with all applicable state and federal environmental standards relating to the emission of NOx, including all applicable TCEQ and EPA rules and regulations; and

(2) operate kilns with emissions that exceed the standards for NOx emissions set out in 30 Tex. Admin. Code § 117.3110(a)(1)-(4) (as provided presently and as may be amended in the future) by the following percentage amounts:

(a) for each **long wet kiln**, 10 percent lower than the standard for long wet kilns located in Ellis County, Texas as set out in 30 Tex. Admin. Code §117.310(a)(1)(B) **[As of 3-9-11, wet kiln NOx emissions can NOT exceed 3.6 lbs per ton of clinker produced.]**;

(b) for each **long dry kiln**, 20 percent lower than the standard for long dry kilns located in Ellis County, Texas, as set out in 30 Texas. Admin. Code §117.3110(a)(2) **[As of 3-9-11, dry kiln NOx emissions can NOT exceed 4.1 lbs per ton of clinker produced.]**;

(c) for each **preheater kiln**, 20 percent lower than the standard for preheater kilns located in Ellis County, Texas, as set out in 30 Tex. Admin. Cod §117.3110(a)(3) **[As of 3-9-11, preheater kiln NOx emissions can NOT exceed 3.0 lbs per ton of clinker produced.]**; and

(d) for each **preheater-precalciner or precalciner kiln**, 35 percent lower than the standard for preheater-precalciner and precalciner kilns located in Ellis County, Texas, as set out in 30 Tex. Admin. Code §117.3110(a)(4) **[As of 3-9-11, preheater-precalciner or precalciner kiln emissions can NOT exceed 1.8 lbs per ton of clinker produced.]**.

CONCRETE/CEMENT MANUFACTURER:

_____

_____

Print Name and Title

SUBSCRIBED and SWORN TO before me this ____ day of _____, 20___.

_____

[Seal] Notary Public, State of Texas

My commission expires: _____

Form 26: Concrete / Cement Delivery Certification

(Page 303-16. Replace Item 303.4.1. GENERAL, with the following:) [A new paragraph has been added to the end of the Item)

303.4.1.COD. General: All equipment necessary for the construction of this item shall be on the project and shall be field checked by a trial run by the CONTRACTOR and observed by the OWNER before its use in the actual construction operations on which the equipment is to be used. The resulting product must comply with the project specifications.

The CONTRACTOR shall have on site the following standard finishing tools when paving streets and slabs wider than ten feet: the ten-foot-wide "Straight Edge", the ten foot wide "Sentem", and other miscellaneous standard equipment used in the placing and finishing of concrete pavements.

(Page 303-17. Replace Item 303.4.6. VIBRATING SCREED, with the following:) [A new sentence has been added to the end of the paragraph)

303.4.6.COD. Vibrating Screed. The mechanically vibrated screed shall be provided with a template adjusted to the crown of the concrete section. The template shall be power vibrated, adjustable in height and mounted to ride on the forms. The mechanical vibration of one of the screeds on the transverse finishing machine specified in Item **303.4.7.COD. Transverse Finishing Machine** shall be acceptable. Approved hand manipulated mechanical vibrators shall be used with the vibrating screed in the number required for internal vibration and proper consolidation of the pavement.

(Page 303-17. Replace Item 303.4.7. TRANSVERSE FINISHING MACHINE, with the following:) [A new first paragraph has replaced Version 5's first paragraph.]

303.4.7.COD: Transverse Finishing Machine: The transverse finishing machine may be used for Machine Finish class concrete placement for pavement provided that internal vibrators fixed to the machine are also used for vibrating the concrete internally. The requirements for fixed internal vibrators given in par**t Item 303.4.5.COD Mechanical Vibratory Equipment**, shall apply. The transverse finishing machine shall be provided with two screeds accurately adjusted to the crown of the pavement, shall be power driven, and mounted in a substantial frame equipped to ride on the forms. The machine shall be so designed and operated as to strike off and consolidate the concrete internally with internal-type vibrators as required in part **Item 303.4.5.COD Mechanical Vibratory Equipment**.

Finishing machines shall be maintained in a tight and good operating condition, accurately adjusted to the required crown or profile and free from deflection, wobble, or vibration tending to affect the surface finish. Machines failing to meet these requirements shall be rejected by the OWNER, and the CONTRACTOR shall provide approved equipment.

(Page 303-18. Replace Item 303.5.2.3. REMOVAL, with the following:) [The word "wet" was added in the last sentence.]

303.5.2.3.COD. Removal: Forms shall remain in place a minimum of twelve hours or more as required by the OWNER. At the time the forms are removed, any honeycomb shall be rubbed with wet grout and sealed with a curing compound.

(Page 303-20. Replace Item 303.5.4.3. CONTRACTION JOINTS, with the following:) [The entire Section has been replaced.]

303.5.4.3.COD: CONTRACTION Joints: Contraction, or control joints, shall be installed at the locations and at the intervals shown on the plans and standard construction details after placement of the curing membrane. The joints shall be constructed by sawing to a $^1/_4$th inch width and to the depth indicated on the plans and in accordance with Item **402.3. Sawing**. Joints shall be sawed into the completed pavement surface as soon after initial concrete set as possible and after the sealing operation to control cracking; but with enough elapsed time to prevent aggregate from being dislodged and to prevent any damage by blade action to the slab surface and to the concrete immediately adjacent to the joint. If sawing causes a crack to occur in the placement

surface, sawing shall be discontinued at that location and sawing of the remaining control joints shall continue. Any portion of the curing membrane that has been disturbed by sawing operations shall be restored by spraying the areas with additional curing compound. The following sawing schedule table shall be used in relation to the average of the concrete and air temperature at the time of placement:

Table 303.5.4.3.(a).COD. Required Concrete Control Joint Saw Schedule

REQUIRED CONCRETE CONTROL JOINT SAW SCHEDULE	
Average of Concrete and Air Temperature (ºF)	**Permitted Elapsed Time After Placement Prior To Sawing (Hrs.)**
40 to 49	10 + 1
50 to 59	8 + 1
60 to 69	7 + 1
70 to 79	6 + 1
80 to 89	5 + 1
90 or Greater	4 + 1

The sawed groove shall be thoroughly cleaned for the full depth and width of the joint and filled with Ready-mixed cold-applied joint sealer as specified in **Item 303.5.4.7.COD Joint Sealing,** as amended. The type of equipment and method for performing this work shall be as provided for in **Item 303.5.4.7.COD Joint Sealing,** as amended.

(Page 303-20. Add Item 303.5.4.7.3.COD. MISCELLANEOUS JOINT SEALING PROCEDURES:) [Add New Section]

303.5.4.7.3.COD: Miscellaneous Joint Sealing Procedures: (Joints which are not expansion joints.) All remaining joints that are not expansion joints shall be sealed in accordance with the following requirements:

(A) **Description:** This item shall govern the cleaning, preparation and sealing of all types of joints other than expansion joints in Portland cement concrete pavements as set forth in the plans, as required by the construction sequencing, and as directed by the OWNER.

(B) **Materials:** Joint sealants shall be a single component polymer modified asphalt emulsion conforming to the requirements of **Item 303.2.14.1.2. Ready Mixed Cold Applied (Joint Sealant)**, as amended.

(C) **Material Storage and Disposal:** Cold pour sealant and other materials that become a part of the final product shall be furnished by the CONTRACTOR. In addition, all incidental materials, fuel solvents and other items shall also be provided by the CONTRACTOR. The CONTRACTOR shall locate and furnish a storage area and shall be responsible for the proper storage of sealing material. Sealing materials shall be delivered to the job sites in clean, sealed, original containers bearing the manufacturer's name, material type, lot number, and special handling instructions that apply. At the conclusion of work, all materials, containers, equipment, and incidentals shall be removed by the CONTRACTOR. The lawful disposal of barrels and other containers shall be the responsibility of the CONTRACTOR. Disposal shall take place in a timely manner and in accordance with the latest Environmental Protection Agency (EPA) or Texas Commission on Environmental Quality (TCEQ) requirements.

(D) **Equipment:** The CONTRACTOR shall furnish in good working condition all equipment, tools, and machinery necessary to satisfactorily complete the work and shall maintained all such equipment, tools, and machinery in good condition during the course of the work without excessive delays for repairs and replacements. Equipment used for cold pour sealing shall meet the following minimum requirements:

(1) **Cleaning Equipment:** Equipment utilized for cleaning joints shall be capable of delivering compressed air of sufficient volume and force to remove all loose debris from joints to the depth shown on the plans. At least one (1) hand-held pressurized wand per crew shall be provided by the CONTRACTOR for the sole purpose of joint cleaning. At minimum, the air

compressor shall be capable of delivering enough air and at a such a pressure as recommended by the wand manufacturer and shall be equipped with an oil and moisture trap to remove contamination from the compressed air. Proper operating pressure for this equipment will be determined by the OWNER. When sealing joints older than one day, the joints shall be routed with a concrete routing saw, in good working condition, capable of routing and cleaning the sides of the joints for the full depth of the joints. CONTRACTOR shall provide dust control methods to assure that dust and debris are captured and adhere to the TCEQ air-borne contamination requirements.

(2) **Cold Pour Sealing Equipment for Joints:** Equipment utilized for cold pour sealing shall be approved by the OWNER prior to use.

(E) Construction Methods:

(1) **Presence of Manufacturer's Representative Required:** If requested by the OWNER, the Manufacturer's representative shall be present at the beginning of the sealing operations to meet with the contractor, and OWNER to establish correct procedures. It shall be the CONTRACTOR's responsibility to make necessary arrangements for a site visit from the Manufacturer representative should the OWNER request such a visit.

(2) **Application:**

a. Sealant must be able to be applied to fresh damp concrete and withstand immersion in water after curing.

b. Sealant may be applied immediately following the contraction joint sawing operation. After sawing, joints shall be blown clean with high-pressure air, backer rod installed and sealed immediately.

c. Water shall be diverted while sealant is applied and curing.

d. At least 24-hour cure time is required after application before sealed joints can be exposed to traffic.

e. If the CONTRACTOR elects to seal the joints more than four hours after the contraction joint sawing operation, the following procedure must be followed:

The walls of all joints shall be cleaned so that the surfaces of the joints do not have foreign material preventing the sealant from adhering to the walls. This shall be done by back sawing and high-pressure air. All joints shall be routed with a concrete routing saw for the full depth of the joint. After the back-sawing operation is completed, the street shall be immediately swept clean of all mud, aggregate, and debris. The joints shall then be immediately cleaned thoroughly with high-pressure air, backer rod installed, and the joints sealed. Joints not sealed within 8 hours of cleaning shall be re-cleaned using the above method and sealed. The method to be used must first be approved by the OWNER.

(1) **Contraction Joints:** Sealant shall be applied on top of an extruded closed-cell polyethylene foam backer rod that shall be inserted into the joint with the top of the backer rod no more than $^{3}/_{8}$" below the pavement surface. The backer rod shall be at least $^{1}/_{8}$" larger in diameter than the width of the joint to provide positive blockage. The backer rod shall be placed in the joint at a depth not to exceed, the width by more than 1 to 1-½ to create a uniform reservoir for the sealant. The backer rod shall be placed immediately after air blasting and before placing the sealant.

The backer rod shall be installed with a properly sized backer rod tool to prevent damaging the rod and to ensure rod is placed at the proper depth. The nozzle of the application wand shall be inserted into the joint and sealant shall be applied so that air will not be trapped over the backer rod. Sealant shall be applied to the full ¼" width of the sawed joints to a depth of at least ¼" thick but not more than $^{3}/_{8}$" thick after curing. The sealant shall fill the joint to the surface of the pavement.

Care shall be taken to prevent overfilling the joint. After curing, the sealant shall be within 1/8" to ¼" of the surface in the center of the joint.

(2) **Construction Joints:** Construction joints shall consist of a butt joint with a reservoir for the sealant to a width of 3/8" and a depth of T/4 created by sawing or hand tooling. The backer rod shall be set to a depth of ½" below the surface of the pavement. The reservoir shall be filled with sealant level to the surface of the pavement.

(3) **Resealing Old Joints:** The joints are to be routed full depth with a concrete routing saw and cleaned with compressed air. Backer rod will be inserted, and sealant applied per paragraph (1) above.

(3) Precautions:

a. Avoid applying sealant when rain or other sources of water are expected to come into contact with the freshly applied sealant. Normally, the sealant will be protected from damage after a 2-hour cure period.

b. The sealant shall not be applied in temperatures below freezing unless the joints are preheated to prevent freezing of the sealant until sufficient cure time has elapsed.

c. Sealant shall be stored at a temperature not less than 40°F, nor more than 120ºF.

(4) Clean up:

a. The equipment and tools can be cleaned by flushing with mineral spirits or diesel oil to remove any built-up sealant. Flush out all cleaning materials before next sealing operation. This is normally done by placing the wand in a bucket and running sealant until the material is not contaminated.

b. Spills, drips, or puddles shall be removed as directed by the OWNER. Removal can be assisted by blotting spills as they occur.

(F) **Description:** This item shall govern the cleaning, preparation and sealing of all types of joints in Portland cement concrete pavements as set forth in the plans, as required by the construction sequencing, and as directed by the OWNER.

(G) **Materials:** All materials used in the construction of joints and joint sealing shall conform to the applicable sections of Division 2. Redwood filler material shall be used in the construction of expansion joints. Joint sealants shall be a single component polymer modified asphalt emulsion conforming to the requirements of **Item 303.2.14.1.2. Ready Mixed Cold Applied (Joint Sealant) and Table 303.2.14.1.2.(a).COD. Cold-Applied Sealant Requirements** as amended.

(H) **Material Storage and Disposal:** Cold pour sealant and other materials that become a part of the final product shall be furnished by the CONTRACTOR. In addition, all incidental materials, fuel solvents and other items shall also be provided by the CONTRACTOR. The CONTRACTOR shall locate and furnish a storage area and shall be responsible for the proper storage of sealing material. Sealing materials shall be delivered to the job sites in clean, sealed, original containers bearing the manufacturer's name, material type, lot number, and special handling instructions that apply. At the conclusion of work, all materials, containers, equipment, and incidentals shall be removed by the CONTRACTOR. The lawful disposal of barrels and other containers shall be the responsibility of the CONTRACTOR. Disposal shall take place in a timely manner and in accordance with the latest Environmental Protection Agency (EPA) or Texas Commission on Environmental Quality (TCEQ) requirement.

(Page 303-20. Add Item 303.5.4.7.4.COD. EXPANSION JOINT AND ALTERNATIVE JOINT SEALING PROCEDURES:) (New Section Added)

303.5.4.7.4.COD: Expansion Joint And Alternate Joint Sealing Procedures: The following joint sealing procedure using Item 303.5.4.7.3.COD Miscellaneous Joint Sealing Procedures (with Addendum Items), shall be used for the sealing of all expansion joints in concrete pavement when joint sealing is specified in the plans and specifications. This joint sealant and procedure may also be used as an alternate to Item 303.5.4.7.3.COD Miscellaneous Joint Sealing Procedures (with Addendum Items), for sealing all other joints in concrete pavements. All other provisions of Item 303.5.4. Joints (with Addendum Items), not specifically changed shall apply.

(A) **Description:** The item shall govern the cleaning, preparation and sealing of all types of joints of Portland cement and concrete pavements as set forth in the plans, as required by the construction sequence and as directed by the OWNER.

(B) **Materials Storage And Disposal:** The sealant for joint sealing shall be Cold Pour Silicone Joint Sealant as specified in **Item 303.5.4.7.3.COD Miscellaneous Joint Sealing Procedures (with Addendum Items),** and other materials that become part of the final product shall be furnished by the CONTRACTOR. In addition, all incidental materials, fuel solvents and other items shall also be provided by the CONTRACTOR. The CONTRACTOR shall locate and furnish a storage area and shall be responsible for the proper storage of sealing material. Sealing materials shall be delivered to the job sites in clean, sealed original containers bearing the manufacturer's name, material type, lot number, and special handling instructions that apply. At the conclusion of work, all materials, containers, equipment, and incidentals shall be removed by the CONTRACTOR.

The lawful disposal of barrels and other containers shall be the responsibility of the CONTRACTOR. Disposal shall take place in a timely manner and in accordance with the latest Environmental Protection Agency (EPA) or Texas Commission on Environmental Quality (TCEQ) requirements. Redwood filler shall be required in all expansion joints as provided on Sheet 1003 of the Dallas Department of Public Works **Standard Construction Details, file 251D-1, as amended**.

(C) **Equipment:** The CONTRACTOR shall furnish in good working condition, all equipment, tools, and machinery necessary to satisfactorily clean the joints and complete the work and shall maintain all such equipment, tools and machinery in good condition during the course of the work without excessive delays for repairs and replacement. Equipment used for applying the silicone joint sealant shall meet the following requirements:

The CONTRACTOR shall also provide any special equipment required to install backer rod for joint sealing. The sealing equipment shall meet the approval of the OWNER. Other materials that become part of the product shall be furnished by the CONTRACTOR.

(1) **Cleaning Equipment:** Air compressor will be used to provide air to the sand blasting equipment as well as the final blowing of the joint. At minimum, the air compressor shall be capable of delivering enough air and at a such a pressure as recommended by the manufacture of the sand blasting equipment. Additionally, the air compressor shall be equipped with an oil and moisture trap to remove all contaminants from the compressed air prior to entering the sandblaster or blow out tube. If the concrete slurry has been allowed to dry in the joints, a saw shall be run down the length of the joints to break up and remove the dried slurry prior to the sand blasting and final blowing operation. CONTRACTOR shall provide dust control methods to assure that dust and debris are captured and adhere to the TCEQ air-borne contamination requirements.

(2) **Cold Pour Sealing Equipment:** Cold pour equipment utilized for applying the silicone joint sealant, shall consist of an air-powered pump specifically designed for the purpose of dispensing single-component, moisture cured sealants. The pump shall be capable of delivering sufficient quantities of material to provide speedy and accurate sealing of the joints. The pump manufacturer shall be recommended by the sealant SUPPLIER. Sealing equipment shall meet the approval of the OWNER.

(D) Construction Methods.

(1) **Application:** The sealant shall be applied to dry and clean joints. Unless otherwise agreed to by the manufacturer, a minimum of seven (7) days curing of the concrete shall occur before the joint sealant is installed.

(2) **Water Cooled Saws:** If water-cooled saws are used for jointing the concrete, the resulting slurry shall be washed out of the joint within ten minutes of the sawing operation. If dry saws are used, the residue shall be blown out of the joint with high-pressure air within two hours of sawing. The joints should be allowed to thoroughly dry. Immediately prior to the sealing operation, the joints shall be sand blasted.

The sand blast wand shall be equipped with a guide to position the nozzle within two inches of the concrete surface and direct the blast stream into the joint. The joint shall be sand blasted twice, each pass at approximately a 45° angle along each face of the joint. After sand blasting, the joints shall be blown clean with filtered (oil and moisture-free) air. Immediately prior to installing the backer rod, the CONTRACTOR shall notify the OWNER for inspection and approval of the joints. If contamination is present, the joints shall be re-cleaned. Following approval by the OWNER, the backer rod shall be installed to the depth recommended by the manufacturer and the silicone sealant applied per the manufacturer's recommendations. Installation of the backer rod shall require removal of redwood filler to a depth of at least 1¼ inches for ½ inch wide standard paving expansion joints. The top or the backer rod shall be placed ½ inch below the surface of the concrete. A ¼-inch thick layer of sealant shall be applied on top of the backer rod and a ¼ inch recess shall be provided from the surface of the concrete at the joint to the top of the sealant material. Backer rod shall be closed cell polyethylene, compatible with cold applied sealants and shall be at least ⅛ inch larger in diameter than the width of the joint. The minimum temperature for applying sealant is 40°F. The pavement may be opened to traffic immediately after the sealing operation is completed.

CONTRACTOR shall provide dust control methods to assure that dust and debris are captured and adhere to the TCEQ air-borne contamination requirements. Containment and extraction methods for controlling the run-off from sawing operations must be submitted by the CONTRACTOR, to the OWNER, for approval prior to any concrete saw cutting is scheduled.

(Page 303-21. Replace Item 303.5.5.2. WEATHER CONDITIONS, with the following:) [The entire section has been replaced]

303.5.5.2.COD. Weather Conditions: All concrete shall be placed, finished, and cured in conformance with the intent of the Standard Specifications as amended by the OWNER. Fresh concrete shall be protected from freeze/ thaw damage for at least three calendar days after the placement.

Except by specific written authorization of the OWNER, no concrete shall be placed during detrimental weather conditions or when weather conditions indicate that detrimental weather conditions may exist within 24 hours of the placement. Detrimental weather conditions shall be considered to exist when any one of the following weather conditions occur:

(A) The air temperature is less than 40° Fahrenheit (4°C);

(B) During rainfall or other precipitation sufficient to potentially cause damage to the work or the concrete surface;

(c) The conditions of wind, humidity, ambient temperature, and concrete temperature create a condition whereby surface moisture evaporation may exceed 0.2 lb. per square foot per hour as discussed in **Item 303.5.7. Curing (with Addendum Items),** of these amended Standard Specifications.

The air temperature shall be taken in the shade away from artificial heat.

To secure written authorization to place concrete during potential detrimental weather conditions the CONTRACTOR shall submit his request in writing to the OWNER in advance of the placement of concrete pavement together with the CONTRACTOR'S proposed materials, devices and methods that will be used to

protect the concrete placement during the detrimental weather conditions. For detrimental weather condition (c) above, the proposal must be in compliance with **Item 303.5.7. Curing (with Addendum Items),** of these amended Standard Specifications.

For detrimental weather condition (A) above, the proposal must insure that the fresh concrete after mixing is protected during transport, placement, finishing and early curing in such a way as to maintain the temperature of the air surrounding the fresh concrete at not less than 50° Fahrenheit (10°C) for a period of at least five calendar days after the placement of the concrete pour. The proposed materials and devices must be on site before the authorization from the OWNER will be given. An additional four cylinders of concrete test specimens shall be made with each set of cylinders made during the placement. These additional test specimens shall be kept on the site exposed to the same conditions as the concrete placement. Equipment and material loads will not be allowed on the placement until compressive test breaks of these specimens indicate that the concrete has reached sufficient strength to bear the loads.

No additional compensation will be provided to the CONTRACTOR for the costs necessary to comply with these requirements for placing concrete in detrimental weather conditions, but all such costs shall be considered incidental to the pay items provided.

It is to be distinctly understood that the CONTRACTOR is responsible for the quality and strength of the concrete placed under any weather conditions. No concrete shall be placed on a frozen subgrade.

(Page 303-21. Replace Item 303.5.6. FINISHING, with the following:) [The entire section has been replaced]

303.5.6.COD. Finishing of Concrete Pavement and Pavement Leaveouts: Machine and hand finish classes of concrete shall be consolidated with approved mechanical vibrators designed to vibrate and consolidate the concrete internally. Concrete base and pavement in the following instances will be required to be finished mechanically with approved power-driven machines: streets wider than 27 feet, divided streets, and major thoroughfares.

Care shall be taken to provide adequate vibration and consolidation of hand finish concrete placements. Hand manipulated mechanical vibrators shall be used in sufficient number required for uniform internal vibration and proper consolidation of the pavement. Over-vibration shall be avoided.

The ten-foot-wide “Straight Edge” shall be used immediately behind the paving machine or template to help strike off the rough areas. The ten-foot-wide “Sentem” shall then be used behind the “Straight Edge” to complete the smoothing and sealing of the pavement surface. A five-foot wide “Bull Float” may be used for finishing the surface of sidewalks and driveway approaches and other special areas, when approved by the OWNER, to help smooth and seal the pavement surface. If the “Bull Float” is approved by the OWNER for use in finishing of transition areas of the street paving, the ten-foot-wide “Straight Edge” shall be used behind the “Bull Float” to check and complete the sealing and smoothing of the pavement surface. The “Bull Float” shall not be used in place of the ten-foot-wide “Sentem” in the main pavement finishing operation.

Page 303-21. Replace Item 303.5.6.1. MACHINE, with the following:) [There is a new sentence at the end of the paragraph.]

303.5.6.1.COD. Machine: When the concrete has been deposited, it shall be approximately leveled and then struck off to such elevation that, when mechanically screeded and tamped, the concrete shall be thoroughly compacted and finished to the required line, grade and section with all surface voids filled. Where bar mats or wire mesh reinforcing is specified, method shall be in accordance with Item **303.5.3. Placing Reinforcing Steel, Tie, and Dowel Bars**. Machine finishing of concrete base and pavement shall include the use of power-driven finishing machines with internal vibrators fixed to the machine on a spacing not to exceed 24 inches.

(Page 303-22. Replace Item 303.5.6.2. HAND, with the following:) [The first paragraph has been replaced and new paragraphs have been added to the end of this item.]

303.5.6.2.COD. Hand Finishing: Hand finishing will be permitted on the transition from a crowned section to a super-elevated section without crown on curves. Hand finishing will also be permitted on pavement widening, on sections where the pavement width is not uniform, at intersections, where required monolithic widths are greater than that of available finishing machines, on streets less than 200 feet in length, alley paving, and elsewhere where mechanical finishing is not specified or required by these specifications.

When the hand method of striking off and consolidating is permitted, the concrete, as soon as placed, shall be approximately leveled and then struck off and screeded to such elevation above grade that, when consolidated and finished, the surface of the pavement shall be at the grade elevation shown on the plans. The entire surface shall then be tamped, and the concrete consolidated so as to insure maximum compaction and a minimum of voids. For the strike off and consolidation, both a strike template and tamping template shall be provided on the work. In operation, the strike template shall be moved forward with a combined longitudinal and transverse motion and so manipulated that neither end of the template is raised from the forms during the striking-off process. A slight excess of material shall be kept in front of the cutting edge at all times.

The straightedge and joint finishing shall be as hereinabove prescribed.

At the option of the CONTRACTOR or when directed by the OWNER, an approved vibrating screed may be used in place of the strike-off template and tamping template specified in the Standard Specifications for hand finished base or pavement. The vibrating screed shall not be used in place of the finishing machine on work specified to receive a mechanical finish. The screed shall be operated over each area as many times and at such intervals as directed and as required to produce a compacted slab free of surface voids with the surface screeded to the required section.

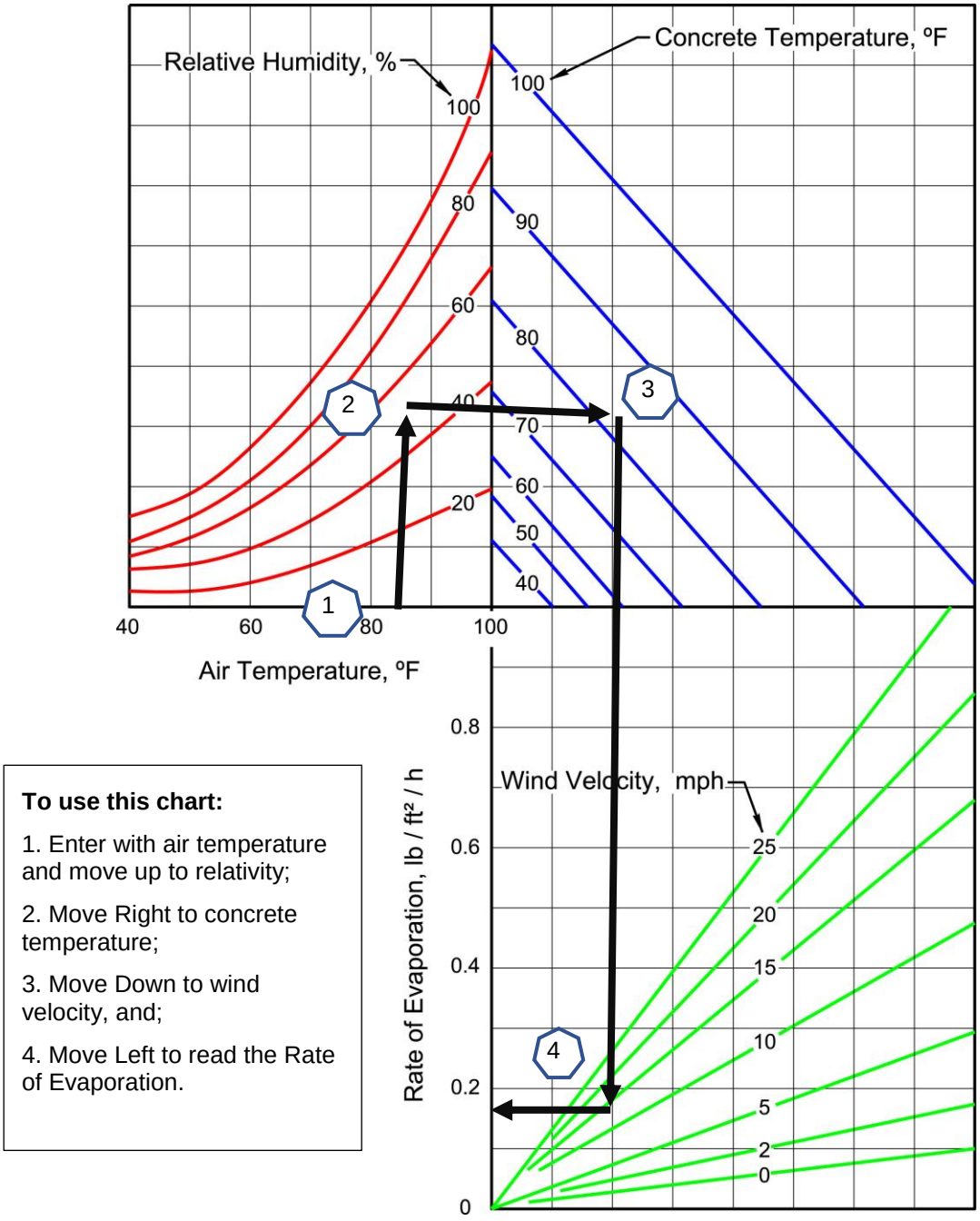
Hand finish shall not be a separate pay item in this contract, but the costs associated with hand finish shall be considered incidental to the pay items provided.

(Page 303-22. Add Item 303.5.7.1.COD. PLASTIC SHRINKAGE CRACKING:) [New Section Added]

303.5.7.1.COD: Plastic Shrinkage Cracking: When conditions of wind, humidity, ambient temperature and concrete temperature create a condition whereby surface moisture evaporation may exceed 0.2 lb. per square foot per hour as determined from the chart shown on Figure 1, a monomolecular film may be applied to the concrete or an approved polyethylene film shall be applied immediately behind the first screening. Rate of application shall be in accordance with manufacturer's recommendations. Paving operations may also be discontinued, at the option of the CONTRACTOR, until the evaporation rate is reduced below 0.2 pound per square foot per hour. The polyethylene or monomolecular film is not a replacement for the membrane forming curing compound and their use may be discontinued once the evaporation rate has decreased to less than 0.2 lb. per square foot per hour. Application of the membrane-forming compound will be applied as specified under (I) Curing, first paragraph.

When called for in the contract documents, the CONTRACTOR shall be responsible for the proper storage, maintenance, and any required curing of concrete test samples made by the OWNER.

Figure 303.5.7.1.(a).COD. Rate of Evaporation of Concrete (North Central Texas)



(Page 303-24. Replace **Item 303.8.3. PAVEMENT STRENGTH TESTS**, with the following:) [Added information on cylinder sets and testing requirements in 2nd paragraph and 4th paragraph; adding new fifth paragraph. In the tenth paragraph, a new sentence was added to end of paragraph, and a new paragraph has been added to the end of this Item.]

303.8.3.COD. Pavement Strength Test.

303.8.3.1.COD. For Standard Classes of Concrete. During the progress of the work, test cylinders shall be casted by certified personnel, in accordance with **ASTM C31 Standard Practice for Making and Curing Concrete Test Specimens** in the Field, to maintain a check on the compressive strengths of the concrete

being placed.
In accordance with **ASTM C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field** and **ASTM C172 Standard Practice for Sampling Freshly Mixed Concrete**, four *6"x12" or five 4"x8"* test cylinders shall be taken from a representative portion of the concrete being placed for every 150-cubic yards of concrete pavement placed, but in no case shall less than 2 sets of cylinders be taken from any one day's placement. For smaller placements, the testing frequency may be adjusted at the OWNER'S discretion.

After the cylinders have been cast, they shall remain on the job site and then transported, moist cured, and tested by the OWNER in accordance with **ASTM C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field** and **ASTM C39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens**.

In each set *of 6" x 12",* one of the cylinders shall be tested at 7-days, two cylinders shall be tested at 28-days, and one cylinder shall be held or tested at 56-days, if necessary.

In each set of 4" x 8", one of the cylinders shall be tested at 7-days, three cylinders shall be tested at 28-days, and one cylinder shall be held or tested at 56-days, if necessary.

If the 28-day test results indicate deficient strength, the CONTRACTOR may, at its option and expense, core the pavement in question and have the cores tested by an approved laboratory, in accordance with **ASTM C42: Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete** and **ACI 318** protocol, except the average of all cores must meet 100% of the minimum specified strength, with no individual core resulting in less than 90% of design strength, to override the results of the cylinder tests.

The CONTRACTOR shall be responsible for the proper storage, maintenance, and any required curing of concrete test samples made by the OWNER. The CONTRACTOR shall provide and maintain curing facilities for the purpose of curing concrete test specimens on site in accordance with **ASTM C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field**. The cost of all materials used in test specimens and the cost of storing, maintaining and of providing and maintaining curing facilities will not be paid for as a separate contract pay item, and the costs thereof shall be considered incidental to the contract pay items provided.

Cylinders must meet minimum specified strength. If not, core testing of the pavement as outlined above in accordance with ACI 301 and 318 can be performed by the CONTRACTOR. If such testing demonstrates that cores meet the minimum specified strength requirements, the CONTRATOR shall be entitled to full payment of all money due.

Pavement not meeting the minimum specified strength shall be subject to the money penalties or removal and replacement at the CONTRACTOR'S expense as shown in **Table 303.8.3.1.(a).COD Standard Class Concrete Deficiency Penalties**.

Table 303.8.3.1.(a).COD Standard Class Concrete Deficiency Penalties.

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%	60-percent or removed and replaced at the entire cost and expense of CONTRACTOR as directed by OWNER

The amount of penalty shall be deducted from payment due to CONTRACTOR; such penalty deducted is to defray the cost of extra maintenance. *However, at the OWNER's sole option, the OWNER may instruct the CONTRACTOR to, at the CONTRACTOR's expense, remove and replace any material not meeting the minimum strength specified.*

These requirements are in addition to the requirements of **Item 303.9.COD Measurement and Payment**.

The strength requirements for structures and other concrete work are not altered by this special provision.

No additional payment over the contract unit price shall be made for any pavement of strength exceeding that required by plans and/or specifications

The CONTRACTOR, if directed by the OWNER, shall provide and maintain curing facilities for the purpose of curing concrete test specimens. Provisions shall be made to maintain the water in the curing tank at temperatures between-60- and 80-degrees Fahrenheit in accordance with **ASTM C-31: Standard Practice for Making and Curing Concrete Test Specimens in the Field**. The cost of all materials used in test specimens and the cost of storing, maintaining and of providing and maintaining curing facilities will not be paid for as a separate contract pay item, and the costs thereof shall be considered incidental to the contract pay items provided.

(Page 303-26. Replace Item 303.9. MEASUREMENT AND PAYMENT, with the following:) [New Sub-Sections added for Departments. This Item has a new first paragraph; Note: In Item 303.9.2.COD Measurement and Payment -Dallas Water Utilities, the payment price bid is in "price per cubic yard (Yd^3)".]

303.9.COD: Measurement And Payment of portland cement concrete pavement:

303.9.1.COD: Measurement and payment of portland cement concrete pavement – Department of Public Works and Dallas Park and Recreation: This item concerns projects awarded and administrated by the City of Dallas Department of Public Works and Dallas Park and Recreation.

Portland cement concrete pavement shall be measured by the square-yard (Yd^2) of completed and accepted pavement. Measurement for reinforced concrete pavement shall be by the square-yard (Yd^2) measured in its final position.

The work performed and material furnished as prescribed by this item and measured as provided in this item shall be paid for at the unit price bid per square-yard (Yd^2) for concrete pavement or the adjusted unit price for pavement of deficient thickness as provided under Pavement Thickness Test and Pavement Strength Test, which price shall be full compensation for shaping and fine grading the roadbed, including furnishing and applying all water required; for furnishing, loading and unloading, storing, hauling and handling all concrete ingredients, including all freight and royalty involved; for mixing, placing, finishing and curing all concrete; for furnishing and installing all reinforcing steel; for furnishing all materials and placing longitudinal, warping, expansion, and contraction joints, including all steel dowels, dowel caps and load transmission units required, wire and devices for placing, holding and supporting the steel bar, load transmission units, and joint filler material in the proper position; for coating steel bars where required by the plans; for all manipulations, labor, equipment, appliances, tools, traffic provisions and incidentals necessary to complete the work.

303.9.2.COD: Measurement and payment of portland cement concrete pavement – Dallas Water Utilities: This item concerns projects awarded and administrated by the Dallas Water Utilities.

Portland cement concrete pavement shall be measured by the cubic-yard (Yd^3) of completed and accepted pavement. Measurement for reinforced concrete pavement shall be by the cubic-yard (Yd^3) measured in its final position.

The work performed and material furnished as prescribed by this item and measured as provided in this item shall be paid for at the unit price bid per cubic-yard (Yd^3) for concrete pavement or the adjusted unit price for pavement of deficient thickness as provided under Pavement Thickness Test and Pavement Strength Test, which price shall be full compensation for shaping and fine grading the roadbed, including furnishing and applying all water required; for furnishing, loading and unloading, storing, hauling and handling all concrete ingredients, including all freight and royalty involved; for mixing, placing, finishing and curing all concrete; for furnishing and installing all reinforcing steel; for furnishing all materials and placing longitudinal, warping, expansion, and contraction joints, including all steel dowels, dowel caps and load transmission units required, wire and devices for placing, holding and supporting the steel bar, load transmission units, and joint filler material in the proper position; for coating steel bars where required by the plans; for all manipulations, labor, equipment, appliances, tools, traffic provisions and incidentals necessary to complete the work.

ITEM 304. PAVING UNITS

(Page 304-2. Replace Item 304.1.3.3.2. BEDDING, with the following:) [the word "secreted" in the second sentence was replaced with the word "screeded".]

304.1.3.3.2.COD. Bedding. Sand shall be spread evenly over the base course and screed to a nominal 1-in. thickness, not exceeding 1.5-in. thickness. The screeded sand shall not be disturbed. Sufficient sand shall be placed to stay ahead of the laid paving units. Bedding sand shall not be used to fill depressions in the base surface. The material shall be of uniform moisture content when spread.

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ITEM 305. MISCELLANEOUS ROADWAY CONSTRUCTION

(Page 305-3. Replace Item 305.2.2.2. REINFORCEMENT, with the following:) [A new sentence was added at the end of the paragraph.]

305.2.2.2.COD. Reinforcement. Driveway approaches and walk reinforcing, when required, shall be No. 3 bars on 24-in. centers or No. 4 bars on 24-in. centers. No. 6 gauge, 6-in. x 6-in. wire fabric conforming to **Item 303.2.10. Steel Wire Reinforcement** may be used only as approved by the OWNER. Sidewalk reinforcing (except in driveway approach) may be No. 3 bars on 24-in. centers or No. 10 gauge, 6-in. x 6-in. Reinforcement is required in all driveways and walks.

(Page 305-4. Add Item 305.2.3.10.COD. CONSTRUCTION METHODS: STREET SURFACE MILLING AND RESURFACING:) [New Section Added]

305.2.3.10.COD. Construction Methods: Street Surface Milling And Resurfacing: The existing surface shall be milled to the depths and dimensions as directed by the OWNER It is not the intention to mill the original concrete base of the street, but concrete patches or other obstructions protruding above the original base into the surface specified for removal, will be milled to conform to the desired section. Variations in depth of milling operations shall not exceed 2-inches below the finished surface prior to resurfacing.

Normal milling operations shall be conducted to the edge of manholes, valves and other appurtenances encountered. If the milling machine cannot accomplish this, then milling with hand tools or by other methods shall be employed. No separate compensation will be paid for any milling adjacent to appurtenances that is done with hand tools or by other methods.

The milling machine shall self-load the milled material onto an adjacent hauling unit. Water or other approved liquid shall be sprayed on the material being milled to eliminate dust during milling operations. Brooming and/or sweeping to remove any loose material not removed by the machine shall be conducted immediately behind the machine in an approved manner to the satisfaction of the OWNER. All milled surfaces shall be cleaned, inspected, measured, and approved before the application of the tack coat or asphaltic concrete mixture.

Normal operations will require complete cleanup before the CONTRACTOR is allowed to leave the job. The CONTRACTOR will not be permitted to mill any street more than a week in advance of the scheduled resurfacing. Patches will be placed around all exposed surface protrusions the same day they are exposed.

Failure to observe these constraints may result in shutting down the work until proper adjustments in operations are made.

This item will be bid on the basis that all milled material will be hauled and disposed of in a legal manner of the CONTRACTOR'S choice.

Surface milling will be measured for payment in square yards of surface milled regardless of the number of passes required. The contract unit price shall be the total compensation for milling the surface, removal and disposal of the milled material, cleaning the milled area, and for all labor, equipment and incidentals necessary to complete the work in accordance with this Provision, the Specifications and the attached Details.

The unit price for Surface Milling will not be subject to renegotiation due to overrun or under run of contract quantities.

Asphalt pavement for the entire width of the street or as directed by the City shall be placed over the milled surface with a minimum compacted thickness of two (2) inches and in accordance with Item **302.9 Hot-Mix Asphalt Pavement (with Addendum Items)**, of these Specifications. Hot-mix asphalt shall be placed with a lay-down machine: a drag box will not be authorized. Asphalt pavement will be paid under appropriate bid item numbers.

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DIVISION 400 ROADWAY MAINTENANCE and REHABILITATION

City of Dallas Addendum
to the
North Central Texas Council of Governments

Public Works Construction Standards
Standard Specifications

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ITEM 402.COD PAVEMENT CUT, EXCAVATION, AND REPAIR

(Page 402-1. Replace Item 402.1.2. THOROUGHFARES, with the following:) [The third sentence of the first paragraph has been modified.]

402.1.2.COD. Thoroughfares. No interference with traffic flow on the thoroughfares shall be permitted during the hours of 6:30 a.m. to 9:30 a.m. and 3:30 p.m. to 6:30 p.m., Monday through Friday, unless directed otherwise by the OWNER. Street closures shall be made in accordance with Item **107.18.1.COD: City Regulations on Street Closings.** Notice of street closures shall be provided to the appropriate emergency and/or other department personnel.

Streets shall be maintained in accordance with Item **201.3. Maintenance of Streets and Rights of Way During Construction and Item 201.3.1.COD. Traffic Restrictions**. When work is stopped for the day, all lanes of arterial or collector streets shall be opened to traffic in accordance with the traffic control plan. A traffic lane shall be considered satisfactorily open if it is paved with hot-mix asphalt paving or paved with another suitable material approved by the OWNER, or covered.

If the cut is to be covered, the CONTRACTOR shall use steel plates of sufficient strength and thickness to support all the traffic. A transition of hot-mix asphalt conforming to the requirements of **Item 302. Asphalt Pavement** shall be constructed from the top of the steel plate to the existing pavement to create a smooth riding surface.

Exceptions to these specifications must be approved by the OWNER.

(Page 402-1. Replace Item 402.2.2. DIMENSION PARALLELS THE CENTERLINE (ALONG THE STREET / ALLEY):) [The Standard Drawing Numbers have been changed to the Drawing pages of the City of Dallas 251 Specifications.]

402.2.2.COD. Dimension Parallels the Centerline (Along the Street/Alley). In a concrete paved street or alley, no horizontal dimension of any cut along the street path shall be less than 3-ft. or no less than 1-ft. from the edge of the trench on each end, whichever is greater. In an asphalt paved street or alley, no horizontal dimension of any cut along the street path shall be less than 4-ft. or no less than 2-ft. from the edge of the trench on each end, whichever is greater. Where saw-cut locations coincide with or fall within 3-ft. of the present location of either control joints, cold joint, construction joints, expansion joints, or edge, removal shall be to the existing joint or edge. For more information, see Standard Drawings 3070C and 3070D in the City of Dallas' Pavement Cut and Repair Standards Manual, latest edition.

(Page 402-2. Replace Item 402.2.4. DIMENSION PERPENDICULAR TO THE CENTERLINE (ACROSS THE STREET/ALLEY) – RESIDENTIAL STREET OR ALLEY, with the following:) [The section has been replaced.]

402.2.4.COD. Dimension Perpendicular to the Centerline (Across the Street/Alley) – Residential Street or Alley.

For more information, see the City of Dallas' Pavement Cut and Repair Standards Manual, latest edition.

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ITEM 404.COD SURFACE TREATMENTS

(Page 404-1. Add Item 404.3.1.2.COD. ADDITIONAL SPECIFICATIONS:) [New Section Added.]

404.3.1.2.COD: Additional Specifications: The following specifications and test method, in the latest edition, 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

Table 404.3.1.2.(a).COD: Test Methods For Aggregate And Mineral Filler

AASHTO T2	ASTM D75	Sampling Aggregates
AASHTO T27	ASTM C135	Sieve Analysis of Aggregates
AASHTO T11	ASTM C117	Materials Finer than No. 200 in Mineral Aggregate
AASHTO T176	ASTM D2419	Sand Equivalent Valve of Soils and Fine Aggregate
AASHTO T84	ASTM C128	Specific Gravity and Absorption of Fine Aggregate
AASHTO T19	ASTM C29	Unit Weight of Aggregate
AASHTO T104	ASTM C88	Soundness of Aggregates by use of Sodium Sulfate or Magnesium Sulfate
AASHTO T96	ASTM C131	Resistance to Degradation of small size Aggregate by use of the Los Angeles machine.
	ASTM D1073	Specification for Fine Aggregate for Bituminous Paving Mixtures
	ASTM D242	Mineral Filler for Bituminous Paving Mixtures
AASHTO T37	ASTM D546	Sieve Analysis of Mineral Filler

Table 404.3.1.2.(b).COD: Test Methods For Emulsified Asphalt

AASHTO R66	ASTM D140	Standard Practice for Sampling Asphalt Materials
AASHTO T140	ASTM D977	Standard Method of Test for Compressive Strength of Concrete Using Portions of Beams Broken in Flexure
AASHTO M208	ASTM D2397	Specification for Cationic Emulsified Asphalt
AASHTO T59	ASTM D244	Testing Emulsified Asphalt
AASHTO T59	ASTM D88	Testing Method for Saybolt Furol Viscosity
AASHTO T44	ASTM D113	Standard Test for Ductility of Asphalt Materials
AASHTO T44	ASTM D2042	Test Method of Solubility of Asphalt Materials in Trichloroethylene
AASHTO T49	ASTM D5	Test Method for Penetration of Bituminous Materials
	ASTM D2398	Test Method for Softening Point of Bitumen in Ethylene Glycol (Ring and Ball)

Table 404.3.1.2.(c).COD: Test Methods For Slurry Seal

ASTM D3910	Design, Testing and Construction of Slurry Seal
ASTM D2172	Standard Test Methods for Quantitative Extraction of Asphalt Binder from Asphalt Mixtures
ISSA TB-106	Test Method for Measurement of Slurry Seal Consistency
ISSA TB-111	Outline Guide Design Procedure for Slurry Seal
ISSA TB-113	Test Method for Determining Mix Time for Slurry Surfacing Systems
ISSA TB-114	Test Method for Wet Stripping of Cured Slurry Surfacing Mixtures
ISSA TB-115	Determination of Slurry Seal Compatibility

(Page 404-6. Add Item 404.3.7.COD. LIMITATIONS:) [Add New Section.]

404.3.7.COD: Limitations:

404.3.7.1.COD: 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 OWNER 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.

404.3.7.2.COD: No Slurry Shall Be Applied When:

(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 OWNER.
(6) The slurry seal will be placed on the location and within the time limit as specified by the OWNER.

404.3.7.3.COD: Purpose of Slurry Seal Application:

(1) Type of Slurry by Aggregate Grade and Uses:

(a) **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

(b) **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, 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.

404.3.7.4.COD: 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.

404.3.7.5.COD: Notification: It shall be the CONTRACTOR'S duty to notify all homeowners and business affected by the construction a minimum of 48 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.

404.3.7.6.COD. 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 (MUTCD), latest edition" and the latest edition of the "City of Dallas' Traffic Barricade Manual". In cases of conflict, the City of Dallas' Traffic Barricade Manual will govern. 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 OWNER. Approved temporary lane markings will be provided by the CONTRACTOR for placement as directed by the OWNER.

404.3.7.7.COD: Slurry Seal Surface Treatment: Slurry seal surface treatment will be applied on all asphalt-surfaced streets disturbed or as directed by the OWNER.

The OWNER shall have the option to delay or delete slurry sealing if the weather will not allow application within the allotted contract time. If the application is delayed, the CONTRACTOR will have ten (10) working

days following notice to proceed with slurry sealing to resume and complete work before liquidated damages shall resume.

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DIVISION 500 UNDERGROUND CONSTRUCTION and APPURTENANCES

City of Dallas Addendum
to the
North Central Texas Council of Governments

Public Works Construction Standards
Standard Specifications

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ITEM 501.COD UNDERGROUND CONDUIT MATERIALS

(Page 501-1. Replace Item 501.1. GENERAL:) [A new sentence has been added to the end of this Item])

501.1.COD. General

All pipe and fittings shall be new.

The OWNER shall at all times have free access to the manufacturer's plant while production is in progress, and may at any time refuse to accept pipe made when the plant is failing to follow the stipulations of the specifications in regard to workmanship, or failing in provisions to insure a uniform product coming within the permissible variations of the specifications. The OWNER may reject pipe if adequate means and methods are not provided so as to insure the manufacture of a product of uniform high quality.

Pipe shall be color coded according to the American Public Works Association Uniform Color Code (i.e. blue for water, green for wastewater or storm drain lines, violet for reclaimed water, etc.) or labeled with labeling tape identifying its specific use. Where feasible, permanent identification of the piping service shall be provided by coextruding color stripes into the pipe outside surface. The striping shall be of the same material except for the color. For coextruded markings, IPS sized pipe shall have four equally spaced, longitudinal color stripes and DIPS sized pipe shall have three equally spaced pairs of longitudinal color stripes. The color or marking shall be visible on top of buried pipe when pipe is excavated.

Pipe shall be acceptable by the Underwriters' Laboratories, Inc. or Factory Mutual Research when specifically requested and shall be acceptable by the State Fire Insurance Commission for use in water distribution systems when used for fire protection without penalty. Potable water pipe shall also bear the seal of approval (or "NSF" mark) of the National Sanitation Foundation Testing Laboratory for potable water pipe.

Installation shall be performed in accordance with relevant portions of Division 500 Underground Conduit Construction and Appurtenances.

This shall include, but is not limited to, the latest City of Dallas Standard Drawings (including Dallas Water Utilities Standard Drawings).

(Page 501-2. Add Item 501.4.1.1.COD. NSF 61 COMPLIANCE:) [New section added.]

501.4.1.1.COD: NSF 61 Compliance:

All pipes must have received verifiable Certification of Compliance with the NSF 61 Standard. Pipe intended for use in wastewater lines are exempt from this requirement.

(Page 501-4. Replace Item 501.5.1. GENERAL:) [New items 5, 6, and 7 have been added.]

501.5.1.COD. General.

Except as applicable to Item 501.5.2. Alternate Concrete Pipe D-Load Design, reinforced concrete pipe manufactured under these specifications shall conform to ASTM C76 Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe; or ASTM C655 Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe, and by a plant certified by the American Concrete Pipe Association, Texas Department of Transportation, or other recognized authority, with the following additions:

(1) All pipe shall be machine made by a process which shall provide for uniform placement of zero slump concrete in the form and compaction by mechanical devices which shall assure a dense concrete in the finished product.

(2) Aggregates for the concrete shall comply with requirements ASTM C33 Concrete Aggregates, with the additional requirement that the aggregate shall have a minimum of 50-percent of calcium carbonate equivalent.

(3) Pipe furnished under this specification shall be steam cured in accordance with methods prescribed in **ASTM C76 Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe** except that the steam curing time shall be not less than eight-continuous-hours.

(4) The pipe and connecting joints shall be subject to the hydrostatic tests set forth in **ASTM C443 Joints for Concrete Pipe and Manholes, Using Rubber Gaskets**, both for pipes in straight alignment and for pipes in maximum deflected position without leakage either in the pipe or in the joints.

(5) The minimum wall thicknesses shall be as listed under Wall "B".

(6) The minimum laying length of each joint shall be 6.00-ft. for sizes up to and including 15-in. and 7-ft. 7-in. for sizes larger than 15-in. except for bends, wyes and other special fittings which may be required, or for special radius pipe.

(7) All wastewater pipe shall be thick-walled or lined as approved by the OWNER.

(Page 501-7. Replace Item 501.6.2. PRECAST REINFORCEMENT CONCRETE BOX, with the following:) [The entire Section has been replaced.])

502.6.2.COD. Precast Reinforcement Concrete Box.

502.6.2.1.COD. General.

Precast Reinforced Concrete Box Culverts shall conform to TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, Latest Edition, **Item 462 Concrete Box Culverts and Drains**.

(Page 501-8. Replace Item 501.7.1. GENERAL:) [A new second and fourth paragraph have been added.]

501.7.1.COD: General: Ductile-iron pressure pipe 4-in. through 64-in. shall conform to the American National Standard for Ductile-Iron Pipe Centrifugally Cast for Water or Other Liquids, **AWWA C151 Ductile-Iron Pipe, Centrifugally Cast**. In accordance with **AWWA C151 Ductile-Iron Pipe, Centrifugally Cast**, **Section III.A**, purchaser options and alternatives shall be provided by the specifier, including pipe size, joint type, special joints, thickness or class, and laying length. Purchaser options and alternatives shall be specified in the supplemental conditions, plans, or technical specifications. Polyethylene encasement for ductile iron pipe systems shall conform to **Item 502.8. Polyethylene Wrap for Metal Pipe and Fittings**. The CONTRACTOR shall protect the polyethylene wrap and prevent damage during embedment and backfill installation.

Ductile iron wall thickness in the Central Business District, Executive Airport, and Love Field shall be a minimum of Class 54 unless specified otherwise in the special provisions or in plans to be a thicker class pipe. For large diameters and/or deep cover (Greater than 25 feet from top of subgrade to top of pipe.), a special design shall be provided.

The ductile iron shall conform in all respects to the specifications set forth in **ASTM A377, 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 pipes 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 and signed by a Texas Licensed Engineer.

(Page 501-8. Replace Item 501.7.2. JOINTS:) [The second paragraph was replaced]

501.7.2.COD. Joints

All ductile-iron pressure pipe shall be furnished with one of the types of joints indicated in **Table 501.7.2.(a) Ductile Iron Pressure Pipe Joint Types** and as described in the proposal or bid request.

Bolts and nuts for mechanical joints shall comply with all provisions of **AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings, Section 11-8.5.** Bolts and nuts for flanged ends shall be 316 stainless steel.

(Page 501-9. Replace Item 501.7.4. FITTINGS:) [Reference to AWWA C153: Ductile Iron Compact Fittings have been removed (Dallas does not allow ductile Iron Compact Fittings). The fourth paragraph has been replaced.]

501.7.4.COD Fittings:

Fittings shall be of ductile-iron and shall conform to **AWWA C110 Ductile-Iron and Gray-Iron Fitting,** unless otherwise specified in the proposal, special specification or in the plans.

Welded-on outlets may be used in lieu of the tees shown on the plans. Outlet pipe shall be special thickness class 53. All weldments must be 55% nickel iron and each outlet pipe shall be air tested to 15-psi to ensure weld integrity. The outlet branches must be made from ductile iron pipe.

All fittings shall be rated for a minimum of 250-psi working pressure unless otherwise specified.

Special fittings using end condition combinations of bells, spigots, mechanical, integrally restrained or push-on joints, flanges, or special internally locked joints shall be dimensioned in accordance with **AWWA C110 Ductile-Iron and Gray-Iron Fittings.**

Bolts and nuts for mechanical joints shall comply with all provisions of **AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings**, **Section 11-8.5**. Bolts and nuts for flanged ends shall be **316 stainless steel**.

The OWNER shall determine whether fittings shall be bituminous coated outside and cement-mortar lined inside with seal coat in accordance with **AWWA C104 Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings** for Water or whether the interior and exterior surfaces shall be protected consistent with **AWWA C116 Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings.**

(Page 501-9. Add Item 501.7.4.1.COD. NSF COMPLIANCE:) [New Section Added]

501.7.4.1.COD: NSF 61 Compliance: All pipes must have received verifiable Certification of Compliance with the NSF 61 Standard. Pipe intended for use in wastewater lines are exempt from this requirement.

(Page 501-9. Add Item 501.7.7.COD. DESIGN REQUIREMENTS:) {New Section Added]

501.7.7.COD: Design Requirements: The ductile iron shall conform in all respects to the specifications set forth in **ASTM A377, 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 pipes 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.

Pipe shall be specified by either Thickness Class or Pressure Class, in accordance with **AWWA C150 Thickness Design of Ductile Iron Pipe** and **AWWA C151 Ductile Iron Pipe, Centrifugally Cast, For Water** and shall be so designated in the plans and contract documents.

(Page 501-9. Add Item 501.7.8.COD. NSF COMPLIANCE:) [New Section Added]

501.7.8.COD: NSF 61 Compliance: All pipes must have received verifiable Certification of Compliance with the NSF 61 Standard. Pipe intended for use in wastewater lines are exempt from this requirement.

(Page 501-10. Add **Item 501.9.3.1.COD. NSF COMPLIANCE:**) [New Section Added]

501.9.3.1.COD: NSF 61 Compliance: All pipes must have received verifiable Certification of Compliance with the NSF 61 Standard. Pipe intended for use in wastewater lines are exempt from this requirement.

(Page 501-17. Replace **Item 501.14.5. FITTINGS:**) [The Sentence beginning "Bolts and nuts for mechanical ..." has been replaced with new wording.]

501.14.5.COD: Fittings: Fittings for PVC water pipe shall conform to one of the standards **Table 501.14.5.(a).COD. PVC Water Pipe Fittings** unless otherwise specified. Fittings joints shall be push-on, integrally restrained, or mechanical.

Bolts and nuts for mechanical joints shall comply with all provisions of **AWWA C111 Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings**, **Section 11-8.5.** Bolts and nuts for flanged ends shall be stainless steel bolts and nuts

(Page 501-17. Replace **Table 501.14.5.(a) Fitting Standards for PVC Water Pipe,** with the following:) [The specification for **AWWA C153** and **AWWA C905** were removed from this table.]

Table 501.14.5.(a).COD: Fitting Standards for PVC Water Pipe

Standard	Topic
AWWA C110 (ANSI A21.10)	Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In. for Water
AWWA C900	Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings, 4 In. Through 12 In. for Water Distribution

Note: Compact Fittings are specifically not allowed for use within the City of Dallas' water distribution system. Therefore, the **AWWA 153 Ductile-Iron Compact Fittings for Water Service** Standard has been removed from this table.

(Page 501-17. Add **Item 501.14.6.COD. NSF COMPLIANCE:**) [New Section Added]

501.14.6.COD: NSF 61 Compliance: All pipes must have received verifiable Certification of Compliance with the NSF 61 Standard. Pipe intended for use in wastewater lines are exempt from this requirement.

(Page 501-19, Add Table 501.18.3.(a).COD. PVC PROFILE GRAVITY PIPE STANDARDS:) [New Table Added]

Table 501.18.3.(a).COD: PVC Profile Gravity Pipe Standards

Standard	Topic	Notes
ASTM D3034	Type PS-46 PVC Plastic Gravity Flow Sewer Pipe and Fittings, size 4 in. to 18 in.	Pipe conforming to ASTM F789 shall be joint compatible to ASTM D3034 pipe joint dimensions
ASTM F794	PVC Ribbed Gravity Sewer Pipe and Fitting Based on Controlled Inside Diameter, sizes 4 in. through 48 in.	--
ASTM F949	PVC Corrugated Sewer Pipe with Smooth Interior and Fittings, sizes 4 in. through 36 in. (46 psi pipe stiffness) or sizes ~~8 in. through 15 in~~ 4 in. through 36 in. (115 psi pipe stiffness)	--
ASTM F1803	PVC Closed Profile Gravity Pipe and Fittings Based on Controlled Inside Diameter, sizes 18 in. through 60 in.	--
ASTM F679	PVC Large Diameter Plastic Gravity Sewer Pipe and Fittings", sizes 18-inch through 60-inch.	--

(Page 501-20. Add Item 501.21.6.COD. NSF COMPLIANCE:) [New Section Added]

501.21.6.COD: NSF 61 Compliance: All pipes must have received verifiable Certification of Compliance with the NSF 61 Standard. Pipe intended for use in wastewater lines are exempt from this requirement.

(Page 501-22. Add Item 501.26.COD. PVC PIPE MATERIALS ON HAND:) [New Section Added]

501.26.COD: PVC Pipe Materials On Hand: The City of Dallas Water Utilities Department, Capital Improvement CONTRACTS, Managed by the Pipeline Program Section will allow "on-hand" (pipe purchased before the contract was in force) PVC Water and Wastewater Pipe to be submitted on a case by case basis if the following conditions are met:

(1) All PVC Pipe, paid as Materials on Hand, must be kept by the CONTRACTOR in a secured location. CONTRACTOR will be responsible for the security of the Pipe.

(2) All quantities of PVC Pipe stored outside must be covered with a reflective device to prevent long-term exposure to "ultraviolet rays".

(3) All City of Dallas approved storage facilities must be accessible to a representative of the City Of Dallas on a monthly basis to count and verify the quantities of Material on Hand.

(4) All materials submitted for Materials on Hand must be labeled by CONTRACT Number for identification purposes and separated from other CONTRACT pipe.

All requests to include Materials on Hand, shall be initiated by the CONTRACTOR in writing for approval by the OWNER prior to submittal of Material on Hand invoices. For more information concerning "Material on Hand" invoices, see Item **106.4.COD: Off-Site Storage**.

(Intentionally Blank)

ITEM 502.COD APPURTENANCES

(Page 502-1. Replace **Item 502.1.1.2. FIBERGLASS MANHOLES**, with the following:) [In the last sentence, the standard drawing reference was changed to City of Dallas Standards.]

502.1.1.2.COD. Fiberglass Manholes. Fiberglass manholes shall conform to all ASTM standards governing plastic laminations and ASTM **D3753, Glass-Fiber-Reinforced Polyester Manholes and Wetwells**, with supplementary details or additions as set forth in these specifications. See latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction", Standard Drawing Numbers 305 and 403.

(Page 502-2. Replace **Item 502.1.2. GRADE ADJUSTMENT RISERS**, with the following:) [In the first paragraph, the second and third sentences have been replaced.]

502.1.2.COD. Grade Adjustment Risers. Casting shall be raised to final grade adjustment of access covers and frame assemblies made using adjustment risers. The built-up section to adjust wastewater manholes to grade must be accomplished using precast concrete grade rings and non-shrink grout only. Brick and shrinkable grout are not permitted for this adjustment. Adjustment risers shall be tested to assure compliance with impact and loading requirements of the AASHTO Standard Specification for Highway Bridges. To determine the suitability of a specific ring or frame and to ensure a proper fit, the dimensions of the existing frames, grates and covers must be verified by the CONTRACTOR and provided to the supplier prior to fabrication of the adjustment rings and frames.

Installed grade adjustment risers and riser assemblies shall fit within the existing casting without interference, cause no binding to the manhole lid, be immobile and watertight. Manhole lids shall have bearing on all of the surface of inner ring(s).

(Page 502-3. Replace **Item 502.1.4.1. MANHOLE TYPES AND REQUIREMENTS**, with the following:) [All references to Standard Drawings were changed to City of Dallas Standard Drawings.]

502.1.4.1.COD. Manhole Types and Requirements. Manholes in water lines shall be Cast-In-Place or Precast as described below and in the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction". Manholes in wastewater service lines may be any of those described below, and in the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction". Manholes in storm sewers shall be Cast-In-Place, Precast, or constructed according to the latest edition of the City of Dallas Department of Public Works "Standard Construction Details, File 251D-1"**.** Storm sewer junction boxes shall be constructed according to the latest edition of the City of Dallas Department of Public Works "Standard Construction Details, File 251D-1" or constructed according to engineered plans. Manholes may be standard or shallow, as specified by the OWNER.

(Page 502-3. Replace **Item 502.1.4.1.1. CAST-IN-PLACE**, with the following:) [All references to Standard Drawings were changed to City of Dallas Standard Drawings.]

502.1.4.1.1.COD. Cast-In-Place. The base, wall and cone shall be Class F or Class PF concrete as specified by the OWNER, in conformance with **Item 702. Concrete Structures,** poured and vibrated to assure a monolithic structure free from infiltration. Typical requirements are shown in the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction" and the latest edition of the City of Dallas Department of Public Works "Standard Construction Details, File 251D-1"**.** Manufacturer shall submit shop drawings for OWNER approval. Construction joints with waterstops must be approved by the OWNER.

(Page 502-3. Replace **Item 502.1.4.1.2. PRECAST**, with the following:) [All references to Standard Drawings were changed to City of Dallas Standard Drawings. In the last sentence, the words "sealed anchor" have been removed.]

502.1.4.1.2.COD. Precast. Precast manholes shall conform to the requirements of Item **502.1.1.1. Precast Reinforced Concrete Manhole Sections,** *the latest edition of Dallas Water Utilities "*Standard Drawings for Water and Wastewater Construction*" and the latest edition of the City of Dallas Department of Public Works* "Standard Construction Details, File 251D-1". The base shall be Class F or Class PF concrete as specified by the OWNER, in conformance with **Item 702. Concrete Structures**. The precast sections shall be of the bell- and spigot design incorporating trapped O-ring gaskets in conjunction with premolded joint sealing compound, or tongue-and-groove with a premolded joint sealing compound (water or storm water). Wastewater precast sections shall be sealed using trapped O-rings gaskets in conjunction with premolded joint sealing compound. Premolded joint sealing compound may be used for water line manholes only when approved by the OWNER. Prior to placing each section of manhole riser or cone, the bells and spigots to be joined shall be thoroughly cleaned, the gasket properly placed, lubricated and the joint pushed home. Combination of joints shall be selected to minimize the number of individual segments. Long joints shall be used in the bottom and shorter segments utilized for top adjustments. Lift holes may be used but must be filled with a nonshrink grout after the section is in place. Precast manholes used in floodplains shall require cast-in-place, monolithic pour, with a sealed, water-tight lid design.

(Page 502-4. Replace **Item 502.1.4.1.3. FIBERGLASS**, with the following:) [The reference to Item **502.1.1.2. Fiberglass Manholes** was changed to Item **502.1.1.2.COD. Fiberglass Manholes** and all references to Standard Drawings were changed to City of Dallas Standard Drawings.]

502.1.4.1.3.COD. Fiberglass. Fiberglass manholes shall conform to the requirements of Item **502.1.1.2.COD. Fiberglass Manholes**. The fiberglass portion of the manhole shall be delivered in one piece. Field jointing shall not be permitted. Fiberglass manholes shall be installed in accordance with the manufacturer's recommendation and with supplementary details, additions or exceptions as directed by the OWNER and/or as shown on the plans. Typical requirements are the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction". The base shall be Class F or Class PF reinforced concrete as required per **Item 702. Concrete Structures** as specified by the OWNER. A minimum of 8 holes ⅝-in. in diameter shall be drilled equidistantly around the periphery of the manholes at a distance 4-in. from the bottom for use in inserting #4 reinforcing bars to be keyed into the concrete base to prevent the manhole from floating. All holes shall be sealed around the reinforcing steel to prevent leakage.

(Page 502-4. Replace **Item 502.1.4.1.4. DROP**, with the following:) [All references to Standard Drawings were changed to City of Dallas Standard Drawings.]

502.1.4.1.4.COD. Drop: Drop manholes shall be constructed in accordance with details on the plans. Typical requirements are shown in the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction", Drawing 305. The basic construction for drop manholes shall be identical to that described for standard manholes preceding with special provisions incorporated to provide drop piping and appurtenances as detailed.

(Page 502-4. Replace **Item 502.1.4.1.5. PRESSURE PIPE:**) [All references to Standard Drawings were changed to City of Dallas Standard Drawings.]

502.1.4.1.5.COD. Pressure Type. Pressure type manholes (sealed manholes) shall be constructed in accordance with the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction" unless otherwise shown on the plans.

(Page 502-5. Replace Item *502.1.4.8. WASTEWATER MANHOLE FRAME SEALS,* with the following:) [DWU Standard Drawing Reference added.]

502.1.4.8.COD Wastewater Manhole Frame Seals. All newly constructed Wastewater Manholes shall include an Internal Frame Seal as shown in the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction". (See DWU Standard Drawing 327 – Wastewater Manhole Internal Seal). All costs for furnishing and installing the seal and extensions shall be included in the applicable Unit Price bid for Wastewater Manholes.

(Page 502-5. Add Item *502.1.4.9.COD. INTERIOR COATINGS FOR MANHOLES*:) [New Section Added.]

502.1.4.9.COD: Interior Coatings for Manholes: All proposed Wastewater Manholes require Internal Corrosion Protection as stipulated in the Technical Specifications and latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction".

Existing manholes designated for lining as shown on the drawings and specified herein shall be coated with a corrosion protection epoxy lining stipulated in the Technical Specifications and latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction". Payment for epoxy lining is covered under appropriate bid item numbers. Only epoxy coatings or other materials as shown on the latest version of the Wastewater Approved Materials list are acceptable.

(Page 502-6. Replace Item *502.1.6. MEASUREMENT AND PAYMENT OF MANHOLES*, with the following:) [A new paragraph has been added to the end of this section]

502.1.6.COD. Measurement and Payment of Manholes: Measurement and payment for manholes shall be on a per each basis and shall cover all costs for the structure complete in place as designed. Included shall be all excavation, castings, reinforcing steel, concrete, backfill, and other materials, and all appurtenances for a complete and functional unit.

Payment for grade adjustment for existing manholes shall be measured and paid per each manhole.

The payment for extra depth in excess of the basic manhole depth shall be made under a separate item of bid as defined herein. If a separate bid item is not established in the contract, there shall not be any payment for extra depth, and the manhole shall be paid for as per each regardless of the depth. Unless specified otherwise, only one bid item shall provide payment for extra depth of manhole structures in excess of the basic depth for all types of manholes under consideration. Such extra depth shall be allocated on the total depth of all manholes, excluding shallow manholes, specified for the project. Payment for extra depth of the various types of manholes shall be at a unit price bid per linear foot of additional depth, measured to the nearest 1/10 ft. over the basic depth stipulated for the type manholes under bid. A standard manhole is 6-ft. deep measured from the top of the manhole cover to the flow line of the invert. A shallow manhole is less than 6-ft. deep as measured above.

The contract price shall be the total compensation for the furnishing of all labor, materials, tools, equipment and incidentals necessary to complete the work, including earth excavation, disposal of surplus materials and backfill, all in accordance with the plans and these specifications.

Flowable fill shall be used as backfill material around new manholes located within existing or new pavement. This item shall be considered inclusive in the cost of the manhole construction as per NCTCOG specification **Item 502.1. Manholes (with Addendum Items)**. The 28-day compressive strength requirement is covered under the Department of Public Works' Pavement Cut and Repair Standards Manual, latest edition.

(Page 502-6. Replace Item *502.2. WASTEWATER MAIN CLEANOUTS AND ACCESS CHAMBERS*, with the following:) [The title was changed to include "Wastewater Access Device".]

502.2.COD. Wastewater Main Cleanouts, Access Chambers, and Wastewater Access Devices

Cleanouts shall be constructed in accordance with the plans and these specifications for materials and construction.

(Page 502-6. Replace **Item 502.2.1. TYPICAL CLEANOUT**, with the following:) [All references to Standard Drawings were changed to City of Dallas Standard Drawings.]

502.2.1.COD. Typical Cleanout. Typical cleanout requirements are shown in latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction". (See Standard Drawings No. 317, No. 318, and No. 328.)

(Page 502-8. Replace **Item 502.3.1.1. SUPPLEMENTARY DETAILS SPECIFIED**, with the following:) [The "Inlet Connection" description has been rewritten; the "Outlet Connection" description has been added; the "Burry Length" description has been rewritten; the "Gaskets" item has been renamed to "Nozzle Cap Gaskets"; The item "Operating Nozzle Cap and Nuts" has been named and new information has been added; new information has been added to the Paint item; and several new items have been added.]

502.3.1.1.COD. Supplementary Details Specified. The type of shut-off may be either of the following:

(1) Compression type with the flow.
(2) Compression type against the flow.

The valve action shall provide positive shut-off at minimum closing torque. Wedge action closing gates shall not be permitted, and the scissors type main valves shall not be permitted unless approved by the OWNER.

Inlet connection shall be mechanical joint unless otherwise specified and shall be for a 6-in. cast iron pipe. Glands shall be full-dimensioned as defined in **Table 11.1 of the AWWA C111 Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings**. Bolts and nuts shall comply with all provisions of **AWWA C111 Section 11-8.5**. The inlet valve opening shall be 5 ¼ inches unless otherwise specified.

Outlet Connection: all hydrants shall be equipped with: Two hose nozzles 2 ½ inches nominal I.D. National Standard Firehose Coupling Screw Threads and one pumper nozzle 4 inches nominal I.D. City of Dallas Standard Threads as shown per File No. 684A-9.

Delivery classification: number and size of pumper and hose nozzles shall be as shown on the plans and contract specifications.

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

Diameter outlet connections: hose and pumper nozzle threads shall be of the size and type shown on the plans.

Nozzle Cap Gaskets: shall be furnished on all nozzle caps and shall be long life, black rubber meeting **ASTM D2000, Classification System for Rubber Products in Automotive Applications**, or equal.

Operating Nozzle Cap and Nuts: Unless otherwise specified in the special provisions or in the plans, the **operating and nozzle cap nuts** shall be tapered pentagon nuts with faces not less than 1-in. high. The operating and nozzle cap nuts shall be 1¼-inch point to flat at the base and 1⅛-inch point to flat at the top.

Drain valve and outlet: hydrants shall be equipped with a minimum of two drainholes and provided with an automatic and positively operating noncorrodible drain or dip valve so as to drain the hydrant completely when the main valve is shut.

Direction to open: is to be specified in the contract specifications. Number of turns to open shall be in accordance with **AWWA C502 Dry Barrel Fire Hydrants**.

Paint: The outside of the hydrant shall be thoroughly cleaned and thereafter painted in the shop with one coat of primer. After shop priming, a finish coat of colored paint as specified by OWNER shall be applied to the exterior above ground surfaces. 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 a paint approved by the OWNER. The painted surface shall extend to the ground line.

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. The complete hydrant shall be of such design that when the hydrant barrel is broken through traffic collision or otherwise, it may be replaced without disturbing the base of the hydrant.

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. Design of the coupling shall be such that when the coupling is broken, no parts shall come loose and fall into the hydrant barrel, and the break shall not occur through the pins or bolts holding the coupling to the stem.

Automatic Travel Stop: 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.

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.

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 centerline of the inlet waterway.

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.

(Page 502-8. Replace Item 502.3.1.3. MAIN VALVE SEATS, with the following:) [The section has been rewritten]

502.3.1.3.COD: 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.

(Page 502-9. Replace Item 502.3.1.4. NOZZLE CAP CHAINS, with the following:) [The section was rewritten]

502.3.1.4.COD: Nozzle Cap Chains: Nozzle cap chains or cables are prohibited.

(Page 502-9. Replace Item 502.3.1.5. FLANGES, with the following:) [A new second paragraph was added]

502.3.1.5.COD: Flanges: All flanges other than barrel flanges shall be equipped with mechanical joints. Gland bolts shall be high-strength, low-alloy, corrosion-resistant steel conforming to ASTM A325 Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength, Type 3.

Any flanges other than break flanges shall conform to **AWWA C110 Ductile-Iron and Gray-Iron Fittings** and have a minimum thickness of 1.00 ± 0.12 inch. Bolt hole edge distance shall be sufficient to provide full support for the bolt head and nut.

(Page 502-9. Replace Item 502.03.1.6. OPERATING STEMS:) [The second paragraph has been replaced.]

502.3.1.6.COD. Operating Stems. The spindle of the operating stem and the stem nuts for hydrants having the operating threads located in the barrel or waterway shall be manganese bronze, Everdur or other high-quality noncorrodible metal. Barrel bolts and nuts shall meet the requirements of ASTM A307 Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

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.

(Page 502-9. Replace Item 502.3.1.8. EXTENSIONS, with the following:) [The section has been replaced]

502.3.1.8.COD: Extensions: 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.

(Page 502-9. Replace Item 502.3.1.14. REJECTION, with the following:) [The entire section has been replaced]

502.3.1.14.COD: Rejection: Hydrostatic test shall be complied with as required in **AWWA C502 Dry-Barrel Fire Hydrants**. Fire hydrants may be rejected for failure to meet any of the requirements of this specification.

(Page 502-9. Add Item 502.3.1.15.COD. PROTECTION OF STEM THREADS:) [A new section has been added]

502.3.1.15.COD: 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 may be made of 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.

(Page 502-9. Replace Item 502.3.2. INSTALLATION, with the following:) [In the first paragraph, the NCTCOG Standard Drawing was replaced with the Dallas Water Utilities' Standard Drawing number; distance parameters in paragraph number 2 have been modified to meet DWU's Standards.]

502.3.2.COD: Installation: Fire hydrants shall be installed as shown in the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction". (See DWU Standard Drawing 224), on the appurtenance sheets, or as directed by the OWNER.

Set fire hydrant on the lot line extended when possible. The horizontal center of the hydrant shall be placed not less than 2.5-feet and not more than 7.5-feet from the nearest curb, no closer than 18-inches to existing or proposed sidewalks and located at least 1-foot outside of the area between the Points of Curvature of the corner turning radii at intersections unless otherwise indicated on the plans.

The hydrant shall be set truly vertical and be securely braced and blocked on well-compacted or undisturbed soil surrounded by a minimum of 7-CF of clean gravel or stone to permit free draining of the hydrant, with the large pumper nozzle facing the nearest curb.

Fire hydrants shall be braced and blocked on a Class A or Class PA (as specified by the OWNER) concrete slab not less than 4-in. thick and not less than 3-ft. by 3-ft. square buried to a depth between 6- and 12-inches below finished grade. A splash pad that extends to the sidewalk, or to curb in the absence of a sidewalk, shall be installed if directed by the OWNER. Hydrant 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- and 28-inches from the top of finished grade.

Any adjustment needed after installation shall be made by the CONTRACTOR without extra compensation.

(Page 502-10. Replace Item 502.3.3. MEASUREMENT AND PAYMENT, with the following:) [There is a new next-to-last paragraph and the last paragraph has been replaced with DWU's Standard Drawing Number.]

502.3.3.COD. Measurement and Payment. Fire hydrants shall be paid for at the contract unit price per each, complete in place, as provided in the proposal and contract. The contract price shall be the total compensation for the furnishing of all labor, material, tools, equipment, hydrant extensions, concrete, gravel drains, paint or protective coating and incidentals necessary to complete the work.

The hydrant lead shall be paid for at the unit price bid for installing pipe. The gate valve and box installed in leads shall be paid for at the unit price bid for installing gate valves and boxes, or as specified by OWNER.

Fire hydrant extensions shall be paid for at the unit price bid per foot if a separate pay item is established in the contract.

Blocking shall be included in payment for fire hydrants.

Refer to the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction". (See DWU Standard Drawing 224)

(Page 502-10. Add Item 502.3.17.COD. HYDRANT APPROVAL:) [New Section Added]

502.3.17.COD: 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
Telephone: (214) 670-8796

(Page 502-10. Replace Item 502.4.1. CONCRETE BLOCKING, with the following:) [The NCTCOG Standard Drawings have been modified to DWU Standard Drawings.]

502.4.1.COD. Concrete Blocking. Standard thrust blocking shall conform to appropriate details as shown in the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction". (See DWU Standard Drawings 229 through 234). Special blocking shall be accomplished with Class B concrete per **Item 702. Concrete Structures**, or as specified by the OWNER and as detailed on the appurtenance sheet or as detailed on the plans.

(Page 502-11. Replace Item 502.5.1.3. DESIGN FEATURES OF STOPS AND COCKS, with the following:) There is a new last sentence in paragraph two; in paragraph six, sentence two, there is new information; in paragraph 7, sentence two, the "streamline" connection was removed.]

502.5.1.3.COD. Design Features of Stops and Cocks. Seating surfaces of the ground key type shall be tapered and shall be accurately fitted together by turning the key and reaming the body. Seating surfaces shall be lapped together using suitable abrasives to insure accurate fit. The large end to the tapered surface of the key shall be reduced in diameter for a distance that shall bring the largest end of the seating surface of the key into the largest diameter of the seating surface of the body, and the taper seat in the body shall be relieved on the small end, so that the small end of the key may extend through to prevent wearing of a shoulder and to facilitate proper seating of the key. The stem end of the key, key nut and washer shall be so designed that if the key nut is tightened to failure point, the stem of the key shall not fracture. The nut and the stem shall withstand a torque on the nut of at least three-times the necessary effort to properly seat the key without failure in any manner.

The ball stop shall have a full-size round-way opening with straight-through flow, teflon coated bronze ball with a minimum of 0.5-mil thickness coating. The stop must be so constructed that it may be disassembled, and the

ball removed without special tools. The valve must have a positive stop to prevent damage to brass ball over opening.

Plug type stop shall have full size round way opening with straight-through flow. Seating surfaces shall be brass (or teflon coated brass) to rubber O-rings, providing positive pressure seal without mechanical means. The stop must be so constructed that the plug may be removed without special tools. Rubber O-rings should conform to requirements of **ASTM D2000 Classification System for Rubber Products in Automotive Applications** and test method shall conform to **ASTM D1414 for Test Methods for Rubber O-Rings**.

Inlet and outlet threads, of the types specified, shall conform to the applicable tables of **AWWA C300 Reinforced Concrete Pressure Pipe, Steel-Cylinder Type**, and inlet threads shall be protected in shipment by a plastic coating or other equally satisfactory means. If used, coupling nuts shall have a bearing skirt machined to fit the outside diameter of the pipe for a length at least equal to the outside of the pipe.

Corporation stops shall be so designed as to rotate about the axis of the flow passageway within a circle of rotation small enough to properly clear the inside of any standard tapping machine of appropriate size.

The outlet side of ¾-in. brass curb stops shall be female iron pipe with flared copper pipe, compression or female iron pipe thread on the inlet, as specified. The outlet side of 1-in., 1½-in. and 2-in. brass curb stops shall be female iron pipe with compression, streamline or female iron pipe thread on the inlet, as specified.

The outlet side of ¾-in. and 1-in. corporation stops shall be flared copper pipe or compression with male AWWA “tapered” thread or male iron pipe thread on inlet side, as specified. The outlet side of 1½-in. and 2-in. corporation stops shall be compression, streamline with male AWWA “tapered” thread or male iron pipe thread on inlet side, as specified.

(Page 502-12. Replace Item 502.5.2. ALL OTHER FITTINGS, with the following:) [There are two new sentences at the end of the paragraph.]

502.5.2.COD. All Other Fittings: All other fittings shall conform to respective provisions of **Item 501. Underground Conduit Materials** listed according to conduit type. In water pipe, Ductile Iron or Ductile Iron Compact fittings shall consist of standard crosses, tees, bends, reducers, sleeves, plugs, blind flanges, etc. Fittings for reinforced concrete pressure pipe, steel cylinder type, shall consist of special crosses, tees, bends, reducers, dished plugs, closure sections, flanged outlets, blind flanges, bored flanges, etc. 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.

(Page 502-13. Replace Item 502.5.3. MEASUREMENT AND PAYMENT, with the following:) [There is a new last sentence.]

502.5.3.COD. Measurement and Payment. Payment for fittings shall be made only if a separate bid item is established in the Contract. If a separate bid item is not established, the fittings shall be included in the price of the pipe bid item.

Ductile Iron and Ductile Iron Compact Fittings shall be measured for payment per ton if a separate bid item is established in the Contract. Special fittings for reinforced concrete pressure pipe, steel cylinder type, shall be measured for payment per each, grouped as to size and kind. Fittings that are an integral part of a special item, such as a bored flange in an air valve installation, shall not be measured for payment per each, but shall be included in the contract unit price for that special item. The use of Ductile Iron Compact fittings is prohibited.

(Page 502-13. Replace Item 502.6. VALVES, with the following:) [There is a new first paragraph and several additional paragraphs. The paragraph beginning "Valves over 16-in. in diameter..." has been modified to replace the NCTCOG Standard Drawings with DWU's Standard Drawings.]

ITEM 502.6.COD: VALVES:

502.6.1.COD: Double-Disc, Metal-Seated Gate Valves For Ordinary Waterworks Service:

502.6.1.1.COD: General Description: 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 —Metal-Seated Gate Valves for Water Supply Service, as amended by this specification or as shown on the City of Dallas approved plans and contract documents. All materials must comply with National Standards Foundation (NSF) Standard 61 (NSF 61) – Drinking Water System Components – Health Effects. Tests and design data may be designated in the plans and contract specifications.

(1) **Body and Working Pressure:** All gate valves shall be iron body, bi-directional, double disc, parallel seat, nonrising stem, internal wedging type. Valves 3" through 12" in diameter shall have a minimum design working water pressure of no less than 200 psig. Valves 16" and larger in diameter shall have a minimum design working water pressure of no less than 150 psig. Valve design shall provide minimum torque designs effectively reducing friction and drag through thrust collar design and tracks for gates.

(2) **Vertical Installation:** All valves from 3" through 16" in diameter shall be designed for vertical installation with no gearing and no bypass valve

(3) **Horizontal Installation:** 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.

(4) **Tapping Valves:** If tapping valves are specified, the tapping valves provided shall allow ½" undersized cutters. 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 as requested by the City.

(5) **Operating Nut:** The valve operating nut shall be painted black and shall open in a counter-clockwise direction. Each valve shall be coated in accordance with Section 2.2.8 of the AWWA **C500 Metal Seated Gate Valve for Water Supply** standard. A bituminous coating complying with Federal Specification **TT-C-494b** Coating Compound shall be used for the exterior coating. All surfaces shall be prepared in accordance with the printed recommendations of the manufacturer of the coating, which is to be applied.

(6) **Waterway:** The waterway shall be full-port.

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

(8) **End Configuration:** 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 Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings**, or any combinations thereof.

(9) **Gate Valves larger than 48":** Gate valves larger than 48" shall be a special consideration. The OWNER, at the OWNER's option, may hydrostatically test all gate valves larger than 48-in. for a reasonable period after receipt of a specified test pressure, or specify hydrostatic testing be

performed for a time specified after receipt of a specified test pressure in the plans and contract specifications.

(10) **Contractor Furnished Valves:** All CONTRACTOR-furnished double-disc, metal-seated gate valves must be approved by the Dallas Water Utilities Department (COD). 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) 670-8796

(11) **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.

(12) **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 submitted with the bid and available upon request.

(13) **NSF 61 Compliance and National Standards:** All Materials must comply with National Standards Foundation (NSF) Standard 61 (NSF 61) – Drinking Water System Components – Health Effects. Additionally, all ANSI, ASTM, and AWWA Standards referred to herein shall be as last revised. In the case of conflict, this Specification shall govern.

Valves over 16-in. in diameter shall be installed in a special vault, as indicated in appropriate drawings listed in the latest edition of Dallas Water Utilities "Standard Drawings for Water and Wastewater Construction", or the gear box shall be enclosed in a manhole and supported on a concrete pad. Smaller valves shall be supported with concrete, all as detailed in appurtenance sheets attached to the plans.

(Page 502-13. Replace Item 502.6.1.2.COD. BONNET BOLTING, with the following:) [Entire Section Replaced]

502.6.1.2.COD: Body and Bonnet: The valve body and bonnet shall be made of either gray iron per ASTM **A126, Gray Iron Castings for Valves, Flanges, and Pipe Fittings**, Class B, or ductile iron per **ASTM A536**, **Ductile Iron Castings**. The body and bonnet shall each be full-dimensioned, with a minimum thickness as shown in Table 2 of the **AWWA C500 Metal Seated Gate Valves for Water Supply Service** 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.

(Page 502-13. Add Item 502.6.1.2.1.COD. BOLTING MATERIALS through Item 502.6.1.2.3.COD: Glands:) [New Section Added]

502.6.1.2.1.COD: Bolting Materials:

(1) 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. Square And Hex Bolts And Screws**, Nuts shall be hexagonal, with dimensions conforming to ANSI **B18.2.2. Square and Hex Nuts.**

All stainless-steel bolts manufactured by dropforging or welding shall be fully passivated by the Type VI passivation treatment as defined in Federal Specification **QQ-P-35C** (also known as the Nitric 2 treatment as defined by **ASTM A967 Chemical Passivation Treatments for Stainless Steel Parts**). The manufacturer shall have a Water Immersion Test as defined in Federal Specification **QQ-P-35C** and in **ASTM A967 Chemical Passivation Treatments for Stainless**

Steel Parts performed on a sample of the passivated bolts, and a Certificate of Analysis shall be provided to the OWNER.

(2) Bolts and nuts for mechanical joints shall comply with all provisions of **AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings, Section 11-8.5.** Bolts and nuts for flanged ends shall be either 316 stainless steel bolts and nuts or **ASTM F3125 High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, Type 3 bolts** with **ASTM A563 Carbon and Alloy Steel Nuts, Grade C3 nuts**.

All stainless-steel bolts manufactured by dropforging or welding shall be fully passivated by the Type VI passivation treatment as defined in Federal Specification QQ-P-35C (also known as the Nitric 2 treatment as defined by **ASTM A967 Chemical Passivation Treatments for Stainless Steel Parts**). The manufacturer shall have a Water Immersion Test as defined in Federal Specification **QQ-P-35C** and in **ASTM A967 Chemical Passivation Treatments for Stainless Steel Parts** performed on a sample of the passivated bolts, and a Certificate of Analysis shall be provided to the OWNER.

502.6.1.2.2.COD. Gaskets:

(1) 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 **C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings**, latest edition. No —special design‖ gaskets shall be acceptable.

(2) 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 C110 Ductile-Iron and Gray-Iron Fittings**, latest edition.

502.6.1.2.3.COD: Glands: All valves with mechanical joint ends shall be provided with MJ glands that shall be in full compliance with all the requirements of the **AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings** 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.

(Page 502-13. Replace Item 502.6.1.5. WEDGING DEVICE, with the following:) [Entire Section Replaced]

502.6.1.5.COD. Wedging Device: Wedging devices shall conform to the requirements of **AWWA C500 Metal Seated Gate Valves for Water Supply Service**, except as follows:

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

(2) 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 that will be imposed upon it when the valve is operated within the valve design parameters as set forth in the **AWWA Standard C500**. Thin plates or shapes doweled or screwed into cast iron surfaces in such a manner that the screws or dowels are designed to carry the shear stresses that will develop between the cast iron base and the bronze mounting as set forth in the AWWA **C500 Metal Seated Gate Valves for Water Supply Service** will not be accepted.

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

(4) Wedging surfaces on valves 16" and larger shall be bronze to bronze.

(5) Other moving surfaces integral to the wedging action shall be bronze to iron.

(Page 502-14. Replace Item 502.06.1.7. VALVE STEMS AND NUTS, with the following:) [The entire section has been replaced.]

502.6.1.7.COD: VALVE STEMS AND NUTS:

(1) **Stem:** The stem shall be made of either:

(a) Bronze: Bronze in accordance with Section 3.11.6 of the AWWA **C500 Metal Seated Gate Valves for Water Supply Service** standard.

(b) Stainless Steel. Stainless steel, as long as the provisions of **Item 502.6.1.21.COD. Design Requirements, (2) Test to Failure**, shall be met

(2) **Diameter and Number of Turns:** The minimum diameter and number of turns to open shall be as specified in the **AWWA C500 Metal Seated Gate Valves for Water Supply Service** standard.

(3) **Bronze Stem Collars:** 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 —upsetll heat/compression process.

(4) **Stainless-Steel Stem Collars:** 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.

(5) **Stem Seal:** The stem shall be sealed in accordance with the **AWWA C500 Metal Seated Gate Valves for Water Supply Service** standard.

(6) **Stem Nut:** 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.

(7) **Stem Length:** 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.

(8) **Stem Nut Thread Length:** The threaded length of the stem nut shall be not less than 1.25 times the outside diameter of the stem.

(Page 502-14. Replace Item 502.6.1.8. STUFFING BOXES:) [The type of steel allowed for stuffing box bolts and nuts (last sentence) has been changed from 304 to 316 Stainless Steel.]

502.6.1.8.COD. Stuffing Boxes. Stuffing boxes shall conform to the requirements of **AWWA C500 Metal Seated Gate Valves for Water Supply Service** with the following exceptions: All valves 2-in. through 16-in. shall be equipped with double O-rings, provided arrangement is made for replacement under pressure of the upper O-ring when the valve is fully open. All geared valves shall be equipped with double O-rings in the main stuffing box. All horizontal valves shall have attached stuffing boxes as per the above AWWA Standards. Stuffing box bolts and nuts shall be 316 stainless steel.

(Page 502-14. Replace Item 502.6.1.9. FOLLOWER GLANDS AND GLAND BOLTS AND NUTS:) [In the last sentence of the first paragraph, the 302 Stainless-Steel was changed to 316 Stainless-Steel; A new paragraph was added to the end of the section.]

502.6.1.9.COD. Follower Glands and Gland Bolts and Nuts. Glands, gland bolts and nuts shall conform to the requirements of **AWWA C500 Metal Seated Gate Valves for Water Supply Service** with the following exceptions: Gland flanges or followers that are a separate part may be cast iron or bronze. Glands for valves over 12-in. in diameter shall be solid bronze or cast-iron bronze bushed. Gland bolts and nuts shall be either bronze or Type 316 stainless steel. For either choice both bolts and nuts shall be of the same material.

All valves with mechanical joint ends shall be provided with MJ glands which shall be in full compliance with the requirements of the **AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings** 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.

(Page 502-14. Replace Item 502.6.1.11. GEARING, with the following:) [the minimum valve size was changed from 18-in. in diameter to 16-inches in diameter.]

502.6.1.11.COD. Gearing. Gearing shall be in accordance with **AWWA C500 Metal Seated Gate Valves for Water Supply Service**. Spur or bevel gearing as called for on the plans or as applicable shall be provided on all valves 16-inches in diameter and larger.

(Page 502-14. Replace Item 502.6.1.13. BYPASS VALVES, with the following:) [In the first paragraph, the minimum size was changed from 18-in. to 16-inches in diameter; A new third paragraph has been added.]

502.6.1.13.COD: By-Pass Valves: By-pass valves shall conform to the requirements of **AWWA C500 Metal Seated Gate Valves for Water Supply Service** with the following exceptions: All valves larger than 16-inches in diameter shall be designed for horizontal installation, complete with a bypass valve, rollers, tracks, and scrapers.

Properties, construction and design requirements herein specified are applicable to by-pass valves, except stems on by-pass valves over 4-in. shall have the same physical qualities as for 30-in. and larger.

All valves 3" through 16" in diameter shall be designed for vertical installation with no by-pass valves.

(Page 502-14. Replace Item 502.6.1.18. TESTS AND INSPECTION, with the following:) [The entire section has been replaced.]

502.6.1.18.COD: Tests and Inspection: The manufacturer shall provide the City of Dallas Distribution Division with approved certified test results or a statement regarding compliance with the following tests in accordance with AWWA **C500 Metal Seated Gate Valves for Water Supply Service**, 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 Metal Seated Gate Valves for Water Supply Service** 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.

(3) **Metallurgical Testing:**

(a) **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.

(b) **Data Required:** The specific analyses required shall be determined by the City of Dallas on a case-by-case basis.

(Page 502-14. Add Item 502.6.1.19.COD. VERIFICATION OF COMPLIANCE WITH SPECIFICATIONS:) [New Section Added]

502.6.1.19.COD. Verification of Compliance With Specifications:

502.6.1.19.1.COD. Documentation:

Prior to any manufacturer‘s Double-Disc, Metal-Seated Gate Valves 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 Double-Disc, Metal-Seated Gate Valves with all the provisions of this Specification; OR

(2) Specifically identifies each section of this Specification which is not met by that manufacturer‘s Double-Disc, Metal-Seated Gate Valves, 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

(Page 502-14. Add Item 502.6.1.20.COD. PACKAGING:) [New Section Added]

502.6.1.20.COD. Packaging:

All valves provided shall be protected during transit and storage to prevent damage to any flanges or to the coatings of the valve. For valves with one or more mechanical joint ends, all MJ nuts, bolts, glands, and gaskets shall be carefully sealed in protective —gland packs‖ and shipped with the valves. For valves with one or more flanged ends, the main flange nuts, bolts, and gaskets, shall be packaged separately, and shipped with the valves.

(Page 502-14. Add Item 502.6.1.21.COD. WRENCH NUTS:) [New Section Added]

502.6.1.21.COD. Wrench Nuts:

(1) **Wrench Nuts:** Wrench nuts shall be made of either gray iron per **ASTM A126, Class B**, or ductile iron per **ASTM A536**, **Ductile Iron Castings**.

(2) **The Nut:** The nut shall be 2" square at the base, 1 $^{15}/_{16}$" square at the top, and 1 $^{3}/_{4}$" high.

(3) **Direction of Opening:** 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).

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

(Page 502-14. Add Item 502.6.1.22.COD. DESIGN REQUIREMENTS:) [New Section Added]

502.6.1.22.COD. 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 ensure that the valve will maintain its external integrity if it is 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 that will allow the bonnet to be secured to the body with pass-through bolts and nuts. No valve that 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.

(Page 502-14. Add Item 502.6.1.23.COD. TAPPING SLEEVES:) [New Section Added]

502.6.1.23.COD. Tapping Sleeves:

Tapping Sleeves shall conform to the Manufacturer's Standardization Society standard SP-111 and the following:

502.6.1.23.1.COD. Tapping Sleeves, Body:

(1) 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**.

(2) 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.

(3) Stainless steel tapping sleeves shall be type 316 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.

(4) 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.

(Page 502-14. Add Item 502.6.1.24.COD. FLANGES:) [New Section Added]

502.6.1.24.COD. Flanges: The branch outlet of the sleeve shall be flanged to conform to **AWWA C207 Steel Pipe Flanges for Waterworks Service – Sizes 4 In. Through 144 in.**, Class D, ANSI Class 150 and shall be in accordance with **MSS-SP-60 Connecting Flange Joints Between Taping Sleeves and Rapping Valves** standards.

(Page 502-14. Add Item 502.6.1.25.COD. GASKET:) [New Section Added]

502.6.1.25.COD: Gasket:

(1) All gaskets shall conform to **ASTM D1330 Standard Specification for Rubber Sheet Gaskets**.

(2) 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.

(3) The gaskets for stainless steel tapping sleeves shall be the full circumferential, 360-degree type.

(Page 502-14. Add Item 502.6.1.26.COD. BOLTS AND NUTS:) [New Section Added]

502.6.1.26.COD. Bolts and Nuts:

(1) 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	7/8”
8”	8	7/8”
10”	12	1”
12”	12	1”
16”	16	1 1/16
20”	20	1 ¼”
24”	20	1 3/8”

The bolts and nuts for iron tapping sleeves shall conform to **AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings** Standard.

(2) 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 C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings** standard. Type 316 stainless steel bolts and nuts shall be provided.

(3) 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	5/8”
6”	8	5/8”
8”	10	5/8”
10”	16	5/8”
12”	16	5/8”

The bolts and nuts for stainless steel tapping sleeves shall have UNC rolled threads and be made of type 316 stainless steel.

(Page 502-14. Add Item 502.6.1.27.COD. FINISH:) [New Section Added]

502.6.1.27.COD. Finish: All iron sleeves shall be coated and lined per **AWWA C110 Ductile-Iron and Gray-Iron Fittings**, latest edition.

All carbon steel sleeves shall be fusion-bonded epoxy coated per **AWWA C213 Fusion Bonded Epoxy Coating for The Interior & Exterior Of Steel Water Pipelines** 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.

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

(Page 502-14. Add Item 502.6.1.28.COD. PRESSURE RATING:) [New Section Added]

502.6.1.28.COD. Pressure Rating: The working pressure rating shall be a minimum of 150 psi.

(Page 502-14. Add Item 502.6.1.29.COD. RESTRICTIONS:) [New Section Added]

502.6.1.29.COD. 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.

(Page 502-14. Add Item 502.6.1.30.COD. NSF 61 COMPLIANCE:) [New Section Added]

502.6.1.30.COD: NSF 61 Compliance: All sleeves must have received a verifiable Certification of Compliance with the NSF 61 Standard.

(Page 502-15. Replace Item 502.6.2.COD. RESILIENT-SEATED GATE VALVES FOR ORDINARY WATERWORKS SERVICE:) [Entire Section was replaced.]

502.6.2.COD. Resilient-Seated Gate Valves for Ordinary Waterworks Service:

502.6.2.1.COD. General Description: This specification covers all Resilient-Seated Gate Valves 3-in. (7.6cm) through 12-in (30.5 cm), which shall conform to **AWWA C509 Resilient-Seated Gate Valves for Water Supply Service**, except for changes or specified alternatives as detailed in this specification or as shown on the plans and contract documents. Tests and design data may be as designated on the plans and contract specifications. (Note: **AWWA C515 Reduced Wall, Resilient-Seated Gate Valves for Water Supply** Service has specifically been removed from this specification. Reduced wall Valves and Fittings, of any type, are not approved for use in the City of Dallas.).

(1) All Resilient-Seated Gate valves shall be bi-directional, non-rising stem with a minimum rated working pressure of 200 psig. Tapping valves that allow ½" undersize cutters shall be provided, if specified. All tapping valves shall be designed with an alignment lip per MSS SP-60. The valve operating nut shall be painted black and open in a counter-clockwise direction. The water way 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.

(2) All Resilient Seated gate valves shall be iron body, resilient seated, nonrising bronze stem and bronze stem nut. Valves must have the resilient seat bonded and vulcanized to the wedge and employ the best workmanship and finish. Valve design shall provide minimum torque designs effectively reducing friction and drag through thrust collar design and guide tracks for the gate.

(3) Each manufacturer shall provide design and test data as requested by the City of Dallas to allow evaluation of the appropriateness of 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**.

(4) All Resilient-Seated Gate Valves shall be furnished complete as specified including accessories, shipping, and handling costs. 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 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings**, PVC, or any combinations thereof.

(5) Gate valves larger than 36-in. shall be a special consideration. The OWNER may hydrostatically test all gate valves larger than 36-in. for a reasonable period after receipt.

(6) All Materials must comply with **National Standards Foundation (NSF) Standard 61 (NSF 61) – Drinking Water System Components – Health Effects**.

502.6.2.1.1.COD. Contractor Furnished Valves: All CONTRACTOR-furnished Resilient-Wedge gate valves must be approved by the Dallas Water Utilities Department (COD). 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) 670-8796

502.6.2.1.2.COD. 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.

502.6.2.1.3.COD. Experience: The manufacturer shall have a minimum of five (5) years' experience in the production and sales of Resilient-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.

502.6.2.1.4.COD. 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.

(Page 502-15. Replace Item 502.6.2.2.COD. BONNET BOLTING:) [Entire Section was replaced.]

502.6.2.2.COD: Body and Bonnet: The valve body and bonnet shall be made of either gray iron per **ASTM A126 Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings, Class B**, or ductile iron per **ASTM A536, Ductile Iron Castings**. The body and bonnet shall each be full-dimensioned, with a minimum thickness as shown in Table 2 of the **AWWA C509 Resilient-Seated Gate Valves for Water Supply Service** standard. No thin-wall or —compact-design valves shall be acceptable. Castings shall be clean and sound with no structural defects. There shall be no plugging, welding, or repairing of 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.

(Page 502-15. Replace Item 502.6.2.7.1.COD. BOLTING MATERIALS:) [Entire Section was replaced.]

502.6.2.7.1.COD. Bolting Materials:

(1) All bonnet and seal plate bolts and nuts shall be factory installed type 316 stainless steel. Bolt heads shall be hexagonal, with dimensions conforming to **ANSI B18.2.1. Square and Hex Bolts and Screws (Inch Series)** Nuts shall be hexagonal, with dimensions conforming to **ANSI B18.2.2. Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series).**

(2) Bolts and nuts for mechanical joints shall comply with all provisions of **AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings**, Section 11-8.5. Bolts and nuts for flanged ends shall be either 316 stainless steel bolts and nuts, or **ASTM F3125 High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated,** Type 3 bolts with **ASTM A563 Carbon and Alloy Steel Nuts** Grade C3 nuts.

(Page 502-16. Add Item 502.6.2.16.1.COD. PROOF OF DESIGN TESTS:) [New Section Added]

502.6.2.16.1.COD. Proof of Design Tests: The manufacturer shall provide the City of Dallas Distribution Division with approved certified test results or a statement regarding compliance with the following tests in accordance with **AWWA C509, Section 5.1**.

(1) **Hydrostatic Test**: The manufacturer shall pressure test one valve of each class to 400 psi (in each direction) with the gate in the closed position and 0 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.

(3) **Metallurgical 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.

(4) **Leakage Testing**: The manufacturer shall select two valves to be opened and closed for 500 cycles with a 200-psi differential pressure across the gate. The valve shall be drip-tight upon completion of the test.

(5) **Pressure Test**: One valve of each size shall be tested by the manufacturer to 500 psi 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.

(6) **Data Required**: The specific analyses required shall be determined by the City of Dallas on a case-by-case basis.

(Page 502-16. Add Item 502.6.2.16.2.COD. VERIFICATION OF COMPLIANCE WITH SPECIFICATIONS:) [New Section Added]

502.6.2.16.2.COD: 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 a formal statement to:

Materials Engineer
Distribution Division
4120 Scottsdale Drive
Dallas, TX 75227
Telephone: (214) 670-8796

Which either:

(1) Verifies and affirms the compliance of that manufacturer's Resilient-Seated Gate Valves 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-Seated Gate Valves, 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.

(Page 502-16. Add Item 502.6.2.17.COD. VALVE STEM:) [New Section Added]

502.6.2.17.COD. Valve Stem: The stem shall be made of the low-zinc bronze alloy, **CDA 99500** (maximum 2% zinc). The minimum diameter and number of turns to open shall be as specified in **AWWA C509**. Stem collars shall be integral with the stem. The stem shall be sealed with O-rings above and below the stem collar; a minimum of two such seals shall be required. The stem nut shall be inset in the gate, either integrally cast of swaged in place or retained by a T-Nut configuration. The stem nut shall be made of low-zinc bronze (maximum 7% Zinc) such as **CDA 83600, CDA 99400, and CDA 99500**. The stem shall be of such length that the threads of the stem nut are entirely engaged when the valve is in the closed position. The threaded length of the stem nut shall be not less than 1.25 times the outside diameter of the stem.

(Page 502-16. Add Item 502.6.2.18.COD. PACKING:) [New Section Added]

502.6.2.18.COD: Packing: Prior to shipping, all nuts, bolts, and glands shall be assembled on the valve. The gasket shall be shipped inside the valve, sealed to protect the rubber gasket material from contamination and damage.

(Page 502-16. Add Item 502.6.2.19.COD. WRENCH NUTS:) [New Section Added]

502.6.2.19.COD: Wrench Nuts: Wrench nuts shall be made of either cast iron per **ASTM A126 Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings, Class B**, or ductile iron per **ASTM A536 Standard Specification for Ductile Iron Castings**. The nut shall be 2" square at the base, $1^{15}/_{16}$" square at the top, and 1¾" high. 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). The nut shall be mechanically secured to the valve by means of a hexagonal bolt for easy removal. A pin that requires knocking out is not acceptable.

(Page 502-16. Add Item 502.6.2.20.COD. COATINGS:) [New Section Added]

502.6.2.20.COD. Coatings:

Interior Coatings:

(1) **Surface Preparation:** All interior ferrous surfaces of the valve exposed to water and subject to corrosion shall be sandblasted in accordance with Steel Structures Painting Council Specifications No. SSPC-SP5 for White Metal Blast Cleaning. Shot blasting methods shall not be used. Before sandblasting, all projections and objectionable irregularities shall be carefully removed, all sharp edges and corners shall be ground smooth, and all oil and grease shall be removed by the use of an effective solvent. After sandblasting all debris of the sandblasting process shall be removed from the surfaces to be coated. The Interior coating shall immediately follow the sandblasting and shall be one of the following epoxy coating systems.

(2) **Liquid catalyst** – cure epoxies containing no solvents, requiring no solvents, and requiring no heat curing:

(a) Specialties Engineering Corporation, Specoat SEC-EPT, brushable.

(b) SOC-CO Plastic Coating Company, Kesite 740, brushable.

(c) Minnesota Mining and Manufacturing Company (3M), Scotchkote 302.

(d) Mueller Company, H.P.

(3) Powder, fusion bounded epoxies, thermosetting.

(a) Minnesota Mining and Manufacturing Company, Scotchkote 134, Fluid Bed application.

(b) Minnesota Mining and Manufacturing Company, Scotchkote 203, Fluid Bed application.

(4) **Coating Thickness**: The coating shall be applied in accordance with the manufacturer‘s printed instructions and shall have a dry-film thickness of not less than 9 mm or more than 20 mm. The coating shall be applied to all stationary interior ferrous surfaces including all interior openings in the valve body. Coating shall not be applied to the gasket surfaces of the end flanges. After the coating is completely cured, the coated surface shall be tested for porosity, holidays, and pinholes, using a holiday detector set at 1800 volts. All holidays or irregularities shall be repaired and the coating tested again.

Exterior Coatings

(5) **Surface Preparation – Exterior**: The exterior ferrous surfaces of each valve shall be coated as detailed in Article III of these specifications, except that the surfaces shall be sandblasted to SSPC-SP6 (Commercial Grade) requirements prior to coating.

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

(Page 502-16. Add Item 502.6.2.21.COD. DESIGN REQUIREMENTS:) [New Section Added]

502.6.2.21.COD. 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.

(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 ensure that the valve will maintain its external integrity if it is 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 the seal plate is 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. The seal plate and seal plate bolts shall be designed so that there is 0.50 inches and 1.00 inches of clearance between the bottom of the operating not and the top end of the seal plate bolts.

(5) **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.

(Page 502-16. Add Item 502.6.2.22.COD. Wedge:) [New Section Added]

502.6.2.22.COD, Wedge: The wedge shall be made from either ductile iron per **ASTM A536 Standard Specification for Ductile Iron Castings** or gray iron per **ASTM A126 Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings, 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.

(Page 502-16. Add Item 502.6.2.23.COD. Encapsulation:) {New Section Added]

502.6.2.23.COD: 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.

(1) The method used to prove the rubber-to-metal bond shall be in accordance with the requirement of **ASTM D429 Standard Test Methods for Rubber Property – Adhesion to Rigid Substrates, Method B**. The peel strength shall not be less than 75 pounds per square inch.

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

(Page 502-16. Add Item 502.6.3.6.COD. NSF 61 COMPLIANCE:) [New Section Added]

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

(Page 502-18. Replace Item 502.6.5. BUTTERFLY VALVES:) [The first paragraph has been replaced; List Item (9) has been replaced; List Items 10 through 16 have been added.]

502.6.5.COD. Butterfly Valves.

502.6.5.1.COD. General.

This specification covers Rubber Seated Butterfly Valves in sizes 10" through 120”, which shall conform to the features and material specifications of the latest revision of the **AWWA C504 Rubber Seated Butterfly Valves**, as amended by this specification or shown on the City of Dallas plans and contract documents:

(1) Type of body shall be short body, flanged.

(2) Body material shall be cast iron or ductile iron.

(3) Class shall be as specified on the plans or contract specifications.

(4) Shafts shall be Type 316 stainless steel.

(5) Flange holes shall be drilled full size.

(6) Valve seats shall be natural rubber or Buna-N and polished stainless steel, Type 316, 90° seating angle only, with a 360° uninterrupted seating surface.

(7) Shaft seals shall be standard split-V packing or double O-ring seal cartridges.

(8) Discs shall be ductile iron, cast iron, or fabricated steel.

(9) The valve operating nut shall be ductile iron, painted black and shall open in a counter-clockwise direction.

(10) These valves shall be suitable for fresh water having a pH greater than six (6) and a temperature less than 125° F.

(11) 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.

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

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

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

(15) National Standards Foundations (NSF) Standard 61 compliance: All valves must have received a verifiable Certification of Compliance with the NSF 61 Standard and the CONTRACTOR shall present the Certificate of Compliance, if requested by OWNER.

(16) National Standards. All ANSI, ASTM, and AWWA Standards referred to herein shall be as shown in the latest revision. In the case of conflict, this Specification shall govern.

(Page 502-18. Add Item 502.6.5.1.1.COD. QUALITY ASSURANCE:) [New Section Added]

502.6.5.1.1.COD: Quality Assurance: The following shall be furnished to the OWNER. Incomplete data shall be cause for rejection of bid.

(1) 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.

(2) 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 (DWU). For review of valves and materials contact:

Materials Engineer
Distribution Division
4120 Scottsdale Drive
Dallas, TX 75227
Telephone: (214) 670-8796

(Page 502-18. Replace Item 502.6.5.2. SUBMITTALS, with the following:) [The first paragraph has been replaced.]

502.6.5.2.COD. Submittals:

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. The Drawings shall include, but not be limited to, the following:

(1) Weights and drawings in accordance with **AWWA C504 Rubber Seated Butterfly Valves**.
(2) Guaranteed delivery time after receipt of purchase order.
(3) Number of turns of handwheel required to close valve.
(4) The required actuator torque (T_o) in foot-pounds for each butterfly valve based on the specified operating conditions of pressure and flows.
(5) Seating-unseating torque (T_o) in foot-pounds required for each butterfly valve.
(6) Rated torque capability of each butterfly valve actuator.

The following data shall be furnished if not previously available to the OWNER:

(7) Experience: evidence of at least five years satisfactory experience building butterfly valves to AWWA Standards.
(8) Torque tests in accordance with Rubber Seated Butterfly Valves **AWWA C504 Rubber Seated Butterfly Valves**.
(9) Proof of design tests in accordance with **AWWA C504 Rubber Seated Butterfly Valves**.

(Page 502-18. Add Item 502.6.5.2.1.COD. EXPERIENCE:) [New Section Added]

502.6.5.2.1.COD. Experience: The manufacturer shall have a minimum of five (5) years' experience in the production and sales of **AWWA C504 Rubber Seated 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.

(Page 502-18. Add Item 502.6.5.2.2.COD. MATERIALS:) [New Section Added]

502.6.5.2.2.COD. Materials:

(1) **Body**: The valve body shall be made of either gray iron per **ASTM A48 Standard Specification for Gray Iron Castings, Class 40** or **ASTM A126 Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings, Class B**, or ductile iron per **ASTM A536 Standard Specification for Ductile Iron Castings, 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 Standard Specification for Ductile Iron Castings Grade 65-45-12 ductile iron**. Valve discs for valves 72" through 120" in diameter shall either be manufactured of **ASTM A536 Standard Specification for Ductile Iron Castings, Grade 65-45-12 ductile iron** or may be of **ASTM A516 Standard Specification for Pressure Vessel Plates, Carbon Steel, for Moderate- and Lower-Temperature Service, 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 Type 316 stainless steel. Sprayed or plated mating seat surfaces are not acceptable.

(4) **Valve Shaft**: Valve shafts shall be manufactured of Type 316 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 F3125 Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength,** heavy hex main flange bolts dimensioned in accordance with **ANSI Standard B.18.2.1.** All nuts for the **ASTM F3125 Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength,** flange bolts shall be **ASTM A563 Standard Specification for Ductile Iron Castings**,, 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**). 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 **1/8"** 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 Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings, Class B**, or ductile iron per **ASTM A536 Standard Specification for Ductile Iron Castings**.

(b) The nut shall be 2" square at the base, $1^{15}/_{16}$" - square at the top, and 1¾" 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 hexagonal stainless steel or bronze bolt for easy removal. A pressed pin/roll pin that requires knocking out is not acceptable

(Page 502-18. Add Item 502.6.5.2.3.COD. COATINGS:) [New Section Added]

502.6.5.2.3.COD. Coatings:

Interior Coatings:

(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 comply with the **AWWA C550 Protective Interior Coatings for Valves & Hydrants**, 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 Protective Interior Coatings for Valves & Hydrants**. 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.

Exterior Coatings:

(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 C504 Rubber Seated Butterfly Valves**, as detailed below:

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

(1) 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. The Manufacturer may substitute a standard exterior coating in lieu of the suitable metal-primer.

(2) 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 C504 Rubber Seated Butterfly Valves** shall be called for in the valve order. The asphaltic emulsion shall conform to Federal Specification **TT-C-494B Coating Compound, Bituminous, Solvent Type Acid-Resistant (Superseding TT-C-494A)**.

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

(Page 502-18. Add Item 502.6.5.2.4.COD. DESIGN REQUIREMENTS:) [New Sections through 502.6.5.2.14.COD. Shaft Torque Capability Added]

502.6.5.2.4.COD. Design Requirements:

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

502.6.5.2.4.1.COD. Flanges: The dimensions and drilling of end flanges shall conform to **ASME/ANSI B16.1 Gray Iron Pipe Flanges and Flanged Fittings**, Class 125, with full-sized bolt holes through the flanges.

502.6.5.2.4.2.COD. 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 Rubber Seated Butterfly Valves**. No thin-wall or —compactǁ 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.

502.6.5.2.4.3.COD. Disc: Butterfly valve discs for valves 30" in diameter and larger shall be of the —off-setǁ design 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.

502.6.5.2.4.4.COD. Valve Seat:

(1) **For all sizes of valves.**

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

(b) Resilient seats shall be mechanically retained by means of 316 stainless steel clamps, stainless steel rings, and 316 stainless steel bolts and nuts.

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

(d) 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.

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

502.6.5.4.5.COD. 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 Rubber Seated Butterfly Valves**, 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”

502.6.5.4.6.COD. Shaft Bushings: Valve shaft bushings shall be designed by the manufacturer to ensure 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.

502.6.5.4.7.COD. 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.

502.6.5.4.8.COD. Shaft Seals:

(1) 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:

(a) 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.

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

(2) 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 is not acceptable.

502.6.5.2.14.COD. 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 Rubber Seated Butterfly Valves**, 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 Item **502.6.5.4.5.COD. Valve Shaft** of this specification.

(Page 502-18. Replace Item 502.6.5.4.1.COD. MANUAL ACTUATORS:) [A new First Paragraph has been added and New SubSections through 502.6.5.4.1.4.COD: Direction of Operation were Added.]

502.6.5.4.1.COD. 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 **Item 502.6.2.2.2.COD(8): Materials**.

(1) **Location.** All actuators shall be located at the right end of a horizontal shaft with the input shaft vertical and upward looking in the direction of flow, unless otherwise noted.

(2) **Closure.** The valve shall close by turning the input shaft clockwise. All handwheels shall turn clockwise to close the valve. All operators shall be equipped with a disc position indicator with each valve. The indicator shall be highly visible, clearly showing the legends “Open” and “Closed” at the ends of a 90° arc, with a pointer to show the disc position (Closed — 0° and Open —90°). The arc shall be graduated in degrees.

(3) **Type.** All manual actuators shall be totally enclosed worm gear type and traveling-nut type. All manual worm gear type actuators shall be Limitorque, Type HBC or approved equal.

(4) **Sizing.** Each valve actuator shall be sized for the maximum valve torque requirements based on the operating pressures and flow rates as specified.

502.6.5.4.1.1.COD: 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.

502.6.5.4.1.2.COD: 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.

502.6.5.4.1.3.COD: 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.

502.6.5.4.1.4.COD: 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.

(Page 502-18. Replace Item 502.6.5.4.1.3.COD. ELECTRIC MOTOR ACTUATORS:) [New Paragraphs Added at the end of the Section, beginning with the words "Electric valve actuators, where required..."]

502.6.5.4.2.COD. Electric Motor Actuator. Each electric actuator shall conform to **AWWA C504 Rubber Seated Butterfly Valves** and shall be of sufficient size to open and close the valve against maximum differential pressure and maximum required torque conditions when voltage at motor terminals is 90-percent of nominal voltage and shall have totally enclosed worm gear reducer with spur gear attached. Limit switches shall be of the four traingear with switches adjustable to operate at any point in the opening or closing cycle of the valve.

Limit switches and torque switches shall be located in a special compartment that is an integral part of the actuator and shall be readily accessible. Each limit switch shall have two normal closed contacts. Limit switch gearing shall be in step at all times whether in power or manual operation. Limit switch gearing shall be stainless steel or high-grade bronze. Two torque switches shall be furnished, one for opening direction and one for closing direction. The torque switches shall be connected in series so that they will operate regardless of the phasing of the power.

Torque and thrust loads in both closing and opening directions shall be limited by torque switches. Each torque switch shall be provided with a micrometer adjustment and reference setting indicator. The adjustment shall permit a variation of approximately 40-percent in torque setting. Switches shall have a rating of not less than 6-amperes at 120-volts-a.c. and 2.2-amperes at 115-d.c. The torque switches shall be in series with the opening and closing coils of the starter.

The torque switches shall be factory adjusted by the manufacture for this application.

A handwheel for manual operation shall be provided. Motor shall not rotate when handwheel is in use. A fused motor shall not interfere with manual operation. For valve control, furnish for each valve a reversing starter in watertight enclosure that is integral with the actuator housing. Furnish a push-button station NEMA-4 with red and green indicating lights separate from the valve actuator.

Space heaters shall be provided to protect the motor, reversing starter and limit switch compartments from moisture condensation. Valve control wiring diagrams shall be furnished with submittal data.

Valve actuators shall conform to latest revision of **AWWA C504 Rubber Seated Butterfly Valves** and shall be designed to hold the valve in any intermediate position between fully opened and fully closed without creeping and fluttering.

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.

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

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

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

(4) COD 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.

(5) 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).

(Page 502-19. Add Item 502.6.5.4.3.1.COD. SUBMERGED ACTUATOR:) [New Section through 502.6.5.4.3.9.COD: Verification of Compliance with Specifications Added]

502.6.5.4.3.1.COD: Submerged Actuator:

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

(1) **Location**: All actuators shall be located at the right end of a horizontal shaft with the input shaft vertical and upward looking in the direction of flow, unless otherwise noted.

(2) **Closure**: The valve shall close by turning the input shaft clockwise. All handwheels shall turn clockwise to close the valve. All operators shall be equipped with a disc position indicator with each valve. The indicator shall be highly visible, clearly showing the legends “Open” and “Closed” at the ends of a 90° arc, with a pointer to show the disc position (Closed — 0° and Open — 90°). The arc shall be graduated in degrees.

(3) **Type**: All manual actuators shall be totally enclosed worm gear type and traveling-nut type. All manual worm gear type actuators shall be Limitorque, Type HBC or approved equal.

(4) **Sizing**: Each valve actuator shall be sized for the maximum valve torque requirements based on the operating pressures and flow rates as specified.

502.6.5.4.3.2.COD: 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.

(3) **Valves**:

(a) **Protection During Transport:** 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 ¾" 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) **Lifting.** Valves shall only be lifted by utilizing clevis devices through the valve flange, or by forklift for those valves that are on pallets. In no case shall any valves be lifted by the actuator or by the valve shaft.

(c) **Shipment and Storage Requirements**. Electric motor actuated valves shall be shipped to bonded, covered warehouse storage to be designated by the OWNER. Valves shall be stored

indoors and shall have space heaters energized. Full-face flange protectors of waterproof plywood shall be at least one-inch thick.

502.6.5.4.3.3.COD: Accessories:

(1) **Bolts and Nuts**. A full complement 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 complement of ribbed ring gaskets as specified in Section II.G. of this Specification.

502.6.5.4.3.4.COD: Production Tests: The manufacturer shall provide the City of Dallas Distribution Division with approved certified test results or a statement regarding compliance with the following tests in accordance with **AWWA C504 Rubber Seated Butterfly Valves**, **Section 5.2.**

502.6.5.4.3.5.COD: Performance Tests: 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.

502.6.5.4.3.6.COD: Leakage Tests: Each valve shall be shop tested for leaks with the valve in the closed position by the valve manufacturer. 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.

502.6.5.4.3.7.COD: Hydrostatic Tests: 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.

502.6.5.4.3.8.COD: 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.

502.6.5.4.3.9.COD: Verification of Compliance with Specifications:

(1) **Documentation**: Prior to any manufacturer‘s butterfly valve being approved for use by the City of Dallas, the valve manufacturer shall deliver a formal statement to:

Dallas Water Utilities Department Distribution Division
Material Engineer
4120 Scottsdale Drive
Dallas, Texas 75227

which states either the valve is either:

(a) **Compliant**: Verifies and affirms the compliance of that manufacturer‘s butterfly valve with all the provisions of this Specification; OR

(b) **Non-Compliant**: 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.

(Page 502-19. Replace Item 502.6.6. LINE VALVE INSTALLATION, with the following:) [The last sentence in the section have been revised and a new paragraph has been added.]

502.6.6.COD: Line Valve Installation:

At locations shown on the plans, CONTRACTOR shall furnish and install valves of the type and size indicated. Valve vaults shall be furnished as provided in the special contract documents and constructed in accordance with **Item 702.5.8.8. Vaults** and applicable Dallas Water Utility Standard Drawings for Water and Wastewater Construction.

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.

(Page 502-19. Replace Item 502.6.6.1. GATE VALVES with the following:) [The last sentence in the section have been replaced.]

502.6.6.1.COD. Gate Valves. Valves shall be carefully handled and lowered into position in such a manner as to prevent damage to any part of the valve. The valve shall be placed in the proper position and held securely until all connections have been made. Where valves are to be placed in a concrete structure, the floor shall be completed before installing the valve. The valve shall be securely blocked so that its weight is carried by the floor rather than being supported by connected piping. **For specific details see Dallas Water Utility Standard Drawings for Water and Wastewater Construction.**

(Page 502-19. Replace Item 502.6.6.2. AIR RELEASE VALVES, with the following:) [The first sentence of the second paragraph has been revised; In the last paragraph, the second sentence has been modified to include reference to "this Addendum modifications".]

502.6.6.2.COD. Air Release Valves. The term "air release valve" as used in this section shall apply to the installation of both air release valve and combination air and vacuum release valves. Vaults shall be furnished as an integral part of either air release valve or combination air and vacuum release valve installation.

Air valves shall be installed in the manner shown in Dallas Water Utility Standard Drawings for Water and Wastewater Construction and on the appurtenance sheet unless otherwise indicated on the plans. The proper valve and fitting sizes shall be installed on mains in accordance with the schedule in **Table 502.6.6.2.(a) Minimum Air Release Valve Sizing** unless otherwise specified by the OWNER.

Table 502.6.6.2.(a) Minimum Air Release Valve Sizing[1]

I.D. of Main (in.)	Size of Valve and Fitting (in)
16 and smaller	1
18 through 36	2
42 and larger	3

Matching taps shall be provided for and made in accordance with **Item 502.10.COD. Connections to Conduit for Service**. Fittings required for mounting air valves shall be as specified in Item **502.5. Fittings** (with appropriate modifications from this Addendum). All fittings shall be tight, leak free and plumbed true to the required position.

(Page 502-24. Replace Item 502.10. CONNECTIONS TO CONDUIT FOR SERVICE, with the following:) [A new second paragraph has been added.]

502.10.COD. Connections to Conduit For Service

502.10.1.COD. Definitions. "Service" shall be defined as a service line to an individual customer. "Bullheads" shall be defined as an individual service line with branches at the end to serve two or more customers.

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, couplings, etc.

(Page 502-24. Add Item 502.10.1.1.COD. NSF 61 COMPLIANCE:) [New Section Added]

502.10.1.1.COD: NSF 61 Compliance: All service clamps must have received verifiable Certification of Compliance with the NSF 61 Standard.

(Page 502-26. Replace Item 502.10.3.1.1. TAPS, with the following:) [A new sentence at the end of paragraph (2) has been added.]

502.10.3.1.1.COD: Taps: Taps for transmission of water or air from the main into system service accessories can be either of two types as follows:

(1) Standard internal pipe threaded holes in wall of water mains. These taps may be either manufactured into the pipe or installed in the field.

(2) Tap installations that are made by clamping a service saddle equipped with a sealed threaded port on the periphery of the main and then drilling through the pipe wall to complete each service port. Taps may be made either on an uncharged system or into a main under pressure. Single strap clamps will not be permitted on any type pipe.

(Page 502-26. Replace Item 502.10.3.1.2. TAP ASSEMBLIES, with the following:) [There are new sentences at the end of paragraphs one, four; paragraph two (2) has been modified to include City of Dallas Addendum specifications and the Flush Point Standard Detail.]

502.10.3.1.2.COD: Tap Assemblies: The tap assembly shall consist of a corporation stop and an iron to copper connection attached to a hard copper (Type K) tubing terminating approximately 1-ft. below ground surface with a brass gate valve as shown and detailed on the plans to serve as additional air release. Only soft copper (Type K) tubing will be allowed and a curb stop will be required in lieu of a brass gate valve.

When tap assemblies are an integral part of an air valve installation, measurement, and payment shall be in accordance with **Item 502.6. Valves** (with appropriate modifications from this Addendum) and DWU Standard Drawings for Water and Wastewater Construction detail number **207: Manual Flush Point Installation**.

Tap assemblies may be required by the project plans and specifications adjacent to gate valve installations. Tap assemblies so required shall be installed in the water main on either side of the valve. Payment for the tap assemblies shall be included in the unit price bid for furnishing and installing the gate valve complete in place.

When taps are required for flushing, chlorination, and/or testing, the CONTRACTOR shall locate the taps in accordance with Dallas Water Utilities Standard Drawing **207 Manual Flush Point Installation** or other detail drawings, plans or in locations directed by the OWNER. Unless otherwise specified in the CONTRACT, no separate payment shall be made for taps required for testing, flushing, and/or chlorination.

Upon completion of the testing and purification, the CONTRACTOR shall return to the job site, remove the blow-off down to the corporation stop, backfill leaving the corporation stop in place, and replace all pavement. The CONTRACTOR'S removal of the blow-off shall include all labor, materials, tools, equipment, and incidentals necessary to complete the work, including excavation, backfill, and disposal of surplus materials without additional compensation.

(Page 502-26. Replace **Item 502.10.3.1.4. TAPPING DUCTILE IRON PIPE**, with the following:) [There is a new paragraph at the end of this item.]

502.10.3.1.4.COD. Tapping Ductile Iron Pipe. Service taps, unless otherwise specified, shall be made in cast iron pipe by direct tapping of the pipe wall (without use of tap saddles) for tap sizes relative to pipe diameters as shown in **Table 502.10.3.1.4.(a) Tapping Ductile Iron Pipe**.

Table 502.10.3.1.4.(a) Tapping Ductile Iron Pipe

Tap Diameter	Pipe Diameter
¾-in. and 1-in.	4-in. through less than 12-in.
1½-in. and 2-in.	12-in. and larger

When direct tapping of cast iron pipe cannot be made within the limits as provided above, taps shall be made as set forth in this specification, utilizing service saddles.

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.

(Page 502-27. Replace **Item 502.10.3.1.5. TAPPING CONCRETE PIPE**, with the following:) [A new sentence has been added to the end of this item.]

502.10.3.1.5.COD. Tapping Concrete Pipe. Tap location shall be provided to the pipe manufacturer, when available, and taps shall be made by the manufacturer during the fabrication phase of the pipe when locations are so furnished. Taps fabricated during manufacture with a diameter less than or equal to 2-in. shall be provided with brass or bronze insert bushings. Taps greater than 2-in. shall be provided as flanged outlets with flange to thread insulator adapter kits. When taps are required to be made in the field, the taps shall be made in accordance with the pipe manufacturer's recommended procedures and to the satisfaction of the OWNER. Flanged outlets will be required for taps greater than 2 inches.

(Page 502-27. Replace **Item 502.10.3.1.7. TAPPING PVC PIPE** and Table **502.10.3.1.7.(a) TAPPING PVC PIPE**, with the following:) [The entire Item was replaced and Table **502.10.3.1.7.(a) Tapping PVC Pipes** was removed. The last word in the remaining sentence was changed from "clamps" to "saddles".]

502.10.3.1.7.COD: Tapping of PVC Pipe: All taps shall be made utilizing bronze service saddles.

(Page 502-27. Replace **Item 502.10.3.2. SERVICES AND BULLHEADS**, with the following:) [References to details other than City of Dallas' Details have been changed to City of Dallas Details.]

502.10.3.2.COD. Services and Bullheads. The details on installation and materials required are shown in applicable DWU Standard Details for Water and Wastewater Construction (Details 206A and 206B) or on the appurtenance sheets attached to the plans.

The end of each water service connection shall be marked with heavy gauge polyethylene tape, 6-inches in width with a thickness of 0.004-inches. The tape should be blue in color on which has been printed "Caution Buried Water Line Below" in continuous print. The tape should have a minimum tensile strength of 1700-psi lengthwise and 1200-psi crosswise.

Water Service lines shall be buried as shown in the City of Dallas Standard Drawings. The Water Service Line shall be buried a minimum of 36" to protect the Water Service Line from unauthorized access, damage, or freezing. See Dallas Water Utilities Standard Drawings for Water and Wastewater Construction Details 201 through 206 inclusive. Splices are allowed for water services lines longer than thirty (30) feet,

(Page 502-27. Replace Item 502.10.3.2.1. PROCEDURES FOR TRANSFERRING SERVICE, with the following:) [In the first paragraph, sentence 2 has been replaced with references to City of Dallas Standards.]

502.10.3.2.1.COD. Procedures for Transferring Service. The CONTRACTOR will inform the customer that the service is being transferred. Splices in service lines shall conform to Dallas Water Utilities Standard Drawings for Water and Wastewater Construction Drawings 203 and 204, unless otherwise approved by OWNER. The new service shall be installed in accordance with the latest edition of Dallas Water Utilities' Standard Drawings for Water & Wastewater Construction Details 201 through 206B inclusive.

Short Service. A water service shall be classified as a "Short Service" if the existing service line to the water meter is on the same side of the street as the new main and requires the existing service line to be replaced to complete the installation as indicated on the plans and specified herein. A curb stop will be installed on the end of the service line.

Long Service. A water service shall be classified as a "Long Service" if the existing service line to the meter is on the opposite side of the street as the new main and requires a new service line to be installed under the street to complete the installation as indicated on the plans and specified herein.

All new services will be flushed according to **Item 506.7. Purging and Disinfection of Water Conduits (**with addendum items**)**. The main will then be hydrostatically tested and disinfected. After a good sample is received, the CONTRACTOR will then begin transferring the services.

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

Any meter box located within a driveway or sidewalk shall be relocated and placed in the parkway or behind the sidewalk and/or as directed by the OWNER. Reuse of the existing water meter box shall be as determined by the OWNER. The connection of the new service water lines to the meter shall be considered subsidiary to the service installation.

(Page 502-28. Add Item 502.10.3.2.1.1.COD. IN ADVANCE OF PAVING:) [New Section Added]

502.10.3.2.1.1.COD: In Advance of Paving:

(1) For projects contracted and administrated by the Public Works Department, a Public Relations letter will be furnished to each customer by the CONTRACTOR prior to construction explaining the work to be done. The OWNER reserves the right to approve the wording in the Public Relations letter and the wording shall be provided in both English and Spanish. For projects contracted and administrated by Dallas Water Utilities, the CONTRACTOR shall notify the OWNER four-weeks prior to the start of construction. The OWNER will notify the affected citizens via a Public Relations letter prior to allowing the CONTRACTOR to commence construction.

(2) 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.

(3) 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.

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

(5) All new services will be flushed according to **Item 506.7. Purging and Disinfection of Water Conduits (with Addendum Items),** 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 OWNER that the CONTRACTOR may begin transferring the service.

(6) The OWNER must be present at all times during the transfer of the services.

(7) Each customer shall be informed about an impending service interruption via a door hanger, a personal contact (knock on the door), or other means.

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

(9) The CONTRACTOR shall not allow any contaminated water, material, or debris to enter the system.

(10) The existing meter shall be removed and installed in the new meter box. In every case, all meter gaskets and bolts shall 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.

(11) If a meter stops or appears to be damaged, the CONTRACTOR shall call 311 and ask for the Meter Division. Inform the Meter Division that a meter is not working or appears damaged. The Meter Division will bring a new meter to the job site for the CONTRACTOR to install. The CONTRACTOR will be allowed 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 shall be removed, and the new meter installed by the CONTRACTOR. There shall be no additional cost to the OWNER for this work.

(12) **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 check with each customer to insure proper water service after the transfer.

(13) **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 1" or less service and more than 30 gallons for 1½" or 2" service, the water will be cut off.

(14) If the CONTRACTOR caused damage to a house line or plumbing, the CONTRACTOR will cause the necessary repairs to be made. If the CONTRACTOR cannot make the repairs, the CONTRACTOR will hire a plumber to do the work. The customer may, at the Customer's option, hire the Customer's 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 OWNER. The OWNER will not allow 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 of Dallas Action Center by dialing 311 and requesting the Meter Department.

(15) 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 OWNER 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.

(16) When working in or adjacent to any City of Dallas Airport Property, additional requirements may apply. The CONTRACTOR shall dial 311 and ask for the Aviation Department".

502.10.3.2.1.2.COD: After Paving:

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

(2) All new services will be flushed according to **Item 506.7. Purging and Disinfection of Water Conduits (with Addendum Items)**. 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 OWNER that the CONTRACTOR may begin transferring the services.

(3) The OWNER shall be present at all times during the transfer of the services.

(4) Each customer shall be informed about an impending service interruption via a door hanger, a personal contact (knock on the door), or other means.

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

(6) The CONTRACTOR shall not allow any contaminated water, material, or debris 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 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. The service is to be flushed away from the excavation until good, clear water is evident.

After the water is turned on and it runs for more than 10 gallons for a 1" or less service and more than 30 gallons for 1½" or 2" service, the water will be cut off.

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.

(7) 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 latest version of Dallas Water Utilities' Standard Details for Water and Wastewater Construction, details 201 through 206B. In every case, all meter gaskets and bolts shall be replaced. The meter and house service are to be adjusted to the proper grade as shown in the standard details. Extreme care shall be used when working on the house line to ensure that the house line 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.

(8) **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 check with each customer to insure proper water service after the transfer.

(9) **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.

(10) If the CONTRACTOR caused damage to a house line or plumbing, the CONTRACTOR will cause the necessary repairs to be made. If the CONTRACTOR cannot make the repairs, the CONTRACTOR will hire a plumber to do the work. The customer may, at the Customer's option,

hire the Customer's 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 OWNER. The OWNER will not allow 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 of Dallas Action Center by dialing 311 and requesting the Meter Department.

(11) If a meter stops or appears to be damaged, the CONTRACTOR shall dial 311 and ask for the Meter Division. The Meter Division will bring a new meter to the job site for the CONTRACTOR to install. The CONTRACTOR will be allowed 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 shall be removed, and the new meter installed by the CONTRACTOR. There shall be no additional cost to the OWNER for this work.

(12) 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 OWNER 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.

(13) When working in or adjacent to any City of Dallas Airport Property, additional requirements may apply. The CONTRACTOR shall dial 311 and ask for the Aviation Department".

(Page 502-28. Add Item 502.10.3.3.COD NSF 61 COMPLIANCE:) [New Section Added]

502.10.3.3.COD: NSF 61 Compliance: All copper tubing must have received verifiable Certification of Compliance with the NSF 61 Standard.

(Page 502-28. Replace Item 502.10.4.1. SERVICE CONNECTIONS, with the following:) [A new sentence has been added to the end of this item.]

502.10.4.1.COD. Service Connection. Service pipe shall be of the same pipe material as the main wastewater conduit unless otherwise specified on the plans or in the contract or approved by the OWNER. Connections shall be made to prevent the occurrence of bi-metallic corrosion or any other corrosion that can result by joining incompatible materials.

Wastewater service connections shall be defined as a service line connecting the customer's wastewater system at the property line or utility easement to the main wastewater conduit and shall consist of the service combination tee wye, the necessary Class B or Class PB (as specified by the OWNER) concrete cradle or crushed stone for the tee wye, the service pipe necessary to extend the line from the main wastewater conduit to the customer's property line and a plug placed in the end of the service line.

Services for single-family residence shall normally be 4-inches in diameter. Standard 4-inch laterals shall consist of a standard wye and bend and the necessary pipe and cleanout as shown on the plans or directed by the OWNER. Larger laterals in non-residential uses shall consist of a manhole and the necessary minimum 6-inch pipe as shown on the plans or directed by the OWNER. If the CONTRACTOR is required to connect or reconnect the service line to the customer's wastewater system, the connection shall be as shown on the plans. If the CONTRACTOR is not required to connect to the customer's wastewater system, the service line shall be plugged and sealed.

Extra depth service connections shall be installed when the wastewater main is at a depth greater than that necessary to serve the abutting property. The service is identical to a standard connection except that pipe risers will be installed at a maximum 45-degree angle into the trench walls to connect the combination tee wye and 45-degree bend to the service pipe. Where possible, a minimum slope of ¼-in.-per-foot (equivalent to a 2% slope) will be maintained. Where the wastewater main is located in the street and the abutting property slopes to the street, the wastewater service shall normally have a minimum depth of 5-feet below the top of the curb at

the point where it passes beneath the curb. Where abutting property slopes away from the wastewater main, service connections shall be placed at a depth adequate to serve the normally expected use of the property.

Where water and wastewater service connections cross, they shall be treated in accordance with TCEQ regulations.

All new sewer laterals for vacant lots shall be placed ten (10) feet downstream from the water service or as directed by the OWNER.

(Page 502-29. Replace Item 502.10.4.2. CLEANOUTS, with the following:) [The standard drawing references have been changed to City of Dallas Standards]

502.10.4.2.COD. Cleanouts. Service line cleanouts shall be installed according to the latest version of Dallas Water Utilities' Standard Details for Water and Wastewater Construction, detail 319, 405, and 407. If service line cleanouts are required, double cleanouts shall be installed at the property line, or as specified by OWNER. When specified in the special provisions or in the plans, a test tee shall be installed at the end of the service line (located in the parkway), with the branch in a vertical position.

(Page 502-29. Replace Item 502.12.2. PERMANENT CONCRETE STRUCTURES, with the following:) [The standard drawing references have been changed to City of Dallas Standards]

502.12.2.COD. Permanent Concrete Structures.

The construction of reinforced concrete structures, including junctions, transitions, vaults, piers and beam supports, and such other similar structures as may be covered by this specification, shall be performed in accordance with the requirements of **Item 702. Concrete Structures**, applicable City of Dallas Standard Drawings, and the following additional requirements.

Unless otherwise specified, all concrete shall have an average compressive strength at 28-days equal to or greater than 3000-psi. Excavation shall be made to the required depth and of sufficient width to construct the work to grade, form and dimensions. All soft and yielding materials shall be removed and replaced with acceptable materials. The subgrade shall be moistened to a minimum depth of 2-in. before placing concrete.

All formed surfaces of the concrete exposed to public view shall be given a textured finish as shown on the plans. All other formed surfaces shall be given the "Type 1 Finish," as described in **Item 702.5.13. Finishing Exposed Surfaces**. Corrosion protection shall be applied as may be called for on the plans or the proposal and shall be measured for payment and paid for at the contract price as detailed in **Item 502.9. Corrosion-Resistant Coatings and Liners for Wastewater Conduit and Appurtenances**.

Permanent concrete structures shall be measured and paid for in accordance with **Item 702. Concrete Structures,** as provided for in the contract documents. No measurement or payment shall be made for reinforcing steel.

(Page 502-30. Replace Item 502.13.6. WATER MIGRATION BARRIER, with the following:) [Entire section was replaced.]

502.12.6.COD Water Migration Barrier.

When required on the plans, Water Migration Barriers prevent water or potential liquid contaminant flow along an embedded conduit. When necessary, every 100 to 200 linear feet along a conduit, a clay or concrete barrier is placed in the trench that separates the embedment and prevents water or contaminants from migrating along a trench. A general design of a water migration barrier might include a clay or concrete block that extends into the bottom of a trench several inches below the embedment and goes from wall to wall to the top of the trench; however, each installation is different. See the approved plans and specifications for the specific design of all Water Migration Barriers.

Currently, the City of Dallas does not require Water Migration Barriers as a standard design element; rather, Water Migration Barriers may be required in areas where there is a potential for water transmission or

contaminated fluids to be migrated to areas where there is no contamination. Particularly, Water Migration Barriers might be required in areas where there may be potential petroleum contamination, sanitary land fill liquor contamination, or very high ground water.

(Intentionally Blank)

ITEM 503.COD TRENCHLESS INSTALLATION

(Page 503-1. Replace Item 503.3.2. MATERIALS, with the following:) {A new sentence was added to the end of this Item.]

503.3.2.COD. Materials.

The encasement and carrier pipe shall be of the type and strength as indicated on the plans. All necessary materials shall conform to the applicable sections of these specifications or as specified by the OWNER. If none is specified on the plan, the CONTRACTOR shall submit an encasement design to the OWNER for approval.

(Intentionally Blank)

ITEM 504.COD OPEN CUT - BACKFILL

(Page 504-1. Replace Item 504.1 GENERAL:) [Because the Items listed in the text have been modified by this Addendum, a reminder was placed next to each of the called specifications to look in the Addendum for the complete, modified specification.]

504.1.COD. General

This section addresses the process of open cut and backfill. Backfill shall mean embedment and final backfill. Embedment shall mean bedding and initial backfill. Bedding shall mean the material upon which a pipe rests. Initial backfill shall mean material that covers the storm sewer, wastewater collection system, and water lines. Final backfill shall mean the material required to fill the trench from the top of the initial backfill to ground elevation or subgrade of a street.

Work shall include:

(1) Pollution Prevention shall be performed in accordance with **Item 202. Temporary Erosion, Sedimentation, and Water Pollution Prevention and Control** *(with Addendum Modifications)*;

(2) Site preparation as part of open cut installation shall be performed in accordance with Item **203. Site Preparation** (with Addendum Modifications), except shall be considered as incidental work and the cost thereof shall be included in such contract pay item as provided in the proposal and contract;

(3) Excavation shall be performed in accordance with **Item 203.2. Unclassified Channel Excavation** *(with Addendum Modifications)*.

(4) Landscaping shall be performed in accordance with **Item 204. Landscaping** (*with Addendum Modifications)*;

(5) Trench safety shall be performed in accordance with **Item 107.20. Protection of Work and of Persons and Property** (*with Addendum Modifications*);

(6) Restoration of disturbed areas shall be performed in accordance with **Item 107.27. Restoration of Property** (*with Addendum Modifications*).

(Page 504-2. Replace Item 504.2.2.5. NATURAL GRAVEL, with the following:) [Table 504.2.2.5.(a) Natural Gravel Gradation, was added to this Item.]

504.2.2.5. Natural Gravel. Natural gravel shall consist of uncrushed stones meeting the requirements for wear as outlined in **Item 504.2.2.1. Crushed Stone Embedment**. The material shall be washed and screened and not have by weight more than one-percent organic matter, clays or loam and not more than five-percent by weight of any one of or combination of slate, shale, schist or soft particles of sandstone. The gradation shall be according to **Table 504.2.2.5. (a) Natural Gravel Gradation.**

Table 504.2.2.5.(a) Natural Gravel Gradation

Passing or Retained on Sieve	*Percent by Weight*
Passing 1½-in. sieve	*100%*
Retained on ¾-in. sieve	*95%*

(Page 504-4. Replace Item 504.2.3.5. MODIFIED FLOWABLE BACKFILL, with the following:) [A new paragraph has been added to the end of this Item]

504.2.3.5.COD. Modified Flowable Backfill. Modified flowable backfill in areas of possible future excavation such as utility installations shall consist of a mixture of native soils or manufactured materials, cement and/or fly

ash, air-entraining material, and water which produces a material with unconfined compressive strength of between 50-psi and 150-psi after 28-days. Modified flowable backfill in permanent areas such as abandoned pipe closures, abutments and embankments shall contain similar materials and shall have an unconfined compressive strength of greater than 150-psi after 28 days. Any materials used shall be primarily granular, with a plasticity index <12 and with 100% passing a ¾-in. sieve. The flowable mixture shall be mixed in a pug mill, concrete mixer, or transit mixer and shall have a minimum slump of 5-in. The flowable mixture must be allowed to set prior to the placement of any overlying material.

The CONTRACTOR shall backfill around and a minimum of 12" above the top of pipe with Modified Flowable Backfill. The CONTRACTOR shall restore all disturbed areas to pre-construction condition (or better). All restoration including, but not limited to, fence replacement, grass sodding, shrub and flower replacement shall be incidental to appropriate Bid Item Numbers.

(Page 504-4. Add Item 504.2.3.5.1.COD. OPEN CUT WASTEWATER LATERAL AND WATER SERVICES:) [New Section Added]

504.2.3.5.1.COD. Open Cut Wastewater Lateral And Water Services: When the Wastewater Laterals or the Water Services are placed under existing pavement or proposed areas to be paved, all open cut Wastewater Laterals and Water Services may be backfilled with flowable backfill from the embedment zone to a level consistent with the paving sub-grade per Department of Public Works' Pavement Cut and Repair Standards Manual and the backfill will be placed up to the water meter cans and wastewater clean-outs. Wastewater Laterals and Water Services placed in crushed rock alleys are exempt from this requirement. This work shall be considered inclusive to the Bid Items and shall not be considered for extra payment.

(Page 504-6. Replace Item 504.4.2.1. WATER FOR CONSTRUCTION, with the following:) [Second paragraph added.]

504.4.2.1.COD Water for Construction. Unless otherwise specified in the contract, water required for construction and furnished from the OWNER'S distribution system shall be paid and accounted for as prescribed by the OWNER. The CONTRACTOR shall make and bear the cost of all necessary arrangements and means for hauling the water. Water shall be furnished free of charge from the OWNER'S main, if available, for filling newly constructed water mains for flushing, sterilizing and hydrostatic testing. Construction water, if delivered through a fire hydrant meter, shall be protected by a reduced pressure zone assembly provided at the CONTRACTOR'S expense.

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.

(Page 504-6. Replace Item 504.4.3. SEQUENCE, with the following:) [A new paragraph has been added to the end of this Item]

504.4.3.COD. Sequence. The sequence of operations to be followed shall be prepared by the CONTRACTOR for approval by the OWNER. The sequence shall meet the job requirements for completion time, avoid interference with plant operations and conform to plan and specification requirements. The construction of all storm drain and wastewater collection systems shall begin at the outlet or lower end, unless otherwise directed by the OWNER. Tributary lines for storm drain and wastewater collection systems shall not be started until the main line has been built to their junction points.

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 the appropriate Construction Superintendent, a minimum of 10 working days in advance of construction to request an Inspector.

(Page 504-4. Add Item 504.4.5.COD LAYOUT:) [New Section Added]

504.4.5.COD. Layout. The CONTRACTOR shall construct the work in the locations and to the grades and elevations shown on the plans from base lines and benchmarks as established by the OWNER. 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. The CONTRACTOR shall supply Cut Sheets prepared to the specifications shown in **Item 105.4.COD Construction Stakes**.

(Page 504-5. Replace Item 504.5.1.1. TERMS, with the following:) [A note concerning where to find trench width calculations was added and a new sentence was added to the end of the first paragraph.]

504.5.1.1.COD. Terms.

D — Inside diameter of the pipe.
OD — Outside diameter of the pipe.
Bc — Outside diameter of the pipe.
Bd — Trench width.

Note: For Trench Width calculations (Bd) for various pipe diameters, Refer to latest DWU Standard Drawings for Water and Wastewater Construction, Sheet 112.

Stone cuttings are rock trench excavated material. The maximum allowable dimension of the stone to be used for embedment is 1-in. Rock cuttings may only be used as Class D+ embedment for water conduits.

Densities shall be shown as a percent of the maximum dry density at not less than 2% below optimum moisture of samples of the material as determined by the **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort**.

(Page 504-7. Replace Item 504.5.1.3. TRENCH DIMENSIONS, with the following:) [The entire section has been replaced]

504.5.1.3.COD: Trench Dimensions: Refer to latest DWU Standard Drawings for Water and Wastewater Construction, sheets 112 through 119 for information concerning allowable trench width.

(Page 504-7. Replace Item 504.5.2. EMBEDMENT CLASSES, with the following:) [References to the NCTCOG Standard Drawings have been changed to City of Dallas and Dallas Water Utilities References; a description of C-2 embedment has been added.]

504.5.2.COD. Embedment Classes.

504.5.2.1.COD. Class "A" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 113. The embedment consists of concrete bedding and initial backfill of granular material.

After the trench has been cut to a depth below the barrel of the pipe a distance of ¼Bc, minimum of 6 in. measured from the outside of the pipe bell, the pipe shall be laid to grade on supporting brick or concrete block and jointed as specified. A compressible strip shall be placed between the pipe and the support. The pipe shall be restrained, if required, to prevent flotation. Class B or Class PB concrete as specified by the OWNER shall be poured on either side of the pipe to form the bedding under the pipe and up the sides of the pipe ¼Bc. The concrete placed under the pipe shall have a sufficient fluidity, so it can flow under the haunches and be puddled to ensure even support.

The initial backfill layer shall be granular material and shall be brought to a point 12-in. above the top of the pipe.

504.5.2.2.COD. Class "A-1" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 113. The embedment consists of crushed stone bedding and a cap of concrete as initial backfill.

After the trench has been cut to a depth below the barrel of the pipe a distance of ¼Bc, minimum of 6 in. measured from the outside of the pipe bell, the bedding layer shall be brought to a point slightly above grade with compacted standard gradation crushed stone. Bell holes shall be formed, if required, a trough scooped out

to grade, and the pipe laid and jointed as specified. The stone shall then be brought up in uniform layers on either side of the pipe ½Bc.

Class B or Class PB concrete as specified by the OWNER, plain or reinforced as specified in the plans, shall be poured over the top of the pipe and bells to cover the pipe with a thickness of ¼Bc, 4-in. minimum to form the initial backfill layer.

504.5.2.3.COD. Class "B" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 114. The embedment consists of crushed stone bedding and initial backfill of select material or granular material.

After the trench has been cut to a depth below the barrel of the pipe a distance of ⅛Bc, minimum of 6 in. measured from the outside of the pipe bell, the bedding shall be brought up to a point slightly above the grade with stone cuttings or crushed stone, standard gradation. Bell holes shall be formed, a trough scooped out to grade and the pipe laid and joined as specified. The crushed stone or stone cuttings shall then be brought up the sides of the pipe in uniform layers ½Bc.

The initial backfill shall consist of granular material. The material shall be placed on top of the crushed stone in uniform layers on either side of the pipe to a point 12 in. above the top of the pipe and compacted to at least 98-percent of maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.**

504.5.2.4.COD. Class "B+" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 114. The embedment consists of fine crushed stone bedding and initial backfill of granular material.

After the trench has been cut to a depth below the barrel of the pipe a distance of ⅛Bc, minimum of 6 in. measured from the outside of the pipe bell, the bedding shall be brought up to a point slightly above grade with fine crushed stone. Bell holes shall be formed, a trough scooped out to grade and the pipe laid and jointed as specified. The stone shall then be brought up in uniform layers on either side of the pipe ½Bc.

The initial backfill shall consist of granular material. The material shall be placed on top of the stone and shall be brought up in uniform layers on either side of the pipe to a point 12-in. above the top of the pipe. Density shall be at least 90-percent of maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.**

504.5.2.5.COD. Class "B-1" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 114. The embedment consists of compacted crushed stone, fine gradation bedding and initial backfill of select or granular material.

After the trench has been cut to a depth below the barrel of the pipe a distance of ⅛Bc, minimum 6 in., measured from the outside of the pipe bell, the bedding shall be brought up to a point slightly above grade with fine crushed stone. Bell holes shall be formed, and the pipe laid and jointed as specified.

The stone shall then be brought up in uniform layers on either side of the pipe ¾Bc. The initial backfill shall consist of compacted granular material brought up to a point 6 in. above the top of the pipe. Density shall be at least 90-percent of maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.**

504.5.2.16.COD. Class "B-1a" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 119. The embedment consists of an initial backfill of compacted crushed stone, fine gradation, bedding and backfill of select or fine granular material.

After the trench has been cut a minimum of 6-in. below the outside bell of the pipe, the bedding shall be brought up to a point that is ⅛Bc above grade with compacted crushed stone, fine gradation. Bell holes shall be formed, and the pipe laid and jointed as specified.

The select or fine granular material shall then be brought up in uniform layers on either side of the pipe to a minimum of 12" above the top of the pipe. Density shall be at least 90-percent of maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort**.

504.5.2.6.COD. Class "B-2" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 115. The embedment consists of fine crushed stone bedding and initial backfill of select material or granular material.

After the trench has been cut to a depth below the barrel of the pipe 6 in. measured from the outside of the pipe bell, the bedding layer shall be brought to a point slightly above grade with compacted fine crushed stone. Bell holes shall be formed, if required, a trough scooped out to grade, and the pipe laid and jointed as specified. The stone bedding layer shall then be brought up in uniform layers on either side of the pipe ¾Bc.

The initial backfill shall consist of compacted granular material and shall be brought to a point 12 in. above the top of the pipe. Density shall be at least 90-percent of maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.**

504.5.2.6.COD. Class "B-2a" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 119. The embedment consists of an initial backfill of compacted crushed stone, fine gradation, bedding and backfill of select or fine granular material.

After the trench has been cut a minimum of 6-in. below the outside bell of the pipe, the bedding shall be brought up to a point that is ½Bc above grade with compacted crushed stone, fine gradation. Bell holes shall be formed, and the pipe laid and jointed as specified.

The select or fine granular material shall then be brought up in uniform layers on either side of the pipe to a minimum of 12" above the top barrel of the pipe. Density shall be at least 90-percent of maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort**.

504.5.2.6.COD. Class "B-5" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 119. The embedment consists of compacted crushed stone, fine gradation.

After the trench has been cut a minimum of 6-in. below the outside bell of the pipe, the bedding shall be brought up to a point that is even with the outside grade of the bottom of the pipe.

The compacted crushed stone shall then be brought up in uniform layers on either side of the pipe to a minimum of 12" above the top barrel of the pipe. Density shall be at least 90-percent of maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.**

504.5.2.8.COD. Class "B-4" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 115. The embedment consists of cement-treated backfill.

After the trench has been cut to a depth below the barrel of the pipe a minimum distance of 6 in. measured from the outside of the pipe bell, the bedding shall be brought to a point slightly above grade with cement-treated backfill. Bell holes shall be formed, if required, a trough scooped out to grade and the pipe laid and jointed as specified. The cement-treated backfill shall then be brought up to uniform layers on either side of the pipe and over the pipe to a point 6 in. above the top of the pipe.

504.5.2.7.COD. Class "B-3" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 115. The embedment consists of granular material.

After the trench has been cut to a depth below the barrel of the pipe a minimum distance of 6 in. measured from the outside of the pipe bell, the bedding shall be brought to a point slightly above grade with compacted fine sand. Bell holes shall be formed, if required, a trough scooped out to grade, and the pipe laid and jointed as specified. The granular material shall then be brought up in uniform layers on either side of the pipe and over the pipe to a point 12 in. above the top of the pipe.

504.5.2.9.COD. Class "C" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 116. The embedment is a bedding of crushed stone or stone cuttings and initial backfill of select material or granular material.

After the trench has been cut to a depth below the barrel of the pipe a distance of ⅛Bc, minimum of 6 in. measured from the outside of the pipe bell, the bedding shall be brought up to a point slightly above grade with stone cuttings or standard crushed stone. Bell holes shall be formed, a trough scooped out to grade, and the

pipe laid and jointed as specified. The stone shall then be brought up in uniform compacted layers on either side of the pipe 1/6Bc.

The initial backfill shall be granular material and shall be brought up in uniform compacted layers to a point 6 in. above the top of the pipe. Density shall be at least 98-percent of maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort**.

504.5.2.10.COD. Class "C+" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 116. The embedment consists of fine crushed stone bedding and initial backfill of select material or granular material.

After the trench has been cut to a depth below the barrel of the pipe a distance of ⅛Bc, minimum of 6 in. measured from the outside of the pipe bell, the bedding layer shall be brought up to a point slightly above grade with fine crushed stone. Bell holes shall be formed, a trough scooped out to grade, and the pipe laid and jointed as specified. The stone shall then be brought up in uniform, compacted layers on either side of the pipe 1/6Bc.

The initial backfill shall be granular material and shall be brought up in uniform, compacted layers to a point 6 in. above the top of the pipe. Density shall be at least 90-percent of maximum density as determined by **ASTM D698** Standard **Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.**

504.5.2.11.COD. Class "C-1" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 116. The embedment shall consist of fine sand bedding and initial backfill of select material or granular material.

After the trench has been cut to a depth below the barrel of the pipe a distance of 1/8Bc minimum of 6 in. measured from the outside of the pipe bell, the bedding layer shall be brought up to a point slightly above grade with fine sand. Bell holes shall be formed, a trough scooped out to grade and the pipe laid and jointed as specified. The sand shall then be brought up in uniform compacted layers on either side of the pipe 1/6Bc.

The embedment backfill shall be granular material and shall be brought up in uniform, compacted layers to a point 6-in. above the top of the pipe. Density shall be at least 90-percent of maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.**

504.5.2.12.COD. Class "C-2" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 116. The embedment shall consist of sand bedding compacted to 90% of Standard Proctor Density to a point at least 12-inches above the outside barrel of the pipe bell.

After the trench has been cut to a depth 6 in. below the barrel of the pipe, measured from the outside of the pipe bell, the bedding layer shall be brought up to a point slightly above grade with sand. Bell holes shall be formed, a trough scooped out to grade and the pipe laid and jointed as specified. The sand shall then be brought up in uniform compacted layers on either side of the pipe to a minimum of 12" above pipe bell.

Density shall be at least 90-percent of maximum density as determined by **ASTM D698 Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.**

504.5.2.12.COD. Class "D+" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 117. The embedment consists of select material compacted top 90% Standard Proctor Density.

After the trench has been cut to a depth below the barrel of the pipe a distance of ⅛Bc, minimum of 6 in. measured from the outside of the pipe bell, the embedment shall be brought up to a point slightly above grade with select material. Bell holes shall be formed, a trough scooped out to grade and the pipe laid and jointed as specified. The material shall then be brought up in uniform compacted layers to a point 6 in. over the top of the pipe. Density shall be at least 90 -percent of maximum density as determined by **ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.**

504.5.2.13.COD. Class "G" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 118. The embedment consists of Class B or Class PB concrete as specified by the OWNER.

After the trench has been cut to a depth below the barrel of the pipe a distance of ¼Bc, 6 in. minimum measured from the outside of the pipe bell, the pipe shall be laid and jointed as specified. The pipe shall be supported by brick or concrete block. A compressible strip shall be placed between the pipe and support. The pipe shall be restrained, if required, to prevent flotation. Class B or Class PB concrete as specified by the OWNER shall be poured on either side of the pipe to form the embedment under the pipe, up the sides and over the top of the pipe and bells with a minimum thickness of 6 in. The concrete placed under the bell shall have a sufficient fluidity so it can flow under the haunches and be puddled to insure even support.

504.5.2.14.COD. Class "G-1" Embedment. See DWU Standard Drawings for Water and Wastewater Construction, sheet 118. The embedment consists of Class "G" embedment as specified above and a trench backfill of Class B or Class PB concrete as specified by the OWNER or stabilized backfill, whichever is specified in the plans, and a 6 in. thick Class B or Class PB (as specified by the OWNER) concrete cap as initial backfill.

504.5.2.15.COD. Class "H" Embedment. **See Standard Drawing 3060**. The embedment consists of a completely encased pipe with standard Crushed Stone, Grade 4. After the trench has been cut to a depth below the barrel of the pipe a distance of ⅛Bc, 6 in. minimum, the bedding layer shall be brought to a point slightly above grade with compacted crushed stone. Bell holes shall be formed, a trough scooped out to grade and the pipe laid and jointed as specified. The material shall then be brought up in uniform compacted layers of 6 in. to a point 6 in. over the top of the pipe.

(Page 504-10. Replace Item 504.5.3. INITIAL BACKFILL, with the following:) [The two "general areas of backfill" have been removed. Rather, the City of Dallas specifies that all areas of backfill are subject to 98% Standard Proctor Density Backfill requirement.]

504.5.3.COD. Initial Backfill.

504.5.3.1.COD. General. Initial backfill is the material that covers the storm drain system, wastewater collection system, and water lines. Backfill procedure is that procedure required to return trenches or excavated areas to a condition satisfactory to the OWNER.

The methods of backfilling to be used shall vary with the width of trench, the character of the materials excavated, the method of excavation, the type of conduit and the degree of compaction required. The placing of backfill shall not begin until the pipe structure has been properly bedded and jointed and until approval has been given by the OWNER. The excavation shall be backfilled only with approved material.

(Page 504-10. Replace Item 504.5.3.2. COMPACTION, with the following:) [Two new sub-paragraphs have been added to the end of this Item]

504.5.3.2.COD. Compaction. Compaction of all backfill material shall be performed in a manner that shall not crack, crush and/or cause the installed pipe to be moved from the established grade and/or alignment, as shown on the plans. Satisfactory density shall be obtained at various depths on all backfill material as indicated from random selected test points prior to the required exfiltration or pressure tests that are to be performed on lines being constructed. The required moisture content shall be at not less than 2% below nor more than 4% above the optimum moisture of the material or as specified by the OWNER. In-place density/moisture content shall be tested and verified as specified by the OWNER, or at a minimum frequency of once per 300-linear-feet per 1-foot of compacted depth.

(1) Densities shall be taken at the amount of three (3) per one hundred (100) feet of open cut trench excavation, equally spaced. The density tests are to be conducted by the OWNER'S approved Soil Density Lab. The depths of the samples and the approximate locations are to be coordinated and approved by the OWNER.

(2) All densities shall meet the requirements set forth in the Pavement Cut and Repair Standards Manual, Latest Edition, issued by the City of Dallas Department of Public Works.

(Page 504-10. Replace **Item 504.5.3.2.1. DENSITIES – AREAS SUBJECTED TO OR INFLUENCED BY VECHICULAR TRAFFIC**, with the following:) [The title was changed to "All Areas"; The density was changed from 90% to 98% Standard Proctor; and, two new paragraphs have been added to the end of this item.]

504.5.3.2.1. Densities — All Areas: The trench backfill shall be mechanically compacted to the top of the subgrade in 6-in. loose lifts to at least 98% percent of maximum density as determined by **ASTM D698 Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort**. The embedment shall be compacted by a method approved by the OWNER to a density as specified under the description of the embedment as outlined in **Item 504.5. Embedment**.

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 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.

NOTE: The City of Dallas no longer allows for any difference in compaction between those areas subjected to or influenced by vehicular traffic and those areas not subjected to or influenced by vehicular traffic.

(Page 504-10. Delete **Item 504.5.3.2.2. DENSITIES – AREAS NOT SUBJECTED TO OR INFLUENCED BY VECHICULAR TRAFFIC**, with the following:) [Because the City of Dallas no longer allows any compaction difference between areas of vehicular traffic and areas of no vehicular traffic, this Item has been deleted.]

504.5.3.2.2.COD. Deleted.

(Page 504-11. Replace **Item 504.5.3.3. REJECTION**, with the following:) {The entire section was replaced]

504.5.3.3.COD: Rejection: 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 may require its removal and replacement to meet these requirements. Re-testing will be performed by the OWNER'S designated testing laboratory at the CONTRACTOR's expense. All removal and replacement of backfill material will be at no cost to the OWNER.

(Page 504-12. Add **Item 204.7.2.1.1.COD. NO EXTRA ALLOWANCES**:) [New Section Added]

504.7.2.1.1.COD. No Extra Allowances: No extra allowance shall be made for backfill materials used around manholes, vault boxes, or other structural components. Trench backfill computations shall be carried through such structures. No allowance for waste shall be made.

(Page 504-12. Add **Item 504.7.3.COD. SURPLUS EXCAVATION**:) [New Section Added]

504.7.3. COD: Surplus Excavation: The CONTRACTOR shall submit a list of those disposal sites where surplus excavation and other materials removed, as part of the construction, are disposed of along with copies of permits or licenses for each facility. If the sites are not permitted or licensed, then the CONTRACTOR must furnish 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.

ITEM 505.COD OPEN CUT – GENERAL CONDUIT INSTALLATION

(Page 505-1. Replace Item 505.1.3. STREET CUT PERMIT, with the following:) [Updated reference to right of way permit.]

505.1.3.COD: Right of Way Permit: A Right of Way Permit is required to be in the CONTRACTOR'S possession on the job site prior to making a cut in any City Right of Way. The permit will be obtained and furnished by the CONTRACTOR.

(Page 505-1. Replace Item 505.1.7. GRADES, with the following:) [The CONTRACTOR is responsible for locating the project in the correct location and for all surveying activities related thereto. The Owner does not set benchmarks, control points or any other survey monuments. In sentence 4, the words "needs to" have been replaced with "must". In sentence 5, the words "OWNER'S stakes have been replaced with "Project Control Stakes". Table 505.1.7.(a) Water Main Cover, has been replaced.]

505.1.7.COD. Grades. The grade line shown on the profile is the elevation of the invert or flow line of the conduit. The CONTRACTOR shall establish benchmarks, base lines and other principal control points for use in construction. It shall be at the CONTRACTOR'S expense to establish all working or construction lines and grades as required and determined from the base measurements and control points set by the CONTRACTOR, and the CONTRACTOR shall be solely responsible for the accuracy thereof. Wherever an offset must be over 10-ft., the CONTRACTOR shall be required to furnish a survey type tripod level or its equivalent to accurately transfer the grade to the trench or excavation. Where construction operations require the removal of the Project Control Stakes, the CONTRACTOR shall reference such points in an approved manner. If they cannot be referenced, the CONTRACTOR must obtain authorization for their removal. In the case of their destruction or unauthorized removal, they shall be replaced by the CONTRACTOR at the CONTRACTOR'S expense.

The full responsibility for holding to alignment and grade shall rest upon the CONTRACTOR.

If a profile is not furnished for a water main, the main shall be constructed with a minimum cover as shown in **Table 505.1.7.(a) Water Main Minimum Cover**, unless directed otherwise by the OWNER.

Table 505.1.7.(a).COD. Water Main Minimum Cover

Size of Main (in)	Minimum Depth[1] (Ft)	
	Most Areas	Highway / Railway Crossings
12"and Smaller	4	5
16"	5	6
20" and Larger	6	6

[1] Mains shallower than 3 feet will require special engineering evaluation and engineering controls.
[2] Water mains under highway and railroad right-of-way must meet all additional criteria as required.
Note: From DWU Water and Wastewater Procedures and Design Manual, Table 2.5.2.

(Page 505-3. Add Item 505.2.12.1. POLYETHYLENE (PE) LARGE DIAMETER WASTEWATER PIPE WITH MODIFIED WALL PROFILES AND PERFORMANCE STANDARDS INSTALLATION:) [New Section Added.]

505.2.12.1.COD. Polyethylene (PE) Large Diameter Wastewater Pipe with Modified Wall Profiles and Performance Standards Installation.

Pipe produced to the specifications of **Item 501.22. Polyethylene (PE) Large Diameter Wastewater Pipe With Modified Wall Profiles and Performance Standards** shall be installed utilizing an envelope of standard crushed rock bedding materials, **Item 504.2.2. Pipe Embedment Material for Water And Wastewater Mains** to a minimum of 12-in. above the crown of the pipe. Engineering evaluations of specific installation requirements are recommended.

(Page 505-3. Add Item 505.3.COD. DAMAGED PIPE:) [New Section Added]

505.3.COD: Damaged Pipe: Pipe that is damaged during installation will be repaired only by a method approved by the OWNER. If, in the opinion of the OWNER, a satisfactory repair cannot be made by the method(s) suggested by the CONTRACTOR or pipe manufacturer, the damaged pipe shall be removed and replaced with sound pipe that meets the specifications of the CONTRACT. Repairs or replacement will be at no cost to the OWNER, including costs associated with removing and replacing non-damaged pipe to remove damaged pipe.

ITEM 506.COD OPEN CUT – WATER CONDUIT INSTALLATION

(Page 506-1. Replace Item *506.2. MATERIALS*, with the following:) [A new sentence has been added to the end of this section.]

506.2.COD. Materials

The pipe shall be of the kind and strength shown on the plans and provided in the proposal and contract. Unless otherwise specified, materials shall meet the requirements of **Item 501. Underground Conduit Materials** and **Item 502. Appurtenances**. Materials for corrosion protection of water conduits and appurtenances shall be of the type as may be called for on the plans or in the special specifications.

Any pipe, fitting, solder or flux which is used in the installation or repair of any public water system must be lead-free. For the purpose of these Specifications, the term 'lead free' means:

(1) Not containing more than 0.2 percent lead when used with respect to solder and flux; and

(2) Not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

If the Federal Environmental Protection Agency, any Approved State Agency or the City of Dallas modifies these specifications, then the new specifications shall govern.

(Page 506-2. Replace Item *506.5. HYDROSTATIC TEST*, with the following:) [The pressures and duration of the tests have been modified.]

506.5.COD. Hydrostatic Test

Before being accepted, all ductile iron and plastic pipelines constructed shall be tested with a hydraulic test pressure of not less than 150-psi, maintained over a period of not less than 4-hours unless otherwise specified by the OWNER, except that polyethylene pipe shall be tested as described below in **Item 506.5.1. Hydrostatic Testing Polyethylene Pipe**, unless otherwise specified by the OWNER.

Alternately, a 2-hour test may be conducted on PVC in accordance with **AWWA C605 Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water** and a 2-hour test may be conducted on ductile iron in accordance with **AWWA C600 Installation of Ductile-Iron Water Mains and Their Appurtenances**. Concrete pressure pipe shall be tested with a hydraulic test pressure of 120-percent of the design pressure. Steel pressure pipe shall be tested with a hydraulic test pressure not to exceed 150-percent and not less than 120-percent of the design working pressure. The rate of leakage of all pipe tested shall not exceed 11.65-gallons-per-inch of nominal diameter of pipe per mile over a 24-hour period. Water lines of materials in combination shall be tested for the type of pipe (material) with the least stringent hydraulic test pressure maintained over a period of not less than 4-hours. Acceptable test values are provided in **Table 506.5.(a) Allowable Leakage for 4-Hours at Test Pressure of 150-psi (gallons)**.

All newly laid pipe, or any valve section thereof, shall be subjected to the test with the gauge located at the lowest point in the system to be tested. If the line cannot be tested at its lowest point, a correction factor of minus 0.43 lb./vert. ft. shall be made.

(Page 506-4. Replace Item *506.6. CONNECTIONS TO EXISTING WATER CONDUITS*, with the following:) [All references to NCTCOG Standard Drawings were changed to DWU Standard Drawings references.]

506.6.COD. Connections to Existing Water Conduits

Connection to an existing water conduit shall include not only branch connections but in-line connections for the purpose of making required pipe adjustments as well. Any connection or series of connections required to be performed on an existing water conduit shall meet with the OWNER'S specific approval as to the seasonal period when the work can be performed, the length of time required for the work to be completed, the work procedures proposed, and/or any other facet that could affect quality or quantity of water supply to the affected

area. The work shall be performed with stringent built-in safeguards (such as adequate back-up equipment, labor and materials available) to ensure that time schedules are met without failure and subsequent set-back. Every effort shall be made to accomplish as much of the work as possible before actual tie-in is made into the existing conduit. This is especially applicable where vertical and horizontal concrete thrust blocks are a necessity to impose proper restraint of the pipe when the conduit is returned to full service. See DWU Standard Drawings for Water and Wastewater Construction, sheets 229 through 235 for horizontal and vertical thrust blocks.

The CONTRACTOR shall notify the OWNER at least 48-hours in advance of a required valve shutdown.

Where indicated on the plans and/or herein specified, the CONTRACTOR shall connect the new conduit to existing conduits. The CONTRACTOR shall furnish all labor, materials, equipment and services required for the locating and uncovering of the existing line; the making of cuts in the existing line; the removal, relocation, and/or lowering of existing lines as required (See DWU Standard Drawings for Water and Wastewater Construction, sheet 225); dewatering of the trench; connecting of the existing lines to the new conduit; and all appurtenant work required for complete connection. Appurtenant work shall follow the requirements stated herein and as specified in **Item 502. Appurtenances**. Relocated conduits or lines shall be laid so that all valves shall be set vertically. The CONTRACTOR shall be required to plug and block lines, crosses, tees or other fittings installed in the new conduit to permit hydrostatic testing and chlorination prior to making connections. Such plugs and blocking shall be adequate to withstand an applicable test pressure.

Where cut-ins are made immediately adjacent to valves which are under pressure, the CONTRACTOR shall take all necessary precautions to brace such valves with temporary blocking. Bracing shall be of ample size and properly placed to prevent movement or blowing off of any pipe, valves or fittings due to water pressure on the conduit.

Connections to existing water conduits shall be made at the locations shown, as specified, and/or as directed by the OWNER. All such connections shall be made in a most expeditious and workmanlike manner to cause the least inconvenience to water customers and to traffic. The detailed schedule of operations for making each connection shall be approved by the OWNER before any work thereupon is commenced.

In the case where blow-off connections or fire hydrants are not provided for flushing, the CONTRACTOR shall be required to leave one end of the new conduit open for flushing and then plug and block the end for chlorination and testing.

There shall be no separate pay items for taps, blow-offs for hydrostatic testing, disinfection purposes, and connections to existing water mains unless otherwise approved by the OWNER. Taps and blow-offs for hydrostatic testing and disinfection purposes shall be installed by the CONTRACTOR, at locations specified by the OWNER. This may include placing a blow-off on an existing conduit at the tie-in, or addition of a blow-off(s) at an isolated existing valve, for facilitation of hydrostatic testing and/or chlorination. Compression type curb stops are not permitted for blow-offs

Upon completion of the hydrostatic testing and disinfection the CONTRACTOR shall return to the job site and remove the blow-off down to the corporation stop. CONTRACTOR shall leave the corporation stop and backfill, replacing all pavement. Removal of the blow-off shall include all labor, materials, tools, equipment, and incidentals necessary to complete the work, including excavation, disposal of surplus materials, and backfill with no separate pay item.

(Page 506-5. Replace Item 506.6.1. WATER MAIN TIE-IN DURING OFF HOURS:) [A new third sentence was added,]

506.6.1.COD: Water Main Tie-In During Off Hours: Tie-in connections affecting curtailment of quality or quantity of water to an area, businesses, etc., must be performed during the weekend or off-hours. All work must be coordinated through the OWNER or its representatives. Delay costs due to shut down and connection issues are considered incidental work and shall be borne by the CONTRACTOR. Refer to Item 502.10. Connections to Conduits for Service (with Addendum Items), and **Item 506.6.COD Connections to Existing Water Conduits** (with Addendum Items), for other general requirements. Unless otherwise stated in the CONTRACT, this item is a No Separate Pay Item.

(Page 506-5. Add Item 506.6.2.COD. SHUTDOWN OF WATER MAINS 20" DIAMETER AND LARGER:) [New Section Added]

506.6.2.COD. Shutdown of Water Mains 20" Diameter and Larger: Construction that requires the shutdown of any water mains size 20" and larger shall only be done during the winter months between October 1 and May 1, unless otherwise approved by the OWNER. The schedule of these shutdowns must be coordinated with City of Dallas Distribution and City of Dallas Pumping Divisions.

(Page 506-5. Add Item 506.7.2.1.COD. CHLORINATION:) [New Section Added]

506.7.2.COD: Chlorination: The OWNER shall chlorinate the main(s) in accordance with **AWWA C651 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.

(1) **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.

(2) **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.

(Page 506-5. Add Item 506.7.2.2.COD. FLUSHING:) [New Section Added]

506.7.3.COD: Flushing: After the applicable retention period, heavily chlorinated water should not remain in prolonged contact with the pipe. 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 1 mg/L. If the continuous-feed method is used, the main will be flushed a minimum of 24 hours.

(Page 506-6. Add Item 506.7.3.3.COD. DISPOSAL OF FLUSHING WATER:) [New Section Added]

506.7.3.3.COD: 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 1 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 1 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 1 mg/L by either evaporation and/or dilution.

(Page 506-7. Replace Item, *506.7.5.4. SAMPLING:*) [Entire Section Replaced]

506.7.5.4.COD: 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. Disposal of heavily chlorinated water due to rechlorination is not grounds for additional payment from the OWNER.

(Page 506-7. Add Item *506.7.6.COD. INDEMNIFICATION:*) [New Section Added]

506.7.6.COD: 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.

ITEM 507.COD OPEN CUT – WASTEWATER CONDUIT INSTALLATION

(Page 507-1. Replace Item 507.3. LAYERING WASTEWATER CONDUIT, with the following:) {The word "Layering" in the title was changed to "Laying".]

507.3.COD. Laying Wastewater Conduit

CONTRACTOR shall follow the same standard of care and general sequence as that described in Item **506.3. Laying Water Conduit**. Appurtenance installation shall meet the requirements of Item **502. Appurtenances**.

(Page 507-5. Replace Item 507.5.1.4.1. MANDREL, with the following:) {The word "Engineer" has been replaced with "OWNER" throughout.]

507.5.1.4.1.COD. Mandrel. Prior to use, the mandrel shall be certified by the OWNER or by another entity approved by the OWNER. Use of an uncertified mandrel or a mandrel altered or modified after certification will invalidate the deflection test. Mandrel requirements are as follows:

(1) odd-number of legs with 9 legs minimum

(2) effective length not less than its nominal diameter

(3) fabricated of rigid and nonadjustable steel

(4) fitted with pulling rings at each end

(5) stamped or engraved on some segment other than a runner indicating the pipe material specification, nominal size, and mandrel OD (e.g., PVC D3034-200nim-187.10mm; PVC D3034-8"-7.366")

(6) furnished in a suitable carrying case labeled with the same data as stamped or engraved on the mandrel

(7) minimum diameter at any point along the full length as indicated in Table 507.5.1.4.1.(a) Mandrel Sizing

(Page 507-7. Replace Item 507.5.2.2. TELEVISION INSPECTION SPECIAL PROCEDURES, with the following:) {The first paragraph has been replaced]

507.5.2.2.COD. Television Inspection Special Procedures. Camera lens path shall follow the center of the pipeline. 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, or as approved by the OWNER.

All wastewater conduit must be filled with enough water to fill all low points. The television inspection must be done immediately following the filling of the conduit. The depths of standing water allowable for mains that are greater than 24-in. in diameter shall be evaluated by the OWNER and the OWNER will determine if corrective action is required. Allowable standing water depths at the end of construction for 6-in. through 24-in. conduits shall be no greater than indicated in **Table 507.5.2.2.(a).COD Allowable Depth of Standing Water.**

Table 507.5.2.2.(a).COD Allowable Depth of Standing Water

Grade	Maximum Depth of Standing Water
Less than 0.7%	½-in.
0.7% and greater	0

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ITEM 508.COD OPEN CUT – STORMWATER CONDUIT INSTALLATION

(Page 508-1. Replace Item 508.3.2. INSTALLATION, with the following:) [In the third paragraph, the phrase "by the OWNER" has been added to the first sentence.]

508.3.2.COD. Installation.

508.3.2.1.COD. Pipe. All activities shall be in compliance with **ASTM C1479 Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations**. Bedding and backfill shall be as described in **Item 504 Open Cut – Backfill and COD Amendments**. The CONTRACTOR shall furnish, at its own expense, and place in position as directed by the OWNER all necessary batter boards, string lines, plummets, graduated poles, lasers, etc., required in establishing and maintaining the lines and grades. The batter boards and all location stakes must be protected from possible damage or change of location.

All pipe and fittings shall be laid and jointed in a dry trench.

Unless otherwise authorized by the OWNER, start the laying of pipe on the bedding at the outlet end with the spigot or tongue end pointing downstream, and proceed toward the inlet end with the abutting sections properly matched, true to the established lines and grades. Fit, match, and lay the pipe to form a smooth, uniform conduit. Where bell-and-spigot pipe is used, cut cross trenches in the foundation to allow the barrel of the pipe to rest firmly upon the bedding. Do not cut cross trenches more than 2 in. larger than the bell ends of the pipe. Lower sections of pipe into the trench without damaging the bedding and the sides of the trench. Carefully clean the ends of the pipe before the pipe is jointed. Prevent the earth or bedding from entering the pipe when it is laid. Fill all lifting holes with plugs.

The bedding grade under the middle third of the pipe outside diameter shall be prepared before laying the pipe section. Making adjustments in grade by exerting force on the barrel of the pipe with excavating equipment, by lifting and dropping the pipe, or by lifting the pipe and packing bedding material under it shall be prohibited. If the installed pipe section is not on grade, the pipe section shall be completely unjoined, the grade corrected, and the pipe then rejoined.

When elliptical pipe with circular reinforcing or circular pipe with elliptical reinforcing is used, the pipe shall be laid in the trench in such a position that the markings "top" or "bottom" shall not be more than 5° from the vertical plane through the longitudinal axis of the pipe.

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DIVISION 600 CONDUIT and APPURTENANCE REHABILITATION

City of Dallas Addendum
to the
North Central Texas Council of Governments

Public Works Construction Standards
Standard Specifications

(Intentionally Blank)

ITEM 601.COD PIPELINE REHABILITATION

(Page 601-1. Replace Item 601.2.1. SUBMITTALS with the following:) [In sub-paragraph 1, sentence 4, the term "registered OWNER" has been changed to "registered Engineer".]

601.2.1.COD. Submittals.

Submittals shall be made according to the OWNER'S schedule so that project schedules can be met. CONTRACTOR shall submit the following to the OWNER:

(1) Method of pipe rehabilitation and restoration of existing service connections. This shall include detail*ed* drawings and written description of the entire construction procedure to install pipe, bypass flow in the section of existing pipe to be reconstructed, and reconnection of service connections. Drawings shall include showing the cross-sectional profile of the pipe wall and pipe joint details. For pipes larger than 12-in diameter, bypass specifications shall be sealed by a registered *Engineer*. The process shall not be detrimental to liner pipe material and its properties, *per manufacturer's recommendations*;

(2) A complete list of all materials proposed to be furnished and installed, including manufacturer's name and catalog number for each item, complete information on material composition, physical properties, and dimensions of new pipe and fittings and technical data, and manufacturer's recommendations for handling, storage, installation, and repair of pipe and fittings damaged;

(3) Manufacturer's design calculations, including minimum thickness of the pipe materials being supplied;

(4) Prior to use of the materials, if required, written certification of the CONTRACTOR'S compliance with the manufacturer's standards and specifications for all materials;

(5) After reviewing the site, but prior to starting any rehabilitation process, the CONTRACTOR shall make a plan of all work activities. If required by the OWNER, the CONTRACTOR shall plan its work after review of pre-construction television inspection tape and reports. If required by the OWNER, the CONTRACTOR shall furnish its work plan to the OWNER;

(6) Flow control implementation plan shall be pre-approved by OWNER prior to any construction.

(Page 601-1. Replace Item 601.2.2. INSPECTIONS AND TESTING with the following:) [In the last paragraph, the last sentence has been modified to include "or as per contract"]

601.2.2.COD. Inspections and Testing. Prior to all work, the CONTRACTOR shall carefully inspect the area for existing conditions.

Each pipe or pipe material shall be subject to inspection by the OWNER immediately before it is installed and defective pipe or pipe material may be rejected at no cost to the OWNER.

CONTRACTOR shall perform pre-construction and post-construction television inspection. Television inspection shall be performed according to **Item 507.5.2. Television Inspection**, with the following modifications:

(1) The interior of the pipeline shall be carefully inspected to determine the location of any condition that may prevent proper installation of the new pipe;

(2) These conditions shall be indicated to the OWNER prior to installation and corrected as determined by the OWNER;

(3) A digital file and suitable log shall be submitted to the OWNER prior to and after installation of the pipe, which become property of the OWNER.

Where applicable, the CONTRACTOR shall provide a pipe "coupon" specimen from each run of pipe for testing, after installation, by an approved laboratory. All expenses for the testing of these specimens will be paid by the OWNER. The cost of retests made necessary by the failure of the samples of specimens to meet

the specified requirements shall be paid for by the CONTRACTOR. CONTRACTOR shall conduct Pre- and Post-TV inspections at no cost to the OWNER or as per contract.

ITEM 602.COD REHABILITATION OF MANHOLES OR UNDERGROUND VAULTS

(Page 602-1. Replace Item 602.2. SUBMITTALS, with the following:) [In sub-item (8), a new sentence has been added: "The bypass pumping submittal shall be sealed by a Texas Registered Engineer."]

602.2.COD. Submittals

The following items shall be submitted:

(1) Technical data sheet on each product used, including applicable ASTM test results indicating the product conforms to and is suitable for its intended use per these specifications.

(2) Material Safety Data Sheets (MSDS) for each product used.

(3) Manufacturer's product data, including physical properties, results of applicable ASTM tests for the material supplied, and requirements for surface preparation, repair, application, curing, and field quality control.

(4) Project specific guidelines and recommendations.

(5) Manufacturer Qualifications: Submit list of a minimum of ten (10) successful similarly sized manhole rehabilitation projects completed during past 3-years.

(6) CONTRACTOR and Applicator Qualifications:

  (a) Manufacturer certification that Applicator has been trained and approved by manufacturer in the handling, mixing and application of the specified products.

  (b) Certification that the equipment to be used for applying the products has been manufactured or approved by the protective coating manufacturer and Applicator personnel have been trained and certified for proper use of the equipment.

  (c) List of recently completed successful similarly sized manhole rehabilitation projects, including project name and location, names of OWNER, and description of products used, substrates, and application procedures.

  (d) Proof of any necessary federal, state or local permits or licenses necessary for the project.

(7) Design details for any additional ancillary systems and equipment to be used in site and surface preparation, application and testing.

(8) Bypass pumping submittal will include, but not be limited to, pumps, piping materials, and emergency plan. The bypass pumping submittal shall be sealed by a Texas Registered Engineer.

(Page 602-4. Replace Item 602.5.4.6. POLYURETHANE COATING, with the following:) [In the second paragraph, the last sentence has been modified to include "... or per manufacturer's recommendations."]

602.5.4.6.COD. Polyurethane Coating. Coating shall be applied properly and in multiple layers of thin coats to minimize shrinkage. Polyurethane layers shall be applied in thicknesses that prevent running, curing problems, or excessive shrinkage. Material applications shall provide a finish coat per the manufacturer's recommendations.

Lower sections of the manhole may require additional thickness of coating to resist hydrostatic head of infiltration. Manhole surface must be dry for proper adhesion, or per the manufacturer's recommendation.

(Page 602-4. Replace **Item 602.5.4.8. POLYUREA COATING**, with the following:) [The word "of" has been removed and there is an addition to the end of the second sentence.]

602.5.4.8.COD. Polyurea Coating. Material applications shall provide a finish coat per the manufacturer's recommendations. Manhole surface must be dry for proper adhesion or in the condition recommended by the manufacturer prior to application of the surface coating.

ITEM 604.COD REMOVAL OF ASBESTOS-CEMENT PIPE (ACP)

(Page 604-1. Replace Item 604.2. JOB PLAN, with the following:) [A new (7) has been added.]

604.2.COD. Job Plan

The CONTRACTOR must provide a job specific plan of the work procedures to be used in the removal and containment or alternative abatement of asbestos. The job plan shall be prepared and submitted prior to beginning the work and shall be subject to approval by the OWNER. The OWNER shall be notified in writing 30-days prior to the start of asbestos abatement work. The job plan shall include the following:

(1) Detailed work schedule
(2) Written quality control program.
(3) Written worker health and safety program.
(4) Methodology for protection of ground surface adjacent to work.
(5) Methodology for collecting, containing and disposing of hazardous materials when removal is specified.
(6) A copy of the technical data sheets for all products including manufacturer's name, addresses and phone numbers and product description. The product description shall include, but not be limited to basic use, limitations, precautions, recommended application methods specific to this project, and any known environmental hazards or constraints.
(7) The removal of asbestos concrete pipe plan must be sealed by a Texas Registered Engineer.

(Page 604-1. Replace Item 604.4. DISPOSAL, with the following:) [A new paragraph has been added to the end of this Item.]

604.4.COD. Disposal. Wastes shall be handled, stored, transported, disposed, recorded, and notifications made in accordance with all applicable State and Federal regulations. Land disposal restriction notification requirements must be followed as required.

Disposal must be at a site approved by the Environmental Protection Agency and the TCEQ to accept asbestos waste material.

Contractor to provide OWNER notarized documentation indicating that the asbestos has been disposed of legally.

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DIVISION 700 STRUCTURES

City of Dallas Addendum
to the
North Central Texas Council of Governments

Public Works Construction Standards
Standard Specifications

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ITEM 701.COD GENERAL STRUCTURES

(Page 701-1. Replace Item 701.1. STRUCTURAL WOOD PRODUCTS, with the following:) [The entire paragraph has been replaced.]

701.1.COD. Structural Wood Products

All wood products for structures shall conform, as appropriate, to the following provisions of *TxDOT Standard Specifications for Construction of Highways, Streets and Bridges*, **Item 491 Timber for Structures**. The OWNER will specify treated or untreated timber/wood, which treatment shall conform to *TxDOT Standard Specifications for Construction of Highways, Streets and Bridges*, **Item 492 Timber Preservative and Treatment**.

(Page 701-1. Replace Item 701.2.1.1. REMOVAL OF EXISTING STRUCTURES, with the following:) [In the third paragraph, the first sentence included "... and the City of Dallas Addendum to these Standard Specifications...", the density was modified to 98% Standard Proctor, the title of ASTM D698 was included, the end of the sentence was modified to remove references to under paved areas, and "... unless approved by the OWNER." was added.]

701.2.1.1.COD. Removal of Existing Structures. Materials or parts of the structures not designated for salvage shall become the property of the CONTRACTOR and shall be disposed of by the CONTRACTOR at CONTRACTOR'S own cost and expense at sites approved by the OWNER.

Existing structures which are to be abandoned shall be broken off or removed to a depth of not less than 1 foot below the foundation or subgrade of the new work, unless otherwise provided for in the plans and specifications or approved by the OWNER. Construction of bulkheads and structural plugs shall be done as directed by the OWNER and the cost of such work shall be considered incidental to the contract pay items provided. All operations that endanger new work shall be completed prior to the construction of the new work. Pavement shall be removed only between the lines indicated on the plans. Surface course and sub-base select materials shall be as nearly as practicable removed separately from earth or other excavated materials, stored and utilized as directed by the OWNER. The edges of all openings shall be trimmed smooth and to line, and the face shall be perpendicular to the subgrade.

After removal of structures, all excavations not to be occupied by new work, and all holes created, shall be backfilled in accordance with **Item 504. Open Cut-Backfill** of these Standard Specifications and the City of Dallas Addendum to these Standard Specifications with approved materials thoroughly compacted in place in lifts of no more than 8-inch thickness (before compaction) and to a density of at least 98 percent of the maximum density determined by **ASTM D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort** with moisture content within minus 2 to plus 4 of optimum, unless approved by the OWNER.

Damages to adjacent property or structures shall be repaired in a timely fashion, as directed by the OWNER, and shall be repaired by the CONTRACTOR at his sole cost and expense, and to the satisfaction of the OWNER. Any unsightly places created shall be cleaned up and the site of the work left in a neat, clean, and orderly condition.

(Page 701-4. Replace Item 701.2.4. STRUCTURAL, EXCAVATION AND BACKFILL, with the following:) [The first paragraph was added from wording in NCTCOG Version 5, Item 701.1; in the sixth paragraph, the title of the TxDOT Specification was added.]

701.2.4.COD. Structural, Excavation and Backfill. No trees shall be removed unless so noted on the plans or upon the specific approval of the OWNER. Where trees, plants, shrubbery, etc., are adjacent to the line of the work and are not to be removed or are designated on the plans to be removed and replanted, the CONTRACTOR shall protect such trees, plants, shrubbery, and etc.in accordance to the contract documents. If, in the opinion of the OWNER, such trees, plants, shrubbery, etc., would be damaged by machinery, etc., hand excavation may be required. Shrubbery, plants, etc. to be relocated or reused shall be removed with a ball of dirt about their roots and shall be carefully stored and given proper attention.

Structural excavation shall consist of the removal of material for the construction of foundations for bridges, retaining walls, head walls for culverts, or other structures and other excavation designated on the plans or in these specifications as structural excavation, along with the subsequent backfill of these same structures.

Structural backfill shall consist of furnishing material, if necessary, and placing and compacting backfill material around structures to the line designated on the plans, specifications, and/or as directed by OWNER.

Structural excavation and structural backfill shall include the furnishing of all materials and equipment, the construction or installation of all cofferdams in accordance with Item 802.4. Cofferdams and other facilities that may be necessary to perform the work shall be removed, except where they are required or permitted to remain by the plans, specifications, and/or as directed by OWNER.

Structural excavation shall be considered subsidiary to each bid item for which structural excavation is necessary.

For structural excavation and backfill items not covered here, refer to TxDOT's *Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges:* **Item 400 Excavation and Backfill for Structures**.

ITEM 702.COD CONCRETE STRUCTURES

(Page 702-3. Replace Item 702.3.3. CONCRETE MIX DESIGN AND CONTROL, with the following:) [First paragraph added]

702.3.3.COD: Concrete Mix Design and Control:

At least ten days prior to the start of concreting operations, the CONTRACTOR shall submit to the OWNER a design of the concrete mix the CONTRACTOR proposes to use, together with samples of all materials to be incorporated into the mix and a full description of the source of supply of each material component. The proposed batch designs must be submitted to the OWNER on the approved form. The design of the concrete mix shall produce a concrete complying with these specifications and meet the requirements of the latest edition of **ACI 318, Part 3 Construction Requirements, Chapter 5, Concrete Quality**, except as amended by these provisions. The concrete mix design shall include the following: **Item 303.5.12.COD: Mix Designs** in the latest City of Dallas Addendum for a copy of the required Concrete Mix Design form which must be used for all batch design submittals.

The OWNER shall furnish plant control of the concrete by securing the services of an independent local testing laboratory. Within a period of not less than 10-days prior to the start of concreting operations, the CONTRACTOR shall submit to the OWNER a design of the concrete mix it proposes to use, together with samples of all materials to be incorporated into the mix and a full description of the source of supply of each material component. The design of the concrete mix shall produce a concrete complying with the requirements of concrete classes in **Table 702.3.4.2.(a) Standard Classes of Structural Concrete** or **Table 702.3.4.3.(a) Performance Classes of Structural Concrete** and slump in **Table 702.3.4.4.(a) Structural Concrete Slump Requirements**.

The dry loose volume of coarse aggregate shall not be more than 0.82 cubic-feet-per-cubic-foot of concrete, except in cases where the voids in the coarse aggregate as determined by standard test methods exceed 48-percent of the total dry loose volume. Where voids exceed 48-percent, the dry loose volume of coarse aggregate shall not exceed 0.85-cubic-feet-per-cubic-foot of concrete.

If the strength required for the class of concrete being produced is not secured with the cement specified in **Table 702.3.4.2.(a) Standard Classes of Structural Concrete** or **Table 702.3.4.3.(a) Performance Classes of Structural Concrete**, the CONTRACTOR may use, or the OWNER may require, an approved cement dispersing agent, or the CONTRACTOR shall furnish additional aggregates or aggregates with different characteristics which shall produce the required results. Additional cement may be required or permitted as a temporary measure until aggregates are changed and designs checked with the different aggregates or cement dispersing agent.

All material samples submitted to the OWNER shall be sufficiently large to permit laboratory batching for the construction of test beams to check the adequacy of the design. When the design mix has been approved by the OWNER, there shall be no change or deviation from the proportions thereof or sources of supply except as hereinafter provided. No concrete may be placed on the job site until the mix design has been approved by the OWNER in writing to the CONTRACTOR.

(Page 702-4. Replace **Item 702.3.4.2. STANDARD CLASSES**, with the following:) [In the Table, the "number of Sacks" has been removed; and a new sub-section **702.3.4.2.1.COD. Testing and Penalties** has been added.]

702.3.4.2.COD. Standard Classes. Standard classes of structural concrete shall meet the requirements in Table 702.3.4.2.(a) Standard Classes of Structural Concrete

Table 702.3.4.2.(a).COD. Standard Classes of Structural Concrete.

Class of Concrete[1]	Minimum Cementitious Lb. / CY	28 Day Min. Compressive Strength[2] psi	28 Day Min. Beam Strength[2,3] psi	Maximum Water / Cement Ratio	Coarse Aggregate Maximum Size
A	470	3000	500	0.58	1 ½"
B	376	2000	330	0.71	1 ½"
C	564	3600	600	0.53	1 ½"
D	282	1500	250	0.97	1 ½"
E	564	3000	500	0.62	1 ½"
F	611	4200	700	0.49	1 ½"
S	564	3600	600	0.44	1 ½"
H[5]	611	As Specified On Plans	N/A	0.49	1"
M	As directed by the OWNER or as shown on the plans				

1. All exposed concrete shall have entrained – air (See **Item 303.2.3. Chemical Admixtures**).
2. Minimum Strength Required by OWNER [Compressive or Flexural]
3. ASTM C78 (Third-Point); Reduce by 10% when Type II Cement is Used
4. Smaller Nominal Maximum Size Aggregate May be Used if Strength requirement is Satisfied
5. Prestressed Concrete

702.3.4.2.1.COD. Testing and Penalties Entrained air will be required in all concrete exposed or partially exposed to the elements. The concrete will be designed to entrain 5 percent air when Grade 1 or 2 Coarse Aggregate is used, 6 percent when Grade 3 Coarse Aggregate is used and 7 percent for Grade 4, unless otherwise shown on the plans. Concrete as placed in the structure shall contain the proper amount of air as required herein with a tolerance of plus or minus the 1.5 percentage points. Entrained air shall conform to the requirements of **Item 303.2.3. Chemical Admixtures**.

During the progress of the work, the OWNER shall cast a set of four test cylinders or two test beams, perform slump and entrained air tests and will make temperature checks, as required to ensure compliance with the specifications. As a minimum, these tests will be required for each 40 cubic yards, or portion thereof, placed each day. For small placements, tests may be made for each 25 cubic yards placed over a several-day period.

The two test beams shall be tested at an age of 7-days for compliance with the specified strength. Two cylinders shall be tested at 7-days and the remaining two cylinders shall be tested at an age of 28-days for specification compliance.

Additional test specimens, beams or cylinders, representing tests for removal of forms and/or false work shall be cured using the same methods and under the same conditions as the concrete represented.

The CONTRACTOR shall be responsible for the proper storage, maintenance, and any required curing of concrete test samples made by OWNER

The CONTRACTOR, if directed by the OWNER, shall provide and maintain curing facilities for the purpose of curing concrete test specimens. Provisions shall be made to maintain the water in the curing tank at temperatures between 70 degrees Fahrenheit and 90 degrees Fahrenheit. The cost of all materials used in test specimens and the cost of storing, maintaining and of providing and maintaining curing facilities will not be paid for as a separate contract pay item, and the costs thereof shall be considered incidental to the contract pay items provided.

Additional cylinders or beams may be made by the OWNER as required by concrete placing conditions, or for adequately determining the strength of the concrete where the early use of the structure is dependent upon the concrete strength tests. No extra compensation will be paid to the CONTRACTOR for materials and labor involved in fulfilling these requirements.

Concrete that shall meet the specified design strength requirements within 28-days after the placement, shall be considered of acceptable strength. Job control shall be by seven-day compressive tests that are shown to provide the required 28-day strength, based on results from trial batches. If the required seven-day strength is not secured with the cement specified in **Table 303.3.4.2.(a)—Standard Classes of Pavement Concrete**, changes in the batch design shall be made as specified in **Item 303.3.4. Quality of Concrete** The test cylinders shall be tested at the age of 28 days to determine the compressive strength. Should any set of test cylinders representing a given area or section of the structure fail to meet the strength requirements, that area shall be composed of concrete having deficient compressive strength.

For any area having a deficient compressive strength, the CONTRACTOR shall have the privilege of cutting cores for a final compressive strength check, if, in the opinion of the OWNER, it is practicable or advisable to core the particular area or section involved. The cores shall be cut and tested within thirty days after the concrete has reached the age of 28 days, from locations designated by the OWNER. A minimum of two cores of approved dimensions for each area in question shall be taken from locations designated by the OWNER for a compressive strength value. A compressive strength value shall be the average of the strengths of all cores taken for that area. For any designated area, a maximum of four cores will be permitted to be cut and tested for determining the compressive strength value. The CONTRACTOR may cut additional cores for the purpose of defining the area of deficient strength, if approved by the OWNER.

The cores shall be tested by standard laboratory methods, and the strengths determined thereby shall be conclusive. In order to fulfill the requirements of this special provision, the strength of the cores shall not be less than the specified compressive strength. The cost of cutting cores, testing, and making subsequent repairs to the structure shall be at the entire expense of the CONTRACTOR.

If, in the opinion of the OWNER, it is not practicable or advisable to core the particular area or section of the structure in question, the compressive strength value as determined by the test cylinders shall be conclusive.

For areas or sections of the structure having a deficient compressive strength, the OWNER will require that the deficient area be removed and replaced with concrete conforming to the requirements of these specifications at the entire cost and expense of the CONTRACTOR; or the OWNER may require that an adjustment of payment be made in accordance with the requirements hereinafter specified. The OWNER will decide which course of action will be in the best interest of the OWNER, and the OWNER‘S decision will be final.

The minimum compressive strength for concrete used in reinforced concrete load-carrying structures shall not be less than that specified. Concrete having deficient strength as determined by the procedure described in this provision and **Item 303.2.7. Water** of the Standard Specifications will be removed and that portion of the structure rebuilt.

The area of concrete concerned in the adjustment or removal shall be the designated area represented by the compressive strength values determined as herein above specified. The area to be measured for adjustment or removal shall be determined in the manner directed by the OWNER.

The cost of removal and replacement of any structure or portion of a structure due to deficient concrete strength shall be borne totally by the CONTRACTOR. For nonload-carrying structures, if the concrete compressive strength is less than the minimum required strength, the amount of reasonable liquidated damages per cubic yard of concrete having a deficient strength shall be in accordance with the following table:

Percent Deficient	Amount of Liquidated Damages
0-5%	5% of Concrete Unit Price/CY
Greater than 5% - Not more than 10%	10% of Concrete Unit Price/CY
Greater than 10% - Not more than 15%	20% of Concrete Unit Price/CY

The amount of Liquidated Damages shall be deducted from payment due or to become due to the CONTRACTOR; the purpose of the deduction is to defray the cost of extra maintenance, which cost is fixed because of the impracticability and extreme difficulty of figuring the actual cost, and such amounts are agreed to be the damages the OWNER would sustain and retain from any contract amounts due.

All concrete having a strength more than 15 percent deficient shall be removed and replaced with concrete meeting the requirements of these specifications at the entire cost and expense of the CONTRACTOR.

(Page 702-4. Replace **Item 702.3.4.3. PERFORMANCE CLASSES,** with the following:) [Table 702.3.4.3.(a) was updated to remove sacks column]

702.3.4.3.COD Performance Classes. Performance Classes of structural concrete shall meet the requirements in Table 702.3.4.3.(a) Performance Classes of Structural Concrete.

Table 702.3.4.3.(a) Performance Classes of Structural Concrete

Class of Concrete[1]	Minimum Cementitious Lb. / CY	28 Day Min. Compressive Strength[2] psi	28 Day Min. Beam Strength[2,3] psi	Maximum Water / Cement Ratio	Coarse Aggregate Maximum Size
PA	423	3000	425	0.58	1 ½"
PB	350	2000	N/A	0.71	1 ½"
PC	517	3600	510	0.53	1 ½"
PD	250	1500	N/A	0.97	1 ½"
PE	470	3000	425	0.62	1 ½"
PF	564	4200	595	0.49	1 ½"
PS	517	3600	510	0.44	1 ½"
PH[6]	611	As Specified On Plans	N/A	0.49	1"
PM	As directed by the OWNER or as shown on the plans				

1. All exposed concrete shall have entrained – air (See **Item 303.2.3. Chemical Admixtures**).
2. Calculated Average Required Compressive Strength Considering **ACI 318 - Sec. 5.3.2.1** shall be strength shown times 1.15.
3. **ASTM C78** (Third-Point); Reduce by 10% when Type II Cement is Used
4. Consistent with ACI 211.1 Table 6.3.4(a) Relationship between water-cementitious materials ratio and compressive strength of concrete
5. Smaller maximum size aggregate may be used if strength requirement is satisfied
6. Prestressed Concrete

(Page 702-5. Replace **Item 702.3.4.4. SLUMP**, with the following:) [Table 702.3.4.4.(a) was updated.]

702.3.4.4.COD Slump. Slump requirements for structural concrete shall be as specified in Table 702.3.4.4.(a) Structural Concrete Slump Requirements. No concrete shall be permitted with slump in excess of the maximums shown. Any concrete mix failing to meet the above consistency requirements, although meeting the slump requirements, shall be considered unsatisfactory, and the mix shall be rejected and changed to correct such unsatisfactory conditions at no cost to the OWNER.

Table 702.3.4.4.(a) Structural Concrete Slump Requirements.

Concrete Use	Avg. Slump (in.)	Max Slump (in.)
Cased Drilled Shafts and Thin-walled Sections (9 in. or less)	4	5
Slabs, Caps, Wall Sections Over 9 in., etc.	3	4
Columns, Piers	3	4
Underwater or Seal Concrete	5	6
Other Miscellaneous Concrete including, but not limited to Riprap, Curb and Gutter.	As specified by OWNER	

***NOTE**: No concrete shall be permitted with slump in excess of the maximums shown. Any concrete mix failing to meet the above consistency requirements, although meeting the slump requirements, shall be considered unsatisfactory; and the mix shall be changed to correct such unsatisfactory conditions.*

(Page 702-5. Replace Item 702.3.4.5. TESTS, with the following:) [In the third paragraph, last sentence, the phrase "... if approved by the OWNER." was added]

702.3.4.5.COD. Tests. During the progress of the work, test cylinders shall be cast in accordance with **ASTM C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field** to maintain a check on the compressive strengths of the concrete being placed. In accordance with **ASTM C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field** and **ASTM C172: Standard Practice for Sampling Freshly Mixed Concrete**, four 6"x12" or five 4"x8" test cylinders shall be taken from a representative portion of the concrete being placed for every 40-cubicyards of concrete placed. After the cylinders have been cast, they shall remain on the job site and then transported, moist cured, and tested by the OWNER in accordance with **ASTM C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field** and **ASTM C39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens**.

The CONTRACTOR shall provide and maintain curing facilities for the purpose of curing concrete test specimens on site in accordance with **ASTM C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field**. The CONTRACTOR shall be responsible for the proper storage, maintenance, and any required curing of concrete test samples made by the OWNER, and any costs thereof.

In each set of 6" x 12", one of the cylinders shall be tested at 7-days, two cylinders shall be tested at 28-days, and one cylinder shall be held or tested at 56-days, if necessary.

In each set of 4" x 8", one of the cylinders shall be tested at 7-days, three cylinders shall be tested at 28-days, and one cylinder shall be held or tested at 56-days, if necessary.

If the 28-day test results indicate deficient strength, the CONTRACTOR may, at its option and expense, core the concrete in question and have the cores tested by an approved laboratory, in accordance with **ASTM C42: Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete** and **ACI 318** protocol, to override the results of the cylinder tests, if approved by the OWNER.

Cylinders and/or cores must meet the specified strength in accordance with **ACI 318** protocol. The testing does not in any way change the penalties imposed on the CONTRACTOR for deficient strength outlined elsewhere in these specifications.

At the OWNER'S direction, beam test may be required and utilized for acceptance of the final product.

(Page 702-10. Replace Item 702.5.8. PLACING CONCRETE, with the following:) [The paragraph beginning with "Additives and Modifiers" was added; In Table 702.5.8.1.(a) COD Interval Between Mixing and Placing Concrete, in the Nonagitated Concrete entry, the word "or" was changed to "to"; and note number 4 of Table 702.5.8.1.(a) Interval Between Mixing and Placing Concrete was added. In the tenth paragraph, portions of the third and fourth sentences were left off and have been replaced. In paragraph 11, beginning with "Any hardened concrete splatter...", the end of the first sentence and the beginning of the second sentence were left out of Version 5 and replaced here.]

702.5.8.COD Placing Concrete.

702.5.8.1.COD. General. The CONTRACTOR shall give the OWNER sufficient advance notice before starting to place concrete in any unit of the structure to permit the inspection of forms, the reinforcing steel placement and preparation for casting. No concrete shall be placed in any unit prior to the completion of the formwork, the placement of the reinforcement and approval by the OWNER. Concrete mixing, placing and finishing shall be done in daylight hours, unless adequate provisions are made to light the entire site of all operations.

The minimum temperature of all concrete at the time of placement shall be not less than 50°F. The maximum temperature of Class C, F, H, X, Y and Z or Class PC, PF, PH (as specified by the OWNER) cast-in-place concrete used in bridge superstructures shall not be more than 85° F at the time of placement. Concrete diaphragms, parapets, concrete portions of railings, curbs and sidewalks, unless monolithically placed with the slab, may not be subject to the preceding control if approved by the OWNER in writing. Other portions of structures, when so noted on the plans, shall require the temperature control specified thereon.

A retarding admixture shall be used when the continuous placing method is used in the deck of continuous units. The initial set of the concrete shall be retarded sufficiently to ensure that the concrete remains plastic in not less than 3 spans immediately preceding the one being placed. For simple spans, retardation shall be required only if necessary to complete finishing operations or as required by Item 303. Portland Cement Concrete Pavement. The retarding admixture shall be in accordance with the requirements of Item 702.2.3. Concrete Additives and Modifiers.

Additives and Modifiers. The use of an approved cement-retarding agent in the concrete shall permit the extension of each of the above temperature-time maximums by 30 minutes, except that for non-agitated concrete, the maximum time shall not exceed 30 minutes.

The consistency of the concrete as placed should allow the completion of all finishing operations without the addition of water to the surface. When conditions are such that additional moisture is needed for finishing, the required water shall be applied to the surface by misting only and shall be held to a minimum amount.

The maximum time interval between the addition of cement or mixing water to the batch and the placing of concrete in the forms shall not exceed amounts shown in **Table 702.5.8.1.(a) Interval Between Mixing and Placing Concrete.**

Table 702.5.8.1.(a).COD. Interval Between Mixing and Placing Concrete.

Type	Air or Concrete °F	Maximum Time[1]
Nonagitated Concrete		
	80°F or above	15 minutes
	38°F to 79°F	30 minutes
Agitated Concrete		
	90°F or above	45 minutes
	75°F to 79°F	60 minutes
	38°F to 74°F	90 minutes

1. The use of an approved cement dispersing agent in the concrete shall permit the extension of each of the temperature-time maximums by 30-minutes, except that for non-agitated concrete, the maximum time shall not exceed 30-minutes.
2. Minimum temperature is 38° F and rising.
3. The maximum temperature shall not be more than 85° F at the time of placement.
4. All the above is subject to approval by the OWNER.

The sequence of placing concrete shall be as provided on the plans or in the specifications. The placing shall be so regulated that the pressures caused by the plastic concrete shall not exceed the loads used in the design of forms.

The method of handling, placing and consolidation of concrete shall minimize segregation or the displacement of the reinforcement and shall produce a compact mass of uniform texture. Concrete shall not have a free fall of more than 3-ft. except in the case of thin walls such as culvert walls. The spattering of forms or reinforcement bars shall be prevented if the concrete so spattered shall dry or harden before being incorporated into the mass.

Laitance or foreign matter of any kind shall not be permitted to accumulate inside the forms, and openings in forms necessary for removal of same shall be provided.

Any hardened concrete spatter ahead of the plastic concrete shall promptly be removed from the work.

Each part of the forms shall be filled by depositing concrete as near its final position as possible. The coarse aggregate shall be worked back from the face and concrete forced under and around the reinforcement bars

without displacing them. Depositing large quantities at one point in the forms and running or working it along the forms shall not be allowed.

After the concrete has taken initial set, the forms shall not be jarred, or any strain placed on projecting reinforcement.

Chutes, troughs, conveyors or pipes used in placing concrete shall be arranged and used so that the ingredients of the concrete shall not be separated. When steep slopes are necessary, the chutes shall be equipped with baffle boards or made in short lengths that reverse the direction of movement, or the ends of such chutes shall terminate in vertical downspouts. Open troughs and chutes shall extend, if necessary, down inside the forms or through holes left in the forms. All chutes, troughs, conveyors and pipes shall be kept clean and free from coatings of hardened concrete by a thorough flushing with water before and after each placement. Water used for flushing shall be discharged clear of the concrete.

Concrete shall be deposited in the forms in layers of suitable depth but not more than 36-in. in thickness, unless otherwise directed by OWNER.

Holes for anchor bolts in piers, abutments, bents or pedestals may be drilled or may be formed by the insertion of oiled wooden plugs or metal sleeves in the plastic concrete. The plugs or sleeves shall be withdrawn after the concrete has set. Formed holes shall be of such diameter to permit horizontal adjustments of the bolts. The bolts shall be set carefully in mortar in lieu of the above methods of placing. Anchor bolts may be set to exact location in concrete when it is placed.

The placing of concrete for deck slabs shall be done from a mixing plant located off the structure. Carting or wheeling concrete batches over a completed slab shall not be permitted until the slab has reached its specified compressive strength. If carts are used, timber planking shall be required for the remainder of the curing period. Carts shall be equipped with pneumatic tires. Curing operations shall not be interrupted for the purpose of wheeling concrete over finished slabs.

(Page 702-15. Replace **Item 702.5.9. FINISHING CONCRETE**, with the following:) [The last sentence of the second paragraph has been added.]

702.5.9.COD. Finishing Concrete. All upper horizontal surfaces not covered by forms shall be struck off to grade and finished. The use of mortar topping for surfaces under this classification shall not be permitted.

After concrete has been struck off as described above, the surface shall be floated with a suitable float. Bridge sidewalks shall be given a wood float or broom finish or may be striped with a brush, as specified by the OWNER. Unless otherwise specified, top of caps and piers shall be given a smooth finish with a steel trowel. Other surfaces shall be wood float finished and striped with a fine brush leaving a fine-grained texture. No water or dry cement is to be added to the surface of concrete for finishing, unless approved, in writing, by the OWNER.

(Page 702-15. Replace **Item 702.5.10. CURING CONCRETE**, with the following:) [A new second paragraph has been added.]

702.5.10.COD: Curing Concrete: Careful attention shall be given to the proper curing of all concrete. CONTRACTOR shall inform OWNER fully of the methods and procedures proposed for curing, shall provide proper equipment and material in adequate amounts, and shall have approval of the proposed method, equipment, and material prior to placing concrete.

Curing compound may not be used on construction joints or other surfaces that require further surface treatment.

Inadequate curing facilities or lack of attention to the proper curing of concrete shall be cause for OWNER to stop all construction on the job until approved curing is provided.

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ITEM 703.COD STEEL STRUCTURES

(Page 703-1. Replace Item 703.3.1.2. METHODS AND EQUIPMENT:) [In the last sentence of the second paragraph, the word "sanctioned" has been changed to 'approval"; In the last sentence of the last paragraph, the word "review" has been changed to "approval".]]

703.3.1.2.COD Methods and Equipment. Before starting work the CONTRACTOR shall inform the OWNER fully as to the method of erection it proposes to follow and as to the amount and character of the equipment it proposes to use, the adequacy of which shall be subject to the approval of the OWNER.

The approval of the OWNER shall not be considered as relieving the CONTRACTOR of the responsibility for the safety or adequacy of its methods or equipment or from carrying out the work in full accordance with the plans and specifications. No work shall be done without the *approval* of the OWNER.

The CONTRACTOR shall prepare and submit erection plans for the erection of all steel structures. The plans shall be completed in all details of procedure, sequence of work, equipment to be used, etc., and submitted to the OWNER for *approval*.

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DIVISION 800 MISCELLANEOUS CONSTRUCTION AND MATERIALS

City of Dallas Addendum
to the
North Central Texas Council of Governments

Public Works Construction Standards
Standard Specifications

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ITEM 801.COD BARRIERS, WARNINGS AND DETOUR SIGNS, AND FENCES

(Page 801-1. Replace Item 801.1.3. PAYMENT, with the following:) [The end of this paragraph was modified.]

801.1.3.COD Payment.

The furnishing, placing and maintaining of barriers and warning and/or detour devices, lights and/or signs or any other precautionary measures required by law or otherwise for the protection of persons or property shall be paid for at the contract unit price for the time they are maintained by the CONTRACTOR before final acceptance and written permission from the OWNER to cease maintenance.

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ITEM 802.COD STEPS AND RETAINING WALLS

(Page 802-6. Replace Item 802.4.2. GENERAL, with the following:) [The seventh paragraph was modified.]

802.4.2.COD. General. Cofferdams for foundation construction shall be carried well below the bottom of the footings and shall be well braced and reasonably watertight. The interior dimensions of cofferdams shall provide sufficient clearance inside the walls for constructing forms and driving piles and to permit pumping outside the forms.

If, in the judgment of the CONTRACTOR, the clearance provided on the plans between the outside line of the footing and any pipe or interior wall or surface is not sufficient to permit the driving of piles or building of forms, it may provide such necessary clearance, structuring the cofferdam sufficiently large to provide such clearance as it may deem necessary. Any such enlargement in excess of 1-ft outside the dimensions of the footing as shown on the plans shall be considered as being for the sole purpose of expediting the work of the CONTRACTOR, and such excavation and backfill shall be at the CONTRACTOR'S expense.

Cofferdams which are tilted or moved out of position by any cause during the process of sinking shall be plumbed or enlarged so as to provide the necessary clearance and proper pier location, and such work shall be at the CONTRACTOR'S expense.

In streams at a time of probable flood, cofferdam walls shall be vented at low water elevation to insure equal hydrostatic head both inside and outside of the cofferdam during the period of pouring and settings of seals.

No shoring shall be permitted in cofferdams which shall induce stress, shock or vibration in the permanent structure.

When permitted by the OWNER, cross struts or bracing may extend through foundation concrete. Struts or bracing shall be removed and the resulting space filled with concrete of the same mix as that specified for the surrounding concrete.

For substructure work, the CONTRACTOR shall submit drawings sealed by a Texas Registered Engineer to the OWNER for review and approval before commencing work, showing its proposed method of cofferdam construction and other details left open to its choice or not fully shown on the plans. The type and clearance of cofferdams, insofar as such details affect the character of the finished work, shall be subject to the approval of the OWNER, but other details of design shall be left to the CONTRACTOR who shall be responsible for the successful construction of the work. The drawings shall be submitted at least 30-days in advance of the time the CONTRACTOR begins construction of the cofferdams.

After completion of the substructure, the cofferdams with all sheeting and bracing shall be removed at least 2-ft below the level of the streambed by the CONTRACTOR at its expense, and such removal shall be performed in a manner that shall not disturb or mar the finished concrete or masonry.

(Page 802-8. Add Item 802.4.3.2.1.COD. COMPACTION TESTING:) [New Section Added]

802.4.3.2.1.COD: Compaction Testing: Unless otherwise specified, compaction testing will be performed by the OWNER or the OWNER's 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.

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ITEM 803.COD SLOPE AND CHANNEL PROTECTION

(Page 803-3. Replace **Item 803.1.3.1. PREPARATION OF SURFACE**, with the following:) [All mentions of density have been changed to 98% Standard Proctor.]

803.1.3.1.COD. Preparation of Surface. All side slope to bed slope radius transitions shall be equal to or greater than the specified block's minimum articulation radius. Areas on which geotextile and articulating concrete blocks are to be placed shall be constructed to the lines and grades shown on the plans. Where such areas are below the allowable grade, they shall be brought to grade by placing layers not to exceed 8-in of select material and compacted. The depth of layers and amount of compaction shall be as required to obtain a density equal to the adjoining undisturbed soil, or as specified by the OWNER. All obstructions, such as but not limited to: roots, lumps and projecting stones, shall be removed; and soft or low-density pockets of material shall be removed with the resulting void to be filled with select, compacted material.

The finished sub-grade shall be constructed to exhibit a raked, rolled or otherwise smooth planar profile from a 0-in. to +½-in. tolerance within a 10-ft straight edge. The subgrade for the cellular concrete blocks shall be free of voids, pits and depressions. Obstructions, such as roots and projecting stones larger than 1-in remaining on the surface, shall be removed. Depressions or areas where obstructions have been removed shall be filled with select material, brought to grade and compacted to plus or minus 2% of a 98% Standard Proctor density.

Immediately prior to placing the geotextile and cellular blocks, the prepared area shall be inspected by the OWNER and approved before the fabric or blocks are placed thereon.

(Page 803-8. Replace **Item 803.3.4. MEASUREMENT AND PAYMENT**, with the following:) [There are new second and third sentences.]

803.3.4.COD. Measurement and Payment. Riprap shall be measured for payment either in square yards of the specified minimum thickness or in cubic yards, based on the dimensions shown on the plans or on revised dimensions, where changes are ordered or approved by the OWNER or by ton of material in place. Measurement of riprap 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. Riprap shall be paid for at the contract unit price complete in place, as provided in the proposal and contract. The contract unit price shall be the total compensation for preparing the subgrade, including excavation; for furnishing and placing all materials; for furnishing, placing, shaping and tamping backfill; for proper disposal of all surplus materials; and for all labor, tools, equipment, and incidentals necessary to complete the work, all in accordance with the plans and these specifications.

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ITEM 804.COD PAINTING AND OTHER PROTECTIVE TREATMENTS; PAVEMENT MARKING

(Page 804-2. Replace Item 804.2.3.1. DESCALING, CLEANING AND PREPARATION OF SURFACES, with the following:) [There is a new second paragraph (containing 4 sub-paragraphs) and the fourth paragraph has been rewritten.]

804.2.3.1.COD. Descaling, Cleaning and Preparation of Surface. Throughout paint application, including shop and field painting, no paint shall be applied over a surface that evidences a loose or scaly condition. Every effort shall be made by means of the most effective and practical methods to remove all loose mill scale, rust, dirt, oil and grease, as well as all other foreign surfaces which would be deleterious to the procurement of the firm paint coating. The original cleaning and preparation of the surface necessarily must be done at the fabricating plant before application of the shop coat, but the same general requirements for painting over a clean, firm surface shall be applicable to all coats.

Four methods of cleaning are provided herein. The first method shall be used unless otherwise specified.

(1) **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.

(2) **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.

(3) **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.

(4) **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.

The OWNER shall look for evidence of faulty surface preparation preceding the shop coat by close inspection of the surface directly prior to application of first field coat, likewise, between first and second field coats. This careful inspection directly in advance of paint application may disclose not only loose, scaly conditions on the surface as a result of faulty preparation but also failure of the paint to harden because of contamination and changes which might have taken place beneath the paint film as a result of rusting and loosening of mill scale after paint has been applied.

It is incumbent on the CONTRACTOR to provide a safe working environment for employees. The CONTRACTOR shall inspect all materials to be painted for the presents of heavy metals and other deleterious materials. If the presents of heavy metals or other deleterious materials is suspected, the CONTRACTOR shall have the material tested and produce a plan to be approved by the OWNER for cleaning and painting such materials. Refer to **Item 603. Abatement of Coatings Containing Certain Heavy Metals** for additional information for information regarding heavy metals.

Therefore, whenever the OWNER has the slightest doubt as to the firm condition of the surface at any time throughout the application of any coats, OWNER shall be expected to explore underneath the surface of any paint coats already applied so as to uncover evidence of infirmity and to direct remedial measures. Any effective methods for removal of rust, scale and dirt, such as through the use of sandblast, hand or rotating metal brushes, scrapers, chisels, hammers or other effective means, shall be acceptable. Undesirable contaminants, which are not allowed to

be present on the surface directly prior to paint application and which shall prevent proper hardening and adhesion of the paint film, are grease, oil, oily grime and moisture. Condensed moisture shall be avoided, and other grease-like contaminants shall be removed with solvents, applied with clean rags in such a manner that the oily substance is actually removed and not simply diluted or spread out over a greater area. Particular attention shall be given to the cleaning of fillets, riveted areas, rivet-heads, bolt heads, nuts, washers, drilled or punched holes and welds where loose mill scale, rust, oil and flux are likely to be present.

Unless cleaning is to be done by sandblasting, all weld areas shall be flushed thoroughly with clean water before painting so as to remove any alkaline residue. The flushed surface shall be allowed to thoroughly dry before paint application.

ITEM 805.COD ELECTRICAL COMPONENTS AND CONDUIT

(Page 805-1. Replace Item 805.2.2. DRAWINGS, with the following:) [There is a new second paragraph.]

805.2.2.COD. Drawings. Drawings are not intended to and do not show all materials such as junction boxes, outlet boxes, conduit fittings and similar components. Even though such material components may not be specifically mentioned in the specifications, shown on the drawings, or noted on shop drawings, if they are necessary to make a complete installation, they shall be included in the materials required under these specifications.

All supplied extra material to make systems operational must be shown on record drawings. Copies of the updated record drawings shall be submitted to the OWNER.

(Page 805-1. Replace Item 805.3.4.4. ALUMINUM CONDUIT, with the following:) [Changed the phrase "... conform to all codes..." to "... conform to all applicable codes ..."]

805.3.4.4.COD. Aluminum Conduit. All Aluminum conduit shall conform to all applicable codes and standards for the materials use.

(Page 805-2. Replace Item 805.4. CONDUIT CONSTRUCTION METHODS, with the following:) [The entire fifth paragraph has been deleted.]

805.4.COD CONDUIT CONSTRUCTION METHODS

Prior to the installation of conduit, the OWNER shall be notified so that a representative will be present to inspect the installation of the conduit. Failure to contact the OWNER shall constitute grounds for rejecting conduit which has been installed without the presence of a representative of the OWNER.

All conduit shall be placed in accordance with lines and grade, details and dimensions as shown on the plans, or as directed by the OWNER. All ends of pipe shall be reamed to remove burrs. All splicing of conduit shall be done by using standard couplings manufactured for this purpose. All bare ends of conduit for future connections by others shall be capped with standard conduit caps. The location of ends of all conduit for future electrical circuits in structures shall be marked by a "Y" at least 3-in high, cut into the face of curb, gutter or wall directly above the conduit.

Conduit in medians or under pavements shall be placed at a minimum depth of 30-in from the top of curb as shown on the plans. Installation under existing pavements shall be accomplished by boring. Conduit shall extend 6-in. behind back of curb unless otherwise called for on the plans. Where pull boxes or junction boxes are required in medians which are to be surfaced, they shall be installed by the CONTRACTOR at the location and grade as shown on the plans or as directed by the OWNER.

Unless otherwise specified in the special provisions or on the plans, all pull-boxes shall be furnished by the CONTRACTOR. All necessary fittings for proper installation of conduit in the pull-box shall be furnished and installed by the CONTRACTOR. Where it is required that pull-boxes be installed, the conduit shall be fitted with sweeping 90° fittings to enter the pull-box from the bottom. A nipple shall be attached to the fitting of sufficient length so that the distance from the top of the pull-box to the end of the nipple shall be 8-in.

Conduit bends, except factory bends, shall have a radius of not less than seven (7) times the inside diameter of the conduit. Where factory bends are not used, conduit shall be bent, without crimping or flattening, using a portable hydraulic pipe bender. The radius of the pipe shall conform to the dimensions shown on the plans; if not designated on the plans, the longest radius practicable shall be used.

Conduit locations shown on the plans are for bidding purposes only and may be changed with permission of the OWNER to avoid underground obstacles. The CONTRACTOR shall furnish and install conduit to an electrical service point to be determined by the OWNER prior to the beginning of any construction.

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