



SAN ANTONIO WATER SYSTEM
CRESCENT PARK BOOSTER
STATION PROJECT
SAWS Job No. 12-6006
SAWS Solicitation No. B-12-043-CM

ADDENDUM NO. 4
November 1, 2012

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bidding documents and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the addendum number and issue date in the space provided in submitted copies of the proposal.

Item 1: Bid Proposal

REPLACE the Bid Proposal in its entirety with the attached Bid Proposal.

Item 2: Supplemental Conditions

REMOVE the Supplemental Conditions in entirety.

Item 5: Technical Specifications

1. ADD the following attached Technical Specification Sections:
 - Section 01025 – Measurement and Payment
 - Section 03000 – Handling Asbestos Cement Pipe

Item 6: Modifications to Plans

1. ADD the following to Sheet W3:

“Note: See Sheet C4 for Erosion Control Plan.”
2. ADD the following to Sheet W4:

“Note: Install Curb Inlet Gravel Filters at curb inlets near Station 14+80. See Sheet C4 for Erosion Control Plan”

3. ADD the following to Sheet C4:

"Note: Install Curb Inlet Gravel Filters at curb inlets near Station 14+80."
4. REPLACE the following attached Sheets in entirety:
 - Sheet W1
 - Sheet C2

The remainder of the bid documents remains unchanged.

This Addendum, including this page, is two (2) pages in its entirety.

Each bidder is requested to acknowledge receipt of this Addendum No. 4 by his/her signature affixed hereto and to file same as an attachment to his/her bid.



Julian P. Bielawski, P.E.
Project Manager
LNV
TBPE Firm No. F-366



The Undersigned acknowledges receipt of this Addendum No. 4 and the bid submitted herewith is in accordance with the information and stipulation set forth.

Date

Signature of Bidder

END OF ADDENDUM

PROPOSAL

PROPOSAL OF _____, a corporation a
 partnership consisting of _____
 and an individual doing business as _____

TO THE SAN ANTONIO WATER SYSTEM:

Pursuant to Instruction and Invitations to Bidders, the undersigned proposes to furnish all labor and materials as specified and perform the work required for the construction of a booster pumping station, hydropneumatic tanks, piping and appurtenances for the San Antonio Water System (SAWS) in accordance with the Plans and Specifications for Crescent Park Booster Station Project, Job No. 12-6006. The work will be performed for the following prices to wit:

Item No.	Description (Unit Price to be written in words)	Unit	Quantity	Unit Price (Figures)	Total Price (Figures)
103.1	Remove Concrete Curb;	LF	43		
	_____ Dollars			\$ _____	\$ _____
	_____ Cents				
104.1	Excavation;	CY	650		
	_____ Dollars			\$ _____	\$ _____
	_____ Cents				
107.1	Embankment (Final) (Density Control) (TY A);	CY	350		
	_____ Dollars			\$ _____	\$ _____
	_____ Cents				
200.1	Flex Base (Complete In Place) (TY A GR 2)(6" Compacted Depth);	SY	1550		
	_____ Dollars			\$ _____	\$ _____
	_____ Cents				

Crescent Park Booster Station
Job No. 12-6006
Solicitation No. B-12-043-CM

Item No.	Description (Unit Price to be written in words)	Unit	Quantity	Unit Price (Figures)	Total Price (Figures)
205.2	Hot Mix Asphaltic Pavement, Type B (10" Pavement Thickness);	SY	300		
	<u>Dollars</u>			\$ _____	\$ _____
	<u>Cents</u>				
205.4	Hot Mix Asphaltic Pavement, Type D (2" Pavement Thickness);	SY	600		
	<u>Dollars</u>			\$ _____	\$ _____
	<u>Cents</u>				
208.1	Salvaging, Hauling, and Stockpiling Reclaimable Asphaltic Pavement (2" Depth);	SY	600		
	<u>Dollars</u>			\$ _____	\$ _____
	<u>Cents</u>				
209.1	Concrete Pavement (8" Depth);	SY	275		
	<u>Dollars</u>			\$ _____	\$ _____
	<u>Cents</u>				
234.1	Base Reinforcement (TENSAR Triax) (TX-5) Geogrid;	SY	1950		
	<u>Dollars</u>			\$ _____	\$ _____
	<u>Cents</u>				
410.2	Limestone Gravel (1 ¼" x ¾") (4" Compacted Depth) (Complete In Place);	CY	175		
	<u>Dollars</u>			\$ _____	\$ _____
	<u>Cents</u>				

Crescent Park Booster Station
Job No. 12-6006
Solicitation No. B-12-043-CM

<u>Item No.</u>	<u>Description (Unit Price to be written in words)</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Price (Figures)</u>	<u>Total Price (Figures)</u>
818	16" PVC Waterline (Restrained as Required);	LF	172		
				<u>Dollars</u>	\$ <u> </u>
				<u>Cents</u>	\$ <u> </u>
828	12" Gate Valve;	EA	4		
				<u>Dollars</u>	\$ <u> </u>
				<u>Cents</u>	\$ <u> </u>
828	16" Gate Valve;	EA	1		
				<u>Dollars</u>	\$ <u> </u>
				<u>Cents</u>	\$ <u> </u>
831	16" x 16" Tee Cut-In;	EA	1		
				<u>Dollars</u>	\$ <u> </u>
				<u>Cents</u>	\$ <u> </u>
836	Pipe Fittings, All Sizes & Types;	TON	2.93		
				<u>Dollars</u>	\$ <u> </u>
				<u>Cents</u>	\$ <u> </u>
840	8" Water Tie-Ins;	EA	1		
				<u>Dollars</u>	\$ <u> </u>
				<u>Cents</u>	\$ <u> </u>
840	12" Water Tie-In;	EA	1		
				<u>Dollars</u>	\$ <u> </u>
				<u>Cents</u>	\$ <u> </u>

Crescent Park Booster Station
Job No. 12-6006
Solicitation No. B-12-043-CM

Item No.	Description (Unit Price to be written in words)	Unit	Quantity	Unit Price (Figures)	Total Price (Figures)
04300	Masonry Wall (10' Height); _____ Dollars _____ Cents	LF	520	\$ _____	\$ _____
04400	Double Swing Vehicular Gate (10' Height); _____ Dollars _____ Cents	LS	1	\$ _____	\$ _____
11215	Pre-Fabricated Booster Pump Station; _____ Dollars _____ Cents	LS	1	\$ _____	\$ _____
11295	12" Pressure Reducing Valve, Vault and Appurtenances; _____ Dollars _____ Cents	LS	1	\$ _____	\$ _____
11395	480 Volt Diesel Engine Generator Set; _____ Dollars _____ Cents	LS	1	\$ _____	\$ _____
15052	Booster Station Yard Piping and Fittings (aboveground and below ground); _____ Dollars _____ Cents	LS	1	\$ _____	\$ _____
15112	12" Butterfly Valve; _____ Dollars _____ Cents	EA	4	\$ _____	\$ _____

**Crescent Park Booster Station
Job No. 12-6006
Solicitation No. B-12-043-CM**

Mobilization lump sum bid shall be limited to a maximum 10% of the Line Item "A" Sub-total Base Bid amount. Preparing Right-of-Way lump sum bid shall be limited to a maximum of 5% of the Line Item "A" Sub-total Base Bid amount. The Line Item "A" Sub-total base bid is defined as all bid items **EXCLUDING** Item 100, Mobilization and Item 101, Preparing Right-of-Way. **In the event of a discrepancy between the written percentage and dollar amount shown for Mobilization and Preparation of ROW bid items the written percentage will govern. If the percentage written exceeds the allowable maximum stated for mobilization and or preparation of ROW, SAWS reserves the right to cap the amount at the percentages shown and adjust the extensions of the bid items accordingly.**

**TOTAL BID AMOUNT (Line Item "A", Mobilization,
& Preparing Right of Way)**

\$ _____

_____ DOLLARS AND

_____ CENTS

BIDDER'S SIGNATURE & TITLE

FIRM'S NAME (TYPE OR PRINT)

FIRM'S ADDRESS

FIRM'S PHONE NO./FAX NO.

FIRM'S EMAIL ADDRESS

The contractor herein acknowledges receipt of the following:
Addendum Nos. _____

OWNER RESERVES THE RIGHT TO ACCEPT THE OVERALL MOST RESPONSIBLE BID.

The bidder offers to construct the Project in accordance with the Contract Documents for the contract price, and to complete the Project within 270 calendar days from notice to proceed date. **The Bidder understands and accepts the provisions of the contract Documents relating to liquidated damages of the Project if not completed on time.**

Complete the additional requirements of the Proposal, which are included on the following page.

PROPOSAL CERTIFICATION

Accompanying this proposal is a Bid Bond or Certified or Cashier's Check on a State or National Bank payable to the Order of the San Antonio Water System for _____ dollars (\$ _____), which amount represents five percent (5%) of the total bid price. Said bond or check is to be returned to the bidder unless the proposal is accepted and the bidder fails to execute and file a contract within 10 calendar days after the award of the Contract, in which case the check shall become the property of said San Antonio Water System, and shall be considered as payment for damages due to delay and other inconveniences suffered by said San Antonio Water System due to the failure of the bidder to execute the contract. The San Antonio Water System reserves the right to reject any and all bids.

It is anticipated that the Owner will act on this proposal within 60 calendar days after the bid opening. Upon acceptance and award of the contract to the undersigned by the Owner, the undersigned shall execute standard San Antonio Water System Contract Documents and make Performance and Payment Bonds for the full amount of the contract within 10 calendar days after the award of the Contract to secure proper compliance with the terms and provisions of the contract, to insure and guarantee the work until final completion and acceptance, and the guarantee period stipulated, and to guarantee payment of all lawful claims for labor performed and materials furnished in the fulfillment of the contract.

It is anticipated that the Owner will provide written Authorization to Proceed within 30 days after the award of the Contract.

The Contractor hereby agrees to commence work under this Contract within seven (7) calendar days after issuance by the SAWS of the written Authorization to Proceed. Under no circumstances shall the work commence prior to Contractor's receipt of SAWS issued, written Authorization to Proceed. Work shall be completed in full within ___ consecutive calendar days.

The undersigned certifies that the bid prices contained in the proposal have been carefully checked and are submitted as correct and final.

In completing the work contained in this proposal the undersigned certifies that bidder's practices and policies do not discriminate on the grounds of race, color, religion, sex or national origin and that the bidder will affirmatively cooperate in the implementation of these policies and practices.

Signed: _____
Company Representative

Company Name

Address

Please return bidder's check to:

Company Name

Address

SECTION B. – SMWB COMMITMENTS

The SMWB goal on this project is 17 %

1. The undersigned proposer has satisfied the requirements of the BID specification in the following manner (please check the appropriate space):

 The proposer is committed to a minimum of 17 % SMWB utilization on this contract.

 The proposer, (if unable to meet the SMWB goal of 17%), is committed to a minimum of % SMWB utilization on this contract. *(If contractor is unable to meet the goal, please fill out Section C and submit documentation demonstrating good faith efforts).*

2. Name and phone number of person appointed to coordinate and administer the SMWB requirements on this project.

Name: _____

Title: _____

Phone Number: _____

IF THE SMWB GOAL WAS MET, PROCEED TO AFFIRMATION AND SIGN THE GFEP. IF GOAL WAS NOT MET, PROCEED TO SECTION C.

SECTION C – GOOD FAITH EFFORTS (Fill out only if the SMWB goal was not achieved).

1. List all firms you contacted with subcontracting/supply opportunities for this project that will not be utilized for the contract by choice of the proposer, subcontractor, or supplier. Written notices to firms contacted by the proposer for specific scopes of work identified for subcontracting/supply opportunities must be provided to subcontractor/supplier **not less than five (5) business days prior to bid/proposal due date**. The following information is required for all firms that were contacted of subcontracting/supply opportunities.

Name & Address of Company	Scope of Work/Supplies to be Performed/Provided by Firm	Is Firm SMWB Certified?	Date Written Notice was Sent & Method (Fax, Letter, E-Mail, etc.)	Reason Agreement was not reached?
1.				
2.				
3.				
4.				
5.				
6.				
7.				

(Use additional sheets as needed)

In order to verify a proposer's good faith efforts, please provide to SAWS copies of the written notices to all firms contacted by the proposer for specific scopes of work identified in relation to the subcontracting/supply opportunities in the above named project. Copies of said notices must be provided to the SMWB Program Manager within five (5) business days after the response is due. Such notices shall include information on the plans, specifications, and scope of work.

2. Did you attend the pre-bid conference scheduled for this project? ____ Yes ____ No

3. List all SMWB listings or directories, contractor associations, and/or any other associations utilized to solicit SMWB Subcontractors/suppliers.

4. Discuss efforts made to define additional elements of the work proposed to be performed by SMWBs in order to increase the likelihood of achieving the goal:

5. Indicate advertisement mediums used for soliciting bids from SMWBs. (Please attach a copy of the advertisement(s):

AFFIRMATION

I hereby affirm that the above information is true and complete to the best of my knowledge. I further understand and agree that, this document shall be attached thereto and become a binding part of the contract.

Name and Title of Authorized Official:

Name: _____

Title: _____

Signature: _____ Date: _____

NOTE:

This Good Faith Effort Plan is reviewed by SAWS Contracting Department. For questions and/or clarifications, please contact Marisol V. Robles, SMWB Manager, at 210-233-3420.

DEFINITIONS:

Prime Consultant/Contractor: Any person, firm partnership, corporation, association or joint venture which has been awarded a San Antonio Water System contract.

Subconsultants/contractor: Any named person, firm partnership, corporation, association or joint venture identified as providing work, labor, services, supplies, equipment, materials or any combination of the foregoing under contract with a prime consultant/contractor on a San Antonio Water System contract.

Small, Minority and Woman Business (SMWB): All business structures Certified by the Small Business Administration, Texas State Comptroller's Office, or the South Central Texas Regional Certification Agency that are 51% owned, operated, and controlled by a Small Business Enterprise, a Minority Business Enterprise, or a Woman-owned Business Enterprise.

Small Business Enterprise (SBE): A business structure that is Certified by the Small Business Administration, Texas State Comptroller's Office or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by someone who is legally residing in or a citizen of the United States, and the business structure meets the U.S. Small Business Administration's (SBA) size standard for a small business within the appropriate industry category

Minority Business Enterprise (MBE): A business structure that is Certified by the Small Business Administration, Texas State Comptroller's Office or the South Central Texas Regional Certification Agency as being 51% owned, operated, and controlled by an ethnic minority group member(s) who is legally residing in or a citizen of the United States. For purposes of the SMWB program, the following are recognized as minority groups:

- a. **African American** – Persons having origins in any of the black racial groups of Africa as well as those identified as Jamaican, Trinidadian or West Indian.
- b. **Hispanic American** – Persons of Mexican, Puerto Rican, Cuban, Spanish or Central or South American origin.
- c. **Asian-Pacific American** – Persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent or the Pacific Islands.
- d. **Asian-Indian American** – Persons whose origins are from India, Pakistan, Bangladesh or Sri Lanka.
- e. **American Indian/Native American** – Persons having no less than 1/16 percentage origin in any of the American Indian Tribes, as recognized by the U.S. Department of the Interior's Bureau of Indian Affairs and as demonstrated by possession of personal tribal role documents.

Women Business Enterprise (WBE): A business structure that is Certified by the Small Business Administration, Texas State Comptroller's Office or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by a woman or women who are legally residing in or citizens of the United States.

African American Business Enterprise (AABE): A business structure that is Certified by the Small Business Administration, Texas State Comptroller's Office or the South Central Texas Regional Certification Agency as being 51% owned, operated and controlled by African American minority group member(s) who are legally residing in or are citizens of the United States.

Joint Venture: A limited association of two or more persons to carry out a single business enterprise for profit, for which purpose they combine their property, money, efforts, skills and knowledge.

Contractor's Payment to Sub-Contractors:

The contractor will be required to report the actual payments to all subcontractors, utilizing the Sub-contracting Payment and Utilization Reporting (S.P.U.R.) System, in the time intervals and format prescribed by SAWS. This information will be utilized for SMWB participation tracking purposes. Any unjustified failure to comply with the committed SWMB levels may be considered breach of contract.

Web Submittal of Subcontractor Payment Reports:

The Contractor is required to electronically submit monthly subcontractor payment information utilizing the Sub-contracting Payment and Utilization Reporting (S.P.U.R.) System, beginning with the first SAWS payment for services under the contract, and with every payment thereafter (for the duration of the contract).

Electronic submittal of monthly subcontractor payment information will be accessed through a link on SAWS' "Business Center" web page.

The Contractor and all subcontractors will be provided a unique log-in credential and password to access the SAWS subcontractor payment reporting system. The link may also be accessed through the following internet address: <https://saws.smwbe.com/>

CONFLICT OF INTEREST QUESTIONNAIRE NOTE:

“Effective January 1, 2006, Chapter 176 of the Texas local Government Code requires that persons, or their agents, who seek to contract for the sale or purchase of property, goods, or services with SAWS shall file a completed conflict of interest questionnaire with the SAWS Manager of Contract Administration no later than the 7th business day after the date that the person: (1) begins contract discussions or negotiations with SAWS; or (2) submits to SAWS an application, response to a request for proposals or bids, correspondence, or another writing related to a potential agreement with SAWS. The Conflict of Business questionnaire is attached on the following page and is available from the Texas Ethics Commission at www.ethics.state.tx.us. Completed Conflict of Interest questionnaires should be included with your bid or may be delivered by hand, within 7 business days of the bid opening, to the Manager of Contract Administration. If mailing a completed Conflict of Interest questionnaire, mail to: David Gonzales, Manager, Contract Administration, 2800 U.S. Hwy 281 North, San Antonio, TX 78212. If delivering a completed Conflict of Interest questionnaire, deliver to Contract Administration, Tower 2, 1st Floor, Room 171, 2800 U.S. Hwy 281 North, San Antonio, TX 78212. Please consult your own legal advisor if you have questions regarding the statute or form.”

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 1491, 80th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code by a person who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the person meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code.

A person commits an offense if the person knowingly violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of person who has a business relationship with local governmental entity.

2 **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)

3 Name of local government officer with whom filer has employment or business relationship.

Name of Officer

This section (item 3 including subparts A, B, C & D) must be completed for each officer with whom the filer has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the filer of the questionnaire?

Yes No

B. Is the filer of the questionnaire receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

Yes No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of 10 percent or more?

Yes No

D. Describe each employment or business relationship with the local government officer named in this section.

4

Signature of person doing business with the governmental entity

Date

ITEM 01025
MEASUREMENT AND PAYMENT

01025.10 GENERAL

01025.11 DEFINITIONS:

- A. COSA – City of San Antonio.
- B. SAWS – San Antonio Water System.
- C. NSPI – No Separate Pay Item.

01025.12 SUBMITTALS:

- A. Schedule of Values:
 - 1. Submit in accordance with Section 01330.
 - 2. Include information as specified in Section 01025.20.
- B. Schedule of Estimated Progress Payments: Submit in accordance with General Conditions.
- C. Application for Payment: To be submitted in accordance with General Conditions.
- D. Final Application for Payment: To be submitted in accordance with General Conditions.

01025.20 SCHEDULE OF VALUES

- A. Prepare a separate schedule of values for each item of work in the Bid Proposal.
- B. Unit Price Work; Reflect unit price quantity and price breakdown from conformed Bid Form.
- C. Lump Sum Work:
 - 1. Reflect schedule of values in format acceptable to OWNER, as applicable.
 - 2. List Bonds and insurance premiums, mobilization, demobilization, facility startup, and contract closeout separately.

**Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM**

3. Breakdown by Division for each of the Project facilities.
- D. An unbalanced or front end loaded schedule will not be acceptable.
- E. Summation of the complete schedule of values representing all Work shall equal the contract price.
- F. CONTRACTOR to submit Schedule of Values at the Pre-Construction Conference for the OWNER'S review and comment.

01025.30 MEASUREMENT AND BASIS FOR PAYMENT

- A. Item No. 3000.1 – Removal, Transportation and Disposal of A.C. Pipe:
 1. Description – This item shall govern the removal, handling, disturbance, and disposal of asbestos cement (AC) pipe and other asbestos containing materials (ACM) related to the AC pipe work as shown on the plans. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications. This work shall conform to Section No. 3000.
 2. Measurement – This item shall be measured by the lump sum as work progresses.
 3. Payment – Payment for this item will be made at the contract lump sum price bid.
- B. Item No. 3000.2 – Asbestos Abatement Work Plan:
 1. Description – This item shall govern the preparation of an asbestos abatement work plan for the removal, handling, disturbance, and disposal of asbestos cement (AC) pipe and other asbestos containing materials (ACM) related to the AC pipe work as shown on the plans. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications. This work shall conform to Section No. 3000.
 2. Measurement – This item shall be measured by the unit of each Asbestos Abatement Work Plan.
 3. Payment – Payment for this item will be made at the contract unit price bid for the Asbestos Abatement Work Plan.

**Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM**

C. Item No. 4300 – Masonry Wall:

1. Description – This item shall govern the construction of a concrete masonry unit (cmu) wall, 10 ft. in height, with stone veneer, and concrete foundation as shown on the plans. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications. This work shall conform to Section No. 04300 and the details and specifications in the plans.
2. Measurement – This item shall be measured by the horizontal linear foot of wall. Measurement shall be made along the centerline of the wall but shall not include openings for gates.
3. Payment – Payment for this item will be made at the contract unit price bid per horizontal linear foot of wall installed.

D. Item No. 4400 – Double Swing Vehicular Gate (10' Height):

1. Description – This item shall govern the construction and installation of a double swing vehicular gate, 10 ft. in height as shown on the plans. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications. This work shall conform to the details and specifications in the plans.
2. Measurement – This item shall be measured by the unit of each complete gate installed.
3. Payment – Payment for this item will be made at the contract unit price bid per each gate installed.

E. Item No. 11215 – Pre-Fabricated Booster Pump Station:

1. Description – This item shall govern the construction, delivery, installation, testing and start-up of a pre-fabricated booster pump station as shown on the plans. This item shall also include the construction of the foundation for the pre-fabricated booster pump station (including but not limited to excavation, backfill, and piping and conduit penetrations) per the plans and specifications. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications.
2. Measurement – This item shall be measured by the lump sum as the work progresses.
3. Payment – Payment for this item will be made at the contract lump sum price bid for the pre-fabricated booster pump station.

**Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM**

- F. Item No. 11295–12” Pressure Reducing Valve, Vault, and Appurtenances:
1. Description – This item shall govern the construction and installation of a 12” pressure reducing valve in a precast concrete vault as shown on the plans. This item shall include all piping, fittings, valves, and appurtenances inside the vault and outside the vault up to but not including the 12” gate valves located outside of the vault. This item shall also include the construction deliver, and installation (including excavation and backfill) of a precast concrete vault, complete with all ladders, hatches, sumps, pipe penetrations, per the plans and specifications. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications.
 2. Measurement – This item shall be measured by the lump sum as the work progresses.
 3. Payment – Payment for this item will be made at the contract lump sum price bid.
- G. Item No. 11395 – 480 Volt Diesel Engine Generator Set:
1. Description – This item shall govern the furnishing of material and installation of a 480 Volt Diesel Engine Generator Set as shown on the plans and covered in the specifications. This item shall include the manufacture, delivery, installation, testing, and startup of a complete 480 volt diesel engine generator set per the plans and specifications. This item shall include but not be limited to the following items and shall be a complete and functional assembly: electrical equipment, control equipment, conduit, wiring, concrete pad, fuel tank, fuel, batteries, and all other required appurtenances necessary for the proper operation and control of the generator. This item shall also include the construction of the foundation for the generator set (including but not limited to excavation, backfill, and conduit penetrations) per the plans and specifications. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications.
 2. Measurement – This item shall be measured by the lump sum as the work progresses.
 3. Payment – Payment for this item will be made at the contract lump sum price bid.

**Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM**

- H. Item No. 15052 – Booster Station Yard Piping and Fittings (above ground and below ground):
1. Description – This item shall govern the furnishing of material, construction and installation of all yard piping, fittings, and piping supports, and piping appurtenances (above ground and below ground) within the booster station site as shown on the plans and covered in the specifications. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications. This work shall conform to SAWS Standard Specifications, SAWS Standard Material Specifications, Specification Section 15052, and other applicable Sections herein.
 2. Measurement – This item shall be measured by the lump sum as the work progresses.
 3. Payment – Payment for this item will be made at the contract lump sum price bid.
- I. Item No. 15500 – Hydropneumatic Tank System (Suction Side):
1. Description – This item shall govern the furnishing of material, construction and installation of a 5000 gallon hydropneumatic tank system on the suction side of the booster pump station as shown on the plans and covered in the specifications. This item shall include the manufacture, delivery, installation, testing, and startup of a complete hydropneumatic tank system per the plans and specifications. This item shall include but not be limited to the following items and shall be a complete and functional assembly: electrical equipment, control equipment, conduit, wiring, concrete foundations, compressor, tank accessories, magnetic level gauge and transmitter, full enclosure for magnetic level gauge and transmitter, air supply control, air lines, and all other required appurtenances necessary for the proper operation and control of the generator. This item shall also include the construction of the foundation for the hydropneumatic tank and compressor (including but not limited to the excavation, backfill, and piping and conduit penetrations) per the plans and specifications. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications.
 2. Measurement – This item shall be measured by the lump sum as the work progresses.
 3. Payment – Payment for this item will be made at the contract lump sum price bid.

J. Item No. 15500 – Dual Hydropneumatic Tank System (Discharge Side):

1. Description – This item shall govern the furnishing of material, construction and installation of a dual hydropneumatic tank system (5000 gallons each) on the suction side of the booster pump station as shown on the plans and covered in the specifications. This item shall include the manufacture, delivery, installation, testing, and startup of a complete hydropneumatic tank system per the plans and specifications. This item shall include but not be limited to the following items and shall be a complete and functional assembly: electrical equipment, control equipment, conduit, wiring, concrete foundations, compressor, tank accessories, magnetic level gauge and transmitter, full enclosure for magnetic level gauge and transmitter, air supply control, air lines, and all other required appurtenances necessary for the proper operation and control of the generator. This item shall also include the construction of the foundation for the hydropneumatic tanks and compressor (including but not limited to excavation, backfill, and piping and conduit penetrations) per the plans and specifications. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications.
2. Measurement – This item shall be measured by the lump sum as the work progresses.
3. Payment – Payment for this item will be made at the contract lump sum price bid.

K. Item No. 17302 – 12” Magnetic Flow Meter:

1. Description – This item shall govern the furnishing of material, construction and installation of a 12” magnetic flow meter as shown on the plans and covered in the specifications. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications. This work shall conform to SAWS Standard Specifications, SAWS Standard Material Specifications, Specification Section 17302, and other applicable Sections herein.
2. Measurement – Measurement – This item shall be measured by the unit of each 12” magnetic flow meter installed.
3. Payment – Payment for this item will be made at the contract unit price bid per each 12” magnetic flow meter installed.

**Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM**

L. Item No. 17550 – Security System:

1. Description – This item shall govern the furnishing of material and installation of a Security System as shown on the plans and covered in the specifications. This item shall include the manufacture, delivery, installation, testing, and startup of a complete system per the plans and specifications. This item shall include but not be limited to the following items and shall be a complete and functional assembly: cameras, security control equipment, conduit, wiring, antenna, and all other required appurtenances necessary for the proper operation and control of the security system. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications.
2. Measurement – This item shall be measured by the lump sum as the work progresses.
3. Payment – Payment for this item will be made at the contract lump sum price bid.

M. Item No. 20000 – Electrical, Controls, and Instrumentation:

1. Description – This item shall govern the furnishing of material and installation of all electrical, controls, and instrumentation as shown on the plans and covered in the specifications. This item shall include the manufacture, delivery, installation, testing, and startup of all electrical equipment, control equipment, SCADA equipment, conduit, wiring, lighting, grounding, antenna, and instrumentation equipment per the plans and specifications. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications.
2. Measurement – This item shall be measured by the lump sum as the work progresses.
3. Payment – Payment for this item will be made at the contract lump sum price bid.

N. Item No. 30000 – Removable Bollards:

1. Description – This item shall govern the construction and installation of removable bollards as shown on the plans. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications. This work shall conform to the details and specifications in the plans.
2. Measurement – This item shall be measured by the unit of each complete bollard installed.

**Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM**

3. Payment – Payment for this item will be made at the contract unit price bid per each bollard installed.
- O. Item No. 40000 – Antenna Monopole (20’ Tall) and Foundation:
1. Description – This item shall govern the construction and installation of a 20 ft. tall monopole for installation of radio antennas as shown on the plans. This item shall include but not be limited to the construction and installation of the monopole, concrete foundation (including but not limited to excavation, backfill, and conduit penetrations), anchor bolts, appurtenances, and any mounting brackets and hardware necessary for mounting the antennas. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications. This work shall conform to the details and specifications in the plans.
 2. Measurement – This item shall be measured by the lump sum as work progresses.
 3. Payment – Payment for this item will be made at the contract lump sum price bid.
- P. Item No. 50000 – Electrical Canopy Structure and Foundation:
1. Description – This item shall govern the construction and installation of an electrical canopy structure and its associated concrete foundation as shown on the plans. This item shall include but not be limited to the construction and installation of the canopy structure, concrete foundation (including excavation and backfill), and pipe and conduit penetrations. This item shall include all labor, materials, tools, equipment, incidentals, and supervision necessary to complete the work per the plans and specifications. This work shall conform to the details in the plans and the specifications.
 2. Measurement – This item shall be measured by the lump sum as work progresses.
 3. Payment – Payment for this item will be made at the contract lump sum price bid.
- Q. Item No. 60000 –CPS Electrical Service Improvement Allowance (Including and Up to CPS Transformer):
1. Description – This item shall be for all CPS Energy fees and costs billed by CPS Energy for designing and providing new electrical service to the proposed booster site (including but not limited to CPS Energy engineered drawing development, medium voltage

Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM

switchgear and service transformer installation, installation of foundations for switchgear and transformer, and installation of reinforced concrete duct banks, conduits and conductors from existing CPS Energy Manhole to switchgear and transformer).

2. Measurement - Measurement of this item shall be by the lump sum as the work progresses and shall not exceed \$234,000.
3. Payment of the lump sum price shall be made based on the cost of the fees, labor, materials and actual work performed by CPS Energy and the Contractor. Contractor is to pay and be reimbursed actual amount of CPS Energy fees and costs upon submitting evidence in the form of receipts. Payment shall constitute full compensation to the Contractor for all CPS Energy fees and costs incurred for the Crescent Park Booster Station Project.

END OF SECTION

SECTION 3000 HANDLING ASBESTOS CEMENT PIPE

This item shall govern for the removal, handling, disturbance, and disposal of asbestos cement (AC) pipe and other asbestos containing materials (ACM) related to the AC pipe work. AC pipe is also known as transite pipe. Since buried AC pipe typically contains approximately 15% to 20% chrysotile and crocidolite asbestos, it is considered to be an asbestos-containing material. The material is classified as non-friable, unless broken at which time its classification changes to friable ACM. The removal and/or disturbance of this material is governed by the National Emissions Standards for Hazardous Air Pollutants (NESHAP) and the Occupational Safety and Health Administration (OSHA).

3000.1 Description: This item shall consist of the handling, disturbance, removal and disposal of AC water pipe, joints, wrappings and other ACM. In order to comply with NESHAP and OSHA regulations, this project will require workers with specialized training using wet work procedures to cut and remove AC pipe, AC pipe joints, valves (any type) containing ACM and surrounding soils containing ACM. A Texas Department of Health (TDH) licensed Asbestos Consultant shall develop the asbestos work practices and monitoring in the Contractor's Health & Safety Plan to be reviewed by SAWS Environmental Division and City of San Antonio (COSA) Environmental representatives. It is the contractor's responsibility to obtain the services of a licensed Asbestos Consultant authorized in the State of Texas and this work shall be considered subsidiary to this item. Any other ACM encountered that has not been identified by the SAWS inspector or not shown on SAWS plans will be not be authorized for payment. Any other disturbance, handling, or disposal of AC water pipe that is necessary due to authorized work by any other agency will be paid for by that agency under a different special specification and a different bid item number.

To meet and/or exceed NESHAP and OSHA guidelines, the contractor will subcontract the AC water pipe handling to an Environmental Protection Agency (EPA) accredited and TDH licensed Asbestos Abatement Contractor and TDH Licensed Asbestos Consultants.

An alternative method would entail the disturbance, handling, repair, and disposal of the AC pipe by an authorized TDH licensed worker with the required course of an asbestos worker awareness class or a TDH required asbestos training course preparing workers to handle disturbed ACM. Review of the asbestos work practices and monitoring in the Contractor's Health & Safety Plan will still need to be performed by a licensed TDH Asbestos Consultant.

NESHAP guidelines apply to projects with at least 260 linear feet or 35 cubic feet or 160 square feet. NESHAPS also applies when AC pipe becomes or will become “regulated asbestos containing material” or RACM. This means that if at least 260 linear feet of the AC pipe has become crushed, crumbled, or pulverized, then the project is subject to the NESHAP. If the Texas Department of Health (TDH) limit of 260 LF is exceeded, it will be the responsibility of the contractor will be responsible for the TDH administrative fee. The asbestos consultant shall be responsible for submitting the TDH notification with copies also submitted to SAWS Environmental Division and the City of San Antonio Environmental Division, if the quantity of 260 LF is exceeded.

During the disjoining operation of AC pipe removal, only the portion that has become RACM would be counted toward the threshold amount if the debris caused by the disjoining operation is cleaned up so that it does not contaminate a greater length of pipe. If the generated AC pipe debris is not properly cleaned up, then the AC pipe must be considered contaminated, and the whole length is treated as asbestos-containing waste material. If the scope of this project may involve the threshold amount (260 linear feet or greater), then a Demolition/Renovation Notification Form will need to be sent to TDH by the Contractor. This form will need to be post-marked no later than 11 working days prior to the start of any asbestos disturbance.

All AC pipe projects will require that NESHAP and OSHA guidelines are met and/or exceeded in areas where AC pipe is to be disturbed. This means that all AC pipe disturbance will require a third party TDH licensed asbestos consultant and asbestos contractor on-site during AC pipe disturbance. An asbestos abatement work plan shall be provided to SAWS and City representatives by both the licensed asbestos consultant and asbestos contractor. Upon completion of the AC pipe project an air monitoring abatement report shall be required by the contractor’s asbestos consultant. Copies of the final abatement report shall be prepared and submitted to SAWS Environmental Division and COSA Environmental representatives by the contractor’s consultant. OSHA requires that during any ACM disturbance, regardless of amount, the asbestos worker(s) shall be properly protected during potential asbestos exposure, 29 CFR, Subpart Z, 1910.1101.

3000.2 Definitions: The following terms are defined for the nature of this work.

- A. Air Monitoring - The process of measuring the fiber concentration of a known volume of air collected during a specific period of time. The analysis procedure utilized for asbestos is the NIOSH Standard Analytical Method for Asbestos in Air, Method 7400. Transmission electron microscopy (TEM) may be utilized for lower detection limits and/or specific fiber identification.

Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM

- B. Air Monitoring Technician - The person licensed by the Texas Department of Health to conduct air monitoring for an asbestos abatement project or related activity. The Air Monitoring Technician may only obtain air samples, and may only perform analysis of air samples with an upgraded Air Monitoring Technician License, which includes completion of the NIOSH-582 equivalent course. The air-monitoring technician shall be an employee of a licensed asbestos laboratory or a licensed Asbestos Consultant agency.
- C. Amended Water - Water to which a surfactant has been added.
- D. Asbestos - The asbestiform varieties of serpentines and amphiboles. Specifically, chrysotile, crocidolite, grunerite, amosite, anthophyllite, actinolite, and tremolite.
- E. Asbestos Containing Material (ACM) - Material or products that contain more than 1.0% of any kind of asbestos.
- F. Asbestos Containing Waste Material - asbestos containing material or asbestos contaminated objects requiring disposal
- G. Authorized Personnel - Any person authorized by the Contractor and required by work duties to be present in the work area or other regulated areas.
- H. Authorized Visitor – SAWS representatives, and any representative of a regulatory or other agency having jurisdiction over the project.
- I. Asbestos Consultant - That person licensed by the Texas Department of Health to perform the following asbestos related functions:
 - (1) Project design; (2) Asbestos surveys and condition assessment of ACM; (3) Asbestos Management Planning; (4) The collection of bulk material samples, airborne substance samples and the planning of sampling strategies; (5) Owner-representative services for asbestos abatement projects or O&M programs, including air monitoring and project management; (6) Consultation regarding regulatory compliance and all aspects of technical specifications and contract documents; and (7) The selection, fit testing, and appropriate use of personal protection equipment and the development of asbestos related engineering controls.
- J. Abatement Contractor - The company, agency, or entity licensed by the Texas Department of Health that has been retained by SAWS or the Contractor to perform asbestos abatement and other associated functions.

Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM

- K. Class II Asbestos Work (OSHA Standard) – Activities involving the removal of ACM, which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.
- L. Competent Person – One who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them.
- M. Encapsulant - A specific adhesive designed to lock down and minimize the fiber release of asbestos containing materials and asbestos contaminated materials.
- N. Friable Asbestos - Asbestos-containing material, which can be crumbled to dust, when dry, under hand pressure, and includes previously non-friable material after such previously non-friable material becomes damaged to the extent that, when dry, it may be crumbled, pulverized, or reduced to powder by hand pressure.
- O. HEPA Filter - A high efficiency particulate air filter capable of removing particles > 0.3 microns in diameter with 99.97% efficiency.
- P. NESHAP - The National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61).
- Q. NIOSH - The National Institute for Occupational Safety and Health.
- R. OSHA - The Occupational Safety and Health Administration.
- S. Regulated Area – An area established by the Contractor to demarcate areas where asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.
- T. Regulated Asbestos-containing Material (RACM) – (1) Friable asbestos material; (2) Category I non-friable ACM that has become friable; (3) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; or, (4) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by forces expected to act on the material in the course of the demolition or renovation operations regulated by 40 CFR Part 61, Subpart M.

- U. Staging area – A pre-selected area where containerized asbestos containing waste material will be placed prior to removal from the project site.
- V. Surfactant - A chemical wetting agent added to water to improve penetration.

3000.3 Applicable Standards and Guidelines: All work under these specifications shall be done in strict accordance with all applicable Federal, State, and local Regulations, standards, and codes governing asbestos abatement and any other trade work done in conjunction with the asbestos abatement. Work activities must also comply with these and other SAWS and City of San Antonio Specifications related to health and safety.

The most recent edition of any relevant regulation, standard, or code shall be in effect. Where there exists conflict between the regulations, standards, codes, or these specifications, the most stringent requirements shall be utilized.

The Contractor shall comply with, at minimum, the following specific regulations:

- A. Occupational Safety and Health Administration (OSHA) including but not limited to:
 - 1. Title 29 Code of Federal Regulations Section 1910.1001 - General Industry Standard for Asbestos.
 - 2. Title 29 Code of Federal Regulations Section 1910.134 - General Industry Standard for Respiratory Protection.
 - 3. Title 29 Code of Federal Regulations Section 1926 - Construction Industry.
 - 4. Title 29 Code of Federal Regulations Section 1910.2 - Access to Employee Exposure and Medical Records.
 - 5. Title 29 Code of Federal Regulations Section 1910.1200 - Hazard Communication.
- B. Environmental Protection Agency (EPA) including but not limited to:
 - 1. Title 40 Code of Federal Regulations Part 61 Subpart M - National Emission Standard for Asbestos.

- C. Texas Department of Health including but not limited to:
 - 1. Texas Department of Health - Texas Administrative Code, Title 25, Chapter 295, Subchapter C - Texas Asbestos Health Protection.
 - 2. Texas Department of Health - Texas Administrative Code, Title 25, Chapter 325 - Texas Solid Waste Regulations.
 - 3. Texas Department of Health - Texas Civil Statutes, Article 4477-A, Section 12, General Provisions 295.31 to 295.73.
- D. American National Standards Institute (ANSI)
- E. American Society for Testing and Materials (ASTM)
- F. Department of Transportation - HM 181

3000.4 Submittals and Notices

- A. At the Pre-construction Conference/Meeting, all training records, certifications, medical records, and laboratory qualifications will be submitted for review to SAWS Environmental Division and COSA Environmental representatives as well as the following:
 - 1. In order to comply with the SAWS Project Construction Health and Safety Program requirements for any project with the potential to involve friable ACM, the Contractor will be responsible for developing and implementing an asbestos removal work plan in accordance with NESHAP, OSHA, SAWS Special Specifications, Item Number 3000, and state requirements. As such, Contractors submitting bids for the project must have a Texas Department of Health (TDH) licensed Asbestos Consultant provide detailed asbestos specific safety and work plans for ensuring worker and community protection. Plans submitted by the Asbestos Consultant must include the person or firms name, address, phone number and TDH certification. Health and Safety plans for working with ACM must address the guidance provided in these special specifications. The guidance provided in this special specification is not intended and does not constitute asbestos abatement project design as described under TAC 25, Chapter 295.47 (TDH asbestos regulations).
 - 2. Submit documentation satisfactory to SAWS Environmental Division and COSA Environmental representatives that an Initial

and/or Negative Exposure Assessment in accordance with OSHA Standard 29 CFR 1911 has or will be performed (as applicable).

3. Submit documentation satisfactory to SAWS and City representatives that the Contractor's employees, including foremen, supervisors and any other company personnel or agents who may be exposed to airborne asbestos fibers or who may be responsible for any aspects of asbestos disturbance activities, have received adequate training in compliance with applicable rules and regulations.
4. Submit documentation to SAWS and City representatives of a respiratory protection program for affected employees as per OSHA Standard 29 CFR 1910.134.
5. Submit documentation to SAWS and City representatives from a physician that all personnel who may be required to wear a respirator are medically monitored to determine whether they are physically capable of working while wearing the required respiratory protection without suffering adverse health effects. In addition, document that personnel have received medical monitoring as is required in compliance with applicable rules and regulations.
6. Submit to SAWS and City representatives documentation of respirator fit testing for all Contractor employees and agents who must enter the work area. This fit testing shall be in accordance with qualitative procedures as detailed in the OSHA Standard 29 CFR 1910.134. Optionally, the fit testing may be quantitative in nature.
7. Name of OSHA monitoring Consultant/Lab. The Contractor will be responsible for air monitoring as required to meet OSHA Requirements.
8. Submit proof satisfactory to SAWS and City representatives that required permits, site location and arrangements for transport and disposal of asbestos containing waste materials have been made.

B. During Asbestos Disturbance Activities:

1. Submit copies to SAWS Environmental Division and COSA Environmental representatives of all transport manifests, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area during the project. The Contractor

will sign manifests as the SAWS's representative (generator) for the AC pipe and provide copies to SAWS Construction Inspections for final payment.

2. Upon completion of the AC pipe project an abatement report shall be required by the contractor's asbestos consultant. Copies of the final abatement report shall be prepared and submitted to SAWS Environmental Division and COSA Environmental representatives by the contractor's consultant.

3000.5 Construction Requirements

- A. The Work includes all Work specified herein, to include mobilization and demobilization, labor, materials, overhead, profit, taxes, transportation, disposal fees, administrative fees incidental cost, etc. Estimating areas, quantities, weight, etc., are the sole responsibility of the Contractor.
- B. The Contractor shall remove, seal, transport and dispose of all impacted asbestos-containing materials in compliance with all current Federal, State and local regulations, laws, ordinances, rules, standards and regulatory agency recommended requirements. Asbestos disturbance and/or removal activities shall be conducted by properly trained, accredited, and licensed personnel using proper personal protective equipment.
- C. The Contractor shall notify SAWS and City representatives, if applicable, at least 72 hours in advance prior to beginning removal and/or disturbance of the AC pipe. AC pipe disturbance shall be conducted during regular business hours, Monday-Friday. No weekend work of AC pipe disturbance is allowed, unless special circumstances require the contractor to do so.
- D. Time is of the essence in removing the asbestos-containing materials from the project area. All work must be completed within the time period specified. SAWS and the COSA representative will be responsible for coordinating this work in high-density areas, such as schools, church facilities, and residential areas.
- E. All required notifications required to state regulatory agencies will be made by the Contractor with a copies provided to SAWS and City representatives, including but not limited to the TDH Demolition/Renovation Notification Form. If 260 linear feet or greater of AC pipe will become crushed, crumbled or pulverized, then the project is subject to NESHAP regulations and a Demolition/Renovation Notification Form will need to be sent to TDH by the Contractor. This form will need

Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM

to be post-marked no later than 11 working days prior to the start of any asbestos disturbance.

- F. The Contractor shall have an on-site supervisor, who is an OSHA Competent Person, present on the job site at all times that the work is in progress. This supervisor shall be thoroughly familiar with and experienced at asbestos disturbance and other related work and shall be familiar with and shall enforce the use of all safety procedures and equipment. He shall be knowledgeable of all applicable EPA, OSHA, NIOSH and TDH requirements and guidelines.
- G. Prior to commencing any preparation of the work areas for asbestos disturbance, the Contractor shall post all required documents, warning signs and, as necessary, erect physical barriers in order that the work area may be secured.
- H. The Contractor has sole and primary responsibility for the “means and/or methods” of the work and obligation to SAWS to make inspections of the work at all stages and has sole responsibility to supervise the performance of the work. Certain work practices for AC pipe disturbance are prohibited as per Section 3000.10.B.1.
- I. The Contractor shall be responsible for site safety and for taking all necessary precautions to protect the Contractor’s personnel, SAWS and COSA personnel and the public from asbestos exposure and/or injury. The Contractor shall be responsible for maintaining the integrity of the work area.
- J. The Contractor shall confine operations at the site to the area requiring disturbance of AC pipe and the general site area associated with the proximity of the project. Portions of the site beyond areas on which the indicated work is required are not to be disturbed. The Contractor will not unreasonably encumber the site with materials or equipment. If asbestos containing waste materials are required to be stored overnight, it will be properly labeled, secured, and containerized to preclude unauthorized disturbance of the waste materials.
- K. The Contractor shall be responsible for the transport and disposal of asbestos containing waste materials to a duly licensed landfill facility permitted to accept asbestos waste. The Contractor shall be responsible for obtaining and coordinating waste disposal authorization from a TCEQ licensed landfill. Waste manifests shall be used to transport the AC pipe from the project site to the final landfill disposal site. The Contractor will sign manifests as the SAWS’s representative (generator) for the AC pipe and provide copies to SAWS Construction Inspections for final payment.

3000.6 Site Security

- A. The Contractor shall demarcate the area of AC pipe disturbance (“regulated area”) with barrier tape and warning signs, as per OSHA regulation 29 CFR 1926.1101. Access to the regulated area will be limited to only authorized personnel. Authorized personnel will have to have asbestos awareness training, respiratory training, etc. including SAWS and COSA personnel.
- B. Entry into the work area by unauthorized individuals shall be reported immediately to SAWS and COSA representatives by the Contractor.
- C. A logbook shall be maintained immediately outside of the regulated area. Anyone who enters the regulated area must record name, affiliation, time in, and time out for each entry

3000.7 Personal Protective Equipment

- A. All work which will or may disturb asbestos-containing materials as specified shall be accomplished utilizing, as a minimum disposal suits with protective head cover, gloves, boots, eye protection, proper respiratory protection, decontamination by HEPA vacuuming and/or wet methods and wet wiping all equipment. The Contractor shall provide hard hats and/or other protection as required for job conditions or by applicable safety regulations. Disposal suits consisting of material impenetrable by asbestos fibers shall be provided to all workers and authorized visitors in sizes adequate to accommodate movement without tearing. Workers will be provided protective clothing from the time of first disturbance of asbestos-containing or contaminated materials until final cleanup is completed.
- B. Respiratory Protection: The Contractor shall use removal techniques, methods and equipment which will not permit the fiber count to exceed the OSHA Permissible Exposure Level (PEL) of 0.1 fibers per cubic centimeter (f/cc) of air as detected by personal air sampling methods. Any remedial measures taken by the Contractor to meet this requirement will be at the Contractor’s expense.
 - 1. The Contractor’s Competent Person shall ensure use of the appropriate respiratory protection for the work being performed. For minimum legal respiratory requirements, see OSHA Standards 29 CFR 1910.134, 29 CFR 1910.1001, and 29 CFR 1926.1101. All respiratory equipment, such as respirators, filters, etc. shall be certified by the National Institute of Occupational Safety and Health (NIOSH) for use in asbestos contaminated atmospheres.

2. The Contractor's Competent Person shall perform an Initial and/or Negative Exposure Assessment, which shall be performed on employees who have been trained in compliance with the OSHA regulations. Employees exposures shall be collected using objective data that is to demonstrate whether the materials specified for removal can release airborne fibers in concentration levels exceeding 0.1 fibers per cubic centimeters (f/cc) during an eight-(8) hour time weighted average (TWA) and the excursion limit of 1.0 f/cc. For the purpose of the assessment, the work conditions should be those having the greatest potential for releasing asbestos fibers. Removal methods using conventional hand tools shall be performed in an area that requires a minimum of a seven-(7) hour work shift with employees performing functions normally required for a total project. Removal, for the purposes of the assessment, should be performed with methods most likely to release fibers and that do not render the asbestos-containing materials friable. Properly trained employees shall wear proper protective clothing and respirators during the assessment. Initial and/or Negative Exposure Assessments shall be performed in accordance with OSHA Standard 29 CFR 1926.1101.

The development of the Health & Safety Plan by the Contractor's TDH licensed Asbestos Consultant shall include determining the adequacy of the Contractor's air monitoring data (which must be performed within the previous 12 months of the project start date) for the Initial and/or Negative Exposure Assessment, based in part on site-specific factors such as changes in personnel or work methods used during AC pipe removal. If this type of air monitoring data needs to be reviewed during the course of a project, the Contractor's Asbestos Consultant shall review the data in order to determine if it is adequate. Any downgrade in personal protective equipment related to asbestos exposure shall be requested in writing to SAWS Health & Safety Department, the COSA Environmental Services Department, and approved by a TDH licensed Asbestos Consultant. This request may be granted only when all regulations and pertinent sections of this special specification for respiratory protection are met.

3. The Contractor shall begin AC pipe removal operations (i.e., breaking, sawing, cutting, or repairing the pipe) in powered air purifying respirators (PAPRs) equipped with dual HEPA filters. PAPRs will be utilized until such time that air monitoring results indicate that half-face respirators may be used. Any changes (downgrade or upgrade) in respiratory protection will be based

upon an 8-hour time weighted average (TWA) of fiber concentrations in the regulated area. Eight hour TWA's will be calculated daily by the Contractor's OSHA monitoring firm, for personal samples. The highest calculated 8 hour TWA shall be used to determine the type of respirator to be worn. The type of respirators worn will be selected in accordance with 29 CFR 1926.1101 (h) (3).

The Contractor may request a respiratory protection downgrade, approved by a TDH licensed Asbestos Consultant, in writing to SAWS Health & Safety Department and COSA Environmental Services Department when all regulations and pertinent sections of this special specification for respiratory protection are met.

4. Workers shall be provided with personally issued, individually identified respirators.
5. No one wearing a beard shall be permitted to wear a respirator.

3000.8 Air Monitoring

- A. **Personal Air Monitoring:** The Contractor shall provide personal air sampling as required by OSHA regulations. The OSHA TWA permissible exposure limit (PEL) for asbestos (0.1 f/cc) shall not be exceeded. Personal air samples shall be obtained by a TDH licensed Asbestos Air Monitoring Technician and analyzed by an accredited, independent TDH licensed Phase Contrast Microscopy (PCM) laboratory. OSHA monitoring results shall be posted at the project site and made available to all affected Contractor personnel on a daily basis.
- B. The Contractor shall provide, as a minimum, personal air monitoring on each worker who is cutting, (wet) sawing, breaking, or repairing the AC pipe.
- C. **Area Air Monitoring:** At any time that visible airborne fibers are generated or that wet work procedures are not used, all work will immediately cease until air monitoring by a TDH-licensed Asbestos Consultant Agency has started. The Contractor's on-site Competent Person shall be responsible for making this determination; however, periodic, random site visits by SAWS and COSA Inspectors will field-verify the objectivity of the Competent Person in these matters. Once initiated, the sampling and frequency of the area air monitoring will be dependent upon on the specific work practices being used by the workers at that time. However, the area air monitoring shall include, as a minimum, samples collected inside the regulated area, and upwind and downwind of the regulated area.

The TDH licensed Asbestos Consultant Agency hired by the Contractor shall determine the need for additional samples and shall amend the Health & Safety Plan (with a copy to SAWS and COSA) to include sampling protocols.

- D. Area air monitoring shall be conducted in accordance with applicable Federal, State, and local requirements. The cost of area air monitoring due to failure to use adequate wet work procedures will be borne by the Contractor. Copies of all results will be provided to SAWS and City representatives.
- E. Area air sampling shall be mandatory in high density areas such as schools, residential areas, and certain other locations as determined by SAWS Environmental Division and COSA Environmental representatives and made clear in individual SAWS bid documents/plans.

3000.9 Employee Training

- A. Training shall be provided by the Contractor to all employees or agents who may be required to disturb asbestos containing or asbestos contaminated materials for AC pipe handling and auxiliary purposes and to all supervisory personnel who may be involved in planning, execution or inspection of such projects. The training shall be in accordance with OSHA Standard 29 CFR 1926.1101 for “Class II asbestos work”.
- B. At a minimum, Contractor employees who will be potentially exposed to asbestos shall have completed within the last 12 months, an 8-hour Asbestos Awareness training course taught by a TDH licensed Asbestos Training Provider. The training course shall cover topics including, but not be limited to: the health effects of asbestos and work practices related to the handling of AC pipe.
- C. The Contractor’s Competent Person shall have completed within the last 12 months, a 40-hour Asbestos Contractor Supervisor training course taught by a TDH licensed Asbestos Training Provider. The training course shall cover topics including, but not be limited to: the health effects of asbestos, employee personal protective equipment, medical monitoring requirements for workers, air monitoring procedures and requirements for workers, work practices for asbestos abatement, personal hygiene procedures, special safety hazards that may be encountered, and other topics as required.

3000.10 AC Pipe Handling:

- A. General: The Contractor shall properly remove, handle, transport and dispose of all AC pipe specified in the SAWS bid documents/plans for this project. All work involving AC pipe and other ACM products must be addressed in Health and Safety Program documents submitted to SAWS and COSA representatives. To comply with the SAWS and COSA Project Construction Health and Safety Program, Contractors submitting bids for the project must have a TDH licensed Asbestos Consultant provide detailed asbestos specific safety and work plans for ensuring worker and community protection. Health and Safety Program plans are to include provisions for the discipline of any worker failing to use wet work procedures or failing to use designated personnel protective equipment.

The Contractor shall remove ACM with wet methods or by other controlled techniques approved by the TDH, EPA, and OSHA and in accordance with these specifications and the Contractor-provided Health & Safety Plan. Alternative removal methods must be approved at time of the Contractor's submittals. The Contractor shall take special care to prevent damage to the adjacent structures, materials and finished materials not required for demolition to access ACM.

The Contractor shall limit his use of the premises to the work area indicated. Access to the work area shall be controlled by the Contractor. All electrical equipment, etc., shall have ground fault circuit interrupter (GFCI) protection. The Contractor shall properly demarcate, barricade and contain the work and/or regulated areas.

The work consists of providing GFCI protection, the use of approved equipment with engineering controls, sufficiently wetting the asbestos-containing materials using a surfactant or lock-down encapsulant, removing the asbestos-containing materials, HEPA vacuuming the work area, wet wiping the work area, double-bagging/double-wrapping the waste and removing carefully as indicated herein and in accordance with the Contractor-provided Health & Safety Plan.

- B. Equipment: Equipment used to cut, break, or otherwise disturb AC pipe and associated asbestos-containing materials may include, but are not limited to: wet-cutting saws, saws equipped with point of cut ventilator (saw equipped with a water mister) or enclosures with HEPA filtered exhaust air, snap cutters, manual field lathes, pressure and non-pressure tapping devices.

Equipment used to either control visible emissions of fibers, contain the work area, or facilitate the clean-up of debris may include, but are not

limited to: airless spray equipment, pump-up sprayers, surfactant, lock-down encapsulant, HEPA vacuums, brushes, brooms, shovels, disposable rags, polyethylene sheeting of 6-mil thickness, moisture resistant duct tape, asbestos warning signs, notices and barrier tape.

Alternative dismantling equipment may be substituted for the materials indicated herein, but must be approved by the SAWS Health & Safety Office and/or COSA Environmental Service Department.

1. Prohibited Work Practices and Engineering Controls: the following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM, regardless of asbestos exposure or the results of Initial Exposure Assessments:
 - a. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
 - b. Other high-speed abrasive tools, such as disk sanders.
 - c. Carbide-tipped cutting blades.
 - d. Electrical drills, chisels, and rasps used to make field connections in AC pipe.
 - e. Shell cutters used to cut entry holes in AC pipe.
 - f. A hammer and chisel used to remove couplings or collars on AC pipe.
 - g. Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud generated by the compressed air.
 - h. Dry sweeping, dry shoveling or other dry clean-up of dust and debris containing ACM.
 - i. Employee rotation as a means of reducing employee exposure to asbestos.

- C. General Removal Work Practices: AC pipe has been identified as a non-friable ACM with the potential to become friable ACM. The material is classified as non-friable, unless broken at which time its classification changes to friable. NESHAP guidelines apply to projects with at least 260

Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM

linear feet or 35 cubic feet or 160 square feet. NESHAPS also applies when AC pipe becomes or will become “regulated asbestos containing material” or RACM. This means that if at least 260 linear feet of the AC pipe has become crushed, crumbled, or pulverized, then the project is subject to the NESHAP. During the disjoining operation of AC pipe removal, only the portion that has become RACM would be counted toward the threshold amount if the debris caused by the disjoining operation is cleaned up so that it does not contaminate a greater length of pipe. . If the generated AC pipe debris is not properly cleaned up, then the AC pipe must be considered contaminated, and the whole length is treated as asbestos-containing waste material. If the scope of this project may involve the threshold amount (260 linear feet or greater), then a Demolition/Renovation Notification Form will need to be sent to TDH by the Contractor. This form will need to be post-marked no later than 11 working days prior to the start of any asbestos disturbance.

All AC pipe projects will require that NESHAP and OSHA guidelines are met and/or exceeded in areas where AC pipe is to be disturbed. This means that all AC pipe disturbance will require a third party TDH licensed asbestos consultant and asbestos contractor on-site during AC pipe disturbance. An asbestos abatement work plan shall be provided to SAWS and City representatives by both the licensed asbestos consultant and asbestos contractor. Upon completion of the AC pipe project an air monitoring abatement report shall be required by the contractor’s asbestos consultant. Copies of the final abatement report shall be prepared and submitted to SAWS and COSA representatives by the contractor’s consultant. OSHA requires that during any ACM disturbance, regardless of amount, the asbestos worker(s) shall be properly protected during potential asbestos exposure, 29 CFR, Subpart Z, 1910.1101.

In order to comply with SAWS Project Construction Health and Safety Program requirements for any project with the potential to involve friable ACM, the Contractor will be responsible for developing and implementing an asbestos removal work plan in accordance with NESHAP, OSHA, and state requirements. As such, Contractors submitting bids for the project must have a TDH licensed Asbestos Consultant provide detailed asbestos specific safety and work plans for ensuring worker and community protection. Health and Safety plans for working with ACM must address the guidance provided in these special specifications.

- D. A sufficient supply of disposable rags for work area decontamination shall be available.

- E. Disposal bags for RACM shall be of true 6-mil polyethylene, pre-printed with labels as required by EPA regulation 40 CFR 61.152 (b)(i)(iv) or OSHA requirement 29 CFR 1926.1101(k)(8).
- F. Stick-on labels identifying the Generator's name (SAWS) and address and the project site location shall be applied to any asbestos waste bags that contain RACM, as per EPA or OSHA and Department of Transportation HM 181 requirements.
- G. Work Area Preparation: Post warning signs and barrier tape meeting the specification of OSHA 29 CFR 1910.1001 and 40 CFR 61 at any location and approaches to a location where airborne concentrations of asbestos may exceed the PEL. Signs shall be posted at a distance sufficiently far enough away from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Maintain constant security against unauthorized entry past warning signs and barrier tape. Signs will be in both English and Spanish.
- H. Personnel exit procedures
 - 1. Before leaving the work area all personnel shall remove gross contamination from the outside of respirators and protective clothing by brushing and/or wet wiping procedures. (Small HEPA vacuums with brush attachments may be utilized for this purpose.) Adequate washing facilities shall be provided and utilized on-site.
 - 2. Upon completion of the work, contaminated gloves shall be disposed of as asbestos contaminated waste. Disposable cloth gloves may be substituted for leather gloves, at the Contractor's discretion. (Rubber boots may be decontaminated at the completion of the project.)
- I. Specific Removal Work Practice Requirements
 - 1. The Contractor has sole and primary responsibility for the "means and/or methods" of the work and obligation to SAWS and COSA to make inspections of the work at all stages and has sole responsibility to supervise the performance of the work.
 - 2. The Contractor shall isolate the regulated area with barrier tape and asbestos warning signs.
 - 3. The Contractor shall lay and secure 6-mil polyethylene sheeting on the ground on both sides of the AC pipe for the length of the work area.

4. Working within the regulated area, using wet removal methods, the Contractor shall thoroughly soak each section of AC pipe to be disturbed, prior to any removal activity, with a surfactant or lock-down encapsulant. The Contractor shall use equipment capable of producing a “mist” application to reduce the potential for release of fibers. The Contractor shall take care to use as much encapsulant or surfactant as needed in order to lockdown possible fallout debris from edges and joints during removal. Provide continuous wetting of the materials throughout the entire removal process. The Contractor shall take care to limit the breakage of asbestos containing materials and remove these materials as intact as possible.
5. Any AC pipe debris on adjacent surfaces shall be removed. The Contractor shall promptly clean up asbestos wastes and debris following AC pipe disturbance. Remove and containerize all visible accumulations of asbestos containing material and asbestos-contaminated debris by hand. Asbestos debris mixed with soil may be picked up with shovels, with the contaminated soil being containerized as a regulated ACM waste. Clean-up activities may also involve vacuum cleaners equipped with HEPA filtration or wet-wiping surfaces with disposable rags. Contaminated rags shall be containerized as a regulated ACM waste.
6. After disturbance and clean-up activities and prior to removal of the AC pipe from the regulated area, the Contractor shall encapsulate damaged and exposed areas and ends of the AC pipe with a lock-down encapsulant.
7. The Contractor may now remove the Category II non-friable asbestos-containing material “that is not in poor condition and is not friable” as defined in NESHAP regulations. The Contractor shall remove all AC pipe “intact” and in whole complete sections by carefully lifting the AC pipe to the disposal container using approved equipment. The Category II non-friable AC pipe must not become “friable” (crumbled, pulverized, or reduced to a powder). The Contractor shall not drop, break and/or otherwise make the AC pipe susceptible to release asbestos fibers. If these procedures are followed and debris is cleaned up properly, then the Category II non-friable AC pipe may be disposed of as nonregulated asbestos-containing waste material.

8. Pieces of AC pipe debris shall be considered RACM and handled as regulated ACM waste. The debris shall be placed in two 6-mil asbestos bags or double wrapped, with proper labeling.

- J. Abandonment of AC water mains/pipes: The Contractor is responsible for isolating the existing mains to remain in service by capping, plugging and blocking as necessary. The opening of an abandoned ac water main and all other openings or holes shall be blocked off by manually forcing cement grout or concrete into and around the openings in sufficient quantity to provide a permanent watertight seal. Abandonment of old, existing AC water mains will be considered subsidiary to the work required, an no direct payment will be made.

- K. Abandonment of Valves that contain ACM: Valves to be abandoned in the execution of the work shall have the valve box and extension packed with sand to within eight (8") inches of the street surface. The remaining eight (8") shall be filled with 2,500 psi concrete or an equivalent sand-cement mix and finished flush with the adjacent pavement or ground surface. The valves covers shall be salvaged and return to SAWS. The abandonment of valves containing ACM will be considered subsidiary to the work required, and no direct payment will be made.

- L. Verification of Removal & Clean-up Procedures: The Contractor's on-site Competent Person shall inspect the work area and ensure that all surfaces are free of AC pipe dust and debris.

- M. Disposal Procedures
 1. If a dumpster/trailer is used for temporary storage it will be secured and closed at all times except when loading. It will be properly marked and critical barrier tape will be in place.
 2. AC pipe debris and asbestos-contaminated items shall be properly double bagged, labeled and loaded in a fully enclosed, lined, locked and placard transport container and transported and disposed of in compliance with all regulatory requirements as RACM.
 3. After being removed from the regulated area, Category II non-friable AC pipe shall be transferred to a polyethylene-lined container. Remove all containers as soon as practical, but no later than the end of the work shift.
 4. When the dumpsters/trailers are full, they will be hauled away to the closest EPA approved landfill for proper disposal. The

Crescent Park Booster Station Project
Job No. 12-6006
Solicitation No. B-12-043-CM

Contractor may dispose of the Category II non-friable AC pipe waste material as non-regulated waste in a municipal solid waste landfill as defined in the NESHAP and TCEQ Rule (Type I Landfill). Written approval to transport and accept the Category II non-friable material shall be obtained from a pre-approved transporter and landfill and submitted to SAWS and City representatives prior to disposal.

5. Submit copies to SAWS and City representatives of all transport manifests, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area during the project. The Contractor will sign manifests as the SAWS's representative (generator) for the AC pipe and provide copies to SAWS Construction Inspections for final payment.

QUANTITIES

103.1	Remove Concrete Curb	LF	43
104.1	Excavation	CY	650
107.1	Embankment (Final)(Density Control)(TY A)	CY	350
200.1	Flex Base (Complete In Place) (TY A GR 2) (6" Compacted Depth)	SY	1550
205.2	Hot Mix Asphaltic Pavement Type B (10" Pavement Thickness)	SY	300
205.4	Hot Mix Asphaltic Pavement Type D (2" Pavement Thickness)	SY	600
208.1	Salvaging, Hauling & Stockpiling Reclaimable Asphaltic Pavement (2" Depth)	SY	600
209.1	Concrete Pavement (8" Depth)	SY	275
234.1	Base Reinforcement - TENSAR TriAx (TX-5) Geogrid	SY	1950
410.2	Limestone Gravel (1 1/4" x 3/4") (4" Compacted Depth) (Complete In Place)	CY	175
500.4	Concrete Curb and Gutter	LF	17
515.1	Topsoil (4" Depth)	CY	145
516.1	Bermuda Sodding	SY	430
530.1	Barricades, Signs & Traffic Handling	LS	1
540.6	Construction Exits (Install) (TY 1)	SY	120
540.6	Construction Exits (Remove) (TY 1)	SY	120
540.7	Construction Perimeter Fence	LF	660
540.9	Temporary Sediment-Control Fence	LF	775
540.10	Curb Inlet Gravel Filters	LF	50
550	Trench Excavation Safety Protection	LF	1428
802.1	Level II A Protective Fencing Tree Protection	LF	480
814	12" Ductile Iron Pipe Waterline (Restrained as Required)	LF	9
814	16" Ductile Iron Pipe Waterline (Restrained as Required)	LF	3
818	8" PVC Waterline (Restrained as Required)	LF	8
818	12" PVC Waterline (Restrained as Required)	LF	786
818	16" PVC Waterline (Restrained as Required)	LF	172
828	12" Gate Valve	EA	4
828	16" Gate Valve	EA	1
831	16" X 16" Tee Cut-In	EA	1
836	Pipe Fittings, All Sizes And Types	TON	2.93
840	8" Water Tie-Ins	EA	1
840	12" Water Tie-Ins	EA	1
841	Hydrostatic Testing	EA	1
844	2" Blowoff, Temporary	EA	1
856.1	24" Jacking, Boring, and Tunneling	LF	40
856.2	12" Carrier Pipe For Jacking, Boring, Tunneling	LF	40
856.3	24" Steel Casing	LF	40
3000.1	Removal, Transportation And Disposal Of AC Pipe	LS	1
3000.2	Asbestos Abatement Work Plan	EA	1
04300	Masonry Wall (10' Height)	LF	520
04400	Double Swing Vehicular Gate (10' Height)	LS	1
11215	Pre-Fabricated Booster Pump Station	LS	1
11295	12" Pressure Reducing Valve, Vault and Appurtenances	LS	1
11395	480 Volt Diesel Engine Generator Set	LS	1
15112	12" Butterfly Valve	EA	4
15112	16" Butterfly Valve	EA	4
15500	Hydropneumatic Tank System (Suction Side)	LS	1
15500	Dual Hydropneumatic Tank System (Discharge Side)	LS	2
15052	Booster Station Yard Piping and Fittings (aboveground and below ground)	LS	1
17302	12" Magnetic Flow Meter	EA	1
17550	Security System	LS	1
20000	Electrical, Controls and Instrumentation	LS	1
30000	Removable Bollards	EA	35
40000	Antenna Monopole (20' Tall) and Foundation	LS	1
50000	Electrical Canopy Structure and Foundation	LS	1
60000	CPS Electrical Service Improvements Allowance (Including and up to CPS Transformer)	LS	1

WATER GENERAL NOTES:


- NO METER BOXES TO BE SET IN DRIVEWAYS. ANY METER BOXES SET IN DRIVEWAYS SHALL BE RELOCATED BY CONTRACTOR AT CONTRACTOR'S EXPENSE.
- WORK COMPLETED BY CONTRACTOR WHICH HAS NOT RECEIVED A WORK ORDER OR THE NOTICE TO PROCEED WITH THE SAN ANTONIO WATER SYSTEM CONSTRUCTION INSPECTION DIVISION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.
- BURIED WATER PIPING TO BE RESTRAINED, OUTSIDE THE BOOSTER STATION SITE AT LENGTHS NOTED ON SHEET W3 AND W4. RESTRAINED LENGTH CALCULATIONS ARE FOR P.V.C. PIPE BEDDED IN COMPACTED GRANULAR MATERIAL EXTENDING TO THE TOP OF THE PIPE. THE NATIVE SOIL MATERIAL IS ASSUMED TO BE INORGANIC CLAY OF HIGH PLASTICITY. DEPTH OF COVER IS ASSUMED TO BE 4 FEET. NOTE: THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTHS SHALL BE DESIGNED BASED UPON THE CONDITIONS ENCOUNTERED DURING THE INSTALLATION. SEE SAWS SPECIFICATION BOOK.
- ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE AND WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCUR. PAYMENT FOR SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".
- CONTRACTOR SHALL HTH CHLORINATE NEW WATER MAINS.
- NSPI STANDS FOR NO SEPARATE PAY ITEM.
- FOR CONSTRUCTION DETAILS OF APPLICABLE ITEMS WITHIN THE PLAN SET, SEE CURRENT SAWS SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION.
- ALL ABOVE GROUND VALVES SHALL OPEN LEFT. ALL BURIED VALVES SHALL OPEN RIGHT.
- PRIOR TO RELEASE FOR SERVICE, CONTRACTOR SHALL COORDINATE WITH SAWS OPERATIONS FOR OPENING OF THE DIVISION VALVE LOCATED ON CRESCENT LEDGE TO THE NORTHEAST OF THE PROJECT LIMITS.

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LNV
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8918 TESORO DR., STE. 401 PH. (210) 822-2232
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STATE OF TEXAS
JULIAN P. BIELAWSKI
84456
PROFESSIONAL ENGINEER
Julian P. Bielawski 10-30-12

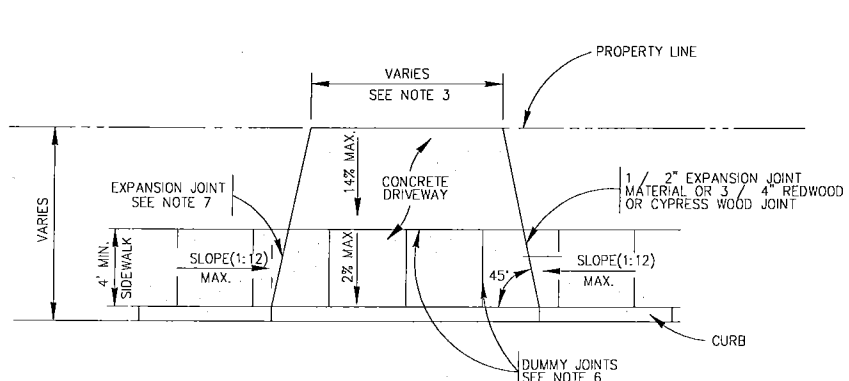
NO.	REVISION	DRAWN	APPROVED	DATE
△	ADDENDUM NO. 3		SHT	10/24/12
△	ADDENDUM NO. 4		SHT	10/29/12

REVISION
 SAN ANTONIO WATER SYSTEM

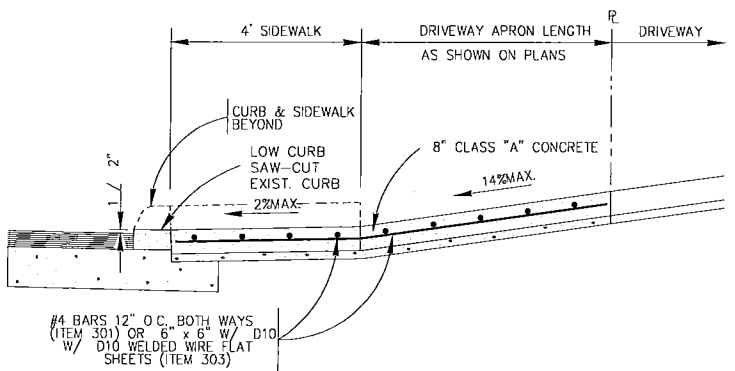
CRESCENT PARK BOOSTER STATION
WATER GENERAL NOTES AND QUANTITIES
SAN ANTONIO, TEXAS

DEVELOPER: SAWS		
CONT.	BUDGET PROJ.	
SUBMITTED		
APPROVED		
MAP NO.	SCALE: N.T.S.	SHEET
SECT. NO.		W1
DR.	CK.	JOB NO. 12-6006

S:\PROJECTS\SAWS\110328 - SAWS 2011 ENG DESIGN SRVS REPLMNT & IMP\020 CRESCENT PARK BOOSTER STATION\DRAWINGS\PLANS\CIVIL\103280202SPD01.DWG PLOT DATE:10/29/2012 11:25 AM PLOT BY:AVICUNA



TYPICAL DRIVEWAY PLAN VIEW WITH SIDEWALK ABUTTING CURB



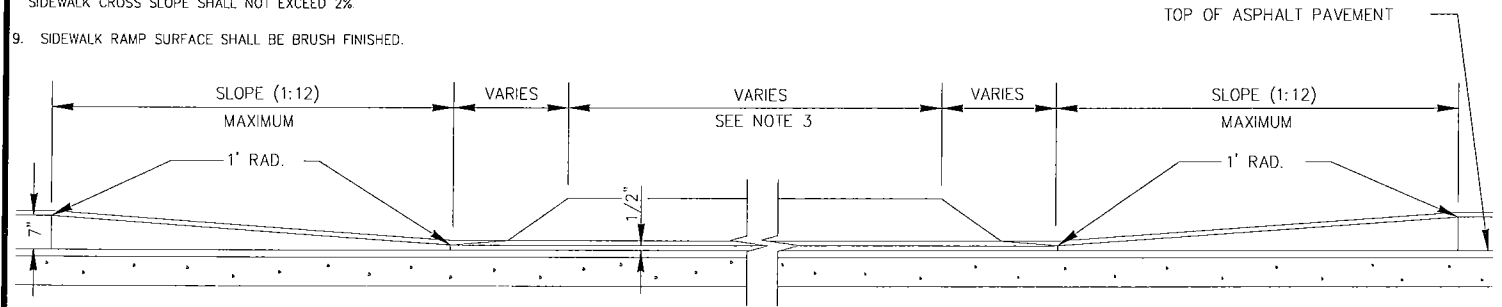
TYPICAL COMMERCIAL DRIVEWAY SECTION WITH SIDEWALK ABUTTING CURB

CONCRETE DRIVEWAY NOTES

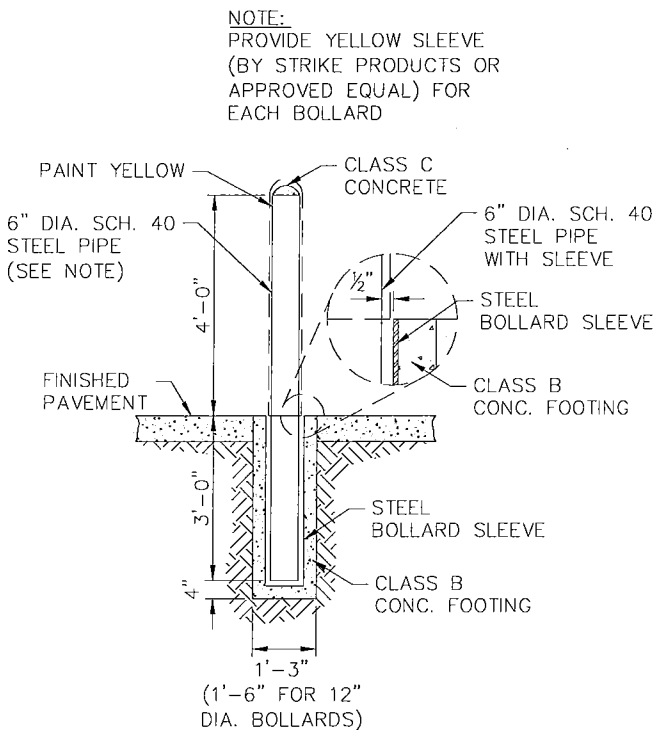
- DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
 - CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.1 OR 503.2
 - ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE
 - GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO. 503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE
- 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
- THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

TYPE	MINIMUM	MAXIMUM
RESIDENTIAL	10'	20'
COMMERCIAL - ONE WAY	12'	20'
COMMERCIAL - TWO WAY	24'	30'

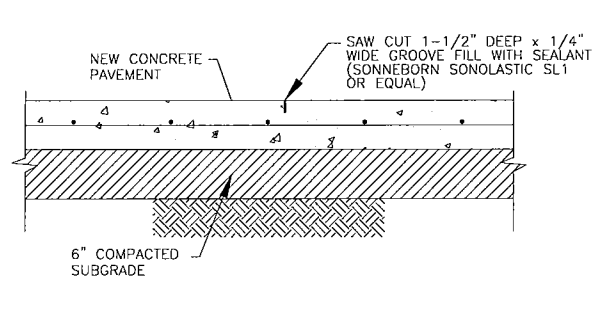
- FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 2' FROM THE BACK OF CURB.
- FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 2' FROM THE BACK OF CURB OR, AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
- DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
- A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3/8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
- SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
- SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



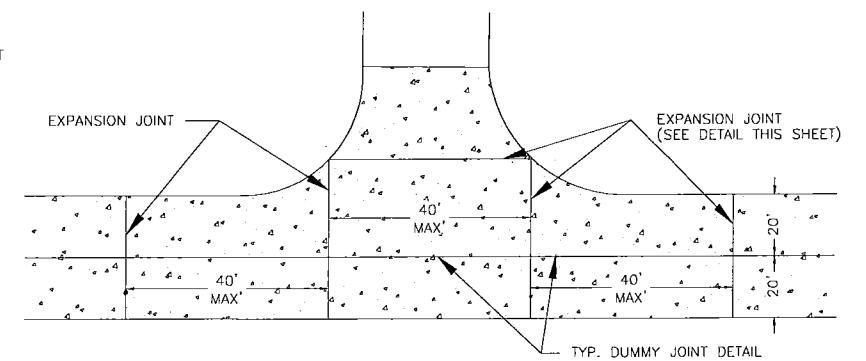
1 CURB PROFILE AT DRIVEWAY WITH SIDEWALK ABUTTING CURB



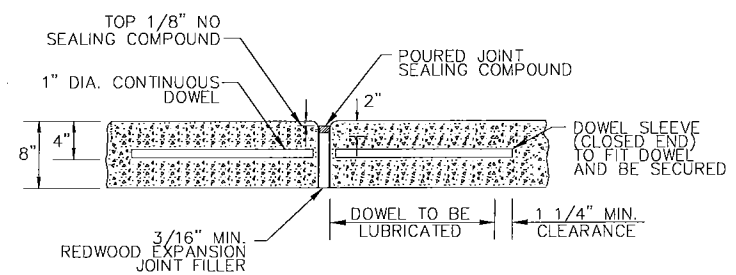
2 REMOVABLE BOLLARD DETAIL



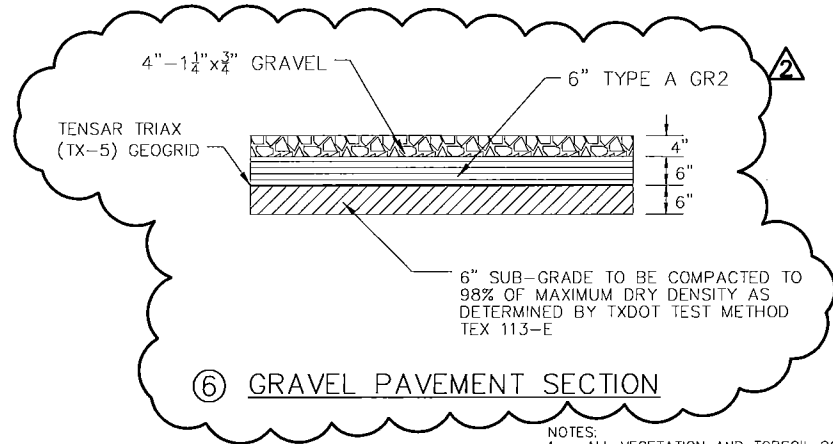
3 TYP. DUMMY JOINT DETAIL



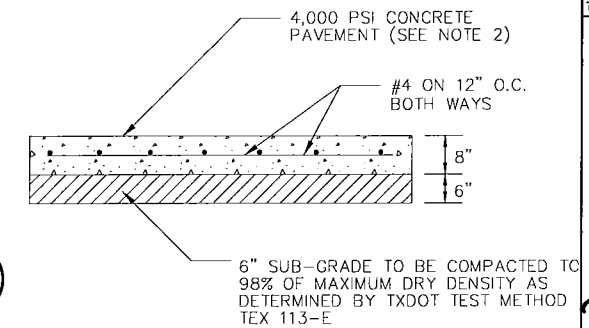
4 TYP. JOINT LOCATIONS FOR CONCRETE PAVEMENT



5 CONCRETE EXPANSION JOINT



6 GRAVEL PAVEMENT SECTION



7 CONCRETE PAVEMENT SECTION

- NOTES:
- ALL VEGETATION AND TOPSOIL CONTAINING ORGANIC MATERIAL SHOULD BE CLEARED AND GRUBBED AT THE BEGINNING OF EARTHWORK CONSTRUCTION.
 - CLASS A CONCRETE PAVEMENT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
 - EXPANSION JOINTS SHALL BE SPACED AT A MAXIMUM OF 40' ON CENTER AND THE DUMMY JOINTS SHALL BE SPACED AT A MINIMUM OF 20' ON CENTER.
 - THE NATURAL GROUND OR FINISHED GRADE AROUND THE PROPOSED CONCRETE PAVEMENT SHALL BE TRANSITIONED NOT TO EXCEED A 4:1 SLOPE.

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99241
PROFESSIONAL ENGINEER

NO.	REVISION	DRAWN	APPROVED	DATE
A	ADDENDUM NO. 4	SHT		10/29/12

SAN ANTONIO WATER SYSTEM

CRESCENT PARK BOOSTER STATION
SITE PLAN DETAILS
SAN ANTONIO, TEXAS

DEVELOPER: SAWS		BUDGET PROJ.	
SUBMITTED		APPROVED	
MAP NO.	SCALE: N.T.S.	SHEET C2	
SECT. NO.	DR. CK.	JOB NO. 12-6006	