



SAWS Central Sewershed Small Diameter Package 5 - CIPP
Solicitation Number: CO-00374
Job No.: 20-4524

ADDENDUM 1
September 25, 2020

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bid proposal, plans and specifications 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 on the space provided in submitted copies of the bid proposal.

RESPONSES TO QUESTIONS

1. **Question:** Are there pipe inspection videos available for this project? If so, please provide the Disclosure Form and any instructions necessary for the bidders to access them.
Response: Pipe inspection videos will be provided to the low bidder after the bid opening.
2. **Question:** The electronic bid instructions state that the itemized list of bid items must be the first document in the bid file, but the bid packet checklist indicates documents must be included in the order shown on the checklist, which does not show the list of bid items as the first document. Which is correct?
Response: The bid packet instructions are correct. See changes to attached revised Bid Package Checklist.
3. **Question:** Should the unit of measure for bid item no. 23 for tree and landscape protection (level IIB) be per each (EA) instead of per linear foot (LF)?
Response: Tree protection shall be measured by linear foot per COSA Tree and Landscape Protection Specification 801. See attached Special Specification 801 Tree and Landscape Protection.
4. **Question:** Bid item no. 50 for utility pole bracing is shown to be an allowance item, but it does not state the bid pricing to be used for that item. Typically allowance items are bid with prices set by the Owner. Should bid item 50 have a set price?
Response: Contractor shall determine what the allowance for pole bracing will be based off the estimated number of poles to be braced during construction. Only amount specified in allowance will be paid per the special conditions (SC3).
5. **Question:** Bid item no. 54 for preparing ROW is shown to be limited to 10% of items 1-52. Normally SAWS sets the limit for this item at 5%. Should the limit for this item be 5%, or is the 10% limit that is shown correct for this bid?
Response: The Bid Proposal Table erroneously denotes the bid item no. 54 Preparing Right-of-Way line item at Max 10% of Items 1 to 52. The correct line item should specify a Max 5% of Items 1 to 52. Bid item No. 54 has been adjusted from 10% to 5%. See Table.
6. **Question:** Right-of-entry agreements have not been provided with the bid documents, but while some of the specification language seems to indicate the ROE agreements have yet to be

obtained by SAWS, there are other specifications that instruct the Bidders to review these agreements and comply with their provisions. Please clarify when the ROE agreements required for the project will be provided.

Response: ROE agreements for the sites specified in the special conditions (SC5) are currently being negotiated by SAWS Real Estate. There is no set timeline for when ROE agreements will be procured, the Contractor shall coordinate with SAWS and prioritize all other sites while ROE agreements are obtained.

7. **Question:** Can the owner please let us know the flow data in the lines to be CIPP lined.

Response: SAWS does not maintain flow data for sanitary sewer lines 12" in diameter and under. See SAWS Specification 865 for small diameter bypass pumping requirements.

CHANGES TO THE SPECIFICATIONS

1. Remove the Table of Contents in its entirety and replaced with the attached.
2. Remove the Bid Proposal in its entirety and replace with the version attached to this Addendum. Bidders should use this revised version when submitting a bid for this project.
3. Insert Special Specification 801 Tree and Landscape Protection, which is attached to this Addendum, after SS 3300.
4. Insert Special Specification 802 Tree Pruning, Soil Amending and Fertilization, which is attached to this Addendum, after the inserted Spec 801.

CLARIFICATIONS

1. In response to Question #6, ROE agreements are currently being negotiated with property owners. Because the time frame for these agreements is unknown, the Contractor is instructed to prioritize all segments located within the ROW to allow SAWS sufficient time to acquire ROE agreements.

END OF ADDENDUM

This Addendum, including these three (3) pages, is sixteen (16) pages in its entirety.

Attachments:

Revised Table of Contents (Addendum 1)

Revised Bid Proposal (Addendum 1)

Revised Bid Packet Checklist (Addendum 1)

Item 801 Tree Landscape Protection

Item 802 Tree Pruning, Solid Amending and Fertilization



Jeremy Doege

9/25/2020

Jeremy Doege, P.E.
WGI

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*SAWS Specifications are part of the Contract Documents but are not included in these documents. Latest versions can be found online at: https://apps.saws.org/business_center/specs/constspecs/constspecs_2020/index.cfm

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**City of San Antonio Standard Specifications for Public Works Construction are part of the Contract Documents but are not included in these documents. Latest versions can be found online at: <https://www.sanantonio.gov/PublicWorks/Current-Vendor-Resources/Standard-Specifications-and-Details>

SEPARATE REFERENCED DOCUMENTS

City of San Antonio Right-of-Way Ordinance and Underground Utility Excavation Manual
<https://www.sanantonio.gov/PublicWorks/Services/Right-of-Way-and-Permits>

SAWS Standard Material Specifications
https://apps.saws.org/business_center/specs/matspecs/

BID PROPOSAL

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

THE SAN ANTONIO WATER SYSTEM:

Pursuant to Instructions and Invitation to Bidders, the undersigned proposes to furnish all labor and materials as specified and perform the work required for the project as specified, in accordance with the Plans and Specifications for the following prices in the bid proposal to wit:

PLEASE SEE ATTACHED LIST OF BID ITEMS.

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 **365** calendar days after the start date, as set forth in the Authorization to Proceed. **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 Bid Proposal which are included on the following pages.

Statement on President's Executive Orders

Has your firm previously performed work subject to the President's Executive Orders Numbers 11246 and 11375 or any preceding similar executive orders (Numbers 10925 and 11114)?

Yes No

SAWS BPC SMALL DIAMETER CENTRAL SEWERSHED PACKAGE 5 - CIPP

SAWS JOB NO. 20-4524

BID PROPOSAL LINE ITEMS

WGI

SEPTEMBER 2020

ITEM	SPEC.	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL
1	103.1	Remove Concrete Curb	LF	155		
2	103.3	Remove Concrete Sidewalks & Driveways	SF	450		
3	103.4	Remove Miscellaneous Concrete	SF	50		
4	202.1	Prime Coat	GAL	11		
5	203.1	Tack Coat	GAL	7		
6	205.2	Hot Mix Asphaltic Pavement, Type B (10" Comp. Depth)	SY	43		
7	205.4	Hot Mix Asphaltic Pavement, Type D (2" Comp. Depth)	SY	51		
8	413.1	Flowable Fill (Low Strength)	CY	20		
9	413.2	Flowable Fill (High Strength)	CY	20		
10	500.1	Concrete Curb	LF	155		
11	502.1	Concrete Sidewalks	SY	36		
12	503.1	Portland Cement Concrete Driveway	SY	2		
13	503.2	Portland Cement Concrete Driveway - Commercial	SY	16		
14	506.1	Concrete Retaining Walls	CY	3		
15	507.1	Chain Link Wire Fence (4' High) (Remove and Replace)	LF	140		
16	507.4	Gates-Pedestrian	EA	2		
17	507.4	Gates-Vehicular	EA	1		
18	515.1	Topsoil	CY	31		
19	520.1	Hydromulching, Residential or Commercial	SY	122		
20	530.7	Barricades, Signs, Traffic Handling	EA	36		
21	540	SWPPP	EA	36		
22	550.1	Trench Excavation Safety Protection	LF	676		
23	801	Tree and Landscape Protection (Level IIB)	LF	75		
24	802	Tree Pruning	EA	75		
25	851	Adjust Existing Manholes (W/ New Ring and Watertight Cover)	EA	43		
26	852	4' Dia. Sanitary Sewer Manhole (0'-6' Depth) Watertight	EA	10		
27	852	Extra Depth Manhole (>6')	VF	20		
28	852	4' Dia. Sanitary Sewer Drop Manhole (0'-6' Depth) Watertight	EA	3		
29	852	Extra Depth Drop Manhole (>6')	VF	7		
30	852	Cast-In-Place Concrete, 4' Dia. (Permanent Doghouse)	EA	3		
31	854	Sanitary Sewer Laterals (SDR-26, ASTM 2241)	LF	491		
32	854.1	Two-Way Sanitary Sewer Cleanout	EA	75		
33	855	Reconstruction of Existing Manholes	EA	7		
34	858	Concrete Encasement, Cradles, Saddles, & Collars	CY	20		
35	865	Bypass Pumping (Small Diameter Sanitary Sewers)	EA	36		
36	866	Sewer Main Pre-Television Inspection (8"-15" Dia.)	LF	10,821		
37	866	Sewer Main Pre-Television Inspection (18"-24" Dia.)	LF	217		
38	901	Install CIPP 8" Sanitary Sewer Pipe (Hot Water) (All Depths)	LF	9,735		
39	901	Install CIPP 10" Sanitary Sewer Pipe (Hot Water) (All Depths)	LF	391		
40	901	Install CIPP 12" Sanitary Sewer Pipe (Hot Water) (All Depths)	LF	403		
41	901	Install CIPP 15" Sanitary Sewer Pipe (Hot Water) (All Depths)	LF	294		
42	901	Install CIPP 21" Sanitary Sewer Pipe (Hot Water) (All Depths)	LF	217		
43	910.1	Manhole Rehabilitation (Standard 4' Dia. Manhole)	VF	373		
44	1103.1	Point Repairs for 18" and Smaller Dia. (All Depths) Including up to 9 LF of Piping	EA	45		
45	1103.2	Extra Length Point Repair, 18" and Smaller Dia. (All Depths)	LF	405		
46	1103.3	Obstruction Removal by Remote Device, 18" and Smaller Dia. (All Depths)	EA	10		
47	1109	Service Reconnection By Remote Control Cutting Device (All Depths)	EA	198		
48	1109	Service Reconnection By Open Cut Excavation (All Depths)	EA	10		
49	1109	Lateral Connection W/ Point Repair	EA	54		
50	SUP1	Utility Pole Bracing Allowance	ALW	1		
51	SS 1	Wood Privacy Fence (6' High) (Remove and Replace)	LF	90		
52	SS 3300	Yard Piping for Private Sanitary Sewer Laterals (4"-6")	LF	300		
Subtotal (Items 1-52) \$						
53	100	Mobilization (Max 10% of Items 1 to 52)	LS	1		
54	101.1	Preparing Right-of-Way (Max 5% of Items 1 to 52)	LS	1		
Mobilization and Prep ROW shall be limited to the maximum percentage shown. If the percentage exceeds the allowable maximum stated for the 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 PRICE (TO INCLUDE LINE ITEMS 1-52 AND 53-54) \$						

BID PACKET CHECKLIST
BPC SMALL DIAMETER CENTRAL SEWERSHED PROJECT
SAWS Job No. 20-4524
SAWS Solicitation No. CO-00374

This checklist is a required document that must be utilized and submitted with the Bid Packet. The Bid Packet should include the following items in this order:

- List of Bid Items
- Signed Bid Proposal Signature Page, Acknowledgement of All Addendums and Executive Order
- Bid Packet Checklist
- Signed Proposal Certification
- Bid Bond
- Good Faith Effort Plan

Items to be submitted Upon Request by SAWS from the Apparent Low Bidder within one (1) day of the bid opening:

- Conflict of Interest Questionnaire - Form CIQ (*Rev. 11/30/2015*)
- Proof of Insurability (Letter from Insurer or Sample Certificate of Insurance)
- Company Information Packet
- Statement regarding ability to complete the project
- W-9
- Statement of Bidder's Experience
- Detailed Baseline Schedule

***And, if bid was submitted electronically without a Bid Bond:**

- Cashier's Check or Certified Check

ITEM 801

TREE AND LANDSCAPE PROTECTION

This item shall govern the placing of protection for trees and other landscape plant material or natural areas to be protected during construction. No site preparation work shall begin in areas where tree preservation and treatment measures have not been completed and approved. *Where removal of trees is indicated on the drawings, they shall be marked as directed by the engineer or designated representatives.* This item shall also govern the excavation, filling, *trenching and boring* around trees described on the plans, and for furnishing all materials, water, labor, tools, equipment and supplies required as specified by this item or as indicated on the plans.

Reference Standards: City of San Antonio Tree Preservation ordinance # 85262

MATERIALS:

LEVEL I FENCE PROTECTION (Detail 1.1.2):

Fabric: Fabric (4 foot height or 1.2 m) shall consist of orange plastic fencing as shown on the plans and shall be woven with 2-inch (50 mm) mesh openings such that in a vertical dimension of 23 inches (584 mm) along the diagonals of the openings there shall be at least seven meshes.

1. Installation Posts: Installation posts shall be a minimum of 72 inches (1.5 m) long and steel “T” shaped with a minimum weight of 1.3 pounds per linear foot (6.3 kg per meter).
2. Tie Wire: Wire for attaching the fabric to the t-posts shall be not less than No. 12 gauge galvanized wire. Sufficient fastening material shall be furnished to provide for the securing of the fabric to the “T” line posts.
3. Used Materials: Previously-used materials, meeting the above requirements and when approved by the Engineer, may be used.

LEVEL IIA FENCE PROTECTION (Detail 1.1.3):

Materials same as Level I -OR-

LEVEL IIB FENCE PROTECTION (Detail 1.1.4):

1. Sleeve: 2x4 lumber to a height of 4 feet above the root crown.
2. 2x4 shall be utilized as called for on plan.
3. Tie Wire: Wire for securing the 2x4s shall not be less than No. 12 gauge.

OTHER MATERIALS:

1. Tree Dressing - Asphaltic Tree Wound Paint

CONSTRUCTION METHODS:

LEVEL I FENCE PROTECTION:

All trees and shrubs in the proximity of the construction site shall be protected prior to beginning any development activity.

Protective fencing shall be erected outside the dripline at locations shown in the plans or as directed by the Inspector and/or City Arborist or in accordance with the details shown on the plans at the drip line of trees (Root Protection Zone, RPZ) and/or landscape plant material including natural areas. Fencing shall be maintained and repaired by the contractor during site construction.

Protective fence locations in close proximity to street intersections or drives shall adhere to the City of San Antonio’s site distance criteria.

The protective fencing shall be erected before site work commences and shall remain in place during the entire construction phase. Access to fenced areas will be permitted only with the approval of the engineer.

The installation posts will be placed every 6 feet (2 m) around the drip line or RPZ and embedded to 18 inches (457 mm) deep. Fabric attachment shall be attached to the installation posts by the use of sufficient wire ties to securely fasten the fabric to the “T” posts as to hold the fabric in a stable and upright position.

1. Do not clear, fill or grade in the RPZ of any tree.
2. Do not store, stockpile or dump any job material, soil or rubbish under the spread of the tree branches.
3. Do not park or store any equipment or supplies under the spread of the tree branches.
4. Do not set up any construction operations under the spread of the tree branches. (E.g. pipe cutting and threading, mortar mixing, painting or lumber cutting)
5. Do not nail or attach temporary signs, meters, switches, wires, bracing or any other item to the trees.
6. Do not permit runoff from waste materials including solvents, concrete washouts, asphalt tack coats (MC-30 oil), etc. to enter the RPZ. Barriers are to be provided to prevent such runoff substances from entering the RPZ whenever possible, including in an area where rain or surface water could carry such materials to the root system of the tree.

The contractor shall avoid cutting roots larger than one inch in diameter when excavation occurs near existing trees. Excavation in the vicinity of trees shall proceed with caution. The contractor shall contact the city inspector.

Remove all trees, shrubs or bushes to be cleared from protected root zone areas as directed by engineer by hand.

Trees damaged or lost due to contractor’s negligence during construction shall be mitigated at the contractor’s expense and to the engineer’s satisfaction.

Any tree removal shall be approved by the city arborist prior to its removal.

Cover exposed roots at the end of each day with soil, mulch or wet burlap.

In critical root zone areas that cannot be protected during construction and where heavy traffic is anticipated, cover those areas with (8) inches of organic mulch to minimize soil compaction. This (8) inch depth of mulch shall be maintained throughout construction.

Water all trees, most heavily impacted by construction activities, deeply once a week during periods of hot dry weather. Spray tree crowns with water periodically to reduce dust accumulation on the leaves.

When installing concrete adjacent to the root zone of a tree, use a plastic vapor barrier behind the concrete to prohibit leaching of lime into the soil. See related specifications.

When an excavation or embankment is placed within the dripline of any tree greater than (8) inches in diameter, a Tree well shall be constructed to protect the tree as indicated, when the cut or fill exceeds (8) inches. See related specifications.

Where paving or filling is necessary within the dripline of any tree (8) inches or greater, a permeable pavement and aeration system must be installed as indicated. See related specifications.

CONSTRUCTION METHODS:

LEVEL II A FENCE PROTECTION:

Protective fencing shall be erected within the RPZ at locations shown in the plans or as directed by the Inspector and/or City Arborist or in accordance with the details shown on the plans at the drip line of trees (Root Protection Zone, RPZ) and/or landscape plant material including natural areas. Fencing shall be maintained and repaired by the contractor during site construction.

Fabric: Fabric (4 foot height or 1.2 m) shall consist of orange plastic fencing as shown on the plans and shall be woven with 2-inch (50 mm) mesh openings such that in a vertical dimension of 23 inches (584 mm) along the diagonals of the openings there shall be at least seven meshes.

1. Installation Posts: Installation posts shall be a minimum of 72 inches (1.5 m) long and steel “T” shaped with a minimum weight of 1.3 pounds per linear foot (6.3 kg per meter).
2. Tie Wire: Wire for attaching the fabric to the t-posts shall be not less than No. 12 gauge galvanized wire. Sufficient fastening material shall be furnished to provide for the securing of the fabric to the “T” line posts.
3. Used Materials: Previously-used materials, meeting the above requirements and when approved by the Engineer, may be used.

LEVEL II B FENCE PROTECTION:

Trunk protection shall be erected at locations shown in the plans or as directed by the Inspector and/or City Arborist shall be maintained and repaired by the contractor during site construction.

1. Installation Sleeve: 2x4 lumber to a height of 4 feet above the root crown.
2. Tie Wire for securing the 2x4s shall not be less than No. 12 gauge

MEASUREMENT:

Protective fencing will be measured by the linear foot of accepted work, complete in place for the duration of construction activity.

PAYMENT:

Tree and Landscape Protective Fencing will be paid for at the unit price bid per linear foot (meter), which price shall be full compensation for furnishing and placing all materials, manipulation, labor, tools, equipment and incidentals necessary to complete the work.

BID ITEMS

Item 801.1: Level I Protective Fencing - per linear foot (meter)

Item 801.2: Level IIA Protective Fencing - per linear foot (meter)

Item 801.3: Level IIB Protective Fencing - per linear foot (meter)

ITEM 802

TREE PRUNING, SOIL AMENDING AND FERTILIZATION

PART 1 GENERAL

1.01 DESCRIPTION:

The purpose of this specification is to describe a procedure for maintaining preserved trees before, during and after construction and for furnishing all materials, water, labor, tools, equipments and supplies required as specified by this item or as indicated on the plans.

1.02 REFERENCE STANDARDS:

The contractor shall comply with the applicable provisions and recommendations of the publication listed below and these shall be utilized as reference standards, and form a part of this specification to the extent indicated by reference:

American National Standard Institute - ANSI A300-2002

PART 2 PRODUCTS

2.01 MATERIALS:

1. Tree pruning paint: Any latex, oil or asphalt base wound dressing.
2. Soil amendment: Organic soil amendment with nitrogen content 10% or less.
3. Commercial fertilizer: Urea form based liquid suspension, which is soil injected. Salt Index is less than 3.5 (True Green, Boost) and a longevity period of up to 2 years.
4. Mulch: Shredded wood residue with size of pieces not more than 6 inches in length.
5. Water-By truck for trees.

PART 3 EXECUTION

3.01 CARE OF TREES PRIOR TO AND DURING CONSTRUCTION:

1. Prior to erecting tree enclosure and the start of any phase of construction, arborist will provide mycorrhizal inoculation and deep root fertilization to the tree roots, using 3 lbs. of actual nitrogen per 1000 square feet of root area in a slow release soil injection method. Then a certified arborist will perform pruning before construction to remove dead wood, improve the health of the trees to better tolerate the stresses endured during construction activities. In addition all pruning shall adhere to the standard practices in the American National Standard Institute ANS/A300-1995, and to improve the level of safety
 - a. Crown Cleaning – shall consist of the removal of dead, dying, and diseased wood one inch in diameter and greater. Many of the existing trees are above and within the proposed walkway. This dead wood shall be removed to improve safety and liability issues.
2. No site preparation work shall begin in areas where tree preservation and treatment measures have not been completed and approved.
 - a. Crown Raising – shall consist of removing lower limbs to provide a clearance specification of 8 feet over walkways and 13 feet over the

main road for vehicle clearance. Branches may be tied back instead of removed, in order to alleviate conflict. These specifications should protect the existing trees. Tree contractor is to be briefed by Project Engineer/Arborist prior to project commencement. All pruning and removals shall be overseen by a Certified Arborist. The awarded company shall have a Certified Arborist on staff to be able to bid on this Project.

3. No pruning or removal of limbs shall be allowed to provide clearance for work unless approved by the engineer.
4. Removal of limbs which are 6 inches in diameter or greater is prohibited without consent of the City Arborist. Occasional branches, up to 1/4 inch in diameter, which are dead, dying, diseased may remain when it is not practical to remove it.
5. Oak wounds must be painted with wound paint within 30 minutes to prevent infection of the Oak Wilt fungal organism.
6. Soil amendments will be applied within the drip line (RPZ).
7. Soil fertilization will be completed by a soil injection method, which will occur at a spacing of 3 feet on center around the tree within the drip line (Root Protection Zone, RPZ) only for those trees specified.
8. Excavate within drip line of trees only where required. Where excavating for new construction is required within drip line of trees, hand excavate to minimize damage to root systems. Use narrow spading forks and comb soil to expose roots. Relocate roots back into backfill areas wherever possible. If large main lateral roots are encountered, expose beyond excavation limits as required to bend and relocate without breaking. If root relocation is not practical, then contact Client representative for approval to cut roots 1/2" or greater. If approved, clean cut roots using handsaw or chainsaw approximately 3 inches back from new construction. Where existing grade is above new finish grade, carefully excavate within the drip line to the new finish grade. Carefully hand excavate an additional 8 inch below the finish grade. Use narrow line spading forks to comb the soil to expose the roots and prune the exposed root structure as recommended by the Arborist. After pruning and treatment is complete, backfill to within the finish grade with 8" of approved landscape fill material. Temporarily support and protect roots against damage until permanently relocated and do not allow exposure of root to air to occur beyond 12 hours. Cover with damp soil, peat moss, 8"bark or gunny sacks in order to keep moist so as not to dry out and permanently cover roots as soon as possible. Where it has been determined that trenching for utilities can seriously impact the roots of a desirable tree, then bore or tunnel under tree to minimize root impact.
9. The Contractor shall be responsible for coordinating all construction activities that may impact trees with clients representative and the Arborist, who will do the necessary pruning and deep root fertilization deemed necessary by the Arborist.

3.02 POST CONSTRUCTION CARE OF TREES:

1. The Contractor shall water when it is necessary to supplement natural rainfalls required preventing excess drying of the tree root area.

2. The Contractor is responsible for a fall and spring fertilization of the following year using a deep root fertilization method on trees deemed necessary by the Client.
3. The Contractor shall perform post construction care under the supervision of the arborist.

3.03 QUALITY ASSURANCE:

All tree pruning and fertilization work shall be performed by a single firm specializing in tree pruning work, with a minimum of 3 years experience in the acceptable performance of similar work to that specified. Pruning is to be performed by personnel who, by training and on the job experience, are familiar with the techniques and hazards of this work. The firm performing the work shall have the following minimum qualifications and certifications.

NAA - National Arborist Association Certified or
ISA - International Society of Arborists Certification
Be licensed for application and use of pesticides
Meet state requirements for insurance
Must be bonded

The Arborist shall:

- a. Establish lines of communication for all work which may potentially impact trees, under story, or areas that are to be protected from construction activity.
- b. Locate and properly identify or mark in the field trees, under story and areas that are to be protected from construction activity and are the responsibility of the Prime Contractor to protect.
- c. Identify limits and extent of protective fencing around these trees, under story vegetation and other areas.

LEVEL II:

3.04 CARE OF TREES PRIOR TO AND DURING CONSTRUCTION:

1. Prior to erecting tree enclosure and the start of any phase of construction; provide mycorrhizal inoculation and deep root fertilization to the tree roots, using 3 lbs. of actual nitrogen per 1000 square feet of root area. Then pruning will be performed by a certified arborist before construction to remove dead wood, improve the health of the trees to better tolerate the stresses endured during construction activities. In addition all pruning shall adhere to the standard practices in the American National Standard Institute ANS/A300-1995, and to improve the level of safety
2. No site preparation work shall begin in areas where tree preservation and treatment measures have not been completed and approved.
3. No pruning or removal of limbs shall be allowed to provide clearance for work unless approved by the engineer.
4. Removal of limbs which are 6 inches in diameter or greater is prohibited without consent of the City Arborist. Occasional branches, up to 1/4 inch in diameter, which are dead, dying, diseased may remain when it is not practical to remove it.
5. Oak wounds must be painted with wound paint within 30 minutes to prevent infection of the Oak Wilt fungal organism.

6. Excavate within drip line of trees only where required. Where excavating for new construction is required within drip line of trees, hand excavate to minimize damage to root systems. Use narrow spading forks and comb soil to expose roots. Relocate roots back into backfill areas wherever possible. If large main lateral roots are encountered, expose beyond excavation limits as required to bend and relocate without breaking. If root relocation is not practical, then contact Client representative for approval to cut roots 1/2" or greater. If approved, clean cut roots using a handsaw or chainsaw approximately 3 inches back from new construction. Where existing grade is above new finish grade, carefully excavate within the drip line to the new finish grade. Carefully hand excavate an additional 8 inch below the finish grade. Use narrow line spading forks to comb the soil to expose the roots and prune the exposed root structure as recommended by the Arborist. After pruning and treatment is complete, backfill to within the finish grade with 8" of approved landscape fill material. Temporarily support and protect roots against damage until permanently relocated and do not allow exposure of root to air to occur beyond 12 hours. Cover with damp soil, peat moss, bark or gunny sacks in order to keep moist so as not to dry out and permanently cover roots as soon as possible. Where it has been determined that trenching for utilities can seriously impact the roots of a desirable tree, then bore or tunnel under tree to minimize root impact.
7. Water deeply trees that are substantially trimmed or within drip line of excavation work for the duration of this contract.
8. Water deeply trees that show signs of stress and are located in areas where the groundwater table has been lowered due to construction activities.
9. The Contractor shall be responsible for coordinating all construction activities that may impact trees with clients representative and the Arborist, who will do the necessary pruning and deep root fertilization deemed necessary by the Architect.

3.05 POST CONSTRUCTION CARE OF TREES:

1. The Contractor shall water when it is necessary to supplement natural rainfalls required preventing excess drying of the tree root area. Barring natural rainfall, the Contractor should apply 1" per week over entire root protection zone.
2. The Arborist shall monitor and authorize for removal the trees which show symptoms of stress, which might be indicated by branch die back chlorosis or fringe browning of the leaves. This would indicate that the crown is not in equilibrium with roots and additional pruning would be necessary. Subsequent pruning should remove only as much green wood as deemed necessary to reestablish equilibrium. If trees die during construction due to contractor negligence up to a one year post construction period, the Contractor will be required to replace trees at his or her own expense as called for in Paragraph 3.6.
3. The Contractor shall perform post construction care under the supervision of an arborist.

3.06 QUALITY ASSURANCE:

Same as Level I

3.07 MEASUREMENT:

"Maintenance Pruning" Soil Amendment, and Fertilization" , ½" or larger of dead, diseased wood.

"Maintenance Pruning" 1" or larger of dead, diseased wood.

3.08 PAYMENT:

Work performed and materials furnished as prescribed by this item and measured as provided under "Measurement" will be paid for as follows:

"Level I Pruning, Soil Amendment, and Fertilization" Will be paid for at the unit price bid per each tree receiving "Level I Pruning, Soil Amendment, and Fertilization" of the size called for , which price shall be full compensation for furnishing all materials; preparation, hauling, handling charges, placement, labor, tools, and incidentals necessary to complete the work.

Level II Pruning will be paid for at the contract lump sum price bid, which price shall be full compensation for work herein specified, including the furnishing of all materials, equipment, tools, labor, and incidentals necessary to complete the work.

3.09 BID ITEM:

Item 802.1 - Level I Pruning, Soil Amendment, and Fertilization - per each tree

Item 802.2 - Level II Pruning - per Lump Sum