

CONSTRUCTION SPECIFICATIONS
FOR
OLIVE AVENUE STORM DRAIN AND PAVING
91ST AVENUE TO 67TH AVENUE
FCD CONTRACT NO. 89-16

Construction Special Provisions
Prepared By:

Boyle Engineering Corporation
7600 North 16th Street, Suite 110
Phoenix, Arizona 85020

Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009



(Engineers' Seals)

Prepared For:

Flood Control District of Maricopa County
and

Recommended By: Nick Karan
Nicholas P. Karan, P.E.
Chief, Engineering Division

Date 7-20-89

Approved By: Stanley L. Smith, Jr.
Stanley L. Smith, Jr., P.E.
Deputy Chief Engineer

Date 7-25-89

SUPPLEMENTARY TO MARICOPA ASSOCIATION OF GOVERNMENTS UNIFORM
STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION EDITION OF 1979
AND REVISIONS AND SUPPLEMENTS THERETO.

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ADDENDUM NO. 1

August 22, 1989

FCD Contract No. 89-16

To Contract Documents

Title: OLIVE AVENUE STORM DRAIN AND PAVING
91ST AVENUE TO 67TH AVENUE

Owner: Flood Control District of Maricopa County

The above documents are herein modified. The provisions of said documents applicable to these modifications remain unchanged unless specifically indicated otherwise herein. This Addendum No. 1 forms a part of the Contract Documents and modifies them as follows:

TO INVITATION TO BID:

Add the following new heading:

SPECIAL PROPOSAL REQUIREMENTS AND CONDITIONS:

In the bidding schedule, the Contractor shall subtotal the bid items in the space provided. An (addition)(deduction) bid item has been provided which may be used to make last minute adjustments to the bid. This bid item shall be added to or subtracted from the subtotal to obtain the TOTAL BID AMOUNT.

If the Contractor submitting the lowest bid has shown an amount other than zero (0), he shall file a distribution of the addition or deduction item into the unit prices of the appropriate bid items within 72 hours of the bid opening. The unit prices which include the distribution of the additive or deductive amount will be used in making payment under the provisions of this contract.

TO BIDDING SCHEDULE:

Remove page 6 of 32 and replace with the attached page 6R of 32. The descriptions of Item Nos. 5 and 6 have been modified, and the approximate quantity of Item No. 6 has been modified.

Remove page 12 of 32 and replace with the attached page 12R of 32. The approximate quantity of Item No. 70 has been modified.

Remove page 14 of 32 and replace with the attached page 14R of 32. Three pay items have been added, including the addition/deduction line item as described above.

TO CERTIFICATE OF INSURANCE AND INDEMNIFICATION:

Remove pages 30 of 32 and 31 of 32 and replace with the attached pages 30R and 31R of 32, respectively. These forms have been modified to include the Arizona Department of Transportation and The Atchison, Topeka and Santa Fe Railway Company as additional insureds and as entities to be indemnified by the Contractor insurance.

TO CONSTRUCTION SPECIAL PROVISIONS:

Subsection 103.6 - Contractors Insurance

103.6.1 - General

Add the following paragraph:

"Concurrently with the execution of the Contract, the Contractor shall furnish a Certificate of Insurance using the included Certificate or one of equal wording that names the additional insureds as set out in the included Certificate and in 103.6.1(D) below. The certificate shall also name the additional insureds as Certificate Holders. The types of insurance and the limits of liability shall be as indicated on the included form."

103.6.1(D) Add the Arizona Department of Transportation and The Atchison, Topeka and Santa Fe Railway Company to the list of Additional Insureds in Subsection 103.6.1(D), page 4 of the Special Provisions.

Subsection 107.2 - Permits

Add the following clarifications and information:

ADOT Permit: A copy of the signed Application for Permit to Use State Highway Right-of-Way is attached to and made a part of this Addendum. The Contractor shall carefully review the requirements of the permit and shall include all costs for complying with the permit requirements in the unit prices bid for the applicable pay items of the project, except as follows:

- o As-built information shall be prepared by the Owner, as provided in Subsection 105.8 of these Special Provisions.
- o Compaction testing shall be in accordance with Subsection 106.2 of these Special Provisions.

Santa Fe Railroad Permit: A copy of the unsigned Pipe Line License is attached to and made a part of this Addendum. As of the date of this Addendum, negotiations regarding the indemnification requirements of the License are underway, and the drawings in Exhibit "A" of the License are being modified to allow the use of tunnel liner placed in lieu of steel casing pipe. Execution of the modified License should be completed in a few weeks. No other portions of the License are known to be subject to further modification.

The Contractor shall be responsible for payment of costs incurred by the Railroad for flagmen, inspection and other expenses, as stipulated in Item 5 of the License. Since an estimate of the amount of fees from the Railroad is not available, a new Item No. 98 has been included in the Bidding Schedule to cover the cost of Railroad fees during construction. For bidding purposes, an estimated total amount of \$15,000 has been assigned. This item is considered a Contingent Item with payment based on the exact amount invoiced by the Railroad and presented as a part of the Contractor's periodic payment requests, with no additional amounts to be paid for Contractor overhead, profit or handling fees. If the amount of Railroad invoiced fees exceeds the total of Item No. 98 of the Bidding Schedule, that Item will be adjusted by change order.

All Contractor costs associated with compliance with the Railroad requirements shall be included in the unit prices bid for the appropriate bid items.

Subsection 108.4.1 - Construction Scheduling and Sequencing

Add the following modifications:

1. Begin the second sentence in the last paragraph on Special Provisions, page 7, with "The first lift of ..." instead of "The first two lifts of ..."
2. In the first line of the first paragraph on Special Provisions, page 8 , change "third lift: to "second lift."

SECTION 205 - ROADWAY EXCAVATION

Amend and/or clarify the following subsections:

205.6 - Surplus Material

Private Concrete Bridges: Plan Sheet P-17, Construction Note No. 11, calls for removal and disposal of two concrete bridges over the existing SRP ditch. If the property owner wants to keep the bridges, the Contractor shall remove the bridges and place them on the owner's property as directed by the property owner, provided that the disposal location is readily accessible and within 1,000 feet of their original bridge location. If the property owner does not wish to keep the bridges, the Contractor shall dispose of the bridges in accordance with the requirements of other portions of this Subsection 205.6. Regardless of the method of disposal of the bridges, this is a non-pay item.

Clarification: On Special Provisions, page 9, last line on the page under Subsection 205.6, change the word "designated" to "approved."

205.7 - Measurement

On page 10 of the Special Provisions, last line under Subsection 205.7, replace the word "half" with the word "full."

SECTION 321 - ASPHALT CONCRETE PAVEMENT

Amend and clarify the following subsection:

321.5 - Placing, Spreading and Finishing

Delete the first sentence under Subsection 321.5 on Special Provisions, page 12, and replace with the following:

"Placing, spreading and finishing of asphalt concrete shall be in accordance with Subsection 321.5 of the MAG U.S.S., except that the first lift of asphalt concrete shall have a 4-inch thickness and the second (final) lift shall have a 3-inch thickness."

SECTION 322 - ASPHALT CONCRETE OVERLAY

Amend the following subsection:

322.6 - Manholes

In the second line under Subsection 322.6 on Special Provisions, page 12, change "third (final) lift" to "second (final) lift."

SECTION 336 - PAVEMENT MATCHING AND SURFACING REPLACEMENT

Add the following clarification:

As noted in Subsection 336.5 of the Special Provisions, temporary pavement replacement costs shall be included in the cost of the pipe. The use of temporary pavement (cold mix) will only be required as noted in Subsection 336.2.3 of the MAG U.S.S., and as required by the Engineer. The use of temporary pavement will not be required on all trenches, except as otherwise provided above.

SECTION 401 - TRAFFIC CONTROL

Amend and clarify as follows:

401.5 - General Traffic Regulations

1. Police Officers: On Special Provisions, page 15, in the seventh paragraph under Subsection 401.5, the requirements for uniformed off-duty police officers is clarified as follows:

Contractor shall provide uniformed, off-duty police officers at signalized intersections only when the intersection is open to traffic but the traffic flow is restricted by construction operation.

2. Permit Provisions: The Contractor's attention is called to the traffic control and barricading provisions of the attached ADOT permit. All permit provisions shall be satisfied by the Contractor for work performed within the ADOT right-of-way, which includes the areas immediately west of Grand Avenue on Olive Avenue where boring pits and a structure excavation are located.

SECTION 601 - TRENCH EXCAVATION, BACKFILLING AND COMPACTION

Amend and/or clarify the following:

General Note Regarding Permit Requirements: The Contractor's attention is called to the requirements of the attached ADOT Highway Permit as it pertains to the excavation, backfilling and compaction of trenches within ADOT right-of-way. In preparing his bid for the project, the Contractor shall include in his prices all costs for compliance with the Permit, with particular attention to the requirements for trench shoring, pavement cuts, temporary fencing, backfilling and compaction. Where ADOT permit requirements are in conflict with the requirements of the Plans or Contract Documents, the permit requirements shall govern.

601.3.4 - Pipe Supports

Where applicable throughout the project, the Contractor will be allowed to substitute the Alternate to Pipe Support (MAG Standard Detail 403-3) for the Permanent Pipe Supports required on the Plans and as directed by the Engineer. Payment for Alternate to Pipe Supports shall be the same as specified for permanent pipe supports.

SECTION 602 - JACKED CASING AND TUNNEL LINER PLATE INSTALLATION

Amend the following subsections:

602.2 - General

The Contractor is advised that the length of the access pits may be increased from 25 feet to 35 feet at the Contractor's option, provided that the Contractor's provisions for traffic control during construction and scheduling the construction of adjacent structures has been included in the project in a satisfactory manner. All costs for longer access pits shall be included in the unit prices bid for the casing items. Beginning and ending stations for each casing shall remain unchanged.

602.6 - Carrier Pipe Placement

For this project, the Contractor may propose to use casing spacers in lieu of rails or redwood skids for installing carrier pipe in the casing or tunnel liner plate. Casing spacers shall be of the two-part bolt-on type, with integral or welded risers and high molecular weight runners designed to resist abrasion and a low friction resistance. Spacers shall be designed and sized for the types and sizes of carrier and casing pipes to be used.

If casing spacers are proposed to be used in the project, the Contractor shall submit complete shop drawings for the materials and the method of installation, including any calculations used in the sizing of components. Specific details in the shop drawing submittal include, but are not limited to the spacer width, runner and riser heights, runner orientation, number of spacers per pipe joint, and any required alternations to the casing pipe or liner plate installation.

The Contractor agrees that if casing spacers are proposed for use in the project, the following conditions apply:

1. Details of the casing spacers and their proposed method of installation shall be subject to the Engineer review at the time of shop drawing submittal.
2. As of the date of this Addendum, it is not known if the Arizona Department of Transportation and the Santa Fe Railroad will accept the use of casing spacers under their respective rights-of-way. If either or both of the above entities find the use of casing spacers unacceptable, the Contractor shall be required to complete the installation as originally specified on the Plans and these Contract Documents, at no additional cost to the Flood Control District.
3. The costs for any additional work required to modify the casing or carrier pipe installation as a result of the use of casing spacers shall be included in the prices bid for the respective item.
4. All other provisions contained in the Plans and Contract Documents, including the provision for filling the annular space between the casing and carrier pipe, shall remain in full force and effect.
5. There are two known sources of casing for the Contractor's use:
 - a. Cascade Waterworks Mfg. Co.
1213 Badger Street
Yorkville, Illinois 60560

Supplier: Water Products Co.
2836 West Broadway Road
Phoenix, Arizona 85041
(602) 268-3562

b. P.S.I. Co.
6525 Goforth Street
Houston, Texas 77021

Supplier: Pacific Pipeline Products
5675-A Landreganst
Emeryville, California 94608
(415) 655-0605

SECTION 618 - STORM DRAIN CONSTRUCTION

Amend the following subsection:

618.2 - Allowable Pipe Materials

Concrete Box Culverts

The use of precast concrete box culverts in lieu of the specified cast-in-place box culverts will be allowed, based on the following conditions:

1. The precast box culvert design shall be proven to be structurally equal to the specified cast-in-place box culvert by calculations and details submitted by the Contractor in the shop drawings. Calculations shall be sealed by a Registered Civil or Structural Engineer licensed to practice in the State of Arizona.
2. All other provisions on the Plans and these Contract Documents shall remain in full force and effect.
3. The cost of any changes required as a result of the use of precast box culverts in lieu of cast-in-place box culverts shall be included in the prices bid for the respective items.

Circular Storm Drain Pipe

On Special Provisions, page 35, replace Table 618-1 with the following Table 618-1R.

TABLE 618-1R

STORM DRAIN PIPE "D" - LOADS

<u>Begin Station</u>	<u>End Station</u>	<u>Pipe Diameter (Inch)</u>	<u>Minimum Allowable "D" Load</u>
66+21	78+40	96"	1000
78+40	84+00	90"	1000
84+00	90+90	90"	1100
90+90	104+35	90"	1400
104+35	118+12	90"	1400
118+12	129+03	84"	1700
129+13	156+35	96"	1600
156+35	164+00	90"	1600
164+00	168+66	90"	1700
168+82	179+00	78"	2300
179+00	184+99	78"	1800
184+99	193+51	72"	1800
193+68	223+46	102"	1500
223+64	225+10	96"	1600
0+13	17+54 (75th Ave)	54"	2800
0+10	0+71 (J.S. No. 3)	96"	1600
0+07	0+44 (J.S. No. 2)	54"	1800
52+93	53+10 (91st Ave)	54"	1800
14+90	20+90 (83rd Ave)	48"	1800
20+90	27+45 (83rd Ave)	48"	1300
0+24	15+91 (67th Ave)	72"	1800
All 12" Storm Drain Piping			2000
All 18" Storm Drain Piping			2500
36" Storm Drain Replacement		36"	2500

Manholes

In the third line, replace "Standard Detail 420, Type B" with "Standard Detail 420, Type A."

618.3 - Construction Methods (Catch Basin Connector Piping)

Delete the third paragraph on page 36 of Special Provisions with Subsection 618.3 and replace with the following:

"Attachment of the connector piping to the box culvert, manholes and catch basin structures shall be with openings cast into the box culvert, manhole base or structure at the time of concrete placement. Attachment of connector piping to mainline storm drain pipe shall be with prefabricated tees. Field cutting of holes for connector piping shall not be allowed. The locations, orientation and details for each opening shall be shown on the shop drawings.

Subsection 630.10.4 - Pressure Reducing Valve

Add the following clarification:

The pilot control system which is furnished within valve shall include cock valves, in-line filter, and upstream and downstream pressure gauges. The entire pilot control system shall be assembled on the main valve at the factory.

Subsection 641.5.5 - Port Valves and Pipe Extensions

Make the following change:

In the first sentence under Subsection 641.5.5 change the references of 8-inch port valves and 8-inch concrete pipe to 14-inch port valves and 14-inch concrete pipe.

TO THE CONSTRUCTION PLANS: (By Reference Only)

Sheet G-2:

In the General Construction Notes, Maricopa County Highway Department, General Notes, amend as follows:

1. Delete Note No. 16. Disposal of excess material shall be in accordance with Subsection 205.6 of the Special Provisions, as amended in this Addendum.
2. Delete the first sentence in Note No. 17.
3. Add the following sentence to note No. 18:

"Refer to project paving plans (Sheets P-1 through P-41) for the location of existing right-of-way for all work on this project."

Sheets P-5, P-22, P-31, P-34 and P-35:

On the centerline profile, add the word "Future" at the front of "Finish grade at ..."

Sheet P-44:

On the detail "Concrete Lined Irrigation Ditch Typical Section," change all references to the size of port valves and concrete pipe from 8-inch to 14-inch.

Sheet P-15:

On Construction Note No. 13, change the size of port valve from 8-inch to 14-inch.

Sheet P-16:

On Construction Note No. 11, change the size of port valve from 8-inch to 14-inch.

Sheet P-17:

On Construction Note No. 18, change the number from 3 Each to 2 Each.

TO THE CONSTRUCTION PLANS: (By Plan Revisions)

Sheet SD-6:

Catch basin moved to Sheet SD-7.

Sheet SD-7:

Catch basin relocated from Sheet SD-6.

Sheet SD-8:

Note clarifications and catch basin relocation.

Sheet SD-21:

Add a sanitary sewer service.

Sheet SD-26:

Added notes for pavement replacement.

Sheet SD-28:

Modified catch basin stub-out.

Sheets P-14, P-37 and P-38:

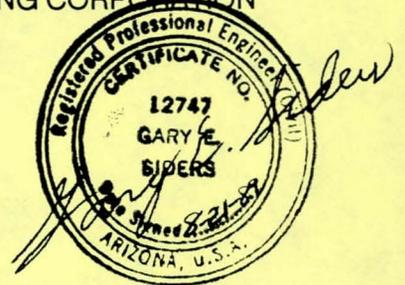
Additional private irrigation system west of 83rd Avenue.

Sheet P-30:

Added the existing grade at centerline.

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

BOYLE ENGINEERING CORPORATION



By:

Stanley L. Smith Jr.
D. E. Sagramoso, P.E.

Chief Engineer and General Manager

STANLEY L. SMITH JR., P.E.
DEPUTY CHIEF ENGINEER

By:

Gary E. Siders, P.E.

BIDDING SCHEDULE

PROJECT: OLIVE AVENUE STORM DRAIN, 91ST AVENUE
TO 67TH AVENUE

CONTRACT: FCD 89-16

ITEM NO.	APPROXIMATE QUANTITY	UNIT	DESCRIPTION	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST	EXTENDED AMOUNT
1	21,064	CY	Roadway Excavation			
2	76,125	SY	Subgrade Preparation			
3	2,950	TON	4-Inch Aggregate Base Course (Untreated Base)			
4	24,016	TON	7-Inch Asphalt Concrete Base Course, Type A-1-1/2			
5	1,635	TON	2-Inch Asphalt Concrete Surface Course, Type D-1/2 (Temp. Transition Pavement)			
6	28	TON	Emulsified Asphalt, Type SS-1h			
7	80	LF	Install Traffic Barrier Per Plan Details			
8	47	EA	Adjust Manhole Frames & Covers			
9	28	EA	Adjust Valve Boxes & Covers			
10	14	EA	Install Survey Markers, MAG Detail 120-2, Type D			
11	5	EA	Install Survey Markers, MAG Detail 120-2, Type E			
12	1	EA	Relocate Water Meter			

BIDDING SCHEDULE

PROJECT: OLIVE AVENUE STORM DRAIN, 91ST AVENUE
TO 67TH AVENUE

CONTRACT: FCD 89-16

ITEM NO.	APPROXIMATE QUANTITY	UNIT	DESCRIPTION	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST	EXTENDED AMOUNT
69	75	EA	Permanent Pipe Supports, MAG Det. 403			
70	680	SY	Pavement Replacement, Type A-T-TOP			
71	398	SY	Pavement Replacement, Type B-T-TOP			
72	32	LF	Remove & Replace Sidewalk, Curb & Gutter			
73	1	LS	Traffic Control			
74	1	LS	Pavement Marking Removals			
75	22,355	LF	Traffic Marking, 4" Width, Yellow			
76	32,298	LF	Traffic Marking, 4" Width, White			
77	49	EA	Raised Non-Reflective Pavement Markers, Yellow			
78	26	EA	Raised Non-Reflective Pavement Markers, White			
79	14	EA	Arrows, Left-Turn or Right-Turn			
80	452	LF	Electrical Conduit, 3" PVC, Type II			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CERTIFICATE OF INSURANCE

CONTRACT FCD 89-16

PROJECT TITLE Olive Avenue Stormdrain - 91st Ave. to 67th Ave.

NAME AND ADDRESS OF INSURANCE AGENCY	INSURANCE COMPANIES AFFORDING COVERAGES
	Company Letter A
	Company Letter B
NAME AND ADDRESS OF INSURED	Company Letter C
	Company Letter D
	Company Letter E
	Company Letter F
	Company Letter G

THIS IS TO CERTIFY THAT POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE AND ARE IN FORCE AT THIS TIME.

COMPANY LETTER	TYPE OF INSURANCE	POLICY NUMBER	EXPIRATION DATE	LIMITS OF LIABILITY IN \$1,000 MINIMUM each occurrence	
	COMMERCIAL GENERAL <input checked="" type="checkbox"/> LIABILITY FORM <input checked="" type="checkbox"/> PREMISES OPERATIONS <input checked="" type="checkbox"/> CONTRACTUAL <input checked="" type="checkbox"/> BROAD FORM PROPERTY DAMAGE <input checked="" type="checkbox"/> EXPLOSION & COLLAPSE <input checked="" type="checkbox"/> PRODUCTS/COMPLETED OPERATIONS HAZARD <input checked="" type="checkbox"/> UNDERGROUND HAZARD <input checked="" type="checkbox"/> INDEPENDENT CONTRACTORS <input checked="" type="checkbox"/> PERSONAL INJURY			BODILY INJURY per person PROPERTY DAMAGE each occurrence	Combined Single Limit = 5,000
	COMPREHENSIVE AUTO <input checked="" type="checkbox"/> LIABILITY & NON-OWNED			SAME AS ABOVE	
	<input checked="" type="checkbox"/> EXCESS LIABILITY			NECESSARY IF UNDERWRITING FOR ABOVE MINIMUM	10,000
	<input checked="" type="checkbox"/> WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY			STATUTORY each accident	\$100
	<input checked="" type="checkbox"/> OTHER Additional Insured shall also include: City of Peoria; City of Glendale; Maricopa County; Arizona Department of Transportation; Atchison, Topeka and Santa Fe Railway Company; and, Boyle Engineering, Inc.				
	<input type="checkbox"/> OTHER				

Except for Workers' Compensation Insurance, the Flood Control District of Maricopa County is added as an additional insured in respect to liability arising in any manner out of the performance of any contract entered into between the insured and the Flood Control District or liability arising out of any services provided or duty performed by any party as required by statute, law, purchase order, or otherwise required. It is agreed that any insurance available to the named insured shall be primary of other sources that may be available. It is further agreed that no policy shall expire, be cancelled, or materially changed to effect the coverage available to the District without thirty (30) days written notice to the District. THIS CERTIFICATE IS NOT VALID UNLESS COUNTERSIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE INSURANCE COMPANY.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
 3335 West Durango Street
 Phoenix, Arizona 85009

DATE ISSUED _____

AUTHORIZED REPRESENTATIVE _____

It is further agreed that:

The Contractor hereby agrees to indemnify and save harmless the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY, CITY OF GLENDALE, CITY OF PEORIA, MARICOPA COUNTY, ARIZONA DEPARTMENT OF TRANSPORTATION, ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY, AND BOYLE ENGINEERING or any of its departments, agencies, officers or employees, from and against all loss, expense, damage or claim of any nature whatsoever which is caused by any activity, condition or event arising out of the performance or nonperformance of any of the provisions of this Agreement. The Flood Control District of Maricopa County, City of Glendale, City of Peoria, Maricopa County, Arizona Department of Transportation, Atchison, Topeka and Santa Fe Railway Company, and Boyle Engineering shall in all instances be indemnified against all liability, losses and damages of any nature for or on account of any injuries to or death of persons or damages to or destruction of property arising out of or in any way connected with the performance or nonperformance of this Agreement, except such injury or damage as shall have been occasioned by the negligence of the Flood Control District of Maricopa County. The above cost of damages incurred by the Flood Control District of Maricopa County or any of its departments, agencies, officers or employees, or others as aforesaid, shall include in the event of an action, court costs, expenses for litigation and reasonable attorney's fees.

Firm

Date

Principal

Title

APPLICATION FOR PERMIT TO USE STATE HIGHWAY RIGHT OF WAY
(Print or Type)

Application is hereby made for a permit to enter in upon and use a portion of the State Highway.

Name of Owner FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Address of Owner 3335 W. Durango

City Phoenix State AZ Zip 85009

Name of Applicant Same Legal Relationship to Owner _____

Mailing Address _____

City _____ State _____ Zip _____

Phone 262-1501

Signature of Applicant *Rue Geneva* Project Manager

(Applicant and Owner are responsible for conditions on permit)

City (in or near) Peoria Project No. SBM-022-2-318

Highway Route No. US-60 Approximately _____ Feet _____ of Milepost No. 151.95
Direction

Side of Highway N S E W (circle one) Highway Station _____

Purpose Install 78" Storm Drain in Olive Avenue; 54" Storm Drain

stubout in 75th Avenue; 24" Waterline in Olive Avenue, all

undercrossings of Grand Avenue

FOR DEPARTMENTAL USE ONLY

THIS APPLICATION is approved with the following directions, requirements and specifications:

With the acceptance of this permit, the Permittee agrees to ALL the conditions as described herein. If the Permittee does not agree to ALL the conditions as outlined in this contract, it must be returned to the District One Office. No work will be allowed to take place inside the Right of Way without a valid permit.

All work shall be done in accordance with current Arizona Department of Transportation Standards and Specifications and work will be inspected by the Department of Transportation.

Please see supplemental sheets for additional directions, requirements, and specifications.

Certificates of liability insurance naming the State and Arizona Department of Transportation as additional insureds are on file in the District One Permits Office.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
FAU 5027

US 60
151.95

The permittee shall assume full responsibility in attaining clearances from utility companies and will be responsible for damage to any utility line.

Pipe shall be jacked and bored beneath all paved areas at a minimum depth of 36". Boring shall begin no closer than 8 feet from edge of pavement. All bore pits and receiving pits shall be behind A.D.O.T. Right of Way. Pits within 30' of roadway pavement will be protected by Jersey Barriers and Type III barricades.

All backfill shall be compacted to 95% maximum density of the same material. Each lift shall be implemented as described in Arizona State Standards and Specifications. Each lift shall be no greater than 8" loose. The maximum densities shall be determined by a laboratory on the same material in accordance with AASHTO T-99. Proof of compaction will be furnished by the Permittee from a qualified laboratory.

Vertical drops running adjacent to roadway shall not be left overnight without proper barricades.

All pavement cuts shall be saw cuts.

It shall be the responsibility of the *Permittee* to use ditch shoring for any trenching operation over 5' in depth in accordance with O.S.H.A. Standards; and the area shall be temporarily fenced to prevent any pedestrians, animals or children from falling into the trench; if work area would be left open overnight.

Upon completion of an underground installation, the Permittee shall furnish as-built plans showing the elevations of their facilities tied to a bench mark furnished by the Department, or when approved by the District Engineer, other adequate elevation reference.

Traffic shall be protected in accordance with the Arizona Highway Department Traffic Control Manuals. All signs, placement of signs and necessity of using flagmen is the responsibility of the Permittee. Manual on UNIFORM TRAFFIC CONTROL DEVICES may be substituted if A.D.O.T. Manual is not available.

NOTE: A MINIMUM OF TWO ADVANCED WARNING SIGNS SHALL BE INSTALLED ALONG WITH NORMAL BARRICADING.

Please give advance notification to the following, three days before starting work, and also within three days after completion for final inspection.

Richard G. Wheeler, Supervisor
District I Permit Section
A.D.O.T. District I Office
2140 W. Hilton Ave.
Phoenix, AZ 85009
Tel. 255-7521

Dated August 1, 1989



Permits & Utilities Supervisor

~~XXXXXXXXXXXX~~

FOR AND IN CONSIDERATION of the granting of a permit or license for the purpose set forth herein the Licensee hereby agrees, covenants, and binds said Licensee as follows, to-wit:

1. The Licensee hereby agrees to save and hold harmless the State, any of its departments, agencies, officers or employees from all cost and damage incurred by any of the above and from any other damage to any person or property whatsoever, which is caused by any activity, condition, or event arising out of the performance or non-performance of any provision of this agreement or the exercise of this permit or license by Licensee, any of its agents, or any of its independent contractors. The above cost incurred by the State, any of its departments, agencies, officers, or employees shall include in the event of an action, court costs, expenses of litigation and reasonable attorneys' fees. When any above cost, damage occurs as aforesaid, Licensee assumes the burden of proof that the above activity, condition, or event did not cause such cost, damage, or other damage.
2. That all work done shall be at the sole cost and expense of the Licensee, and shall be done at such time and in such manner as to be least inconvenient to the traveling public, and as directed by the agent of the Licensor. Work must be finished in the time specified on permit.
3. That when the proposed work is completed the Licensee shall repair the roadbed and replace the surfacing material thereon and will leave the said road in as good a condition as it is now, so far as the road is affected by the Licensee.
4. If the subject of the permit or license fails to pass final inspection, the Licensee will remove or replace the same within such time as specified by written notice from the Licensor; or if at any time hereafter, any material used by the Licensee is replacing or reconstructing any part of said highway proves defective, the Licensee will replace the same with the kind and quality of material which the Licensor shall specify.
5. That if the title and possession of any property placed upon the right of way by the Licensee remains in said Licensee, the Licensee shall and will promptly perform all necessary repair work upon written notice from the Licensor, and will not permit or allow any condition to exist which would be a hazard or source of danger to the traveling public.
6. That if at any time hereafter the right of way, or any portion thereof, occupied and used by the Licensee may be needed or required by the Licensor, any permit or license granted in pursuance of this application, may be revoked by the Licensor and all right thereunder terminated, and upon sufficient notice, the Licensee shall and will remove all property belonging to said Licensee.
7. That in the event that the work to be done under the authority of the permit or license necessitates the creation of any hazard or source of danger to any person or vehicle using said highway, said Licensee shall and will provide and maintain at all times during the existence of said hazard, sufficient barriers, danger signals, lanterns, detours, and shall and will take such other measures of precaution as the Licensor shall direct.
8. That if the work to be undertaken is of such a nature or character that the Licensor deems it necessary that said work be laid out, or inspected by the Licensor, said Licensee will defray any and all expenses incurred by said Licensor, and herein agrees to reimburse the Licensor, and for that purpose will deposit with the Licensor a sum of money in the amount necessary to cover all cost incurred by the Licensor.
9. All construction to be as per final plans approved with permit.
10. Licensee agrees to advise the state of any change of ownership.

WHITE COPY TO APPLICANT AFTER PROCESSING
 YELLOW COPY TO PERMIT DIVISION FILE
 PINK COPY TO DISTRICT ENGINEER'S FILE
 GREEN COPY TO DISTRICT ENGINEER'S INSPECTOR
 BLUE COPY TO FHWA (INTERSTATE HIGHWAY ONLY)

PERMIT AND LICENSE

Permit No. 55017

A permit and license is hereby issued to the foregoing licensee for the purpose contained in the application and license, on the expressed condition that every agreement and covenant therein contained is faithfully performed, and said work to be performed in accordance with final approved plans and specifications. Construction is authorized only for period indicated below.

Dated August 1, 1989

ARIZONA DEPARTMENT OF TRANSPORTATION

Construction to be completed by:
November 1, 1989
Date

By 
R.V. WATSON, Assistant District Engineer
~~XXXXXXXXXXXX~~

The Atchison, Topeka and Santa Fe Railway Company



One Santa Fe Plaza

920 Southeast Quincy Street
Topeka, Kansas 66612-1116

July 14, 1989

909 7/19

P. O. Box 1738
Topeka, Kansas 66628-1738

11010917

City of Peoria
8355 West Peoria Avenue
Peoria, Arizona 85345

Gentlemen:

Referring to your request to construct a 78-inch storm drain, a 24-inch water pipeline and a 54-inch storm drain across Santa Fe's right of way at Peoria, Arizona, near 75th Avenue and Olive Avenue, our MP 181+0978.5, MP 181+0730.5 and MP 181+0714.5.

Enclosed, in duplicate, is Santa Fe's standard license agreement covering your proposed installations as identified by Exhibit Nos. 1-10464, 1-10465 and 1-10466. This agreement should be executed by the Mayor, attested by the City Clerk and the original counterpart (stamped "Santa Fe Original") returned to the undersigned, together with remittance of the \$400.00 consideration specified therein. It will also be necessary that we be furnished a copy of the City's resolution or Council action authorizing execution of the document. You may retain the duplicate counterpart of the license agreement for your records.

Upon return of the completed agreement, it will be satisfactory for you or your contractor to make the installations; however, you should contact Santa Fe's Contract Representative in our Division Manager's Office at Winslow, Arizona, telephone (602) 289-7259, at least five days in advance of your anticipated construction in order that they may provide any flagging protection that may be necessary. It will also be necessary that your construction crew or contractor have in its possession a fully-executed copy of the enclosed agreement or satisfactory evidence from our Division Manager or his representative that they have permission to be on our right of way to make the installations.

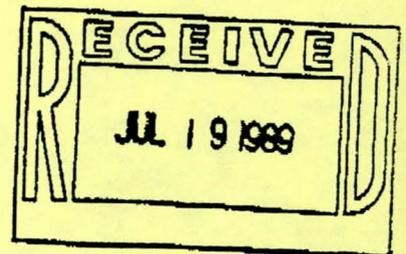
If you have any questions concerning this matter, please contact Jack Dick, telephone (913) 357-2228.

Yours truly,

T. J. Nelson
Director of Contracts

cc: Mr. Gar E. Siders
Boyle Engineering Corporation
7600 North 16th Street - Suite 110
Phoenix, Arizona 85020

0126V/2228/2282d/3



11010917

PIPE LINE LICENSE

THIS LICENSE, Made this 14th day of July, 1989, between THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY, a Delaware corporation (hereinafter called "Licensor"), party of the first part, and CITY OF PEORIA, a municipal corporation of the State of Arizona

(hereinafter, whether one or more, called "Licensee"), party of the second part.

WITNESSETH, That the parties hereto for the consideration hereinafter expressed covenant and agree as follows:

1. Subject to the terms and conditions hereinafter set forth, Licensor licenses Licensee to construct and maintain three (3) pipe lines, 24, 54 and 78 inches in diameter (hereinafter, whether one or more pipe lines, called the "PIPE LINE"), across or along the right of way of Licensor at or near the station of Peoria, Maricopa County, Arizona, the exact location of the PIPE LINE being more particularly shown by bold line upon the print hereto attached, Nos. 1-10464 (78-inch storm drain), 1-10465 (24-inch water pipeline) and 1-10466 (54-inch storm drain), dated June 29, 1989, marked "Exhibit A" and made a part hereof.

2. Licensee shall use the PIPE LINE solely for carrying water and storm water and shall not use it to carry any other commodity or for any other purpose whatsoever.

(a) Licensee covenants that it will not handle or transport through the pipeline on Licensor's property "hazardous waste" or "hazardous substances", as "hazardous waste" and "hazardous substances" may now or in the future be defined by any federal, state, or local governmental agency or body. In the event the Pipe Line is now or in the future used in handling, or transporting of "hazardous waste" or "hazardous substances", Licensee agrees fully to comply with all applicable federal, state, and local laws, rules, regulations, orders, decisions and ordinances (hereinafter referred to as "Standards") concerning "hazardous waste" and "hazardous substances". Licensee further agrees periodically to furnish Licensor with proof, satisfactory to Licensor, that Licensee is in such compliance. Should Licensee not comply fully with the above-stated obligations of this Section, notwithstanding anything contained in any other provision hereof, Licensor may, at its option, terminate this License by serving five (5) days' notice of termination upon Licensee; but any waiver by Licensor of any breach of Licensee's obligations shall not constitute a waiver of the right to terminate this License for any subsequent breach which may occur, or to enforce any other provision of this License. Upon termination, Licensee shall remove the pipe line and restore Licensor's property as herein elsewhere provided.

(b) Notwithstanding anything contained in the liability section hereof, in case of a breach of the obligations contained in this Section, or any of them, regardless of the negligence or alleged negligence of Licensor, Licensee agrees to assume liability for and to save and hold harmless Licensor from and against all injuries to any person and damage to property, including without limitation, employees and property of Licensor and Licensee and all related expenses, including without limitation attorneys' fees, investigators' fees and litigation expenses, resulting in whole or in part from Licensee's failure to comply with any Standard issued by any governmental authority concerning "hazardous substances" and/or "hazardous waste". Licensee, at its cost, shall assume the defense of all claims, suits or actions brought for damages, and fines or penalties hereunder, regardless of whether they are asserted against Licensor or Licensee. Licensee also agrees to reimburse Licensor for all costs of any kind incurred as a result of the Licensee's failure to comply with this Section, including, but not limited to, fines, penalties, clean-up and disposal costs, and legal costs incurred as a result of Licensee's handling, transporting, or disposing of "hazardous waste" or "hazardous substances" on the property of Licensor.

(c) It is understood and agreed that a Licensee who does not now, or in the future, generate, handle, transport, treat, store or dispose of on Licensor's property "hazardous waste" or "hazardous substances" within the meaning of the Section, is not subject to the provisions of Section 2 (b) hereof.

3. Licensee shall pay Licensor as compensation for this license the sum of FOUR HUNDRED AND NO/100 DOLLARS - - - - - (\$400.00)

4. Licensee shall, at its own cost and subject to the supervision and control of Licensor's chief engineer, locate, construct and maintain the PIPE LINE in such a manner and of such material that it will not at any time be a source of danger to or interference with the present or future tracks, roadbed and property of Licensor, or the safe operation of its railroad. In cases where the Licensee is permitted under paragraph 2 hereof to use the PIPE LINE for oil, gas, petroleum products, or other flammable or highly volatile substances under pressure, the PIPE LINE shall be constructed, installed and thereafter maintained in conformity with the plans and specifications shown on print hereto attached in such cases, marked Exhibit B and made a part hereof. If at any time Licensee shall, in the judgment of Licensor, fail to perform properly its obligations under this paragraph, Licensor may, at its option, itself perform such work as it deems necessary for the safe operation of its railroad, and in such event Licensee agrees to pay, within fifteen (15) days after bill shall have been rendered therefor, the cost so incurred by Licensor, but failure on the part of Licensor to perform the obligations of Licensee shall not release Licensee from liability hereunder for loss or damage occasioned thereby.

5. Licensee shall reimburse Licensor for any expense incurred by Licensor for false work, support Licensor's tracks and for flagman to protect its traffic during installation of the PIPE LINE and for any and all other expense incurred by Licensor on account of the PIPE LINE.

6. Licensee shall at all times indemnify and save harmless Licensor against and pay in full all loss, damage, or expense that Licensor may sustain, incur or become liable for, resulting in any manner from the construction, maintenance, use, state of repair, or presence of the PIPE LINE, including any such loss, damage or expense arising out of (a) loss of or damage to property, (b) injury to or death of persons, (c) mechanics' or other liens of any character, or (d) taxes or assessments of any kind. It is the intention of the parties that Licensor's right to indemnity hereunder shall be valid and enforceable against Licensee regardless of negligence (whether active, passive, derivative, joint, concurring or comparative) on the part of Licensor, its officers, agents and employees.

7. If at any time Licensee shall fail or refuse to comply with or carry out any of the covenants herein contained Licensor may at its election forthwith revoke this license.

8. This license is given by Licensor and accepted by Licensee upon the express condition that the same may be terminated at any time by either party upon ten (10) days' notice in writing to be served upon the other party, stating therein the date that such termination shall take place, and that upon the termination of this license in this or any other manner herein provided, Licensee, upon demand of Licensor, shall abandon the use of the PIPE LINE and remove the same and restore the right of way and tracks of Licensor to the same condition in which they were prior to the placing of the PIPE LINE thereunder. In case Licensee shall fail to restore Licensor's premises as aforesaid within ten (10) days after the effective date of termination, Licensor may proceed with such work at the expense of Licensee. No termination hereof shall release Licensee from any liability or obligation hereunder, whether of indemnity or otherwise, resulting from any acts, omissions or events happening prior to the date the PIPE LINE is removed and the right of way and track of Licensor restored as above provided.

9. In the case of the eviction of Licensee by anyone owning or obtaining title to the premises on which the PIPE LINE is located, or the sale or abandonment by Licensor of said premises, Licensor shall not be liable to Licensee for any damage of any nature whatsoever or to refund any payment made by Licensee to Licensor hereunder, except the proportionate part of any recurring rental charge which may have been paid hereunder in advance.

10. Any notice hereunder to be given by Licensor to Licensee shall be deemed to be properly served if it be deposited in the United States Mail, postage prepaid, addressed to Licensee at 8355 West Peoria Avenue
Peoria, Arizona 85345.

Any notice to be given hereunder by Licensee to Licensor shall be deemed to be properly served if the same be deposited in the United States Mail, postage prepaid, addressed to Licensor's Vice President - Operations at P. O. Box 1738, 920 S. E. Quincy Street, Topeka, Kansas 66601.

11. In the event that two or more parties execute this instrument as Licensee, all the covenants and agreements of Licensee in this license shall be the joint and several covenants and agreements of such parties.

12. All the covenants and provisions of this instrument shall be binding upon and inure to the benefit of the successors, legal representatives and assigns of the parties to the same extent and effect as the same are binding upon and inure to the benefit of the parties hereto, but no assignment hereof by Licensee, its successors, legal representatives or assigns, or any subsequent assignee, shall be binding upon Licensor without the written consent of Licensor in each instance.

13. Notwithstanding any other provisions of this license, Licensee shall comply with all statutes, ordinances, rules, regulations, orders and decisions (hereinafter referred to as "Standards"), issued by any federal, state or local governmental body or agency established thereby (hereinafter referred to as "Authority"), relating to Licensee's use of Licensor's property hereunder. In its use of the premises, Licensee shall at all times be in full compliance with all Standards, present or future, set by any Authority, including, but not limited to, Standards concerning air quality, water quality, noise, hazardous substances and hazardous waste. In the event Licensee fails to be in full compliance with Standards set by any Authority, Licensor may, after giving reasonable notice of the failure to Licensee, and Licensee, within thirty (30) days of such notice, fails either to correct such non-compliance or to give written notice to the Licensor of its intent to contest the allegation of non-compliance before the Authority establishing the Standard or in any other proper forum, take whatever action is necessary to protect the premises and Licensor's railroad and other adjacent property. Licensee shall reimburse the Licensor for all costs (including but not limited to, consulting, engineering, clean-up and disposal costs, and legal costs) incurred by the Licensor in complying with such Standards, and also such costs incurred by the Licensor in abating a violation of such Standards, protecting against a threatened violation of such Standards, defending any claim of violation of such Standards in any proceeding before any Authority or court, and paying any fines or penalties imposed for such violations. Licensee shall assume liability for and shall save and hold harmless the Licensor from any claim of a violation of such Standards regardless of the nature thereof or the Authority or person asserting such claim, which results from Licensee's use of Licensor's premises, whether such claim arises in whole or in part from the negligence or alleged negligence of the Licensor or otherwise. Licensee, at its cost, shall assume the defense of all such claims regardless of whether they are asserted against Licensee or Licensor.

14. Upon written notice from Licensor, Licensee agrees to assume the defense of any lawsuit, administrative action or other proceeding brought against Licensor by any public body, individual, partnership, corporation, or other legal entity, relating to any matter covered by this License for which Licensee has an obligation to assume liability for and/or to save and hold harmless the Licensor. Licensee shall pay all the costs incident to such defense, including, but not limited to, attorneys' fees, investigators' fees, litigation expenses, settlement payments, and amounts paid in satisfaction of judgments. Any and all lawsuits or administrative actions brought or threatened on any theory of relief available at law, in equity or under the rules of any administrative agency shall be covered by this section, including, but not limited to, the theories of intentional misconduct, negligence, breach of statute or ordinance, or upon any theory created by statute or ordinance, state or federal.

IN WITNESS WHEREOF, the parties have executed this agreement in duplicate the day and year first above written.

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY

By *[Signature]*
Its Manager of Contracts

CITY OF PEORIA, ARIZONA

By _____

Its Mayor

ATTEST:

City Clerk

EXHIBIT "A"

ATTACHED TO CONTRACT BETWEEN
THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY
 AND
CITY OF PEORIA

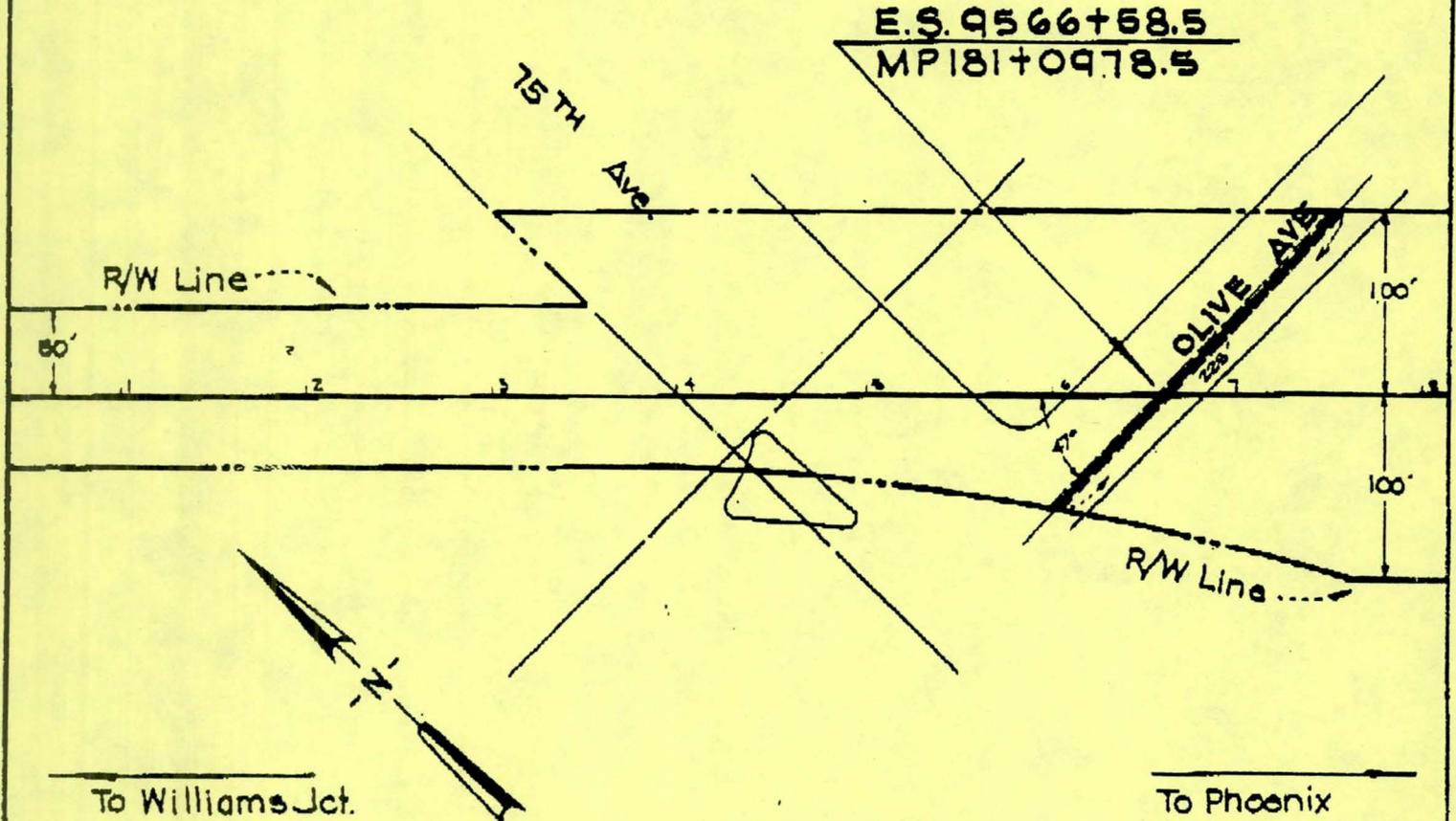
H. G. Webb

H. G. Webb
 CHIEF ENGINEER
 DESCRIPTION APPROVED

TOPEKA, KANSAS
 SCALE: 1 IN. TO 100 FT.
ARIZONA DIV.
PHOENIX SUBDIV.

DATE: June 29, 1989

R/W MAP REF.



DESCRIPTION OF PIPELINE
 PIPELINE SHOWN BOLD

	CARRIER PIPE	CASING PIPE		CARRIER PIPE	CASING PIPE
SIZE:	78"	108"	LENGTH ON R/W:	225'	225'
CONTENTS:	Storm Drain		WORKING PRESSURE:	Gravity	
PIPE MATERIAL:	RQRCP	Steel	BURY: BASE/RAIL TO TOP OF CASING		19'
SPECIFICATION / GRADE:	Class IV	Grade B	BURY: NATURAL GROUND		17'
WALL THICKNESS:	.9.5	0.563	BURY: ROADWAY DITCHES		3'
COATING:	-	-	CATHODIC PROTECTION		-

VENTS: NUMBER SIZE HEIGHT OF VENT ABOVE GROUND

NOTE: CASING TO BE JACKED OR DRY BORED ONLY

Near Peoria, Maricopa
 County, Arizona

C.E. DRAWING NO. 1 - 10464

EXHIBIT "A"

ATTACHED TO CONTRACT BETWEEN
THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY
 AND
CITY OF PEORIA

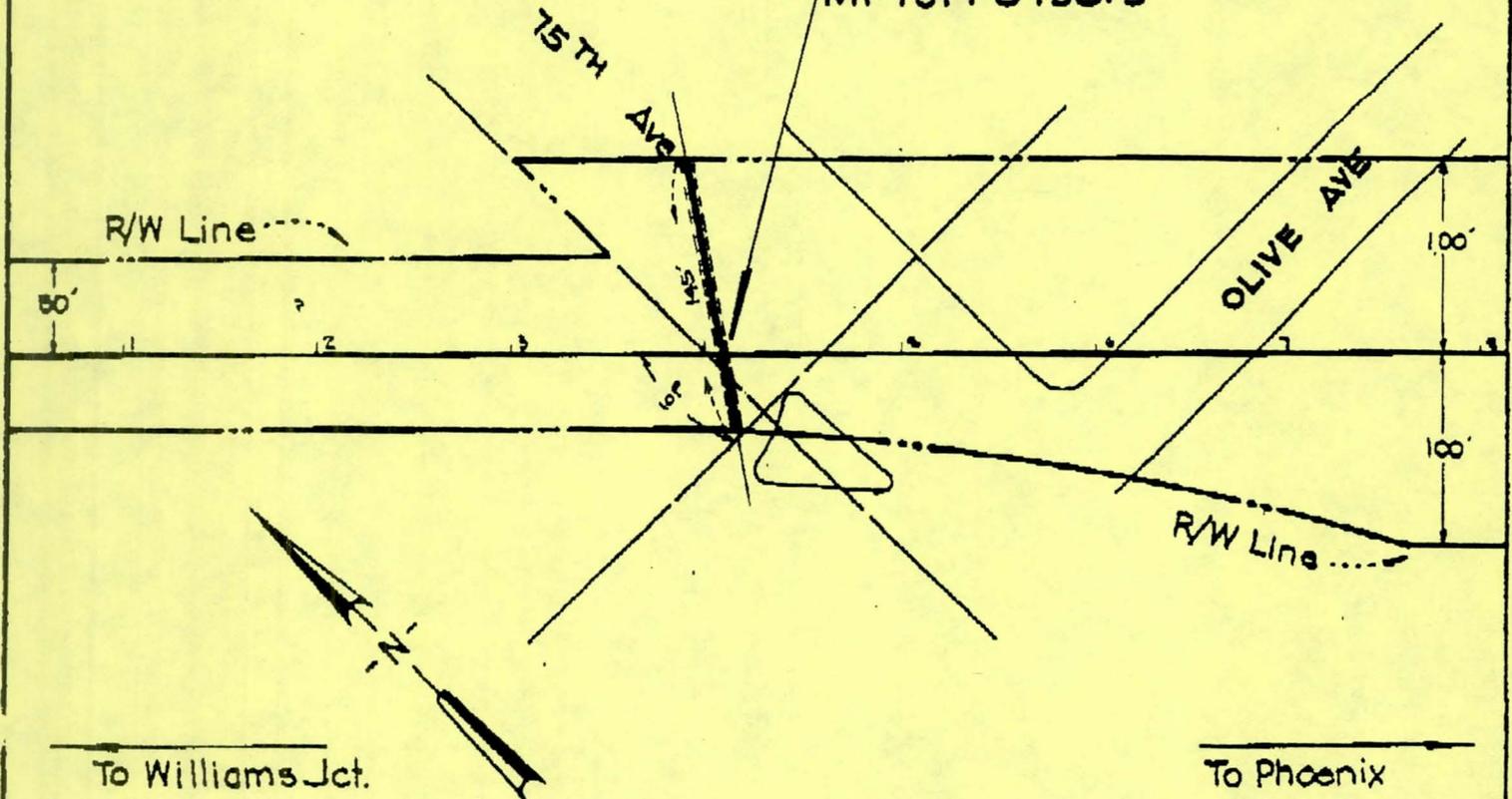
H. G. Webb

H. G. Webb
 CHIEF ENGINEER
 DESCRIPTION APPROVED

TOPEKA, KANSAS
 SCALE: 1 IN. TO 100 FT.
ARIZONA DIV.
PHOENIX SUBDIV.

DATE: June 29, 1989

E.S. 9564+10.5
 MP 181+0730.5



DESCRIPTION OF PIPELINE
 PIPELINE SHOWN BOLD

	CARRIER PIPE	CASING PIPE		CARRIER PIPE	CASING PIPE
SIZE:	24"	42"	LENGTH ON R/W:	145'	145'
CONTENTS:	Water		WORKING PRESSURE:	150 psi	
PIPE MATERIAL:	Ductile Iron	steel	BURY: BASE/RAIL TO TOP OF CASING		18.5
SPECIFICATION / GRADE:		Grade B	BURY: NATURAL GROUND		18
WALL THICKNESS:	3.25	0.653	BURY: ROADWAY DITCHES		5
COATING:			CATHODIC PROTECTION		-

VENTS: NUMBER _____ SIZE _____ HEIGHT OF VENT ABOVE GROUND _____

NOTE: CASING TO BE JACKED OR DRY BORED ONLY

Near Peoria, Maricopa
 County, Arizona

C.E. DRAWING NO. 1 - 10465

R/W MAP REF.

EXHIBIT "A"

ATTACHED TO CONTRACT BETWEEN
THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY
 AND
CITY OF PEORIA

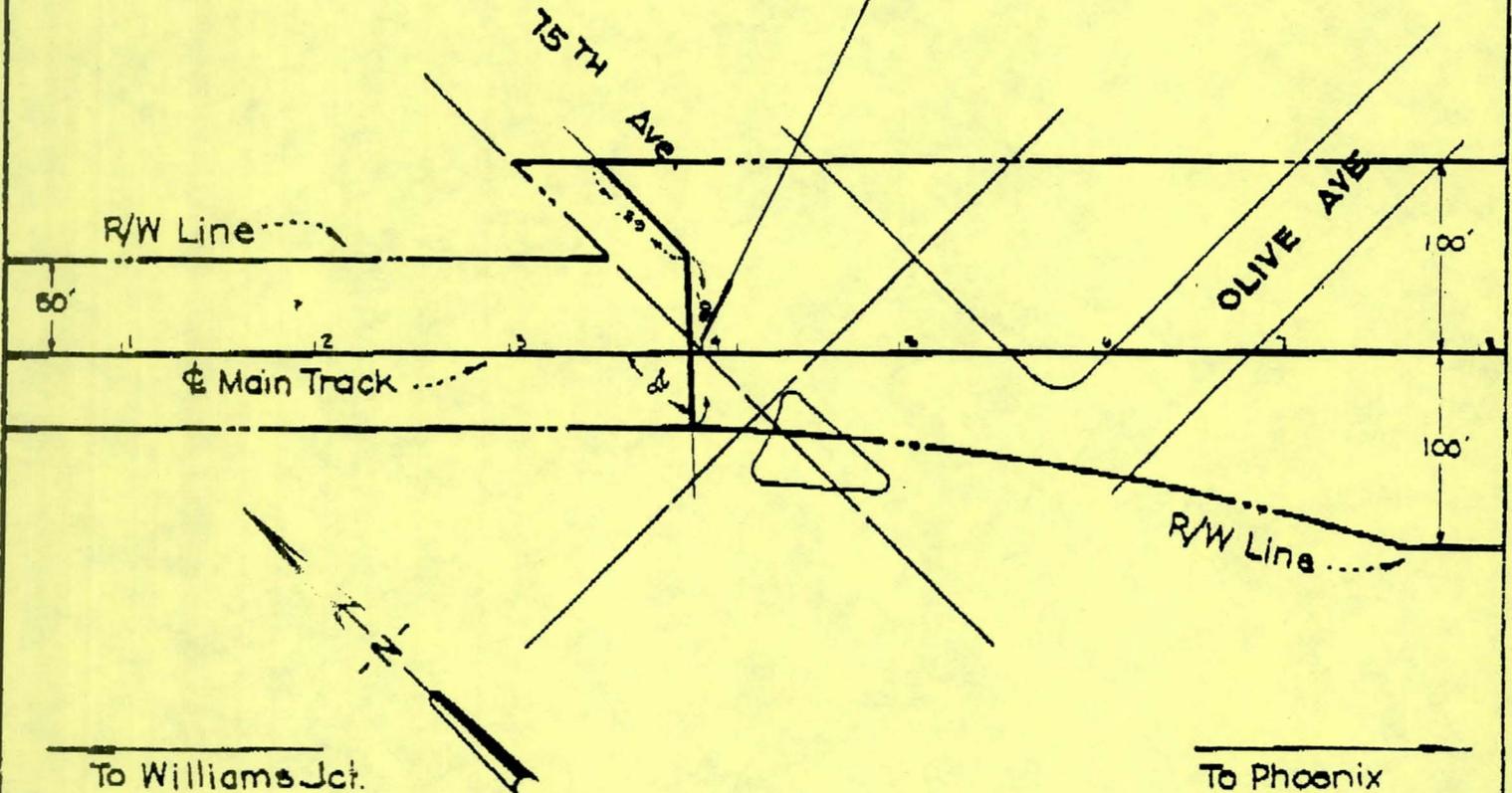
H. G. Webb

H. G. Webb
 CHIEF ENGINEER
 DESCRIPTION APPROVED

TOPEKA, KANSAS
 SCALE: 1 IN. TO 100 FT.
ARIZONA DIV.
PHOENIX SUBDIV.

DATE: June 29, 1989

E.S. 9563+94.5
 MP 181+0714.5



DESCRIPTION OF PIPELINE
 PIPELINE SHOWN BOLD

	CARRIER PIPE	CASING PIPE		CARRIER PIPE	CASING PIPE
SIZE:	54"	78"	LENGTH ON R/W:	155'	155'
CONTENTS:	Storm Drain		WORKING PRESSURE:	Gravity	
PIPE MATERIAL:	RG/RCP	Steel	BURY: BASE/RAIL TO TOP OF CASING		22'
SPECIFICATION / GRADE:	Class IV	Grade B	BURY: NATURAL GROUND		19'
WALL THICKNESS:	4"	0.563	BURY: ROADWAY DITCHES		3'
COATING:	-	-	CATHODIC PROTECTION		-

VENTS: NUMBER _____ SIZE _____ HEIGHT OF VENT ABOVE GROUND _____

NOTE: CASING TO BE JACKED OR DRY BORED ONLY

Near Peoria, Maricopa
 County, Arizona

C.E. DRAWING NO. 1 - 10466

R/W MAP REF.

ATTENTION

ALL PROSPECTIVE BIDDERS

Some of the Bid Bonds previously received with bids for construction projects have not been in complete compliance with Arizona Revised Statutes (A.R.S.).

A.R.S. Sec. 34-201(A)(3) requires that every bid be accompanied by a certified check, cashier's check or surety bond for five percent (5%) of the amount of the bid.

In some cases the bond limit the five percent (5%) to the difference between the low bid and that of the next lowest responsible bidder, to whom a contract could be awarded, in the event that the low bidder failed to enter into contract within the specified time.

Bids received with limitation on the five percent (5%) will be considered as nonresponsive bids and will not be accepted or considered for award of contract.

Please take note and submit your bids accordingly.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
FCD CONTRACT 89-16

OLIVE AVENUE STORMDRAIN
91ST AVENUE TO 67TH AVENUE

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17. Drawings: Olive Avenue Stormdrain, 91st Avenue to 67th Avenue, 162 sheets	Separate



(Area to left reserved for Engineer's Seal)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
INVITATION TO BID

BID OPENING DATE: August 31, 1989

LOCATION:

The project is located in Maricopa County, Arizona in Olive Avenue, from 67th Avenue to 91st Avenue.

PROPOSED WORK:

The work is for installation of reinforced concrete pipe of up to 102" in diameter over a distance of approximately three miles in Olive Avenue from 67th to 91st Avenues (Outer Loop); and the removal and replacement of the asphalt concrete pavement.

BIDS:

SEALED BIDS for the proposed work will be received by the Flood Control District of Maricopa County, 3335 West Durango Street, Phoenix, Arizona 85009 until 2:00 p.m. (Phoenix time) on the above date and then publicly opened and read at 3335 W. Durango St., Phoenix, AZ 85009. No bids will be received after the time specified for bid opening. All bids must be submitted on proposal forms furnished by the Flood Control District and included in the Proposal Pamphlet. The Board of Directors reserves the right to reject any and all bids and to waive any informality in any bid received.

ELIGIBILITY OF CONTRACTOR:

It is the policy of Flood Control District of Maricopa County to endeavor to ensure in every way possible that minority and women-owned business enterprises have every opportunity to participate in providing professional services, purchased goods, and contractual services without being discriminated against on the grounds of race, religion, sex, age, or national origin.

The bidder shall be required to certify that it is appropriately licensed as a Contractor in the State of Arizona for performing the before-mentioned type of work. Verification shall be on the form provided herein.

The bidder may be required to furnish an affidavit as evidence of previous satisfactory performance in the above-mentioned type of work.

In order to determine if bidder is entitled to the provisions of A.R.S. Sec. 34-241, all bidders shall submit, as a part of their proposal, an affidavit stating whether or not taxes have been paid for two successive years as provided in A.R.S. Sec. 34-241. The affidavit shall be in the form provided herein.

In the event a bidder challenges compliance with the tax provision, the successful bidder will be required to provide proof of compliance.

CONTRACT TIME:

All work on this Contract is to be completed within 365 calendar days after date of Notice to Proceed.

MBE/WBE PARTICIPATION:

For this project, a goal of fifteen (15%) percent is desired for Minority/Women-Owned Business Enterprises. Instructions and required forms are included in the Minority and Women-Owned Business Enterprise Program Section.

PRE-BID CONFERENCE:

A pre-bid conference will be held on Tuesday, August 15, 1989 at 1:00 a.m. in the Flood Control District conference room, 3335 W. Durango Street, Phoenix, Arizona 85009. It is in the best interest of prospective bidders to attend the Pre-bid Conference.

Questions or items for clarification may be addressed to the Chief, Contracts Branch, in writing, at least ten (10) days prior to bid opening date. Where appropriate, any answers or clarifications affecting the cost may be addressed to all bidders in an addendum. Under no circumstances will verbal interpretations or clarifications be given to individual contractors.

PROJECT PLANS, SPECIAL PROVISIONS AND CONTRACT DOCUMENTS:

Plans and Construction Specifications may be obtained from Flood Control District of Maricopa County, 3335 West Durango Street, Phoenix, Arizona 85009 upon payment of \$60.00 by check, payable to the FLOOD CONTROL DISTRICT of MARICOPA COUNTY. Half-size sets of plans only are available for \$20.00 per set. This payment will not be refunded. Mail orders for project documents must include an additional \$10.00 for shipping and handling via United Parcel Service. The total \$70.00 will not be refunded. Regardless of circumstances, we cannot guarantee delivery. Each bid must be accompanied by a Bid Bond, cashier's or certified check or postal money Order equal to 5 percent (5%) of the bid, made payable to the FLOOD CONTROL DISTRICT of MARICOPA COUNTY as a guarantee that if the work is awarded to the bidder, the bidder will within ten (10) days of receipt of the Proposal Acceptance, enter into proper contract and bond condition for the faithful performance of the work, otherwise, said amount may be forfeited to the said BOARD OF DIRECTORS as liquidated damages.

All bids are to be marked in accordance with Section 102.9 of the Uniform Standard Specifications and addressed to the Chief Engineer and General Manager, Flood Control District of Maricopa County, 3335 West Durango Street, Phoenix, Arizona 85009.

As provided for in the Agenda Information Form authorizing the Invitation to Bid.

PRINCIPLE ITEMS AND APPROXIMATE QUANTITIES

QUANTITY	UNIT	DESCRIPTION
21,064	C.Y.	Roadway Excavation
76,125	S.Y.	Subgrade Preparation
2,950	TON	4-Inch Aggregate Base Course (Untreated Base)
24,016	TON	7-Inch Asphalt Concrete Base Course, Type A-1-1/2
2,979	L.F.	Install 102" Diameter RCP Storm Drain
4,146	L.F.	Install 96" Diameter RCP Storm Drain
5,201	L.F.	Install 90" Diameter RCP Storm Drain
1,086	L.F.	Install 84" Diameter RCP Storm Drain
1,617	L.F.	Install 78" Diameter RCP Storm Drain
957	L.F.	Install 72" Diameter RCP Storm Drain
336	L.F.	Install 54" Diameter RCP Storm Drain
1,255	L.F.	Install 48" Diameter RCP Storm Drain
1	EA	Storm Drain Manholes, MAG Details 520 & 522
11	EA	Storm Drain Manholes, MAG Details 521 & 522
350	L.F.	108" Tunnel Liner Plate
255	L.F.	78" Tunnel Liner Plate or Steel Casing
190	L.F.	42" Steel Casing
2,658	L.F.	Install 12" VCP Sanitary Sewer
305	L.F.	Install 24" Water Main and Fittings
913	L.F.	Install 16" Water Main and Fittings
696	L.F.	Install 12" Water Main and Fittings

PROPOSAL

TO THE BOARD OF DIRECTORS
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
PHOENIX, ARIZONA

Gentlemen:

The following Proposal is made for constructing FCD Contract 89-16; Olive Avenue Stormdrain, 91st Avenue to 67th Avenue in the County of Maricopa, State of Arizona.

The following Proposal is made on behalf of

and no others. Evidence of authority to submit the Proposal is herewith furnished. The Proposal is in all respects fair and is made without collusion on the part of any person, firm, or corporation mentioned above, and no member or employee of the Board of Directors is personally or financially interested, directly or indirectly, in the Proposal, or in any purchase or sale of any materials or supplies for the work in which it relates, or in any portion of the profits thereof.

The Undersigned certifies that the approved Plans, Special Provisions, Forms of Contract, and Bond authorized by the Board of Directors and constituting essential parts of this Proposal, have been carefully examined and also that the site of the work has been personally inspected.

The Undersigned declares that the amount and nature of the work to be done is understood and that at no time will misunderstanding of the Plans, Construction Specifications, Special Provisions, or conditions to be overcome, be pled. On the basis of the Plans, Construction Specifications, Special Provisions, the Forms of Contract, and the Bond proposed for use, the Undersigned proposes to furnish all the necessary machinery, equipment, tools, apparatus, and other means of construction, to do all the work and to furnish all the materials in the manner specified and to finish the entire project within the time hereinafter proposed and to accept, as full compensation therefore, the sum of various products obtained by multiplying each unit price, herein bid for the work or materials, by the quantity thereof actually incorporated in the complete project, as determined by the Engineer or Architect.

The Undersigned understands that the quantities mentioned herein are approximate only and are subject to increase or decrease and hereby proposes to perform all quantities of work, as either increased or decreased, in accordance with the provisions of the Specifications, at the unit price bid in the Bidding Schedule.

The Undersigned further proposes to perform all extra work that may be required on the basis provided in the Specifications and to give such work personal attention and to secure economical performance.

The Undersigned further proposes to execute the Contract Agreement and furnish satisfactory Bond within ten (10) days of receipt of Notice of Proposal acceptance, **TIME BEING OF THE ESSENCE**. The Undersigned further proposes to begin work as specified in the Contract attached hereto, and to complete the work within 365 calendar days from the effective date specified in the Notice to Proceed, and maintain at all times a Contract Bond, approved by the Board of Directors, in an amount equal to one hundred percent of the total bid. This Bond shall serve not only to guarantee the completion of the work on the part of the Undersigned, but also to guarantee the excellence of both workmanship and material and the payment of all obligations incurred, said Bond to be in full force and effect until the work is finally accepted and the provisions of the Plans, Specifications, and Special Provisions fulfilled.

A Proposal Guaranty in the amount and character named in the Invitation to Bid is enclosed amounting to not less than five (5) percent of the total bid, which Proposal Guaranty is submitted as a guaranty of the good faith of the Bidder and the Bidder will enter into written contract, as provided, to do the work, if successful in securing the award thereof; and it is hereby agreed that if at any time other than as provided in the Proposal requirements and conditions the Undersigned should withdraw his Proposal, if the Proposal is accepted and there should be failure on the part of the Undersigned to execute the Contract and furnish satisfactory Bond as herein provided, the Flood Control District of Maricopa County in either of such events, shall be entitled and is hereby given the right to retain the said Proposal Guaranty as liquidated damages.

The Undersigned acknowledges receipt of the following addenda and has included their provisions in the proposal:

Addendum No. _____	Dated _____

The Undersigned has enclosed the required bid security and subcontractor listing to this Proposal.

BIDDING SCHEDULE

PROJECT: OLIVE AVENUE STORM DRAIN, 91ST AVENUE
TO 67TH AVENUE

CONTRACT: FCD 89-16

ITEM NO.	APPROXIMATE QUANTITY	UNIT	DESCRIPTION	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST	EXTENDED AMOUNT
1	21,064	CY	Roadway Excavation			
2	76,125	SY	Subgrade Preparation			
3	2,950	TON	4-Inch Aggregate Base Course (Untreated Base)			
4	24,016	TON	7-Inch Asphalt Concrete Base Course, Type A-1-1/2			
5	1,635	TON	2-Inch Asphalt Concrete Surface Course, Type D-1/2			
6	2	TON	Emulsified Asphalt, Type SS-1b			
7	80	LF	Install Traffic Barrier Per Plan Details			
8	47	EA	Adjust Manhole Frames & Covers			
9	28	EA	Adjust Valve Boxes & Covers			
10	14	EA	Install Survey Markers, MAG Detail 120-2, Type D			
11	5	EA	Install Survey Markers, MAG Detail 120-2, Type E			
12	1	EA	Relocate Water Meter			

BIDDING SCHEDULE

PROJECT: OLIVE AVENUE STORM DRAIN, 91ST AVENUE
TO 67TH AVENUE

CONTRACT: FCD 89-16

ITEM NO.	APPROXIMATE QUANTITY	UNIT	DESCRIPTION	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST	EXTENDED AMOUNT
13	1	LS	Remove, Relocate or Reset Exist. Signs, Delineators, Mailboxes, Object Markers and Fences			
14	283	LF	Install Vertical Curb & Gutter			
15	1	LS	Remove Exist. Irrigation Struc., Piping, Culverts & Concrete Ditch Linings			
16	1	LS	Remove or Relocate Exist. Landscaping Improvements in Right-of-Way and Temporary Construction Easements			
17	333	LF	Install 10'x6' Concrete Box Culvert, ADOT Detail B-02.10			
18	2,979	LF	Install 102" Diameter RCP Storm Drain			
19	4,146	LF	Install 96" Diameter RCP Storm Drain			
20	5,201	LF	Install 90" Diameter RCP Storm Drain			
21	1,086	LF	Install 84" Diameter RCP Storm Drain			
22	1,617	LF	Install 78" Diameter RCP Storm Drain			

BIDDING SCHEDULE

PROJECT: OLIVE AVENUE STORM DRAIN, 91ST AVENUE
TO 67TH AVENUE

CONTRACT: FCD 89-16

ITEM NO.	APPROXIMATE QUANTITY	UNIT	DESCRIPTION	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST	EXTENDED AMOUNT
23	957	LF	Install 72" Diameter RCP Storm Drain			
24	336	LF	Install 54" Diameter RCP Storm Drain			
25	1,255	LF	Install 48" Diameter RCP Storm Drain			
26	4	LF	Install 36" Diameter RCP Storm Drain			
27	4	LF	Install 24" Diameter RCP Storm Drain			
28	869	LF	Install 18" Diameter RCP Storm Drain with Pipe Collars			
29	13	LF	Install 12" Diameter RCP Storm Drain			
30	1	EA	Storm Drain Manholes, MAG Det. 520 & 522			
31	11	EA	Storm Drain Manholes, MAG Det. 521 & 522			
32	350	LF	108" Tunnel Liner Plate			
33	255	LF	78" Tunnel Liner Plate or Steel Casing			
34	190	LF	42" Steel Casing			

BIDDING SCHEDULE

PROJECT: OLIVE AVENUE STORM DRAIN, 91ST AVENUE
TO 67TH AVENUE

CONTRACT: FCD 89-16

ITEM NO.	APPROXIMATE QUANTITY	UNIT	DESCRIPTION	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST	EXTENDED AMOUNT
35	4	EA	Catch Basin, MAG Detail 535, Type F			
36	1	LS	Connect to Exist. ADOT Box Culvert			
37	1	LS	Transition Structure, Sta. 66+09 to Sta. 66+21			
38	1	LS	Junction Structure, Sta. 118+08.89 to Sta. 118+16.89			
39	1	LS	Junction Structure, Sta. 129+03.4 to Sta. 129+13.9			
40	1	LS	Junction Structure, Sta. 168+66.5 to Sta. 168+82.5			
41	1	LS	Drop Structure, Sta. 17+16.94 (75th Ave)			
42	1	LS	Junction Structure, Sta. 193+51.5 to Sta. 193+67.5			
43	1	LS	Junction Structure, Sta. 223+46.1 to Sta. 223+64.7			
44	1	LS	Remove 37.5 L.F. Exist. 48" Storm Drain and Replace with 37.5 L.F. New 54" Storm Drain with 54" Wye			
45	1	LS	Install 18" Sanitary Sewer in Top of Storm Drain			

BIDDING SCHEDULE

PROJECT: OLIVE AVENUE STORM DRAIN, 91ST AVENUE
TO 67TH AVENUE

CONTRACT: FCD 89-16

ITEM NO.	APPROXIMATE QUANTITY	UNIT	DESCRIPTION	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST	EXTENDED AMOUNT
46	2,658	LF	Install 12" VCP Sanitary Sewer			
47	60	LF	Install 8" VCP Sanitary Sewer			
48	7	EA	Sanitary Sewer Manholes, MAG Details 420 & 424			
49	1	LS	Connection to Exist. Sewer Manhole			
50	1	LS	Install New Manhole on Exist. 12" Sewer and Plug Exist. 12" Sewer			
51	305	LF	Install 24" Water Main & Fittings			
52	913	LF	Install 16" Water Main & Fittings			
53	696	LF	Install 12" Water Main & Fittings			
54	53	LF	Install 8" Water Main & Fittings			
55	2	EA	Install 12" x 12" Tapping Sleeve & Valve with Valve Box and Cover			
56	1	EA	Install 12" x 8" Tapping Sleeve & Valve with Valve Box and Cover			
57	1	EA	Install 8" x 8" Tapping Sleeve & Valve with Valve Box and Cover			

BIDDING SCHEDULE

PROJECT: OLIVE AVENUE STORM DRAIN, 91ST AVENUE
TO 67TH AVENUE

CONTRACT: FCD 89-16

ITEM NO.	APPROXIMATE QUANTITY	UNIT	DESCRIPTION	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST	EXTENDED AMOUNT
58	3	EA	Install 12" Gate Valve with Box & Cover			
59	1	LS	Pressure Regulating Valve Station with 12" Bypass and Valves			
60	1	LS	Combination Air Release Valve Station			
61	2	EA	Cut and Plug Existing 8" Waterlines			
62	1	LS	Remove 20 LF 36" Cast-In-Place Pipe and Replace with 20 L.F. 36" RCP and 2 Concrete Collars			
63	1	EA	Horizontal or Vertical Adjustment of 8" Waterline			
64	1	EA	Horizontal or Vertical Adjustment of 10" Waterline			
65	1	EA	Install Flushing Connection and Outlet with 30 LF of 2" Pipe			
66	42	LF	Protective Concrete Encasement, Pipe Sizes 2" to 6"			
67	100	LF	Protetive Concrete Encasement, Pipe Sizes 8" to 12"			
68	160	LF	Protective Concrete Encasement, Pipe Sizes 16" to 24"			

BIDDING SCHEDULE

PROJECT: OLIVE AVENUE STORM DRAIN, 91ST AVENUE
TO 67TH AVENUE

CONTRACT: FCD 89-16

ITEM NO.	APPROXIMATE QUANTITY	UNIT	DESCRIPTION	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST	EXTENDED AMOUNT
69	75	EA	Permanent Pipe Supports, MAG Det. 403			
70	586	SY	Pavement Replacement, Type A-T-TOP			
71	398	SY	Pavement Replacement, Type B-T-TOP			
72	32	LF	Remove & Replace Sidewalk, Curb & Gutter			
73	1	LS	Traffic Control			
74	1	LS	Pavement Marking Removals			
75	22,355	LF	Traffic Marking, 4" Width, Yellow			
76	32,298	LF	Traffic Marking, 4" Width, White			
77	49	EA	Raised Non-Reflective Pavement Markers, Yellow			
78	26	EA	Raised Non-Reflective Pavement Markers, White			
79	14	EA	Arrows, Left-Turn or Right-Turn			
80	452	LF	Electrical Conduit, 3" PVC, Type II			

BIDDING SCHEDULE

PROJECT: OLIVE AVENUE STORM DRAIN, 91ST AVENUE
TO 67TH AVENUE

CONTRACT: FCD 89-16

ITEM NO.	APPROXIMATE QUANTITY	UNIT	DESCRIPTION	UNIT COST (IN WRITING) AND /100 DOLLARS	UNIT COST	EXTENDED AMOUNT
81	99	LF	Electrical Conduit, 2" PVC, Type II			
82	1,568	LF	Electrical Conduit, 1" PVC, Type II			
83	1	EA	Pull Box, Size #7			
84	3	EA	Pull Box, Size #5			
85	8	EA	Pull Box, Size #3-1/2			
86	4	EA	Pole Foundation, Type A-14			
87	4	EA	Pole Foundation, Type M			
88	1	LS	Install 18" Private Irrigation Piping and Appurtenances			
89	1	LS	Install Private Irrigation Concrete Ditch and Appurtenances			
90	1	LS	Install Private Irrigation Structures and Equipment			
91	1	LS	Install Headwall/Transition per SRP Drawings, Sta. 113+58 (Contingent Item)			
92	1	LS	Install Headwall/Trashrack with Transition Per SRP Drawings, Sta. 132+20 (Contingent Item)			

IF BY AN INDIVIDUAL:

(NAME - TITLE) (ADDRESS)
DATE _____
(PHONE)

IF BY A FIRM OR PARTNERSHIP:

(FIRM NAME) (FIRM ADDRESS)
BY: _____ DATE: _____
(NAME - TITLE) (PHONE)

** Name and Address of Each Member:

** The name and post office address of each member of the firm or partnership must be shown.

IF BY A CORPORATION:

(CORPORATE NAME) (CORPORATION ADDRESS)
BY: _____ DATE: _____
(PHONE)

TITLE: _____

* Incorporated under the Laws of _____

Names and Addresses of Officers:

(PRESIDENT) (ADDRESS)

(SECRETARY) (ADDRESS)

(TREASURER) (ADDRESS)

* The name of the State under which the laws of the Corporation was chartered and names, title, and business address of the President, Secretary, and Treasurer must be shown.

SURETY BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, (hereinafter called the Principal), and the _____, a corporation duly organized under the laws of the State of _____, as Surety, (hereinafter called the Surety), are held and firmly bound unto the Flood Control District of Maricopa County as Obligee, in the sum of ___ percent (___%) of the total amount of the bid of Principal, submitted by him to the Flood Control District of Maricopa County, for the work described below, for the payment of which sum, well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, and administrators, successors and assigns, jointly and severally, firmly by these presents, and in conformance with A.R.S. Sec. 34-201(A)(3).

WHEREAS, the said Principal is herewith submitting its proposal for FCD Contract 89-16; Olive Avenue Stormdrain, 91st Avenue to 67th Avenue in the County of Maricopa, State of Arizona.

NOW, THEREFORE, if the Flood Control District of Maricopa County shall accept the proposal of the Principal and the Principal shall enter into a contract with the Flood Control District of Maricopa County in accordance with the terms of such proposal and give such Bonds and Certificates of Insurance as specified in the Standard Specifications with good and sufficient Surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter into such contract and give such Bond and Certificates of Insurance, if the Principal shall pay to the Flood Control District of Maricopa County the sum of money set forth above as liquidated damages for failure of the Principal to enter into the contract, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____, A.D., 1989.

Principal

Title

Witness:

Surety

Title

Witness:

VERIFICATION OF LICENSE

Pursuant to A.R.S. Sec. 32-1169, I hereby state that I hold a current contractor's license, duly issued by the office of the Registrar of Contractors for the State of Arizona, said license has not been revoked, that the license number is: _____; that my privilege license number (as required by A.R.S. Sec. 42-1305) is: _____; and that, if any exemption to the above licensing requirements is claimed;

(1) The basis for the claimed exemption is: _____ and;

(2) The names(s) and license number(s) of any general, mechanical, electrical, or plumbing contractor(s) to be employed on the work are:

IT IS UNDERSTOOD THAT THE FILING OF AN APPLICATION CONTAINING FALSE OR INCORRECT INFORMATION CONCERNING AN APPLICANT'S CONTRACTOR'S LICENSE OR PRIVILEGE LICENSE WITH THE INTENT TO VOID SUCH LICENSING REQUIREMENTS IS UNSWORN FALSIFICATION PUNISHABLE ACCORDING TO ARIZONA REVISED STATUTES SECTION 13-2704.

DATE: _____ SIGNATURE OF LICENSEE: _____

COMPANY: _____

MINORITY AND WOMEN-OWNED BUSINESS ENTERPRISE PROGRAM

- A. The following conditions will apply in the calculation of the percentage attainment:
1. All MBE/WBE firms used in attainment of the goal must be certified with the Maricopa County Minority Business Office which is located in the Maricopa County Highway Department building, 3325 West Durango Street, Phoenix. In addition, only those firms certified at least seven calendar days prior to the bid opening will be considered in the attainment of the goal.
 2. Prime contractor subcontracts to MBE or WBE:
The MBE/WBE amount to be applied to the goal will be based on that portion (dollar value) of the contract that the MBE/WBE performs. For example, if a prime contractor subcontracts work amounting to \$100,000 of a contract for which the total project cost is \$1,000,000. the MBE/WBE participation will be credited as 10 percent.
 3. Prime Minority Contractor:
An MBE/WBE prime contractor will be credited with the MBE/WBE participation for that portion of the contract which they themselves perform plus that portions subcontracted to other MBE/WBE firms. For example, if an MBE/WBE prime contractor proposes to perform 50 percent of a project quoted at \$1,000,000 and subcontracts 25 percent to an MBE firm and 25 percent to a non-MBE/WBE firm, MBE/WBE participation will be credited as 75 Percent, or \$750,000.
 4. Minority-Non-Minority Joint Venture:
A joint venture consisting of MBE/WBE participation and non-MBE/WBE business enterprises, functioning as a prime contractor, will be credited with minority participation on the basis of the percentage of profit accruing to the MBE/WBE firm. For example, if a MBE/WBE and non-MBE/WBE joint venture proposes to perform 50 percent of a \$1,000,000 project and 50 percent of the joint venture profits (\$500,000) are to accrue to the MBE/WBE partner in the joint venture, MBE/WBE participation will be credited at 25 percent or \$250,000.
 5. Lower Tier Non-MBE/WBE Participation:
MBE/WBE subcontractors proposing to further subcontract to non-MBE/WBE contractors shall not have that portion of subcontracting activity considered when determining the percentage of MBE/WBE participation.

6. MBE/WBE Suppliers:

Any MBE/WBE supplier that manufactures or substantially alters the material or product it supplies will have that portion of activity considered when determining the percentage of MBE/WBE participation. Any MBE/WBE Wholesaler, Distributor, or Jobber that does not manufacture or substantially alter the materials or product it sells will be limited to 20 percent of the sale price when determining the percentage of MBE/WBE participation.

B. Required forms:

An affidavit is included as part of this section. The form must be completed within seven calendar days after the Notice of Award of Contract. The low bidder is required to submit a Minority/Women-Owned Business Enterprise Program MBE/WBE Participation Affidavit listing the MBE/WBE participation by MBE/WBE firm and the related dollar value of the MBE/WBE contract.

C. Requests for Pay:

Each Request for Pay must be accompanied by a Maricopa County Minority/Women-Owned Business Enterprise Program MBE/WBE Participation Report. The final pay request shall include a listing of total contract MBE/WBE participation.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MINORITY/WOMEN-OWNED BUSINESS ENTERPRISE PROGRAM

MBE/WBE PARTICIPATION ASSURANCES
AFFIDAVIT

The undersigned, fully cognizant of the Flood Control District of Maricopa County MBE/WBE Program requirements and of the goal established, hereby certifies that in the preparation of this bid,

(the entity submitting the bid)

(CHECK ONE)

- ___ Will meet the established goal for participation by
Minority/Women-Owned Business Enterprises.
- ___ Will provide the necessary documentation to Minority Business
Office to establish that a good faith effort was made.
- ___ Will not participate in the MBE/WBE Program.

The bidder will specify its MBE/WBE participation on the Intended Participation Affidavit or provide documentation of its good faith efforts not later than 4:00 p.m., the seventh calendar day following the Notice Of Award. The required affidavit shall be obtained by the apparent first and second low bidders from the Minority Business Office, Maricopa County Highway Department Building, 3325 West Durango Street, Phoenix, Arizona 85009, following the opening and reading of bids; a sample affidavit form for reference purposes follows.

Name of Firm

Signature

Title

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MINORITY-OWNED BUSINESS ENTERPRISE PROGRAM

MBE/WBE PARTICIPATION AFFIDAVIT
(To be submitted within seven calendar days of Notice of Award)

Flood Control District of Maricopa County Contract No. FCD 89-16

1. Intended Minority/Women-Owned Business Enterprise Participation (attach additional papers, if necessary.)

Name of Firm	Principal	Address	Item Number(s) or Work Description	Dollar Value of Subcontract
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

MBE/WBE Contract Goal 15% Total Dollar Value of Proposed Subcontract(s) _____
Contract Bid Total _____
Percent of Contract Bid to be Subcontracted _____

2. Substitution

I understand that if a Maricopa County certified MBE/WBE (sub)contractor is unable to perform for any part of the intended work, my company should make sufficient efforts to (sub)contract either the same, or other work to an alternative Maricopa County certified MBE/WBE equal to the amount to attain the MBE/WBE goal and that I must document such efforts.

Name of Firm

Signature

Title

cc: Minority Business Office
Maricopa County Highway Building
3325 West Durango Street
Phoenix, Arizona 85009

MARICOPA COUNTY
MINORITY/WOMEN-OWNED BUSINESS ENTERPRISES PROGRAM

MBE/WBE PARTICIPATION REPORT
(To be attached with Request for Pay)

Date: _____

Contractor: _____

Contact Person: _____

Address: _____

Telephone: _____

Project: Olive Avenue Stormdrain, 91st Avenue
to 67th Avenue

Contract Number: FCD 89-16

For Pay Period of: _____

Subcontractor: _____

Person to Contact: _____

Address: _____

Telephone Number: _____

Type of Firm: _____

Class of Work: _____

Subcontract Amount: _____

Amount Earned _____

(Commission) This Period: _____

Total Earned by This Subcontractor: _____

Total MBE/WBE Contract Goal, %: 15

Total Cumulative MBE/WBE _____

Participation on This Contract, %: _____

MBE/WBE subcontract payment made
during this reporting period (yes or no): _____

cc: Minority Business Office
Maricopa County Highway Building
3325 West Durango Street
Phoenix, Arizona 85009

CONTRACT AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 1989, by and between FLOOD CONTROL DISTRICT OF MARICOPA COUNTY, hereinafter called the OWNER, acting by and through its BOARD OF DIRECTORS, and

_____ hereinafter called the CONTRACTOR.

WITNESSTH: That the said CONTRACTOR, for and in the consideration of the sum of _____ to be paid to him by the OWNER, in the manner and at the times hereinafter provided, and of the other covenants and agreements herein contained, hereby agrees for himself, heirs, executors, administrators, successors, and assigns as follows:

ARTICLE I - SCOPE OF WORK: The CONTRACTOR shall construct, and complete in a workmanlike and substantial manner and to the satisfaction of the Chief Engineer and General Manager, a project for the Flood Control District of Maricopa County, designated as FCD Contract 89-16; Olive Avenue Stormdrain, 91st Avenue to 67th Avenue own cost and expense all necessary machinery, equipment, tools, apparatus, materials, and labor to complete the work in the most substantial and workmanlike manner according to the Plans and Construction Specifications on file with the Flood Control District of Maricopa County, 3335 West Durango Street, Phoenix, Arizona, and such modifications of the same and other directions that may be made by the Flood Control District of Maricopa County as provided herein.

ARTICLE II - CONTRACT DOCUMENTS: The Construction Specifications (Invitation to Bid, Plans, Standard Specifications and Details, Special Provisions, Addenda, if any, Proposal, Affidavits, Performance Bond, Payment Bond, Certificates of Insurance, and Change Orders, if any,) are by this reference made a part of this Contract and shall have the same effect as though all of the same were fully inserted herein.

ARTICLE III - TIME OF COMPLETION: The CONTRACTOR further covenants and agrees at his own proper cost and expense, to do all work as aforesaid for the construction of said improvements and to completely construct the same and install the material therein, as called for by this agreement free and clear of all claims, liens, and charges whatsoever, in the manner and under the conditions specified within the time, or times, stated in the proposal pamphlet.

ARTICLE IV - PAYMENTS: For and in consideration of the faithful performance of the work herein embraced as set forth in the Contract Documents, which are a part hereof and in accordance with the directions of the OWNER, through its Engineer and to his satisfaction, the OWNER agrees to pay the said CONTRACTOR the amount earned, computed from actual quantities of work performed and accepted or materials furnished at the unit bid price on the Proposal made a part hereof, and to make such payment in accordance with the requirements of A.R.S. Sec. 34-221, as amended. The CONTRACTOR agrees to discharge its obligations and make payments to its subcontractors and suppliers in accordance with the provisions of A.R.S. Sec. 32-1129.

ARTICLE V - TERMINATION: The OWNER hereby gives notice that pursuant to A.R.S. Sec. 38-511(A), this contract may be cancelled without penalty or further obligation within three years after execution if any person significantly involved in initiation, negotiation, securing, drafting or creating a contract on behalf of the OWNER is, at any time while the contract or any extension of the contract is in effect, an employer agent of any other party to the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract. Cancellation under this section shall be effective when written notice from the Chief Engineer and General Manager of the OWNER is received by all of the parties to the contract. In addition, the OWNER may recoup any fee for commission paid or due to any person significantly involved in initiation, negotiation, securing, drafting or creating the contract on behalf of the OWNER from any other party to the contract arising as a result of the contract.

ARTICLE VI - NEGOTIATION CLAUSE: Recovery of damages related to expenses incurred by the CONTRACTOR for a delay for which the OWNER is responsible, which is unreasonable under the circumstances and which was not within the contemplation of the parties to the contract, shall be negotiated between the CONTRACTOR and the OWNER. This provision shall be construed so as to give full effect to any provision in the contract which requires notice of delays, provides for arbitration or other procedure for settlement or provides for liquidated damages.

ARTICLE VII - COMPLIANCE WITH LAWS: The CONTRACTOR is required to comply with all Federal, State and local ordinances and regulation. The CONTRACTOR's signature on this contract certifies compliance with the provisions of the I-9 requirements of the Immigration Reform Control Act of 1986 for all personnel that the CONTRACTOR and any subcontractors employ to complete this project. It is understood that the OWNER shall conduct itself in accordance with the provisions of the Maricopa County Procurement Code.

ARTICLE VIII - MBE/WBE PROGRAM: Flood Control District of Maricopa County will endeavor to ensure in every way possible that minority and women-owned business enterprises shall have every opportunity to participate in providing professional services, purchased goods, and contractual services to the Flood Control District of Maricopa County without being discriminated against on the grounds of race, religion, sex, age, or national origin.

ARTICLE IX - ANTI-DISCRIMINATION PROVISION: The CONTRACTOR agrees not to discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, or handicap and further agrees not to engage in any unlawful employment practices. The CONTRACTOR further agrees to insert the foregoing provision in all subcontracts hereunder.

IN WITNESS WHEREOF: Four (4) identical counterparts of this Contract, each of which shall for all purposes be deemed an original thereof, have been duly executed by the parties hereinabove named, on the date and year first above written.

PARTY OF THE FIRST PART

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
PARTY OF THE SECOND PART

BY: _____
Printed Name

BY: _____
CHAIRMAN, BOARD OF DIRECTORS

BY: _____
Signature

DATE: _____

Title

DATE: _____

RECOMMENDED BY:

ATTEST:

CHIEF ENGINEER AND GENERAL MANAGER
FLOOD CONTROL DISTRICT OF
MARICOPA COUNTY

CLERK OF THE BOARD

DATE: _____

LEGAL REVIEW

Approved as to form and within the powers and authority granted under the laws of the State of Arizona to the Flood Control District of Maricopa County.

BY: _____
GENERAL COUNSEL, FLOOD CONTROL
DISTRICT OF MARICOPA COUNTY

DATE: _____

STATUTORY PAYMENT BOND PURSUANT TO TITLE 34
CHAPTER 2, ARTICLE 2, OF THE ARIZONA REVISED STATUTES
(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS:

That, _____
(hereinafter called the Principal), As Principal, and _____

_____ a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the Flood Control District of Maricopa County, in the County of Maricopa, State of Arizona (hereinafter called the Obligee), in the amount of _____

_____ dollars (\$_____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with Flood Control District of Maricopa County, dated the ____ day of _____, 1989, for FCD Contract 89-16; Olive Avenue Stormedrain, 91st Avenue to 67th Avenue, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall promptly pay all monies due to all persons supplying labor or materials to him or his subcontractors in the prosecution of the work provided for in said contract, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, of the Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of said Title, Chapter, and Article, to the extent as if it was copied at length herein.

The prevailing party or any party which recovers judgement on this bond shall be entitled to such reasonable attorney's fees as may be fixed by the court or a judge thereof.

Witness our hands this _____ day of _____, 1989.

PRINCIPAL

SEAL

BY: _____

AGENCY OF RECORD

SURETY

SEAL

BY: _____

AGENCY ADDRESS

POWER OF ATTORNEY

SEAL

BY: _____

BOND NUMBER. _____

STATUTORY PERFORMANCE BOND PURSUANT TO TITLE 34
CHAPTER 2, ARTICLE 2, OF THE ARIZONA REVISED STATUTES
(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS:

That, _____
(hereinafter called the Principal), As Principal, and _____

_____ a corporation organized and existing under the laws of the State of _____, with its principal office in the City of _____ (hereinafter called the Surety), as Surety, are held and firmly bound unto the Flood Control District of Maricopa County, in the County of Maricopa, State of Arizona, in the amount of _____ dollars (\$ _____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with Flood Control District of Maricopa County, dated the ____ day of _____, 1989, for FCD Contract 89-16; Olive Avenue Stormdrain, 91st Avenue to 67th Avenue, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extension thereof, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the Surety being hereby waived; then the above obligation shall be void, otherwise to remain in full force and effect;

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, of the Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of said Title, Chapter, and Article, to the extent as if it was copied at length herein.

The prevailing party in a suit on this bond shall be entitled to such reasonable attorney's fees as may be fixed by a judge of the court.

Witness our hands this _____ day of _____, 1989.

AGENCY OF RECORD

PRINCIPAL SEAL

BY: _____
AGENCY ADDRESS

BOND NUMBER _____

SURETY SEAL

POWER OF ATTORNEY SEAL

BY: _____

BY: _____

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CERTIFICATE OF INSURANCE

CONTRACT FCD 89-16

PROJECT TITLE Olive Avenue Stormdrain - 91st Ave. to 67th Ave.

NAME AND ADDRESS OF INSURANCE AGENCY	INSURANCE COMPANIES AFFORDING COVERAGES
	Company Letter A
	Company Letter B
	Company Letter C
	Company Letter D
	Company Letter E
	Company Letter F
NAME AND ADDRESS OF INSURED	Company Letter D
	Company Letter E
	Company Letter F
NAME AND ADDRESS OF INSURED	Company Letter G

THIS IS TO CERTIFY THAT POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE AND ARE IN FORCE AT THIS TIME.

COMPANY LETTER	TYPE OF INSURANCE	POLICY NUMBER	EXPIRATION DATE	LIMITS OF LIABILITY IN \$1,000 MINIMUM each occurrence	
	COMMERCIAL GENERAL <input checked="" type="checkbox"/> LIABILITY FORM <input checked="" type="checkbox"/> PREMISES OPERATIONS <input checked="" type="checkbox"/> CONTRACTUAL <input checked="" type="checkbox"/> BROAD FORM PROPERTY DAMAGE <input checked="" type="checkbox"/> EXPLOSION & COLLAPSE <input checked="" type="checkbox"/> PRODUCTS/COMPLETED OPERATIONS HAZARD <input checked="" type="checkbox"/> UNDERGROUND HAZARD <input checked="" type="checkbox"/> INDEPENDENT CONTRACTORS <input checked="" type="checkbox"/> PERSONAL INJURY			BODILY INJURY per person PROPERTY DAMAGE each occurrence	Combined <u>Single</u> Limit = 5,000
	COMPREHENSIVE AUTO <input checked="" type="checkbox"/> LIABILITY & NON-OWNED			SAME AS ABOVE	
	<input checked="" type="checkbox"/> EXCESS LIABILITY			NECESSARY UP UNDERWRITING NET ABOVE \$10,000	10,000
	<input checked="" type="checkbox"/> WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY			STATUTORY each accident	\$100
	<input type="checkbox"/> OTHER				
	<input checked="" type="checkbox"/> OTHER Additional Insured Shall Also Include: City of Peoria; City of Glendale; Maricopa County, and Boyle Engineering, Inc.				

Except for Workers' Compensation Insurance, the Flood Control District of Maricopa County is added as an additional insured in respect to liability arising in any manner out of the performance of any contract entered into between the insured and the Flood Control District or liability arising out of any services provided or duty performed by any party as required by statute, law, purchase order, or otherwise required. It is agreed that any insurance available to the named insured shall be primary of other sources that may be available. It is further agreed that no policy shall expire, be cancelled, or materially changed to effect the coverage available to the District without thirty (30) days written notice to the District. THIS CERTIFICATE IS NOT VALID UNLESS COUNTERSIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE INSURANCE COMPANY.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
 3335 West Durango Street
 Phoenix, Arizona 85009

DATE ISSUED _____
 AUTHORIZED REPRESENTATIVE _____

It is further agreed that:

The Contractor hereby agrees to indemnify and save harmless the FLOOD CONTROL DISTRICT OF MARICOPA COUNTY, CITY OF GLENDALE, CITY OF PEORIA, MARICOPA COUNTY, AND BOYLE ENGINEERING or any of its departments, agencies, officers or employees, from and against all loss, expense, damage or claim of any nature whatsoever which is caused by any activity, condition or event arising out of the performance or nonperformance of any of the provisions of this Agreement. The Flood Control District of Maricopa County, City of Glendale, City of Peoria, Maricopa County, and Boyle Engineering shall in all instances be indemnified against all liability, losses and damages of any nature for or on account of any injuries to or death of persons or damages to or destruction of property arising out of or in any way connected with the performance or nonperformance of this Agreement, except such injury or damage as shall have been occasioned by the negligence of the Flood Control District of Maricopa County. The above cost of damages incurred by the Flood Control District of Maricopa County or any of its departments, agencies, officers or employees, or others as aforesaid, shall include in the event of an action, court costs, expenses for litigation and reasonable attorney's fees.

Firm

Date

Principal

Title

SUBCONTRACTOR LISTING

Following is a listing of Subcontractors and material suppliers that are to be used in the event the undersigned should enter into contract with the Owner. This is not an exhaustive or inclusive list.

(Signature) _____

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MARICOPA COUNTY, ARIZONA
OLIVE AVENUE IMPROVEMENTS
PHASE I
91ST AVENUE TO 67TH AVENUE
PROJECT NO. FCD 89-16**

CONSTRUCTION SPECIAL PROVISIONS

PROPOSED WORK

The Olive Avenue Improvement Project is located along Olive Avenue between 67th Avenue and the Outer Loop Freeway (State Route 47 near 91st Avenue); 83rd Avenue both north and south of Olive Avenue; 75th Avenue/Grand Avenue north of Olive Avenue, and the intersection of 67th Avenue and Olive Avenue in the City of Peoria and City of Glendale, Arizona. The Olive Avenue roadway is under the jurisdiction of the Maricopa County Highway Department, as the road has not been annexed by the City of Peoria.

The project location is shown on the vicinity map on the Construction Drawings.

The project is a multi-phased project. Phase I (this phase) of the project consists of, but is not limited to, the following major components of construction:

- o Removal of existing pavement and subgrade of Olive Avenue between 67th Avenue and the Outer Loop Freeway to the limits shown on the Construction Drawings.
- o Removal of existing pavements and subgrades of 83rd Avenue to the limits shown on the Construction Drawings.
- o Excavating, furnishing and installing and backfilling rubber gasketed reinforced concrete storm drain pipe of sizes varying from 12-inch diameter to 102-inch diameter including connector pipes, catch basins, junction structures, transition structures, manholes, tunneling and jacking casing for storm drain pipe beneath the Santa Fe Railroad/75th Avenue/Grand Avenue intersections, all testing and all other appurtenances required for a complete installation in accordance with the Construction Drawings and these specifications.
- o Preparing subgrade and providing full depth asphalt concrete paving to the limits shown on the Construction Drawings.
- o Tapers and transitions to existing pavements where shown on the Construction Drawings.
- o Construction of curb and gutter.
- o Excavating, furnishing and installing, and backfilling water mains varying in size from 8-inch to 24-inch diameter including pipe, fittings, valves and valve boxes, pressure reducing station, testing, disinfection and all other appurtenances required for a complete installation and in service.

- o Excavating, furnishing, installing, backfilling a new 12-inch diameter sewer line including manholes, testing and all other appurtenances.
- o Miscellaneous removals, relocations and adjustments of existing utility facilities as shown on the Construction Drawings and as necessary during the course of construction.
- o Coordinating with Salt River Project and relocating existing irrigation facilities, including concrete lined ditches, installation of reinforced concrete pipe and cast-in-place pipe (SRP Irrigation will construct structures) in accordance with the SRP relocation plans and standards and these Contract Documents.
- o Reconstruction of private irrigation ditches.
- o Control of traffic during the project duration.
- o Furnishing and installation of traffic signal facilities as shown on the plans.

Future construction including extending full depth asphalt concrete pavement to the ultimate street section, extension of storm drain connector piping, catch basins, final relocations of Salt River Project facilities, signalization of 91st Avenue/Olive intersection, construction of curb, gutter and sidewalk and other miscellaneous work is not part of this contract.

STANDARD SPECIFICATIONS AND STANDARD DETAILS

The Flood Control District of Maricopa County is operating under the latest revision of the 1979 Edition of the Uniform Standard Specifications for Public Works Construction, published by the Maricopa Association of Government and is herewith incorporated by reference and made a part of the contract documents hereof.

The Flood Control District of Maricopa County is also operating under the latest revision of the 1979 Edition of Uniform Standard Details for Public Works Construction as published by the Maricopa Association of Governments which is herewith incorporated by reference and made a part of the contract documents hereof.

On work involving City of Peoria water and sewer facilities, the latest edition of the City of Peoria supplements to the MAG Standard Specifications and Standard Details shall apply.

On work involving paving and traffic control, the latest edition of the Maricopa County Highway Department supplements to the MAG Standard Specifications and Standard Details shall apply.

On work inside the City limits of the City of Glendale, the latest edition of the City of Glendale supplements to the MAG Standard Specifications and Standard Details shall apply.

On work involving Salt River Project (SRP) irrigation facilities, the latest edition of SRP Standard Specifications and Details shall apply.

RELOCATION OF EXISTING FACILITIES AND SERVICES

If relocation or adjustment of existing facilities is noted on the plans, this is intended to include the relocation or adjustment of items appurtenant to the noted piece of work, just as if they were specifically called out. If these appurtenant items are lost or broken during construction, they shall be replaced by the Contractor with items of equal or better quality.

EQUIPMENT RENTAL RATES FOR ACTUAL COST WORK

Compensation for equipment used on Actual Cost Work performed by the Contractor (or subcontractor) shall be determined based on the rates published in the latest edition, "Schedule of Equipment Rental Rates for Force Account Work", published by the Arizona Department of Transportation.

NON-PAYMENT ITEMS

Several work items shown on the Construction Drawings are followed by (N.P.I.). These letters refer to "NON-PAY ITEMS" which are considered incidental to construction of the project. No direct payment will be made for these items and payment shall be considered to be included in the unit or lump sum price for which such work is appurtenant thereto.

INVESTIGATIONS AND REPORTS

The following reports which have been prepared for the Maricopa County Highway Department and Flood Control District of Maricopa County are available for review at the office of the Consultant:

- o Olive Avenue Reconstruction - 67th Avenue to 99th Avenue, Maricopa County, Arizona
Prepared by Thomas-Hartig and Associates dated July 21, 1986
- o Olive Avenue Storm Drain - 67th Avenue to 99th Avenue, Maricopa County, Arizona
Prepared by Thomas-Hartig and Associates dated July 2, 1986
- o Olive Avenue Storm Drain - 67th Avenue to 99th Avenue, Maricopa County, Arizona
Supplement No. 1, prepared by Thomas Hartig and Associates dated July 25, 1986

These reports are made available for informational purposes only, and to enable bidders to have ready access to the same information as is available to the Owner. It is expressly understood that neither the Owner, the Consultant, nor their Representatives will be responsible for the accuracy of any soil data derived from the exploratory soil borings, nor for any deduction, interpretation or conclusion drawn from such informational data.

Subsection 102.4 - Examination of Plans, Special Provisions and Site of Work

Insert the following paragraph after the second paragraph of MAG Section 102.4:

If any person or entity contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of the plans, specifications, or other contract documents, or finds discrepancies in, or omissions from the plans and specifications or other contract documents, he may submit to the Flood Control District of Maricopa County, Attention L. Cumberland, Chief, Contracting Branch (602) 262-1501 a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. An interpretation or correction of the Contract Documents will be made only by Addendum duly issued by the Flood Control District of Maricopa County. A copy of such addendum will be mailed or delivered to each person or entity that has received a set of such documents. The Owner and the Consultant will not be responsible for any other explanation or interpretation of the documents.

Subsection 103.6 - Contractor's Insurance

Amend the following paragraphs.

103.6.1(D) - Add Boyle Engineering Corporation, Maricopa County Highway Department, City of Glendale, City of Peoria and other entities as mentioned on the included Certificate of Insurance as additional insureds.

103.6.2 - The Contractor shall also indemnify and hold harmless the Owner, the Consultant, the Owner's Representative, any jurisdiction or agency issuing permits for any work involved in the project, and their consultants, and each of their directors, officers, employees, and agents from and against all losses, expenses, damages (including damages to the work itself), attorneys' fees, and other costs, including costs of defense which any of them may incur with respect to the failure, neglect, or refusal of Contractor to faithfully perform the work and all of the Contractor's obligations under the contract. Such costs, expenses, and damages shall include all cost, including attorneys' fees, incurred by the indemnified parties in any lawsuit to which they are a party.

SECTION 104 - SCOPE OF WORK

Add the following Subsection to MAG Section 104.

104.3 - Field Office for Engineer

The Contractor shall, at his own expense, furnish a separate portable field office trailer for the Engineer. The office trailer shall be approximately 12' x 20' in size x 8' minimum ceiling height and shall be of weathertight construction. The walls and ceiling shall be lined inside with insulating fiberboard. The ceiling shall be insulated with 3 inches of rock wool. The office trailer shall have at least two windows and one entrance door with cylinder lock and two keys. The Contractor shall provide and pay for heating and refrigerated air conditioning equipment; electric wiring, power and fixtures; and private line telephone service. The office trailer shall be furnished by the Contractor with the following equipment.:

- 1 Suitable office desk with drawers and locks
- 1 Suitable drafting table not less than 3' x 5'
- 1 Swivel chair
- 1 Drafting chair
- 1 Metal filing cabinet, 18" x 30" x 52", 4 drawers with locks
- 1 Bookcase with not less than 12 linear feet of shelves
- 1 Plan rack
- 2 Wastebaskets
- 1 Refrigerated air conditioner. HVAC shall maintain a minimum temperature of 65 degrees F and a maximum temperature of 90 degrees F regardless of outdoor conditions at the site.

The lock shall be of the type where a guard deadlocks the latch so the latch cannot be pried back when the door is closed. Hinge pins shall be non-removable or locked against with setscrews.

The field office trailer shall be completed within two weeks after the Contractor starts the work in a location as approved by the Engineer. The office trailer and furnishings shall be removed at the conclusion of the work or at any time during construction as directed by the Engineer, and will remain the property of the Contractor.

The Contractor may locate the field office trailer on the same site as the Contractor's field office, provided that sufficient parking space is provided in addition to the space required by the Contractor. If a separate site is necessary, the Contractor shall be responsible for locating and securing it.

The Contractor shall pay all costs for electricity and telephone installation. Provisions shall be made by the Contractor for the monthly telephone costs to be billed directly to the Owner's Representative by the telephone company. The monthly electric bills shall be paid for by the Contractor.

No direct payment will be made for the field office for the Engineer. Payment shall be considered to be included in the bid prices which are included in the Bid Proposal.

105.2 - Plans and Shop Drawings

The Contractor shall submit to the Owner's Representative for review, detailed shop drawings (6 copies) as specified in the Construction Details. The initial submittal shall be completed and shall be made within 30 calendar days after the date of award of the contract. The Owner's Representative shall return two (2) copies to the Contractor within 14 calendar days after the Contractor's submittal date.

Add a New Subsection 105.2.1 - Installation, Operation and Maintenance Manuals

The Contractor shall furnish six complete identical sets of manuals for each type of mechanical or electrical equipment or devices with movable parts. Manuals shall contain all cuts and illustrations with parts shown numbered for identifications and instructions necessary for operation and maintenance of all specified equipment. All information contained therein shall apply specifically to the equipment furnished and shall not include instructions which are not applicable. Delays in supplying revisions which are necessary to make the manuals conform to the completed installation will be cause for delay in acceptance of the equipment.

105.6 - Cooperation with Utilities

Add the following:

The Contractor shall be responsible for coordinating his operations with the Flood Control District of Maricopa County, Maricopa County Highway Department, City of Glendale, City of Peoria, Salt River Project Irrigation and Electrical, and with all contractor(s) and parties who will be working in the area surrounding the project. Included shall be the following:

- o Salt River Project irrigation contractor relocating SRP irrigation facilities.
- o Salt River Project electrical contractor relocating SRP electrical facilities.
- o Salt River Project maintenance crews.
- o Cable Television relocation contractors.
- o Arizona Public Service Company electrical relocation contractor.
- o Southwest Gas Company gas relocation contractor.
- o U.S. West Communications relocation contractor.

- o City of Peoria and City of Glendale general contractors.
- o Contractors for private developers adjacent to the project.
- o General public.

The project is located adjacent to numerous businesses and residences. The Contractor shall extend all necessary courtesies to those persons affected by his construction operations and shall exert every effort to minimize the impact of his operations on all adjacent businesses, residences and concerns.

105.8 - Construction Stakes, Lines and Grades

Amend as follows:

The Contractor shall provide all construction surveys for the work except as follows:

1. Before any construction work is started, Owner shall perform all base surveys and cross sections of existing conditions that may be required as a basis for quantity determination.
2. Owner shall provide original baseline and benchmark for Contractor. Contractor shall be responsible for layout and grades of the projects.
3. Owner shall perform surveys and measurements during the course of the work as may be required for the determination of quantities of work in place.
4. Owner shall perform final surveys and measurements for final quantity determination and as required for the preparation of as-built drawings.

106.2 - Sample and Tests of Materials

Add the following:

The Owner's Representative will obtain the services of a soil testing laboratory to control and report upon the compaction in compacted embankments, structural backfill, and trench backfill. Should the compaction methods used fail to achieve the required compaction, the Contractor shall revise his methods to achieve the required compaction. Any cost involved in subsequent testing due to inadequate compaction will be deducted from subsequent progress pay estimates to the Contractor.

107.2 - Permits

Add the following clarifications:

Construction activities required for this project will be within rights-of-way of the Maricopa County Highway Department, City of Peoria, City of Glendale, Salt River Project, the Arizona Department of Transportation and the Santa Fe Railroad. The Owner has applied for the required permits and licenses from the Maricopa County Health Department (for water and sewer construction), Arizona Department of Transportation, A.T.&S.F. Railway Company and Salt River Project. Permits and fees required by other agencies, and conformance with the provisions of all permits, shall be the responsibility of the Contractor.

The Contractor is advised that an Excavation and Dirt Moving Permit is required by the Maricopa County Health Department. It shall be the Contractor's responsibility to obtain this permit, pay all required fees, and comply with the permit requirements.

107.11 - Contractor's Responsibility for Utility Property and Services

Add the following MAG Section 107.11:

The Consultant has endeavored to determine the existence of utilities at the site of the work from the records of the owners of known utilities in the vicinity of the work. The positions of these utilities as derived from such records are shown on the plans. The service connections to these utilities are not shown on the plans. Notwithstanding anything above, Contractor shall strictly comply with all of the requirements set forth in A.R.S. 40-360.21-29 relating to underground facilities.

The Contractor shall make his own investigations to determine the locations and type of existing service laterals or appurtenances when their presence can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of the work. If the Contractor discovers utility facilities not identified in the plans or specifications, he shall immediately notify in writing the Owner's Representative and the owner of the utility facility.

For the purpose of this section, "Utilities" are defined as including water, sewer, gas, electric, telephone, cable television, signalization, storm drain, and irrigation.

Notify the City of Peoria Public Works Administration 48 hours prior to making the tie-ins to existing waterlines and sewer mains.

108.4 - Contractor's Construction Schedule

Add the following:

108.4.1 - Construction Scheduling and Sequencing

Upon award of the contract and before the Notice to Proceed, the Contractor shall submit his schedule of construction operations for review by the Owner or his Representative. The schedule may be either in a bar chart or critical path method (CPM) and should consider the following constraints relative to the construction sequencing.

The Contractor shall stage or sequence his work using the following criteria.

The 48-inch storm drain and water line at 83rd Avenue and the sewer line at 91st Avenue shall be installed prior to any storm drain pipe construction. Boring operations may commence at any time after the water line is installed from Sta. 169+55 - 25 L.T. through to 170+83 - 155 R.T.

Storm drain construction shall start at 91st Avenue and then proceed east. Maximum storm drain trench opening shall not exceed 400 feet. All storm drain connector pipes shall be installed and backfilled within 1/4 mile of trenching operation. All storm drain structures with all associated pipe installed shall be completed and backfilled within 1/2 mile of trench opening.

Pavement placement shall commence immediately behind the completed and backfilled piping and structures. The first two lifts of pavement shall be placed within 1/2 mile of the trench opening and shall be suitable for temporarily placing the roadway in service after the second lift is completed and the roadway shoulders are dressed.

Placement of the third lift of pavement shall be accomplished in continuous lengths of not less than 1 mile and shall not begin until all manholes, valve boxes, etc., are adjusted to final grades.

Salt River Project irrigation relocations may occur at any time during the contract period, subject to provisions to meet planned irrigation delivery schedules. It is anticipated that undergrounding of the SRP irrigation ditch will occur concurrently with the Contractor's construction and that final irrigation facility tie-ins will be made during the SRP dry-up period scheduled between January 5 and February 3, 1990.

108.4.2 - Road Closure Sequence and Restrictions

A road closure for water and boring operations at 75th Avenue is not authorized. No more than two miles of Olive Avenue may be signed closed at the same time. Contractor shall construct safe access roads as required to maintain access to businesses and residences at all times.

When 83rd Avenue is restored and clear of construction from installation of the 48-inch storm drain and water line, a road closure of Olive Avenue from the Freeway to 91st Avenue is authorized to build the box culvert to the 91st Avenue intersection.

When the box culvert is poured to 91st Avenue intersection, a 4-week road closure of 91st Avenue all legs is authorized to build the box culvert, restore road and open west, north and south legs of intersection.

Concurrent with the above closure, a road closure of Olive Avenue from 91st Avenue to 83rd Avenue is authorized for storm drain construction.

When all legs of the 91st Avenue road construction is completed and open, a 3-day road closure for all legs of 83rd Avenue is authorized to lay storm drain across intersection. If MCHD traffic determines safe travel lanes are not available, an additional 3-week closure is authorized to construct and backfill the manhole structure in intersection.

Concurrent with the above closure, a road closure of Olive Avenue from 83rd Avenue to 79th Avenue is authorized for storm drain construction. Due to Olive Avenue being the only access route to 79th Avenue businesses, construction shall not proceed beyond 79th Avenue or the old airport access until 83rd Avenue is restored and two safe travel lanes are provided on Olive Avenue to these businesses.

After storm drain pipe installation is completed to 75th Avenue, a road closure is authorized from 75th Avenue to 67th Avenue for storm drain construction. Full access to local residences and business shall be provided at all times.

When road construction is completed from 83rd Avenue to 75th Avenue, a 3-day road closure of 67th Avenue all legs is authorized to install storm drain across intersection and restore north, south and east legs for traffic.

PART 200 - EARTHWORK

SECTION 201 - CLEARING AND GRUBBING

Amend the following subsections:

201.1 - Description

Clearing and grubbing shall conform to Section 201 of the Maricopa Association of Governments (MAG) Uniform Standard Specifications (U.S.S.), except as modified herein.

201.2 - Preservation of Property

The project is located in an area where existing residences/both single and multi-unit) and businesses exists. The Contractor shall pay special attention to protecting existing improvements of these dwellings, in accordance with Subsection 201.2 of the MAG U.S.S.

201.3 - Construction Methods

Clearing and grubbing shall meet the requirements of Subsection 201.3 of the MAG U.S.S. and shall be extended into the areas of temporary construction easements where private irrigation ditches are shown on the plans to be relocated. All clearing and grubbing required for the SRP irrigation facility relocations shall be performed by the Contractor except as noted otherwise on plans.

201.7 - Payment, Removal and Disposal of Trees

No payment will be made for relocation, removal or trimming of trees. Include the cost thereof in the bid price for the construction or installation of the items to which relocation, removal or trimming of trees are incidental or appurtenant to.

SECTION 205 - ROADWAY EXCAVATION

Amend the following subsections:

205.1 - Description

Roadway excavation shall consist of excavation involved in the grading and construction of roadways, except structural excavation, trench excavation, ditch excavation or any other excavation separately designated. Roadway excavation shall include removal of existing pavement, base materials and native material.

205.6 - Surplus Material

Surplus material from roadway excavation of the project is expected. The Contractor shall remove and dispose of all surplus material off site in accordance with Subsection 205.6 of the MAG U.S.S.

It shall be the responsibility of the Contractor to import any necessary borrow material, and to dispose of excess excavated and unsuitable materials as provided in the section on earthwork in the Construction Details. Where excess material is taken from, or is placed on land not specifically designated for this purpose, the Contractor shall furnish the Owner with a copy of the landholder's written consent. Trash, asphalt, concrete and non-soil materials shall be disposed of at County-designated public refuse disposal sites.

205.7 - Measurement

Roadway excavation shall be measured in accordance with Subsection 205.7 of the MAG U.S.S. for the following areas: Top of existing pavement to new pavement subgrade for Olive Avenue, 91st Avenue/Olive Avenue intersection, 83rd Avenue/Olive Avenue intersection, 83rd Avenue, 75th Avenue (slip ramp only) and driveway tie-ins. Roadway excavation shall be defined as sawcutting and removing existing pavements, base material and native material measured by the cubic yard computed by the average end area method taken at half stations.

205.8 - Payment

Roadway excavation (pavement, base and native material) shall be paid for by the unit price bid per cubic yard as measured above and shall include but not be limited to sawcutting, excavating, removal, hauling, disposal and all other work required to excavate to new pavement subgrade. Do not include excavation required for the various new pipelines in this item as they are paid for in the various pipeline unit prices.

SECTION 206 - STRUCTURAL EXCAVATION AND BACKFILL

Amend the following subsections:

206.3 - Inspection

Inspection of excavations shall be made in accordance with Subsection 206.3 of the MAG U.S.S. No concrete or reinforcing steel shall be placed until the excavation has been inspected by the Owner's Representative and the Contractor has been advised that the foundation is in accordance with the requirements of the specifications and plans.

206.4 - Structural Backfill

Structural backfill shall be in accordance with Subsection 206.4 of the MAG U.S.S. except that backfill of structures shall not commence until the concrete has achieved full design compressive strength as specified in Section 725 of the MAG U.S.S.

SECTION 211 - FILL CONSTRUCTION

Amend the following subsections:

211.1 - Description

Fill construction shall be as described in Subsection 211.1 of the MAG U.S.S. and shall include all applicable fills therein including filling of Salt River Project irrigation ditches and structures in accordance with SRP requirements and these specifications, private irrigation ditches, and fills adjacent to the roadway to existing right-of-way lines.

211.6 - Measurement and Payment

Construction of fills on the project will not be measured. Payment for roadway fills shall be considered to be included in the unit price bid per cubic yard for roadway excavation. Payment for fills of structures, irrigation ditches and all other fills shall be considered to be included in the bid price for the work to which it is appurtenant and no additional compensation will be considered.

SECTION 215 - EARTHWORK FOR OPEN CHANNELS

Amend the following subsections:

215.1 - Description

Earthwork for open channels which consist of Salt River Project irrigation ditches and private irrigation ditch relocations shall be as described in Subsection 215.1 of the MAG U.S.S.

215.2 - Stripping

Stripping of the areas where new irrigation ditches are shown on the plans and where new ditch tie-ins are made to planned SRP irrigation piping. The above areas shall be stripped of any vegetation and other deleterious material a minimum of 6 inches or until no deleterious material is encountered. The stripped material shall be hauled off site in accordance with Subsection 205.6 of the MAG U.S.S.

215.8 - Measurement and Payment

Earthwork for open channels, ditches, etc., including stripping, excavating, filling and grading shall not be measured or paid for. The costs associated with excavation for open channels, ditches, etc. shall be considered as included in the price bid for the channel, ditch or work to which it is appurtenant and no additional compensation will be considered.

PART 300 - STREETS AND RELATED WORK

SECTION 301 - SUBGRADE AND PREPARATION

Amend the following subsections:

301.3 - Relative Compaction

Preparation and relative compaction of the subgrade shall meet the requirements of Subsection 301.3 of the MAG U.S.S. except that the subgrade shall be scarified and loosened to a depth of 9 inches and shall be compacted to a density of 95 percent.

SECTION 321 - ASPHALT CONCRETE PAVEMENT

Amend the following subsections:

321.2 - Materials and Manufacturer

Asphalt concrete shall conform with Section 710 of the MAG U.S.S. Types of asphalt concrete used for this project shall be Type A-1-1/2 for base course and Type D-1/2 for surface course, as specified in Table 710 of the MAG U.S.S. and shown on the plans.

Mineral fillers and anti-stripping agents shall comply with Subsection 710.2.3 of the MAG U.S.S. and shall be Portland Cement complying with Section 725 of the MAG U.S.S. Mineral fillers for the mix design shall be 2.0 percent by weight of the mineral aggregate, with the exact amount to be specified in the mix design, as specified in Subsection 710.2.5 of the MAG U.S.S.

321.5 - Placing, Spreading and Finishing

Placing, spreading and finishing of asphalt concrete shall be in accordance with Subsection 321.5 of the MAG U.S.S. except that the final layer of base course asphalt concrete shall meet the thickness requirements of Subsection 321.5.4. of the MAG U.S.S., Asphalt Surface Course. The surface of this final base course (A 1 1/2) will be the traffic driving surface until the ultimate improvements are constructed.

321.8 - Measurement

321.9 - Payment

Measurement and payment of asphalt concrete pavement shall be in accordance with Subsection 321.8 and 321.9 of the MAG U.S.S. respectively. Preservative seal and sand blotting shall be considered to be included in the bid price for asphalt concrete pavement.

SECTION 322 - ASPHALT CONCRETE OVERLAY

Amend the following subsections:

322.3 - Asphalt Concrete

Asphalt concrete shall be as specified in Subsection 322.3 of the MAG U.S.S. Mineral fillers shall be Portland Cement and of the percentage specified in Subsection 321.2 of these specifications.

322.6 - Manholes

Manholes, valve boxes, cleanouts and other existing structures shall be adjusted to grade prior to the placement of the third (final) lift of base course pavement.

322.7 - Payment

Payment for tack coat and asphalt concrete for overlays shall be made at the unit price bid per ton, respectively, as specified in Subsection 321.9 of these specifications and shown on the Bid Schedule. Payment for adjusting of manholes and water valve boxes shall be made for each, respectively, as shown on the Bid Schedule.

SECTION 336 - PAVEMENT MATCHING AND SURFACING REPLACEMENT

Amend the following subsections:

336.1 - Description

Pavement matching and surfacing replacement is described in and shall be in accordance with Subsection 336.1 of the MAG U.S.S. except as amended herein.

Pavement to be matched and replaced shall include all pavement in which pipelines as shown on the plans are to be constructed in existing paved areas not to be reconstructed with the new pavement section. These existing pavement areas generally include pavement above pipelines installed in 83rd Avenue, 75th Avenue, 67th Avenue and Olive Avenue outside the new pavement section.

336.2 - Materials and Construction Methods

Materials and construction methods used in the replacement of pavement and surfacing shall comply with Subsection 336.2 of the MAG U.S.S. as amended herein.

Existing asphalt pavement to be removed for trenches and for other underground construction may be cut initially with a device capable of making a neat, straight and smooth vertical cut. After the underground facility is installed and backfilled to subgrade, and just prior to the permanent pavement construction, the existing pavement shall be saw cut and trimmed. Sawcutting shall be so positioned that all cracked edges of pavement are removed. No extra payment will be considered for these items and all costs incurred in performing this work shall be incidental to pavement replacement.

336.4 - Measurement

Measurement for pavement and surface removal and replacement for underground pipes in existing pavement where adjacent pavement is to remain in place shall be made by the square yard, based on the pay widths identified in Subsection 336.4 of the MAG U.S.S.

336.5 - Payment

Payment for pavement and surface removal and replacement for underground pipes in existing pavement where adjacent pavement is to remain shall be made at the unit price bid per square yard as shown on the Bid Schedule and shall be considered to be complete including all required pavement saw cutting. Payment for replacements over other work shall be included in the cost of constructing that work.

Payment for temporary pavement replacement shall be included in the cost of the pipe.

No payment for pavement replacement over jacked and bored pipe crossings will be made. Payment for pavement replacement over jacking and receiving pits shall be considered to be included in the price bid for tunnel liners or steel jacking pipe.

SECTION 350 - REMOVAL OF EXISTING IMPROVEMENTS

Amend the following subsections:

350.1 - Description

The work consists of the removal and disposal or salvaging of existing improvements such as pavement, structures, pipes, curbs and gutters, irrigation ditches (SRP and private), signs, and all other items necessary for the accomplishment of the improvement. All work shall be in accordance with Section 350 of the MAG U.S.S.

350.2 - Construction Methods

Construction methods shall be in accordance with Subsection 350.2 of the MAG U.S.S. as amended herein, and the specific requirements as noted on the plans.

Removal and disposal of Salt River Project and private irrigation ditches, pipelines, structures and all other irrigation facilities shall be performed by applicable SRP requirements. Backfilling of the above facilities shall be in accordance with these specifications or Salt River Project requirements, whichever is more stringent.

350.4 - Measurement

Bid items for removal of existing improvements shall be as follows:

- (A) Remove, relocate or reset signs and bases, delineators, mailboxes, object markers and fences.
- (B) Remove and dispose of existing concrete ditch linings, piping, culverts and irrigation structures.
- (C) Remove and/or relocate existing landscaping improvements in right-of-way and temporary construction easements.

Payment shall be paid for at the lump sum amount bid as shown on the Bid Schedule.

PART 400 - RIGHT-OF-WAY AND TRAFFIC CONTROL

SECTION 401 - TRAFFIC CONTROL

Amend the following subsections:

401.1 - Description

Traffic control is described in Subsection 401.1 of the MAG U.S.S. Special constraints for traffic control are specified in Subsection 108.4 of these specifications.

401.2 - Traffic Control Plan

The Contractor shall submit for review and approval traffic control plans for each stage or phase of construction detailing the use and placement of temporary traffic controls, signs, barricades and other safety measures. The traffic control plan shall be specific to detouring traffic for each mile segment of construction. The applicable traffic control plans shall be submitted to the Owner's Representative for review by the Arizona Department of Transportation (ADOT), Maricopa County Highway Department (MCHD) Traffic Department, the City of Peoria and City of Glendale, and shall not be placed into effect until all reviews and approvals are received.

401.3 - Flagmen and Pilot Cars

Traffic control devices, flagmen and pilot cars shall be as specified in Subsections 401.2 and 401.3 of the MAG U.S.S., and the requirements of the ADOT permit.

401.4 - Traffic Control Measures

Traffic control measures shall be as specified in Subsection 401.4 of the MAG U.S.S. and shall be instituted as directed by the City of Peoria, Glendale, MCHD and/or ADOT.

401.5 - General Traffic Regulations

General traffic regulations shall comply with the requirements of Subsection 401.5 of the MAG U.S.S. as supplemented and as modified herein. In case of conflict, these Special Provisions apply.

The Contractor shall be responsible for supplying, installing and maintaining all traffic control signage including speed limit signs. Locations of the signs will be as directed by the MCHD Traffic Department and ADOT.

Maricopa County traffic control shall conform with these Special Provisions, Part VI of the "Manual on Uniform Traffic Control Devices for Streets and Highways" (US DOT Federal Highway Administration) with current revisions and/or as directed by the Traffic Engineer or his representative.

It shall be the Contractor's responsibility to provide, erect and maintain all necessary signs, barricades, barriers, berms, lights, delineators, uniformed officers, flagmen and other devices necessary to properly mark and control the construction areas. The approval of the Contractor's method of application of all traffic control measures shall not relieve the Contractor of the responsibility for protecting the work, the workmen and the traveling public.

All advance warning construction signs shall be mounted on channels driven into the ground. Each mile and 1/2 mile point of the project shall be signed with construction and speed limit signs mounted on channels driven into the ground and placed in locations where they will not be removed by construction.

Road closures in stages is authorized according to Section 108.4 of these Special Provisions.

Traffic lanes shall be a minimum of 12 feet in width and have a safe operating speed of 25 miles per hour. At all signalized intersections, the Contractor shall provide off-duty police officers for traffic control. Local access to residences and business shall be maintained at all times.

The temporary and/or the final striping of the road shall not be commenced or installed until all shoulders have been dressed to cover the edge of pavement drop off, segment is resigned with appropriate speed limit signs and striping inspection is completed in accordance with Section 450.

The Contractor shall provide and maintain all necessary signs, barricades and center line vertical panels for 5 working days beyond acceptance of the project by the County.

401.7 - Payment

Traffic control devices, flagmen, pilot cars, signage, plans, and all other requirements shall be paid for at the lump sum price bid as shown on the Bid Schedule, complete and no additional payment shall be made. Include all costs of uniformed off duty law enforcement officers in the lump sum amount bid.

SECTION 405 - MONUMENTS

Amend as follows:

Monuments shall be in accordance with Section 405 of the MAG U.S.S. inclusive, and MAG Standard Detail No. 120-2 for Type "D" and Type "E" monuments. Types of monuments shall be shown on the plans.

Add the following new Sections 450, 451, 452, 453 and 454

SECTION 450 - TRAFFIC MARKING

The work under this section shall consist of installing striping and raised pavement markers in accordance with the striping plans and these Special Provisions.

Applications shall be in accordance with Arizona Department of Transportation (ADOT) Section 708 - Permanent Pavement Markings (PPM708, 6, 12/30/86).

All striping shall be either white or yellow chlorinated rubber traffic paint (except where noted on the plans).

Maricopa County requires that all paint that is parallel to the edge of the pavement be installed at a minimum of 15 mils thick. The following pavement marking items will be installed at 30 mils thick: (A) Crosswalks, (B) Arrows, (C) Stop Bars, (D) Railroad pavement markings and (E) Any type of "wording" that might go on the pavement. Any other markings will be noted on the plans.

Samples of the chlorinated rubber traffic paint will be given, upon request, to the County and at the expense of the Contractor. It will be sent to be tested to confirm that the paint conforms to the Specifications.

Except where the striping plans direct a different criteria, the following criteria applies. All yellow lines shall be 4 inches in width. All lane lines shall be 15 feet long with a space of 25 feet between lane lines and shall be 4 inches in width. All holding bars and squeeze bars shall be an 8-inch white line. All edge lines, white or yellow, shall be 4 inches in width. All crosswalk lines, white or yellow, shall be 12 inches in width and shall be spaced 10 feet apart. All stop bars shall be 24 inches in width. All left and/or right pavement marking arrows shall be placed in the center of the turn lane and the bottom of the arrow is to be placed evenly with the back of the holding bar. All other pavement marking arrows shall be placed in accordance with the striping plans.

The raised non-reflective pavement markers shall be bid as a separate item. These markers shall be 3/4 inch high by 4-inch diameter ceramic buttons. White buttons to go on white stripes and yellow buttons to go on yellow stripes, as specified on plans. They shall be secured to the pavement by a hot flexible marker adhesive.

The raised reflective pavement markers, when called for on the plans, shall be bid as a separate item. These markers, Stimsonite No. 911-AA for amber/yellow and 911-AC for clear/white, shall be non-adhesive with an abrasive surface. They are to be placed no less than 4 inches and no more than 6 inches to the outside and/or inside of the stripe, as specified on the plans, with the reflectorized portion of the marker facing the oncoming traffic. They shall be secured to the pavement by a hot flexible marker adhesive.

Reflectorized guardrail and barrier delineator markers will be bid as a separate item. Use Stimsonite No. P/N 965Y for yellow and P/N 965W for white. The placement of these, in the field, will be determined by the Engineer. They shall be secured to the guardrail and or barrier by using Stimsonite adhesive, tube, part #2205-005.

In accordance with the striping plans, it shall be the Contractor's responsibility to properly mark and spot, at 5 foot intervals, all striping and/or pavement markers. This shall include the marking of pavement arrows and no passing zone (N.P.Z.) locations. Any N.P.Z. that is very critical in placement will be noted on the plans and will be laid out in the field by the Engineer.

All pavement marking removal requirements of Section 451 of these Specifications shall be completed prior to any spotting. The Contractor shall refer any questions regarding traffic markings to the Engineer.

An inspection of the layout in the field by the Engineer is required prior to any permanent striping applications. The Contractor shall notify the Engineer that the road is ready for inspection after the layout and spotting of the entire project is completed. The County has 3 working days to inspect the project and to notify the Contractor of any corrections.

Any pavement marking under this section that is not in accordance with the plans or that has not been approved by the Engineer shall be removed under the requirements of Section 451 and reinstalled at the Contractor's expense.

Measurements for chlorinated rubber traffic paint shall be per lineal foot of 4 inch stripe or of multiples thereof.

Payment for all work under this section shall be made at the contract unit price bid per linear foot of 4-inch chlorinated rubber traffic paint. Payment for arrows shall be made at the unit price per each, the payment of which shall be full compensation for the items, complete in place, including all necessary labor, materials and equipment. Arrows shall be constructed according to ADOT Signing and Marking Standard, Drawing No. 4-M-1.16. Payment for raised non-reflective pavement markers shall be made at the unit price per each complete and in place.

SECTION 451 - PAVEMENT MARKING REMOVAL

The work under this section shall consist of removing all conflicting pavement markings, raised pavement markers and any other necessary traffic control devices and preparing these surfaces for striping in accordance with provisions, conditions and the project limits contained on the striping plans and these Special Provisions.

If a conflict exists between the plans and the Special Provisions, the Special Provisions shall apply.

Approved Methods for the Removal of "Chlorinated Rubber Traffic Paint"

Preferred Methods:

1. Sandblasting.
2. Steel Shot Method (Turbo-Blaster).
3. Asphaltic Overlay - The asphaltic overlay thickness and dimensions shall meet the requirements of the Engineer.

Alternative Methods of Removal:

1. Chip Seal - When using this method, the entire pavement area shall be covered.
2. Slurry Seal - When using this method, only the existing striping will be covered. Do not cover the entire pavement area.

Alternative methods 1 and 2 and any other method that might be used to remove paint must be approved by the Engineer prior to use.

Approved Methods for the Removal of "Tape Pavement Markings"

1. Grinding.
2. Burning/Heat Method.

3. Asphaltic Overlay - The asphaltic overlay thickness and dimensions shall meet the requirements of the Engineer.

Any method other than 1, 2 or 3 for the removal of tape markings must be approved by the Engineer first.

Methods not approved for the removal of tape pavement markings:

1. Chip Seal.
2. Slurry Seal.

Approved Methods for the Removal of "Thermoplastic Pavement Markings"

1. Heat/Grinding Combination.
2. Heat/Steel Shot (Turbo-Blaster) Combination.
3. Grinding/Steel Shot (Turbo-Blaster) Combination.

Any method other than 1, 2 or 3 for the removal of thermoplastic markings must be approved by the Engineer first.

Methods not approved for the removal of thermoplastic markings:

1. Chip Seal.
2. Slurry Seal.

Approved Methods for the Removal of "Raised Pavement Markers"

1. Grinding.
2. Hammer/Chisel Method.
3. Blade (use of H.D. Equipment).

Any method other than 1, 2 or 3 for the removal of raised pavement markers must be approved by the Engineer first.

It shall be the Contractor's responsibility to determine what type of pavement markings currently exist on this project and to determine the appropriate method of removal.

Any holes or other damage to the pavement caused by the method of removal shall be repaired by the Contractor at his expense. The method of repair or correction shall meet the approval of the Engineer prior to the repair work.

Payment for all work in Section 451, which includes all necessary labor, equipment and materials for removal, shall be bid as a separate lump sum price under Section 451.

SECTION 452 - ELECTRICAL CONDUIT

The work under this section shall consist of furnishing and installing underground PVC conduit, including excavation, backfill, compaction and landscaping necessary to complete the work at the locations specified on the plans or as directed by the Engineer or his representative.

All PVC conduit and fittings shall be of the size indicated on the project plans and be rigid polyvinyl chloride (PVC) non-metallic type, conforming to the requirement of UL 651 for rigid non-metallic conduit. PVC conduit and fittings shall be Schedule 40 heavy wall and rated for use at 90 degrees centigrade.

All conduit and conduit fittings to be installed above ground shall be rigid metal type manufactured of galvanized steel conforming to the requirements of UL 6 for rigid metal conduit.

Conduit installed in protected areas such as behind curbs, in sidewalks, etc., that are not subject to any vehicular traffic shall be at a minimum depth of 24 inches below final grade. Conduits installed under roadways, driveways or any open areas where it is possible for vehicles to drive shall be at a minimum of 30 inches below final grade. When conduit cannot be installed at the minimum depth, it shall be completely encased in 3 inches of concrete.

Field PVC conduit bends shall be made without crimping or flattening, using the longest radius practical, but not less than specified by the National Electric Code, Article 347-13. Collapsed conduit, no matter how small, is not acceptable and shall be replaced at the Contractor's expense. The number of bends between pull boxes or between a pull box and foundation shall not contain more than the equivalent of 2 quarter bends (180 degrees total), including the bends at the pull boxes or foundations, Article 347-14 of the National Electric Code. All conduit cuts shall be square and trimmed after cutting to remove all rough edges. All connections shall be of the solvent weld type or approved equal.

PVC conduit entering a pull box or foundation shall be fitted with a factory made 90 degree elbow with minimum sweep radius per the table below. Conduit shall enter pull boxes near the sides and ends and extend no more than 4 inches above the bottom of the pull box including the length of the conduit bell end.

<u>PVC Sizes</u>	<u>Radius</u>
1 in.	5.75 in.
1-1/2 in.	8.25 in.
2 in.	9.50 in.
2-1/2 in.	10.50 in.
3 in.	13.00 in.

Each run of conduit which terminates within a pull box shall be capped (not glued) with PVC caps.

Each run of conduit shall be installed containing a continuous run of one No. 8 AWG bare copper wire to be used as a pull wire. The wire shall be at least 2 feet longer than the run of conduit. Each run of the wire shall be spring coiled and inserted into the conduit so as to be recoverable at a later date. Nylon rope 1/4-inch in size shall be acceptable in lieu of No. 8 AWG bare copper pull wire and the extra length fastened to the inside of the cap.

The Contractor shall place warning tape in all open trenches in which conduit is placed. All warning tape shall be buried at a depth of 6 to 8 inches below final grade.

Conduit warning tape shall be 4 mil inert plastic film specially formulated for prolonged use underground and shall be a minimum of 3 inches wide. All tape shall be highly resistant to alkalis, acids and other destructive agents found in the soil.

The tape shall have a continuous printed message warning of the location of underground conduit. The message shall be in permanent ink formulated for prolonged underground use and shall bear the words CAUTION - ELECTRIC LINE BURIED BELOW in black letters on a yellow or red background.

Conduit will be measured by the lineal foot from the center of the pull boxes and the edge of foundations along the runs installed and accepted.

Conduit inside pull boxes and foundations will not be measured for payment.

Payment for electrical conduit shall be made at the contract unit price bid per lineal foot for the sizes shown on the plans and the Bid Schedule and shall be full compensation for the item, complete in place, including all necessary excavation, backfill, labor, materials and miscellaneous incidentals necessary to complete the work.

SECTION 453 - PULL BOXES

The work under this section shall consist of furnishing and installing all pull boxes, including excavation, backfill, compaction and landscaping necessary to complete the work at the locations specified on the plans or as directed by the Engineer or his representative.

Pull box sizes shall be as specified on the project plans and shall comply with the applicable ADOT Standard T.S. 1-1, T.S. 1-2 or T.S. 1-4.

The Contractor shall furnish pull box drawings and specifications which specify steel reinforcement and concrete used.

Pull boxes shall be set on an 18-inch bed of 1-inch rock and adjusted so that they are level at curb or sidewalk grade. When no grade is established, pull boxes shall be set as directed by the Engineer.

A 1/2-inch felt expansion joint shall be installed on all sides of pull boxes set in concrete. Pull box covers shall be secured with the "L" bolts, nuts and washers before final acceptance of the project.

Pull boxes will be measured by the number of units of each type specified, complete in place, in accordance with the project plans and specifications.

Payment for this item shall be made at the contract unit price bid each for the type and size as shown on the plans and as specified in the Bid Schedule, which price shall be full compensation for the item complete in place, including all labor, materials and equipment to include covers, bolts, nuts, washers and steel grid frames, if required.

SECTION 454 - POLE FOUNDATIONS

The work under this section shall consist of furnishing all materials and constructing foundations for traffic signals in accordance with the locations and details designated on the signal plans and these Special Provisions.

Concrete used for all foundations shall be in accordance with the requirements of MAG Class A concrete (28 day compressive strength of 3,000 psi).

Foundations shall include all conduit, conduit elbows, anchor bolts, rebar cages, grounding electrode and forms required for construction of the foundation. Reinforcing steel shall be provided. The foundation's electrical conduit and conduit fittings shall be as specified in Section 452 of these Specifications.

Anchor bolts and rebar cages shall be furnished by Maricopa County. The Contractor shall coordinate pickup with traffic signal operations (phone number 233-8660) and then pick them up at the County Yard at 3325 West Durango, Phoenix (warehouse off Gibson Lane).

The foundations of the type specified shall be constructed in accordance with the details shown on the signal plan. When obstructions prevent construction of the foundations at the signal plan location, the Contractor shall secure approval of the Engineer for relocation. Any change in location shall be documented on as-built signal plans.

Holes for pole foundations shall be augured against undisturbed earth. If the soil is not stable, a larger or deeper foundation than specified may be required as directed by the Engineer. Forms shall be used if a hole cannot be augured because of soil conditions. The form shall be of the dimensions approved by the Engineer and shall be rigid and securely braced. Foundation forming material shall extend no more than 10 inches below the foundation final grade and shall be removed after placement of concrete. Excavations shall be barricaded and covered to provide safe passage for pedestrian and vehicular traffic.

All foundations shall be set level with the existing sidewalk or curb. Where no curb or sidewalk exists, the foundations shall be set at the elevation directed by the Engineer. All exposed surfaces of the foundations shall receive a finish that is smooth, level and free of form marks. Anchor bolts shall be oriented such that the bolt pattern sides are both parallel and perpendicular to the roadway centerline unless otherwise specified on the signal plan.

After excavations are complete and the anchor bolts and conduit are installed, the Contractor shall notify the Engineer for inspection. Under no circumstances shall concrete be poured without the approval of the Engineer. Anchor bolts, rebar cages and conduit shall be placed at the specified height and securely held in place during the pouring of the concrete. Before pouring concrete, the entire foundation hole shall be thoroughly moistened. The concrete shall be vibrated in place as poured.

All pole foundations shall set for a minimum of 5 days prior to the installation of signal poles.

Foundations for traffic signals shall be measured as a unit for each type of foundation constructed.

Payment for all work under this section shall be made at the unit price bid each as shown on the Bid Schedule and shall be complete in place and which price shall be full compensation for the work including excavations and incidentals necessary to complete the work.

PART 500 - STRUCTURES

SECTION 505 - CONCRETE STRUCTURES

Amend the following subsections:

505.1 - Description

Concrete structures shall include but not be limited to junction structures, transition structures, culverts, catch basins, foundations, private irrigation structures, and similar structures and shall be as described in Subsection 505.1 of the MAG U.S.S. Structures under the jurisdiction of Salt River Project irrigation are not included as they are to be constructed by SRP.

505.5.1 - Splicing

Splices of reinforcing bars shall comply with Subsection 505.5.1 of the MAG U.S.S. except splices shall be minimum of 36 bar diameters unless otherwise shown on the plans and shall be staggered.

505.9 - Finishing

Finishing shall be in accordance with Subsection 505.9 of the MAG U.S.S. inclusive. The surface finish of busbay pads shall be in accordance with Subsection 505.9.1 of the MAG U.S.S., heavy broom finish, perpendicular to travel direction. Surface finishes of structures shall comply with Subsection 505.9.5.

505.10 - Payment

Payment for concrete structures shall be made in accordance with Subsection 505.10 of the MAG U.S.S. Include the cost for reinforcing steel and all other appurtenances in the price bid for the structure to which it is appurtenant.

SECTION 525 - PNEUMATICALLY PLACED MORTAR

Amend the following subsections:

525.1 - Description

Pneumatically placed mortar shall be as described in Subsection 525.1 of the MAG U.S.S. and may be utilized in constructing the Salt River Project ditch tie-ins and relocated private irrigation ditches and structures.

Construction methods and materials shall be as specified in Section 525.3 of the MAG U.S.S. and Subsection 641.5.4 of these Special Provisions. The "wet process" shall be utilized. Control joints shall be installed at ten (10) foot intervals.

525.12 - Payment

Payment for pneumatically placed mortar shall be made as noted in Subsection 641.8 of these Special Provisions. Payment shall include excavating and filling for planned ditch subgrade, fine grading, pneumatically placed mortar, curing and all other incidentals required for a complete product.

PART 600 - WATER AND SEWER

SECTION 601 - TRENCH EXCAVATION, BACKFILLING AND COMPACTION

Amend the following subsections:

601.2 - Excavation

Trench excavation for all storm drains, waterlines, sewers and piped irrigation facilities shall be as described in Subsection 601.2 of the MAG U.S.S. and shall include the excavations for all appurtenant structures such as manholes, vaults, valve boxes, catch basins, boring and jacking pits and any other items which are not defined as major structures in these specifications.

Major structures, including drop structures, junction structures, and transition structures shall be subject to the requirements for Structural Excavation and Backfill, as contained in Section 206 of these Special Provisions.

601.3.1 - Utilities

Relocations: Conflicting utilities which are noted on the plans as being relocated by others shall be relocated by the responsible agency. The Contractor shall coordinate his construction schedule with the affected utility by giving the utility sufficient advance notice to allow the relocation to be completed ahead of the Contractor's construction.

Conflicting utilities which are to be relocated by the Contractor as a part of the project shall be scheduled and completed in such a manner that progress on other portions of the project is not adversely affected, and disruptions in service for the utility are avoided. The Contractor shall contact the owner of the utility to be relocated for the purpose of scheduling any shutdowns for service connections and for scheduling inspections as required.

Payment for utility relocations and adjustments by the Contractor shall be based on the appropriate unit prices bid in the proposal.

Protective Concrete Encasement - Where shown on the plans and as directed by the Engineer, the Contractor shall furnish and install protective concrete encasement for water, sewer and storm drain pipelines in general conformance with MAG Standard Detail No. 404.

For this project, conflicts involving water lines and storm drains shall be resolved by considering the storm drain to be a sanitary sewer for the purposes of determining encasement requirements.

Since the depth of existing water lines are not known, the amounts of encasement required have been estimated using the best available information. Actual amounts of encasement installed shall be based on field verification of existing utility locations for each size classification of encasement.

Measurement and payment for protective concrete encasement shall be based on the unit price bid per lineal foot for the following classifications:

- A) Protective Concrete Encasement, Pipe Sizes 2" thru 6".
- B) Protective Concrete Encasement, Pipe Sizes 8" thru 12".
- C) Protective Concrete Encasement, Pipe Sizes 16" thru 24".

601.3.4 - Pipe Supports

Where called for on the plans and at other locations as determined by the Engineer, the Contractor shall install permanent pipe supports conforming to the referenced standard details or the special requirements of the utility.

Payment for permanent pipe supports shall be made on the basis of the unit price bid for each permanent pipe support.

Where utilities are noted on the plans as being protected in place, the Contractor shall adequately support and protect each utility as required to avoid damage to the facility, to the satisfaction of the utility owner. No payment will be made for protecting utilities in place, the cost of which to be included in the unit prices bid for other contract pay items.

601.4 - FOUNDATION, BEDDING, BACKFILLING AND COMPACTION

601.4.2 - Bedding

Bedding for conduits and appurtenant structures shall be in accordance with Subsection 601.4.2 of the MAG U.S.S., except that water consolidation of the bedding shall not be allowed.

601.4.3 - Backfill

Backfill for all trenches shall be accomplished in accordance with Sections 601.4.3 of the MAG U.S.S. except as follows:

1. Water consolidation of the backfill shall not be allowed.
2. Where trenches lie entirely within the limits of the new roadway pavement to be installed in this project, the backfilling operation may be terminated at the subgrade elevation of the proposed paving, except at locations where backfilling to existing grades is required to allow for local access to adjacent properties and for traffic control during construction.
3. Trenches located outside the limits of the new roadway pavement to be installed in this project shall be subject to the following additional requirements:
 - o Trenches parallel to or angled less than 5 degrees from parallel to the street centerline shall be backfilled in accordance with Sections 601.4.3 and 336.3, and Standard Detail 200 of the MAG U.S.S., for Type A pavement replacement.
 - o Trenches crossing intersecting streets from edge of pavement to edge of pavement in the intersecting street and all other trenches not meeting the requirements as stated above for Type A pavement replacement shall be backfilled with aggregate base course material conforming to Section 702.2 of the MAG U.S.S.
4. Backfill for waterline and sewerline work shall be in conformance with the requirements of the City of Peoria backfilling policies, as described on the General Notes for Water and Sewer (Sheet G-2 of the plans).
5. Backfill for all trenches located within the City limits of the City of Glendale shall be placed in lifts not exceeding a loose thickness of eight inches.

601.4.4 - Compaction

Compaction of all trenches, regardless of location, shall be as specified in Table 601-2 of the MAG U.S.S., except that the backfill from two feet below surface to one foot above top of pipe shall be compacted to 95% of maximum density at optimum moisture content, when tested in accordance with Section 601.4.4 of the MAG U.S.S., except as noted below.

All compaction shall be accomplished by mechanical means using equipment which is properly matched to the size of trench.

Compaction of trenches located within the City limits of the City of Glendale shall be compacted to 100% of maximum density from the surface to two feet below surface and to 95% of maximum density from two feet below surface to the bottom of trench including bedding. Compaction testing within the City limits of the City of Glendale shall be in accordance with ASTM D1557 or AASHTO T-180 (Modified Proctor).

601.5 - Pavement Replacement and Surface Restoration

Pavement replacement and surface restoration shall be as specified in Section 336 of these Special Provisions.

SECTION 602 - JACKED CASING AND TUNNEL LINER PLATE INSTALLATION

Amend the following subsections:

602.1 - Description

Where required on the plans, the Contractor shall furnish and install jacked casings and/or tunnel liner plate encasements in accordance with Section 602 of the MAG U.S.S., including any modifications noted herein.

602.2 - Encasement Sizes and Lengths

The minimum inside diameter and length of the encasements shall be as follows:

<u>Carrier Pipe</u>	<u>Minimum I.D. Encasement</u>	<u>Length of Encasement</u>
24" Water Main	42"	190'
54" Storm Drain	78"	255'
78" Storm Drain	108"	350'

602.2 - Thickness Requirements

For the 24" waterline, 42" jacked casing shall be used. Minimum plate thickness shall be 0.625".

For the 54" storm drain, the 78" encasement may be either jacked casing or tunnel liner plate, at the Contractor's option. If jacked casing is used, the minimum plate thickness shall be 0.625". If tunnel liner plate is used, the plates shall have a minimum effective moment of inertia of 0.0743 in⁴/in, and a minimum effective cross sectional area of 1.2541 in²/ft with a thickness of 0.1644 in.

For the 78" storm drain, the 108" encasement shall be tunnel liner plate with a minimum effective moment of inertia of 0.1776 in⁴/in and a minimum effective cross sectional area of 2.3144 in²/ft with a thickness of 0.3125 in.

602.3 - Boring Head and Intermediate Jacking Stations

For jacked casings, the longitudinal jacking force shall be limited to 500 tons from the jacking pit or 400 tons from an intermediate jacking station.

Steel casings shall be installed using a boring head (shield) and intermediate jacking stations to limit the longitudinal force exerted on the steel casing to the forces noted above. The boring head shall incorporate a cutting head flush with the leading edge of the shield. The front portion of the boring head shall be articulated to permit steering of the shield to maintain the casing on the required line and grade. The number and location of intermediate jacking stations shall be as required to limit the jacking forces to the values listed above and as required for the type or types of soil encountered.

SECTION 610 - WATERLINE CONSTRUCTION

Amend or add the following subsections:

610.2 - General Requirements

All waterline construction shall conform to the requirements of Section 610 of the MAG U.S.S., the plans details, and the modifications as specified in these Special Provisions. Refer to the General Notes for Waterlines on Sheet G-2 of the plans for special City of Peoria requirements and conditions for waterline construction.

Excavation, backfilling and compaction of waterline trenches shall be in accordance with Section 601 of these Special provisions.

Pavement replacement and surface restoration shall be in accordance with Section 336 of these Special Provisions.

610.2 - General Design Criteria

The following design criteria shall be used in the design of all pipe for the project, regardless of the type of pipe.

1. All pipe shall be designed for an internal working pressure of at least 150 psi, plus a surge pressure of 60 psi. Test pressure shall be 187.5 psi.
2. All pipe shall be designed for the minimum earth loads, calculated or specified herein, resulting from the depth of cover as shown on the plans, plus the inclusion of live loads imposed on the pipe at a depth of cover which is two feet less than the actual cover.
3. Pipe shall be designed for the maximum stress in the pipe wall possible, whether it is due to traffic loading, external earth load, internal pressure, or any combination thereof. The pipe shall be designed on the basis of having a 75 degree bottom bedding.
4. Earth loads on pipe shall be calculated for pipe installed in a positive projecting embankment condition. The loading for positive projecting embankment condition shall be derived using a product of the projection ratio and the settlement ratio of 0.5. The Ku Factor shall be 0.150. The soil unit weight shall be 130 pounds per cubic foot.
5. The pipe shall be designed for external loading from trucks on the backfill. Computations shall be based on an H-20 truck loading, using tables based on the Iowa Engineering Experiment Station Bulletin No. 96 and an impact factor of 1.1.

6. The pipe shall be designed to limit the deflection of the pipe in inches under the external loads specified to not more than the square of the diameter of the pipe in inches divided by 4,000. Deflection shall be calculated by "Sprangler's" formula using a bedding constant K of 0.100 and a constant E' of 1,000.
7. Where curved alignments or deflections are shown on the plans, joints on the pipe may only be deflected by an amount which is not more than 80% of the deflection certified by the pipe manufacturer as allowable for the type of pipe and the installation conditions encountered. If the allowable joint deflection does not result in the required radius of curvature or total deflections as shown on the plans, then the pipe shall be manufactured with beveled joints for the proper deflection, shorter pipe lengths (more joints in the curve), or fittings shall be furnished to complete the curve or deflection.

610.3 - Materials

Waterlines and fittings installed as a part of this project shall be made of the following material:

Pipe and Fittings, 12" diameter and smaller: Ductile Iron Pipe and Fittings

Pipe and Fittings, larger than 12" diameter: Ductile Iron Pipe and Fittings, or Concrete Cylinder Pipe and Fabricated Steel Fittings

Continuous runs of the same size of pipe shall be furnished in the same type of materials.

610.3.1 - Ductile Iron Pipe and Fittings (New Subsection)

General - Ductile Iron Pipe and Fittings shall conform to Section 750 of the MAG U.S.S., and shall meet the General Design Criteria noted above. The minimum allowable thickness for pipe shall be Class 52, or the thickness required for the calculated loads, whichever is greater. Joints shall be either push-on joints with synthetic rubber gaskets, or mechanical joints with cast iron glands, synthetic rubber gaskets, and T-head bolts and nuts.

Where required on the plans, flanged joints on ductile iron pipe and fittings shall conform to AWWA C-110 for fittings, and AWWA C-115 for pipe. Compatibility of the flanges between pipe, fittings, valves and other points of connection shall be the responsibility of the Contractor.

All ductile iron pipe and fittings furnished herein shall be cement mortar lined and bituminous coated in accordance with AWWA C-104. Lining shall be double thickness of that specified by AWWA C-104.

Where restrained joints are called for on the plans, the ductile iron pipe and fittings shall be furnished and installed using a locked joint restraint system, such as Pacific States Locked Mechanical Joint; U.S. Pipe TR-Flex; American Lok-Fast; or equal. Such other systems shall be specifically designed and manufactured to provide joint restraint by the inclusion of a factory-installed locking ring on the pipe spigot, and special joint construction. Joint shall have a minimum pressure rating of 200 psi, and pipe shall have a minimum wall thickness which is the same as other pipe furnished for the project, unless the pipe manufacturer requires pipe of a greater wall thickness where restrained joints are used. Assembly and installation of the restrained joints shall be in strict accordance with the manufacturer's recommendations.

Corrosion Protection for Ductile Iron Pipe - All buried Ductile Iron Pipe and Fittings shall be installed in a polyethylene encasement in accordance with AWWA C 105 and Section 610.5 of the MAG U.S.S.

610.3.2 - Concrete Cylinder Pipe and Fittings (New Subsection)

A. General

All concrete cylinder pipe shall be furnished and installed complete with necessary jointing facilities and materials, specials, fittings, adapters, and other appurtenances required for proper installation in the completion of the pipelines to be constructed.

Concrete cylinder pipe shall be manufactured in standard lengths, except where shorter lengths are required by fittings and closures.

The Contractor shall submit all design calculations specified and shall provide pipe joint details for approval prior to manufacture of any pipe. Calculations for internal pressure, external load, and longitudinal thrust, and the pipe joint details shall be submitted together. The Contractor shall be responsible for verifying that the tabulated pipe layout schedule prepared by the pipe manufacturer meets the requirements of the Plans, Specifications, and the approved pipe design calculations and pipe joint details.

Each straight, bevel end, and other special pipe and each fitting shall be plainly marked on the inside surfaces with its class designation symbol, location by reference to the tabulated pipe layout schedule, each bevel end with the amount of the bevel, and each bend with the angle turned thereby, in order that such piping unit may be installed in its proper location in the pipeline. The top of each bevel end pipe and special shall be marked with a visible paint stripe approximately 1-1/2 inches wide and 2 feet long, applied along the top center line at each end of such pipe and special. In addition, each pipe and fitting shall be marked with the date of casting and the number of the lot or run.

Care shall be taken to prevent damage to the pipe during manufacture, handling, loading, shipping, unloading and storage at the job site of the pipe. Lifting of the pipe from the inside shall not be permitted. Any pipe section that becomes damaged in the Engineer's opinion shall be repaired or replaced, as directed by the Engineer, at the Contractor's expense.

B. Design Standards - Concrete Cylinder Pipe

Concrete cylinder pipe shall be the product of a company that can demonstrate by tests and installation records satisfactory experience in manufacturing concrete cylinder pipe of the quality and type specified.

Concrete cylinder pipe shall meet the requirements of AWWA C303. The Contractor shall furnish an affidavit of compliance confirming that the pipe and fittings furnished comply with all applicable provisions of AWWA C303, mill or plant test reports on each heat from which the steel is rolled, and hydrostatic test results for completed cylinders with joint rings.

The classes and pressure ratings of concrete cylinder pipe shall be as specified in Section 7-3.

The interior of all concrete cylinder pipe shall be finished so that the Hazen-Williams friction factor shall not be less than 140.

All concrete cylinder pipe shall be manufactured with cement which is in accordance with ASTM C150, Type II, low alkali. Concrete admixtures shall not be used unless approved by the Engineer.

Liquid membrane-curing compounds, if approved by the Engineer, shall be in accordance with ASTM C309, Type I, shall not impart taste or odor to water flowing through the pipe, and shall not contain any toxic materials.

All exposed steel surfaces where mortar lining and/or coating is held back shall be rust-free and shop coated with Rustoleum No. 769, or approved equal.

C. Design of Concrete Cylinder Pipe

Concrete cylinder pipe shall be designed in accordance with AWWA C303, Appendix A, latest available edition, using all applicable design criteria contained in Section 610.2 of these Special Provisions.

Steel cylinder thicknesses for lengths of concrete cylinder pipe which fall within reaches with restrained joints shall also be designed in accordance with the subsection headed "Joint Restraint of Concrete Cylinder Pipe", in Section 610.3.2(G) of these Special Provisions.

D. Fittings, Specials, and Accessories

The Contractor shall furnish all fittings and special pieces required for closures, curves, bends, and valves as required.

Specials and fittings for concrete cylinder pipe shall conform to the requirements of AWWA C303 and AWWA C208, except as modified herein.

Specials and fittings shall be designed for the same internal pressures, longitudinal thrusts, and external loads as the adjoining pipe. In no case shall the steel cylinder in all fabricated elbows, valve adapters and field closure assemblies be less than 0.250 inch thickness.

The Contractor shall furnish all necessary rubber gaskets, joint lubricant and diaper material, and one set of other equipment, special tools and accessories that may be required to assemble pipe and fittings in the trench.

E. Flanges and Flanged Joints

All flanges for concrete cylinder pipe, except blind flanges, shall be of the slip-on welding ring or hub type meeting the requirements of AWWA C207 Class D, and shall be made of steel metal meeting the requirements of ASTM A 181 Class 1. The flanges shall be attached to the barrel of the pipe with two continuous fillet welds both inside and outside. Blind flanges shall be plain faced and conform to ANSI B16.5 Class 150. All flanges shall be covered and protected during delivery and storage. Flanges shall be flat faced.

All flanged joints for concrete cylinder pipelines shall be made with stainless steel bolts or bolt studs with a stainless steel nut on each end. Bolts and stud bolts shall meet the requirements of ASTM A193 Class 2 Grade B8M. Nuts shall meet the requirements of ASTM A194 Grade 8M. Buried flanged joints for concrete cylinder pipelines shall have the flange coated to a thickness of not less than one (1) inch with grout after the joint is made up.

Gaskets for flanged joints shall be rubber with cloth insertion of the ring type meeting the requirements of ANSI B16.21 and be those made by the Garlock Packing Company, Crane Company, U.S. Rubber Company, or approved equal. The gaskets shall be 1/16-inch thick.

F. Rubber Gasket Joints

Each length of standard concrete cylinder pipe shall have a bell and a spigot of steel joint rings welded to the steel cylinder. The spigot ring shall have a groove in its exterior for the purpose of retaining a rubber gasket which shall seal the joint under all conditions of service including expansion, contraction and earth settlement. The spigot ring shall be equal to Carnegie shape number M-3516. Gaskets shall be of sufficient volume to substantially fill the space provided when the joint is assembled. Joints shall be self-centering and designed so that when the pipe is laid, the gasket will not support the weight of the pipe and will function solely to seal the joint.

G. Joint Restraint of Concrete Cylinder Pipe

Restraint of joints shall be provided at all unanchored elbows and bends in excess of 7-1/2 degrees. A bevel adapter installed adjacent to the spigot end of a bevel pipe shall be considered as a single bend. Restraint of joints shall also be provided at tees, crosses, valves, plugs or other locations shown on the plans.

The first restrained joint and length of pipe adjacent to the elbow, valve, or plug shall be designed to withstand a longitudinal bulkhead force of 1.5 times the internal design pressure specified in the subsection entitled "Design of Concrete Cylinder Pipe", applied over the cross section area of the pipe. The cross section area of the pipe shall be determined using the joint diameter. Succeeding restrained joints and lengths of pipe may be designed to resist a reduced longitudinal force, computed on the basis of a linear reduction in force from the elbow or valve to the end of the restrained section shown. In all cases, restrained joints shall be designed to develop the full strength of the pipe cylinder in adjacent lengths of pipe. Working stresses for design of restrained joint and pipe cylinders to withstand longitudinal forces shall not exceed 50 percent of the specified minimum yield strength of the material. Joint details and pipe cylinder thickness calculations for restrained sections of pipelines shall be submitted for approval.

Restrained joints shall be of the welded type with steel rods of the required diameter and length in the joint recess. Welding shall be continuous around the joint, and shall be performed by qualified welders who are certified for the types of welding required. The areas around welded joints shall be carefully cleaned after welding is completed, and all exposed steel shall be coated with Rustoleum No. 769, or approved equal.

H. Joint Bonds

Joint bonds shall be provided between steel joint rings at all noninsulating joints as necessary to assure electrical continuity except where electrical isolation is necessary. The joint bonds shall be designed using an insulated copper cable or steel rods welded to adjacent steel end rings. Copper cable shall be No. 2 ANG stranded copper cable with high molecular weight polyethylene insulation. Joint bond design shall be such that the increase in electrical resistance due to the joint bonds per 1,000 feet of pipe does not exceed 250 percent when compared to the electrical resistance of 1,000 feet of welded pipe when calculated as shown below:

$$I = \left(1 + \frac{R_B}{R_p}\right) 100$$

Where:

I = percent increase in electrical resistance

R_B = resistance in ohms of the joint bonds per 1,000 feet of pipe

R_p = resistance in ohms of 1,000 feet of pipe if joints were welded when calculated as follows:

$$R_p = \frac{0.2158}{w_p}$$

w_p = weight of steel cylinder in pounds per one foot length of pipe

Joint bonds shall be designed to be installed on the outside of joint. If required, the pipe manufacturer shall provide blockouts in the exterior mortar coating for the installation of the joint bonds.

I. Electrical Isolation

Electrical isolation in the form of rigid insulating flanges or threaded steel outlets shall be provided as required to obtain electrical isolation between dissimilar pipe materials and the concrete cylinder pipe.

Rigid insulating fittings shall be flanges with dielectric insulating flange kits containing full face insulating gaskets, full length insulating bolt sleeves and double set insulating washers. Insulation gasket material shall be neoprene-faced phenolic. Insulation sleeves shall be phenolic and full length. Insulating washers shall be phenolic. All insulating materials shall be of a type designated by the manufacturer as suitable for service at the operating temperatures and pressure specified. Dielectric flange insulating kits shall be installed during the installation of the flange in which the kit is to be located.

Rigid insulating fittings between threaded steel outlets shall be dielectric insulating unions. Dielectric insulating unions shall be 250-pound test and shall be ground joint, precision machined and threaded to accurate dimensions. They shall be composed of malleable iron castings with molded nylon insulation. The nylon insulation shall be of a nonbrittle type capable of severe shock loads and impact without fracturing. It shall be chemically unaffected by specified products at temperatures to 120 degrees C. The nylon insulator shall have excellent dielectric properties.

610.4 - Installation of Waterlines

610.4.1 - Handling, Delivery and Storage

All pipe shall be manufactured, handled, loaded, shipped, unloaded and stored at the job site in such a manner as to prevent any damage to the pipe. Any pipe section that becomes damaged shall be repaired as directed by the Engineer, if in his opinion a satisfactory repair can be made; otherwise, it shall be replaced with an undamaged section, at the Contractor's expense. No handling method will be permitted involving lifting from the inside of the pipe.

610.4.2 - Pipe Laying

- a. The pipe shall be laid accurately to the alignments and grades shown on the plans or established by the Engineer. All adjustments to line and grade shall be made by scraping away or filling in under the barrel of the pipe. Hammering on the pipe, dropping the pipe, or shimming under the pipe with rocks, blocks, or foreign material to bring the pipe to grade will not be permitted.
- b. The pipe shall be handled and lowered into the trench by means of nylon belts or slings. The number and size of slings shall be adequate to prevent damage to the pipe.
- c. Prior to placing each pipe section, the interior shall be cleaned of all foreign material. Cleaning shall be accomplished by brushing, blowing with compressed air, washing with water, or by any combination of these methods necessary to remove all foreign matter.
- d. The pipe shall be laid with a uniform bearing under the full length of the barrel. Normally the pipe shall be laid with the bell end pointed in the direction of laying. On grades exceeding 10 percent, the pipe shall be laid uphill.
- e. The pipe shall be assembled and joined in accordance with the manufacturer's instructions for the type of joint used. All portions of the joints shall be thoroughly cleaned before the sections of pipe are put together. The position of the rubber gasket shall be checked with a feeler gage at each joint prior to laying the next section.
- f. If adjustment of the position of a length of pipe is required after it has been laid, it shall be removed and rejoined as for a new pipe.
- g. The outside joints on concrete cylinder pipe shall be made by the use of the diaper method using cloth or waterproof paper bands strapped to the pipe with box strapping using recommended tools that will not damage the pipe. The joints shall be filled with grout from one side only until the grout comes up from the bottom of the other side. A flexible wire placed around the pipe inside the band material shall be worked in the joint to assist in filling the joint. Grout exposed at the top shall be coated with sealing compound and then covered with wet burlap or damp earth. Diaper bands shall not be removed. The grout shall consist of one part cement to three parts sand and shall be newly mixed. Several sections of the pipe shall be laid before the grout is applied. However, the grouting shall never be less than two nor more than 5 joints behind the pipe laying, except that all joints shall be grouted at the end of each day.
- h. The inside joints of concrete cylinder pipe shall be filled with stiff mortar composed of one part cement to two parts sand. All mortar shall be newly mixed. In pipe smaller than 30 inches in diameter the mortar may be buttered all around the shoulder inside the bell before the spigot is entered. Excess mortar shall be removed by means of an inflated swab or "squeegee".
- i. During times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or other means approved by the Engineer.
- j. Field closures on concrete cylinder pipe shall be installed as shown on the plan details. After the butt strap is welded in place, a field-applied mortar lining and coating shall be placed on all exposed metal surfaces. Finished surface of the lining and coating shall be smooth and even with the adjacent factory applied linings and coatings.

Prior to application of the lining and coating, all disturbed surfaces of exposed metals shall be thoroughly cleaned of all rust, scale and dirt, and the affected areas treated with a touch-up coat of Rustoleum No. 769, or approved equal.

610.4.3 - Cleaning

All pipelines shall be left clean. Before filling any section of pipeline with water, it shall be cleaned of all dirt and debris. The Engineer shall inspect the interior of the pipeline during installation. The Contractor shall furnish the necessary ventilation, lights and equipment for making the inspection.

610.9 - Cut and Plug Existing Waterlines

Where shown on the plans, the Contractor shall excavate the existing waterline, sawcut and remove a minimum three-foot length of existing waterline, install a mechanical joint plug or cap as required on the active end of the waterline, install a thrust block on the plug or cap, and perform any other work necessary to complete the cut and plug operation.

The Contract shall carefully coordinate each cut and plug location with the City of Peoria to minimize customer down-time and to allow City forces to operate valves needed to shut down the waterline.

610.9 - Adjust Existing Waterlines Vertically and/or Horizontally

Where noted on the plans and at other locations as required during construction, the Contractor shall furnish and install pipe and fittings of the sizes indicated to adjust vertically and/or horizontally the existing water main to eliminate conflicts with other new construction.

Prior to the time when the relocation will be required, the Contractor shall excavate the existing water main and verify the location, pipe size and type, and determine if relocation of the water main is needed in order to install the new construction.

If the existing waterline is found to not cause an obstruction to the new work, then the Engineer shall note the actual location on the plans for future reference, and no adjustment work or payment for adjustment will be included in the project.

If the existing waterline is found in such a location that adjustment is required to eliminate a conflict with other new work, the Contractor shall schedule the adjustment work with the City of Peoria for valve closing and notification of affected property owners, and shall order the materials required to complete the adjustment. Since each adjustment may vary in the materials needed, the Contractor shall plan for each adjustment based on the materials actually required. Materials shall be as specified in Section 610.3 of these Special Provisions.

610.14 - Testing

Testing of the water lines shall be in accordance with Section 610.14 of the MAG U.S.S., and shall be done in segments between valves, from the last line valve to the end of the main, and from the beginning of the main to the first line valve.

Prior to the start of testing, the pipe and fittings must be backfilled and compacted to existing grades. Failure to complete the backfilling prior to testing may result in joint separation in areas adjacent to restrained joints.

610.18 - Measurement and Payment

Except where specifically noted otherwise in these Special Provisions, measurement and payment for water lines shall be in accordance with Section 610.18 of the MAG U.S.S.

Payment for cut and plug of existing waterlines shall be based on the unit price bid for each location and size.

Payment for waterline adjustments shall be based on the unit price bid for each adjustment and size of pipe and shall include all pipe, fittings, thrust blocks and other items as required to complete each waterline adjustment.

SECTION 615 - SEWER CONSTRUCTION

Amend the following subsections:

615.1 Allowable Pipe Materials

Sewer pipe material for this project shall be extra-strength vitrified clay pipe in conformance with Section 743 of the MAG U.S.S.

615.2 Excavation, Backfilling and Compaction

All excavation, backfilling and compaction shall be in accordance with Section 601 of these Special Provisions. Construction staking shall be in accordance with Section 105.8 of these Special Provisions.

SECTION 618 - STORM DRAIN CONSTRUCTION

Amend the following subsections:

618.2 - Allowable Pipe Materials

Concrete Box Culvert

The single barrel, 10-foot span by 6-foot height box culvert shall be cast in place using materials, dimensions and details of ADOT Standard Drawings B-01.10 and B-02.10, latest published edition. Dimensions and reinforcement of the box culvert shall be as listed on ADOT Standard Drawing B-02.10, Table No. I, 0'-10' Fill, for a 10-foot span by 6-foot height concrete box culvert.

Circular Storm Drain Pipe

All circular storm drain pipe for this project shall be rubber gasketed reinforced concrete pipe conforming to Section 735 of the MAG U.S.S., except as noted herein. Strength and size requirements shall be as shown on the attached Table 618-1.

Pipe joints for pipe larger than 30-inch diameter may be tongue and groove mortared joints, or bell type joints using O-ring rubber gaskets. Rubber gasket joints will not require inside mortaring or outside grouting. Shop drawings, pipe layout drawings, manufacturer certifications and all other submittal shall be in accordance with Section 735 of the MAG U.S.S. and Section 105.2 of these Special Provisions.

TABLE 618-1

STORM DRAIN PIPE "D" - LOADS

<u>Begin Station</u>	<u>End Station</u>	<u>Pipe Diameter (Inch)</u>	<u>Minimum Allowable "D" Load</u>
66+21	78+40	96"	1000
78+40	84+00	90"	1000
84+00	90+90	90"	1100
90+90	104+50	90"	1400
104+50	114+00	84"	1400
114+00	129+00	84"	1700
129+13	156+35	96"	1600
156+35	164+00	90"	1600
164+00	168+65	90"	1700
168+83	179+00	78"	2300
179+00	184+99	78"	1800
184+99	193+51	72"	1800
193+68	223+41	102"	1500
223+63	225+03	96"	1600
0+10	3+59 (75th Ave)	54"	2800
0+10	1+00 (J.S. No. 3)	96"	1600
0+10	0+45 (J.S. No. 2)	54"	1800
52+93	53+10 (91st Ave)	54"	1800
14+90	20+90 (83rd Ave)	48"	1800
20+90	27+50 (83rd Ave)	48"	1300
All 12" Storm Drain Piping			2000
All 18" Storm Drain Piping			2500
36" Storm Drain Replacement		36"	2500

Where deflections are shown on the plans, the specified deflection shall be made by beveling joints, unless the amount of deflection is small enough to be accomplished by a standard joint deflection which would cause a nominal joint opening of one inch or less to occur. Where curved alignments are shown on the plans, the pipe shall be manufactured with beveled joints for the proper deflection. All work shall be in accordance with the pipe manufacturer recommendations.

Storm drain pipe installed in tunnels or casings shall be of the same strength as required for the adjacent connecting pipe.

Manholes

Precast concrete manholes for storm drains shall be constructed in accordance with MAG Standard Details 520, 521, 522 and 424 with 30-inch, eccentric tops conforming to MAG Standard Detail 420, Type "B". Required lettering on the covers shall be furnished to the Contractor at the time of shop drawing submittals.

Special Structures

Special structures on the storm drain are as follows:

<u>Station</u>	<u>Description</u>	<u>Detail Sheet</u>
66+15	Transition Structure	SD-48
118+12.89	Special Manhole	SD-49
129+00	Junction Structure No. 1	SD-51
3+17.6	Drop Structure - 75th Avenue	SD-50
168+65	Junction Structure No. 2	SD-52
193+50	Junction Structure No. 3	SD-53
223+40	Junction Structure No. 4	SD-54

Special structures shall be constructed in accordance with plan details. Reinforced concrete portions of the structure shall be constructed in conformance with Section 505 of these Special Provisions and manhole shafts and tops shall be furnished and installed in conformance with Section 618.2 above.

Catch Basins

Storm drain catch basins shall be installed at the locations shown on the plans and in accordance with the MAG Standard Details for the type and size of catch basin specified on the plans. Concrete work shall be performed in accordance with Section 505 of these Special Provisions.

618.3 - Construction Methods (Catch Basin Connector Piping)

Catch basin connector piping shall be installed at the locations as shown on the plans and in accordance with plan details and Table 618-1 of these Special Provisions. Where connector piping is stubbed out for future catch basins, the connector pipe shall be plugged in accordance with the requirements as shown on the plans and the end of pipe marked with a nominal 2-inch by 4-inch redwood stake, with the top of the wood stake flush with the ground, and bottom of the stake within 1-foot of the top of pipe..

Where required on the plans and at all other locations as needed, construct vertical angle points in the connector piping with pipe collars conforming to MAG Standard Detail 505.

Attachment of the connector piping to the box culvert, mainline storm drain, and catch basin structures shall be with openings cast into the box culvert, pipe or catch basin at the time of concrete placement or pipe manufacture. Field cutting of holes for connector piping shall not be allowed. The locations and orientation of each opening shall be shown on the shop drawings.

EXCAVATION, BACKFILLING AND COMPACTION

Box Culverts, Special Structures and Catch Basins

All excavation, backfill and compaction for box culverts, special structures and catch basins shall be as required in Section 206 of these Special Provisions for structural excavation and backfill.

Storm Drain Pipe, Connector Pipe and Manholes

All excavation, bedding, foundation, backfill and compaction for all piping and manholes shall be as required in Section 601 of these Special Provisions and as shown on the plans.

CONNECTION TO EXISTING BOX CULVERT

The connection to the existing box culvert shall be made in accordance with the box extension details as shown on ADOT Standard Drawing No. B-01.10, and shall include the removal of the existing bulkhead, installation of dowels between new and existing concrete, and caulking of the joint with a non-hardening, flexible rubber caulking compound.

REMOVE AND REPLACE EXISTING 48" STORM DRAIN WITH 54" STORM DRAIN

Where shown on the plans at 75th Avenue, the Contractor shall carefully sawcut and remove the specified length of existing 48-inch storm drain and replace it with a standard manhole base section and pipe sections of 54-inch pipe, including a Y-branch as shown on the plans. Pipe strength shall be as shown in Table 618-1 of these Special Provisions.

CUTOUT FOR SANITARY SEWER CROSSING

Where shown on the plans, the Contractor shall provide a cutout in the top of the storm drain for the existing sanitary sewer crossing, in accordance with the instruction provided on the plans.

REMOVE AND REPLACE EXISTING 36-INCH C.I.P.P. STORM DRAIN

Where shown on the plans, the Contractor shall sawcut and remove 20 L.F. of existing 36-inch cast-in-place storm drain pipe as a part of the installation of the new 12-inch waterline installation. After the waterline is installed, the storm drain shall be re-installed using 36-inch reinforced concrete pipe conforming to Section 618.2 and Table 618-1 of these Special provisions. Connections on each end of the existing 36-inch C.I.P.P. shall be with pipe collars conforming to MAG Standard Detail 505.

618.5 - Measurement

Measurement for storm drain piping shall be continuous through standard manholes and to the centerline of standard manholes where a pipe size change occurs. At special structures, pipe pay items shall not be measured beyond the inside face of the structure walls.

618.6 - Payment

Payment for storm drain piping, catch basin connector piping, and box culverts shall be based on the unit prices bid per linear foot for the various pipe sizes and the box culvert.

Payment for standard manholes shall be based on the unit prices bid for each such manhole and in accordance with the items furnished on the proposal form.

Payment for special structures shall be based on the lump sum prices bid for each individual structure.

Payment for catch basins shall be based on the unit price bid for each size and type of catch basin, as listed in the proposal form.

Payment for the following items shall be based on the prices bid for each such item, as listed in the proposal form:

- o Connection to Existing Box Culvert
- o Remove and Replace Existing 48" Storm Drain with 54" Storm Drain
- o Install Cutout for Sanitary Sewer Crossing
- o Remove and Replace Existing 36" C.I.P.P. Storm drain

No payments will be made for concrete pipe collars, or for any earthwork associated with piping and structures. The costs of these items of work shall be included in the appropriate bid items as listed in the proposal.

SECTION 625 - MANHOLE CONSTRUCTION

Amend the following subsections:

625.2 - Materials

Manholes shall be constructed of precast concrete and in accordance with applicable provisions of Section 625 of the MAG. U.S.S. and the standard details as noted on the plans.

625.3 - Construction Methods (Connection to Existing Manhole)

Where shown on the plans, the Contractor shall connect the new 12-inch sewer to the existing manhole and modify the manhole as specified herein.

The existing manhole shall be excavated to the required depth and a new hole shall be cut into the manhole wall at the appropriate invert elevation. The existing shaped grout invert in the manhole shall be removed, and the new connection shall be carefully sealed with grout to prevent leakage of wastewater from the manhole or infiltration of groundwater into the manhole. When the pipe connection is completed, the manhole shall be given a new shaped invert to accommodate the new and existing pipes.

Throughout the manhole connection work, the Contractor shall be responsible for maintaining flows in the sewer and for temporary diversion of wastewater as required to make the connection and to reshape the existing manhole invert. To complete the connection with a minimum of disruption, the Contractor shall make provisions to schedule his work during low-flow (night-time) hours. The Contractor shall coordinate this work with the City of Peoria to determine the best time of day for making the connection.

The lump sum price bid for the connection to the existing manhole shall include all costs associated with making the manhole connection, reshaping the invert, diversion of wastewater flows, and any special costs in making the connection during low-flow hours.

INSTALL NEW MANHOLE ON EXISTING 12" SEWER

Where shown on the plans, furnish and install a new manhole on the existing 12" sewer in accordance with applicable standard details. The new manhole shall be constructed as a terminal manhole on the existing sewer and the upstream sewer to the east of the manhole shall be plugged as required in standard details and abandoned in place.

The lump sum price bid for installing a new manhole on the existing 12" sewer shall include all costs associated with furnishing and installing the manhole, including the plugging and abandonment of the existing upstream sewer.

SECTION 630 - TAPPING SLEEVES, VALVES AND VALVE BOXES

Amend the following subsections:

630.2 - General

Each buried valve shall be furnished with a valve box and cover meeting the requirements of Standard Detail 391-1, Type "A", of the MAG U.S.S.

630.4 - Tapping Sleeves and Valve

The Contractor shall verify in the field the type and size of pipe to be tapped prior to ordering the tapping sleeves.

630.9 - Payment

Payment for gate valves shall be in accordance with Section 630.9 of the MAG U.S.S., except that valve boxes and covers shall be included in the price for each buried valve.

Payment for tapping sleeves and valves shall be in accordance with Section 630 of the MAG U.S.S., except that valve boxes and covers shall be included in the price for each tapping sleeve and valve.

630.10 - Pressure Reducing Station (New Subsection)

630.10.1 - General

Furnish and install one pressure reducing station, including precast vault, piping, pressure reducing valve, supports and foundation, as shown on the plans and as specified herein.

630.10.2 - Vault Piping, Fittings, Valves and Supports

Vault piping, fittings and valves shall be furnished and installed with joints as shown, and shall meet the requirements of Sections 610 and 630 of these Special Provisions. Piping and valves on the station inlet, outlet and bypass shall be included.

Pipe supports shall be furnished in accordance with details shown on the plans.

630.10.3 - Precast Concrete Vault

The precast concrete vault shall be of the size noted on the plans and shall be furnished in two pieces. One piece shall be the wall section and the second piece shall be the cover assembly. Fabrication shall be from dense water-tight concrete having a 28 day compressive strength of at least 5,000 psi as determined by ASTM test procedures. The sections shall be reinforced with 4" x 4" 4/4 welded wire fabric conforming to ASTM Specification A-185. No. 4 and No. 6 deformed bars conforming to ASTM Specification A-615 shall be provided at all openings, edges and elsewhere as required for the intended service.

Opening and frame for the vault cover shall be incorporated into the precast top slab, and each pipe opening shall be incorporated into the wall unit, each at the time of manufacture of the vault units.

The vault walls shall be installed on wall footings as shown on the plans, using Class "A" concrete and No. 4 deformed bars for temperature steel reinforcement, in conformance with Sections 725 and 727, respectively, of the MAG U.S.S. Maximum spacing of temperature steel shall be 12 inches.

Access door shall be fabricated of 1/4 inch hot-dip galvanized checkered plate, suitably reinforced to withstand a uniform load of 150 pounds per square foot. Door shall be hinged on one side and shall provide a clear opening 40 inches wide by 48 inches long, and shall be fitted with locking hardware suitable for the use of a flush-mounted padlock. Door frame shall be fabricated of galvanized angles appropriately sized for the door and the top slab of the precast vault.

Prior to casting the frame into the top slab, all aluminum surfaces which come into contact with concrete shall be given a two coat application of zinc chromate primer.

Precast vault units shall be Utility Vault Company No. 4484-ML and Top Section No. 4484-TL2-332P with torsion spring assisted access door No. 4248, or equal.

Excavation and backfill for the precast vault shall be in accordance with Section 206 of these Special Provisions.

630.10.4 - Pressure Reducing Valve

The pressure reducing valve shall be 8-inch size with flanged connections and shall be capable of maintaining an adjustable downstream pressure of 5-150 psi regardless of upstream pressure or flow rates. Valve shall be a Bermad Model 723 pressure reducing and pressure sustaining valve, or equal.

Valve shall have Y-pattern body of cast iron conforming to ASTM A-126 Class B, with SAE 303 stainless steel main valve trim. Pressure rating shall be Standard Class 125. Pilot control system shall be constructed of ASTM B62 cast bronze fittings, ASTM B21 brass tubing and SAE 303 stainless steel trim and springs. Diaphragm shall be of neoprene, nylon fabric reinforced. Seals shall be of Buna-N.

The main valve body shall be given an epoxy lining on all surfaces coming in contact with water.

Valve shall be furnished with complete operating instructions and a list of recommended spare parts. At the time of installation, the Contractor shall initially set the valve in accordance with the instructions from the City of Peoria.

630.10.5 - Measurement and Payment

The lump sum price bid for the pressure reducing station shall include all labor, materials, equipment and supplies necessary for a complete and operating facility, and shall include the precast vault; pressure regulating valve; pipe, fittings and valves for inlet, outlet and bypass; pipe supports; wall footings; and all excavation and backfill.

630.11 - Combination Air Release Valve Station (New Subsection)

630.11.1 - General

Furnish and install one combination air release valve station, including manhole, piping, valves, combination air release valve, supports, anchors, and foundations as shown on the plans and as specified herein.

630.11.2 - Pipe, Fittings, Valves and Supports

Air release valve piping and fittings shall be galvanized steel with joints and pipe wall thickness as shown on the plans. Pipe and fittings installed below ground shall be wrapped with two layers (50% lap) of 10 mil PVC tape, with primer applied in accordance with manufacturer's recommendations.

Valves shall be 2-inch brass non-rising stem gate valves and shall be furnished with unions and nipples to complete the installation. Valve box shall be Type "A" in accordance with MAG Standard Detail 391-1.

Pipe support shall be adjustable type with floor flange, ELCEM No. 48,50. Bolt to floor with 1/2-inch wedge anchors.

630.11.3 - Manhole

The air release valve manhole shall be as shown on the plans and furnished in accordance with MAG Standard Detail No. 420 with a Type "B" top. Frame and cover shall be in accordance with MAG Standard Detail No. 425.

The bottom of the manhole shall be furnished with a 2-foot square by 2-foot deep drain sump, filled with 1-inch gravel.

The manhole shall be installed with a concrete anchor to support the vent pipe and the guard posts as shown on the plans.

630.11.4 - Combination Air Release Valve

Valve shall have a float with lever arm to actuate a poppet valve. A needle shall be attached to the float arm. The poppet valve shall serve to admit large quantities of air when the pipeline drains. The needle shall serve to release small quantities of air as the pipeline fills or as air accumulates in the pipeline. Valve shall have an operating pressure of 300 psi.

Body and cover shall be cast iron (ASTM A48, Class 30). Float, lever and poppet shall be Type 316 stainless steel (ASTM A240 or A276). Seat shall be Buna-N. Valves shall be APCO 145C, Val-Matic Model 202C, or equal.

Valve shall seat drip-tight at a pressure of 1 psi and shall be furnished with threaded ends.

Valve shall be furnished with complete operating instructions and a list of recommended spare parts. After installation, the valve shall be tested at the same time that the connecting pipeline is tested.

630.11.5 - Measurement and Payment

The combination air release valve station shall be paid for at the lump sum price bid and shall include all labor, materials, equipment and supplies necessary for a complete and operating system, and shall include all piping, valves, fittings and supports; manhole; combination air release valve; concrete footing and anchor; guard posts; excavation, backfill, compaction and surface restoration; and all other items needed to complete the installation.

Add the following new Section:

SECTION 640 - SRP IRRIGATION IMPROVEMENTS

640.1 - Description

In certain areas as shown on the plans, existing SRP irrigation facilities will be relocated to allow for storm drain and paving improvements. The Contractor shall be required to submit in his bid unit prices for furnishing and installing certain portions of the irrigation improvements, in accordance with these Special Provisions and the SRP irrigation plans included in the contract documents.

640.2 - Contingent Item Designation

Items designated as contingent items for SRP improvements on the proposal shall be subject to cancellation from the contract in the event that SRP decides to construct all of its own facilities. Unit prices bid for contingent items shall take into account the true cost for performing the work involved, so that any or all of the contingent items may be cancelled from the contract without any other modification to the contract price.

640.3 - Work To Be Done By SRP

With the exception of the contingent pay items as noted above, SRP shall furnish and install the turnout structures at Station 117+24.3 (73.8' offset) and at Station 131+63 (55' offset), on Olive Avenue, including the standard pipe stubouts. SRP shall also furnish and install the 30" drain piping and structures along 83rd Avenue, from the turnout structure at Station 14+26.2 (81.6' offset) to the tie-in to the existing dirt ditch at Station 27+75.

640.4 - Work To Be Done By Contractor

The following work shall be performed by the Contractor in the vicinity of SRP irrigation improvements, regardless of the contingent item construction. References to section numbers are to other sections of these Special provisions.

- a. Clearing and Grubbing (Section 201)
- b. Landscaping Removals, Replacements and Relocations (Section 201)
- c. Removals and Filling of Existing Ditches and Structures along Olive Avenue (Section 211)

640.5 - Conformance to Standards

All work performed on SRP facilities shall be in strict conformance with SRP specifications and plans and shall be subject to the review, inspection and written approval of SRP before final acceptance of the overall project.

640.6 - Payment

Payment for SRP irrigation improvements shall be based on the unit prices bid for pipe, headwalls, transitions, etc., as listed in the proposal.

Add the following new section:

SECTION 641 - PRIVATE IRRIGATION FACILITIES

641.1 - Description

Where shown on the plans, the Contractor shall furnish and install all piping, valves, fittings, structures and ditches as shown to relocate the existing private irrigation system as shown on the plans and as specified herein.

641.2 - Coordination With Others

The Contractor shall carefully coordinate his work on private irrigation facilities with SRP and the property owner in order to avoid disruptions in water deliveries and to maintain access to the property. The Contractor shall be solely liable for any crop failures due to any negligence on his part to provide water to the property owner during the construction period for the private irrigation facilities.

641.3 - Protection of Existing Improvements

The private irrigation work is to be performed on temporary construction easements obtained by the Owner from the property owner for the specific purpose of construction of the private irrigation system. The Contractor shall carefully contain his activities to the temporary construction easement and the adjacent right-of-way, and shall carefully protect all trees, bushes and other landscaping items which are shown on the plans to be protected in place.

641.4 - Landscaping Relocation and Replacement

The plans for the private irrigation work show the specific requirements for major landscaping items which are in conflict with the proposed irrigation work. Prior to beginning any work on the temporary construction easement, the Contractor shall review his plans with the property owner, in order to verify the work shown and to arrange for the disposition of other minor landscaping items which are not shown or detailed.

Relocation of established trees and shrubs shall be accomplished by a professional with specific expertise in the relocation of the type and size of plants involved.

All landscaping, plants, rock walls and other existing site improvements which are disturbed during construction shall be repaired or replaced to equal or better condition prior to final project acceptance.

641.5 - Concrete Lined Irrigation Ditch

The concrete lined irrigation ditch, including headwall transition and lined ditch terminations, shall be furnished and installed in accordance with plan details and as described herein.

641.5.1 - Earthwork

The earthwork for the concrete lined private irrigation ditch shall be performed in accordance with Section 215 of these Special Provisions.

641.5.2 - Concrete

Concrete linings shall be furnished in conformance with the requirements of Section 725 of the MAG U.S.S., for Class A concrete, with the following exceptions and limitations:

- a. Maximum size of coarse aggregate shall not exceed one-half of the final lining thickness.
- b. Slump shall be carefully controlled to allow for placement on the side slopes of the ditch and for transitions.
- c. Steel or wire mesh reinforcement of the lining shall not be required.
- d. All concrete used in ditch linings shall be Fiber Reinforced concrete, conforming to ASTM C-94, except as modified herein. Concrete reinforcing fibers shall be polypropylene, collated, fibrillated fibers from Fibermesh, Inc., Chattanooga, Tennessee, or equal. Fibers shall be used in strict accordance with the manufacturer's recommendation as to type and amount. Only fibers designed and manufactured specifically for use in concrete from virgin polypropylene and so certified by the manufacturer shall be acceptable. The fiber manufacturer or his approved distributor shall provide the services of a qualified employee for instruction to the Contractor on mix design, adjustments necessary during the mixing process, and for any special procedures necessary to place and finish the concrete.

641.5.3 - Placement

Placement of concrete ditch linings shall be by slip forming or other approved means of placement. Control joints shall be installed at 10-foot intervals.

641.5.4 - Alternate Lining Placement

As an alternative at the Contractor's option, placement of the ditch lining may be accomplished with pneumatically placed mortar conforming to Section 525 of these Special Provisions and the following additional requirements:

- a. The exceptions and limitations as noted in Subsection 641.5.2 shall apply to pneumatically placed mortar.
- b. All exposed surfaces in the ditch shall be steel trowel finished to produce a smooth, even surface.

641.5.5 - Port Valves and Pipe Extensions

As a part of the ditch construction, the Contractor shall furnish and install 8-inch slide type port valves with a 3-foot length of 8-inch concrete pipe, at the spacing shown on the plans and in accordance with plan details. Port valves shall be as manufactured by Fullerform, or equal. Pipe shall be of the same strength class as the 18-inch pipe as noted on Table 618-1 of these Special Provisions.

641.6 - 18-Inch Irrigation Pipe and Appurtenances

The 18-inch irrigation pipe, including all fittings, connections, alfalfa valves and connector piping shall be furnished and installed as shown on the plans.

641.6.1 - Irrigation Piping

All irrigation piping shall be rubber gasketed reinforced concrete pipe (RGRCP) conforming to ASTM C-76, Class III. Design D-load shall be as noted in Table 618-1 in Section 618 of these Special Provisions for 18-inch pipe.

641.6.2 - Irrigation Valves

Irrigation valves shall be furnished and installed in the size and number as shown on the plans and in accordance with Standard Detail No. 506 of the MAG U.S.S.

641.7 - Private Irrigation Structures

641.7.1 - Headwall and Canal Gate

The concrete headwall and canal gate shall be constructed in accordance with the plan details and Standard Detail No. 501-4 of the MAG U.S.S. The junction box shall include two, 18-inch toggle gates, Fullerform or equal, the connection to the SRP pipe stubout, and existing ditch modifications, all as shown on plan details.

641.8 - Payment

Payment for private irrigation facilities shall be based on the unit prices bid for Concrete Lined Ditch, 18-inch Irrigation Pipe and Appurtenances, and Private Irrigation Structures, as described herein, and shall include all work necessary to furnish and install complete and ready for operation the private irrigation facility.

Payment for landscaping relocation and replacement shall be based on the lump sum price bid in the proposal.