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CITY OF TEMPE, ARIZONA
PUBLIC WORKS DEPARTMENT
DIVISION OF ENGINEERING

Contract Documents

for

SALT RIVER OUTFALL CHANNEL, PHASE II
(48TH STREET DRAIN)
PROJECT NO. 75032

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MARCH 1980



A028.503

CITY OF TEMPE, ARIZONA
PUBLIC WORKS DEPARTMENT
DIVISION OF ENGINEERING

SALT RIVER OUTFALL CHANNEL, PHASE II
(48th Street Drain)

Project No. 79032

March 13, 1980

ADDENDUM NO. 2 TO CONTRACT DOCUMENTS

The following revisions to the plans and specifications shall become a part of the above contract documents:

SPECIAL PROVISIONS

Page 35, revise Article .58 to read as follows:

".58 Concrete Delivery a maximum time of ninety (90) minutes shall be allowed to elapse after aggregate, cement and water has been introduced into the transit mix truck until the material is placed in its final location. Any material not placed within this time frame shall be discarded at the Contractor's expense."

Page PF-2, Proposal Form, correct Bid Item No. 2, in ink, to read as follows:

2. 1 Job Remove 72" Dia. Pipe & \$ _____ \$ _____"
Headwalls (72" Dia. Pipe
to be salvaged)
(Per L.S.)

Page 13, Special Provisions, Article .40 miscellaneous removal and other work, delete item "2. Removal and replacement of fences".

Page PF-5, Proposal Form, add the following item, in ink, to the proposal form, and include the bid cost in the summary total of the bid:

"34. 927 L.F. Remove and Relocate Existing \$ _____ \$ _____"
(Per L.F.) fence to R/W Line.

PLANS

Sheet 6 of 35 of the plans, add the following note to the plan:

"Sta 13+50⁺ to 14+00, Rt., Remove and Relocate 50 L.F. of Exist Fence to Right-of-way Line."

Sheet 7 of 35 of the plans, add the following note to the plan:

"Sta 14+00 to 16+95, Rt., remove and relocate 295 L.F. of existing fence to R/W Line."

ADDENDUM NO. 2 TO CONTRACT DOCUMENTS

Page 2

Sheet 9 of 35 of the Plans, add the following note to the plan:

"Sta 22+50 to 26+72, Lt., Remove and Relocate 422 L.F. of Existing Fence to new R/W."



Grover Serenbetz
Public Works Director

TL:sg

CITY OF TEMPE, ARIZONA
PUBLIC WORKS DEPARTMENT
DIVISION OF ENGINEERING

SALT RIVER OUTFALL CHANNEL, PHASE II
(48th Street Drain)

Project No. 79032

March 10, 1980

ADDENDUM NO. 1 TO CONTRACT DOCUMENTS

The following revisions to the plans and specifications shall become a part of the above contract documents:

SPECIFICATIONS

Page 23, Special Provisions, under article .51 Reinforced Concrete Channel Lining, section A. Materials, add the following:

8. Filter Fabric shall be Mirafi 140 Fabric as manufactured by Fiber Industries, Inc., a subsidiary of Celanese Corp., or approved equal.

Page 24, Special Provisions, under article .51 Reinforced Concrete Channel Lining, revise the following sections:

section b. General Requirements, add the following;

8. Filter drain shall be lined with filter fabric as shown on the plans.

section c. Measured and Payment, subsection 2, revised to read as follows:

2. Payment per linear foot shall be full compensation for all labor, materials, equipment and incidentals necessary to complete the reinforced concrete channel lining in place as detailed on the plans and specified herein, including all fine grading, concrete, reinforcing steel, finishing, curing, filter materials, filter fabric expansion and contraction joints, and flap valve weeps.

Page 34, Special Provisions, under article .57 Flat Valve Weep, subsection A. Materials, add the following:

4. Suppliers of flap valve weeps:

Goodyear Rubber & Supply Co.
2720 NW 35th Street
Portland, Oregon 97210

Redelco Plastics
Post Office Box 525
Pinedale, California 93650

R. F. Dill and Associates
Post Office Box 368
Westminister, California 92683

The listing of these companies should not be construed to mean that they are the only suppliers of flap valve weeps or as an endorsement of their product.

SPECIFICATIONS - cont.

Page 35, add the following article to the Special Provisions:

.59 Concrete Testing "Sampling and testing for the 28-day compressive strength will be performed by the Engineer or his representative. The Contractor shall cooperate in the sampling procedure and shall provide a wheelbarrow, or similar equipment, for collection of the concrete sample. In addition, the Contractor shall provide on-site facilities such as a water barrel for storage of the test cylinders. Should the Contractor require test cylinders and testing for other than 28-day compressive strength determination, he shall so inform the Engineer and shall bear all costs relating thereto.

On Page PF-5, Proposal Form, add the following item in ink, to the proposal form, and include the bid costs in the summary Total of the Bid:

33. 60 L.F. Install 12" C.I. 54 \$ _____ \$ _____
 M.J.D.I.P. Sewer
 (Per L.F.)

PLANS

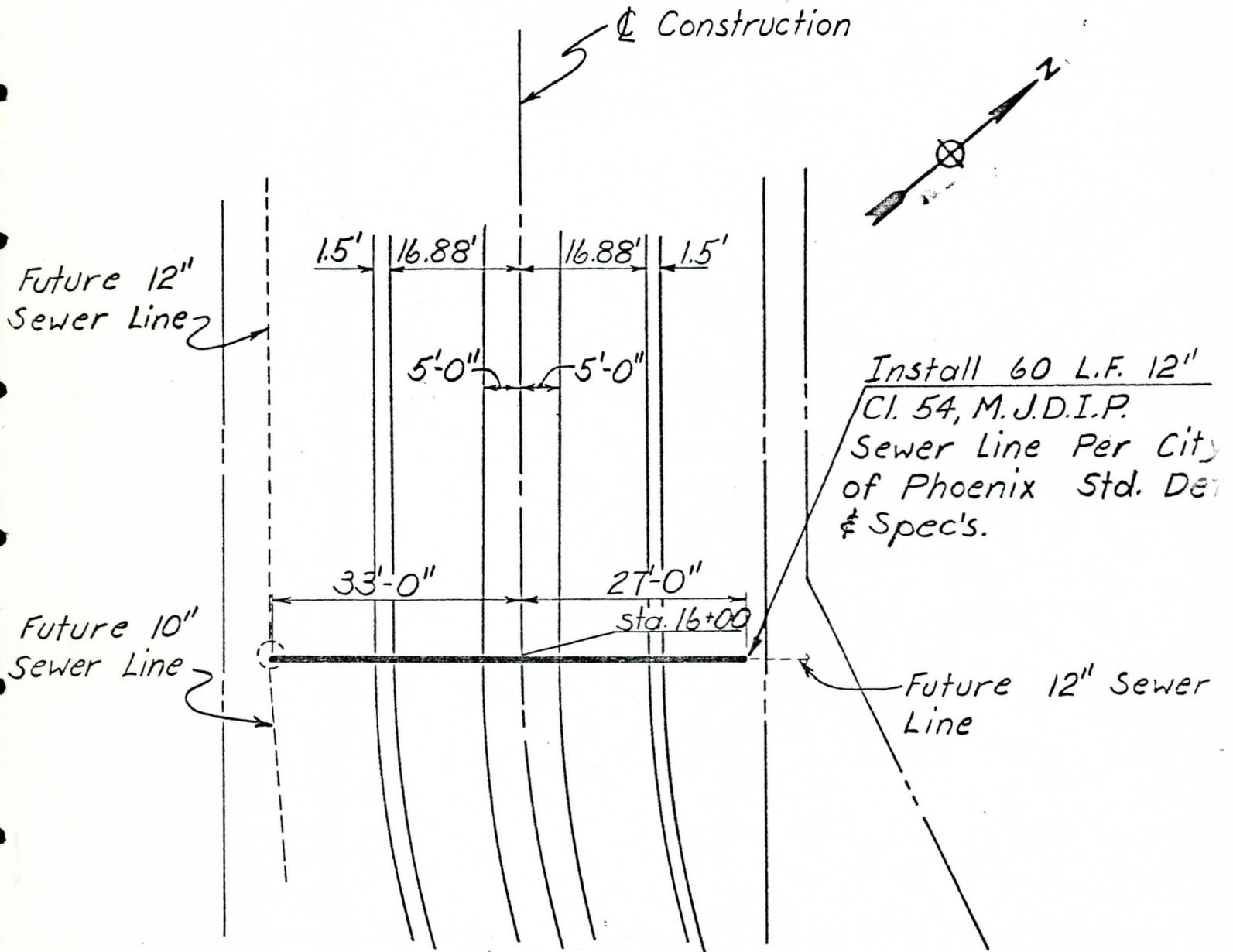
Sheet 3 of 35 of the plans, revise the Typical Channel Section to include the filter fabric per the attached Exhibit "B".

Sheet 7 of 35 of the plans, station 16+00, revise to include installation of 60 L.F. of M.J.D.I.P. per the attached Exhibit "A".



Grover Serenbetz
Public Works Director

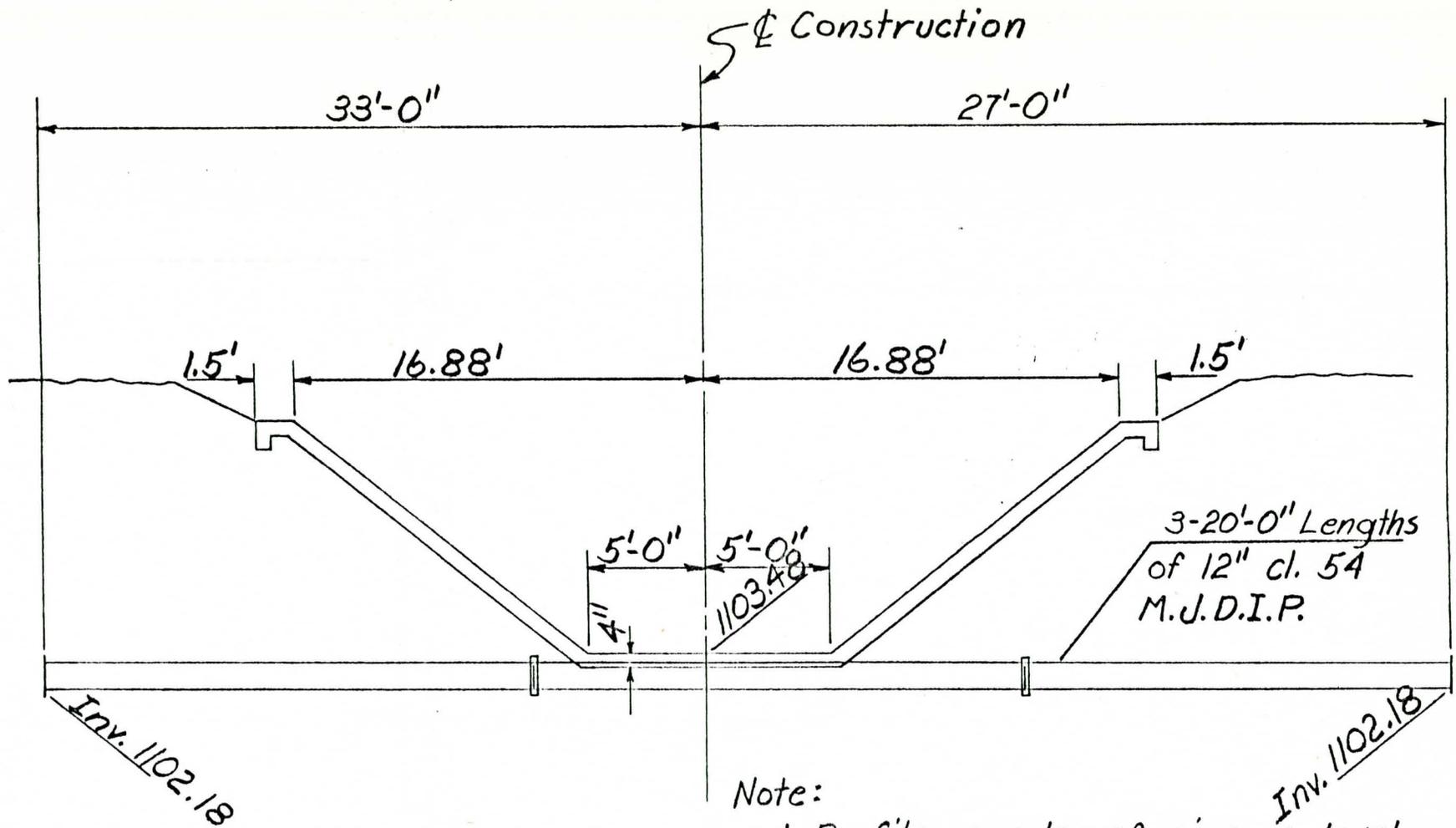
TL:sg



PLAN
no scale

EXHIBIT A

SVERDRUP & PARCEL AND ASSOCIATES, INC.
CONSULTING ENGINEERS
PHOENIX, ARIZ.



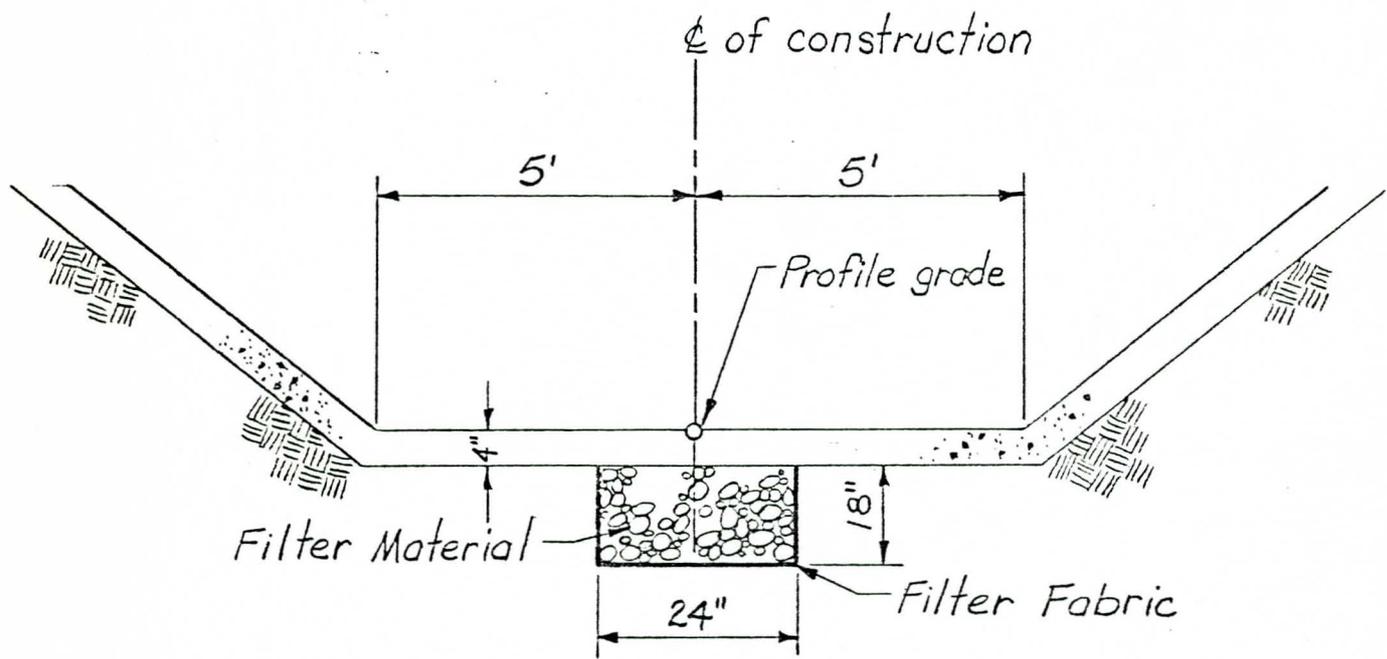
Note:

1. Profile grade of pipe is level.
2. Cap each end of pipe.
3. Pipe joints shall not penetrate conc. channel lining.

CROSS SECTION AT STA. 16+00

no scale

SVERDRUP & PARCEL AND ASSOCIATES, INC.
CONSULTING ENGINEERS
PHOENIX, ARIZ.



TYPICAL CHANNEL SECTION

EXHIBIT B

SPECIAL NOTICE

BIDDER'S ATTENTION IS CALLED TO THE FACT THAT NO
BID IS COMPLETE WITHOUT THE RETURN OF THIS BOOK
OF SPECIAL PROVISIONS, AND CONTRACT DOCUMENTS WITH
ALL PAGES INTACT.

BIDS SHALL BE SUBMITTED IN A SEALED ENVELOPE. THE
LOWER RIGHT-HAND CORNER SHALL BE MARKED:

BID OF _____, CONTRACTOR

SALT RIVER OUTFALL CHANNEL, PHASE II
(48TH STREET DRAIN)
CITY OF TEMPR PROJECT NO. 75032

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CITY OF TEMPE, ARIZONA
PUBLIC WORKS DEPARTMENT
DIVISION OF ENGINEERING

NOTICE TO CONTRACTORS

PROJECT NO. 75032 - SALT RIVER OUTFALL CHANNEL, PHASE II
(48TH STREET DRAIN)

SEALED BIDS will be received by the City of Tempe, Arizona, City Clerk, City Hall, 31 East 5th Street, Tempe, Arizona 85281, until 10:00 A.M. on March 18, 1980. At that time bids will be opened and publicly read aloud in the Public Works Department conference room. Bids received after the time specified will be returned unopened.

The proposed work consists primarily of Channel Lining and Bridge Construction and associated work and shall be accomplished in accordance with the "Maricopa Association of Governments Uniform Standard Specifications for Public Works Construction"; and "The City of Phoenix Standard Details" except as otherwise set forth in the Contract Documents.

A bid guarantee acceptable to the City of Tempe in the amount of 10% of the proposal shall be submitted with the proposal.

Copies of the plans, specifications, and other Contract Documents are on file and may be reviewed in the office of the City Engineer. A set of such documents may be obtained from the office of the City Engineer, upon payment of fifteen (\$15.00) Dollars which payment will not be returned.

Work shall not start until after the date of issuance of Notice to Proceed and shall be completed within three hundred (300) calendar days thereafter.

The City of Tempe reserves the right to reject any and all bids and to waive any informality in the bids received. An award will be made or bids rejected within thirty (30) days after bid opening.



Grover Serenbetz
Public Works Director

Publish: February 13, 1980 through February 19, 1980

SPECIAL PROVISIONS

.01 Standard Specifications and Details

Except as otherwise denoted or required on the Plans or in these specifications, construction of this project shall be in accordance with all applicable sections of the Maricopa Association of Governments (MAG) Uniform Standard Specifications, with supplements and City of Phoenix Standard Details, latest revision, which shall be referred to hereinafter as the "Standard Specifications."

These Special Provisions provide for the supplementation, modification and/or amendments to the Standard Specifications.

.02 Conflicts in Documents

In case of a discrepancy of conflict, Plans will govern over both Standard Specifications and Standard Details; Special Provisions will govern over Standard Specifications, Standard Details and Plans.

.03 Definitions

Definitions shall be as stated in Section 101.2 of the Standard Specifications within the following additions:

Design Engineer: Sverdrup & Parcel and Associates, Inc.

Contracting Agency: The City of Tempe or City where so used in the Special Provisions.

.04 Responsibility of Damage Claims

The Contractor shall indemnify and save harmless the Design Engineer, City, their officers and employees, agents, and representatives from all suits, actions, loss, damage, expense, cost or claims of any character or any nature brought because of any injuries or damage received or sustained by any person, persons or property on account of the operations of the said Contractor or on account of or in consequence of any neglect in safeguarding the work; or because of any act or omission, neglect or misconduct; or because of any claims or amounts recovered from any infringement of patent, trademark or copyright; or from any claims or amounts arising or recovered under the Workmens Compensation Act or any other law, ordinance, order or decree.

.05 Losses and Damages

All loss or damage arising out of the nature of the work to be done or from the action of the elements, storm water, or from any unforeseen circumstances in the prosecution of the same, or from any unusual obstructions or difficulties which may be encountered in and/or during the prosecution of the work, or from any casualty whatsoever of every description, shall be sustained and borne by the Contractor at his own cost and expense.

.06 Permits

Permits and/or agreements will be required for construction in the following areas:

- a. City of Phoenix right-of-way on 36th Street, 40th Street and on Lindzy Drive. To be secured by the Contractor.
- b. Flood Control District of Maricopa County right-of-way from beginning to end of project. To be secured by the Contractor.
- c. State of Arizona Department of Transportation right-of-way on Lindzy Drive. To be provided by City.
- d. SRVWUA right-of-way on San Francisco Canal (2 locations). To be provided by City.

The Contractor shall conform to the requirements of the permits and agreements as if made a part of these contract documents.

.07 Bid Security

Each proposal shall be accompanied by a certified check, cashier's check, or bid bond acceptable to the City in an amount equal to at least ten percent (10%) of the proposal, payable without condition to the City as a guarantee that the bidder, if awarded the contract, will promptly execute such contract in accordance with the proposal and in the manner and form required by the Contract Documents. The bid security of all bidders except the two lowest will be returned promptly after the award of the contract. The bid security of the two lowest bidders will be retained until the contract is executed or other disposition is made thereof.

.08 Proposal

Bids shall be properly executed upon the proposal form attached to and made a part of the contract documents, with items properly filled out. The signature

of all persons signing shall be in longhand. The completed forms shall be without interlineations, alterations, or erasures. In case of an error in the extension unit price and the total, the unit price shall govern.

Bids shall not contain any recapitulations of the work to be done. Alternative proposals will not be considered except as called for. No oral, telegraphic, or telephonic proposals or modifications will be considered.

.09 Interpretations of Drawing and Documents

If any person submitting a bid for the proposed contract is in doubt as to the true meaning of part of the specifications or other contract documents, or finds discrepancies in, or omissions from the drawings or specifications, he may submit to the Tempe City Engineer a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretations or corrections of the proposed documents will be made by Addendum duly issued and a copy of each addendum will be mailed or delivered to each person receiving a set of such documents. The City of Tempe will not be responsible for any other explanation or interpretation of the documents.

.10 Addenda

Addenda issued during the time of bidding shall be attached to and made a part of the contract documents.

.11 Bonds Required

Bonds in the following amounts will be required at the time of executing the formal contract.

1. Performance Bond, one hundred percent (100%) of the contract price.
2. Payment Bond, one hundred percent (100%) of the contract price.

.12 Execution of Contract and Bonds

The form of the contract, which the successful bidder as contractor will be required to execute and the form of bonds which he will be required to furnish are included in the contract documents and should be carefully examined by the bidder. The successful bidder will be required to execute the bonds and the

Project No. 75032

standard form of contract in three (3) original counterparts for construction within five (5) days after formal notice of award of contract. Failure to execute a contract and file satisfactory contract bond as provided herein within 10 calendar days after the date of Notice of Award, shall be just cause for the cancellation of the award and the forfeiture of the proposal guarantee which shall become the property of the City of Tempe, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lower responsible bidder or the work may be readvertised as the City of Tempe may decide.

.13 Award of Contract

A contract will be awarded or bids rejected within thirty (30) days after bid opening.

.14 Measurement and Payment

Measurement and payment will be made in conformance with Sections 109.1 and 109.2 of the Standard Specifications and only for those items included in the bid proposal. Costs for all work for which there are no specific pay items shall be included in the items for which a pay quantity exists.

.15 Plans to the Successful Bidder

The successful bidder may obtain (7) sets of Plans and Specifications for this project from the office of the City Engineer, at no cost.

If he desires more than seven (7) sets, he shall be required to pay the reproduction costs of fifteen (\$15.00) dollars each.

.16 Insurance Requirements

The Contractor's attention is directed to Section 103.6 of the Maricopa Association of Governments Uniform Standard Specifications for Public Works Construction and the City of Tempe supplement thereto. The proof of insurance shall be submitted to the City Engineer prior to starting of work per the sample form in the back of these Specifications.

.17 Approximate Quantities

It is expressly understood and agreed by the parties hereto that the quantities of the various classes of work to be done and material to be furnished under this contract, which have been estimated as stated in the proposal, are only approximate and are to be used solely for the purpose of comparing, on a consistent basis, the proposals offered for the work under this contract; and the Contractor further agrees that the City of Tempe will not be held responsible for any claim for damages or for loss of profits because of a difference between the quantities of the various classes of work as estimated and the work actually done. If any error, omissions, or misstatement is found to occur in the estimated quantities, the same shall not invalidate this contract or release the Contractor from the execution and completion of the whole or any part of the work in accordance with the specifications and the plans herein mentioned, and for the prices herein agreed upon and fixed therefore, or excuse him from any of the obligations or liabilities hereunder, or entitle him to any damages or compensation except as may be provided for in this contract.

.18 Non-Discrimination

In connection with the performance of work under this Contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, color or national origin. The aforesaid provision shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post hereinafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the Non-Discrimination clause.

The Contractor further agrees to insert the foregoing Provision in all subcontracts, except subcontracts for standard commercial supplies or new materials: "The Contractor shall forfeit as a penalty to the contracting agency Five Dollars for each laborer, workman or mechanic employed for each calendar day or portion thereof that such laborer, workman or mechanic is paid less than the designated

PAYMENT

Payment shall be made as directed in the Maricopa Association of Governments Uniform Standard Specifications for Public Works Construction and all supplements thereto.

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rates for any work performed under the contract by the Contractor or any Sub-contractor."

.19 Refuse Collection Access

If at any time project construction shall require the closure or disruption of traffic in any roadway, alley, or refuse collection easement such that normal refuse collection will be interfered with, the Contractor shall make arrangements with the City of Phoenix, Sanitation Department in order that refuse collection services can be maintained.

.20 Subsurface Soil Investigation

The Salt River Outfall Channel Soils Report dated March 31, 1977, is available to all bidders for review at the office of Sverdrup & Parcel and Associates, Inc., 1650 West Alameda Drive, Tempe, Arizona.

The data set forth in the reports and on the plans are furnished for general information only. The field conditions so described shall not constitute a representation or warranty, expressed or implied, that such conditions are actually existent. Bidders shall make their own investigations and form their own estimates of the site conditions.

After the submission of the proposal, no complaint or claim that there was any misunderstanding as to the quantities, conditions or nature of the work will be entertained.

.21 Shop Drawings

Add the following to Section 105.2 of the Standard Specifications:

Prior to fabrication of structural falsework and shorings, materials and/or equipment, the Contractor shall submit to the Engineer for approval, necessary detailed "Shop" and "Working" drawings, design computations and other pertinent data, as follows:

Four copies of each drawing and of all necessary data shall be submitted, of

which one copy will be returned to the Contractor marked "Approved", "Approved as Noted", or "Approved Subject to Corrections". After corrections have been made, four copies of the corrected drawings and data shall be submitted, of which one copy will be returned to the Contractor. If the original submittal is "Approved", no further submittal will be required.

NOTE: Drawings marked "Approved" shall also be marked to indicate the limitations of the approval - such as: "Approved subject to requirements of the plans and specifications" or "Approved for the general design and construction but not for detailed dimensions".

.22 Suspensions of Work

The Engineer reserves the right to suspend the work wholly or in part if deemed necessary for the best interest of the City. This suspension will be without compensation to the Contractor, other than to adjust the contract time in accordance with Section 108.

.23 Hindrance and Delays

No charge shall be made by the Contractor for hindrances or delays from any cause during the progress of any portion of the work embraced in a contract. Such delays, if due to no fault or neglect of the Contractor, shall entitle the Contractor to an extension of time allowed for completing the work sufficient to compensate for the delays. The allowable extension of time due to such delays shall be determined by the Engineer, provided the Contractor has given the Engineer immediate notice in writing of the cause of such delays.

.24 Utilities

The Contractor shall comply with the requirements of ARS 40-360.21 through 40-360.29 in notification to the interested utility owners prior to the start of construction to ascertain the approximate locations of the various underground utilities shown on the plans, or that may be brought to his attention. The exact locations of these underground utilities shall be determined by excavations made by the Contractor prior to any trenching operations.

When the Contractor's operations result in damage to any utility, the location of which has been brought to his attention, he shall assume full responsibility for such damage.

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The following phone numbers as indicated should put the Contractor in contact with the proper personnel:

Mountain Bell Telephone Company. . .	Blue Stakes . . .	263-1100
Salt River Project.	Blue Stakes . . .	263-1100
Arizona Public Service	Blue Stakes . . .	263-1100
City of Phoenix Water & Sewer Dept.	Blue Stakes . . .	263-1100
SRP Pole Bracing		267-9161

The Contractor is hereby advised that the location of all utilities, as shown on the plans, may not be complete and the Contractor shall satisfy himself as to the exact location of the utilities by contacting the Owners before proceeding with the work.

The exact location of all existing utilities, structures and underground utilities indicated on the drawings, shall be determined by the Contractor and he shall conduct his work so as to prevent interruption of service or damage to them.

.25 Compliance with Manufacturer's Instructions

In all instances wherein the item and/or specifications require installation or construction in accordance with either manufacturers' or suppliers' recommendations and/or instructions, said recommendations and/or instructions shall be submitted with the applicable portions clearly marked for approval by the Engineer prior to the commencement of work on that item or portion of the contract..

.26 Removal of Unacceptable and Unauthorized Work

Add the following to Section 105.11 of the Standard Specifications:

"Repair or replacement to the work shall be done immediately by the Contractor at the Contractor's expense upon request by the Engineer. Should the Contractor fail to repair such defective material and/or workmanship, or to make replacement within 5 days after a written notice by the City, it is agreed that the City may have such repairs and replacements performed by the City or others and the actual cost of the required labor and material shall be chargeable to and payable by the Contractor."

.27 Dumping and Disposal of Waste Materials

Waste material may be segregated as to type and disposed of as follows:

- a. Clean dirt, concrete and asphalt rubble may be disposed of at the City of Phoenix Del Rio Landfill at 3145 South 12th Street.
- b. Trash may be disposed of at the 27th Avenue Landfill at 27th Avenue and Lower Buckeye.

Prior to the hauling and placing of surplus materials to these locations, the Contractor shall contact and coordinate this work with the City of Phoenix, Sanitation Department Disposal Supervisor (telephone number 262-7301). The City of Phoenix Sanitation Department will need 72 hours prior notice before hauling to these locations. The Contractor will need to secure temporary dumping permits from the Disposal Supervisor. No measurement or direct payment will be made for the hauling and disposing of the material, the cost being considered as incidental to the contract work. No dumping fee will be imposed.

.28 Traffic Maintenance and Detour

The Contractor shall be responsible for maintaining vehicular traffic through the construction site. This work shall consist of, but is not limited to, the following:

- a. Constructing and maintaining a two-way detour around construction at Lindzy Drive, in general conformance with the layout shown in the plans. Traffic lanes shall be 12 feet minimum in width with 2 lanes, one in each direction, maintained at all times. Four inches of ABC surface shall be placed and maintained on the detour except in areas where existing surfacing can be utilized.
- b. Erecting and maintaining warning signs, traffic control signs and temporary barricades in accordance with the City of Phoenix, "Traffic Barricade Manual."

Project No. 75032

- c. Traffic shall be maintained through detours at all times in accordance with the City of Phoenix "Traffic Barricade Manual."
- d. Access across existing vehicular channel crossings shall be maintained at all times.
- e. The Contractor shall provide access along the existing Tempe Drainage Ditch No. 2 maintenance roads for periodic use by the Flood Control District of Maricopa County for channel maintenance purposes.
- f. The Contractor shall submit a detailed detour and traffic maintenance plan for approval along with the construction schedule.
- g. Measurement and payment for "Detour" shall be per lump sum and shall be full compensation for constructing and maintaining detours including signing, barricading, surfacing, installing and removing culvert pipe, removal and cleanup of detours in conformance with the plans, and these special provisions.

.29 Other Work and Other Contracts

- a. The Contractor's attention is directed to the fact that other work adjacent to and within the project area may be in progress simultaneously with this contract.
- b. The City reserves the right at any time to contract for and perform other or additional work, and/or to schedule and allow construction operations by utility owners, on or near the work covered by this contract.

The Contractor shall coordinate his efforts with other Contractors so as to assure a timely completion of all work.

.30 Subcontractor's List

The Contractor shall be required to submit a Subcontractor's list in accordance with subsection 102.6 of the Standard Specifications.

.31 Construction Schedule

The Contractor shall be required to submit a construction schedule for approval in accordance with subsection 108.4 of the Standard Specifications. The schedule shall show the phasing and sequencing of the work and the time of duration of the various items of work as related to calendar time. Approval of any schedule submitted by the Contractor shall not be construed to assign responsibility of performance of contingencies to the City or relieve the Contractor of his responsibility to adjust his forces, equipment, and work schedules as may be necessary to insure completion of the work within the prescribed contract time. The Contractor shall inform the Engineer of any required revisions to or deviations from the approved schedule.

.32 Changes in the Work

In reference to Section 104 of the Standard Specifications, it is understood that no change to any part of the work or design as depicted or detailed on the Plans or specified or described in these Specifications will be allowed or considered valid unless authorized in writing by the Engineer prior to its performance.

.33 Maintenance of Ditch Flow

The Contractor is advised that the Tempe Drainage Ditch No. 2 (Salt River Outfall Channel) is at times subject to high water levels, which may not necessarily be caused by inclement weather. It shall be the Contractor's responsibility to maintain this flow and protect the work, by whatever means that will allow a safe and hazard free operation.

.34 Time to Complete

The time in calendar days, allowed to complete through final acceptance, the work described in these contract documents is 300 days following the starting date specified in the notice to proceed.

.35 Liquidated Damages

In the event the work is not completed on time, liquidated damages will be assessed the Contractor in accordance with subsection 108.9 of the Standard Specifications. If there has been previous partial acceptance of a portion of this work, liquidated damages will be reduced in proportion.

.36 Temporary Construction Easements

Temporary construction easements have been provided for construction in those areas where the required slopes or constructed item results in encroachment on private property beyond the project right-of-way. The Contractor shall not allow equipment, materials or operations to extend beyond the limits so defined. Storage of equipment or materials shall not be allowed on temporary construction easements.

.37 As-Built Drawings

Final acceptance of the project after final inspection will not be given until reproducible "As-Built" drawings have been completed. The Contractor shall provide accurate data and field notes as construction progresses, for preparation of the as-built drawings by the Engineer.

.38 Clearing and Grubbing

This work shall conform to Section 201 of the Standard Specifications except that the limits of clearing and grubbing include only those areas to be constructed upon. All weeds, stumps, roots, trees, rubbish, rubble, bushes and grasses shall be removed from the designated areas and disposed of as provided for in these Special Provisions. Measurement and payment for the item clearing and grubbing shall be per lump sum.

.39 Removal of Existing Improvements

This work shall conform to Section 350 of the Standard Specifications so modified herein.

- a. The 72" diameter pipe removed from within the Lindzy Drive R/W shall be salvaged and used for installation under Elwood St., Channel Sta 9+98 as shown on the plans.
- b. The Contractor shall not leave excavated material or rubble within the ditch but shall promptly dispose of all removal items as provided for herein.
- c. Asphalt to be removed shall be saw cut and demolished in a manner that will not damage existing improvements which are to remain in place. Any damage to portions not to be removed shall be repaired by the Contractor, to the satisfaction of the Engineer at no expense to the City.

- d. Sawcutting and removal of asphalt shall be considered incidental work.
- e. Removal items shall be measured and paid for as provided in the Proposal and such payment shall be considered full compensation for removal and satisfactory disposal of the various items.

.40 Miscellaneous Removal and Other Work

The item "Miscellaneous Removal and Other Work" consists of furnishing all labor, materials, tools, equipment and supplies necessary to complete the removal and disposal of the features specified on the plans, and other work of a minor nature, for which no specific pay item is provided and which may develop as incidental to the construction of the project. This work will include but not be limited to the following:

1. Removal of guard rail.
2. Removal and replacement of fences.
3. Removal of rubbish and debris.
4. Removal of miscellaneous concrete.

.41 Channel Excavation

Channel excavation shall consist of excavating, trimming and grading the channel and maintenance roadway section, including roadway ditch, to the line and grade shown on the plans; disposing of the excavated material, either into embankment sections or by removal from the project site; and as further described in these special provisions:

- a. Except as modified within these special provisions, all work under the item Channel Excavation shall conform to Sections 205 and 215 of the Standard Specifications with the understanding that the term "roadway excavation" used in Section 205 shall be synonymous with the term "channel excavation."

- b. Included and measured as part of the channel excavation shall be all existing improvements and materials encountered within the excavation zone, except those items specifically identified as removal items for payment in the proposal.
- c. Excavation for the gabion lined plunge basin shall be measured and paid for as channel excavation.
- d. Granular material excavated as channel excavation, which is suitable for channel or roadway embankment, shall be incorporated into the areas of the work requiring fill, subject to the approval of the Engineer. Excess material, clayey, silty or saturated materials shall be hauled away and disposed of.
- e. Earthwork quantities are estimated as follows: Excavation = 47,300 c.y.; Embankment = 17,100 c.y. in place; Waste = 27,500 c.y.
- f. Concrete, brick, asphalt and other debris removed as part of channel excavation shall be hauled away and disposed of.
- g. Overexcavation, except for unsuitable material, will not be permitted.
- h. Excavation of unsuitable material shall be measured and paid for as channel excavation. The classification and the extent of excavation of unsuitable material shall be determined by the Engineer. Of special note is the spoil material lying adjacent to existing channel in some areas as a result of ditch maintenance. This spoil material shall be considered unsuitable material. The extent or depth of this spoil material has not been accurately determined and therefore will be removed to the extent determined by the Engineer.
- i. The Contractor shall maintain the insitu moisture content of the subgrade beneath the concrete channel lining, from the time of exposure due to excavation until the lining is constructed.
- j. After any portion of the work has been opened up, saturation of material caused by irrigation, high water, storm drainage, weather or any similar causes will be considered as within the responsibility of the Contractor and corrective measures shall be performed to the satisfaction of the Engineer.

- k. Measurement and payment for channel excavation shall be per cubic yard as measured in place.

.42 Embankment

This work shall consist of hauling, placing, constructing and grading fill construction in conformance with Section 211 and 215 of the Standard Specifications as modified herein.

- a. Fill construction will be divided into two categories - "Special Embankment" and "embankment." Special Embankment, for which a separate pay item is included in the proposal, shall be limited to that fill construction within a zone, or dimension of 4 feet from the finished face of the channel lining. All other fill construction on the project site shall be considered embankment for which no separate pay item exists but which is considered incidental to the pay item, Channel Excavation.
- b. Special Embankment shall be approved by the Engineer and shall meet the following specifications:

Maximum particle size8 inches
Maximum plasticity index12 percent
Maximum percent* expansion.1.0 percent

*Performed on sample remolded to 90% of the maximum ASTM: D698 density and 2% below optimum moisture under a 100 psf surcharge pressure.

Compaction of the Special Embankment shall be to a minimum 90 percent of the ASTM D698 density with a moisture content between 1 percent below to 3% above optimum.

- c. The Contractor shall make his own arrangements for obtaining material for "Special Embankment" and shall pay all costs involved, excepting that the source and material shall be subject to the approval of the Engineer.

Measurement and payment for Special Embankment shall be per cubic yard complete in place.

.43 Subgrade Preparation

Subgrade preparation shall include any excavation, fill construction, compaction, grading and preparation of subgrade as further specified in Section 301 of the Standard Specifications as herein modified.

- a. Measurement and payment for Subgrade Preparation shall be per square yard complete in place and shall be limited to the following areas:
 1. Under the asphalt pavement and approach slabs on Lindzy Drive.
 2. Under the aggregate surfacing of the entrance road adjacent to Lindzy Drive, Sta. 27 + 27.
- b. Compaction requirements for subgrade on Lindzy Drive shall be 95% of maximum. All other areas shall be 90%.
- c. Grading and compaction of subgrade under the maintenance road surfacing shall be considered incidental to other earthwork items for which a pay item exists.
- d. Grading and compaction of subgrade on Elwood Street (crossing at Channel Station 9 + 98) shall be considered incidental to other earthwork items for which a pay item exists.

.44 Asphalt Surface and Aggregate Surface

- a. Materials shall be as follows:
 1. Asphalt Surface shall be considered as 4 inches of asphalt concrete pavement over 4 inches of aggregate base course over 14 inches of select material over a prepared subgrade. Aggregate Surface shall be considered 6 inches of aggregate base course over a prepared subgrade.
 2. Aggregate base course shall conform to the requirements of Section 701.2 of the Standard Specifications.

3. Select Material shall conform to the requirements of Section 702.2 of the Standard Specifications.
 4. Tack coat shall be grade SS-lh.
 5. Asphalt concrete shall be 1" of finish course, mix designation E 3/8 over 3" of base course, mix designation C-3/4.
 6. Mineral filler and anti-stripping agent shall be either dry hydrated lime or Portland Cement, approximately 1.5 percent by weight of the mineral aggregate and shall be used as a mineral filler in the asphalt concrete pavement.
 7. The releasing agent, to prevent pick-up by roller wheels, shall be "Roller-Ease," Chevron Asphalt Co., "Unicut S," Union Oil Co., or approved equal. The brand and type of releasing agent shall be submitted with the job mix formula for approval. This is a non-pay item.
- b. Where new asphalt paving is to match existing asphalt surfaces with no provision for overlaying the entire section, the edges of existing asphalt surfaces abutting the new paving, both longitudinally and transversely, shall be trimmed to a neat true line with straight vertical edges free from irregularities with a saw specifically designed for this purpose. The minimum allowable depth of cut shall be 1½ inches.

No extra payment shall be provided for this item and all costs incurred in performing this work shall be incidental to Asphalt Surface.

The trimmed edges shall be painted with a light coating of asphalt cement or emulsified asphalt immediately prior to constructing the new abutting asphaltic concrete pavements. No separate payment will be made for this work and all costs in connection therewith shall be included in the unit prices bid for Asphalt Surface.

- c. Measurement and payment for Asphalt Surface shall be per square yard complete in place. Such payment shall be full compensation for all materials, tools, labor and costs, including aggregate base course, select material, asphalt concrete pavement and tack coat as required to construct the asphalt surface as detailed on the plans and specified herein. Measurement will be made between edges of new asphalt concrete pavement only. Payment for grading, materials or other work outside the pavement edge, required for the completion of work item, shall be considered as included in the unit price for Asphalt Surface.

- d. Measurement and payment for Aggregate Surface shall be per square yard complete in place. Such payment shall be full compensation for all materials, tools, labor and costs, as required to construct the aggregate surface as detailed on the plans and specified herein. Measurement will be made between edges of actual roadway surface only. Side slopes will not be included. Payment for grading, materials or work outside the measured area, required for the completion of the work item, shall be considered as included in the unit price for aggregate surface.

.45 Culvert Pipe

This work shall conform to Section 621 of the Standard Specifications.

- a. Culvert pipe shall be 16 gauge type A corrugated metal pipe.

- b. The Contractor will be required to pay the City of Phoenix Water and Sewer Department for water used in water settling trench backfill.

.46 Bladed "V" Ditch

This work shall consist of constructing a bladed V ditch for drainage purposes at the locations shown on the plans or as directed by the Engineer. The V ditch shall conform to the details shown in the plans and shall be graded to drain in the direction shown. Measurement and payment for bladed "V" ditch shall be per linear foot.

.47 Drainage Gates

This work shall consist of supplying and installing drainage gates at the locations shown on the plans.

- a. All work shall be in accordance with the plans, applicable sections of the Standard Specifications, these special provisions and the manufacturers recommendations and installation instructions.
- b. Drainage Gates shall be Red Top Model F-10, bronze bushing, as manufactured by Waterman Industries, Inc., Exeter, California, or approved equal.
- c. Measurement and payment for Drainage Gate shall be per each, for the size called for on the plans and shown in the proposal.

.48 Utility Relocation

This work shall conform to the plans and to the applicable sections of Part 600 of the Standard Specifications.

- a. All gas, electrical power and telephone facilities conflicting with the new work will be relocated by their respective owners. It may be necessary for the Contractor to coordinate his work with the utility companies in the relocation of their facilities during construction.
- b. Materials for water line relocations shall conform to Section 610 of the Standard Specifications and these special provisions.
- c. Materials for water service relocations shall conform to the Standard Details.
- d. Connections to the existing pipelines or existing valves shall not be made until after that section of new construction has satisfactorily passed the hydrostatic tests. No separate pay item will be included in the proposal for testing.

- e. The Contractor shall make arrangements with the City of Phoenix Water and Sewer Technical Services, 251 East McDowell Road, Phoenix, AZ., for shutdown of water services prior to transferring service to relocated waterlines. (See Section 610.9 of the Standard Specifications) A 72-hour advance notice is required.
- f. Measurement and payment for 12" water line relocation shall be per lump sum complete in place as shown on the Plans included tapping sleeves and valves, 45° bends, fittings and valve boxes.
- g. Measurement and payment for relocation of water services shall be per each complete in place as shown on the Plans.

.49 Water Used During Construction

- a. Measurement for Hydrostatic Tests, Flushing and Chlorination: The Contractor will be required to pay the City of Phoenix Water and Sewer Department for all water used during the construction of any project. The quantity of water used for all purposes including hydrostatic tests, flushing and chlorination of the pipeline shall be measured by the following methods or combination of methods.

The Contractor shall arrange for a fire hydrant meter to measure all water used on any project whenever possible. Unmetered water used for testing, flushing and chlorination shall be calculated on a cubic foot basis, using the volume per foot of pipe multiplied by the number of times the pipe is filled and by the total length of pipe installed for each hydrostatic test, flushing or chlorination procedure. If any additional testing, flushing or chlorination is required, because of failure to meet any of the above conditions, the volume of water used for each procedure shall be calculated as on the above basis for first procedure.

The final fill of the pipelines with replacement water shall not be charged to the Contractor since it remains in the system.

b. Measurement for Water Settling Trench Backfill.

1. Unmetered water used for settling trench backfill for small pipelines 12" and less in diameter shall be estimated at a volume of 2.66 cubic feet of water per lineal foot of trench settled.
2. Water used for settling trench backfill on pipelines 14" and larger, shall be metered by a fire hydrant meter, or other means approved by the City Engineer.

The cost of all water used in construction shall be included in the per lineal foot cost of the pipe installed.

Water rate cost schedule may be obtained from the Water and Sewer Department, Division of Water and Sewers Accounting.

.50 Channel Crossing Structures

This work consists of constructing reinforced concrete bridge structures for roadway crossing, approach slabs, pedestrian crossing and canal crossings over the Salt River Outfall Channel. All work shall be in conformance with the plans, applicable sections of the Standard Specifications and these special provisions.

- a. The limits for structural excavation are shown on the plans. Structural excavation shall be considered incidental to the lump sum payment for each structure and shall not be included in the volume calculated for channel excavation.
- b. The Contractor is advised that the canal crossing structures at Sta. 11 + 98.45 and Sta. 53 + 73.80 are SRVWUA aqueducts and the removal of the existing structure and gunite lining and construction of new structures must be done only during times when the canals are not in use by SRVWUA, otherwise the Contractor must make arrangements to maintain the canal flow. The Contractor shall coordinate his work at each of the canal crossing sites with SRVWUA. The removal

existing gunite canal lining, the replacement of gunite lining necessary to match to existing lining, and any earthwork or grading required for completing the work at each of the two canal crossings will be considered compensated for under the lump sum price for the specific structure shown in the proposal.

- c. Measurement and payment for each structure shall be per lump sum, complete and in place. Such payment will be full compensation for all labor and materials including gunite lining removal, structural excavation and backfill, grading, furnishing and placing reinforcing steel, concrete, gunite, haul, rail, fence or barrier, wood planking and other items called for on the plans, and detouring and maintenance of traffic. Such payment shall include any grading and gunite work required to complete and prepare the San Francisco canal crossings for service.

.51 Reinforced Concrete Channel Lining

This work shall consist of constructing reinforced concrete channel lining in conformance with the plans, the Standard Specifications and these special provisions.

a. Materials

1. Concrete for channel lining will conform to the following requirements:

Minimum thickness	4"
Maximum size aggregate	1½"
Minimum cement content	6 sacks per cubic yard
Maximum water cement ration	5½ gal. per sack of cement
Maximum slump	1½"
Entrained air: Average	5½%
Minimum	4½%
Maximum	7%
Minimum compressive strength, at	
7 days	1800 psi
28 days	3000 psi

The actual proportions of cement, fine aggregate, coarse aggregate and water in the concrete shall be determined by the Contractor and submitted to the Engineer for approval. The materials, source and proportions so approved shall constitute the "job mix" and no modification shall be made without prior approval of the Engineer.

2. Reinforcing steel shall be Grade 40.
3. Welded wire fabric shall conform to ASTM A82 and ASTM A185.
4. Expansion and contraction joints shall be as shown on plans.
5. Elastomeric sealant shall be Lion D200 Elastomeric asphalt sealant manufactured by the Lion Oil Company of El Dorado, Arkansas, or approved equal.
6. Flap valve weeps shall be as detailed on the plans and as further described in these Special Provisions.
7. Filter material shall be stone chips as specified in Table 716-2 of the Standard Specifications.

b. General Requirements

1. Subgrade shall be fine graded as required to achieve the surface tolerance and minimum pavement thickness specified. Subgrade in excavated areas shall not be compacted. Subgrade in embankment areas shall be of the material and compaction specified under Article .42 of these special provisions.
2. Subgrade surface shall be watered thoroughly just prior to placement of concrete lining. The concrete shall be well tamped and spaded or vibrated in place.
3. The finished surface shall receive a float finish, following which, a liquid membrane compound shall be applied at a rate of one gallon per 100 square feet. The finished lining shall be tested with a 10 foot straightedge, longitudinally and transversally along the surface. Any

deviation in excess of 1 inch shall be corrected at no additional cost to the City.

4. The finished surface shall be free of all honeycomb, rock pockets, or voids. Areas containing honeycomb, rock pockets, or voids shall be removed and replaced at the expense of the Contractor.
5. Section 505.6.2, Adverse Weather Concreting, of the Standard Specifications shall apply.
6. The method of placement of the contraction joints, expansion joints and flap valve weeps shall be approved by the Engineer.
7. A sample for strength test will be taken at random for each 50 c.y. of consecutively placed concrete or each 1/2 days pour whichever comes first.

c. Measurement and Payment

1. Measurement and payment for Reinforced Concrete Channel Lining shall be per linear foot as measured along the centerline of the channel.
2. Payment per linear foot shall be full compensation for all labor, materials, equipment and incidentals necessary to complete the reinforced concrete channel lining in place as detailed on the plans and specified herein, including all fine grading, concrete, reinforcing steel, finishing, curing, filter materials, expansion and contraction joints, and flap valve weeps.

d. Deficiency in Concrete Lining

For the purpose of determining acceptability and making adjustment in the contract price for thickness deficiency, the thickness of the concrete lining will be determined by average caliper measurements, made in accordance with the requirements of AASHTO T-148 on cores taken under the following conditions:

Cores will be taken by the Engineer at random locations, with one core taken per each 1000 square yards, or fraction thereof, of concrete lining placed in each days operation. The location of the

- cores will be determined by the Engineer and the measurement of the cores will be made by the Engineer and compared with the thickness required on the plans. Core diameters will be 4 inches minimum. The Contractor shall fill all coreholes to the satisfaction of the Engineer.

When a deficiency is found, two additional cores will be taken not closer than 100 feet apart nor closer than 100 feet to the original core, and the average of these three cores will be used to determine the amount of deficiency. Further cores may be taken by the Contractor if he so chooses, to determine the limits of the deficiency, and shall be at no additional cost to the City, but shall not be used in determining the average thickness of the pavement.

All cores will be checked for location of wire reinforcement. Reinforcement will be considered acceptable provided its location is as designated on the plans with a permissible variation of plus or minus 1.0 inches, as measured from the finished surface of the cores.

The accepted quantities of concrete lined channel will be paid for at the contract unit price, complete in place, except that an adjustment to the nearest cent, in the contract unit price will be made for the unit length when the average thickness of the core indicates a thickness deficiency of more than 1/4 inch but not more than 3/4 inch as shown in the following table. All concrete lining that is deficient by more than 3/4 inch will be rejected and shall be removed and replaced by the Contractor at his own expense.

<u>Deficiency in thickness, inches</u>	<u>Percent of Contract Unit Price allowed</u>
0 to 1/4	100
1/4 to 1/2	85
1/2 to 3/4	75
over 3/4	0

All associated coring costs will be paid for by the Contractor where thickness deficiencies result in a reduction in contract unit price.

.52 Concrete Spillway

This work shall consist of constructing concrete spillways of the size and at the locations called for on the plans and in conformance with the details shown on the plans, Section 340 of the Standard Specifications and these special provisions.

Measurement and payment for concrete spillway will be per square foot complete in place including all labor, materials and grading required to complete the work as called for.

.53 Gabion Lining

This work shall consist of constructing wire gabion baskets in accordance with the details shown on the plans, these specifications, and in reasonably close conformity with the lines and grades called for.

a. Materials

1. Gabions shall be Maccaferri gabions as manufactured by Maccaferri Gabions, Inc., of Williamsport, Maryland or approved equal.
2. Stone for gabion filler shall be approved by the Engineer and shall range in size from a minimum of 3 inches to a maximum of 12 inches, both measured in the greatest dimension. Stone shall be well graded throughout the range of sizes to minimize the enterstices between stones in place.
3. Filter Fabric shall be Mirafi 140 Fabric as manufactured by Fiber Industries, Inc., a subsidiary of Celanese Corp., or approved equal.

b. Construction Requirements

1. Filter Fabric - Filter fabric shall be placed under all gabions in the manner and at the locations shown on the plans. The surface to receive the fabric shall be free of obstructions, depressions and debris. The filter shall be loosely laid and not placed in a stretched condition. The strips shall be placed to provide a minimum 24 inches of overlap for each joint. On horizontal joints, the uphill strip shall overlap the downhill strip. On vertical joints, the upstream strip shall overlap the downstream strip. The fabric shall be protected at all times during construction from extensive exposure to sunlight.

2. Gabions - Construction of all gabion baskets shall be in accordance with the manufacturer's recommended procedures. Each row or tier of gabion baskets shall be reasonable straight and conforming to proper alignment and grade before filling the baskets. Gabion baskets utilizing a hexagonal mesh shall be stretched endwise approximately 5 percent before filling. Tie wires shall be installed in both directions horizontally at not more than 14 inch horizontal spacing. Layers of horizontal tie wires shall not exceed 14 inch vertical spacing. Each end of the tie wire shall be looped around at least 6 wires of the mesh of the gabion basket and tied or twisted securely. As an alternate to tie wires within gabions, additional diaphragms may be used. Diaphragm spacing, in this case, shall not exceed 18 inches unless shown otherwise on the plans or approved by the Engineer. Gabion filler shall be placed carefully and tamped or vibrated to insure compact placement with a minimum of voids between stones. The last layer in each gabion basket shall completely fill the gabion basket so the lid, when secured, will bear on the gabion filler. Gabion baskets shall be securely fastened to all adjacent gabion baskets at approximately 6 inch spacings.

c. Measurement and Payment

1. Measurement and payment for Gabions including Filter Fabric shall be per cubic yards complete in place.
2. Measurement and payment for excavation shall be per cubic yard of Channel Excavation as described elsewhere in these special provisions.
3. Grading and final dressing of slopes shall be considered incidental work.

.54 Waterline Construction

- a. A City of Phoenix Engineering Department permit will be required.
- b. Such other permits as are required will be secured from the appropriate agency.
- c. Prior to construction, the appropriate agency(ies) will be notified as required by the permit(s).

- d. Bedding is defined as that area from the bottom of the trench to one (1) foot over the top of the pipe.
- e. Backfill is defined as that area from one (1) foot over the top of the pipe to the existing surface.
- f. Bedding for all waterlines 12-inch diameter and under shall be Class "D" regardless of trench width and cover. Pipe shall be laid with support under the full length of the barrel with hand-excavated holes for couplings. An allowable alternate will be to lay pipe on three (3) inch mounds at the third points of each pipe section with a required bedding material of A.B.C., sand or Type "B" select material up to the spring line of the pipe and water settled in place prior to placement of remaining bedding and backfill; except, in those instances where the entire trench is filled with the same material, it may be placed in one lift and water settled.
- g. Backfill and bedding may be placed in one lift, except as otherwise restricted above.
- h. In locations other than the City of Phoenix right-of-way and/or easements:
 - 1. Bedding will be as specified above except in those instances where the other agencies' requirements are more restrictive.
 - 2. Construction of all work above the bedding will be in accordance with the appropriate agencies' requirements and City of Phoenix inspection will not be supplied unless requested by the agency.
- i. All waterlines will have a minimum cover of 48 inches over the top of the pipe to finish grade in major streets.
- j. In all locations other than major streets:
 - 1. Waterlines smaller than 12 inches shall have 36 inches of minimum cover over the top of the pipe from finish grade.

2. Waterlines 12 inches and larger shall have 48 inches of minimum cover over the top of the pipe from finish grade.
- k. All water service lines shall have a minimum cover of 36" under the finished grade of the new channel lining.
- l. Waterline relocation work under the new channel lining shall be set to the grades shown on the plans.

.55 Tapping Sleeves and Tapping Valves

a. Tapping Valves

All tapping valves shall conform to AWWA C-500, latest revision gate valves for ordinary service, modified as follows:

1. Tapping valves shall be of the double disc iron body, bronze mounted type designed to work equally well with pressure on either side of the gate, shall be non-rising stem type, and shall OPEN BY TURNING TO THE LEFT.
2. Tapping valves shall be constructed so that the bonnet and stem may be removed while the valve is closed and under the specified working pressure on either or both sides without undue leakage past either disc. Valves shall be equipped with "O" ring seals.
3. Tapping valves are to be considered as an integral part of the tapping sleeve and valve assembly. The tapping sleeve shall have the same size opening as the tapping valve.
4. Tapping valves shall have ends and seat rings of sufficient size to permit the use of full size cutters of either Mueller or Smith type tapping machines.
5. The discs and seat rings of the tapping valve shall be so constructed that the inside diameter of the rings is at least 3/16" larger than the nominal size of the valve. Seat rings shall be bronze and shall have a minimum seating surface area equal to that of a standard gate valve, with the discs proportionately larger to match.

6. The internal working parts of the valves of the same make and same size shall be interchangeable.
7. The inlet end of the tapping valve shall be flanged for bolting to the tapping sleeve. The face of the flanged end shall have a raised lip, to fit the recessed grooved surface of the tapping sleeve. This flanged end shall be in accordance with MSS SP-60, latest revision.
8. All valves shall be hub-end or have "Ring-Tite" or "Fluid-Tite" bells for Class 150 asbestos cement pipe, or mechanical joints to A.S.A. specification A-21.11. However, unless specifically stated on the call for bids, all valves furnished shall be hub-end.

b. Tapping Sleeves

1. Tapping sleeves shall be of extra heavy construction to provide resistance to line pressures. They shall be built in two halves for assembly around the main to be tapped.
2. The branch outlet shall have a flanged face for bolting to the tapping valve. The flanged face shall be in accordance with MSS. SP-60, latest revision.
3. The run end of the tapping sleeve shall be made with hub-ends or mechanical joint ends to accommodate Class 150, cast iron pipe or Class 150 asbestos cement pipe as specified in call for bids. However, unless specifically stated on the call for bids, all sleeves furnished to the City of Phoenix shall be hub-end.
4. The walls of the castings shall be extra heavy and reinforced for extra strength.
5. The inside diameter of the outlet branch shall be sufficiently larger than the nominal size to provide clearance for the full size cutters of the tapping machine.

6. Tapping sleeves shall be designed in accordance with either of the following criteria and either shall be acceptable:

(a) Sleeves as manufactured by Mueller, M & H Valve Company, and Pacific States as approved equal and shall be as follows:

Lead gaskets or gaskets of other suitable material shall be provided to form a watertight joint along the entire length of the sleeve. These gaskets shall be totally confined or compressed between ridges and/or grooves extending continuously for the full length of both halves of the sleeve casting.

Bolts shall be located close to the outside of the gaskets and closely spaced so as to exert sufficient pressure to form a watertight joint and to amply take care of any design stresses.

The number and size of these bolts shall be as specified in the table below or have an equivalent bolt area.

<u>LINE SIZE</u> (inches)	<u>BRANCH SIZE</u>	<u>MINIMUM NO. BOLTS</u> Lead Gaskets	<u>MINIMUM SIZE BOLTS</u>
3.4	3.4	6	3/4"
6 thru 16	3,4,6	10	3/4"
8 thru 12	8,10,12	12	3/4"
14,16	8,10,12	12	7/8"
14,16	14,16	16	7/8"
18,20,24	3,4,6,8	10	1"
18,20,24	10,12,14,16	14	1"
18,20,24	18,20,24	18	1"
		Mech. Joint	
3,4	3,4	6	3/4"
6,12	2,3,4,6	8	3/4"
12	8	10	3/4"
12	10,12	12	3/4"

(b) Sleeves manufactured by the Kennedy Valve Manufacturing Company, Incorporated, similar to "Squareseal," or approved equal and shall be designed as follows:

The sleeves shall have a rectangular "O" sealing ring preventing water from filling the sleeve. The ring shall be cemented at the factory into the groove of the outlet half of the sleeve. The sleeves shall be contoured to fit the type of pipe and diameter specified.

The back half of the sleeve shall have a direct pipe support consisting of synthetic elastomer bearing pads.

- (c) Sleeves manufactured by the Rich Valve Company similar to the "Rich Corey Improved Tapping Sleeve" or approved equal shall be designed as follows:

The sleeves shall have tapped outlet at least one pipe size smaller than existing water main and shall be of the "Corey" boltless type fabricated of cast iron and shall withstand a working pressure of 1000 psi. The sleeves shall be for use on cast iron pipe or asbestos cement pipe. The sleeve shall be fabricated in three parts, consisting of a back half, a front half, and a "shoe" which shall fit inside of the back half of the sleeve and shall be contoured to fit the type of pipe and diameter specified. The back half and the front half shall have interlocking type ears for use in assembling and installing on the pipe. The back half of the sleeve shall be provided with bosses of sufficient size to accommodate bolts used in adjusting the sleeve on the pipe.

Flanged Outlets: The flanged outlets shall conform in dimensions and drilling to ANST B16.1, Class 125, and shall have flat face with a smooth finish.

Gaskets: The O-Ring gaskets shall be Buna - N or neoprene rubber with a shore durometer hardness of between 55 and 60.

Bolts: The "shoe" shall be secured by Hex Head Non Corrosive bolts with a minimum of 3/4" diameter.

c. Drawings

Detail drawings of the tapping sleeves and the tapping valves must be provided with the bids submitted. The City reserves the right to waive any formality in bids and to consider quality, appearance and past performance experience in awarding orders.

d. Valve Information and Tests

1. The manufacturer's name, year of manufacture, the size of the valve and guaranteed working pressure shall be cast on each valve.
2. The City may test ten percent (10%) of all valves received. Failure of any of the valves tested to meet these specifications shall be deemed sufficient cause to reject the entire lot delivered.

.56 Ductile Iron Pipe and Fittings

a. General

1. All ductile iron pipe and fittings shall be new, of good quality, of such composition that the pipe and fittings are strong, tough, resilient, of even grain, and soft enough for satisfactory drilling and cutting. The pipe and fittings shall comply with the specifications hereinafter set forth.
2. The pipe and fittings shall be smooth and free from scales, lumps, blisters, sand holes, and defects of every nature. No plugging, filling, burning-in, or welding will be permitted.
3. All ductile pipe and fittings shall be cement lined in accordance with the latest AWWA Specification C-104 (A.N.S.I. A21-4). Lining shall be applied to the bare clean metal of the pipe or fittings.

4. All ductile iron pipe and fittings shall have push-on joints or mechanical joints, as specified, in accordance with the latest AWWA Specification C-111 (ANSI-A21.11).
5. Rubber gaskets for ductile iron pipe and fittings shall be in accordance with the latest AWWA Specification C-111 (ANSI-A21.11).

b. Ductile Iron Pipe

1. Ductile iron pipe shall be manufactured in accordance with the latest AWWA Specification C-151 (ANSI A21-51).
2. Nominal laying length shall be 18 feet.
3. Thickness class shall be 52.

c. Ductile Iron Fittings

1. All ductile iron fittings shall conform to the requirements of the latest AWWA C-110 (ANSI A21.10).

.57 Flape Valve Weep

a. Materials

1. Pipe for flap-valve weeps shall be rigid, unplasticized, PVC pipe conforming to ANSI/ASTM D 1785, schedule No. 40 pipe.
2. All other component parts of the flap-valve weeps which are designated as plastic on the plans shall conform to the same material requirements as the pipe in (1) above and shall be subject to approval by the Engineer.
3. All other materials for the flap-valve weeps shall be as prescribed on the plans and shall be good commercial quality approved by the Engineer.

b. Construction

1. Concrete-lining operations shall be completed before the flap-valve weep

assemblies are installed. The assemblies shall be held in a vertical position and pushed through the soft concrete in the proper position and elevation as shown on the drawing. The contractor's appliance for installing the flap-valve weeps shall be such that it will vibrate the weep pipe as it pushes it through the concrete and into the filter material without deviation from the vertical and without lateral displacement. The surface of the concrete at the flap-valve weep shall be smoothed and shaped immediately after the flap-valve weep has been placed, making sure that concrete fills all voids under and about the flange. The contractor shall take every precaution to prevent plugging of the pipe, and after the installation is completed, each flap-valve weep shall be backflushed with water before the concrete, forced into the slots during installation, becomes so hard that it cannot be washed out. The amount of water and method of backflushing shall be subject to the approval of the Engineer.

2. Flap-valve weeps shall be furnished and installed as shown on the drawings and as described above unless another method is approved by the contracting officer. The plastic companion flange and its appurtenances may be identical for all flap-valve weeps. The conical cap and companion flange for flap-valve weeps in drains shall be cemented to the pipe with solvent as recommended by the pipe manufacturer or formed with the pipe during manufacture. When placed, the flap-valve weeps shall be vertical and in the center of the trench as shown.

c. Measurement and Payment

Measurement and payment for furnishing and installing flap-valve weeps shall be considered incidental to the pay item for "Reinforced Concrete Channel Lining".

.58 Concrete Delivery

A maximum time of sixty (60) minutes shall be allowed to elapse after the sand and cement has been introduced into the transit mix truck until the material is placed. Any material not placed within this time frame shall be discarded at the Contractor's expense.

SRPD T.C. 7-1-77

Plans Ref No. 75032 (Tempe)

EXHIBIT A

NOTE: The Salt River Project maintains energized aerial electrical power lines in the immediate vicinity of this project. Do not consider these lines to be insulated. Construction personnel working in proximity to these lines are exposed to an extreme hazard from electrical shock. Contractors, their employees, and all other construction personnel working on this project must be warned of the danger and instructed to take adequate protective measures, including maintaining a minimum ten (10) feet clearance between the lines and all construction equipment and personnel (See: OSHA std. 1926.550(a)15). As an additional safety precaution, Contractors should also be instructed to call the Salt River Project at 267-9161 to arrange, if possible, to have these lines de-energized or relocated when the work reaches their immediate vicinity. The cost of such temporary arrangements would be borne by the Contractor. The District can often respond to such requests if two days' advance notice is given, but some situations may require up to 60 days' lead time for relocation or other arrangements.

EXHIBIT B

NOTE: The Salt River Project maintains certain energized, underground electrical power lines in the immediate vicinity of this project, and these lines have been noted herein as potential conflicts. These power lines represent an extreme hazard from electrical shock to any construction personnel or equipment coming in contact with them. Arizona law requires all parties planning excavations in public rights-of-way to contact all utility firms for location of their underground facilities. Contractors must be instructed to call the Blue Stake Center (263-1100) for such location service. Contractors, their employees, and all other personnel working near any underground power lines must be warned to take adequate protective measures. (See: OSHA std. 1926-651(a)). As an additional safety precaution, Contractors should also be instructed to call the Salt River Project at 267-9161 to arrange, if possible, to have these lines de-energized when the work reaches their immediate vicinity. The cost of such temporary arrangements would be borne by the Contractor. If de-energization is feasible, the Contractor must give the Salt River Project at least two days' advance notice of his requirement.

PROPOSAL FORM

Place Tempe, Arizona

Date March 18, 1980

Project No. 75032

Proposal of _____ (hereinafter called "Bidder")* a corporation, organized and existing under the laws of the State of _____,* a partnership, or an individual doing business as _____ to the City of Tempe, Arizona, (hereinafter called "Owner").

Gentlemen:

The Bidder, in compliance with your invitation for bids for the construction of Salt River Outfall Channel Project No. 75032, having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposed to furnish all labor, materials, and supplies, and to construct the project in accordance with the contract documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in written "Notice to Proceed" of the Owner and to fully complete the project within 300 consecutive calendar days thereafter as stipulated in the specifications. Bidder further agrees to pay as liquidated damages, the sum of \$ _____ for each consecutive calendar day thereafter as hereinafter provided for in the General Conditions of the Standard Specifications.

Bidder acknowledges receipt of the following addendum:

* Insert corporation, partnership or individual as applicable.

Bidder agrees to perform all the construction work described in the specifications and shown on the plans for the following unit prices:

<u>ITEM NO.</u>	<u>ESTIMATED QUANTITY</u>	<u>DESCRIPTION OF ITEM</u>	<u>UNIT PRICE</u>	<u>TOTAL COST</u>
1.	1 Job	Clearing and Grubbing		
(Per L.S.)			\$	\$
			(In words)*	(In figures)*
2.	1 Job	Remove 28" Dia. Pipe & Headwalls (72" Dia. Pipe to be salvaged)		
(Per L.S.)			\$	\$
3.	231 L.F.	Remove pipe 36" Dia. and smaller		
(Per L.F.)			\$	\$
4.	1 Job	Remove Pedestrian Crossing Sta. 44 + 22		
(Per L.S.)			\$	\$
5.	1 Job	Remove SRVWUA Aquaduct Sta. 53 + 74		
(Per L.S.)			\$	\$
6.	1 Job	Misc. Removal and other work		
(Per L.S.)			\$	\$
7.	1 Job	Relocate 12" Water line		
(Per L.S.)			\$	\$
8.	5 Ea.	Relocate Water Service		
(Per Ea.)			\$	\$
9.	47,300 C.Y.	Channel Excavation		
(Per C.Y.)			\$	\$

<u>ITEM NO.</u>	<u>ESTIMATED QUANTITY</u>	<u>DESCRIPTION OF ITEM</u>	<u>UNIT PRICE</u>	<u>TOTAL COST</u>
10.	2,000 C.Y.	Special Embankment		
	(per C.Y.)		\$	\$
		(In words)*	(In figures)*	
11.	900 S.Y.	Subgrade Preparation		
	(per S.Y.)		\$	\$
12.	590 S.Y.	Asphalt Surface (4" ACP, 4" ABC, 14" Select over prepared subgrade)		
	(Per S.Y.)		\$	\$
13.	22,175 S.Y.	Aggregate Surface (6" ABC over prepared subgrade)		
	(Per S.Y.)		\$	\$
14.	8 L.F.	Install 12" CMP, Type A, 16 Ga.		
	(Per L.F.)		\$	\$
15.	617 L.F.	Install 18" CMP, Type A, 16 Ga.		
	(Per L.F.)		\$	\$
16.	101 L.F.	Install 24" CMP, Type A, 16 Ga.		
	(Per L.F.)		\$	\$
17.	150 L.F.	Install Salvaged 72" Pipe		
	(Per L.F.)		\$	\$

<u>ITEM NO.</u>	<u>ESTIMATED QUANTITY</u>	<u>DESCRIPTION OF ITEM</u>	<u>UNIT PRICE</u>	<u>TOTAL COST</u>
18.	11 Ea.	Install 18" Drainage Gate		
	(Per Ea.)		\$	\$
19.	4 Ea.	Install 24" Drainage Gate		
	(Per Ea.)		\$	\$
20.	1 Ea.	Install Inlet Phx Std Dtl. 211		
	(Per Ea.)		\$	\$
21.	9,782 L.F.	Reinforced Concrete Channel Lining		
	(Per L.F.)		\$	\$
22.	1 Job	Cut-off Wall Sta 11 + 40		
	(Per L.S.)		\$	\$
23.	1 Job	Channel Crossing Sta. 11 + 98.45		
	(Per L.S.)		\$	\$
24.	1 Job	Channel Crossing Sta 12 + 48.16		
	(Per L.S.)		\$	\$
25.	1 Job	Channel Crossing Sta 44 + 22.49		
	(Per L.S.)		\$	\$

<u>ITEM NO.</u>	<u>ESTIMATED QUANTITY</u>	<u>DESCRIPTION OF ITEM</u>	<u>UNIT PRICE</u>	<u>TOTAL COST</u>
26.	1 Job	Channel Crossing Sta. 53 + 73.80		
(Per L.S.)			\$	\$
27.	8920 S.F.	Concrete Spillway		
(Per S.F.)			\$	\$
28.	545 C.Y.	Gabion Lining		
(Per C.Y.)			\$	\$
29.	564 L.F.	Bladed "V" Ditch		
(Per L.F.)			\$	\$
30.	39 Ea.	R/W Monument and Reference Post		
(Per Ea.)			\$	\$
31.	1 Job	Detour		
(Per Lump Sum)			\$	\$
32.	109 C.Y.	Riprap		
(Per C.Y.)			\$	\$
TOTAL OF BID			\$	\$

* In case of discrepancy, the amount shown in words shall govern.

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, and other direct and indirect costs, to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, bidder will execute the formal contract attached within 10 days and deliver a Surety Bond or Bonds as required by the General Conditions. The bid security attached in the sum of ten percent of the total amount bid (\$ _____) is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Respectfully submitted:

BY _____
(Title)

(Business Address and Zip Code)

(SEAL - if bid is by a corporation)

C O N T R A C T

THIS AGREEMENT, made and entered into this _____ day of _____, 19____
by and between the City of Tempe, a Municipal Corporation, organized and exist-
ing under and by virtue of the laws of the State of Arizona, party of the First
Part, hereinafter designated the Owner, and _____
of the City of _____, County of _____, and State of
_____, party of the Second Part, hereinafter designated
as the CONTRACTOR:

WITNESSETH: That said Contractor, for and in consideration of the sum to be
paid him by said Owner, in the manner, amount and at the time hereinafter
provided in the "Proposal" and of the other covenants and agreements herein
contained, and under the penalties expressed in the bonds hereto attached,
hereby agrees, for himself, his heirs, administrators, successors, and assigns
as follows:

ARTICLE I - SCOPE OF THE WORK: The Contractor shall furnish any and all plant,
materials, labor, construction equipment, services and transportation, required
for performing all work for the installation of the

SALT RIVER OUTFALL CHANNEL PHASE II
(48TH STREET DRAIN)
PROJECT NO. 75032

for the sum of _____ Dollars.

(\$ _____), and to construct the same and install the material therein
for the Owner, in a good and workmanlike and substantial manner and to the
satisfaction of the Owner or his properly authorized agents and strictly pur-
suant to and in conformity with the Specifications and Plans and other docu-
ments that may be made by the Owner through the Engineer or his properly author-
ized agents, as provided herein.

ARTICLE II - CONTRACT DOCUMENTS: The "Notice to Contractor", "Special Pro-
visions", "Maricopa Association of Governments Uniform Standard Specifications
for Public Works Construction", "City of Tempe Standard Details", "Proposal",
"Plans", together with "Bid Security", "Performance Bonds", "Payment Bond," and
Addenda thereto, if any.

ARTICLE III - TIME OF COMPLETION: The Contractor further covenants and agrees
at his own proper cost and expense, to do all work and furnish all plant,
materials, labor, construction equipment, services and transportation for
performing all of the work for the construction of said improvements and to
construct the same and install the material therein, as called for by this
Agreement free and clear in all claims, liens, and charges whatsoever, in
the manner and under the conditions specified within the time stated in the
Proposal.

Contract - continued

IN WITNESS WHEREOF, three (3) identical counter parts of this Contract, each of which shall be for all purposes, be deemed an original thereof, have been duly executed by the parties hereinabove named, on the date and year first herein written.

CITY OF TEMPE
a Municipal Corporation

ATTEST:

Name and Title

Authorized Officer

Official Title

(Corporate Seal)

APPROVED AS TO FORM:

City Attorney

Contractor-Party of the Second Part

Name and Title

ATTEST:

Name and Title

(Corporate Seal)

Witness: If Contractor is an Individual

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), are held and firmly
bound unto _____
(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
the Obligee, dated the _____ day of _____, 19____, to complete
Salt River Outfall Channel Phase II, (48th Street Drain) Project No. 75032

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 were copied at length herein.

The prevailing party or any party which recovers judgment 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 _____, 19__.

PRINCIPAL SEAL

BY: _____

SURETY SEAL

BY: _____

AGENCY OF RECORD

AGENCY ADDRESS

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 BE 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 _____

(hereinafter called the Oblige), 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
the Oblige, dated the _____ day of _____, 19_____,
to complete SALT RIVER OUTFALL CHANNEL PHASE II, (48th Street Drain) Project 75032

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 moneys 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 having been required of the said Principal in order to comply with the provisions of Title 34, Chapter 2, Article 2, of the Arizona Revised Statutes, all rights and remedies on this bond shall inure solely to such persons and shall be determined in accordance with the provisions, conditions and limitations of said Title, Chapter and Article, to the same extent as if they were copied at length herein.

The prevailing party or any party which recovers judgment 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 _____, 19____.

PRINCIPAL

SEAL

BY: _____

SURETY

SEAL

BY: _____

AGENCY OF RECORD

AGENCY ADDRESS

CITY OF TEMPE

CERTIFICATE OF INSURANCE

CITY OF TEMPE PROJECT NO. 75032

The _____ certified that the listed insurance policies have been issued on behalf of _____

Name of Insured: _____

Address of Insured: _____

It is further certified that the City of Tempe has been named as additional insured as is required under said contract and that the independent contractor's insurance is primary as to any claims resulting from the contract.

Required Insurance	Company(s) Name	Policy Number	Expiration Date	Minimum Limits Required
WORKERS COMPENSATION				Statutory
<u>GENERAL LIABILITY:</u> Comprehensive Form Premises/Operations Products/Completed Operations Contractual Broad Form Property Damage Independent Contractors				\$500,000.00 per occurrence Bodily Injury \$100,000.00 per occurrence Property Damage
<u>AUTOMOBILE LIABILITY</u> Owned/Non-owned				Same as Above
PROPERTY COVERAGE				See Below

When the project includes construction of a new or modification of an

existing building, property insurance shall be secured covering Fire, Extended Coverage and Vandalism and Malicious Mischief in an amount equal to the Contract amount less costs for any foundation, underground utilities and/or landscaping. The City of Tempe shall be named as additional insured.

Liability Policy Includes Coverage for:

- 1) a. Damage caused by blasting
b. Damage caused by collapse or structural injury.
c. Damage to underground utilities
- 2) Liability assumed in construction agreements and other types of contracts or agreements in effect in connection with insured operations.
- 3) All owned, hired or non-owned automotive equipment used in connection with the insured operation.

It is agreed that none of these policies will be cancelled or changed so as to affect this certificate until ten (10) days written notice of such cancellation or change has been delivered to the City of Tempe.

It is further agreed that:

- 1) These policies shall not expire until all work has been completed and the project has been accepted by the City of Tempe. (If a policy does not expire during the life of the Contract, a renewal Certificate of the required coverage must be sent to the City of Tempe not less than five (5) days prior to expiration date.)

This certificate is not valid unless countersigned by an authorized representative of the Insurance Company.

DATE: _____ COUNTERSIGNED BY: _____

SIGNATURE

ADDRESS

TELEPHONE NUMBER